

3R-016

Ground Water Remediation Report

**DATE:
Sept 2008**

320011
COPY

BP AMERICA PRODUCTION CO.

GROUNDWATER REMEDIATION REPORT

**GCU #145
(A) SECTION 26, T29N, R12W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

**PREPARED FOR:
NEW MEXICO OIL CONSERVATION DIVISION
1220 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87504**

SEPTEMBER 2008

**PREPARED BY:
BLAGG ENGINEERING, INC.
Consulting Petroleum / Reclamation Services
P.O. Box 87
Bloomfield, New Mexico 87413**

BP AMERICA PRODUCTION CO. GROUNDWATER LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

GCU # 145**UNIT A, SEC. 26, T29N, R12W**

REVISED DATE: May 7, 2008

FILENAME: (145-2Q08.WK4) NJV

								BTEX EPA METHOD 8021B (ppb)			
SAMPLE DATE	WELL NAME or No.	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. umhos	pH	PRODUCT (ft)	Benzene	Toluene	Ethyl Benzene	Total Xylene
26-Jun-06	MW #1	7.41	16.25	2,230	2,400	6.93		ND	ND	ND	ND
22-Aug-06		7.16			2,300	6.75		ND	ND	ND	ND
26-Jun-06	MW #2	7.41	15.48	1,060	1,600	7.08		ND	ND	ND	ND
22-Aug-06		7.11			1,300	6.89		ND	ND	ND	ND
26-Jun-06	MW #3	6.84	15.05	926	1,600	7.03		1.9	ND	ND	73
22-Aug-06		6.54			1,600	6.89		2.8	ND	9.5	12
28-Feb-08		6.40			1,600	7.06		ND	ND	1.1	8.6
24-Apr-08		7.00			1,100	7.06		1.0	ND	ND	9.4
26-Jun-06	MW #4	7.21	15.00	1,770	2,100	6.99		ND	ND	7.3	6.1
22-Aug-06		6.94			1,800	6.85		ND	ND	ND	ND
28-Feb-08		7.14			2,100	7.19		ND	ND	ND	ND
24-Apr-08		7.05			1,400	7.21		ND	ND	ND	ND
26-Jun-06	MW #5	5.77	12.40	1,230	1,600	7.03		ND	ND	ND	ND
22-Aug-06		5.49			1,400	6.90		ND	ND	ND	ND
NMWQCC GROUNDWATER STANDARDS								10	750	750	620

NOTES : 1) ND INDICATES NOT DETECTED AT THE REPORTING LIMITS (less than regulatory standards of at least a magnitude of 10).

GENERAL WATER QUALITY

BP AMERICA PRODUCTION COMPANY

GCU # 145

Sample Date : June 26 , 2006

PARAMETERS	MW # 1	MW # 2	MW # 3	MW # 4	MW # 5	Units
LAB pH	7.14	7.22	7.25	7.19	7.22	s. u.
LAB CONDUCTIVITY @ 25 C	3,330	1,649	1,294	2,810	1,610	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	2,230	1,060	926	1,770	1,230	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	2,120	1,060	900	1,790	1,200	mg / L
SODIUM ABSORPTION RATIO	1.3	3.4	3.1	2.8	1.6	ratio
TOTAL ALKALINITY AS CaCO3	372	310	414	240	280	mg / L
TOTAL HARDNESS AS CaCO3	1,420	455	407	887	747	mg / L
BICARBONATE as HCO3	372	310	414	240	280	mg / L
CARBONATE AS CO3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	mg / L
HYDROXIDE AS OH	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	mg / L
NITRATE NITROGEN	0.04	0.02	0.07	< 0.01	< 0.01	mg / L
NITRITE NITROGEN	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg / L
CHLORIDE	20.5	18.0	19.7	41.8	22.3	mg / L
FLUORIDE	1.43	2.20	1.94	0.72	1.60	mg / L
PHOSPHATE	< 0.01	< 0.01	1.09	< 0.01	< 0.01	mg / L
SULFATE	1,280	514	332	1,060	667	mg / L
IRON	0.019	0.003	0.125	0.474	3.05	mg / L
CALCIUM	320	153	139	232	154	mg / L
MAGNESIUM	149	17.5	14.3	73.7	87.0	mg / L
POTASSIUM	4.62	1.43	2.60	44.60	2.1	mg / L
SODIUM	116	167	142	194	98.5	mg / L
CATION / ANION DIFFERENCE	0.02	0.08	0.08	0.04	0.04	

RESULTS GIVEN TO BOB MCCOY 6/8/94

NV

CLIENT: AmocoBLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199LOCATION NO: 80010C.O.C. NO: 1562
1570

FIELD REPORT: CLOSURE VERIFICATION

JOB No: _____

PAGE No: 1 of 1LOCATION: NAME: GCU WELL #: 145 PIT: BLOWQUAD/UNIT: A SEC: 26 TWP: 29N RNG: 12W BM: NM CNTY: ST NMQTR/FOOTAGE: NE 1/4 NE 1/4 CONTRACTOR: P. VELASQUEZDATE STARTED: 6/7/94
DATE FINISHED: 6/13/94ENVIRONMENTAL
SPECIALIST: NVSOIL REMEDIATION: EXCAVATION APPROX: 120 FT. x 45 FT. x 3 FT. DEEP.DISPOSAL FACILITY: NV ON SITE GARCIA GC B#1 CUBIC YARDAGE: 600LAND USE: INDUSTRIAL / RESIDENTIAL LEASE: 2V FEEFIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 275 FEET N75E FROM WELLHEAD.DEPTH TO GROUNDWATER: <10' NEAREST WATER SOURCE: <1000 NEAREST SURFACE WATER: <1000NMOC D RANKING SCORE: 50 NMOC D TPH CLOSURE STD: 100 PPM Fm. - OK

SOIL AND EXCAVATION DESCRIPTION:

SOIL SAMPLES NOT ACCESSIBLE; NO VISIBLE DISCOLOR-
ATION APPARENT ALONG SIDEWALLS.

FIELD 418.1 CALCULATIONS

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

SCALE

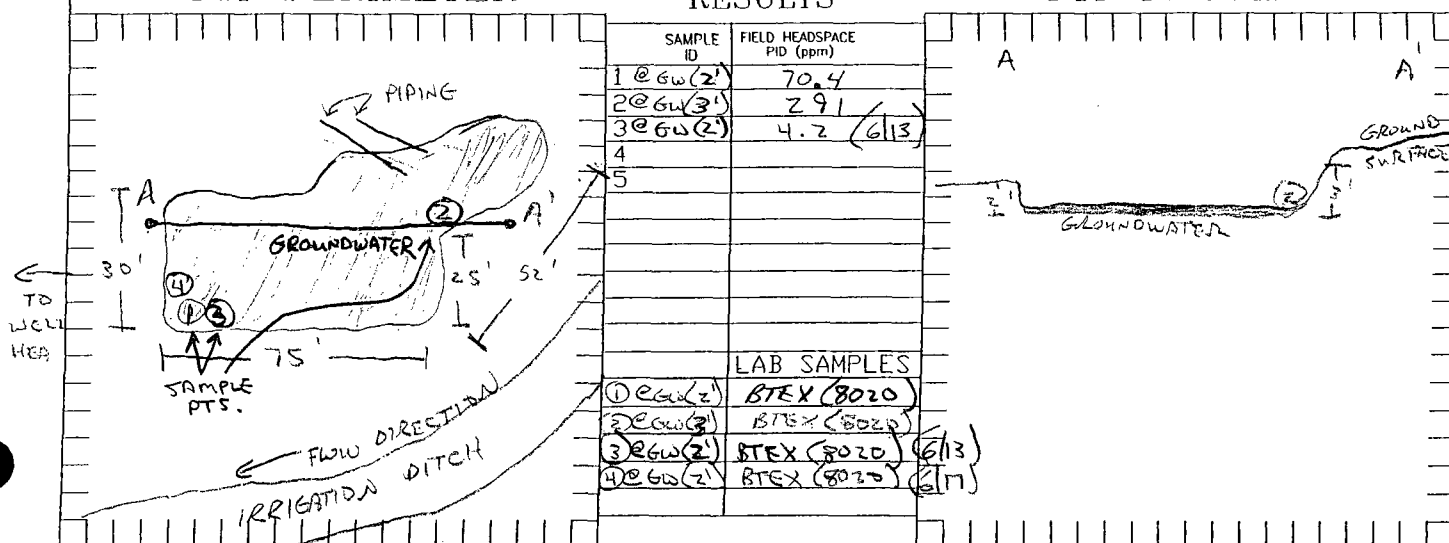


0 FT

PIT PERIMETER

OVM
RESULTS

PIT PROFILE



TRAVEL NOTES:

CALLOUT: 6/6/94ONSITE: 6/7/94

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/8/94*
Lab ID: *1646*
Sample ID: *1562*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *1 @ GW (2') Blow Pit*
Sampled by: *NV* Date: *6/7/94*
Analyzed by: *dla* Date: *6/8/94*
Sample Matrix: *Soil*

Time: *15:15*

Aromatic Volatile Organics

<i>Component</i>	<i>**Measured Concentration ug/L</i>
<i>Benzene</i>	<i>112</i>
<i>Toluene</i>	<i>1,260</i>
<i>Ethylbenzene</i>	<i>16.2</i>
<i>m,p-Xylene</i>	<i>1,780 2 2,242</i>
<i>o-Xylene</i>	<i>462 3</i>
<i>TOTAL</i>	<i>3,630 ug/L</i>

ND - Not Detectable

** - Method Detection Limit, 2 ug/L

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography*

Approved by: *Ja G*

Date: *6/8/94*

**ON SITE
TECHNOLOGIES, LTD.**
AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/8/94*
Lab ID: *1647*
Sample ID: *1562*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *2 @ GW (3') Blow Pit*
Sampled by: *NV* Date: *6/7/94*
Analyzed by: *dla* Date: *6/8/94*
Sample Matrix: *Soil*

Time: *15:37*

Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	<i>66</i>
<i>Toluene</i>	<i>796</i>
<i>Ethylbenzene</i>	<i>8.2</i>
<i>m,p-Xylene</i>	<i>1,190</i>
<i>o-Xylene</i>	<i>294</i>
<i>TOTAL</i>	<i>2,354 ug/L</i>

ND - Not Detectable

*** - Method Detection Limit, 2 ug/L*

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography**

Approved by:
Date:

Jan 6/8/94

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/14/94*
Lab ID: *1570*
Sample ID: *1666*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *3 @ GW (2') - Blow Pit*
Sampled by: *NV* Date: *6/13/94*
Analyzed by: *DLA* Date: *6/14/94*
Sample Matrix: *Liquid*

Time: *15:10*

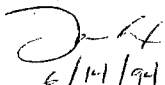
Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	<i>6.8</i>
<i>Toluene</i>	<i>17.3</i>
<i>Ethylbenzene</i>	<i>3.2</i>
<i>m,p-Xylene</i>	<i>26.0 2 72.0</i>
<i>o-Xylene</i>	<i>46.0 5</i>
TOTAL	99 ug/L

ND - Not Detectable

** - Method Detection Limit, 2 ug/L

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography**

Approved by: 

Date: *6/14/94*

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering Inc.*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/21/94*
Lab ID: *1576*
Sample ID: *1708*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *4 @ GW (2') - Blow Pit*
Sampled by: *NV* Date: *6/17/94*
Analyzed by: *DC* Date: *6/20/94*
Sample Matrix: *Liquid*

Time: *9:05*

Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	<i>6.0</i>
<i>Toluene</i>	<i>11.7</i>
<i>Ethylbenzene</i>	<i>13.2</i>
<i>m,p-Xylene</i>	<i>82</i>
<i>o-Xylene</i>	<i>12.4</i>
	<i>394.4</i>
<i>TOTAL</i>	<i>125 ug/L</i>

ND - Not Detectable

** - Method Detection Limit, 2 ug/L

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography**

Approved by: *[Signature]*

Date: *6/21/94*

RESULTS GIVEN TO BOB MCCOY 6/10/94

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>80010</u> C.O.C. NO: <u>1567</u>
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FIELD REPORT: CLOSURE VERIFICATION		JOB No: _____ PAGE No: <u>1</u> of <u>1</u>
LOCATION: NAME: <u>GCU</u> WELL #: <u>145</u> PIT: <u>SEP</u>	DATE STARTED: <u>6/9/94</u> DATE FINISHED: <u>6/13/94</u>	
QUAD/UNIT: <u>A</u> SEC: <u>26</u> TWP: <u>29N</u> RNG: <u>12W</u> BM: <u>NM</u> CNTY: <u>SJ</u> ST: <u>NM</u>	ENVIRONMENTAL SPECIALIST: <u>NV</u>	
QTR/FOOTAGE: <u>NE/4 NE/4</u> CONTRACTOR: <u>P. VELASQUEZ</u>		

SOIL REMEDIATION: EXCAVATION APPROX. 25 FT. x 20 FT. x 6' FT. DEEP.
DISPOSAL FACILITY: ON SITE GARCIA GC B#1 CUBIC YARDAGE: 115
LAND USE: INDUSTRIAL / RESIDENTIAL LEASE: 20% FEE

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 160 FEET N10E FROM WELLHEAD.
DEPTH TO GROUNDWATER: <10' NEAREST WATER SOURCE: <1000 NEAREST SURFACE WATER: <1000
NMDCD RANKING SCORE: 50 NMDCD TPH CLOSURE STD: 100 PPM Fm. DK.

SOIL AND EXCAVATION DESCRIPTION: DISCOLORED SOIL APPROX. 2 FT. INTERVAL ABOVE GROUND-WATER INTERFACE @ TIME OF SAMPLING (LT. GRAY IN COLOR).

FIELD 418.1 CALCULATIONS

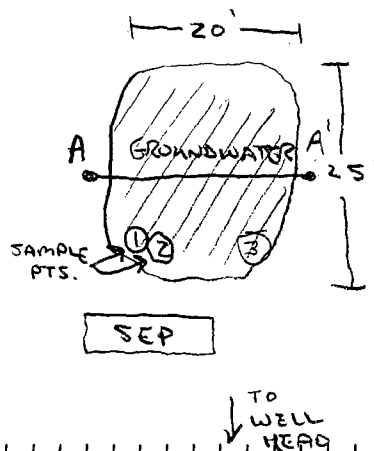
SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE



0 FT

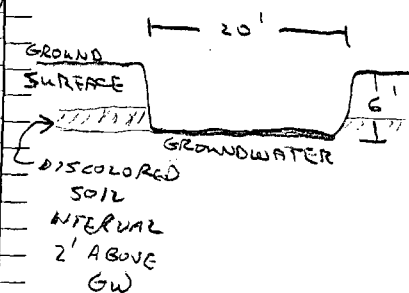
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE FID (ppm)
1 @GW(6')	3.1
2 @GW(6')	27.4 (6/13)
3	
4	
5	
LAB SAMPLES	
1 @GW(6')	BTEX (8020) (6/13)
2 @GW(6')	BTEX (8020) (6/13)
3 @GW(6')	BTEX (8020) (6/17)

PIT PROFILE



TRAVEL NOTES:

CALLOUT: 6/6/94

ONSITE: 6/9/94

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/10/94*
Lab ID: *1659*
Sample ID: *1567*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *1 @ GW (6') - Separator Pit*
Sampled by: *NV* Date: *6/9/94*
Analyzed by: *DLA* Date: *6/10/94*
Sample Matrix: *Liquid*

Time: *13:55*

Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	<i>35</i>
<i>Toluene</i>	<i>156</i>
<i>Ethylbenzene</i>	<i>75</i>
<i>m,p-Xylene</i>	<i>833 } 990</i>
<i>o-Xylene</i>	<i>157 }</i>
<i>TOTAL</i>	<i>1,256 ug/L</i>

ND - Not Detectable

** - Method Detection Limit, 2 ug/L

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography*

Approved by:
Date:

Bill Velez
6/10/94

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: *6/14/94*
Lab ID: *1570*
Sample ID: *1665*
Job No. *2-1000*

Project Name: *GCU 145*
Project Location: *2 @ GW (6') - Separator Pit*
Sampled by: *NV* Date: *6/13/94*
Analyzed by: *DLA* Date: *6/14/94*
Sample Matrix: *Liquid*

Time: *14:55*

Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	<i>11.8</i>
<i>Toluene</i>	<i>20.4</i>
<i>Ethylbenzene</i>	<i>5.8</i>
<i>m,p-Xylene</i>	<i>670 2 824</i>
<i>o-Xylene</i>	<i>154 2</i>
TOTAL	862 ug/L

ND - Not Detectable

*** - Method Detection Limit, 2 ug/L*

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography**

Approved by: *[Signature]*

Date: *6/14/94*

**ON SITE
TECHNOLOGIES, LTD.**

AROMATIC VOLATILE ORGANICS

Attn: *Nelson Velez*
Company: *Blagg Engineering Inc.*
Address: *P.O. Box 87*
City, State: *Bloomfield, NM 87413*

Date: 6/21/94
Lab ID: 1576
Sample ID: 1707
Job No. 2-1000

Project Name: **GCU 145**
Project Location: **3 @ GW (6') - Separator Pit**
Sampled by: NV Date: 6/17/94
Analyzed by: DC Date: 6/20/94
Sample Matrix: *Liquid*

Time: 8:50

Aromatic Volatile Organics

Component	**Measured Concentration ug/L
<i>Benzene</i>	2.7
<i>Toluene</i>	ND
<i>Ethylbenzene</i>	ND
<i>m,p-Xylene</i>	3.6 3 18.6
<i>o-Xylene</i>	75 3
	TOTAL 81 ug/L

ND - Not Detectable

** - Method Detection Limit, 2 ug/L

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by
Gas Chromatography**

Approved by: *[Signature]*

Date: 6/21/94



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

December 18, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-231

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

RE: FINAL SAN JUAN BASIN PIT CLOSURE REPORTS

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has completed a review of Amoco Production Company's (Amoco) July 14, 1994 "AMOCO PRODUCTION COMPANY PIT CLOSURE VERIFICATIONS" which were submitted on behalf of Amoco by their consultant Blagg Engineering, Inc. This document contains "PIT REMEDIATION AND CLOSURE REPORTS" for 60 unlined pits in the San Juan Basin of Northwestern New Mexico.

The OCD's review of the above referenced document is addressed below:

A. The pit closure/soil remediation activities conducted at the sites listed below are approved.

1. Atlantic Com LS #3A (Separator pit) Unit E, Sec. 24, T31N, R10W.
2. Cole A#1E (Dehy pit) Unit I, Sec. 35, T28N, R10W.
3. Florance #11A (Blow pit) Unit J, Sec. 30, T30N, R08W.
4. Florance #11A (Separator pit) Unit J, Sec. 30, T30N, R08W.
5. Florance #11A (Dehy pit) Unit J, Sec. 30, T30N, R08W.
6. Florance #35 (Separator pit) Unit A, Sec. 18, T30N, R08W.
7. Florance GC E#9A (Separator pit) Unit J, Sec. 13, T30N, R09W.
8. Florance H#37 (Separator pit) Unit H, Sec. 06, T30N, R08W.
9. Florance H#37A (Separator pit) Unit J, Sec. 06, T30N, R08W.
10. Florance O#20A (Separator pit) Unit J, Sec. 24, T30N, R09W.
11. Florance O#20A (Production pit) Unit J, Sec. 24, T30N, R09W.
12. Gage #3 (Separator pit) Unit E, Sec. 20, T30N, R10W.
13. Madeleine N. Galt H#1 (Blow pit) Unit L, Sec. 01, T27N, R10W.
14. Madeleine N. Galt H#1E (Separator) Unit E, Sec. 01, T27N, R10W.
15. Madeleine N. Galt H#1E (Blow pit) Unit E, Sec. 01, T27N, R10W.

Mr. B.D. Shaw
December 18, 1996
Page 2

16. JC Gordon D#4 (Blow pit)	Unit P, Sec. 23, T27N, R10W.
17. JC Gordon D#5 (Separator pit)	Unit C, Sec. 24, T27N, R10W.
18. JC Gordon D#5E (Blow/production)	Unit K, Sec. 24, T27N, R10W.
19. JC Gordon D#5E (Separator pit)	Unit K, Sec. 24, T27N, R10W.
20. WD Heath B#3 (Separator pit)	Unit O, Sec. 31, T30N, R09W.
21. WD Heath B#3 (Blow pit)	Unit O, Sec. 31, T30N, R09W.
22. Johnson Gas Com D#1 (Blow pit)	Unit G, Sec. 15, T30N, R12W.
23. Johnson Gas ComD#1 (Separator pit)	Unit G, Sec. 15, T30N, R12W.
24. Eva E. Martin A#1 (Blow pit)	Unit K, Sec. 14, T27N, R10W.
25. Eva E. Martin C#1 (Blow pit)	Unit A, Sec. 14, T27N, R10W.
26. Martin GC C#1E (Production pit)	Unit O, Sec. 11, T27N, R10W.
27. Martin GC F#1R (Separator pit)	Unit F, Sec. 14, T27N, R10W.
28. Martin GC F#1R (Blow pit)	Unit F, Sec. 14, T27N, R10W.
29. Martin GC G#1 (Production/blow pit)	Unit B, Sec. 14, T27N, R10W.
30. CM Morris Com A#1E (Separator pit)	Unit E, Sec. 13, T27N, R10W.
31. CM Morris Com A#1E (Production pit)	Unit E, Sec. 13, T27N, R10W.
32. CM Morris Com A#1E (Blow pit)	Unit E, Sec. 13, T27N, R10W.
33. CM Morris C#1 (Blow pit)	Unit F, Sec. 14, T27N, R10W.
34. Riddle #2 (Separator pit)	Unit N, Sec. 17, T30N, R09W.
35. RB Sullivan #3 (Blow pit)	Unit B, Sec. 11, T27N, R10W.
36. RB Sullivan #3 (Production pit)	Unit B, Sec. 11, T27N, R10W.

Please be advised that OCD approval does not relieve Amoco of liability if remaining contaminants are found to pose a future threat to surface water, ground water, human health or the environment. In addition, OCD approval does not relieve Amoco of responsibility for compliance with any other federal, state or local laws and/or regulations.

B. The pit remedial activities conducted at the sites listed below are satisfactory. However, according to the reports, onsite landfarming and/or composting actions are still continuing at the sites. Subsequently, the OCD cannot issue final closure approval at this time and approval of closure actions at these sites is denied. Please resubmit final closure reports for these sites upon completion of the landfarming and/or composting activities. The final reports will include the results of the soil remediation levels achieved, the laboratory analyses and associated quality assurance/quality control data and the disposition of the remediated soils.

1. Atlantic B LS #5A (Production pit)	Unit D, Sec. 05, T30N, R10W.
2. Gartner LS #7A (Separator pit)	Unit F, Sec. 26, T30N, R08W.
3. Gooch #2E (Dehy pit)	Unit C, Sec. 29, T28N, R08W.
4. Gooch #2E (Separator pit)	Unit C, Sec. 29, T28N, R08W.
5. JC Gordon B#1 (Blow/production pit)	Unit C, Sec. 24, T27N, R10W.
6. CM Morris Com A#1 (Separator pit)	Unit L, Sec. 13, T27N, R10W.
7. CM Morris Com A#1 (Blow pit)	Unit L, Sec. 13, T27N, R10W.

- | | |
|------------------------------|------------------------------|
| 8. RB Sullivan #1 (Blow pit) | Unit G, Sec. 11, T27N, R10W. |
| 9. VCU #3 (Blow pit) | Unit G, Sec. 22, T28N, R04W. |
| 10. VCU #9 (Blow pit) | Unit P, Sec. 15, T28N, R04W. |
| 11. VCU #14 (Blow pit) | Unit D, Sec. 23, T28N, R04W. |

C. The final pit remedial contaminant levels at the sites listed below are in excess of the OCD's recommended remediation levels. Consequently, the OCD cannot issue final closure approval and approval of closure actions at these sites is **denied**. The OCD requests that Amoco address the extent of the remaining contamination at these sites. The OCD will reconsider issuing closure approval upon resubmission of pit closure forms which address the remaining extent of contamination at the sites. The resubmitted forms should include the completed form and all pertinent information related to the extent of contamination, the results of the soil remediation levels achieved, the results of the soil remediation levels achieved, the laboratory analyses and associated quality assurance/quality control data and the disposition of the remediated soils.

- | | |
|--|------------------------------|
| 1. Florence #11A (Production pit) | Unit J, Sec. 30, T30N, R08W. |
| 2. Florence #40 (Separator pit) | Unit G, Sec. 21, T30N, R08W. |
| 3. Madeleine N. Galt H#1 (Separator) | Unit L, Sec. 01, T27N, R10W. |
| 4. Johnson GC D#1 (East abandoned pit) | Unit G, Sec. 15, T30N, R12W. |
| 5. Johnson GC D#1 (West abandoned pit) | Unit G, Sec. 15, T30N, R12W. |
| 6. Martin GC C#1E (Separator pit) | Unit O, Sec. 11, T27N, R10W. |
| 7. Martin GC G#1 (Separator pit) | Unit B, Sec. 14, T27N, R10W. |
| 8. Sandoval GC C#1 (Blow pit) | Unit B, Sec. 35, T30N, R09W. |
| 9. Sandoval GC C#1 (Separator pit) | Unit B, Sec. 35, T30N, R09W. |
| 10. RB Sullivan #3 (Separator pit) | Unit B, Sec. 11, T27N, R10W. |

D. Ground waters at the sites listed below are contaminated with petroleum related constituents in excess of New Mexico Water Quality Control Commission ground water standards. In addition, the extent of ground water contamination at the sites has not been determined. Therefore, approval of these pit closure forms is **denied**. The OCD requests that Amoco investigate the extent of contamination and, if necessary, remediate contaminated ground water pursuant to Amoco's November 21, 1995 ground water investigation/remediation work plan which was approved by the OCD on November 29, 1995.

- | | |
|--------------------------------------|------------------------------|
| 1. GCU #145 (Blow pit) | Unit A, Sec. 26, T29N, R12W. |
| 2. GCU #145 (Separator pit) | Unit A, Sec. 26, T29N, R12W. |
| 3. Sullivan Frame GU A#1E (Dehy pit) | Unit A, Sec. 30, T29N, R10W. |

Mr. B.D. Shaw
December 18, 1996
Page 4

To simplify the approval process for both Amoco and OCD, the OCD requests that Amoco submit all future pit closure reports only upon completion of all closure activities including onsite landfarming or composting of contaminated soils. The reports should include the completed form and all pertinent information related to the extent of contamination, the results of the soil remediation levels in the pits and landfarms, all laboratory analyses and associated quality assurance/quality control data and the disposition of all remediated soils.

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

Sincerely,



William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec District Office
Bill Liess, BLM Farmington District Office

BLAGG ENGINEERING, INC.

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

MW #1

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: GCU #145 - UP GRADIENT WELL UNIT A, SEC. 26, T29N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED: MOBILE DRILL RIG (TUBEX SYSTEM)
BORING LOCATION: 255 FT., N42.5E FROM WELL HEAD.

BORING #..... BH-1
MW #..... 1
PAGE #..... 1
DATE STARTED 5/25/06
DATE FINISHED 5/25/06
OPERATOR..... KP
PREPARED BY NJV

DEPTH
FEET

INTERVAL

LITHOLOGY
INTERVAL

MW
SCHEMATIC

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.25 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH ORANGE SAND WITH MINOR AMOUNT OF GRAVEL, NON COHESIVE, FIRM, SLIGHTLY MOIST TO MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM CUTTINGS (0.0 - 6.0 FT. BELOW GRADE).

TOS 4.00

DEPTH TO WATER APPROX. 5.00 FT. FROM GROUND SURFACE MEASURED ON 6/13/06.

SAME AS ABOVE EXCEPT SATURATED (6.0 - 8.5 FT. BELOW GRADE).

DARK YELLOWISH BROWN SAND AND GRAVEL, NON COHESIVE, LOOSE TO FIRM, SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM CUTTINGS (8.5 - 11.0 FT. BELOW GRADE).

SANDSTONE BEDROCK, DK. YELLOWISH ORANGE PHASING INTO LIGHT GRAY, DRY, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (11.0 - 14.0 FT. BELOW GRADE).

TD 14.00

NOTE:  - SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.

TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Monitor well consist of 2 inch PVC piping - casing from 2.25 feet above grade to 4.00 feet below grade, 0.010 slotted screen between 4.00 to 14.00 feet below grade, sanded annular to 2.00 feet below grade, bentonite chips to surface, concreted well protector around above grade casing, and secured with padlock.

BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413

(505) 632-1199

MW #2

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: GCU #145 - SEPARATOR PIT UNIT A, SEC. 26, T29N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED: MOBILE DRILL RIG (CME 75)
BORING LOCATION: 160 FT., N12E FROM WELL HEAD.

BORING #..... BH-2
MW #..... 2
PAGE #..... 2
DATE STARTED 5/25/06
DATE FINISHED 5/25/06
OPERATOR..... KP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

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

DARK YELLOWISH BROWN SAND WITH MINOR AMOUNT OF GRAVEL, NON COHESIVE, FIRM, SLIGHTLY MOIST TO MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (0.0 - 6.0 FT. BELOW GRADE).

DEPTH TO WATER APPROX. 5.07 FT. FROM GROUND SURFACE MEASURED ON 6/13/06.

SAME AS ABOVE EXCEPT DARK OLIVE GRAY, WET TO SATURATED (6.0 - 13.5 FT. BELOW GRADE).

NOTE:  - SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.

TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Monitor well consist of 2 inch PVC piping - casing from 2.20 feet above grade to 3.28 feet below grade, 0.010 slotted screen between 3.28 to 13.28 feet below grade, sanded annular to 2.50 feet below grade, bentonite chips to surface, concreted well protector around above grade casing, and secured with padlock.

BLAGG ENGINEERING, INC.

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

MW #3

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: GCU #145 - SEPARATOR PIT UNIT A. SEC. 26, T29N. R12W
CONTRACTOR: BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED: MOBILE DRILL RIG (CME 75)
BORING LOCATION: 108 FT., N8E FROM WELL HEAD.

BORING #..... BH-3
MW #..... 3
PAGE #..... 3
DATE STARTED 5/25/06
DATE FINISHED 5/25/06
OPERATOR..... KP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.50 FT. ABOVE GROUND SURFACE.

MODERATE BROWN SAND WITH MINOR AMOUNT OF GRAVEL, NON COHESIVE, FIRM, SLIGHTLY MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (0.0 - 6.0 FT. BELOW GRADE).

DEPTH TO WATER APPROX. 4.23 FT. FROM GROUND SURFACE MEASURED ON 6/13/06.

LIGHT TO MEDIUM GRAY SAND & GRAVEL, NON COHESIVE, WET, FIRM, SLIGHT TO STRONG HYDROCARBON ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (6.0 - 9.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT PHASING INTO DARKER SHADE OF GRAY AND SATURATED (9.0 - 14.0 FT. BELOW GRADE).

NOTE:  - SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.

TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Monitor well consist of 2 inch PVC piping - casing from 2.50 feet above grade to 2.55 feet below grade, 0.010 slotted screen between 2.55 to 12.55 feet below grade, sanded annular to 2.00 feet below grade, bentonite chips to surface, concreted well protector around above grade casing, and secured with padlock.

BLAGG ENGINEERING, INC.

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

MW #4

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: GCU #145 - BLOW PIT UNIT A, SEC. 26, T29N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED: MOBILE DRILL RIG (CME 75)
BORING LOCATION: 258 FT., N79E FROM WELL HEAD.

BORING #..... BH-4
MW #..... 4
PAGE #..... 4
DATE STARTED 5/25/06
DATE FINISHED 5/25/06
OPERATOR..... KP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.40 FT. ABOVE GROUND SURFACE.

MODERATE BROWN SAND AND GRAVEL, NON COHESIVE, FIRM, SLIGHTLY MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (0.0 - 6.0 FT. BELOW GRADE).

DEPTH TO WATER APPROX. 5.00 FT. FROM GROUND SURFACE MEASURED ON 6/13/06.

SAME AS ABOVE EXCEPT DARK GRAY, MOIST TO WET, SLIGHT HYDROCARBON ODOR FROM AUGER CUTTINGS (7.0 - 7.5 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT DARK OLIVE GRAY, LOOSE TO FIRM, WET TO SATURATED (7.5 - 13.0 FT. BELOW GRADE).

NOTE:  - SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.

TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Monitor well consist of 2 inch PVC piping - casing from 2.40 feet above grade to 2.60 feet below grade, 0.010 slotted screen between 2.60 to 12.60 feet below grade, sanded annular to 2.00 feet below grade, bentonite chips to surface, concreted well protector around above grade casing, and secured with padlock.

BLAGG ENGINEERING, INC.

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

MW #5

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: GCU #145 - BLOW PIT UNIT A, SEC. 26, T29N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED: MOBILE DRILL RIG (CME 75)
BORING LOCATION: 171 FT., N88E FROM WELL HEAD.

BORING #..... BH-5
MW #..... 5
PAGE #..... 5
DATE STARTED 5/25/06
DATE FINISHED 5/25/06
OPERATOR..... KP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC
1			TOS 1.00
2			
3			
4			
5			▼
6			
7			
8			
9			
10			TD 9.75
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.65 FT. ABOVE GROUND SURFACE.

MODERATE BROWN SAND AND GRAVEL, NON COHESIVE, FIRM, SLIGHTLY MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM AUGER CUTTINGS (0.0 - 4.0 FT. BELOW GRADE).

DEPTH TO WATER APPROX. 5.00 FT. FROM GROUND SURFACE MEASURED ON 6/13/06.

SAME AS ABOVE EXCEPT DARK OLIVE GRAY, FIRM TO LOOSE, WET TO SATURATED (4.0 - 11.0 FT. BELOW GRADE).

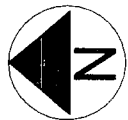
NOTE:  - SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.

TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Monitor well consist of 2 inch PVC piping - casing from 2.65 to 0.25 feet above grade, 0.010 slotted screen between 0.25 feet above grade to 9.75 feet below grade, sanded annular to 0.50 feet below grade, concreted well protector around above grade casing, and secured with padlock.

FIGURE 1



SEPARATOR PIT EXCAVATED
IN JUNE, 1984 APPROX.
20 FT. X 25 FT., 7 FT.
DEPTH. PIT CENTER
APPROX. 160 FT., N10E
FROM WELL HEAD.

MW #2

JUNE, 1984
SAMPLE PT.
DESIGNATION

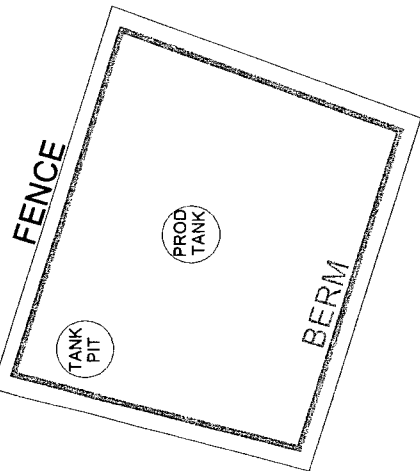
SEP.

MW #3

WELL
HEAD

1 INCH = 40 FT.

0 40 80 FT.



MW #1

CR 5364

BLOW PIT EXCAVATED
IN JUNE, 1984 APPROX.
120 FT. X 45 FT., 5 FT.
DEPTH. PIT CENTER
APPROX. 275 FT., N78E
FROM WELL HEAD.

MW #4

JUNE, 1984
SAMPLE PT.
DESIGNATION

MW #5

TO
HWY
64

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

BP AMERICA PRODUCTION CO.

GCU #145

NE/4 NE/4 SEC. 26, 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 INSTALLATIONS

DRAWN BY: NJV

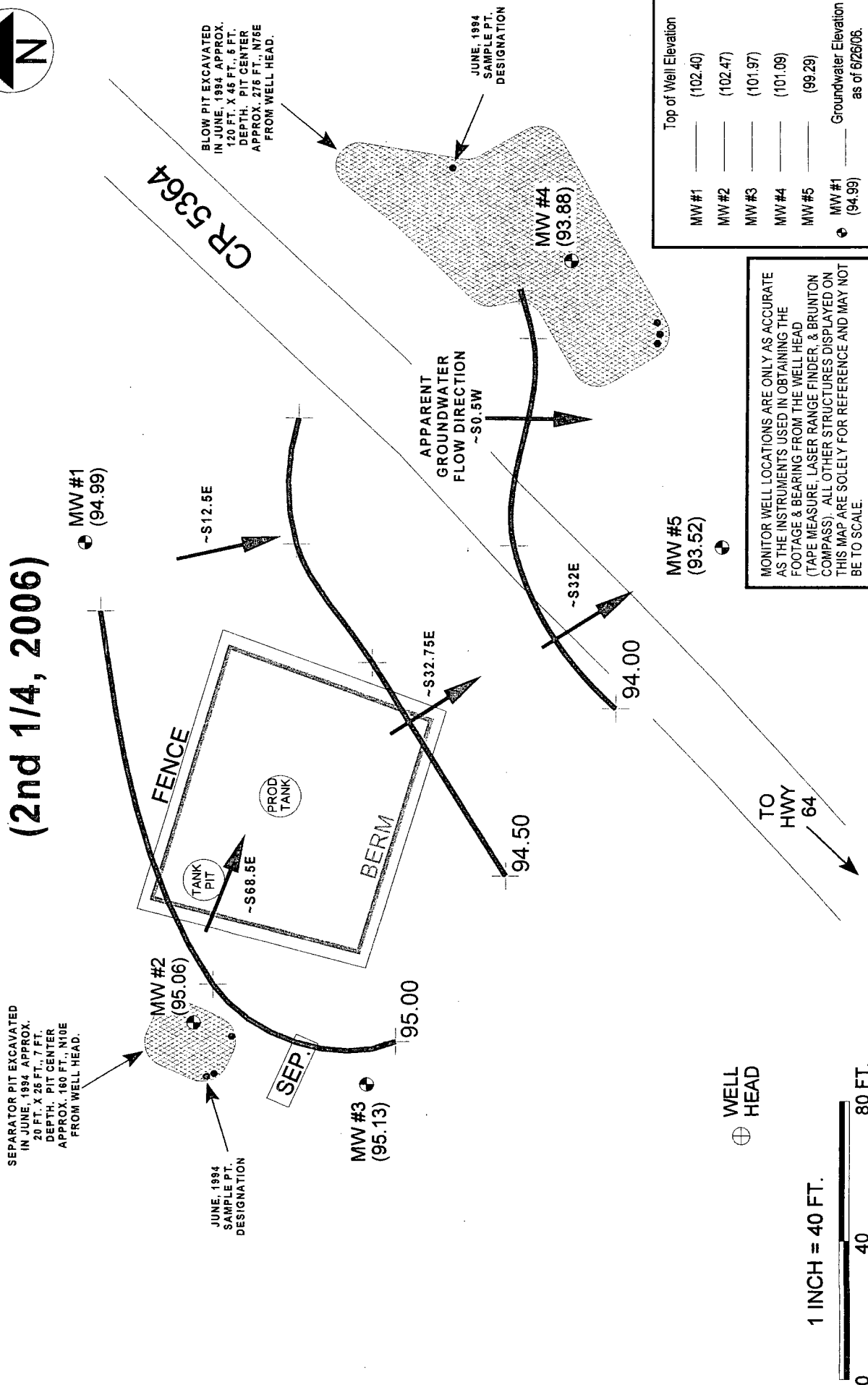
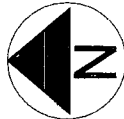
FILENAME: GCU 145-SM.SKF

REVISED: 12-13-06-GW.SKF NJV

**SITE
MAP**

05/06

FIGURE 2 (2nd 1/4, 2006)



Top of Well Elevation	
MW #1	(102.40)
MW #2	(102.47)
MW #3	(101.97)
MW #4	(101.09)
MW #5	(99.29)
MW #1	Groundwater Elevation as of 6/26/06. (94.99)

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

BP AMERICA PRODUCTION CO.

GCU #145

NE/4 NE/4 SEC. 26, 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

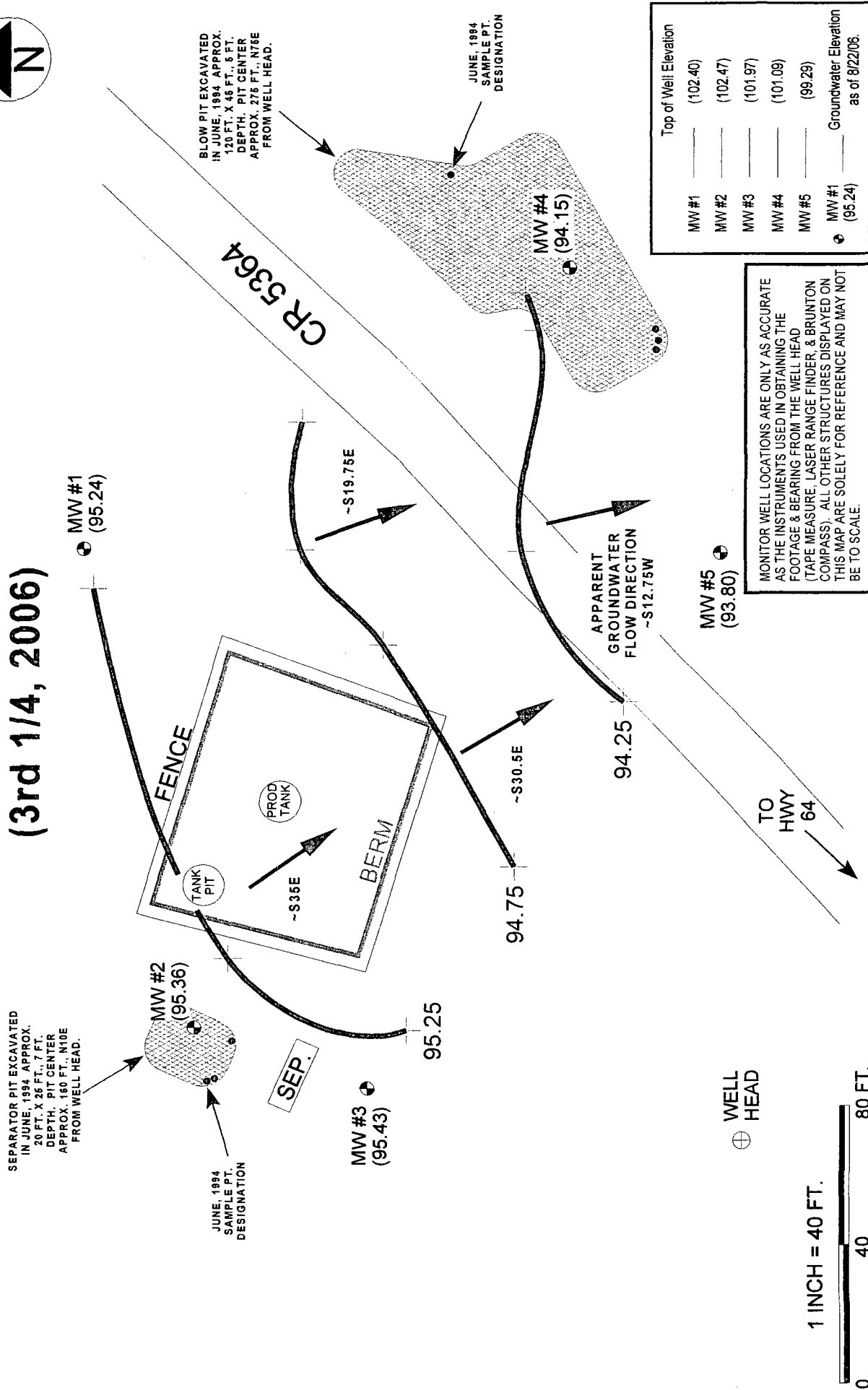
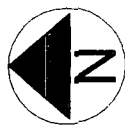
FILENAME: 06-26-06-GW.SKF

REVISED: 12-13-06-GW.SKF NJV

GROUNDWATER CONTOUR MAP

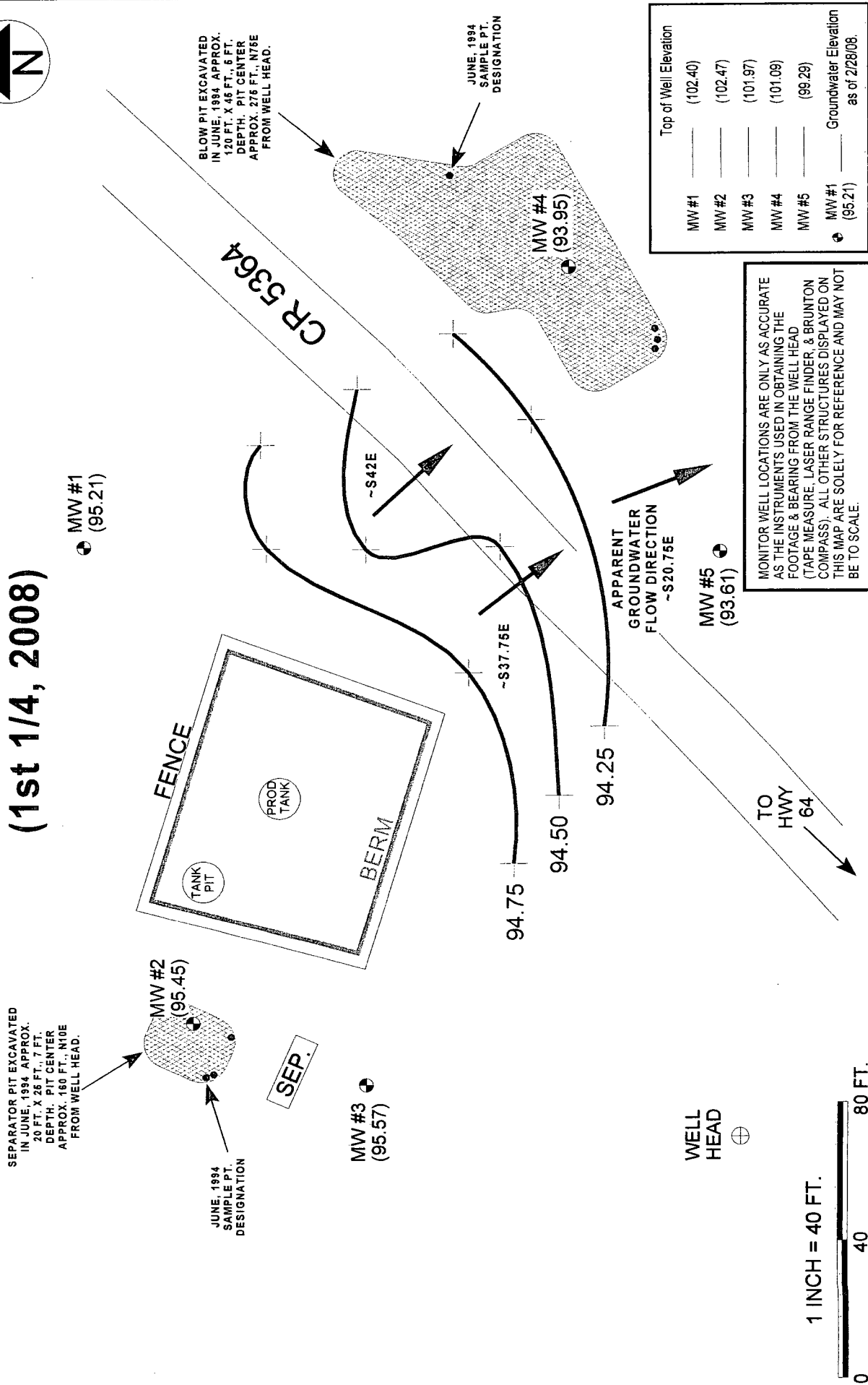
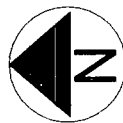
06/06

FIGURE 3
(3rd 1/4, 2006)



PROJECT: MW SAMPLING DRAWN BY: NJV FILENAME: 08-22-06-GW.SKF REVISED: 12-13-06-GW.SKF NJV	GROUNDWATER CONTOUR MAP 08/06
BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	BP AMERICA PRODUCTION CO. GCU #145 NE/4 NE/4 SEC. 26, T29N, R12W SAN JUAN COUNTY, NEW MEXICO

FIGURE 4
(1st 1/4, 2008)



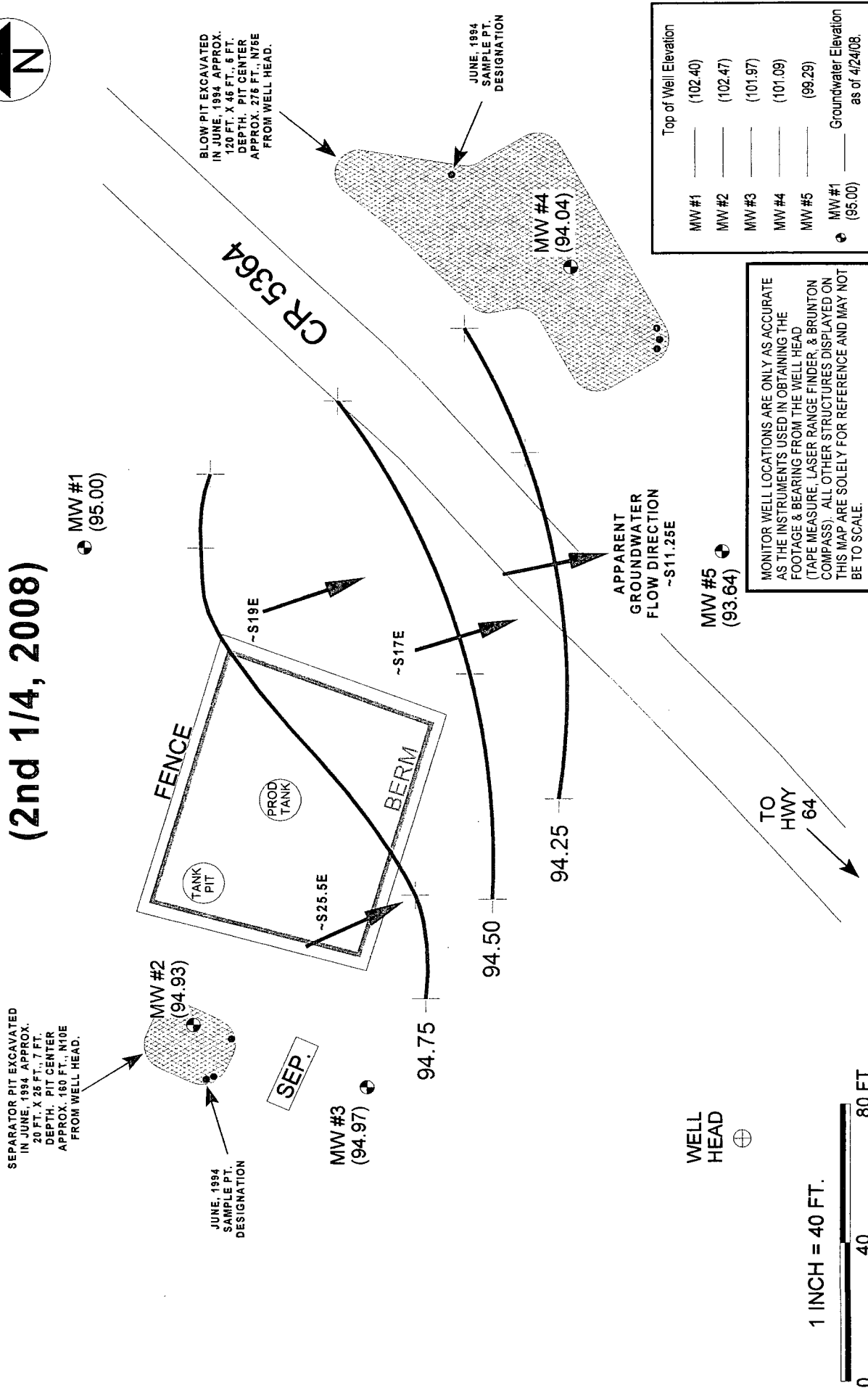
BP AMERICA PRODUCTION CO.
GCU #145
NE/4 NE/4 SEC. 26, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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: 02-28-08-GW.SKF
REVISED: 02-28-08-GW.SKF NJV

GROUNDWATER CONTOUR MAP
02/08

FIGURE 5
(2nd 1/4, 2008)



Top of Well Elevation	
MW #1	(102.40)
MW #2	(102.47)
MW #3	(101.97)
MW #4	(101.09)
MW #5	(98.29)
MW #1	Groundwater Elevation as of 4/24/08.

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

BP AMERICA PRODUCTION CO.

NE/4 NE/4 SEC. 26, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

GCU #145

PHONE: (505) 632-1199

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PROJECT: MW SAMPLING

DRAWN BY: NJV

FILENAME: 04-24-08-GW.SKF

REVISED: 04-24-08-GW.SKF NJV

GROUNDWATER CONTOUR MAP

04/08

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N / A & 14636

GCU # 145 - BLOW & SEP. PITS

LABORATORY (S) USED : HALL ENVIRONMENTAL

UNIT A, SEC. 26, T29N, R12W

ENVIROTECH

Date : June 26, 2006

SAMPLER : N J V

Filename : 06-26-06.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)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW - 1	102.40	94.99	7.41	16.25	0645	6.93	2,400	22.0	4.25
MW - 2	102.47	95.06	7.41	15.48	0850	7.08	1,600	21.3	4.00
MW - 3	101.97	95.13	6.84	15.05	0925	7.03	1,600	21.8	4.00
MW - 4	101.09	93.88	7.21	15.00	0715	6.99	2,100	22.5	3.75
MW - 5	99.29	93.52	5.77	12.40	0800	7.03	1,600	22.3	3.25

INSTRUMENT CALIBRATIONS =

7.00 2,800

DATE & TIME =

06/26/06 0630

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

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in all MW 's . Collected BTEX & major anions / cations from all MW 's .

MW #1 - tan / light brown tint in appearance during purging ; MW #3 - blackish tint in appearance during purging .

Top of casing MW #1 ~ 2.25 ft . , MW #2 ~ 2.20 ft . , MW #3 ~ 2.50 ft . , MW #4 ~ 2.40 ft . ,
MW #5 ~ 2.65 ft. above grade .

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Jul-06

CLIENT: Blagg Engineering
Project: GCU #145

Lab Order: 0606279

Lab ID: 0606279-01

Collection Date: 6/26/2006 6:45:00 AM

Client Sample ID: MW #1

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/4/2006 1:49:33 PM
Toluene	ND	1.0		µg/L	1	7/4/2006 1:49:33 PM
Ethylbenzene	ND	1.0		µg/L	1	7/4/2006 1:49:33 PM
Xylenes, Total	ND	3.0		µg/L	1	7/4/2006 1:49:33 PM
Surr: 4-Bromofluorobenzene	104	72.2-125		%REC	1	7/4/2006 1:49:33 PM

Lab ID: 0606279-02

Collection Date: 6/26/2006 8:50:00 AM

Client Sample ID: MW #2

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/4/2006 2:18:48 PM
Toluene	ND	1.0		µg/L	1	7/4/2006 2:18:48 PM
Ethylbenzene	ND	1.0		µg/L	1	7/4/2006 2:18:48 PM
Xylenes, Total	ND	3.0		µg/L	1	7/4/2006 2:18:48 PM
Surr: 4-Bromofluorobenzene	103	72.2-125		%REC	1	7/4/2006 2:18:48 PM

Lab ID: 0606279-03

Collection Date: 6/26/2006 9:25:00 AM

Client Sample ID: MW #3

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	1.9	1.0		µg/L	1	7/4/2006 2:47:50 PM
Toluene	ND	1.0		µg/L	1	7/4/2006 2:47:50 PM
Ethylbenzene	ND	1.0		µg/L	1	7/4/2006 2:47:50 PM
Xylenes, Total	73	3.0		µg/L	1	7/4/2006 2:47:50 PM
Surr: 4-Bromofluorobenzene	131	72.2-125	S	%REC	1	7/4/2006 2:47:50 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Jul-06

CLIENT: Blagg Engineering
Project: GCU #145**Lab Order:** 0606279**Lab ID:** 0606279-04**Collection Date:** 6/26/2006 7:15:00 AM**Client Sample ID:** MW #4**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

EPA METHOD 8021B: VOLATILES

Analyst: NSB

Benzene	ND	1.0		µg/L	1	7/4/2006 3:16:53 PM
Toluene	ND	1.0		µg/L	1	7/4/2006 3:16:53 PM
Ethylbenzene	7.3	1.0		µg/L	1	7/4/2006 3:16:53 PM
Xylenes, Total	6.1	3.0		µg/L	1	7/4/2006 3:16:53 PM
Surr: 4-Bromofluorobenzene	108	72.2-125		%REC	1	7/4/2006 3:16:53 PM

Lab ID: 0606279-05**Collection Date:** 6/26/2006 8:00:00 AM**Client Sample ID:** MW #5**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

EPA METHOD 8021B: VOLATILES

Analyst: NSB

Benzene	ND	1.0		µg/L	1	7/4/2006 3:45:56 PM
Toluene	ND	1.0		µg/L	1	7/4/2006 3:45:56 PM
Ethylbenzene	ND	1.0		µg/L	1	7/4/2006 3:45:56 PM
Xylenes, Total	ND	3.0		µg/L	1	7/4/2006 3:45:56 PM
Surr: 4-Bromofluorobenzene	100	72.2-125		%REC	1	7/4/2006 3:45:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

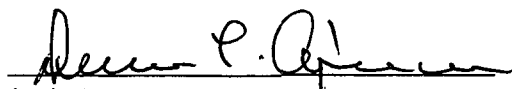
Client: Blagg / BP
Sample ID: MW #1
Laboratory Number: 37560
Chain of Custody: 14636
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

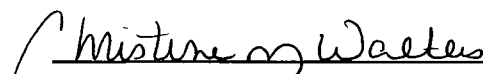
Project #: 94034-010
Date Reported: 06-27-06
Date Sampled: 06-26-06
Date Received: 06-26-06
Date Extracted: N/A
Date Analyzed: 06-26-06

Parameter	Analytical Result	Units		
pH	7.14	s.u.		
Conductivity @ 25° C	3,330	umhos/cm		
Total Dissolved Solids @ 180C	2,230	mg/L		
Total Dissolved Solids (Calc)	2,120	mg/L		
SAR	1.3	ratio		
Total Alkalinity as CaCO3	372	mg/L		
Total Hardness as CaCO3	1,420	mg/L		
Bicarbonate as HCO3	372	mg/L	6.10	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.04	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.01	mg/L	0.00	meq/L
Chloride	20.5	mg/L	0.58	meq/L
Fluoride	1.43	mg/L	0.08	meq/L
Phosphate	<0.01	mg/L	0.00	meq/L
Sulfate	1,280	mg/L	26.65	meq/L
Iron	0.019	mg/L	0.00	meq/L
Calcium	320	mg/L	15.97	meq/L
Magnesium	149	mg/L	12.26	meq/L
Potassium	4.62	mg/L	0.12	meq/L
Sodium	116	mg/L	5.05	meq/L
Cations			33.39	meq/L
Anions			33.40	meq/L
Cation/Anion Difference			0.02%	

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

Comments: GCU #145 Grab Sample.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

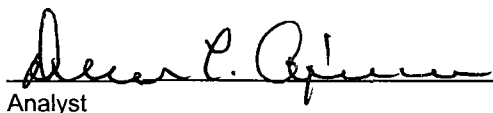
Client: Blagg / BP
Sample ID: MW #2
Laboratory Number: 37561
Chain of Custody: 14636
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

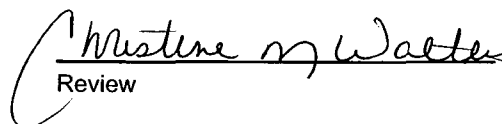
Project #: 94034-010
Date Reported: 06-27-06
Date Sampled: 06-26-06
Date Received: 06-26-06
Date Extracted: N/A
Date Analyzed: 06-26-06

Parameter	Analytical Result	Units		
pH	7.22	s.u.		
Conductivity @ 25° C	1,649	umhos/cm		
Total Dissolved Solids @ 180C	1,060	mg/L		
Total Dissolved Solids (Calc)	1,060	mg/L		
SAR	3.4	ratio		
Total Alkalinity as CaCO3	310	mg/L		
Total Hardness as CaCO3	455	mg/L		
Bicarbonate as HCO3	310	mg/L	5.08	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.02	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.01	mg/L	0.00	meq/L
Chloride	18.0	mg/L	0.51	meq/L
Fluoride	2.20	mg/L	0.12	meq/L
Phosphate	<0.01	mg/L	0.00	meq/L
Sulfate	514	mg/L	10.70	meq/L
Iron	0.003	mg/L	0.00	meq/L
Calcium	153	mg/L	7.63	meq/L
Magnesium	17.5	mg/L	1.44	meq/L
Potassium	1.43	mg/L	0.04	meq/L
Sodium	167	mg/L	7.28	meq/L
Cations			16.39	meq/L
Anions			16.41	meq/L
Cation/Anion Difference			0.08%	

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

Comments: GCU #145 Grab Sample.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

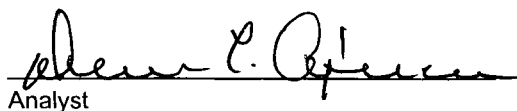
Client: Blagg / BP
Sample ID: MW #3
Laboratory Number: 37562
Chain of Custody: 14636
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

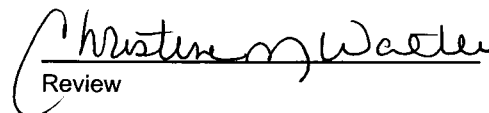
Project #: 94034-010
Date Reported: 06-27-06
Date Sampled: 06-26-06
Date Received: 06-26-06
Date Extracted: N/A
Date Analyzed: 06-26-06

Parameter	Analytical Result	Units		
pH	7.25	s.u.		
Conductivity @ 25° C	1,294	umhos/cm		
Total Dissolved Solids @ 180C	926	mg/L		
Total Dissolved Solids (Calc)	900	mg/L		
SAR	3.1	ratio		
Total Alkalinity as CaCO3	414	mg/L		
Total Hardness as CaCO3	407	mg/L		
Bicarbonate as HCO3	414	mg/L	6.79	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.07	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.01	mg/L	0.00	meq/L
Chloride	19.7	mg/L	0.56	meq/L
Fluoride	1.94	mg/L	0.10	meq/L
Phosphate	1.09	mg/L	0.03	meq/L
Sulfate	332	mg/L	6.91	meq/L
Iron	0.125	mg/L	0.00	meq/L
Calcium	139	mg/L	6.94	meq/L
Magnesium	14.3	mg/L	1.18	meq/L
Potassium	2.60	mg/L	0.07	meq/L
Sodium	142	mg/L	6.19	meq/L
Cations			14.37	meq/L
Anions			14.38	meq/L
Cation/Anion Difference			0.08%	

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

Comments: GCU #145 Grab Sample.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

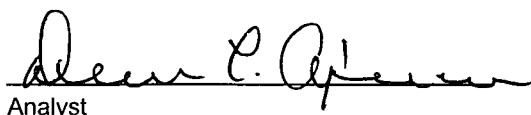
Client: Blagg / BP
Sample ID: MW #4
Laboratory Number: 37563
Chain of Custody: 14636
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

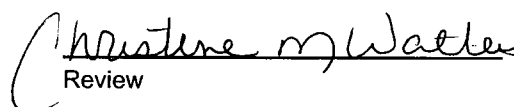
Project #: 94034-010
Date Reported: 06-27-06
Date Sampled: 06-26-06
Date Received: 06-26-06
Date Extracted: N/A
Date Analyzed: 06-26-06

Parameter	Analytical Result	Units		
pH	7.19	s.u.		
Conductivity @ 25° C	2,810	umhos/cm		
Total Dissolved Solids @ 180C	1,770	mg/L		
Total Dissolved Solids (Calc)	1,790	mg/L		
SAR	2.8	ratio		
Total Alkalinity as CaCO3	240	mg/L		
Total Hardness as CaCO3	887	mg/L		
Bicarbonate as HCO3	240	mg/L	3.93	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.01	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.01	mg/L	0.00	meq/L
Chloride	41.8	mg/L	1.18	meq/L
Fluoride	0.72	mg/L	0.04	meq/L
Phosphate	<0.01	mg/L	0.00	meq/L
Sulfate	1,060	mg/L	22.07	meq/L
Iron	0.474	mg/L	0.02	meq/L
Calcium	232	mg/L	11.58	meq/L
Magnesium	73.7	mg/L	6.06	meq/L
Potassium	44.6	mg/L	1.14	meq/L
Sodium	194	mg/L	8.43	meq/L
Cations			27.21	meq/L
Anions			27.22	meq/L
Cation/Anion Difference			0.04%	

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

Comments: GCU #145 Grab Sample.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

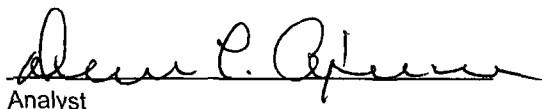
Client: Blagg / BP
Sample ID: MW #5
Laboratory Number: 37564
Chain of Custody: 14636
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

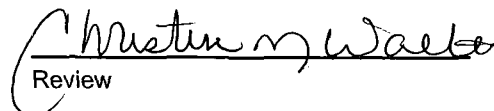
Project #: 94034-010
Date Reported: 06-27-06
Date Sampled: 06-26-06
Date Received: 06-26-06
Date Extracted: N/A
Date Analyzed: 06-26-06

Parameter	Analytical Result	Units		
pH	7.22	s.u.		
Conductivity @ 25° C	1,610	umhos/cm		
Total Dissolved Solids @ 180C	1,230	mg/L		
Total Dissolved Solids (Calc)	1,200	mg/L		
SAR	1.6	ratio		
Total Alkalinity as CaCO3	280	mg/L		
Total Hardness as CaCO3	747	mg/L		
Bicarbonate as HCO3	280	mg/L	4.59	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.01	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.01	mg/L	0.00	meq/L
Chloride	22.3	mg/L	0.63	meq/L
Fluoride	1.60	mg/L	0.08	meq/L
Phosphate	<0.01	mg/L	0.00	meq/L
Sulfate	667	mg/L	13.89	meq/L
Iron	3.05	mg/L	0.11	meq/L
Calcium	154	mg/L	7.68	meq/L
Magnesium	87.0	mg/L	7.16	meq/L
Potassium	2.1	mg/L	0.05	meq/L
Sodium	98.5	mg/L	4.28	meq/L
Cations			19.18	meq/L
Anions			19.19	meq/L
Cation/Anion Difference			0.04%	

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

Comments: GCU #145 Grab Sample.


Analyst


Review

14636

san juan reproduction 578-129

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: GCU #145

Work Order: 0606279

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8021

Sample ID: 5ML RB

MBLK

Batch ID: R19778 Analysis Date: 7/3/2006 9:15:29 AM

Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
o-Xylenes	ND	µg/L	1.0						
m-Xylenes, Total	ND	µg/L	3.0						

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R19778 Analysis Date: 7/3/2006 11:41:12 AM

Benzene	20.49	µg/L	1.0	102	85	115			
Toluene	20.79	µg/L	1.0	104	85	118			
o-Xylenes	20.61	µg/L	1.0	103	85	116			
m-Xylenes, Total	62.22	µg/L	3.0	104	85	119			

Sample ID: 100NG LCSD

LCSD

Batch ID: R19778 Analysis Date: 7/3/2006 6:36:49 PM

Benzene	18.80	µg/L	1.0	94.0	85	115	8.62	27	
Toluene	18.51	µg/L	1.0	92.6	85	118	11.6	19	
o-Xylenes	18.57	µg/L	1.0	92.8	85	116	10.4	10	R
m-Xylenes, Total	55.66	µg/L	3.0	92.8	85	119	11.1	13	

Qualifiers:

Value above quantitation range
Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date and Time Received:

6/26/2006

Work Order Number 0606279

Received by AT

Checklist completed by

Signature

Date

6/26/06

Matrix

Carrier name Greyhound

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Not Shipped ☐

Custody seals intact on sample bottles?

Yes ☐

No ☒

N/A ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Water - VOA vials have zero headspace?

No VOA vials submitted ☐

Yes ☒

No ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

4°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Jul-06

CLIENT: Blagg Engineering

Project: GCU #145

Lab Order: 0606279

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_W, SAMPLE 0606279-03A: Elevated surrogate due to matrix interference.

BLAGG ENGINEERING, INC.**MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA****CLIENT : BP AMERICA PROD. CO.****CHAIN-OF-CUSTODY # :** N / A**GCU # 145 - BLOW & SEP. PITS****LABORATORY (S) USED :** HALL ENVIRONMENTAL**UNIT A, SEC. 26, T29N, R12W****Date :** August 22, 2006**SAMPLER :** N J V**Filename :** 08-22-06.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)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW - 1	102.40	95.24	7.16	16.25	0905	6.75	2,300	25.2	4.50
MW - 2	102.47	95.36	7.11	15.48	1100	6.89	1,300	23.7	4.25
MW - 3	101.97	95.43	6.54	15.05	1130	6.89	1,600	25.5	4.25
MW - 4	101.09	94.15	6.94	15.00	0945	6.85	1,800	26.2	4.00
MW - 5	99.29	93.80	5.49	12.40	1020	6.90	1,400	26.9	3.50

INSTRUMENT CALIBRATIONS =

7.00 2,800

DATE & TIME =

08/22/06 0900

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

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in all MW 's . Collected BTEX samples from all MW 's .

MW #1 - tan / light brown tint in appearance during purging ; MW #3 - blackish tint in appearance during purging .

Top of casing MW #1 ~ 2.25 ft. , MW #2 ~ 2.20 ft. , MW #3 ~ 2.50 ft. , MW #4 ~ 2.40 ft. ,
MW #5 ~ 2.65 ft. above grade .

Hall Environmental Analysis Laboratory, Inc.

Date: 31-Aug-06

CLIENT: Blagg Engineering
Lab Order: 0608282
Project: GCU #145
Lab ID: 0608282-02

Client Sample ID: MW#2
Collection Date: 8/22/2006 11:00:00 AM
Date Received: 8/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	8/28/2006 5:08:16 PM
Toluene	ND	1.0		µg/L	1	8/28/2006 5:08:16 PM
Ethylbenzene	ND	1.0		µg/L	1	8/28/2006 5:08:16 PM
Xylenes, Total	ND	3.0		µg/L	1	8/28/2006 5:08:16 PM
Surr: 4-Bromofluorobenzene	110	72.2-125		%REC	1	8/28/2006 5:08:16 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 31-Aug-06

CLIENT: Blagg Engineering
Lab Order: 0608282
Project: GCU #145
Lab ID: 0608282-03

Client Sample ID: MW#3
Collection Date: 8/22/2006 11:30:00 AM
Date Received: 8/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	2.8	1.0		µg/L	1	8/28/2006 9:00:24 PM
Toluene	ND	1.0		µg/L	1	8/28/2006 9:00:24 PM
Ethylbenzene	9.5	1.0		µg/L	1	8/28/2006 9:00:24 PM
Xylenes, Total	12	3.0		µg/L	1	8/28/2006 9:00:24 PM
Surr: 4-Bromofluorobenzene	105	72.2-125		%REC	1	8/28/2006 9:00:24 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 31-Aug-06

CLIENT: Blagg Engineering
Lab Order: 0608282
Project: GCU #145
Lab ID: 0608282-04

Client Sample ID: MW#4
Collection Date: 8/22/2006 9:45:00 AM
Date Received: 8/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	8/28/2006 9:29:21 PM
Toluene	ND	1.0		µg/L	1	8/28/2006 9:29:21 PM
Ethylbenzene	ND	1.0		µg/L	1	8/28/2006 9:29:21 PM
Xylenes, Total	ND	3.0		µg/L	1	8/28/2006 9:29:21 PM
Surr: 4-Bromofluorobenzene	111	72.2-125		%REC	1	8/28/2006 9:29:21 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 31-Aug-06

CLIENT: Blagg Engineering
Lab Order: 0608282
Project: GCU #145
Lab ID: 0608282-05

Client Sample ID: MW#5
Collection Date: 8/22/2006 10:20:00 AM
Date Received: 8/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	8/28/2006 9:58:13 PM
Toluene	ND	1.0		µg/L	1	8/28/2006 9:58:13 PM
Ethylbenzene	ND	1.0		µg/L	1	8/28/2006 9:58:13 PM
Xylenes, Total	ND	3.0		µg/L	1	8/28/2006 9:58:13 PM
Surr: 4-Bromofluorobenzene	110	72.2-125		%REC	1	8/28/2006 9:58:13 PM

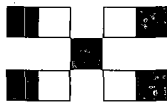
Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvirmental.com



ANALYSIS REQUEST

BTEX + MTBE + TPH (Gasoline Only)
TPH Method 8015B (Gas/Diesel)
TPH (Method 418.1)
EDB (Method 504.1)
EDC (Method 802.1)
8310 (PNA or PAH)
RCRA 8 Metals
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
8081 Pesticides / PCB's (8082)
8260B (VOA)
8270 (Semi-VOA)
Air Bubbles or Headspace (Y or N)

Remarks:

CHAIN-OF-CUSTODY RECORD									
QA / QC Package: ☐ Std ☐ Level 4 ☐ Other: _____									
Client: <u>BLAKE ENER. / BP AMERICA</u>		Project Name: <u>GCN #145</u>							
Address: <u>P.O. BOX 87</u>		Project #: _____							
<u>BLFD, NM 87413</u>		Project Manager: <u>NV</u>							
Phone #: <u>632-1199</u>		Sampler: <u>NV</u>							
Fax #: _____		Sample Temperature: <u>2</u>							
Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.	
					HgCl ₂	HNO ₃			
8/22/06	0905	WATER	MW #1	2-40 ml	✓			0608282	
8/22/06	1100	WATER	MW #2	2-40 ml	✓			1	
8/22/06	1130	WATER	MW #3	2-40 ml	✓			2	
8/22/06	0945	WATER	MW #4	2-40 ml	✓			3	
8/22/06	1020	WATER	MW #5	2-40 ml	✓			4	
								5	
Date: <u>8/23/06</u>	Time: <u>0700</u>	Relinquished By: (Signature) <u>[Signature]</u>	Received By: (Signature) <u>[Signature]</u>			Date: <u>8/23/06</u>			
Date: _____	Time: _____	Relinquished By: (Signature) _____	Received By: (Signature) _____			Date: <u>1000</u>			

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: GCU #145

Work Order: 0608282

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8021

Sample ID: 5ML REAGENT BLA

MBLK

Batch ID: R20460 Analysis Date: 8/28/2006 9:03:02 AM

Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R20460 Analysis Date: 8/28/2006 6:35:20 PM

Benzene	21.94	µg/L	1.0	110	85	115			
Toluene	22.83	µg/L	1.0	114	85	118			
Ethylbenzene	22.42	µg/L	1.0	112	85	116			
Xylenes, Total	66.05	µg/L	3.0	110	85	119			

Sample ID: 100NG BTEX LCSD

LCSD

Batch ID: R20460 Analysis Date: 8/28/2006 7:04:26 PM

Benzene	20.70	µg/L	1.0	104	85	115	5.78	27	
Toluene	20.60	µg/L	1.0	103	85	118	10.3	19	
Ethylbenzene	20.75	µg/L	1.0	104	85	116	7.74	10	
Xylenes, Total	61.70	µg/L	3.0	103	85	119	6.82	13	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	6 / 7 Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date and Time Received:

8/23/2006

Work Order Number 0608282

Received by AT

Checklist completed by

Signature

Date

Matrix

Carrier name Greyhound

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Not Shipped ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

N/A ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Water - VOA vials have zero headspace?

No VOA vials submitted ☐

Yes ☒

No ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

2°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.**MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA****CLIENT : BP AMERICA PROD. CO.****CHAIN-OF-CUSTODY # : N / A****GCU # 145 - BLOW & SEP. PITS****LABORATORY (S) USED : HALL ENVIRONMENTAL****UNIT A, SEC. 26, T29N, R12W****Date : February 28, 2008****SAMPLER : N J V****Filename : 02-28-08.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)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW - 1	102.40	95.21	7.19	16.25	-	-	-	-	-
MW - 2	102.47	95.45	7.02	15.48	-	-	-	-	-
MW - 3	101.97	95.57	6.40	15.05	1400	7.06	1,600	12.9	4.25
MW - 4	101.09	93.95	7.14	15.00	1330	7.19	2,100	13.4	4.00
MW - 5	99.29	93.61	5.68	12.40	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	02/28/08	1320

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

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in MW # 3 & # 4 . Collected BTEX samples from MW # 3 & # 4 only .

Top of casing MW # 1 ~ 2.25 ft. , MW # 2 ~ 2.20 ft. , MW # 3 ~ 2.50 ft. , MW # 4 ~ 2.40 ft. ,
MW # 5 ~ 2.65 ft. above grade .

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Mar-08

CLIENT: Blagg Engineering
Project: GCU #145**Lab Order:** 0802338**Lab ID:** 0802338-01**Collection Date:** 2/28/2008 2:00:00 PM**Client Sample ID:** MW #3**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/5/2008 1:53:10 PM
Toluene	ND	1.0		µg/L	1	3/5/2008 1:53:10 PM
Ethylbenzene	1.1	1.0		µg/L	1	3/5/2008 1:53:10 PM
Xylenes, Total	8.6	2.0		µg/L	1	3/5/2008 1:53:10 PM
Surr: 4-Bromofluorobenzene	92.1	68.9-122		%REC	1	3/5/2008 1:53:10 PM

Lab ID: 0802338-02**Collection Date:** 2/28/2008 1:30:00 PM**Client Sample ID:** MW #4**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/5/2008 3:23:58 PM
Toluene	ND	1.0		µg/L	1	3/5/2008 3:23:58 PM
Ethylbenzene	ND	1.0		µg/L	1	3/5/2008 3:23:58 PM
Xylenes, Total	ND	2.0		µg/L	1	3/5/2008 3:23:58 PM
Surr: 4-Bromofluorobenzene	86.4	68.9-122		%REC	1	3/5/2008 3:23:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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[illegible][illegible]

Date	Time	Matrix	Sample I.D. No.
1/28/08	1400	WATER	MW #3
1/28/08	1330	WATER	MW #4
Date: 1/28/08	Time: 1635	Relinquished By: (Signature)	Relinquished By: (Signature)
Date: 1/28/08	Time: 1635	Relinquished By: (Signature)	Relinquished By: (Signature)

22

QA/QC SUMMARY REPORT

Client: Blagg Engineering

Project: GCU #145

Work Order: 0802338

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8021B: Volatiles

Sample ID: 5ML RB

MBLK

Batch ID: R27590 Analysis Date: 3/5/2008 8:17:54 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	2.0

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R27590 Analysis Date: 3/5/2008 10:26:44 PM

Benzene	19.05	µg/L	1.0	95.3	85.9	113
Toluene	19.30	µg/L	1.0	96.5	86.4	113
Ethylbenzene	19.08	µg/L	1.0	95.4	83.5	118
Xylenes, Total	57.90	µg/L	2.0	96.5	83.4	122

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date Received:

2/29/2008

Work Order Number 0802338

Received by: TLS

Checklist completed by:

Signature

Date

Sample ID labels checked by

Initials

Matrix

Carrier name UPS

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Not Shipped ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

N/A ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Water - VOA vials have zero headspace?

No VOA vials submitted ☐

Yes ☒

No ☐

Water - Preservation labels on bottle and cap match?

Yes ☐

No ☐

N/A ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

4°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY #: N / A

GCU # 145 - BLOW & SEP. PITS

LABORATORY (S) USED: HALL ENVIRONMENTAL

UNIT A, SEC. 26, T29N, R12W

Date: April 24, 2008

SAMPLER: N J V

Filename: 04-24-08.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)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW - 1	102.40	95.00	7.40	16.25	-	-	-	-	-
MW - 2	102.47	94.93	7.54	15.48	-	-	-	-	-
MW - 3	101.97	94.97	7.00	15.05	1300	7.06	1,100	18.3	4.00
MW - 4	101.09	94.04	7.05	15.00	1230	7.21	1,400	18.5	4.00
MW - 5	99.29	93.64	5.65	12.40	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	04/24/08	1225

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

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

Excellent recovery in MW # 3 & # 4. Collected BTEX samples from MW # 3 & # 4 only.

Top of casing MW # 1 ~ 2.25 ft., MW # 2 ~ 2.20 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.40 ft.,
MW # 5 ~ 2.65 ft. above grade.

Hall Environmental Analysis Laboratory, Inc.

Date: 01-May-08

CLIENT: Blagg Engineering
Project: GCU #145**Lab Order:** 0804313**Lab ID:** 0804313-01**Collection Date:** 4/24/2008 1:00:00 PM**Client Sample ID:** MW #3**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	4/30/2008 5:09:20 PM
Benzene	1.0	1.0		µg/L	1	4/30/2008 5:09:20 PM
Toluene	ND	1.0		µg/L	1	4/30/2008 5:09:20 PM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2008 5:09:20 PM
Xylenes, Total	9.4	2.0		µg/L	1	4/30/2008 5:09:20 PM
1,2,4-Trimethylbenzene	3.8	1.0		µg/L	1	4/30/2008 5:09:20 PM
1,3,5-Trimethylbenzene	1.6	1.0		µg/L	1	4/30/2008 5:09:20 PM
Surr: 4-Bromofluorobenzene	88.6	68.9-122		%REC	1	4/30/2008 5:09:20 PM

Lab ID: 0804313-02**Collection Date:** 4/24/2008 12:30:00 PM**Client Sample ID:** MW #4**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	4/30/2008 5:39:29 PM
Benzene	ND	1.0		µg/L	1	4/30/2008 5:39:29 PM
Toluene	ND	1.0		µg/L	1	4/30/2008 5:39:29 PM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2008 5:39:29 PM
Xylenes, Total	ND	2.0		µg/L	1	4/30/2008 5:39:29 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/30/2008 5:39:29 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/30/2008 5:39:29 PM
Surr: 4-Bromofluorobenzene	89.3	68.9-122		%REC	1	4/30/2008 5:39:29 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

QA/QC SUMMARY REPORT

Client: Blagg Engineering

Project: GCU #145

Work Order: 0804313

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8021B: Volatiles

Sample ID: 5ML RB

MBLK

Batch ID: R28319 Analysis Date: 4/30/2008 8:24:35 AM

Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5
Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	2.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R28319 Analysis Date: 4/30/2008 9:39:58 PM

Methyl tert-butyl ether (MTBE)	20.49	µg/L	2.5	102	51.2	138
Benzene	19.83	µg/L	1.0	99.1	85.9	113
Toluene	20.25	µg/L	1.0	101	86.4	113
Ethylbenzene	20.42	µg/L	1.0	102	83.5	118
Xylenes, Total	61.03	µg/L	2.0	102	83.4	122
1,2,4-Trimethylbenzene	19.77	µg/L	1.0	98.9	83.5	115
1,3,5-Trimethylbenzene	19.93	µg/L	1.0	99.6	85.2	113

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date Received:

4/25/2008

Work Order Number 0804313

Received by: ARS

Checklist completed by: Amya Shomin 4/25/08
Signature Date

Sample ID labels checked by: AS
Initials

Matrix:

Carrier name UPS

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☒	
Chain of custody present?	Yes ☒	No ☐		
Chain of custody signed when relinquished and received?	Yes ☒	No ☐		
Chain of custody agrees with sample labels?	Yes ☒	No ☐		
Samples in proper container/bottle?	Yes ☒	No ☐		
Sample containers intact?	Yes ☒	No ☐		
Sufficient sample volume for indicated test?	Yes ☒	No ☐		
All samples received within holding time?	Yes ☒	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☒	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☒	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒	

Container/Temp Blank temperature?

5°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____