3R - 19

REPORTS

DATE:

Feb 12, 2001

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

February 12, 2001

Mr. William C. Olson, Hydrologist
New Mexico Oil Conservation Division-NMOCD
Environmental Bureau
1220 St. Francis Drive
Santa Fe, New Mexico 87505

RECEIVED
FEB 14
OIL CONSERVATION DIVISION

Re: BP Amoco (formerly Amoco Production Company)
Groundwater Monitoring Report
Gallegos Canyon Unit (GCU) Com I # 181, Unit F, Sec. 34, T29N, R12W, NMPM
San Juan County, New Mexico

Dear Mr. Olson:

BP Amoco has retained Blagg Engineering, Inc. to conduct environmental monitoring and reclamation of groundwater at the GCU Com I # 181.

After conducting strictly groundwater monitoring since the first quarter of 1996, an air sparge system was installed in March-April, 2000 to aggressively remediate the remaining contamination identified at the site. The system was designed to treat soils and groundwater that had not been reclamated by other practical methods.

If you have any questions concerning this document, please contact either myself or Jeffrey C. Blagg at the address or phone number listed above. Thank you for your cooperation and assistance.

Respectfully submitted:
Blagg Engineering, Inc.

Nelson J. Velez
Staff Geologist

Attachment: Groundwater Report

cc: Mr. Denny Foust, Environmental Geologist, NMOCD District III Office, Aztec, NM
Mr. Buddy Shaw, Environmental Coordinator, BP Amoco, Farmington, NM (without lab reports)

NJV/njv GCU-181.CVL

BP AMOCO
GCU Com I #181
Se/4 Nw/4 Sec. 34, T29N, R12W

Monitor Well Installation Dates: **Jun. 22, '98, Jun. 21, '99, Dec. 3, '99, & Mar. 30, '00**
Air Sparge Installation Dates: **Mar. 29-30, '00, Apr.. 4, '00**

Background Information:

Blagg Engineering, Inc.'s (**BEI**) correspondence to the New Mexico Oil Conservation Division (**NMOCD**) dated March 18, 1996 and NMOCD's correspondence letter approving the sampling termination of all site monitor wells with the exception of MW # 7, WP #'s 10B, 32A, 41, 45, and 46 (*Figure 1 & 2*) are attached at the end of the text portion of this report. It was stipulated within the NMOCD's approval letter that the aforementioned wells were required to be sampled on a quarterly basis.

Four (4) separate reinstallation events, conducted by BEI, for WP-41, WP-45, and WP-46 had taken place between June, 1998 and June, 2000 due to landowner lessee utilizing the immediate area for irrigation and cultivating purposes. Specific details of the reinstallations can be review in the individual *Monitor Well Sampling Data* sheets within the *1996/1997-99/2000 MW Data With Lab Reports* tab headings.

An additional monitor well (MW # 47) was installed on March 30, 2000 for down gradient delineation purposes. All monitor well details can be review under the *Site Maps & Schematics* tab heading.

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells following US EPA: SW-846 protocol. The samples were collected using new disposable bailers and placed in new laboratory supplied forty (40) milliliter glass vials with teflon septa caps. Samples were analyzed for BTEX per US EPA Method 8021. Additional groundwater was collected and placed in laboratory supplied and cleaned 500 ml plastic containers and analyzed for general water quality per US EPA Method 600/4-79-020.

The samples were preserved cool (BTEX samples also preserved with mercuric chloride or hydrochloric acid) 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.

Groundwater Quality & Flow Direction Information:

As outlined in the following summary table, all **BTEX** constituents (benzene, toluene, ethylbenzene, and total xylenes) in MW # 7B, WP-10B, and WP-32A tested below New Mexico's Water Quality Control Commission (**NMWQCC**) regulatory standards for seven (7) consecutive sampling events (June, 1995 - December, 1996). Based on this fact, it was determined to terminate sampling in those wells according to BP Amoco's submitted groundwater management plan (dated October 22, 1996) and approved by NMOCD with letter dated February 7, 1997.

Monitor Well	Sample Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
7	6/5/95	2.1	33.1	375.8	12.9
	8/29/95	9.21	21.7	200	21.56
	11/20/95	8.52	25.1	47.0	28.28
	2/22/96	6.61	40.7	26.9	68.6
	6/3/96	5.9	ND	12.6	11.6
	9/16/96	4.46	7.47	13.1	15.45
	12/31/96	3.55	ND	9.48	3.69
10B	6/5/95	1.7	ND	ND	4.6
	8/29/95	1.24	1.04	0.77	2.43
	11/20/95	ND	0.63	0.63	1.86
	2/22/96	0.22	0.47	0.31	0.94
	6/3/96	ND	ND	ND	ND
	9/16/96	ND	ND	ND	ND
	12/31/96	ND	0.85	ND	ND
32A	6/5/95	3.2	ND	ND	2.8
	8/29/95	3.16	0.71	1.27	2.03
	11/20/95	0.78	0.57	0.75	ND
	2/22/96	0.4	0.41	0.45	0.57
	6/3/96	ND	ND	ND	ND
	9/16/96	0.67	ND	ND	ND
	12/31/96	0.59	0.79	ND	ND

NOTE: ND indicated non detect at detection limits, ppb indicates parts per billion.

In 1996, monitor wells WP-41, WP-45, and WP-46 were sampled on a quarterly basis. During this time frame, all three (3) wells contained two (2) or more BTEX constituents in excess of the NMWQCC's regulatory standards. Based on BP Amoco's NMOCD approved groundwater management plan, all three (3) monitor wells were then placed on an annual sampling schedule. During the June, 1999 sampling event, all BTEX constituents substantially decreased in these three (3) monitor wells. It is speculated that the irrigation (commence in the summer of 1998) in the immediate area created a dilution affect within the shallow groundwater and may have produced this condition. It was suggested by BEI to sample the monitor wells during the off-irrigation season in December, 1999 to verify BTEX concentrations. This testing found that BTEX values had increased above the NMWQCC's regulatory standards as seen previously. The following summary table discloses the BTEX levels reported within these three (3) monitor wells from June, 1996 to December, 1999.

Monitor Well	Sample Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
41	6/3/96	***36.2***	243	278	***5,115***
	9/16/96	***36.7***	253	271	***4,747***
	12/31/96	***69.0***	211	342	***5,369***
	6/25/97	***61.9***	17.2	388	***3,193***
41R	6/26/98	***1,070***	***940***	100	***11,910***
	6/22/99	***14.4***	82.2	58.2	401
	12/13/99	***313***	***1,830***	***936***	***6,080***

Monitor Well	Sample Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
45	6/3/96	***997***	658	435	***3,633***
	9/16/96	***352***	276	194	***1,126***
	12/31/96	***518***	215	217	***907***
	6/25/97	***1,796***	117	130	***787***
45R	6/26/98	***959***	129	10.4	***1,701***
	6/22/99	2.1	17.0	3.3	30.5
	12/13/99	***349***	***1,480***	663	***3,271***
46	6/3/96	***61.7***	***871***	666	***8,650***
	9/16/96	***44.7***	270	551	***4,080***
	12/31/96	***60.3***	***921***	611	***8,300***
	6/25/97	***292***	342	396	***4,850***
46R	6/26/98	***717***	***2,080***	137	***11,510***
	6/22/99	2.4	4.6	5.3	151.2
	12/13/99	***239***	437	236	***1,375***

NOTE: ppb indicates parts per billion, R indicates temporary well to replace prior well (destroyed by lessee).

The general chemistry laboratory data can be reviewed in the beginning of the *1996 MW Data With Lab Reports* tab heading section. All monitor wells tested [seven (7) total] reported total dissolve solids in excess of the NMWQCC's regulatory standards (1,000 mg/L). Chloride levels in five (5) monitor wells, namely WP-10B, WP-32A, WP-41, WP-45, and WP-46, also excess regulatory standards (250 mg/L) during either the June, 1996 or September, 1996 sampling event.

Groundwater contour maps of relative water table elevations for sample events with sufficient data is included within the *Groundwater Contour Maps* tab heading. The general flow direction tends to be in the northwest direction, but has occasionally veered north.

Reclamation System:

An air sparge reclamation system was installed **March-April, 2000**. BEI utilized a convention drill rig to place the top screen of each air sparge point exactly four (4) feet below the predetermined groundwater gradient derived from water measurements collected on December 13, 1999 from the site monitor wells. *Figure 3* shows the reclamation system layout with a twenty (20) foot radius of influence capability from each air sparge point. *Figure 4* illustrates the construction and completion of an individual air sparge point. Finally, boring logs for all air sparge points can be reviewed within the *Site Maps & Schematics* tab heading.

Since the start up of the system (end of April, 2000), the analytical data indicates that groundwater BTEX contamination has been remediated below NMWQCC standards for all four (4) site monitor wells currently being monitored. The following summary table discloses the laboratory results since the reclamation system start up.

Monitor Well	Sample Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
41R	6/13/00	ND	57	57	2320
	8/30/00	ND	ND	5.1	629
	11/29/00	ND	ND	ND	ND
45R	6/26/00	9.2	9.6	5.3	11
	8/29/00	ND	ND	ND	ND
	11/29/00	ND	ND	0.8	234

Monitor Well	Sample Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
46R	6/13/00	6.6	34	26	96
	8/30/00	2.7	4.2	16	41
	11/29/00	ND	ND	2.6	8.2
47	4/17/00	13.0	220	54	225
	6/12/00	ND	ND	100	1040
	8/30/00	ND	ND	35	154
	11/29/00	ND	2.6	15	40.6

NOTE: ND indicated non detect at detection limits, ppb indicates parts per billion.

Summary and Recommendations:

It appears that the air sparge system is effectively remediating the remaining groundwater contamination identified at the site.

Based on the enclosed documentation, the following recommendations are made for future monitoring at the site.

1. Resample WP-10B, WP-32A, MW-41R, MW-45R, and MW-46R for chloride to validate the results reported from the June & September, 1996 sampling events.

2. Resample MW-7, WP-10B, WP-32A, MW-41R, MW-45R, and MW-46R for total dissolved solids to validate the results reported from the June & September, 1996 sampling events.

3. Install an additional monitor well up gradient of all previously identified groundwater impact areas to determine the background total dissolved solids in the vicinity.

4. Continue quarterly sampling of MW-41R, MW-45R, MW-46R, and MW-47 for BTEX until four (4) consecutive sampling events of below NMWQCC's regulatory standards have been attained.

NJV/njv

181-GW.rpt

BLAGG ENGINEERING, INC.

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

March 18, 1996

Mr. William C. Olson
Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Groundwater Sampling
Amoco GCU Com I 181 Well Location
San Juan County, New Mexico
Unit F, Section 34, T29N, R12W

Dear Mr. Olson:

On behalf of Amoco Production Company, Blagg Engineering, Inc. would like to propose a change in groundwater sampling at the above referenced Amoco well location. In reference to the latest groundwater sampling report dated February 27, 1996, it is proposed to eliminate groundwater sampling at all groundwater monitor well locations except WP #41 and MW #7. In addition, it is proposed to install two additional wellpoints in the area of WP #41 to further delineate remaining groundwater contamination in this area. Wellpoints #45 and #46 would be installed in the areas noted on the attached Figure 1.

Soil remediation has been completed in the area with all composted soils having been previously sampled and thin spread on surrounding farmland. Future sampling of site groundwater monitoring wells is deemed unnecessary except in the small remaining area of contamination in the area of WP #41, and MW #7 where sampling has shown Benzene levels just below NM water quality allowable concentrations.

If you have any further questions, or we can be of assistance in any other matters, please contact Blagg Engineering at 632-1199.

Respectfully submitted,
BLAGG ENGINEERING, INC.

Robert E. O'Neill

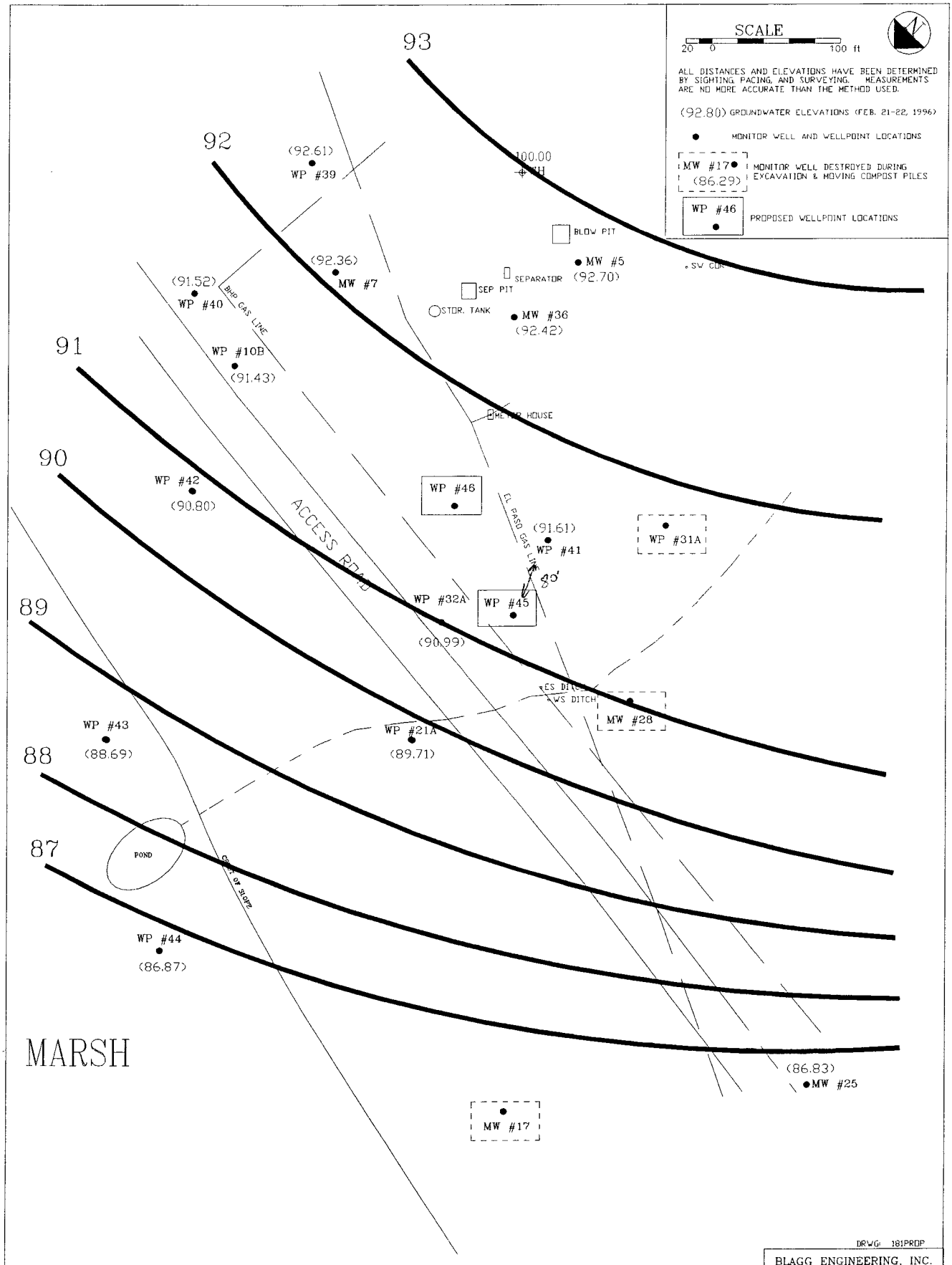
Robert E. O'Neill, M.S.
Civil engineering, Environmental

Attachments: Figure 1 - Site Diagram

xc: Buddy Shaw, Amoco
Denny Foust, NMOCD Aztec Office

REO/reo

MAR96-WO.PRP



DRWG: 181PROP

AMOCO PRODUCTION COMPANY GCU COM I 181 SEC. 34 TWP 29N RNG 12W SAN JUAN COUNTY, NEW MEXICO	WELL LOCATIONS & GROUNDWATER CONTOURS	FIGURE: 1 REVISED: 3/18/96 REO PRJ MGR: REO	BLAGG ENGINEERING, INC. P.O. BOX 87 BLOOMFIELD, NM 87413 PHONE: 632-1199 FAX: 632-3903

REC'D
5-14-96

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 10, 1996

START 13
DROP 9
ADD 2
6 LEFT

5-20-96 BUDDY SAYS PROCEED

5-22-96 WELLS INSPECTED

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-149

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

RE: GROUND WATER MONITORING
AMOCO GCU-181 WELL SITE

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has reviewed Amoco's March 18, 1996 "GROUNDWATER SAMPLING, AMOCO GCU-181 WELL LOCATION, SAN JUAN COUNTY, NEW MEXICO, UNIT F, SECTION 34, T29N, R12W" which was submitted on behalf of Amoco by their consultant Blagg Engineering, Inc. This document contains Amoco's proposal to install 2 additional well points and to modify the ground water sampling program for the site.

The above referenced plan is approved with the following conditions:

1. The ground water from monitor wells MW-7, MW-10B, MW-32A, MW-41, MW-45 and MW-46 will be sampled and analyzed quarterly for benzene, ethylbenzene, toluene, xylene (BTEX), total dissolved solids (TDS) and major cations and anions using appropriate EPA methods.

2. Amoco will submit an annual report on the monitoring activities to the OCD by February 2 each year. The annual report will contain:

   a. A description of all monitoring and remedial activities which have occurred including conclusions and recommendations.

   b. A summary of all past and present quarterly laboratory analytic results of ground water quality sampling and copies of the laboratory analyses.

   c. Quarterly water table elevation maps using the water table elevation of ground water in all site monitor wells.

3. Amoco will notify the OCD at least 48 hours in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

4. All original documents will be submitted to the OCD Santa Fe Office with copies provided to the OCD Aztec Office.

Please be advised that OCD approval does not relieve Amoco of liability if the remedial actions fail to adequately remediate contamination at the site, or if contamination exists which is beyond the scope of the plan. In addition, OCD approval does not relieve Amoco of responsibility for compliance with any other federal, state or local laws and/or regulations.

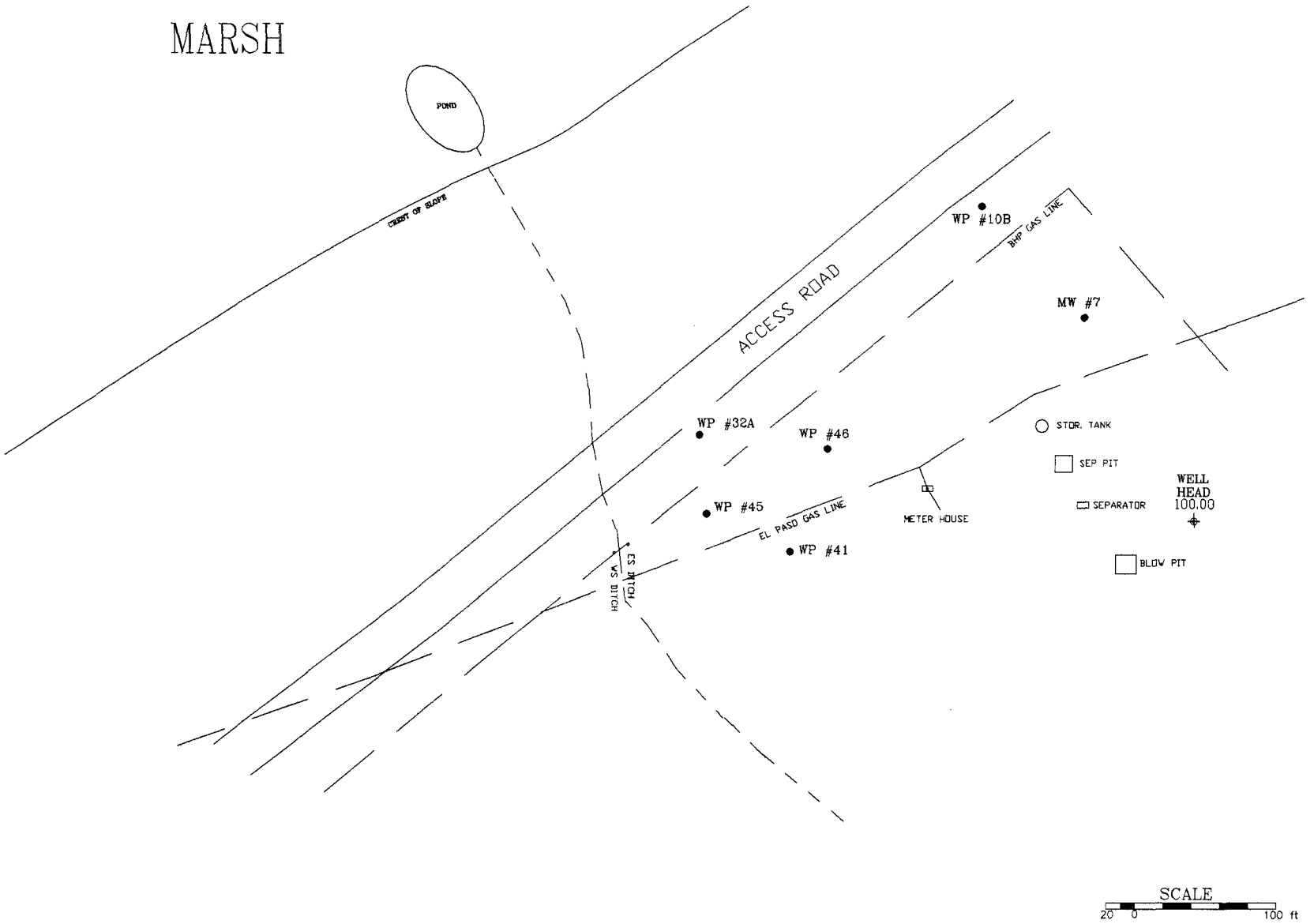
If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

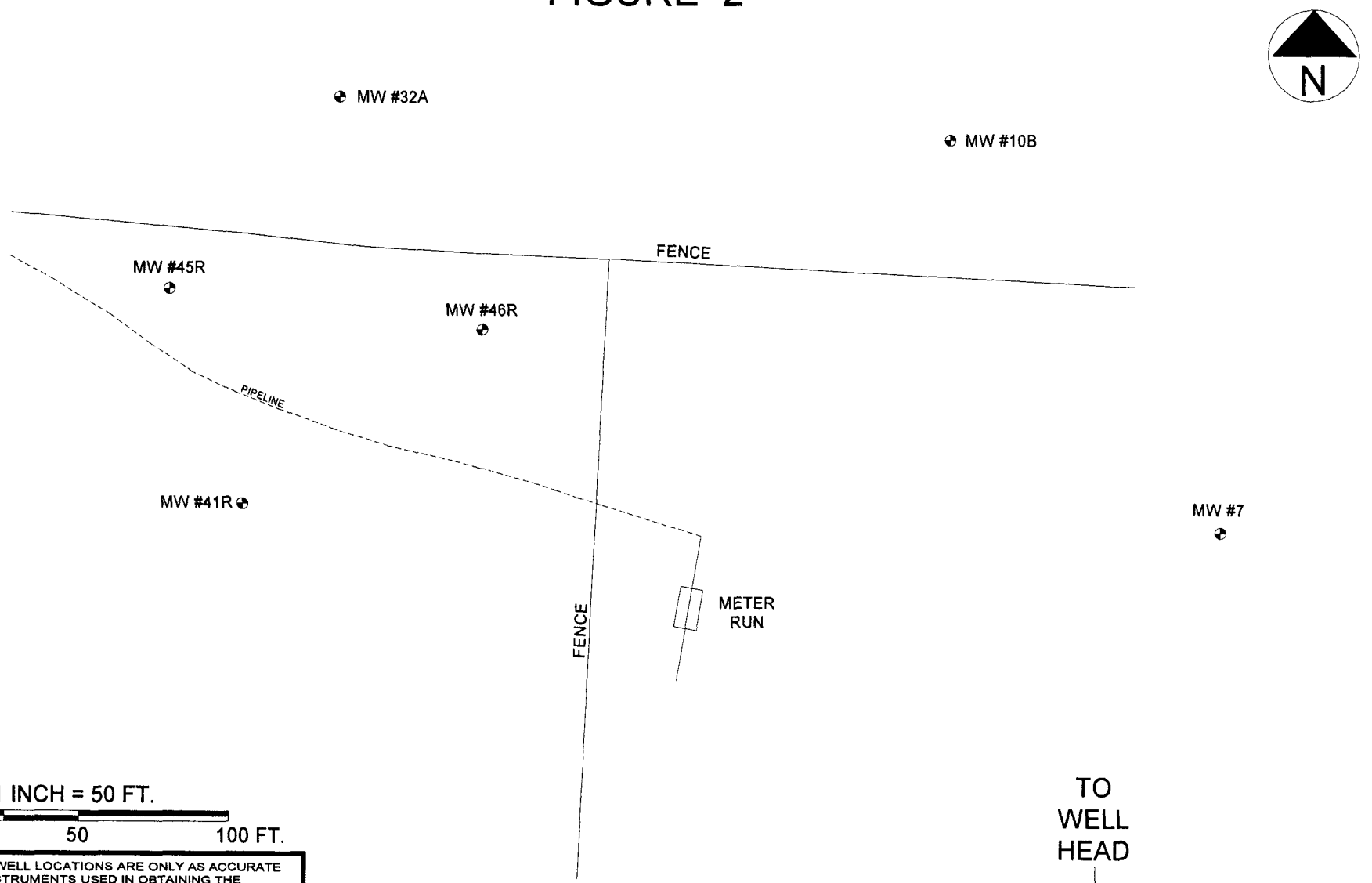
xc: OCD Aztec Office
Robert E. O'Neill, Blagg Engineering, Inc.

FIGURE 1



AMOCO PRODUCTION COMPANY GCU COM I 181 UNIT F, SEC. 34 T29N, R12W, NMPM SAN JUAN COUNTY, NEW MEXICO	SITE MAP	REVISED: 2/06/01 NJV PRJ MGR: REO FILENAME: 0696-SM.SKD	BLAGG ENGINEERING, INC. P.O. BOX 87 BLOOMFIELD, NM 87413 PHONE: 632-1199 FAX: 632-3903	ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING, AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED.

FIGURE 2



BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

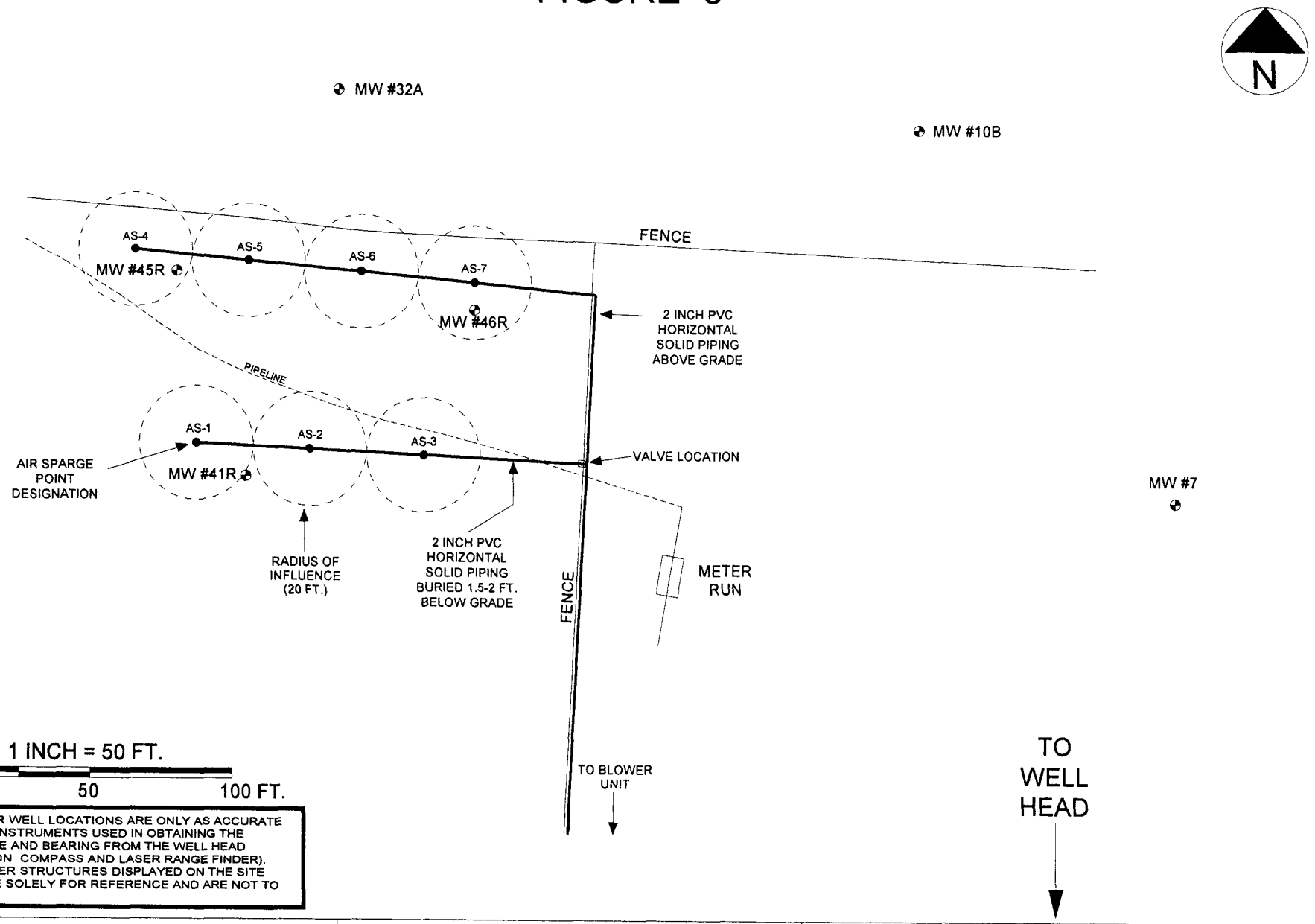
DRAWN BY: NJV

FILENAME: 181-SM.SKF

SITE MAP

05/98

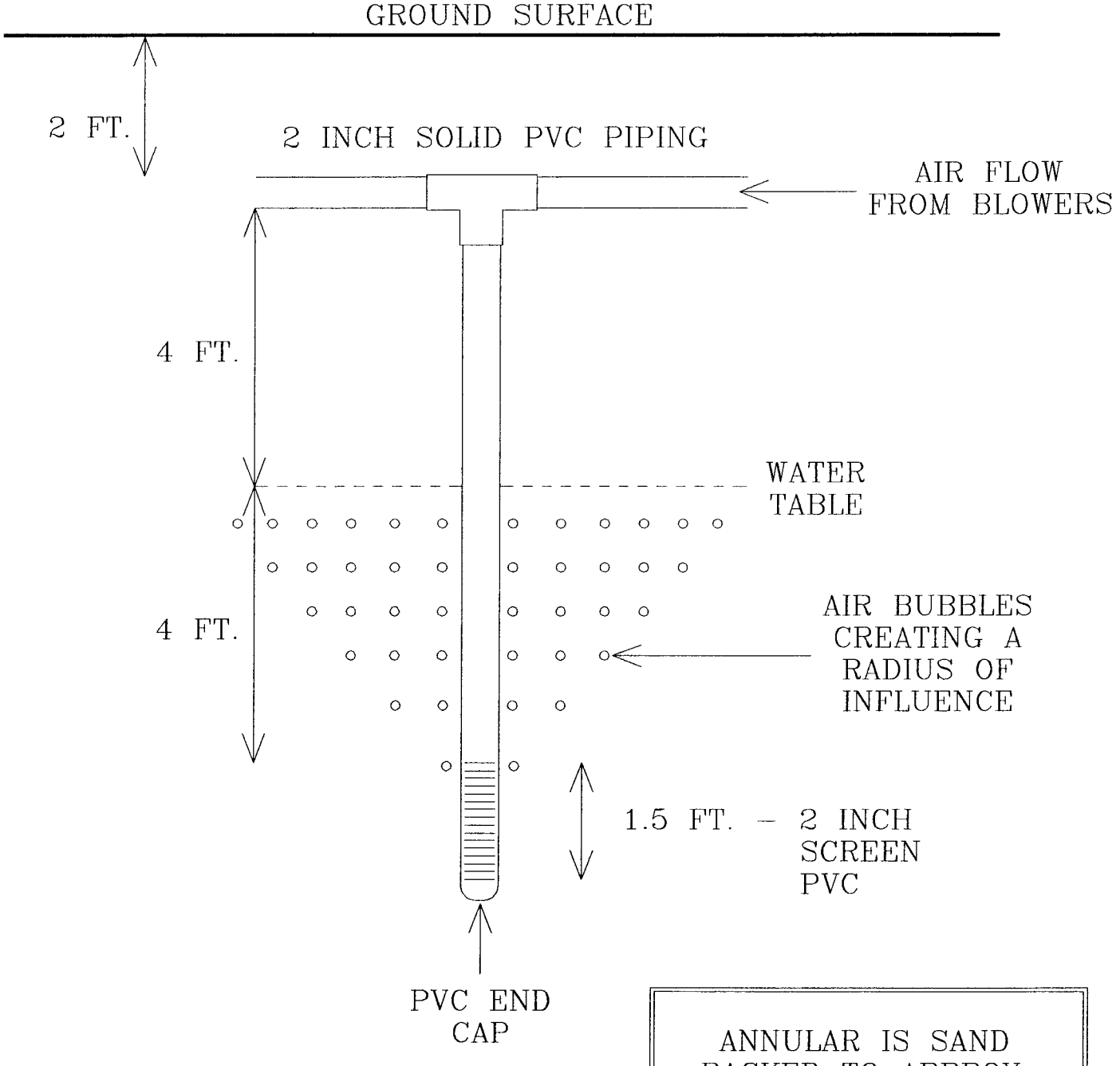
FIGURE 3



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.

BP AMOCO GCU COM I #181 SE/4 NW/4 SEC. 34, T29N, R12W 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: RECLAMATION DRAWN BY: NJV FILENAME: 181-RS.SKF	AIR SPARGE SYSTEM LAYOUT 03/00

FIGURE 4



ANNULAR IS SAND PACKED TO APPROX. 2 FT. ABOVE WATER TABLE, THEN COMPLETED WITH BENTONITE CHIPS.

BP AMOCO GCU COM I # 181 SE/4 NW/4 SEC. 34, T29N, R12W 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: RECLAM. SYS. DRAWN BY: NJV FILENAME: ASP-TEMP REVISED: 2/06/01 NJV	AIR SPARGE POINT 3/00

BLAGG ENGINEERING, Inc.

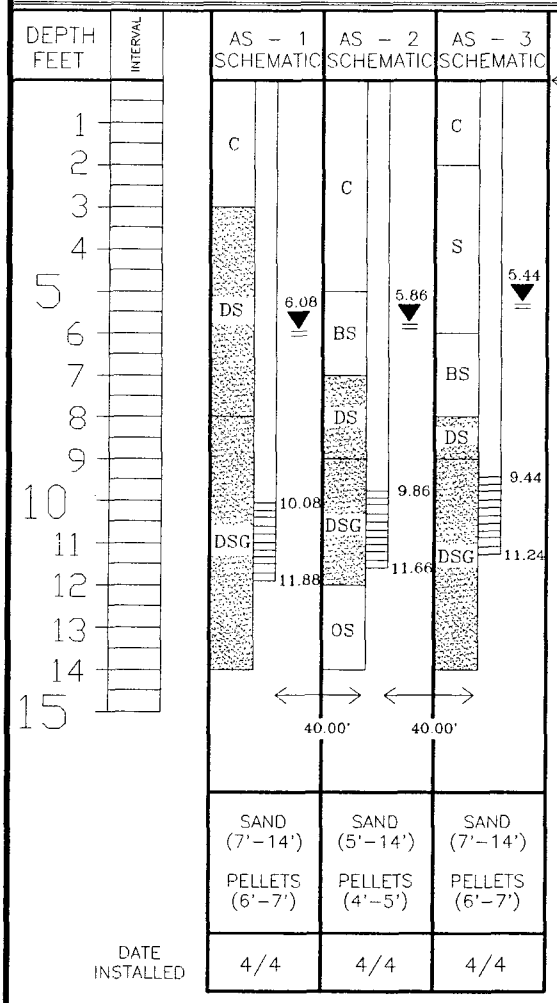
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 2

LOCATION NAME:	GCU COM I # 181
CLIENT:	BP AMOCO
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 4/2/00
DATE FINISHED 4/2/00
OPERATOR..... DE
PREPARED BY NJV



LEGEND

AS-1 = AIR SPARGE POINT DESIGNATION.
S = MOD. YELL. BROWN NON COHESIVE SAND.
C = DK. YELL. ORANGE SLIGHTLY TO PLASTIC CLAY.
BS = BROWNISH BLACK SAND WITH SLIGHT HC ODOR.
OS = OLIVE GRAY SAND.
DS = MED. GRAY TO BLACK SAND WITH STRONG HC ODOR.
DSG = MED. GRAY TO BLACK SAND AND GRAVEL WITH STRONG HC ODOR.

▼ = INDICATES APPROX. WATER TABLE DEPTH.

DRAWING: 181-AS-2	DATE: 4/5/00	DWN BY: NJV

BLAGG ENGINEERING, Inc.

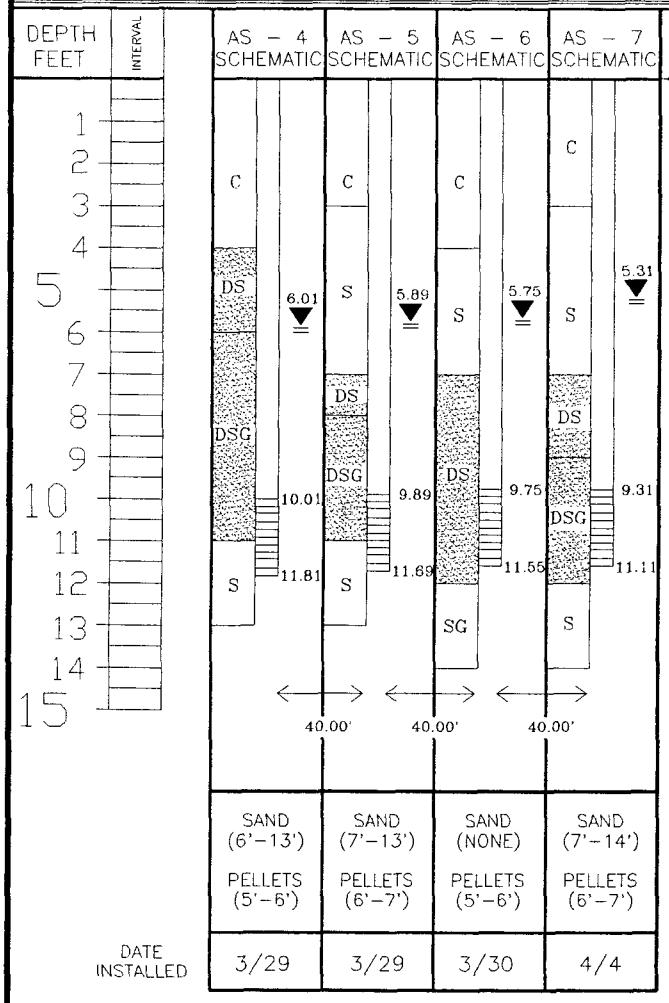
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 1

LOCATION NAME:	GCU COM I # 181
CLIENT:	BP AMOCO
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 3/29/00
DATE FINISHED 4/4/00
OPERATOR..... DE
PREPARED BY NJV



	AS-4	AS-5	AS-6	AS-7
	SAND (6'-13') PELLETS (5'-6')	SAND (7'-13') PELLETS (6'-7')	SAND (NONE) PELLETS (5'-6')	SAND (7'-14') PELLETS (6'-7')
DATE INSTALLED	3/29	3/29	3/30	4/4

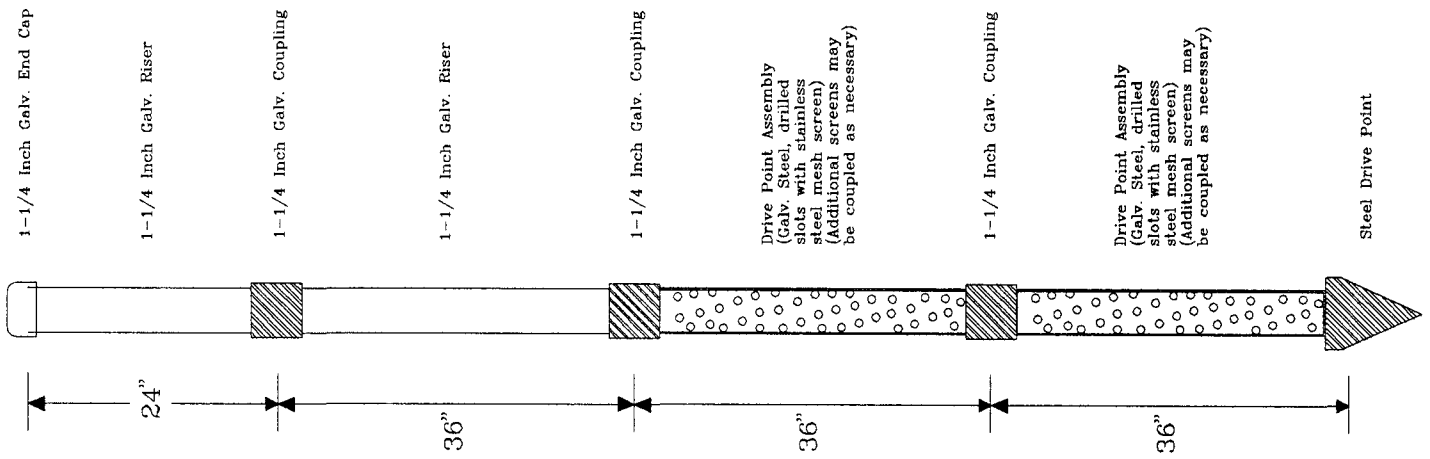
LEGEND

AS-4 = AIR SPARGE POINT DESIGNATION.
S = MOD. YELL. BROWN NON COHESIVE SAND.
C = DK. YELL. ORANGE SLIGHTLY TO PLASTIC CLAY.
DS = MED. GRAY TO BLACK SAND WITH STRONG HC ODOR.
DSG = MED. GRAY TO BLACK SAND AND GRAVEL WITH STRONG HC ODOR.

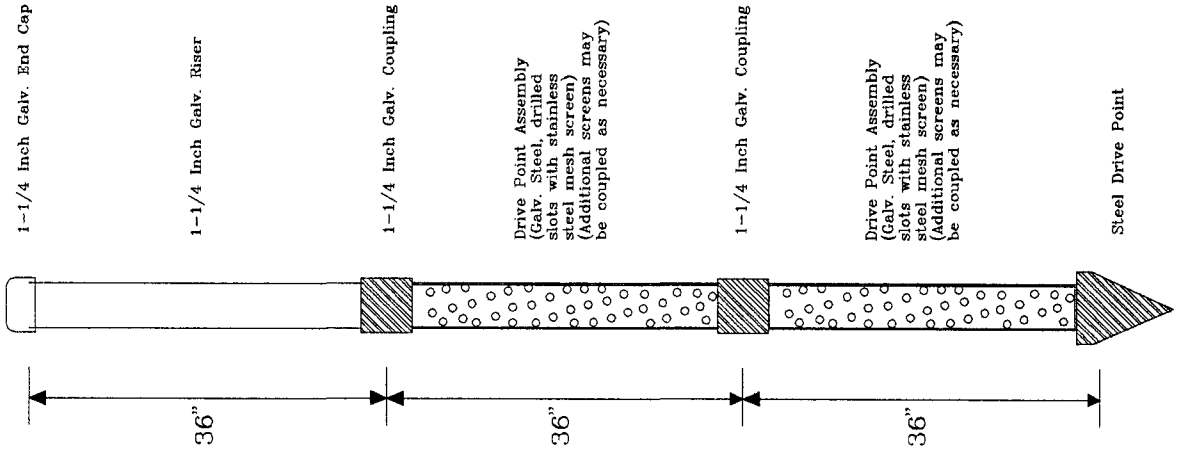
▼ = INDICATES APPROX. WATER TABLE DEPTH.

DRAWING: 181-AS-1	DATE: 4/5/00	DWN BY: NJV

WP–41



WP–10B, WP–32A,
WP–45, WP–46



BP AMOCO

GCU COM I #181

SIMPLISTIC DRIVE POINT

CONSTRUCTION & COMPLETION

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

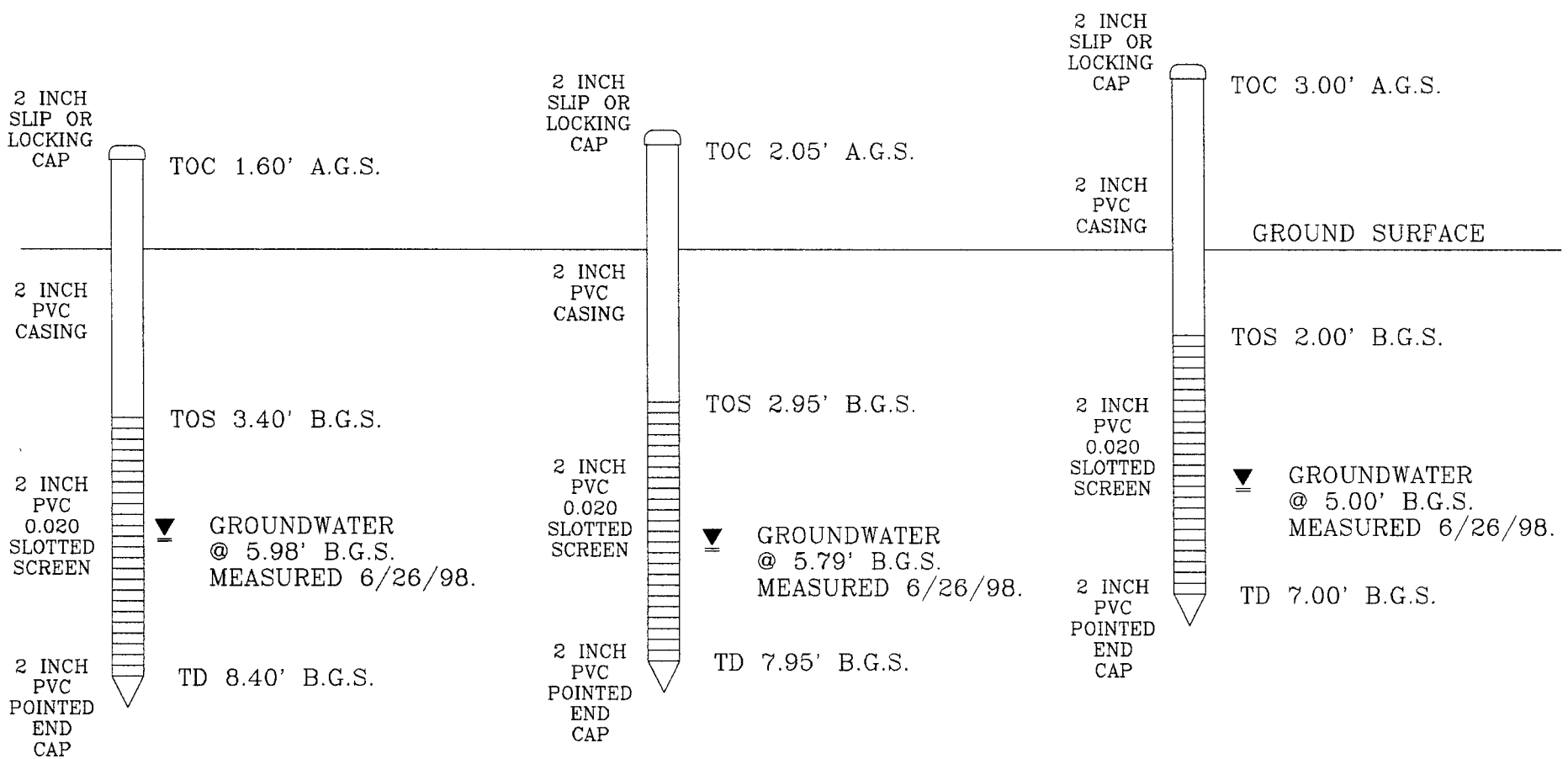
PHONE: (505) 632-1199

PROJECT: MW SAMPLING

REVISED BY: NJV

DATE: DEC. '96

FILENAME: 181-DP.SKD



INSTALLED USING BLAGG ENGINEERING, INC.'S MOBILE DRILL RIG WITH 3.75 INCH SOLID AUGERS. PLACED 2 INCH PVC WITHIN COMPLETED BORING AND THEN FILLED REMAINING ANNULAR WITH SILICA SAND.

TOC = TOP OF CASING
TOS = TOP OF SCREEN
TD = TOTAL DEPTH
AGS = ABOVE GROUND SURFACE
BGS = BELOW GROUND SURFACE

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

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: MWDETAIL.SKD

INSTALLED: 6/22/98

MW DETAILS

06/98

MONITOR WELL #47

CROSS TIMBERS OIL COMPANY

GCU COM I # 181

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

INSTALLED: MAR. '00

FILENAME: MW-47

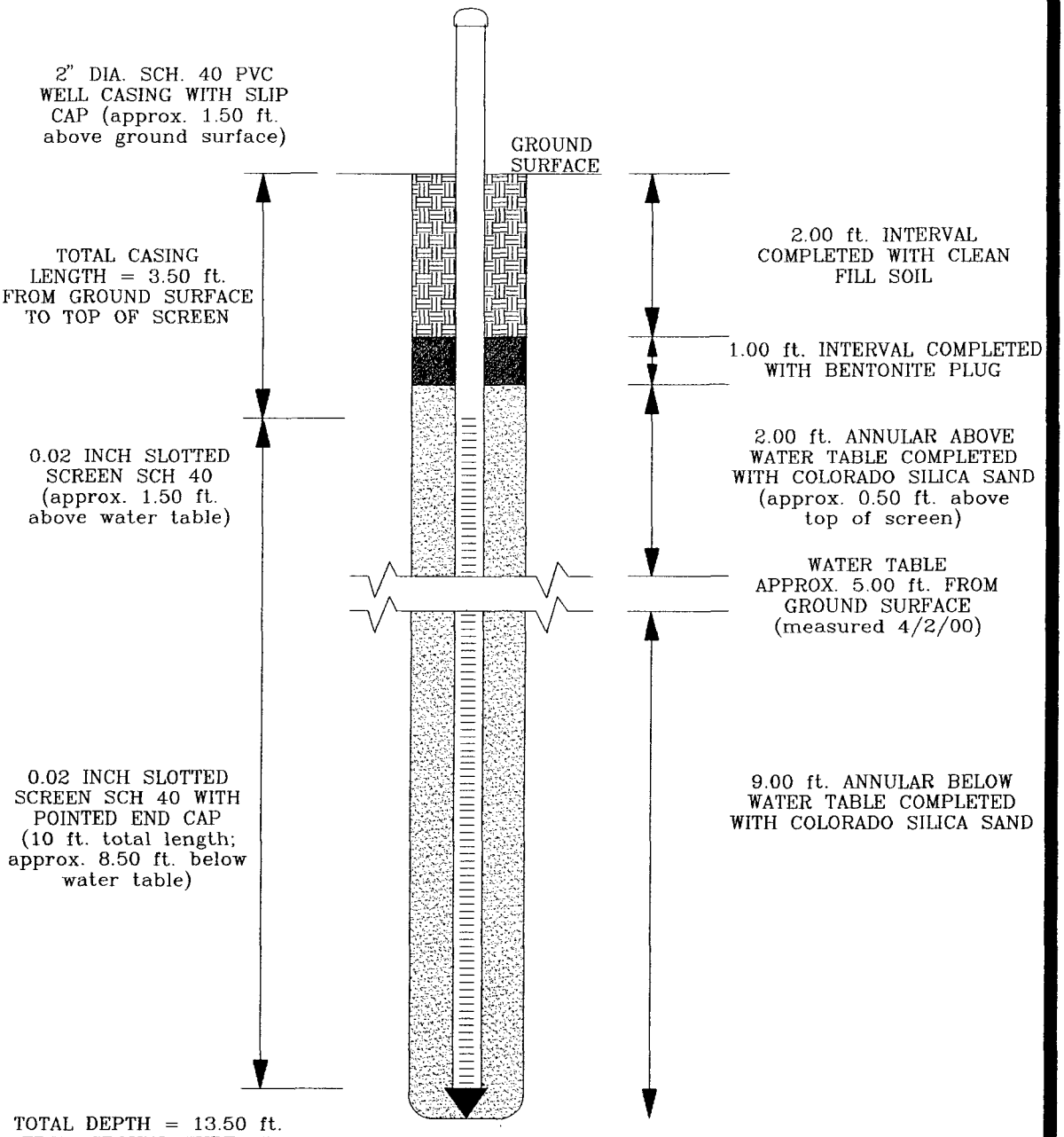
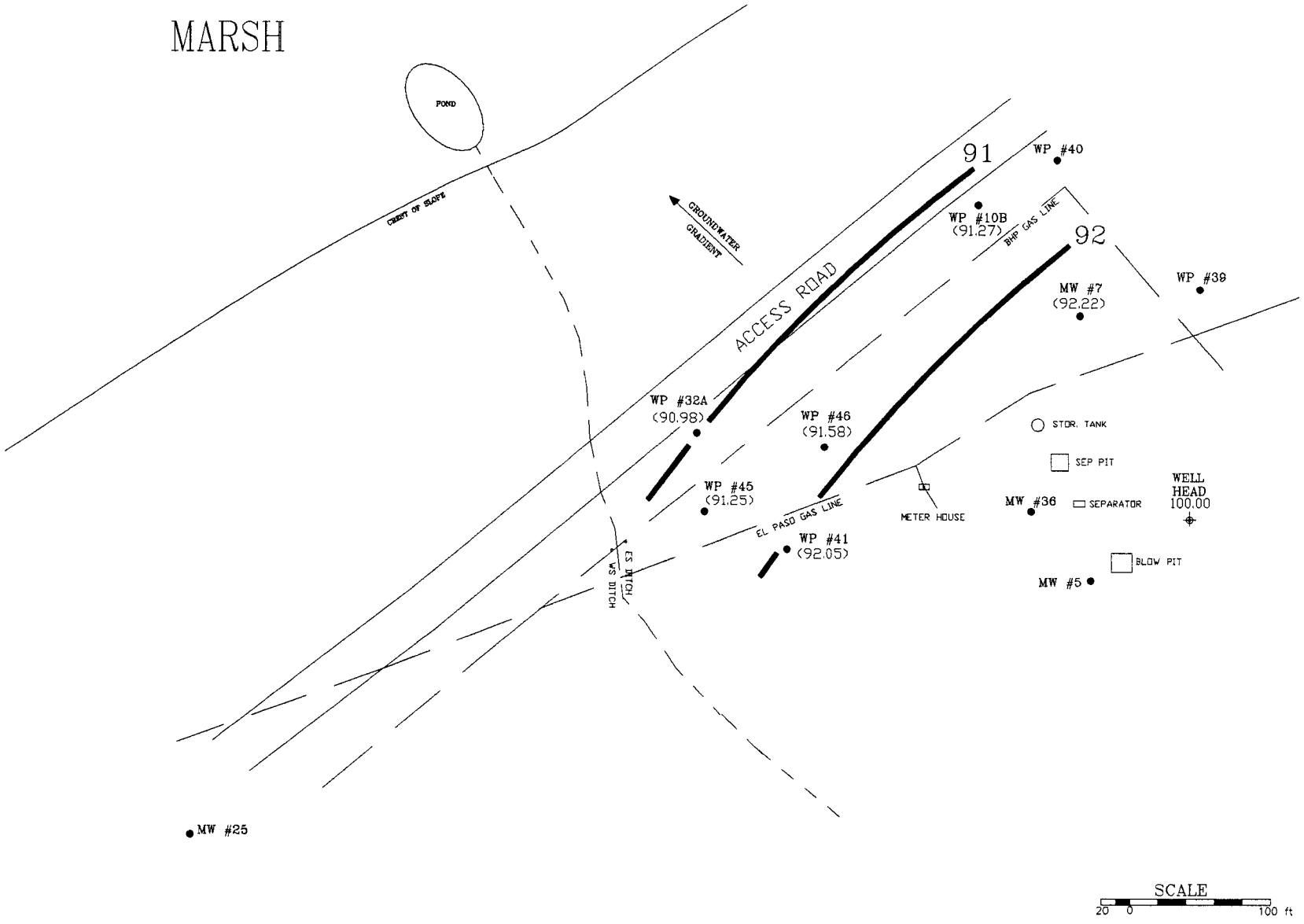
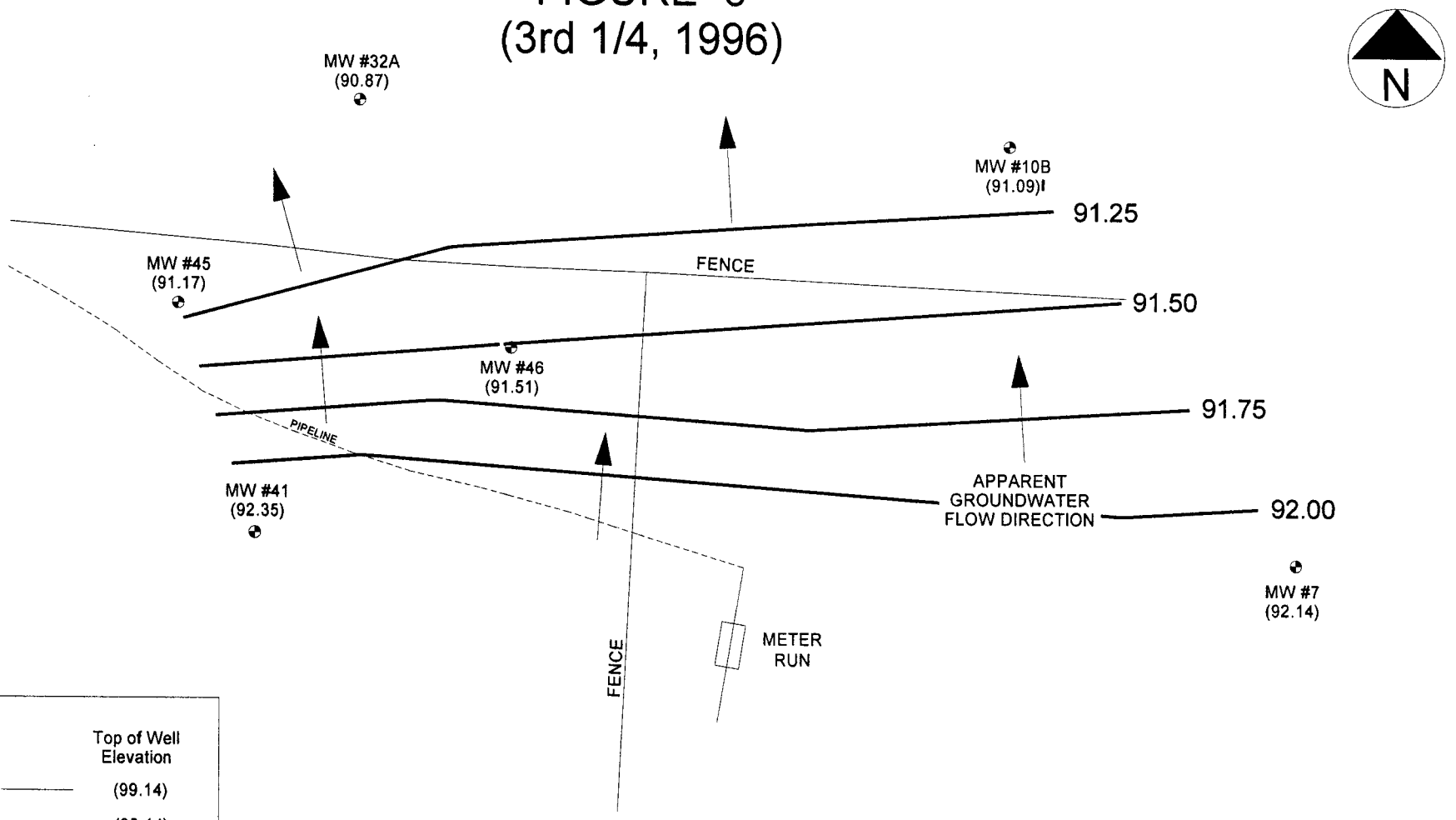


FIGURE 5
(2nd 1/4, 1996)



AMOCO PRODUCTION COMPANY GCU COM I 181 UNIT F, SEC. 34 T29N, R12W, NMPM SAN JUAN COUNTY, NEW MEXICO	WELL LOCATION & GROUNDWATER CONTOURS	REVISED: 6/28/97 NJV PRJ MGR: REO FILENAME: 0696-GW.SKD	BLAGG ENGINEERING, INC. P.O. BOX 87 BLOOMFIELD, NM 87413 PHONE: 632-1199 FAX: 632-3903	ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING, AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED. (92.80) GROUNDWATER ELEVATIONS (JUNE 3, 1996) ● MONITOR WELL AND WELLPOINT LOCATIONS

FIGURE 6
(3rd 1/4, 1996)



	Top of Well Elevation
MW #7	(99.14)
MW #10B	(98.14)
MW #41	(101.02)
MW #45	(97.95)
MW #46	(97.95)
MW #32A	(97.85)

MW #41 (92.35) Groundwater Elevation as of 09/16/96.

1 INCH = 50 FT.

0 50 100 FT.

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.

TO WELL HEAD

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

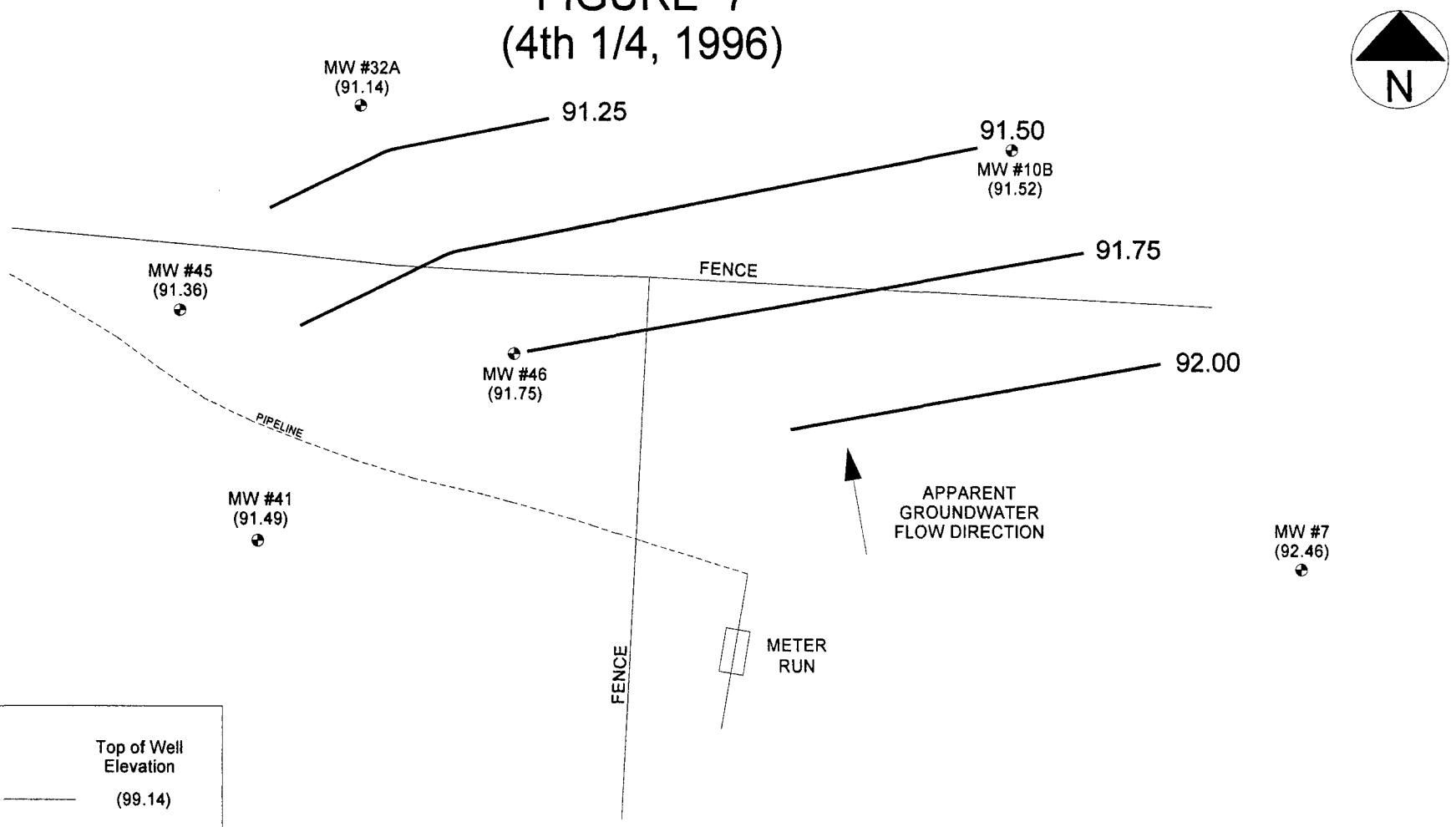
DRAWN BY: NJV

FILENAME: 09-16-GW.SKF

GROUNDWATER GRADIENT MAP

09/96

FIGURE 7
(4th 1/4, 1996)



	Top of Well Elevation
MW #7	(99.14)
MW #10B	(98.14)
MW #41	(101.02)
MW #45	(97.95)
MW #46	(97.95)
MW #32A	(97.85)

MW #41 (91.49) Groundwater Elevation as of 12/31/96.

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.

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

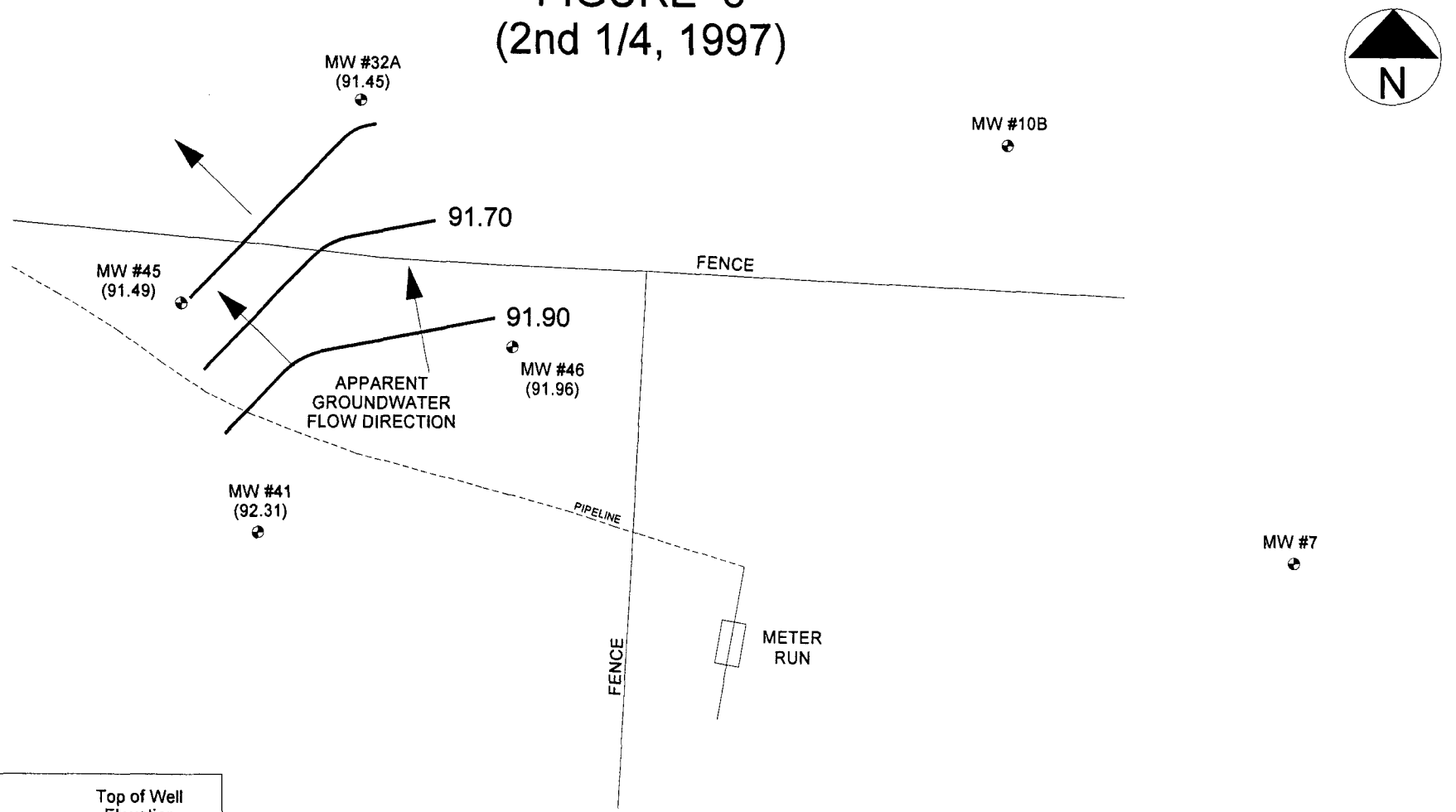
DRAWN BY: NJV

FILENAME: 12-31-GW.SKF

GROUNDWATER GRADIENT MAP

12/96

FIGURE 8
(2nd 1/4, 1997)



	Top of Well Elevation
MW #41	(101.02)
MW #45	(97.95)
MW #46	(97.95)
MW #32A	(97.85)

MW #41 (92.21) Groundwater Elevation as of 06/25/97.

1 INCH = 50 FT.

0 50 100 FT.

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.

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

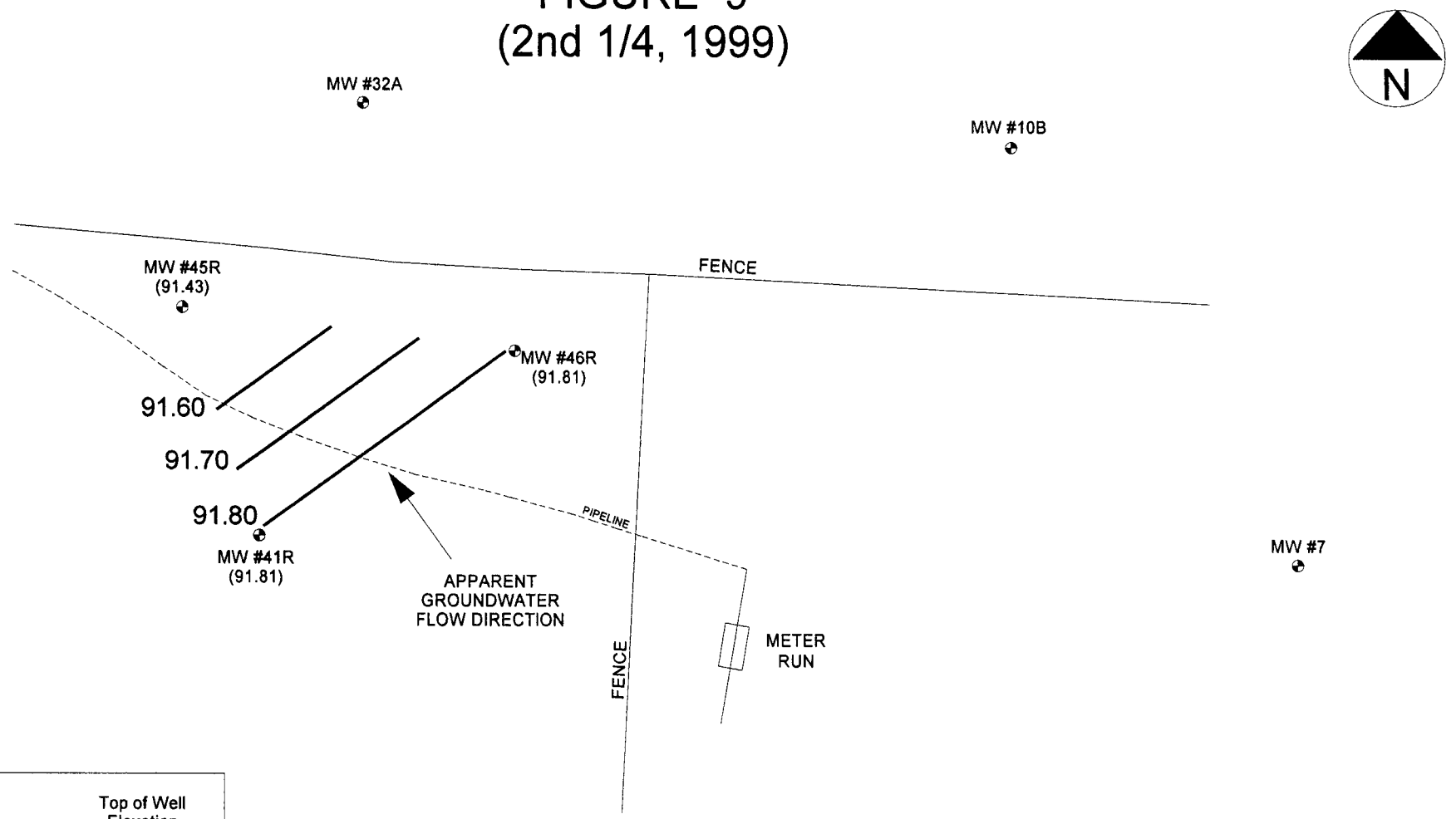
DRAWN BY: NJV

FILENAME: 06-25-GW.SKF

GROUNDWATER GRADIENT MAP

06/97

FIGURE 9
(2nd 1/4, 1999)



BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

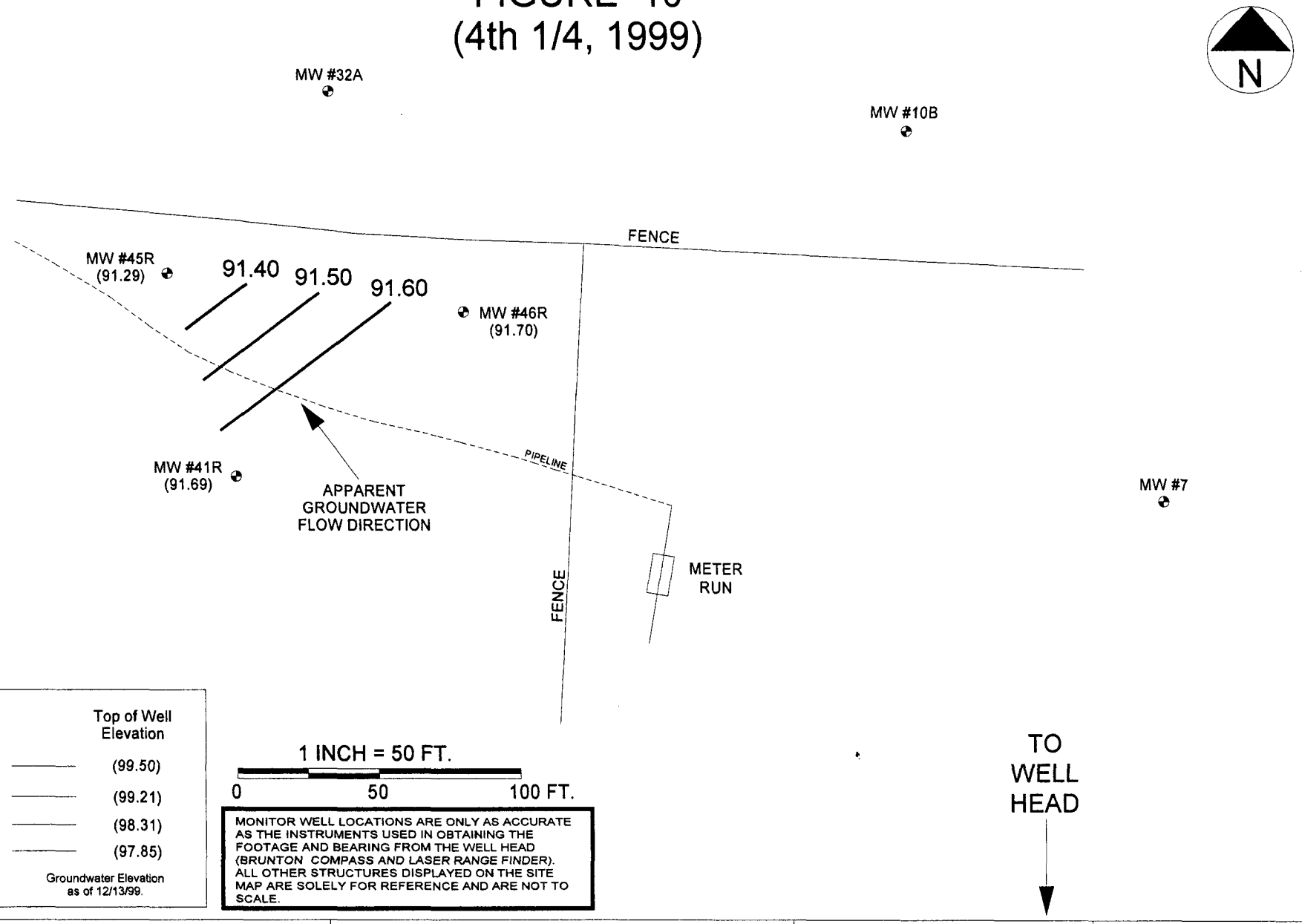
DRAWN BY: NJV

FILENAME: 06-22-GW.SKF

GROUNDWATER GRADIENT MAP

06/99

FIGURE 10
(4th 1/4, 1999)



BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

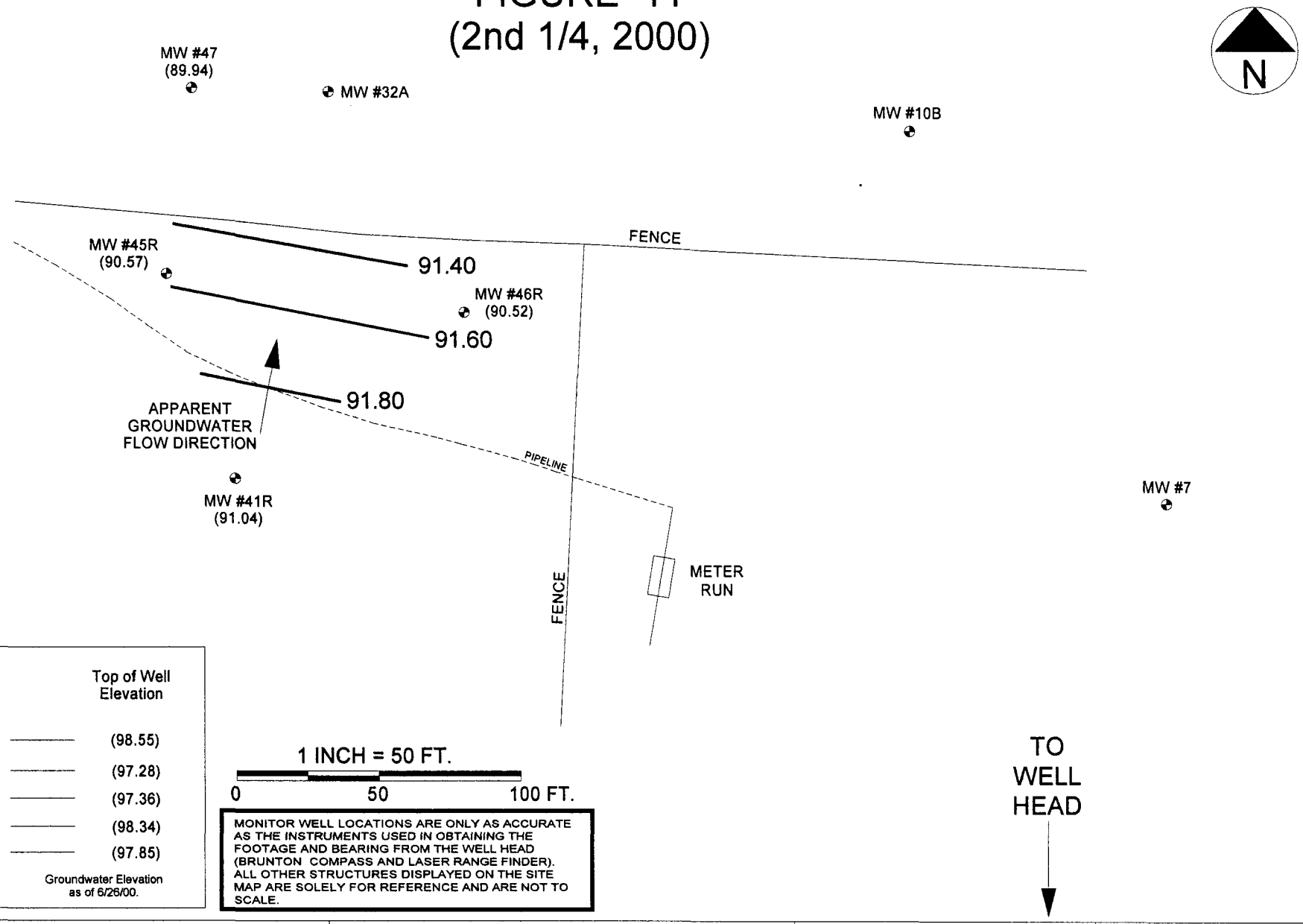
DRAWN BY: NJV

FILENAME: 12-13-GW.SKF

GROUNDWATER GRADIENT MAP

12/99

FIGURE 11
(2nd 1/4, 2000)



	Top of Well Elevation
MW #41R	(98.55)
MW #45R	(97.28)
MW #46R	(97.36)
MW #47	(98.34)
MW #32A	(97.85)

MW #41R (91.04) Groundwater Elevation as of 6/26/00.

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.

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

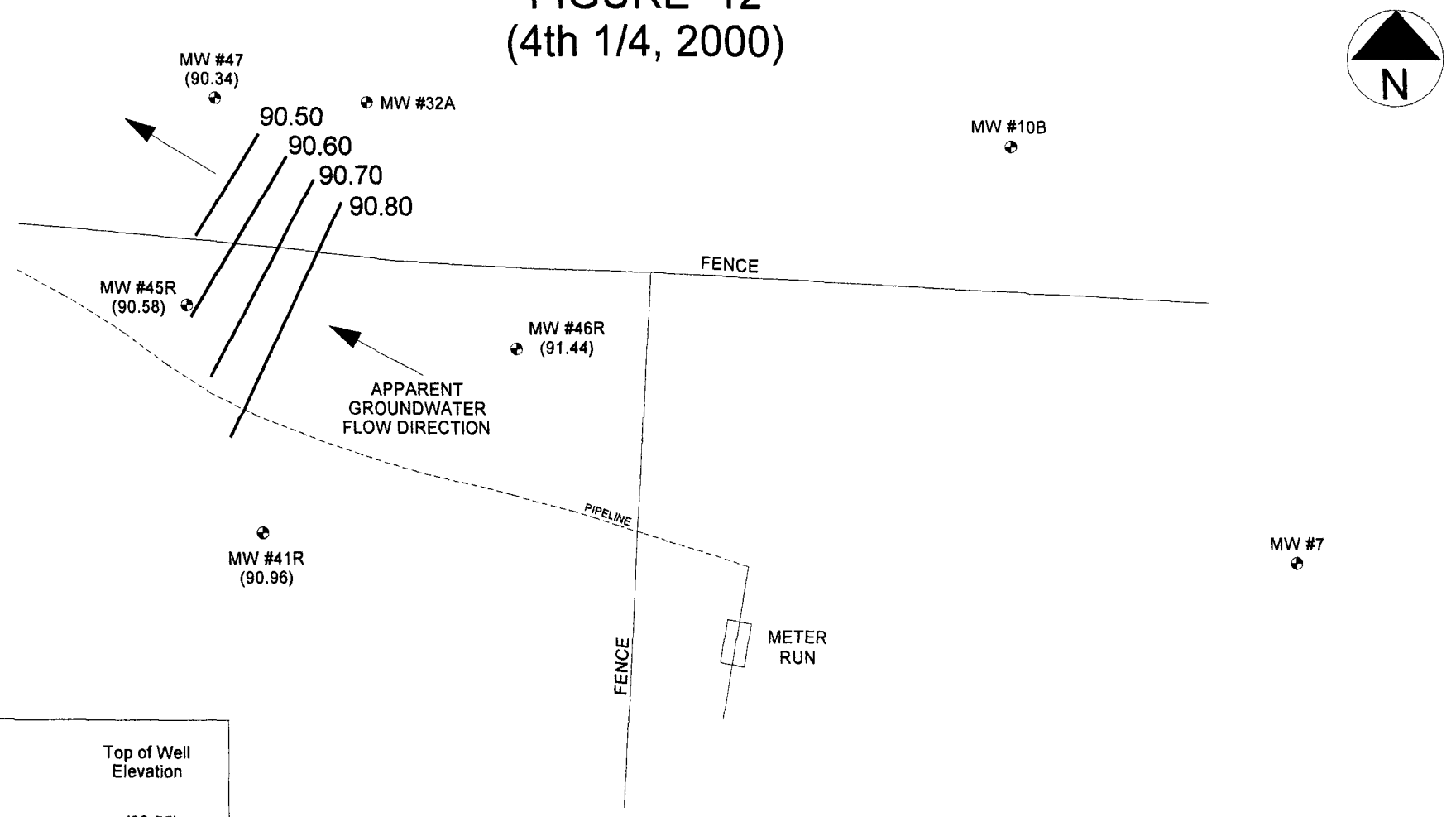
DRAWN BY: NJV

FILENAME: 06-26-GW.SKF

GROUNDWATER GRADIENT MAP

06/00

FIGURE 12
(4th 1/4, 2000)



	Top of Well Elevation
MW #41R	(98.55)
MW #45R	(97.28)
MW #46R	(97.36)
MW #47	(98.34)
MW #32A	(97.85)
MW #41R (90.96)	Groundwater Elevation as of 11/29/00.

1 INCH = 50 FT.

0 50 100 FT.

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.

TO WELL HEAD

BP AMOCO

GCU COM I #181

SE/4 NW/4 SEC. 34, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

DRAWN BY: NJV

FILENAME: 11-29-GW.SKF

GROUNDWATER GRADIENT MAP

11/00

GENERAL WATER QUALITY

BP AMOCO

GCU COM I # 181

UNIT F , SEC. 34 , T29N , R12W

PARAMETERS	MW # 7 06/03/96	MW # 7 09/16/96	MW # 10B 06/03/96	MW # 10B 09/16/96	MW # 32A 06/03/96	MW # 32A 09/16/96	Units
LAB pH	7.8	7.8	5.6	4.3	4.9	4.6	s. u.
LAB CONDUCTIVITY @ 25 C	15,700	12,800	34,900	18,200	32,000	18,600	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	8,880	8,920	24,100	18,000	21,700	10,900	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	9,460	8,900	22,400	12,300	19,300	10,900	mg / L
SODIUM ABSORPTION RATIO	-	-	-	-	-	-	ratio
TOTAL ALKALINITY AS CaCO3	1,340	1,440	71.6	57.5	95.5	71.9	mg / L
TOTAL HARDNESS AS CaCO3	1,230	896	3,000	1,490	2,590	1,240	mg / L
BICARBONATE as CaCO3	1,340	1,440	71.6	57.5	95.5	71.9	mg / L
CARBONATE AS CaCO3	NA	NA	NA	NA	NA	NA	mg / L
HYDROXIDE AS CACO3	NA	NA	NA	NA	NA	NA	mg / L
NITRATE NITROGEN	NA	NA	NA	NA	NA	NA	mg / L
NITRITE NITROGEN	NA	NA	NA	NA	NA	NA	mg / L
CHLORIDE	225	197	300	247	325	350	mg / L
FLUORIDE	-	-	-	-	-	-	mg / L
PHOSPHATE	-	-	-	-	-	-	mg / L
SULFATE	5,100	4,990	16,300	7,970	14,500	6,900	mg / L
IRON	-	-	-	-	-	-	mg / L
CALCIUM	324	319	965	99.7	886	99.7	mg / L
MAGNESIUM	103	24.2	145	302	91.0	242	mg / L
POTASSIUM	< 5.0	6.00	6.0	9.00	5.0	7.00	mg / L
SODIUM	2,900	2,500	4,600	3,600	3,500	3,300	mg / L
CATION / ANION DIFFERENCE	3.99	4.31	14.7	3.48	21.0	4.2	%

GENERAL WATER QUALITY

BP AMOCO

GCU COM I # 181

UNIT F , SEC. 34 , T29N , R12W

PARAMETERS	MW # 41 06/03/96	MW # 41 09/16/96	MW # 45 06/03/96	MW # 45 09/16/96	MW # 46 06/03/96	MW # 46 09/16/96	Units
LAB pH	7.8	7.6	7.3	6.8	7.9	7.6	s. u.
LAB CONDUCTIVITY @ 25 C	25,600	19,800	8,770	5,850	8,960	6,670	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	14,000	14,000	4,580	4,250	4,720	4,530	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	13,000	13,300	4,570	3,920	4,670	4,510	mg / L
SODIUM ABSORPTION RATIO	-	-	-	-	-	-	ratio
TOTAL ALKALINITY AS CaCO3	3,820	4,890	907	259	1,290	1,290	mg / L
TOTAL HARDNESS AS CaCO3	2,630	2,540	1,520	1,290	2,220	1,790	mg / L
BICARBONATE as CaCO3	3,820	4,890	907	259	1,290	1,290	mg / L
CARBONATE AS CaCO3	NA	NA	NA	NA	NA	NA	mg / L
HYDROXIDE AS CACO3	NA	NA	NA	NA	NA	NA	mg / L
NITRATE NITROGEN	NA	NA	NA	NA	NA	NA	mg / L
NITRITE NITROGEN	NA	NA	NA	NA	NA	NA	mg / L
CHLORIDE	1550	1700	200	275	200	350	mg / L
FLUORIDE	-	-	-	-	-	-	mg / L
PHOSPHATE	-	-	-	-	-	-	mg / L
SULFATE	4,060	3,850	2,260	2,260	2,090	1,920	mg / L
IRON	-	-	-	-	-	-	mg / L
CALCIUM	972	957	457	319	749	638	mg / L
MAGNESIUM	49.1	36.3	92.1	121	86.0	48.4	mg / L
POTASSIUM	140	170.00	11.0	< 5.0	57.0	50.0	mg / L
SODIUM	3,900	3,700	1,000	790	710	730	mg / L
CATION / ANION DIFFERENCE	4.91	2.24	2.24	0.28	1.19	4.71	%

GENERAL WATER QUALITY

BP AMOCO

GCU COM I # 181

UNIT F , SEC. 34 , T29N , R12W

PARAMETERS	MW # 47 04/17/00	Units
LAB pH	**7.18**	s. u.
RESISTIVITY @ 25 C	2.4814	ohm - m
TOTAL DISSOLVED SOLIDS - (RESIDUE, FILTERABLE)	**3,700**	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	3,580	mg / L
SODIUM ABSORPTION RATIO	-	ratio
TOTAL ALKALINITY AS CaCO3	330	mg / L
TOTAL HARDNESS AS CaCO3	1,380	mg / L
BICARBONATE as CaCO3	330	mg / L
CARBONATE AS CaCO3	ND	mg / L
CHLORIDE	**44**	mg / L
FLUORIDE	-	mg / L
SULFATE	**2,280**	mg / L
IRON - DISSOLVED	**0.21**	mg / L
CALCIUM - DISSOLVED	490	mg / L
MAGNESIUM - DISSOLVED	39	mg / L
POTASSIUM - DISSOLVED	6.1	mg / L
SODIUM - DISSOLVED	530	mg / L
SPECIFIC GRAVITY	1.003	

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # :

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : June 3, 1996

Filename : 06-03-96.WK3

SAMPLER : R E O

PROJECT MANAGER : R E O

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
7	99.14	92.22	6.92	11.60	0950	7.2	8,000	1.50	-
10B	98.14	91.27	6.87	9.00	0900	6.5	7,700	1.50	-
32A	97.85	90.98	6.87	9.00	0845	6.5	6,000	1.50	-
41	101.02	92.05	8.97	11.00	1045	6.9	12,700	1.50	-
45	97.95	91.25	6.70	9.00	1115	6.9	5,500	1.50	-
46	97.95	91.58	6.37	9.00	1015	7.3	5,400	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 ".

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	MW - 7	Date Sampled:	06/03/96
Lab ID:	3766	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/17/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	5.85	2.50
Toluene	ND	2.50
Ethylbenzene	12.6	2.50
m,p-Xylenes	7.96	5.00
o-Xylene	3.59	2.50
Total BTEX	**30.0**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	108	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:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	WP - 10B	Date Sampled:	06/03/96
Lab ID:	3767	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/15/96
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	94	88 - 110%
Bromofluorobenzene	93	86 - 115%

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

Comments:

Analyst

Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	WP - 32A	Date Sampled:	06/03/96
Lab ID:	3768	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/15/96
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	95	88 - 110%
Bromofluorobenzene	93	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:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	WP - 41	Date Sampled:	06/03/96
Lab ID:	3769	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/17/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	36.2	20.0
Toluene	243	50.0
Ethylbenzene	278	50.0
m,p-Xylenes	4,490	100
o-Xylene	625	50.0
Total BTEX	**5,680**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	101	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:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	WP - 45	Date Sampled:	06/03/96
Lab ID:	3770	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/16/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	997	50.0
Toluene	658	50.0
Ethylbenzene	435	50.0
m,p-Xylenes	3,110	100
o-Xylene	523	50.0
Total BTEX	**5,720**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	95	88 - 110%
Bromofluorobenzene	96	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:	GCU Com I 181	Report Date:	06/18/96
Sample ID:	WP - 46	Date Sampled:	06/03/96
Lab ID:	3771	Date Received:	06/03/96
Sample Matrix:	Water	Date Analyzed:	06/15/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	61.7	50.0
Toluene	871	100
Ethylbenzene	666	100
m,p-Xylenes	7,060	200
o-Xylene	1,590	100
Total BTEX	**10,300**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	90	88 - 110%
Bromofluorobenzene	91	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:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	MW - 7	Date Sampled:	06/03/96
Laboratory ID:	3766	Time Sampled:	09:50
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	15,700	µmhos/cm
	Total Dissolved Solids @ 180°C	8,880	mg/L
	Total Dissolved Solids (Calc)	9,460	mg/L
Anions	Total Alkalinity as $CaCO_3$	1,340	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	1,340	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	225	mg/L
	Sulfate	5,100	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,230	mg/L
	Calcium	324	mg/L
	Magnesium	103	mg/L
	Potassium	< 5.0	mg/L
	Sodium	2,900	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	3.99	+/- 5 %
	TDS (180):TDS (calculated)	0.9	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	WP - 10B	Date Sampled:	06/03/96
Laboratory ID:	3767	Time Sampled:	09:00
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	5.6	s.u.
	Lab Conductivity @ 25° C	34,900	µmhos/cm
	Total Dissolved Solids @ 180°C	24,100	mg/L
	Total Dissolved Solids (Calc)	22,400	mg/L
Anions	Total Alkalinity as $CaCO_3$	71.6	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	71.6	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	300	mg/L
	Sulfate	16,300*	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	3,000	mg/L
	Calcium	965	mg/L
	Magnesium	145	mg/L
	Potassium	6.0	mg/L
	Sodium	4,600	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	14.7	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	WP - 32A	Date Sampled:	06/03/96
Laboratory ID:	3768	Time Sampled:	08:45
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	4.9	s.u.
	Lab Conductivity @ 25° C	32,000	µmhos/cm
	Total Dissolved Solids @ 180°C	21,700	mg/L
	Total Dissolved Solids (Calc)	19,300	mg/L
Anions	Total Alkalinity as $CaCO_3$	95.5	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	95.5	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	325	mg/L
	Sulfate	14,500*	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	2,590	mg/L
	Calcium	886	mg/L
	Magnesium	91.0	mg/L
	Potassium	5.0	mg/L
	Sodium	3,500	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	21.0	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	WP - 41	Date Sampled:	06/03/96
Laboratory ID:	3769	Time Sampled:	10:45
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	25,600	µmhos/cm
	Total Dissolved Solids @ 180°C	14,000	mg/L
	Total Dissolved Solids (Calc)	13,000	mg/L
Anions	Total Alkalinity as $CaCO_3$	3,820	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	3,820	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	1,550	mg/L
	Sulfate	4,060	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	2,630	mg/L
	Calcium	972	mg/L
	Magnesium	49.1	mg/L
	Potassium	140	mg/L
	Sodium	3,900	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	4.91	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	WP - 45	Date Sampled:	06/03/96
Laboratory ID:	3770	Time Sampled:	11:15
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	7.3	s.u.
	Lab Conductivity @ 25° C	8,770	µmhos/cm
	Total Dissolved Solids @ 180°C	4,580	mg/L
	Total Dissolved Solids (Calc)	4,570	mg/L
Anions	Total Alkalinity as $CaCO_3$	907	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	907	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	200	mg/L
	Sulfate	2,260	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,520	mg/L
	Calcium	457	mg/L
	Magnesium	92.1	mg/L
	Potassium	11.0	mg/L
	Sodium	1,000	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	2.24	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	06/18/96
Sample ID:	WP - 46	Date Sampled:	06/03/96
Laboratory ID:	3771	Time Sampled:	10:15
Sample Matrix:	Water	Date Received:	06/03/96

Parameter		Analytical Result	Units
General	Lab pH	7.9	s.u.
	Lab Conductivity @ 25° C	8,960	µmhos/cm
	Total Dissolved Solids @ 180°C	4,720	mg/L
	Total Dissolved Solids (Calc)	4,670	mg/L
Anions	Total Alkalinity as $CaCO_3$	1,290	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	1,290	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	200	mg/L
	Sulfate	2,090	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	2,220	mg/L
	Calcium	749	mg/L
	Magnesium	86.0	mg/L
	Potassium	57.0	mg/L
	Sodium	710	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	1.19	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 19
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

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

CHAIN OF CUSTODY

PROJECT MANAGER:
Analytica 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):
MW-7	6-3	0950	WATER					✓										✓				✓							
WP-10B	"	0900	"					✓										✓				✓							
WP-32A	"	0845	"					✓										✓				✓							
WP-41	"	1045	"					✓										✓				✓							
WP-45	"	1115	"					✓										✓				✓							
WP-46	"	1015	"					✓										✓				✓							

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)

6CU COM I 181

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: R Fonall 6-3-96	Signature / Date: R. F. O'Neill 6-3-96	Signature / Date:
Company: BEI / Time: —	Company: BEI / Time: 1425	Company: / Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: 6/3/96
Company: / Time:	Company: / Time:	Company: Analytics / Time: 14:25

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Analytica
Pink: Client

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2383

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : Sept. 16, 1996

SAMPLER : REO ~~NKV~~

Filename : 09-16-96.WK3

PROJECT MANAGER : R E O

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)
7	99.14	92.14	7.00	11.60	0800	7.1	6,000	2.25	-
10B	98.14	91.09	7.05	9.00	0830	6.4	6,800	0.50	-
32A	97.85	90.87	6.98	9.00	0900	6.4	7,200	0.50	-
41	101.02	92.35	8.67	11.00	0910	6.9	10,200	0.50	-
45	97.95	91.17	6.78	9.00	0925	6.2	3,700	0.50	-
46	97.95	91.51	6.44	9.00	0945	7.1	5,000	0.50	-

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 10B, 32A, 41, 45, & 46 are 1.25" well points . Collected BTEX samples for all wells listed above .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	MW - 7	Date Sampled:	09/16/96
Lab ID:	4980	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	4.46	0.50
Toluene	7.47	0.50
Ethylbenzene	13.1	0.50
m,p-Xylenes	9.14	1.00
o-Xylene	6.31	0.50

Total BTEX	**40.4**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	103	88 - 110%
Bromofluorobenzene	143	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

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	WP - 10B	Date Sampled:	09/16/96
Lab ID:	4981	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
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	105	88 - 110%
Bromofluorobenzene	95	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:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	WP - 32A	Date Sampled:	09/16/96
Lab ID:	4982	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	0.67	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	**0.67**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	104	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:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	WP - 41	Date Sampled:	09/16/96
Lab ID:	4983	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	36.7	25.0
Toluene	253	25.0
Ethylbenzene	271	25.0
m,p-Xylenes	4,120	50.0
o-Xylene	627	25.0

Total BTEX	**5,310**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	106	88 - 110%
Bromofluorobenzene	96	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:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	WP - 45	Date Sampled:	09/16/96
Lab ID:	4984	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	352	50.0
Toluene	276	50.0
Ethylbenzene	194	50.0
m,p-Xylenes	910	100
o-Xylene	216	50.0

Total BTEX	**1,950**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	107	88 - 110%
Bromofluorobenzene	96	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:	GCU Com I 181	Report Date:	09/19/96
Sample ID:	WP - 46	Date Sampled:	09/16/96
Lab ID:	4985	Date Received:	09/16/96
Sample Matrix:	Water	Date Analyzed:	09/18/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	44.7	25.0
Toluene	270	50.0
Ethylbenzene	551	50.0
m,p-Xylenes	2,720	100
o-Xylene	1,360	50.0

Total BTEX	**4,950**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	102	88 - 110%
Bromofluorobenzene	93	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:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	MW - 7	Date Sampled:	09/16/96
Laboratory ID:	4980	Time Sampled:	08:00
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	12,800	µmhos/cm
	Total Dissolved Solids @ 180°C	8,920	mg/L
	Total Dissolved Solids (Calc)	8,900	mg/L
Anions	Total Alkalinity as $CaCO_3$	1,440	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	1,440	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	197	mg/L
	Sulfate	4,990	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	896	mg/L
	Calcium	319	mg/L
	Magnesium	24.2	mg/L
	Potassium	6.00	mg/L
	Sodium	2,500	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	4.31	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

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

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality
Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	WP - 10B	Date Sampled:	09/16/96
Laboratory ID:	4981	Time Sampled:	08:30
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	4.3	s.u.
	Lab Conductivity @ 25° C	18,200	µmhos/cm
	Total Dissolved Solids @ 180°C	18,000	mg/L
	Total Dissolved Solids (Calc)	12,300	mg/L
Anions	Total Alkalinity as $CaCO_3$	57.5	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	57.5	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	247	mg/L
	Sulfate	7,970	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,490	mg/L
	Calcium	99.7	mg/L
	Magnesium	302	mg/L
	Potassium	9.00	mg/L
	Sodium	3,600	mg/L
	Iron	3780	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	3.48	+/- 5 %
	TDS (180):TDS (calculated)	1.2	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

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	WP - 32A	Date Sampled:	09/16/96
Laboratory ID:	4982	Time Sampled:	09:00
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	4.6	s.u.
	Lab Conductivity @ 25° C	18,600	µmhos/cm
	Total Dissolved Solids @ 180°C	10,900	mg/L
	Total Dissolved Solids (Calc)	10,900	mg/L
Anions	Total Alkalinity as $CaCO_3$	71.9	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	71.9	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	350	mg/L
	Sulfate	6,900	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,240	mg/L
	Calcium	99.7	mg/L
	Magnesium	242	mg/L
	Potassium	7.00	mg/L
	Sodium	3,300	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	4.20	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

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

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	WP - 41	Date Sampled:	09/16/96
Laboratory ID:	4983	Time Sampled:	09:10
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	7.6	s.u.
	Lab Conductivity @ 25° C	19,800	µmhos/cm
	Total Dissolved Solids @ 180°C	14,000	mg/L
	Total Dissolved Solids (Calc)	13,300	mg/L
Anions	Total Alkalinity as $CaCO_3$	4,890	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	4,890	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	1,700	mg/L
	Sulfate	3,850	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	2,540	mg/L
	Calcium	957	mg/L
	Magnesium	36.3	mg/L
	Potassium	170	mg/L
	Sodium	3,700	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	2.24	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

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

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	WP - 45	Date Sampled:	09/16/96
Laboratory ID:	4984	Time Sampled:	09:25
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	6.8	s.u.
	Lab Conductivity @ 25° C	5,850	µmhos/cm
	Total Dissolved Solids @ 180°C	4,250	mg/L
	Total Dissolved Solids (Calc)	3,920	mg/L
Anions	Total Alkalinity as $CaCO_3$	259	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	259	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	275	mg/L
	Sulfate	2,260	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,290	mg/L
	Calcium	319	mg/L
	Magnesium	121	mg/L
	Potassium	< 5.0	mg/L
	Sodium	790	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	0.28	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

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

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Date Reported:	09/30/96
Sample ID:	WP - 46	Date Sampled:	09/16/96
Laboratory ID:	4985	Time Sampled:	09:45
Sample Matrix:	Water	Date Received:	09/16/96

Parameter		Analytical Result	Units
General	Lab pH	7.6	s.u.
	Lab Conductivity @ 25° C	6,670	µmhos/cm
	Total Dissolved Solids @ 180°C	4,530	mg/L
	Total Dissolved Solids (Calc)	4,510	mg/L
Anions	Total Alkalinity as $CaCO_3$	1,290	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	1,290	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	350	mg/L
	Sulfate	1,920	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,790	mg/L
	Calcium	638	mg/L
	Magnesium	48.4	mg/L
	Potassium	50.0	mg/L
	Sodium	730	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	4.71	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

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

Review

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
mw-7	9-16	0800	WATER	
WP-10B	"	0830	"	
WP-32A	"	0900	"	
WP-41	"	0910	"	
WP-45	"	0925	"	
WP-46	"	0945	"	

ORGANIC ANALYSES														WATER ANALYSES								METALS				COMMENTS
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):	
			✓											✓				✓								
			✓											✓				✓								
			✓											✓				✓								
			✓											✓				✓								
			✓											✓				✓								
			✓											✓				✓								

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)

GCU COM I 181

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: R E O'Neill 9-16-96	Signature / Date: R E O'Neill 9-16-96	Signature / Date:
Company: BEI Time: —	Company: BEI Time: 1002	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: S Johnson 9/19/96
Company: Time:	Company: Time:	Company: Anaitas Time: 10:03 am

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample hydrocarbon: Water
Lab ID: MB35326

Report Date: 09/19/96
Date Analyzed: 09/18/96

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	106	88 - 110%
Bromofluorobenzene	95	86 - 115%

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

Comments:

Analyst

Review

Purgeable Aromatics

Duplicate Analysis

Lab ID:	4983Dup	Report Date:	09/19/96
Sample Matrix:	Water	Date Sampled:	09/16/96
Preservative:	Cool, $HgCl_2$	Date Received:	09/16/96
Condition:	Intact	Date Analyzed:	09/18/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	ND	ND	NA
Toluene	253	254	207 - 300
Ethylbenzene	271	273	179 - 366
m,p-Xylenes	4,120	4,160	NE
o-Xylene	627	634	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	106	88 - 110%
	Bromofluorobenzene	96	86 - 115%

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

Comments:

Analyst

Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID:	4980Spk	Report Date:	09/19/96
Sample Matrix:	Water	Date Sampled:	09/16/96
Preservative:	Cool, $HgCl_2$	Date Received:	09/16/96
Condition:	Intact	Date Analyzed:	09/18/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	4.46	16.3	118%	39 -150
Toluene	10	7.47	17.1	96%	46 - 148
Ethylbenzene	10	13.1	23.7	107%	32 - 160
m,p-Xylenes	20	9.14	25.5	82%	NE
o-Xylene	10	6.31	13.5	72%	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	117	88 - 110%
Bromofluorobenzene	126	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: 09/30/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	9.19	9.13	8.93 - 9.33	s.u.
Conductivity	741	740	629 - 851	µmhos/cm
Total Dissolved Soli	630	642	559 - 725	mg/L
Total Alkalinity	173	159	142 - 176	mg/L
Chloride	64.9	66.3	61.7 - 70.9	mg/L
Sulfate	70.0	77.5	66.7 - 88.4	mg/L
Total Hardness	308	311	267 - 355	mg/L
Calcium	56.0	58.6	50.4 - 66.8	mg/L
Magnesium	NA	NA	NA	mg/L
Potassium	73.0	73.3	62.3 - 84.3	mg/L
Sodium	120	116	98.6 - 84.3	mg/L

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

Comments:

Review

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2121

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : December 31, 1996

Filename : 12-31-96.WK3

SAMPLER : N J V

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
7	99.14	92.46	6.68	11.60	1020	7.3	7,100	2.50	-
10B	98.14	91.52	6.62	9.00	0925	6.5	9,200	0.50	-
32A	97.85	91.14	6.71	9.00	0955	6.6	8,000	0.50	-
41	101.02	91.49	9.53	11.00	1110	6.9	8,200	0.25	-
45	97.95	91.36	6.59	9.00	1125	7.1	3,900	0.50	-
46	97.95	91.75	6.20	9.00	1050	7.1	4,400	0.50	-

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 10B, 32A, 41, 45, & 46 are 1.25" well points . Collected BTEX samples for all wells listed above .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW #7	Date Sampled:	12/31/96
Lab ID:	6072	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	3.55	0.50
Toluene	ND	0.50
Ethylbenzene	9.48	0.50
m,p-Xylenes	3.69	1.00
o-Xylene	ND	0.50

Total BTEX	**16.7**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	99	88 - 110%
Bromofluorobenzene	105	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:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW #10B	Date Sampled:	12/31/96
Lab ID:	6070	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	0.85	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	**0.85**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%
Bromofluorobenzene	94	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:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW 32A	Date Sampled:	12/31/96
Lab ID:	6071	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	0.59	0.50
Toluene	0.79	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	**1.37**

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:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW #41	Date Sampled:	12/31/96
Lab ID:	6074	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	69.0	50.0
Toluene	211	50.0
Ethylbenzene	342	50.0
m,p-Xylenes	4,660	200
o-Xylene	709	100

Total BTEX	**6,000**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%
Bromofluorobenzene	94	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:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW #45	Date Sampled:	12/31/96
Lab ID:	6075	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	518	50.0
Toluene	215	50.0
Ethylbenzene	217	50.0
m,p-Xylenes	709	100
o-Xylene	198	50.0

Total BTEX	**1,860**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	95	88 - 110%
Bromofluorobenzene	93	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:	GCU Com I 181	Report Date:	01/10/97
Sample ID:	MW #46	Date Sampled:	12/31/96
Lab ID:	6073	Date Received:	12/31/96
Sample Matrix:	Water	Date Analyzed:	01/09/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	60.3	50.0
Toluene	921	50.0
Ethylbenzene	611	50.0
m,p-Xylenes	6,470	250
o-Xylene	1,830	50.0
Total BTEX	**9,900**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	91	88 - 110%
Bromofluorobenzene	93	86 - 115%

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

Comments:

Analyst

Review

ANAITAS
ENVIRONMENTAL LABS

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

CHAIN OF CUSTODY

2121

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	ORGANIC ANALYSES: 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):	WATER ANALYSES: 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):	METALS: Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	COMMENTS
MW #10B	12/31/96	0925	WATER					✓																						PRESERV. - COOL & $HgCl_2$
MW # 32A	12/31/96	0955	WATER					✓																						" " "
MW # 7	12/31/96	1020	WATER					✓																						" " "
MW # 46	12/31/96	1050	WATER					✓																						" " "
MW # 41	12/31/96	1110	WATER					✓																						" " "
MW # 45	12/31/96	1125	WATER					✓																						" " "

Project Information		Sample Receipt	
Proj. #:		No. Containers:	
Proj. Name:	GCU COM I 181	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: Nelson Velez Date: 12/31/96	Signature: Nelson Velez Date: 12/31/96	Signature: Date:
Company: BLAGG Time: SEE SAMPLE ID	Company: BLAGG Time: 1257	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: [signature] Date: 12/31/96
Company: Time:	Company: Time:	Company: Anaitas Time: 12:57

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 # : 5121

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 25, 1997

SAMPLER : N J V

Filename : 06-25-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
32A	97.85	91.45	6.40	9.00	-	-	-	-	-
41	101.02	92.21	8.81	11.00	1200	6.6	5,600	0.50	-
45	97.95	91.49	6.46	9.00	1225	6.4	2,800	0.50	-
46	97.95	91.96	5.99	9.00	1245	7.3	3,500	0.50	-

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

(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 ".

All MW 's above are 1.25" well points . Collected BTEX samples for each MW listed except # 32A .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #41	Date Reported:	06-27-97
Chain of Custody:	5121	Date Sampled:	06-25-97
Laboratory Number:	B516	Date Received:	06-25-97
Sample Matrix:	Water	Date Analyzed:	06-26-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**61.9**	**5**	**0.9**
Toluene	**17.2**	**5**	**0.8**
Ethylbenzene	**388**	**5**	**0.8**
p,m-Xylene	**3,010**	**5**	**1.1**
o-Xylene	**183**	**5**	**0.5**
Total BTEX	**3,660**		

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: **GCU COM I #181.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #45	Date Reported:	06-27-97
Chain of Custody:	5121	Date Sampled:	06-25-97
Laboratory Number:	B517	Date Received:	06-25-97
Sample Matrix:	Water	Date Analyzed:	06-26-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1,796**	**10**	**1.8**
Toluene	**117**	**10**	**1.7**
Ethylbenzene	**130**	**10**	**1.5**
p,m-Xylene	**239**	**10**	**2.2**
o-Xylene	**548**	**10**	**1.0**
Total BTEX	**2,829**		

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: **GCU COM I #181.**

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 #46	Date Reported:	06-27-97
Chain of Custody:	5121	Date Sampled:	06-25-97
Laboratory Number:	B518	Date Received:	06-25-97
Sample Matrix:	Water	Date Analyzed:	06-26-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**292**	**10**	**1.8**
Toluene	**342**	**10**	**1.7**
Ethylbenzene	**396**	**10**	**1.5**
p,m-Xylene	**3,790**	**10**	**2.2**
o-Xylene	**1,060**	**10**	**1.0**
Total BTEX	**5,880**		

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: **GCU COM I #181.**

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG/AMOCO	Gcu com I #181	

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 #41	6/25/97	1200	B516	WATER	2	✓						ALL SAMPLES PRESERV.
MW #45	6/25/97	1225	B517	WATER	2	✓						COOL + W/ HgCl2
MW #46	6/25/97	1245	B518	WATER	2	✓						
				Samples received cool & intact								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/25/97	1416	Dawn L. Quinn	6-25-97	1416
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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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:	06-27-97
Laboratory Number:	06-26-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-26-97
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 B511 - B520.**

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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:	06-27-97
Laboratory Number:	B511	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-26-97
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	**164**	**164**	**0.0%**	**0.2**	**1**
Toluene	**0.6**	**0.6**	**0.0%**	**0.2**	**1**
Ethylbenzene	**59.0**	**58.5**	**0.8%**	**0.2**	**1**
p,m-Xylene	**34.4**	**34.4**	**0.0%**	**0.2**	**1**
o-Xylene	**0.7**	**0.7**	**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 B511 - B520.**

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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:	06-27-97
Laboratory Number:	B511	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	06-26-97
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	**164**	**50.0**	**214**	**0.2**	**100%**	**39-150**
Toluene	**0.6**	**50.0**	**50.4**	**0.2**	**100%**	**46-148**
Ethylbenzene	**59.0**	**50.0**	**110**	**0.2**	**101%**	**32-160**
p,m-Xylene	**34.4**	**100**	**134**	**0.2**	**100%**	**46-148**
o-Xylene	**0.7**	**50.0**	**50.9**	**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 B511 - B520.**

Analyst

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6039

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 26, 1998

SAMPLER : N J V

Filename : 06-26-98.WK4

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)
32A			6.41	9.00	-	-	-	-	-
41R			7.58	10.00	1045	7.1	11,300	1.25	-
45R			7.84	10.00	1115	7.1	5,700	1.00	-
46R			8.07	10.00	1145	7.1	6,200	1.00	-

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 ".

Found WP - 41, WP - 45, WP - 46 destroyed during 6 / 12 / 98 visit . Reinstalled on 6 / 22 / 98 . All replacement wells consisted of five foot casing with five foot screen (0.020 slot). Collected BTEX from all MW's except WP - 32A . Revisited site to survey well tops & found MW's had been physically removed from the subsurface .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 41R	Date Reported:	06-30-98
Chain of Custody:	6039	Date Sampled:	06-26-98
Laboratory Number:	D521	Date Received:	06-26-98
Sample Matrix:	Water	Date Analyzed:	06-29-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1,070**	**10**	**1.8**
Toluene	**940**	**10**	**1.7**
Ethylbenzene	**100**	**10**	**1.5**
p,m-Xylene	**9,700**	**10**	**2.2**
o-Xylene	**2,210**	**10**	**1.0**
Total BTEX	**14,020**		

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: **GCU Com I #181.**

Analyst

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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 # 45R	Date Reported:	06-30-98
Chain of Custody:	6039	Date Sampled:	06-26-98
Laboratory Number:	D522	Date Received:	06-26-98
Sample Matrix:	Water	Date Analyzed:	06-29-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**959**	**10**	**1.8**
Toluene	**129**	**10**	**1.7**
Ethylbenzene	**10.4**	**10**	**1.5**
p,m-Xylene	**1,280**	**10**	**2.2**
o-Xylene	**421**	**10**	**1.0**
Total BTEX	**2,800**		

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: **GCU Com I #181.**

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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 # 46R	Date Reported:	06-30-98
Chain of Custody:	6039	Date Sampled:	06-26-98
Laboratory Number:	D523	Date Received:	06-26-98
Sample Matrix:	Water	Date Analyzed:	06-29-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**717**	**10**	**1.8**
Toluene	**2,080**	**10**	**1.7**
Ethylbenzene	**137**	**10**	**1.5**
p,m-Xylene	**8,720**	**10**	**2.2**
o-Xylene	**2,790**	**10**	**1.0**
Total BTEX	**14,440**		

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: **GCU Com I #181.**

Analyst

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CHAIN OF CUSTODY RECORD

6039

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG/ AMOCO	GCU COM I #181	

Sampler:	Client No.
NJV	04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
												ALL SAMPLES
												PRESERV. - $HgCl_2$
MW #41R	6/26/98	1045	0521	WATER	2	✓						& COOL
MW #45R	6/26/98	1115	0522	WATER	2	✓						
~~DUP~~ MW #46R	6/26/98	1145	0523	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/26/98	1152	Adam L. Quinn	6.26.98	1152
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Rel COC's 6036 → 6039

ENVIROTECH INC.

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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:	06-29-BTEX QA/QC	Date Reported:	06-30-98
Laboratory Number:	D517	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-29-98
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	2.4176E-01	2.4200E-01	**0.10%**	**ND**	**1.8**
Toluene	4.9646E-02	4.9795E-02	**0.30%**	**ND**	**1.7**
Ethylbenzene	4.1020E-02	4.1350E-02	**0.81%**	**ND**	**1.5**
p,m-Xylene	2.6433E-02	2.6620E-02	**0.70%**	**ND**	**2.2**
o-Xylene	3.0648E-02	3.0833E-02	**0.60%**	**ND**	**1.0**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**5.7**	**5.7**	**0.0%**	**0 - 30%**
Toluene	**5.2**	**5.3**	**1.9%**	**0 - 30%**
Ethylbenzene	**9.9**	**10.1**	**2.0%**	**0 - 30%**
p,m-Xylene	**50.3**	**50.9**	**1.2%**	**0 - 30%**
o-Xylene	**5.5**	**5.5**	**0.0%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**5.7**	**50.0**	**55.4**	**99%**	**39 - 150**
Toluene	**5.2**	**50.0**	**54.9**	**99%**	**46 - 148**
Ethylbenzene	**9.9**	**50.0**	**59.4**	**99%**	**32 - 160**
p,m-Xylene	**50.3**	**100.0**	**147.3**	**98%**	**46 - 148**
o-Xylene	**5.5**	**50.0**	**55.2**	**99%**	**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 D517 - D523.**

Analyst

Review

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6996

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 22, 1999

SAMPLER : R E P

Filename : 06-22-99.WK4

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)
41R	99.04	91.81	7.23	10.00	1200	6.9	3200	1.50	-
45R	99.60	91.43	8.17	10.00	1240	7.5	3300	1.00	-
46R	97.96	91.81	6.15	10.00	1220	7.3	2600	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).

(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".

Drilled MW #'s 41R, 45R, & 46R on 6 / 21 / 99 . All consist of 10 ft. T.D. w / 5 ft. screen intervals .

Collected BTEX for all samples listed above .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #41	Date Reported:	06-24-99
Chain of Custody:	6996	Date Sampled:	06-23-99
Laboratory Number:	F586	Date Received:	06-23-99
Sample Matrix:	Water	Date Analyzed:	06-24-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**14.4**	**1**	**0.2**
Toluene	**82.2**	**1**	**0.2**
Ethylbenzene	**58.2**	**1**	**0.2**
p,m-Xylene	**288**	**1**	**0.2**
o-Xylene	**113**	**1**	**0.1**
Total BTEX	**556**		

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: **GCU COM I # 181.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #45	Date Reported:	06-24-99
Chain of Custody:	6996	Date Sampled:	06-23-99
Laboratory Number:	F587	Date Received:	06-23-99
Sample Matrix:	Water	Date Analyzed:	06-24-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.1**	**1**	**0.2**
Toluene	**17.0**	**1**	**0.2**
Ethylbenzene	**3.3**	**1**	**0.2**
p,m-Xylene	**14.6**	**1**	**0.2**
o-Xylene	**15.9**	**1**	**0.1**
Total BTEX	**52.9**		

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: **GCU COM I # 181.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #46	Date Reported:	06-24-99
Chain of Custody:	6996	Date Sampled:	06-23-99
Laboratory Number:	F588	Date Received:	06-23-99
Sample Matrix:	Water	Date Analyzed:	06-24-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.4**	**1**	**0.2**
Toluene	**4.6**	**1**	**0.2**
Ethylbenzene	**5.3**	**1**	**0.2**
p,m-Xylene	**110**	**1**	**0.2**
o-Xylene	**41.2**	**1**	**0.1**
Total BTEX	**164**		

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: **GCU COM I # 181.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

6996

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG/AMOCO	GCU COM. I #181	

Sampler:	Client No.
REP	403410

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW#41	6-23-99	1200	F586	WATER	2	✓						
MW#45	6-23-99	1240	F587	WATER	2	✓						
MW#46	6-23-99	1220	F588	WATER	2	✓						
												SAMPLES PRESERVED HgCl2 + COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ed Hansen	6-23-99	12:45	Glenn L. Spencer	6-23-99	12:45
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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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:	06-24-BTEX QA/QC	Date Reported:	06-24-99
Laboratory Number:	F586	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-24-99
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	5.1692E-003	5.1858E-003	**0.32%**	**ND**	**0.2**
Toluene	5.2087E-003	5.2097E-003	**0.02%**	**ND**	**0.2**
Ethylbenzene	3.4516E-003	3.4557E-003	**0.12%**	**ND**	**0.2**
p,m-Xylene	4.0509E-003	4.0517E-003	**0.02%**	**ND**	**0.2**
o-Xylene	3.9685E-003	3.9804E-003	**0.30%**	**ND**	**0.1**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**14.4**	**14.4**	**0.0%**	**0 - 30%**
Toluene	**82.2**	**82.9**	**0.9%**	**0 - 30%**
Ethylbenzene	**58.2**	**58.7**	**0.9%**	**0 - 30%**
p,m-Xylene	**288**	**300**	**4.3%**	**0 - 30%**
o-Xylene	**113**	**114**	**0.7%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**14.4**	**50.0**	**64.2**	**100%**	**39 - 150**
Toluene	**82.2**	**50.0**	**132**	**100%**	**46 - 148**
Ethylbenzene	**58.2**	**50.0**	**108**	**100%**	**32 - 160**
p,m-Xylene	**288**	**100.0**	**384**	**99%**	**46 - 148**
o-Xylene	**113**	**50.0**	**163**	**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 F586 - F593.**

Analyst

Review

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 7452

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 13, 1999

SAMPLER : N J V

Filename : 12-13-99.WK4

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)
41R	99.50	91.69	7.81	10.00	1215	7.1	4,800	1.00	-
45R	99.21	91.29	7.92	10.00	1145	7.3	4,100	1.00	-
46R	98.31	91.70	6.61	10.00	1245	7.2	3,800	1.75	-

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".

Drilled MW #'s 41R, 45R, & 46R on 12 / 3 / 99 . All consist of 10 ft. T.D. w / 5 ft. screen intervals .

Collected BTEX for all samples listed above .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	403410
Sample ID:	MW # 41R	Date Reported:	12-14-99
Chain of Custody:	7452	Date Sampled:	12-13-99
Laboratory Number:	G586	Date Received:	12-13-99
Sample Matrix:	Water	Date Analyzed:	12-14-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**313**	**5**	**0.9**
Toluene	**1,830**	**5**	**0.8**
Ethylbenzene	**936**	**5**	**0.8**
p,m-Xylene	**4,410**	**5**	**1.1**
o-Xylene	**1,670**	**5**	**0.5**
Total Xylene	**6,080**		
Total BTEX	**9,160**		

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: **GCU Com I #181.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	403410
Sample ID:	MW # 45R	Date Reported:	12-14-99
Chain of Custody:	7452	Date Sampled:	12-13-99
Laboratory Number:	G587	Date Received:	12-13-99
Sample Matrix:	Water	Date Analyzed:	12-14-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**349**	**5**	**0.9**
Toluene	**1,480**	**5**	**0.8**
Ethylbenzene	**663**	**5**	**0.8**
p,m-Xylene	**2,310**	**5**	**1.1**
o-Xylene	**961**	**5**	**0.5**
Total Xylene	**3,270**		
Total BTEX	**5,760**		

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: **GCU Com I #181.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	403410
Sample ID:	MW # 46R	Date Reported:	12-14-99
Chain of Custody:	7452	Date Sampled:	12-13-99
Laboratory Number:	G588	Date Received:	12-13-99
Sample Matrix:	Water	Date Analyzed:	12-14-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**239**	**5**	**0.9**
Toluene	**437**	**5**	**0.8**
Ethylbenzene	**236**	**5**	**0.8**
p,m-Xylene	**987**	**5**	**1.1**
o-Xylene	**388**	**5**	**0.5**
Total Xylene	**1,370**		
Total BTEX	**2,290**		

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: **GCU Com I #181.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7452

Client / Project Name	Project Location
BLAGG / Amoco	Gcu com I #181
Sampler: NJV	**Client No.** 403410

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
mw #41R	12/13/99	1215	G586	WATER	2	✓						ALL SAMPLES
												PRESERV. - HgCl2
mw #45R	12/13/99	1145	G587	WATER	2	✓						& COOL
mw #46R	12/13/99	1245	G588	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/13/99	1258	Dean R. Ajeman	12/13/99	1258
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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(505) 632-0615

Sample Receipt

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	12-14-BTEX QA/QC	Date Reported:	12-14-99
Laboratory Number:	G585	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-14-99
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	2.3405E-001	2.3480E-001	**0.32%**	**ND**	**0.2**
Toluene	1.1660E-001	1.1663E-001	**0.02%**	**ND**	**0.2**
Ethylbenzene	1.1783E-001	1.1797E-001	**0.12%**	**ND**	**0.2**
p,m-Xylene	1.3259E-001	1.3262E-001	**0.02%**	**ND**	**0.2**
o-Xylene	1.0255E-001	1.0286E-001	**0.30%**	**ND**	**0.1**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**3.4**	**3.3**	**2.9%**	**0 - 30%**
Toluene	**14.8**	**15.0**	**1.4%**	**0 - 30%**
Ethylbenzene	**4.9**	**4.8**	**2.0%**	**0 - 30%**
p,m-Xylene	**16.2**	**16.1**	**0.6%**	**0 - 30%**
o-Xylene	**5.1**	**5.0**	**2.0%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**3.4**	**50.0**	**53.4**	**100%**	**39 - 150**
Toluene	**14.8**	**50.0**	**65.2**	**101%**	**46 - 148**
Ethylbenzene	**4.9**	**50.0**	**55.0**	**100%**	**32 - 160**
p,m-Xylene	**16.2**	**100.0**	**116**	**100%**	**46 - 148**
o-Xylene	**5.1**	**50.0**	**55.2**	**100%**	**46 - 148**

ND - Parameter not detected at the stated detection limit.

* - Administrative level set at 80 - 120.

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

Comments: **QA/QC for samples G584 - G588.**

Analyst

Review

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : BP AMOCO

CHAIN-OF-CUSTODY # : 10577

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ON - SITE TECH.

Date : April 17, 2000

SAMPLER : N J V

Filename : 04-17-00.WK4

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)
47			7.28	15.00	1439	7.2	3,900	3.75	-

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 ".

Drilled MW #'s 47 on 03 / 30 / 00 . Consist of 15 ft. T.D. w / 10 ft. screen intervals .

Developed MW on 4 / 14 / 00 (purged approx. 8 gallons) .

Collected BTEX & anion / cation samples from MW # 47 only .

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

ON SITE
TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *27-Apr-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0004045	**Client Sample ID:**	MW #47
Lab ID:	0004045-01A **Matrix:** AQUEOUS	**Collection Date:**	4/17/2000 2:39:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10577

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	13	5		µg/L	10	4/19/2000
Toluene	220	5		µg/L	10	4/19/2000
Ethylbenzene	54	5		µg/L	10	4/19/2000
m,p-Xylene	130	10		µg/L	10	4/19/2000
o-Xylene	95	5		µg/L	10	4/19/2000

Qualifiers:

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

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ON SITE TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *27-Apr-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0004045	**Client Sample ID:**	MW #47
Lab ID:	0004045-01B **Matrix:** AQUEOUS	**Collection Date:**	4/17/2000 2:39:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10577

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
CALCIUM, DISSOLVED		**E215.1**				Analyst: **HR**
Calcium	490	50		mg/L	200	4/20/2000
IRON, DISSOLVED		**E236.1**				Analyst: **HR**
Iron	0.21	0.1		mg/L	1	4/24/2000
POTASSIUM, DISSOLVED		**E258.1**				Analyst: **HR**
Potassium	6.1	0.5		mg/L	2	4/24/2000
MAGNESIUM, DISSOLVED		**E242.1**				Analyst: **HR**
Magnesium	39	5		mg/L	20	4/20/2000
SODIUM, DISSOLVED		**E273.1**				Analyst: **HR**
Sodium	530	50		mg/L	200	4/20/2000
ALKALINITY, TOTAL		**M2320 B**				Analyst: **HR**
Alkalinity, Bicarbonate (As CaCO3)	330	5		mg/L CaCO3	1	4/19/2000
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/19/2000
Alkalinity, Hydroxide	ND	5		mg/L CaCO3	1	4/19/2000
Alkalinity, Total (As CaCO3)	330	5		mg/L CaCO3	1	4/19/2000
CHLORIDE		**E325.3**				Analyst: **HR**
Chloride	44	1		mg/L	1	4/18/2000
HARDNESS, TOTAL		**M2340 B**				Analyst: **HR**
Hardness (As CaCO3)	1380	1		mg/L	1	4/24/2000
PH		**E150.1**				Analyst: **HR**
pH	7.18	2		pH units	1	4/18/2000
RESISTIVITY (@ 25 DEG. C)		**M2510 C**				Analyst: **DM**
Resistivity	2.4814	0.001		ohm-m	1	4/18/2000
SPECIFIC GRAVITY		**M2710 F**				Analyst: **HR**
Specific Gravity	1.003	0.001		Units	1	4/18/2000
SULFATE		**M4500-SO4 D**				Analyst: **DM**
Sulfate	2280	5		mg/L	1	4/21/2000
TOTAL DISSOLVED SOLIDS		**E160.1**				Analyst: **DM**
Total Dissolved Solids (Residue, Filterable)	3700	40		mg/L	1	4/18/2000
TOTAL DISSOLVED SOLIDS		**CALC**				Analyst: **HR**
Total Dissolved Solids (Calculated)	3580	40		mg/L	1	4/24/2000

Qualifiers:

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

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CHAIN OF COUSTODY RECORD

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

Date: 4/17/00
Page: 1 of 1

Purchase Order No.:	Project No.
SEND INVOICE TO Name: Jeff Blagg	
Company: Blagg Engineering, Inc.	Dept.
Address: P.O. Box 87	
City, State, Zip: Bloomfield NM 87413	

REPORT RESULTS TO Name: Nelson Velez	Title
Company: Same	
Mailing Address	
City, State, Zip	
Telephone No. 632-1199	Telefax No. 632-3903

PROJECT LOCATION: NP Amoco - Gcu com E #181

SAMPLER'S SIGNATURE: Nelson V.

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	PRES.	Number of Containers	BTEX (8021)	API water								LAB ID
MW #47	4/14/00	1437	water	HCl & cool	3	✓	✓								0004045-01A

Relinquished by: Nelson V.	Date/Time 4/18/00 11:23	Received by: Heidi Ross	Date/Time 4/18/00 1125
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time
Method of Shipment:		Rush [ ] 24-48 Hours [X] 10 Working Days [ ] By Date	

Authorized by: ______________ Date ______________
(Client Signature Must Accompany Request)

Special Instructions / Remarks: Please fax upon analytical completion.

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

To Re-order Call 325-9600 or Fax 325-9764 alphagraphics® FORM # 01

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:

Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.1683	0.5									J
Ethylbenzene	.2724	0.5									J
m,p-Xylene	.5229	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.2791	0.5									J
Toluene	.311	0.5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0004040-02AMS** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	539.7	2.5	200	309.3	115.2%	73	126				
Ethylbenzene	393	2.5	200	177.8	107.6%	88	113				
m,p-Xylene	1556	5	400	1115	110.1%	83	112				
Methyl tert-Butyl Ether	220.6	5	200	0	110.3%	81	125				
o-Xylene	379.4	2.5	200	167	106.2%	93	110				
Toluene	366.1	2.5	200	148.7	108.7%	76	126				

Sample ID: **0004040-02AMSD** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	527.3	2.5	200	309.3	109.0%	73	126	539.7	2.3%	6	
Ethylbenzene	380.5	2.5	200	177.8	101.3%	88	113	393	3.2%	5	
m,p-Xylene	1507	5	400	1115	98.0%	83	112	1556	3.2%	7	
Methyl tert-Butyl Ether	216.9	5	200	0	108.5%	81	125	220.6	1.7%	9	
o-Xylene	369	2.5	200	167	101.0%	93	110	379.4	2.8%	6	
Toluene	354.8	2.5	200	148.7	103.0%	76	126	366.1	3.2%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:

Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.2	0.5	40	0.1683	105.1%	89	112				
Ethylbenzene	42.72	0.5	40	0.2724	106.1%	93	112				
m,p-Xylene	80.36	1	80	0.5229	99.8%	88	108				
Methyl tert-Butyl Ether	42.27	1	40	0	105.7%	87	115				
o-Xylene	42.14	0.5	40	0.2791	104.6%	93	112				
Toluene	42.09	0.5	40	0.311	104.4%	92	111				

Qualifiers:

ND - Not Detected at the Reporting Limit

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0004** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:

Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.37	0.5	20	0	106.8%	85	115				
Ethylbenzene	21.42	0.5	20	0	107.1%	85	115				
m,p-Xylene	40.04	1	40	0	100.1%	85	115				
Methyl tert-Butyl Ether	21.18	1	20	0	105.9%	85	115				
o-Xylene	21.22	0.5	20	0	106.1%	85	115				
Toluene	20.96	0.5	20	0	104.8%	85	115				
1,4-Difluorobenzene	89.97	0	100	0	90.0%	80	105				
4-Bromochlorobenzene	90.67	0	100	0	90.7%	78	108				
Fluorobenzene	89.11	0	100	0	89.1%	78	108				

Sample ID: **CCV2 BTEX_0004** Batch ID: **GC-1_000419** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **4/19/2000** Prep Date:

Client ID: **0004045** Run ID: **GC-1_000419A** SeqNo: **26831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.31	0.5	20	0	101.5%	85	115				
Ethylbenzene	21.16	0.5	20	0	105.8%	85	115				
m,p-Xylene	39.62	1	40	0	99.1%	85	115				
Methyl tert-Butyl Ether	21.1	1	20	0	105.5%	85	115				
o-Xylene	20.92	0.5	20	0	104.6%	85	115				
Toluene	20.64	0.5	20	0	103.2%	85	115				
1,4-Difluorobenzene	89.66	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	90.7	0	100	0	90.7%	78	108				
Fluorobenzene	88.48	0	100	0	88.5%	78	108				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 27-Apr-00

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

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

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

*** Surrogate recovery outside acceptance limits**

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **AA_0004025** Test Code: **E273.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420A** SeqNo: **26882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	0.25									

Sample ID: **MBlank** Batch ID: **AA_0004025** Test Code: **E215.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420B** SeqNo: **26907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.25									

Sample ID: **MBlank** Batch ID: **AA_0004025** Test Code: **E242.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420C** SeqNo: **26932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	ND	0.25									

Sample ID: **MBlank** Batch ID: **AA_0004025** Test Code: **E258.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420D** SeqNo: **26957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	0.25									

Sample ID: **MBlank** Batch ID: **AA_0004025** Test Code: **E236.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420E** SeqNo: **26982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.1									

Qualifiers:
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B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Sample Matrix Spike

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **0004033-05AMS** Batch ID: **AA_0004025** Test Code: **E236.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420E** SeqNo: **26989**											
Iron	97.6	2	40	57	101.5%	80	136				
Sample ID: **0004033-08AMS** Batch ID: **AA_0004025** Test Code: **E273.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420A** SeqNo: **26894**											
Sodium	736	50	400	360	94.0%	84	118				
Sample ID: **0004033-08AMS** Batch ID: **AA_0004025** Test Code: **E242.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420C** SeqNo: **26944**											
Magnesium	20.9	1.2	10	10.45	104.5%	84	131				
Sample ID: **0004033-08AMS** Batch ID: **AA_0004025** Test Code: **E258.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420D** SeqNo: **26969**											
Potassium	25.3	1.2	10	14.6	107.0%	51	167				
Sample ID: **0004037-01AMS** Batch ID: **AA_0004025** Test Code: **E215.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420B** SeqNo: **26923**											
Calcium	420	25	200	208	106.0%	90	126				

Qualifiers:
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On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1** Batch ID: **AA_0004025** Test Code: **E273.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420A** SeqNo: **26883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3.01	0.25	3.06	0	98.4%	90	110				

Sample ID: **CCV1** Batch ID: **AA_0004025** Test Code: **E215.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420B** SeqNo: **26908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	3.32	0.25	3.42	0	97.1%	90	110				

Sample ID: **CCV1** Batch ID: **AA_0004025** Test Code: **E242.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420C** SeqNo: **26933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	1.35	0.25	1.24	0	108.9%	90	110				

Sample ID: **CCV1** Batch ID: **AA_0004025** Test Code: **E258.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420D** SeqNo: **26958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	3.58	0.25	3.63	0	98.6%	90	110				

Sample ID: **CCV1** Batch ID: **AA_0004025** Test Code: **E236.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:
Client ID: **0004045** Run ID: **AA_000420E** SeqNo: **26983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2	0.1	2	0	100.0%	90	110				

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B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **CCV2** Batch ID: **AA_0004025** Test Code: **E273.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420A** SeqNo: **26895**											
Sodium	2.93	0.25	3.06	0	95.8%	90	110				
Sample ID: **CCV2** Batch ID: **AA_0004025** Test Code: **E215.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420B** SeqNo: **26919**											
Calcium	3.3	0.25	3.42	0	96.5%	90	110				
Sample ID: **CCV2** Batch ID: **AA_0004025** Test Code: **E242.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420C** SeqNo: **26945**											
Magnesium	1.23	0.25	1.24	0	99.2%	90	110				
Sample ID: **CCV2** Batch ID: **AA_0004025** Test Code: **E258.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420D** SeqNo: **26970**											
Potassium	3.58	0.25	3.63	0	98.6%	90	110				
Sample ID: **CCV2** Batch ID: **AA_0004025** Test Code: **E236.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420E** SeqNo: **26993**											
Iron	2	0.1	2	0	100.0%	90	110				

Qualifiers:
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B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **CCV3** Batch ID: **AA_0004025** Test Code: **E273.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420A** SeqNo: **26906**											
Sodium	2.94	0.25	3.06	0	96.1%	90	110				
Sample ID: **CCV3** Batch ID: **AA_0004025** Test Code: **E215.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420B** SeqNo: **26931**											
Calcium	3.25	0.25	3.42	0	95.0%	90	110				
Sample ID: **CCV3** Batch ID: **AA_0004025** Test Code: **E242.1** Units: **mg/L** Analysis Date: **4/20/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420C** SeqNo: **26956**											
Magnesium	1.22	0.25	1.24	0	98.4%	90	110				
Sample ID: **CCV3** Batch ID: **AA_0004025** Test Code: **E258.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420D** SeqNo: **26981**											
Potassium	3.52	0.25	3.63	0	97.0%	90	110				
Sample ID: **CCV3** Batch ID: **AA_0004025** Test Code: **E236.1** Units: **mg/L** Analysis Date: **4/24/2000** Prep Date:											
Client ID: **0004045** Run ID: **AA_000420E** SeqNo: **27004**											
Iron	1.99	0.1	2	0	99.5%	90	110				

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On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **API_000418** Test Code: **E325.3** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411E** SeqNo: **26728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1									

Sample ID: **MBlank** Batch ID: **API_000418** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411G** SeqNo: **26766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.8	5									J
Alkalinity, Carbonate (As CaCO3)	ND	5									
Alkalinity, Hydroxide	ND	5									
Alkalinity, Total (As CaCO3)	2.8	5									J

Sample ID: **MBlank** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/16/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	40									

Sample ID: **MBlank** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	24	40									J

Qualifiers:
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Method Blank

Sample ID: **MBlank** Batch ID: **API_000418** Test Code: **M4500-SO4 D** Units: **mg/L** Analysis Date: **4/21/2000** Prep Date:

Client ID: **0004045** Run ID: **WET CHEM_000418D** SeqNo: **26846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0004033-01AD** Batch ID: **API_000418** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411G** SeqNo: **26769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	7094	5	0	0	0.0%	0	0	7044	0.7%	4	
Alkalinity, Carbonate (As CaCO3)	2088	5	0	0	0.0%	0	0	2096	0.4%	4	
Alkalinity, Hydroxide	ND	5	0	0	0.0%	0	0	0	0.0%	4	
Alkalinity, Total (As CaCO3)	9182	5	0	0	0.0%	0	0	9140	0.5%	4	

Sample ID: **0004033-01AD** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/16/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	10810	40	0	0	0.0%	0	0	10970	1.5%	5	

Sample ID: **0004037-01AD** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	19230	40	0	0	0.0%	0	0	19400	0.9%	5	

Sample ID: **0004045-01BD** Batch ID: **API_000418** Test Code: **E325.3** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **MW #47** **0004045** Run ID: **WET CHEM_000411E** SeqNo: **26735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	40.1	1	0	0	0.0%	0	0	44.3	10.0%	10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0004045-01BD** Batch ID: **API_000418** Test Code: **M4500-SO4 D** Units: **mg/L** Analysis Date: **4/21/2000** Prep Date:

Client ID: **MW #47** **0004045** Run ID: **WET CHEM_000418D** SeqNo: **26849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2265	5	0	0	0.0%	0	0	2276	0.5%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Apr-00*

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **API_000418** Test Code: **M4500-SO4 D** Units: **mg/L** Analysis Date: **4/21/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000418D** SeqNo: **26847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	64.7	5	69.2	0	93.5%	80	120				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **E325.3** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411E** SeqNo: **26729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	83.5	1	91.2	0	91.6%	83	113				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **E150.1** Units: **pH units** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000418A** SeqNo: **26758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.89	2	9.08	0	97.9%	97	102				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **E150.1** Units: **pH units** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000418A** SeqNo: **26760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.883	2	9.08	0	97.8%	97	102				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **M2510 C** Units: **ohm-m** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000418B** SeqNo: **26762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	10.7	0.001	10.81	0	98.9%	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0004045
Project: BP Amoco; GCU Com I #181

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **M2510 C** Units: **ohm-m** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000418B** SeqNo: **26764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	10.68	0.001	10.81	0	98.8%	80	120				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411G** SeqNo: **26767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	203	5	203	2.8	98.6%	89	109				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **4/19/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411G** SeqNo: **26778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	204	5	203	2.8	99.1%	89	109				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/16/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	808	40	810	0	99.8%	88	105				

Sample ID: **LCS 3018** Batch ID: **API_000418** Test Code: **E160.1** Units: **mg/L** Analysis Date: **4/18/2000** Prep Date:
Client ID: **0004045** Run ID: **WET CHEM_000411H** SeqNo: **26802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	788	40	810	24	94.3%	88	105				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 10594
10605

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ON - SITE, TECH.

Date : June 26, 2000

SAMPLER : N J V

Filename : 06-26-00.WK4

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)
41R	98.55	91.04	7.51	10.00	1100	7.0	4,000	1.25	-
45R	97.28	90.57	6.71	10.00	1450	7.1	3,800	1.75	-
46R	97.36	90.52	6.84	10.00	1115	7.3	3,500	1.50	-
47	98.34	90.49	7.85	15.00	1310	7.1	3,400	3.50	-

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

(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 ".

Drilled MW #'s 41R, 45R, & 46R on 06 / 9 / 00 . All consist of 10 ft. T.D. w / 5 ft. screen intervals

Collected BTEX from all samples listed above except MW # 45R (screen interval damaged).

MW # 47 sample collected & others developed on 6 / 12 / 00 . MW # 45R redrilled on 6 / 23 / 00.

MW # 45R BTEX sample collected on 6 / 26 / 00. Excellent recovery in MW # 45R & # 47 ;

fair / poor recovery in # 41R ; good recovery in # 46R .

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

ON SITE TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *27-Jun-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0006031	**Client Sample ID:**	MW #41R
Lab ID:	0006031-01A **Matrix:** AQUEOUS	**Collection Date:**	6/13/2000 11:00:00 AM
Project:	BP Amoco - GCU Com I #181	**COC Record:**	10594

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	5		µg/L	10	6/18/2000
Toluene	57	5		µg/L	10	6/18/2000
Ethylbenzene	57	5		µg/L	10	6/18/2000
m,p-Xylene	1700	10		µg/L	10	6/18/2000
o-Xylene	620	5		µg/L	10	6/18/2000

Qualifiers:

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

P.O. BOX 2606 • FARMINGTON, NM 87499

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ANALYTICAL REPORT

Date: *12-Jul-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0006062	**Client Sample ID:**	MW-45R
Lab ID:	0006062-01A **Matrix:** AQUEOUS	**Collection Date:**	6/26/2000 2:50:00 PM
Project:	BP Amoco - GCU Com I #181	**COC Record:**	10605

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: **DM**
Benzene	9.2	5		µg/L	10	6/30/2000
Toluene	9.6	5		µg/L	10	6/30/2000
Ethylbenzene	5.3	5		µg/L	10	6/30/2000
m,p-Xylene	11	10		µg/L	10	6/30/2000
o-Xylene	ND	5		µg/L	10	6/30/2000

Qualifiers:

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

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LAB: (505) 325-1556
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ANALYTICAL REPORT

Date: *27-Jun-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0006031	**Client Sample ID:**	MW #46R
Lab ID:	0006031-02A **Matrix:** AQUEOUS	**Collection Date:**	6/13/2000 11:15:00 AM
Project:	BP Amoco - GCU Com I #181	**COC Record:**	10594

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	6.6	0.5		µg/L	1	6/23/2000
Toluene	34	0.5		µg/L	1	6/23/2000
Ethylbenzene	26	0.5		µg/L	1	6/23/2000
m,p-Xylene	67	1		µg/L	1	6/23/2000
o-Xylene	29	0.5		µg/L	1	6/23/2000

Qualifiers:

PQL - Practical Quantitation Limit
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R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

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

ANALYTICAL REPORT

Date: *27-Jun-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0006031	**Client Sample ID:**	MW #4
Lab ID:	0006031-03A **Matrix:** AQUEOUS	**Collection Date:**	6/12/2000 1:10:00 PM
Project:	BP Amoco - GCU Com I #181	**COC Record:**	10594

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	2.5		µg/L	5	6/18/2000
Toluene	ND	2.5		µg/L	5	6/18/2000
Ethylbenzene	100	2.5		µg/L	5	6/18/2000
m,p-Xylene	910	5		µg/L	5	6/18/2000
o-Xylene	130	2.5		µg/L	5	6/18/2000

Qualifiers:

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

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

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

Date: 6/13/00

Page: 1 of 1

Purchase Order No.:	Project No.		
SEND INVOICE TO: Name	Tom Munn	REPORT RESULTS TO: Name	Nelson Velez / Title
Company	Bloomfield Engineering, Inc. / Dept.	Company	Sims
Address	P.O. Box 87	Mailing Address	
City, State, Zip	Bloomfield NM 87413	City, State, Zip	
		Telephone No.	632-1199 / Telefax No. 632-3903

PROJECT LOCATION: BP Amoco - Gas Com E #181

SAMPLER'S SIGNATURE: Nelson Velez

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	ANALYSIS REQUESTED: BTEX (8021)	LAB ID
mw # 41R	6/12/00	1100	water	HCl & cool	2	✓	0006091-01A
mw # 46R	6/12/00	1115	water	HCl & cool	2	✓	-02A
mw # 47 ~~X~~ 50	6/12/00	1310	water	HCl & cool	2	✓	-03A

Relinquished by: Nelson Velez	Date/Time 6/13/00 1000	Received by: [illegible]	Date/Time 6/13/00 1000
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | By Date

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Special Instructions / Remarks:

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

To Re-order Call 325-9600 or Fax 325-9764 alphagraphics' FORM # 01

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

TU605

Date: 6/22/00

Page: 1 of 1

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

Purchase Order No.:	Project No.
SEND INVOICE TO – Name	Jeff Blagg
Company	Blagg Engineering, Inc.
Dept.	
Address	
City, State, Zip	
REPORT RESULTS TO – Name	Nelson Velez
Title	
Company	Same
Mailing Address	
City, State, Zip	
Telephone No.	632-1199
Telefax No.	632-3903

PROJECT LOCATION: BP Amoco - Gallegos Canyon Unit #181

SAMPLER'S SIGNATURE: Nelson Velez

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	ANALYSIS REQUESTED: BTEX (8021)									LAB ID
MW #4SK	6/22/00	1450	water	HCl & cool	2	✓									0000 OIF
X															

Relinquished by:	Date/Time	Received by:	Date/Time
Nelson Velez	6/22/00 1427	David Martin	6/22/00 1427

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | By Date

Special Instructions / Remarks:

Authorized by: ______________ Date ______________
(Client Signature Must Accompany Request)

On Site Technologies, LTD.

Date: *27-Jun-00*

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT
Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
Methyl tert-Butyl Ether	ND	1									
o-Xylene	ND	0.5									
Toluene	.0732	0.5									J

Sample ID: **MB1** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0328	0.5									J
Ethylbenzene	.0553	0.5									J
m,p-Xylene	.1081	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.0693	0.5									J
Toluene	.0934	0.5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Jun-00*

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0006034-02AMS** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	4968	50	4000	419.3	113.7%	73	126				
Ethylbenzene	4553	50	4000	128.6	110.6%	88	113				
m,p-Xylene	8680	100	8000	278.6	105.0%	83	112				
Methyl tert-Butyl Ether	10220	100	4000	5312	122.7%	81	125				
o-Xylene	4463	50	4000	11.62	111.3%	93	110				S
Toluene	4498	50	4000	23.21	111.9%	76	126				

Sample ID: **0006034-02AMSD** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	4478	50	4000	419.3	101.5%	73	126	4968	10.4%	6	R
Ethylbenzene	4106	50	4000	128.6	99.4%	88	113	4553	10.3%	5	R
m,p-Xylene	7836	100	8000	278.6	94.5%	83	112	8680	10.2%	7	R
Methyl tert-Butyl Ether	9378	100	4000	5312	101.7%	81	125	10220	8.6%	9	
o-Xylene	4038	50	4000	11.62	100.7%	93	110	4463	10.0%	6	R
Toluene	4058	50	4000	23.21	100.9%	76	126	4498	10.3%	6	R

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0006034-10AMS** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	3604	25	2000	1556	102.4%	73	126				
Ethylbenzene	2481	25	2000	508.7	98.6%	88	113				
m,p-Xylene	4360	50	4000	560.3	95.0%	83	112				
Methyl tert-Butyl Ether	9709	50	2000	7623	104.3%	81	125				
o-Xylene	2043	25	2000	11.82	101.5%	93	110				
Toluene	2060	25	2000	12.97	102.4%	76	126				

Sample ID: **0006034-10AMSD** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	3495	25	2000	1556	96.9%	73	126	3604	3.1%	6	
Ethylbenzene	2407	25	2000	508.7	94.9%	88	113	2481	3.0%	5	
m,p-Xylene	4238	50	4000	560.3	92.0%	83	112	4360	2.8%	7	
Methyl tert-Butyl Ether	9633	50	2000	7623	100.5%	81	125	9709	0.8%	9	
o-Xylene	1992	25	2000	11.82	99.0%	93	110	2043	2.5%	6	
Toluene	2004	25	2000	12.97	99.6%	76	126	2060	2.8%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Jun-00*

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.57	0.5	40	0	103.9%	89	112				
Ethylbenzene	41.32	0.5	40	0	103.3%	93	112				
m,p-Xylene	78.76	1	80	0	98.4%	88	108				
Methyl tert-Butyl Ether	41.71	1	40	0	104.3%	87	115				
o-Xylene	41.67	0.5	40	0	104.2%	93	112				
Toluene	41.5	0.5	40	0.0732	103.6%	92	111				

Sample ID: **LCS WATER** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.49	0.5	40	0.0328	101.1%	89	112				
Ethylbenzene	39.96	0.5	40	0.0553	99.8%	93	112				
m,p-Xylene	75.89	1	80	0.1081	94.7%	88	108				
Methyl tert-Butyl Ether	41.85	1	40	0	104.6%	87	115				
o-Xylene	40.3	0.5	40	0.0693	100.6%	93	112				
Toluene	40.41	0.5	40	0.0934	100.8%	92	111				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *27-Jun-00*

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0004** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.11	0.5	20	0	105.5%	85	115				
Ethylbenzene	20.86	0.5	20	0	104.3%	85	115				
m,p-Xylene	39.72	1	40	0	99.3%	85	115				
Methyl tert-Butyl Ether	21.2	1	20	0	106.0%	85	115				
o-Xylene	21.01	0.5	20	0	105.0%	85	115				
Toluene	20.95	0.5	20	0	104.8%	85	115				
1,4-Difluorobenzene	90.2	0	100	0	90.2%	80	105				
4-Bromochlorobenzene	84.81	0	100	0	84.8%	78	108				
Fluorobenzene	88.54	0	100	0	88.5%	78	108				

Sample ID: **CCV2 BTEX_0004** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:

Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.22	0.5	20	0	106.1%	85	115				
Ethylbenzene	20.88	0.5	20	0	104.4%	85	115				
m,p-Xylene	39.93	1	40	0	99.8%	85	115				
Methyl tert-Butyl Ether	22.52	1	20	0	112.6%	85	115				
o-Xylene	21.12	0.5	20	0	105.6%	85	115				
Toluene	21.03	0.5	20	0	105.1%	85	115				
1,4-Difluorobenzene	89.71	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	84.41	0	100	0	84.4%	78	108				
Fluorobenzene	88.62	0	100	0	88.6%	78	108				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3 BTEX_0004** Batch ID: **GC-1_000618** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/18/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000618A** SeqNo: **28757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.5	0.5	40	0	106.3%	85	115				
Ethylbenzene	42.22	0.5	40	0	105.5%	85	115				
m,p-Xylene	80.24	1	80	0	100.3%	85	115				
Methyl tert-Butyl Ether	44.61	1	40	0	111.5%	85	115				
o-Xylene	42.68	0.5	40	0	106.7%	85	115				
Toluene	42.52	0.5	40	0	106.3%	85	115				
1,4-Difluorobenzene	89.3	0	100	0	89.3%	80	105				
4-Bromochlorobenzene	84.12	0	100	0	84.1%	78	108				
Fluorobenzene	88.14	0	100	0	88.1%	78	108				

Sample ID: **CCV1 BTEX_0004** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.96	0.5	20	0	104.8%	85	115				
Ethylbenzene	20.79	0.5	20	0	103.9%	85	115				
m,p-Xylene	39.54	1	40	0	98.8%	85	115				
Methyl tert-Butyl Ether	21.29	1	20	0	106.5%	85	115				
o-Xylene	20.89	0.5	20	0	104.4%	85	115				
Toluene	20.95	0.5	20	0	104.7%	85	115				
1,4-Difluorobenzene	89.35	0	100	0	89.4%	80	105				
4-Bromochlorobenzene	84.87	0	100	0	84.9%	78	108				
Fluorobenzene	87.81	0	100	0	87.8%	78	108				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV2 BTEX_0004** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.08	0.5	20	0	105.4%	85	115				
Ethylbenzene	20.84	0.5	20	0	104.2%	85	115				
m,p-Xylene	39.7	1	40	0	99.3%	85	115				
Methyl tert-Butyl Ether	22.3	1	20	0	111.5%	85	115				
o-Xylene	21.05	0.5	20	0	105.2%	85	115				
Toluene	21.08	0.5	20	0	105.4%	85	115				
1,4-Difluorobenzene	89.65	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	84.1	0	100	0	84.1%	78	108				
Fluorobenzene	87.84	0	100	0	87.8%	78	108				

Sample ID: **CCV3 BTEX_0004** Batch ID: **GC-1_000623** Test Code: **SW8021B** Units: **µg/L** Analysis Date: **6/23/2000** Prep Date:
Client ID: **0006031** Run ID: **GC-1_000623A** SeqNo: **29249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.7	0.5	40	0	106.7%	85	115				
Ethylbenzene	41.88	0.5	40	0	104.7%	85	115				
m,p-Xylene	79.61	1	80	0	99.5%	85	115				
Methyl tert-Butyl Ether	44.54	1	40	0	111.4%	85	115				
o-Xylene	42.28	0.5	40	0	105.7%	85	115				
Toluene	42.6	0.5	40	0	106.5%	85	115				
1,4-Difluorobenzene	89.71	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	83.17	0	100	0	83.2%	78	108				
Fluorobenzene	87.65	0	100	0	87.7%	78	108				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 27-Jun-00

CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0006026-07A	86.2	83.6	86
0006028-04A	89.9	83.7	89.5
0006028-14A	89.9	83.4	88.9
0006030-01A	90.2	84.6	89.5
0006030-02A	88.9	84.9	87.6
0006030-03A	90.8	83.8	89.8
0006030-04A	90.3	83.3	89.5
0006030-05A	90.2	84.1	89.3
0006030-06A	87.9	85.1	86.4
0006031-01A	89.2	82.6	89.3
0006031-02A	86.6	81.8	89
0006031-03A	89.8	83.3	89.1
0006032-01A	84.9	84.7	85.6
0006033-01A	87.8	82.8	87.3
0006034-01A	90.4	83.7	89.4
0006034-02A	88.4	86.2	87.4
0006034-02AMS	89.5	84.5	88
0006034-02AMSD	89.6	84.7	88.2
0006034-03A	94.1	85.8	88.3
0006034-04A	88	83.2	87
0006034-05A	88.7	85.4	87
0006034-06A	90.4	84.3	89.2
0006034-07A	88.1	86	86.7
0006034-08A	88.5	85.2	86.4
0006034-09A	88.2	85.2	87
0006034-10A	88.7	84.9	87.4
0006034-10AMS	88.6	85	87.3

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

*** Surrogate recovery outside acceptance limits**

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CLIENT: Blagg Engineering
Work Order: 0006031
Project: BP Amoco - GCU Com I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0006034-10AMSD	88.8	85.8	87
0006034-11A	89.8	85	88.5
0006034-12A	90.3	84.8	88.3
0006034-13A	89.6	84.3	88
0006034-14A	89.6	84.6	88.2
0006034-15A	89.4	85.3	87.5
0006034-16A	88.2	85	87.1
0006034-17A	88.3	84.3	86.8
0006034-18A	89.9	84.1	88
0006034-19A	89	84.5	87.3
0006034-20A	88.5	84.7	86.8
0006034-21A	89.8	85.2	88.8
0006036-01A	89.4	83.4	88.4
CCV1 BTEX_00040	89.4	84.9	87.8
CCV2 BTEX_00040	89.6	84.1	87.8
CCV3 BTEX_00040	89.7	83.2	87.6
LCS WATER	89.4	84.4	87.4
MB1	90.3	83.7	88.4

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

*** Surrogate recovery outside acceptance limits**

On Site Technologies, LTD.

Date: *12-Jul-00*

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0662	0.5									J
Ethylbenzene	.0926	0.5									J
m,p-Xylene	.1955	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.1915	0.5									J
Toluene	.2052	0.5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *12-Jul-00*

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0006067-02AMS** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6142	50	4000	2160	99.6%	73	126				
Ethylbenzene	4770	50	4000	761.2	100.2%	88	113				
m,p-Xylene	10130	100	8000	2541	94.9%	83	112				
Methyl tert-Butyl Ether	4269	100	4000	192.6	101.9%	81	125				
o-Xylene	4523	50	4000	475	101.2%	93	110				
Toluene	6361	50	4000	2326	100.9%	76	126				

Sample ID: **0006067-02AMSD** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6030	50	4000	2160	96.7%	73	126	6142	1.9%	6	
Ethylbenzene	4686	50	4000	761.2	98.1%	88	113	4770	1.8%	5	
m,p-Xylene	9959	100	8000	2541	92.7%	83	112	10130	1.7%	7	
Methyl tert-Butyl Ether	4256	100	4000	192.6	101.6%	81	125	4269	0.3%	9	
o-Xylene	4455	50	4000	475	99.5%	93	110	4523	1.5%	6	
Toluene	6245	50	4000	2326	98.0%	76	126	6361	1.8%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *12-Jul-00*

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.35	0.5	40	0.0662	100.7%	89	112				
Ethylbenzene	40.86	0.5	40	0.0926	101.9%	93	112				
m,p-Xylene	77.5	1	80	0.1955	96.6%	88	108				
Methyl tert-Butyl Ether	40.23	1	40	0	100.6%	87	115				
o-Xylene	41.16	0.5	40	0.1915	102.4%	93	112				
Toluene	41.01	0.5	40	0.2052	102.0%	92	111				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *12-Jul-00*

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0004** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29656**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.74	0.5	20	0	103.7%	85	115				
Ethylbenzene	21	0.5	20	0	105.0%	85	115				
m,p-Xylene	39.95	1	40	0	99.9%	85	115				
Methyl tert-Butyl Ether	20.49	1	20	0	102.5%	85	115				
o-Xylene	21.27	0.5	20	0	106.4%	85	115				
Toluene	21.05	0.5	20	0	105.3%	85	115				
1,4-Difluorobenzene	89.85	0	100	0	89.9%	80	105				
4-Bromochlorobenzene	84.68	0	100	0	84.7%	78	108				
Fluorobenzene	88.46	0	100	0	88.5%	78	108				

Sample ID: **CCV2 BTEX_0004** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.07	0.5	20	0	100.4%	85	115				
Ethylbenzene	20.26	0.5	20	0	101.3%	85	115				
m,p-Xylene	38.7	1	40	0	96.7%	85	115				
Methyl tert-Butyl Ether	20.64	1	20	0	103.2%	85	115				
o-Xylene	20.52	0.5	20	0	102.6%	85	115				
Toluene	20.42	0.5	20	0	102.1%	85	115				
1,4-Difluorobenzene	90.15	0	100	0	90.1%	80	105				
4-Bromochlorobenzene	85.09	0	100	0	85.1%	78	108				
Fluorobenzene	88.6	0	100	0	88.6%	78	108				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3 BTEX_0004** Batch ID: **GC-1_000630** Test Code: **SW8021B** Units: **µg/L** Analysis Date **6/30/2000** Prep Date:

Client ID: **0006062** Run ID: **GC-1_000630A** SeqNo: **29658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.36	0.5	40	0	100.9%	85	115				
Ethylbenzene	40.66	0.5	40	0	101.7%	85	115				
m,p-Xylene	77.16	1	80	0	96.4%	85	115				
Methyl tert-Butyl Ether	41.35	1	40	0	103.4%	85	115				
o-Xylene	41.21	0.5	40	0	103.0%	85	115				
Toluene	40.98	0.5	40	0	102.4%	85	115				
1,4-Difluorobenzene	89.84	0	100	0	89.8%	80	105				
4-Bromochlorobenzene	85.42	0	100	0	85.4%	78	108				
Fluorobenzene	87.99	0	100	0	88.0%	78	108				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 12-Jul-00

CLIENT: Blagg Engineering
Work Order: 0006062
Project: BP Amoco - GCU Com I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0006050-18A	90.2	82.4	89.6
0006054-02A	90.3	85	89.2
0006055-01A	90.7	83.9	89.4
0006055-02A	90.5	85	89.2
0006056-01A	90.3	85.5	89.2
0006056-02A	87.4	83	86.9
0006056-03A	90.4	85	89.4
0006061-01A	91	85.2	89.2
0006061-02A	88.8	84	87
0006061-03A	90	85	88.2
0006061-04A	90.6	85	89.2
0006061-05A	90.6	84.7	89.1
0006067-01A	90.4	83.8	89.1
0006067-02A	89.6	85	88.6
0006067-02AMS	89.5	85.6	87.8
0006067-02AMSD	89.5	85.7	87.7
0006067-03A	89.8	84.6	89.2
0006068-02A	89.3	85.2	87.3
0006068-03A	84.3	80.2	83.1
0006071-01A	90.7	83.4	89.1
CCV1 BTEX_00040	89.8	84.7	88.4
CCV2 BTEX_00040	90.1	85.1	88.6
CCV3 BTEX_00040	89.8	85.4	88
LCS WATER	89.4	85.5	88.1
MB1	90	84.3	89

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

*** Surrogate recovery outside acceptance limits**

1

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : BP AMOCO

CHAIN-OF-CUSTODY # : 10770

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ON - SITE, TECH.

Date : August 30, 2000

SAMPLER : N J V

Filename : 08-30-00.WK4

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)
41R	98.55	93.45	5.10	10.00	1415	6.9	5,000	2.50	-
45R	97.28	90.28	7.00	10.00	1405	7.1	3,900	1.50	-
46R	97.36	91.16	6.20	10.00	1355	7.2	3,900	2.00	-
47	98.34	89.94	8.40	15.00	1305	7.1	3,800	3.25	-

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

(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 ".

Collected BTEX from all samples listed above . BEI reclamation system operational at time of sampling . Excellent recovery in MW # 45R & # 47 ; fair / poor recovery in # 41R; good recovery in # 46R . No exact water level taken due to air sparge agitation in each MW , therefore no groundwater gradient can be ascertained .

OFF: (505) 325-5667
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ON SITE TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *07-Sep-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0008054	**Client Sample ID:**	MW #41R
Lab ID:	0008054-01A **Matrix:** AQUEOUS	**Collection Date:**	8/30/2000 2:15:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10770

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	2.5		µg/L	5	9/1/2000
Toluene	ND	2.5		µg/L	5	9/1/2000
Ethylbenzene	5.1	2.5		µg/L	5	9/1/2000
m,p-Xylene	600	5		µg/L	5	9/1/2000
o-Xylene	29	2.5		µg/L	5	9/1/2000

Qualifiers:

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

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ANALYTICAL REPORT

Date: *07-Sep-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0008054	**Client Sample ID:**	MW #45R
Lab ID:	0008054-02A **Matrix:** AQUEOUS	**Collection Date:**	8/30/2000 2:05:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10770

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	9/1/2000
Toluene	ND	0.5		µg/L	1	9/1/2000
Ethylbenzene	ND	0.5		µg/L	1	9/1/2000
m,p-Xylene	ND	1		µg/L	1	9/1/2000
o-Xylene	ND	0.5		µg/L	1	9/1/2000

Qualifiers:

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

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ANALYTICAL REPORT

Date: *07-Sep-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0008054	**Client Sample ID:**	MW #46R
Lab ID:	0008054-03A **Matrix:** AQUEOUS	**Collection Date:**	8/30/2000 1:55:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10770

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	2.7	0.5		µg/L	1	8/31/2000
Toluene	4.2	0.5		µg/L	1	8/31/2000
Ethylbenzene	16	0.5		µg/L	1	8/31/2000
m,p-Xylene	25	1		µg/L	1	8/31/2000
o-Xylene	16	0.5		µg/L	1	8/31/2000

Qualifiers:

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

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ANALYTICAL REPORT

Date: *07-Sep-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0008054	**Client Sample ID:**	MW #47
Lab ID:	0008054-04A **Matrix:** AQUEOUS	**Collection Date:**	8/30/2000 1:05:00 PM
Project:	BP Amoco; GCU Com I #181	**COC Record:**	10770

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	9/1/2000
Toluene	ND	0.5		µg/L	1	9/1/2000
Ethylbenzene	35	0.5		µg/L	1	9/1/2000
m,p-Xylene	140	1		µg/L	1	9/1/2000
o-Xylene	14	0.5		µg/L	1	9/1/2000

Qualifiers:

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

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- *TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT* -

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CHAIN OF CUSTODY RECORD

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Date: 8/30/00
Page: 1 of 1

Purchase Order No.: | Project No.

SEND INVOICE TO
Name: J. BLAGG
Company: BLAGG ENGINEERING, INC.   Dept.
Address:
City, State, Zip:

REPORT RESULTS TO
Name: N. VELEZ   Title:
Company: SAME
Mailing Address:
City, State, Zip:
Telephone No.:   Telefax No.:

PROJECT LOCATION: BP Amoco - Gcn com I #181

SAMPLER'S SIGNATURE: Nelson Vel

SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	PRES.	Number of Containers	BTEX (8021)									LAB ID
MW #41R	8/30/00	1415	WATER	HCl & COOL	2	✓									0008054-01A
MW #45R	8/30/00	1425	WATER	HCl & COOL	2	✓									-02A
MW #46R	8/30/00	1355	WATER	HCl & COOL	2	✓									-03A
MW #47	8/30/00	1305	WATER	HCl & COOL	2	✓									-04A

Relinquished by:	Date/Time	Received by:	Date/Time
Nelson Vel	8/30/00 1445	Heidi V[illegible]	[illegible]

Method of Shipment:

Rush ☐ 24-48 Hours ☐ 10 Working Days ☐ By Date

Special Instructions / Remarks:

Authorized by: ______________ Date ______________
(Client Signature Must Accompany Request)

Distribution: White - On Site   Yellow - LAB   Pink - Sampler   Goldenrod - Client

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On Site Technologies, LTD.

Date: *07-Sep-00*

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT
Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30974**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	.1135	1									J
o-Xylene	ND	0.5									
Toluene	ND	0.5									

Sample ID: **MB1** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000901A** SeqNo: **30988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
o-Xylene	ND	0.5									
Toluene	ND	0.5									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *07-Sep-00*

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0008053-02AMS** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30975**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1967	25	2000	0	98.3%	88	112				
Ethylbenzene	2211	25	2000	128.1	104.1%	86	113				
m,p-Xylene	8232	50	4000	4139	102.3%	85	108				
o-Xylene	2752	25	2000	699	102.6%	92	110				
Toluene	2078	25	2000	12.03	103.3%	88	116				

Sample ID: **0008053-02AMSD** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30976**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1928	25	2000	0	96.4%	88	112	1967	2.0%	6	
Ethylbenzene	2170	25	2000	128.1	102.1%	86	113	2211	1.9%	6	
m,p-Xylene	8081	50	4000	4139	98.6%	85	108	8232	1.8%	6	
o-Xylene	2708	25	2000	699	100.5%	92	110	2752	1.6%	6	
Toluene	2038	25	2000	12.03	101.3%	88	116	2078	1.9%	6	

Sample ID: **0008054-01AMS** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:
Client ID: **MW #41R** **0008054** Run ID: **GC-1_000901A** SeqNo: **30989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	192.9	2.5	200	0	96.4%	88	112				
Ethylbenzene	210.7	2.5	200	5.1	102.8%	86	113				
m,p-Xylene	1029	5	400	600	107.3%	85	108				
o-Xylene	237.8	2.5	200	29	104.4%	92	110				
Toluene	210.5	2.5	200	9.8	100.4%	88	116				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT
Sample Matrix Spike Duplicate

Sample ID: **0008054-01AMSD** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:

Client ID: **MW #41R** **0008054** Run ID: **GC-1_000901A** SeqNo: **30990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	192	2.5	200	0	96.0%	88	112	192.9	0.4%	6	
Ethylbenzene	209.7	2.5	200	5.1	102.3%	86	113	210.7	0.5%	6	
m,p-Xylene	1031	5	400	600	107.8%	85	108	1029	0.2%	6	
o-Xylene	244.2	2.5	200	29	107.6%	92	110	237.8	2.7%	6	
Toluene	212.2	2.5	200	9.8	101.2%	88	116	210.5	0.8%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *07-Sep-00*

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS SOIL** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.81	0.5	40	0	99.5%	96	111				
Ethylbenzene	42.34	0.5	40	0	105.8%	96	111				
m,p-Xylene	84.01	1	80	0.1135	104.9%	92	105				
o-Xylene	42.05	0.5	40	0	105.1%	97	110				
Toluene	41.37	0.5	40	0	103.4%	97	109				

Sample ID: **LCS WATER** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000901A** SeqNo: **30987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.05	0.5	40	0	97.6%	96	111				
Ethylbenzene	41.7	0.5	40	0	104.2%	96	111				
m,p-Xylene	82.75	1	80	0	103.4%	92	105				
o-Xylene	41.44	0.5	40	0	103.6%	97	110				
Toluene	40.64	0.5	40	0	101.6%	97	109				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *07-Sep-00*

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0007** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:

Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.61	0.5	20	0	98.1%	85	115				
Ethylbenzene	21.04	0.5	20	0	105.2%	85	115				
m,p-Xylene	42.02	1	40	0	105.0%	85	115				
o-Xylene	21.04	0.5	20	0	105.2%	85	115				
Toluene	20.46	0.5	20	0	102.3%	85	115				
1,4-Difluorobenzene	84.76	0	100	0	84.8%	79	101				
4-Bromochlorobenzene	98.28	0	100	0	98.3%	78	99				
Fluorobenzene	78.67	0	100	0	78.7%	76	103				

Sample ID: **CCV2 BTEX_0007** Batch ID: **GC-1_000831** Test Code: **SW8021B** Units: **µg/L** Analysis Date **8/31/2000** Prep Date:

Client ID: **0008054** Run ID: **GC-1_000831A** SeqNo: **30972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.7	0.5	20	0	98.5%	85	115				
Ethylbenzene	20.72	0.5	20	0	103.6%	85	115				
m,p-Xylene	41.42	1	40	0	103.6%	85	115				
o-Xylene	20.73	0.5	20	0	103.7%	85	115				
Toluene	20.25	0.5	20	0	101.3%	85	115				
1,4-Difluorobenzene	84.9	0	100	0	84.9%	79	101				
4-Bromochlorobenzene	96.39	0	100	0	96.4%	78	99				
Fluorobenzene	79.35	0	100	0	79.4%	76	103				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0007** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000901A** SeqNo: **30985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.34	0.5	20	0	101.7%	85	115				
Ethylbenzene	21.8	0.5	20	0	109.0%	85	115				
m,p-Xylene	43.51	1	40	0	108.8%	85	115				
o-Xylene	21.7	0.5	20	0	108.5%	85	115				
Toluene	21.16	0.5	20	0	105.8%	85	115				
1,4-Difluorobenzene	88.03	0	100	0	88.0%	79	101				
4-Bromochlorobenzene	90.8	0	100	0	90.8%	78	99				
Fluorobenzene	86.95	0	100	0	86.9%	76	103				

Sample ID: **CCV2 BTEX_0007** Batch ID: **GC-1_000901** Test Code: **SW8021B** Units: **µg/L** Analysis Date **9/1/2000** Prep Date:
Client ID: **0008054** Run ID: **GC-1_000901A** SeqNo: **30986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.74	0.5	20	0	98.7%	85	115				
Ethylbenzene	20.95	0.5	20	0	104.7%	85	115				
m,p-Xylene	41.89	1	40	0	104.7%	85	115				
o-Xylene	20.96	0.5	20	0	104.8%	85	115				
Toluene	20.47	0.5	20	0	102.4%	85	115				
1,4-Difluorobenzene	88.44	0	100	0	88.4%	79	101				
4-Bromochlorobenzene	86.46	0	100	0	86.5%	78	99				
Fluorobenzene	87.57	0	100	0	87.6%	76	103				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 07-Sep-00

CLIENT: Blagg Engineering
Work Order: 0008054
Project: BP Amoco; GCU I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ					
0008051-01A	79	91.2	87.2					
0008052-01A	88	88	86.4					
0008053-01A	85.6	96.5	80					
0008053-02A	87.4	85.1	86.7					
0008053-02AMS	84.2	97.2	78.8					
0008053-02AMSD	84.6	97.2	78.7					
0008054-01A	88.3	82.6	87.6					
0008054-01AMS	87.1	91.4	87					
0008054-01AMSD	87.1	90.3	87					
0008054-02A	90	90.3	89.2					
0008054-03A	83.9	94.5	80					
0008054-04A	87.6	88.3	87.8					
0009001-01A	88.8	89	87.8					
0009003-01A	89	89.4	87.7					
0009003-03A	88.8	89.1	87.9					
CCV1 BTEX_00070	88	90.8	86.9					
CCV2 BTEX_00070	88.4	86.5	87.6					
LCS SOIL	84.4	98.3	78.7					
LCS WATER	88	90.6	86.7					
MB1	88.8	90.7	87.2					

Acronym		Surrogate	QC Limits
14FBZ	=	1,4-Difluorobenzene	79-101
4BCBZ	=	4-Bromochlorobenzene	78-99
FLBZ	=	Fluorobenzene	76-103

*** Surrogate recovery outside acceptance limits**

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : BP AMOCO

CHAIN-OF-CUSTODY # : 10346

GCU COM I # 181
UNIT F, SEC. 34, T29N, R12W

LABORATORY (S) USED : ON - SITE, TECH.

Date : November 29, 2000

SAMPLER : N J V

Filename : 11-29-00.WK4

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)
41R	98.55	90.96	7.59	10.00	1215	7.7	6,100	2.00	-
45R	97.28	90.58	6.70	10.00	1155	7.3	3,800	1.75	-
46R	97.36	91.44	5.92	10.00	1205	7.5	3,700	1.50	-
47	98.34	90.34	8.00	15.00	1245	7.4	3,600	3.50	-

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

(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 ".

Collected BTEX from all samples listed above . BEI reclamation system operational at time of sampling . Excellent recovery in MW # 45R & # 47 ; fair / poor recovery in # 41R ; good recovery in MW # 46R . Shut down reclamation system on 11 / 29 / 00 . Collected DTW level on 11 / 30 / 00 . then restarted system .

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

ON SITE TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *15-Dec-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0011049	**Client Sample ID:**	MW #41R
Lab ID:	0011049-01A **Matrix:** AQUEOUS	**Collection Date:**	11/29/2000 12:15:00 PM
Project:	BP - GCU Com I #181	**COC Record:**	10346

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	2.5		µg/L	5	12/5/2000
Toluene	ND	2.5		µg/L	5	12/5/2000
Ethylbenzene	ND	2.5		µg/L	5	12/5/2000
m,p-Xylene	ND	5		µg/L	5	12/5/2000
o-Xylene	ND	2.5		µg/L	5	12/5/2000

Qualifiers:

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

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ON SITE TECHNOLOGIES, LTD.

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

ANALYTICAL REPORT

Date: *15-Dec-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0011049	**Client Sample ID:**	MW #45R
Lab ID:	0011049-02A **Matrix:** AQUEOUS	**Collection Date:**	11/29/2000 11:55:00 AM
Project:	BP - GCU Com I #181	**COC Record:**	10346

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	0.5		µg/L	1	12/5/2000
Toluene	ND	0.5		µg/L	1	12/5/2000
Ethylbenzene	0.8	0.5		µg/L	1	12/5/2000
m,p-Xylene	160	1		µg/L	1	12/5/2000
o-Xylene	74	0.5		µg/L	1	12/5/2000

Qualifiers:

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

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ANALYTICAL REPORT

Date: *15-Dec-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0011049	**Client Sample ID:**	MW #46R
Lab ID:	0011049-03A **Matrix:** AQUEOUS	**Collection Date:**	11/29/2000 12:05:00 PM
Project:	BP - GCU Com I #181	**COC Record:**	10346

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	0.5		µg/L	1	12/5/2000
Toluene	ND	0.5		µg/L	1	12/5/2000
Ethylbenzene	2.6	0.5		µg/L	1	12/5/2000
m,p-Xylene	5.9	1		µg/L	1	12/5/2000
o-Xylene	2.3	0.5		µg/L	1	12/5/2000

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

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ANALYTICAL REPORT

Date: *15-Dec-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU Com I #181
Work Order:	0011049	**Client Sample ID:**	MW #47
Lab ID:	0011049-04A **Matrix:** AQUEOUS	**Collection Date:**	11/29/2000 12:45:00 PM
Project:	BP - GCU Com I #181	**COC Record:**	10346

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	2.5		µg/L	5	12/5/2000
Toluene	2.6	2.5		µg/L	5	12/5/2000
Ethylbenzene	15	2.5		µg/L	5	12/5/2000
m,p-Xylene	31	5		µg/L	5	12/5/2000
o-Xylene	9.6	2.5		µg/L	5	12/5/2000

Qualifiers:

- PQL - Practical Quantitation Limit
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- J - Analyte detected below Practical Quantitation Limit
- B - Analyte detected in the associated Method Blank
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- Surr: - Surrogate

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CHAIN OF CUSTODY RECORD

10346

Date: 11/29/00

Page: 1 of 1

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Purchase Order No.:	Project No.		
SEND INVOICE TO — Name: JEFF BLAGG		REPORT RESULTS TO — Name: NELSON VELEZ	Title
Company: BLAGG ENGINEERING, INC.	Dept.	Company: SAME	
Address		Mailing Address	
City, State, Zip		City, State, Zip	
		Telephone No.: 632-1199	Telefax No.: 632-3903

PROJECT LOCATION: SP - Gas Com I #181

SAMPLER'S SIGNATURE: Nelson Velez

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	ANALYSIS REQUESTED: BTEX (8021)	LAB ID
MW # 41R	11/29/00	1215	WATER	HCl & COOL	2	✓	00346-01
MW # 45R	11/29/00	1155	WATER	HCl & COOL	2	✓	-02
MW # 46R	11/29/00	1205	WATER	HCl & COOL	2	✓	-03
MW # 47	11/29/00	1245	WATER	HCl & COOL	2	✓	-04

Relinquished by: Nelson Velez	Date/Time: 11/29/00 1534	Received by: [illegible]	Date/Time: 11/29/00 1534
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | By Date

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Special Instructions / Remarks:

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

To Re-order Call 325-9600 or Fax 325-9764 alphaGraphics FORM # 01

On Site Technologies, LTD.

Date: *15-Dec-00*

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181

QC SUMMARY REPORT

Method Blank

Sample ID: **MB1** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:

Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	.0771	0.5									J
m,p-Xylene	.2174	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.2053	0.5									J
Toluene	ND	0.5									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Dec-00*

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0012002-03AMS** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:
Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1939	25	2000	0	97.0%	88	112				
Ethylbenzene	1968	25	2000	41.32	96.4%	86	113				
m,p-Xylene	4855	50	4000	1051	95.1%	85	108				
Methyl tert-Butyl Ether	1964	50	2000	0	98.2%	86	117				
o-Xylene	2031	25	2000	75.36	97.8%	92	110				
Toluene	1974	25	2000	0	98.7%	88	116				

Sample ID: **0012002-03AMSD** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:
Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1950	25	2000	0	97.5%	88	112	1939	0.5%	6	
Ethylbenzene	1980	25	2000	41.32	96.9%	86	113	1968	0.6%	6	
m,p-Xylene	4890	50	4000	1051	96.0%	85	108	4855	0.7%	6	
Methyl tert-Butyl Ether	1998	50	2000	0	99.9%	86	117	1964	1.7%	7	
o-Xylene	2051	25	2000	75.36	98.8%	92	110	2031	1.0%	6	
Toluene	1989	25	2000	0	99.5%	88	116	1974	0.8%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Dec-00*

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:

Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.45	0.5	40	0	96.1%	96	111				
Ethylbenzene	38.65	0.5	40	0.0771	96.4%	96	111				
m,p-Xylene	77.64	1	80	0.2174	96.8%	92	105				
Methyl tert-Butyl Ether	38.91	1	40	0	97.3%	93	113				
o-Xylene	39.21	0.5	40	0.2053	97.5%	97	110				
Toluene	39.05	0.5	40	0	97.6%	97	109				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Dec-00*

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0010** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:
Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.34	0.5	20	0	101.7%	85	115				
Ethylbenzene	21.73	0.5	20	0	108.7%	85	115				
m,p-Xylene	42.14	1	40	0	105.3%	85	115				
Methyl tert-Butyl Ether	20.24	1	20	0	101.2%	85	115				
o-Xylene	20.94	0.5	20	0	104.7%	85	115				
Toluene	20.71	0.5	20	0	103.5%	85	115				
1,4-Difluorobenzene	73.54	0	80	0	91.9%	70	130				
4-Bromochlorobenzene	80.05	0	80	0	100.1%	70	130				
Fluorobenzene	73.2	0	80	0	91.5%	70	130				

Sample ID: **CCV2 BTEX_0010** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:
Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.51	0.5	20	0	97.6%	85	115				
Ethylbenzene	19.8	0.5	20	0	99.0%	85	115				
m,p-Xylene	39.72	1	40	0	99.3%	85	115				
Methyl tert-Butyl Ether	19.93	1	20	0	99.7%	85	115				
o-Xylene	20.17	0.5	20	0	100.9%	85	115				
Toluene	19.77	0.5	20	0	98.9%	85	115				
1,4-Difluorobenzene	73.34	0	80	0	91.7%	70	130				
4-Bromochlorobenzene	82.12	0	80	0	102.7%	70	130				
Fluorobenzene	73.54	0	80	0	91.9%	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3 BTEX_0010** Batch ID: **GC-1_001205** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/5/2000** Prep Date:

Client ID: **0011049** Run ID: **GC-1_001205A** SeqNo: **33204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.45	0.5	40	0	101.1%	85	115				
Ethylbenzene	40.3	0.5	40	0	100.8%	85	115				
m,p-Xylene	80.27	1	80	0	100.3%	85	115				
Methyl tert-Butyl Ether	41.06	1	40	0	102.7%	85	115				
o-Xylene	40.79	0.5	40	0	102.0%	85	115				
Toluene	40.68	0.5	40	0	101.7%	85	115				
1,4-Difluorobenzene	72.99	0	80	0	91.2%	70	130				
4-Bromochlorobenzene	82.48	0	80	0	103.1%	70	130				
Fluorobenzene	73.06	0	80	0	91.3%	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 15-Dec-00

CLIENT: Blagg Engineering
Work Order: 0011049
Project: BP - GCU Com I #181
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0011047-01A	91.1	102	90.4
0011048-01A	90.2	98.1	89.6
0011048-02A	92.4	99.9	92.4
0011048-03A	92.3	101	94.2
0011048-04A	91.3	100	91.8
0011049-01A	93.7	103	92.6
0011049-02A	92	100	92.3
0011049-03A	91.5	99.6	91.8
0011049-04A	91.9	100	91
0011050-01A	88.1	96	87.6
0011050-02A	91.9	101	91.2
0011050-03A	89.2	99.6	92.3
0011050-04A	93.4	103	92.3
0012001-01A	91.2	101	91.6
0012002-01A	92.5	102	92.4
0012002-02A	92.8	102	93.1
0012002-03AMS	90.9	104	91.2
0012002-03AMSD	91	104	91
CCV1 BTEX_00100	91.9	100	91.5
CCV2 BTEX_00100	91.7	103	91.9
CCV3 BTEX_00100	91.2	103	91.3
LCS WATER	91	96.4	91.2
MB1	92.5	95.4	92.2

Acronym		Surrogate	QC Limits
14FBZ	=	1,4-Difluorobenzene	70-130
4BCBZ	=	4-Bromochlorobenzene	70-130
FLBZ	=	Fluorobenzene	70-130

*** Surrogate recovery outside acceptance limits**