# 3R - 0381

# ANNUAL MONITORING REPORT

# 04/25/2008

3R 381

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

April 25, 2008

Mr. Glenn von Gonten, Senior Hydrologist
New Mexico Oil Conservation Division-NMOCD
Environmental Bureau
1220 St. Francis Drive
Santa Fe, New Mexico 87505

**Re: BP America Production Company**
**Groundwater Monitoring Report**
**GCU # 170, Unit K, Sec. 35, T29N, R12W, NMPM**
**San Juan County, New Mexico**

**NMOCD Administrative/Environmental Order #: 3RP-381-0**

Dear Mr. von Gonten:

BP America Production Company (**BP**) has retained Blagg Engineering, Inc. (**BEI**) to conduct environmental monitoring of groundwater at the GCU # 170.

The last formal correspondence to NMOCD was conducted with a letter dated February 15, 2006. Since then, BP has followed its NMOCD approved groundwater management plan and continues to monitor the site. No permanent closure is requested at this time.

If you have any questions concerning the enclosed documentation, please contact either myself or Jeffrey C. Blagg at (505) 632-1199. Thank you for your cooperation and assistance.

Respectfully submitted:
***Blagg Engineering, Inc.***

Nelson J. Velez
Staff Geologist

Attachment: Groundwater Report (2 copies)

cc: Mr. Brandon Powell, Environmental Specialist, NMOCD District III Office, Aztec, NM
Mr. Larry Schlotterback, Environmental Coordinator, BP, Farmington, NM (without lab report)
Ms. Shannon Hoover, Senior Geologist, URS Corp., Austin, Texas

NJV/njv

GCU 170 04-25-08 CVL.DOC

3R381

# BP AMERICA PRODUCTION CO.

## GROUNDWATER REMEDIATION REPORT

**GCU #170**
**(K) SECTION 35, T29N, R12W, NMPM**
**SAN JUAN COUNTY, NEW MEXICO**

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

*APRIL 2008*

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

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

# BP AMERICA PRODUCTION COMPANY
# GCU # 170 - Separator Pit
# NE/4 SW/4, Sec. 35, T29N, R12W

**Monitor Well Sampling Dates:** **6/29/06, 6/25/07**

## Site Historic Summary:

A site separator pit closure was initiated in March 1995 by removing impacted soil via excavation. Documentation for this work and subsequent groundwater monitoring data for the site have previously been submitted for New Mexico Oil Conservation Division (**NMOCD**) review. The reporting herein is for site monitoring for 2006 and 2007. Site features are depicted on Figure 1.

## Groundwater Monitor Well Sampling Procedures:

Prior to sample collections, MW #3R was purged approximately three (3) well bore volumes with new disposable bailers. The groundwater samples were collected following US EPA: SW-846 protocol, were placed into laboratory supplied containers with appropriate preservative, and stored in an ice chest for express delivery to an analytical laboratory for testing under strict chain-of-custody procedures. Analytical testing included benzene, toluene, ethylbenzene, and total xylenes (**BTEX**) by US EPA Method 8021B.

Fluids generated during monitor well development and purging were managed by discarding into the separator tank pit located on the well site. The tank pit contents are then disposed through approved NMOCD operational procedures for removal of produced fluids.

## Groundwater Quality & Flow Direction Information:

Annual sampling of groundwater monitor well MW #3R was conducted in June 2006 and June 2007. A historical summary of laboratory analytical results is included within the tables on the following pages and field/laboratory reports are included.

Groundwater elevations have consistently been measured with a gradient towards the northwest direction (Figures 2 and 3).

## Summary and/or Recommendations:

Continued site monitoring per BP's NMOCD approved Ground Water Management Plan is recommended. Hydrocarbon impacts appear to be in a steady state condition with benzene as the only analyte with concentrations above the New Mexico Water Quality Control Commission (**NMWQCC**) groundwater standards. No additional remedial actions are indicated or suggested at this time. Further delineation of down-gradient impacts is indicated with one (1) or more additional monitor wells proposed to address this issue.

# BP AMERICA GROUNDWATER MONITOR WELL LABORATORY RESULTS

**SUBMITTED BY BLAGG ENGINEERING, INC.**

**GCU # 170 - SEPARATOR PIT**
**UNIT K, SEC. 35, T29N, R12W**

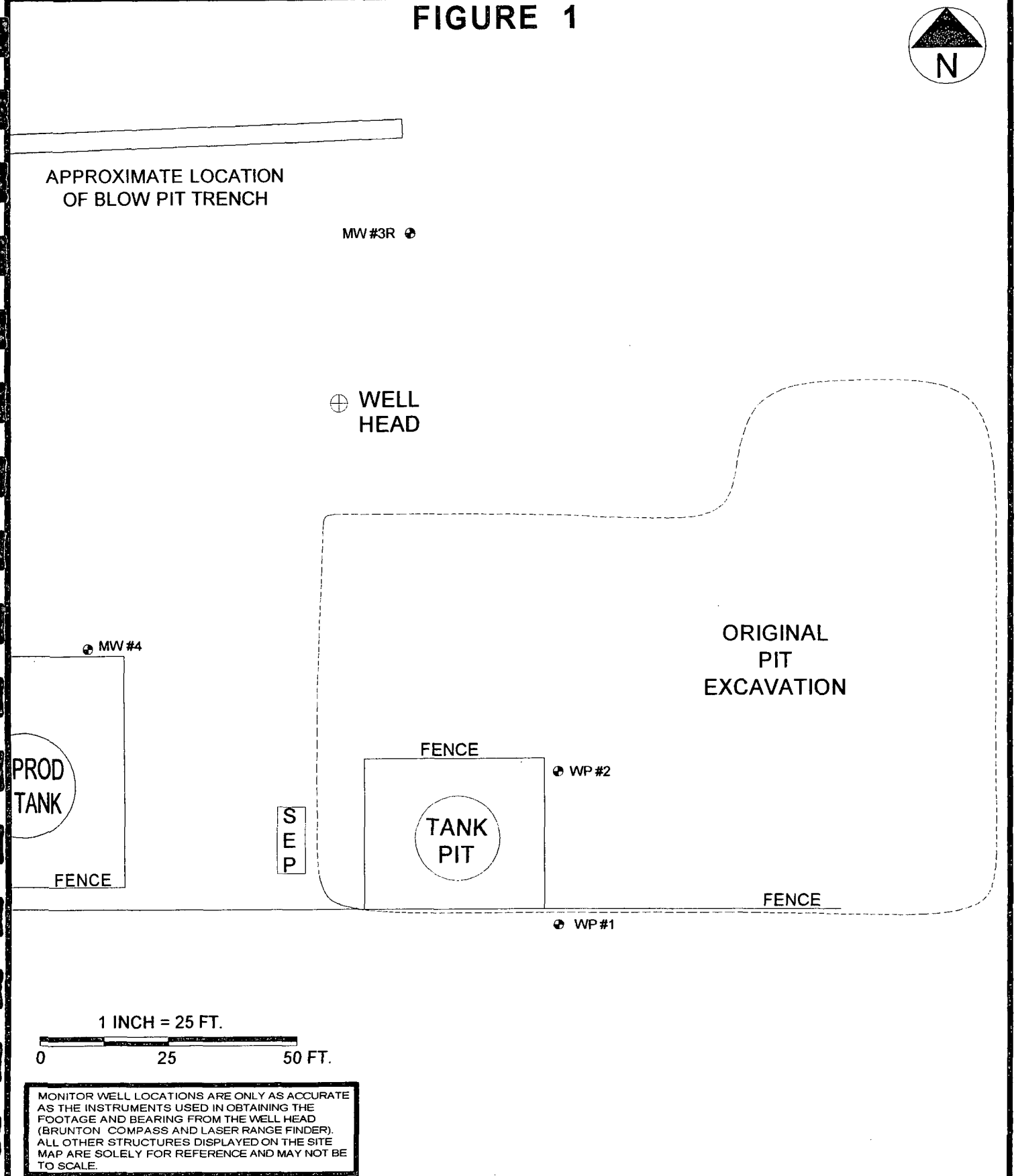
REVISED DATE: August 3, 2007

FILENAME: ( 17-2Q-07.WK4 ) NJV

| | | | | | | | | BTEX EPA METHOD 8021B (ppb) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE | MONITOR WELL # | D.T.W. (ft) | T.D. (ft) | TDS mg/L | COND. (umhos/cm) | pH | PRODUCT (ft) | Benzene | Toluene | Ethyl Benzene | Total Xylene |
| 28-Jun-95 | MW #1 | 10.50 | 15.00 | | 1,400 | 7.4 | | 0.2 | 0.2 | 0.3 | 0.9 |
| 08-Sep-95 | | 9.56 | | | 1,400 | 7.8 | | **206** | 82.3 | 4.9 | 67.0 |
| 07-Dec-95 | | 9.91 | | | 1,700 | 6.8 | | ND | 0.37 | ND | ND |
| 08-Mar-96 | | 10.93 | | | 1,200 | 6.6 | | ND | 0.97 | ND | ND |
| 04-Jun-96 | | 10.74 | | | 1,300 | 6.7 | | ND | ND | ND | ND |
| 28-Jun-95 | WP #2 | 10.45 | 15.00 | | 1,600 | 7.4 | | 1.9 | 38.3 | 0.2 | 0.8 |
| 08-Sep-95 | | 9.35 | | | 1,300 | 7.4 | | **47.1** | 19.8 | 1.2 | 17.6 |
| 07-Dec-95 | | 9.45 | | | 1,600 | 7.2 | | ND | ND | ND | ND |
| 08-Mar-96 | | 10.24 | | | 1,700 | 7.0 | | ND | ND | ND | ND |
| 04-Jun-96 | | 10.00 | | | 2,100 | 6.9 | | ND | ND | ND | ND |
| 28-Jun-95 | MW #3 | 10.45 | 15.00 | | 1,500 | 7.4 | | **2115.7** | **4485.8** | 318 | **2704.4** |
| 08-Sep-95 | | 9.60 | | | 1,700 | 7.8 | | **1,200** | **815** | 131 | **661** |
| 07-Dec-95 | | 9.80 | | | 1,800 | 7.0 | | **4,830** | **7,680** | 294 | **2,760** |
| 08-Mar-96 | | 10.74 | | | 1,500 | 6.6 | | **5,020** | **6,410** | 105 | **2,603** |
| 04-Jun-96 | | 10.57 | | | 1,600 | 6.6 | | **5,140** | **5,560** | 116 | **2,631** |
| 24-Jun-97 | | 10.72 | | | 1,700 | 6.9 | | **1,115** | **542** | 88.2 | **850** |
| 08-Jun-98 | | 10.69 | | | 1,600 | 7.3 | | **921** | **1,020** | 16.1 | **279.4** |
| 28-May-99 | | 10.29 | | | 1,700 | 7.0 | | **69.3** | **78.1** | 3 | **88.7** |
| 24-May-00 | | 10.70 | | | 1,700 | 7.1 | | **1,100** | **770** | 19 | **410** |
| 26-Jun-01 | MW #3R | 10.45 | 19.50 | | 2,200 | 7.21 | | **160** | **540** | 76 | **590** |
| 31-May-02 | | 10.45 | | | 2,600 | 7.18 | | **32** | **17** | 2.3 | **29.6** |
| 29-May-03 | | 10.34 | | | 1,800 | 6.95 | | **75** | **30** | 4.8 | **38** |
| 24-Jun-04 | | 10.30 | | | 2,300 | 6.92 | | **71** | **26** | 6.4 | **36** |
| 27-Jun-05 | | 10.15 | | | 2,000 | 7.00 | | **80** | **47** | 6.6 | **53** |
| 29-Jun-06 | | 9.91 | | | 1,900 | 6.92 | | **130** | **39** | 8.3 | **150** |
| 25-Jun-07 | | 9.71 | | | 2,000 | 6.76 | | **270** | **170** | 27 | **310** |
| 26-Jun-01 | MW #4 | 11.14 | 18.50 | | 800 | 7.41 | | ND | ND | ND | ND |
| | | | | | NMWQCC GROUNDWATER STANDARDS | | | 10 | 750 | 750 | 620 |

NOTES :
1) **RESULTS IN BOLD RED TYPE INDICATE EXCEEDING NMWQCC STANDARDS .**
2) **RESULTS IN BOLD BLUE TYPE INDICATE BELOW NMWQCC STANDARDS AFTER PREVIOUS RESULTS IN BOLD RED TYPE EXCEEDED .**
3) **ND INDICATES NOT DETECTED AT THE REPORTING LIMITS ( less than regulatory standards of at least a magnitude of 10 ).**

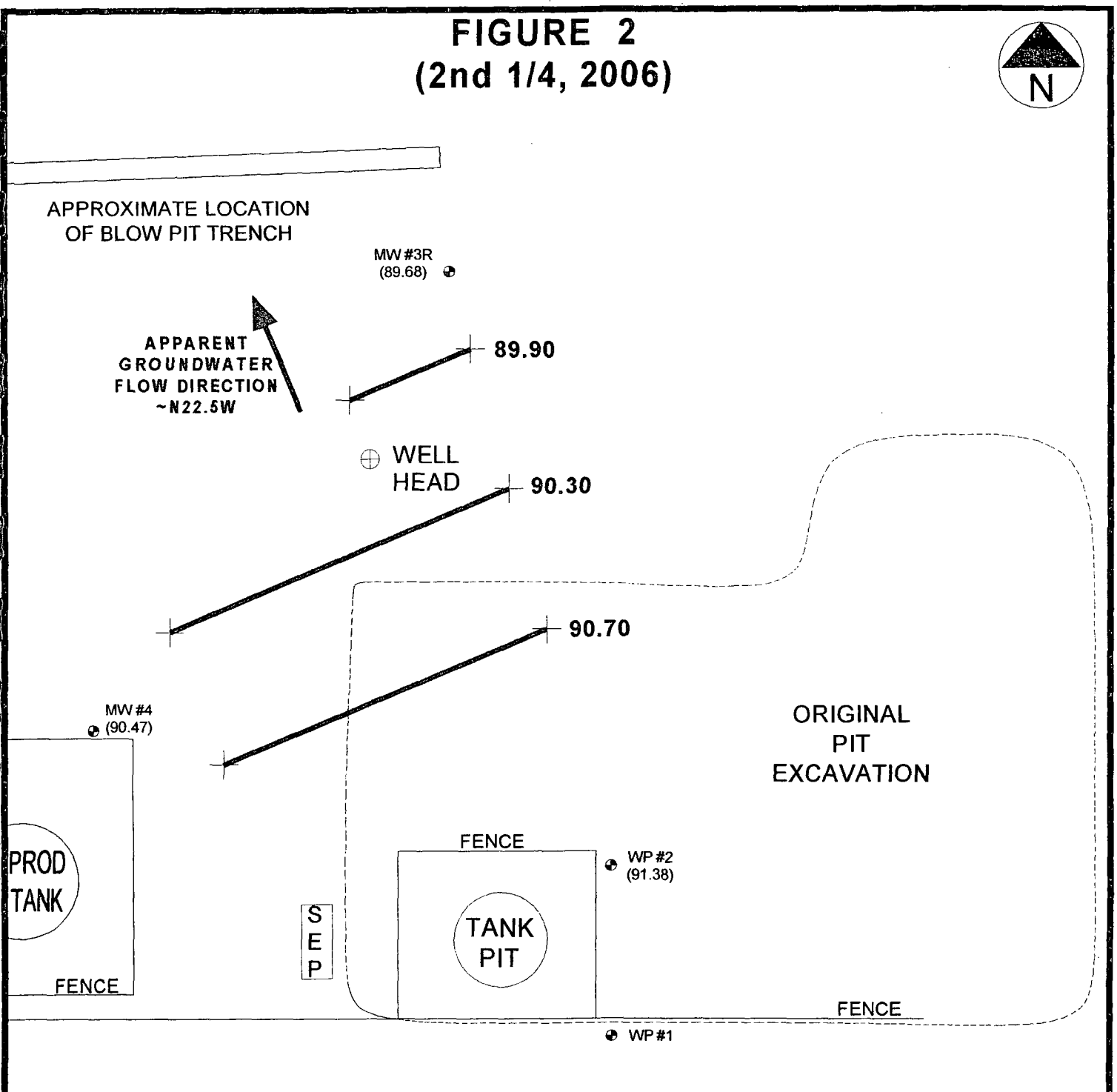
# FIGURE 1




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

| | | | |
|---|---|---|---|
| BP AMERICA PRODUCTION COMPANY<br>GCU 170<br>NE/4 SW/4 SEC. 35, T29N, R12W<br>SAN JUAN COUNTY, NEW MEXICO | BLAGG ENGINEERING, INC.<br>CONSULTING PETROLEUM / RECLAMATION SERVICES<br>P.O. BOX 87<br>BLOOMFIELD, NEW MEXICO 87413<br>PHONE: (505) 632-1199 | PROJECT: MW SAMPLING<br>DRAWN BY: NJV<br>FILENAME: GCU170-SM-06-06.SKF<br>REVISED: 06/29/06 NJV | SITE MAP<br>06/06 |

# FIGURE 2
# (2nd 1/4, 2006)




1 INCH = 25 FT.

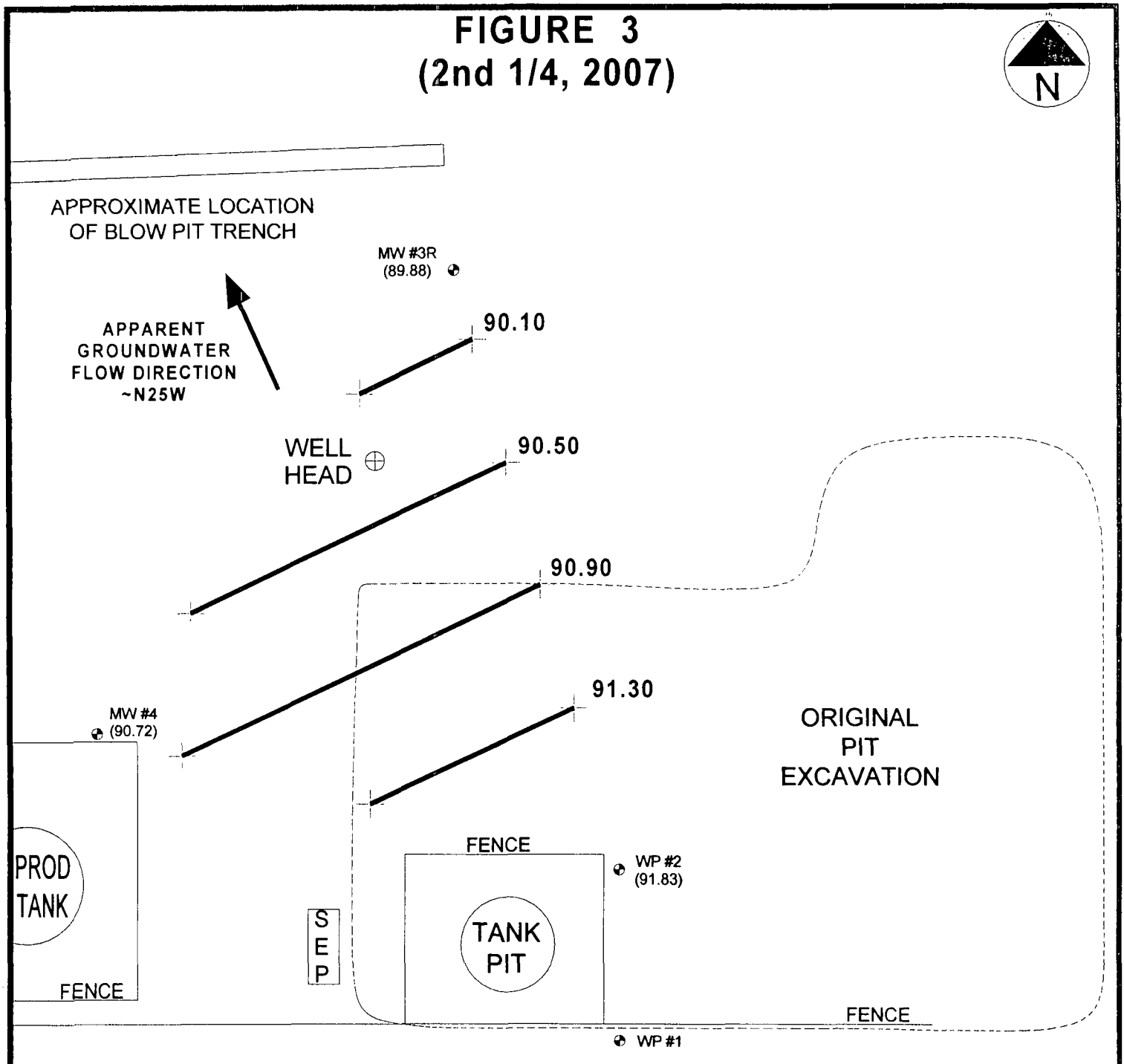
0 25 50 FT.

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 MAY NOT BE TO SCALE.

| | Top of Well Elevation |
|---|---|
| WP #2 | (100.80) |
| MW #3R | (99.59) |
| MW #4 | (101.14) |
| MW #4 (90.47) | Groundwater Elevation as of 6/29/06. |

| | | | |
|---|---|---|---|
| BP AMERICA PRODUCTION COMPANY<br>GCU 170<br>NE/4 SW/4 SEC. 35, T29N, R12W<br>SAN JUAN COUNTY, NEW MEXICO | BLAGG ENGINEERING, INC.<br>CONSULTING PETROLEUM / RECLAMATION SERVICES<br>P.O. BOX 87<br>BLOOMFIELD, NEW MEXICO 87413<br>PHONE: (505) 632-1199 | PROJECT: MW SAMPLING<br>DRAWN BY: NJV<br>FILENAME: 06-29-06-GW.SKF<br>REVISED: 12/06/05 NJV | GROUNDWATER CONTOUR MAP<br>06/06 |

# FIGURE 3
# (2nd 1/4, 2007)




1 INCH = 25 FT.

0 25 50 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 MAY NOT BE TO SCALE.

| | Top of Well Elevation |
|---|---|
| WP #2 | (100.80) |
| MW #3R | (99.59) |
| MW #4 | (101.14) |
| MW #4 (90.72) | Groundwater Elevation as of 6/25/07. |

| | | | |
|---|---|---|---|
| BP AMERICA PRODUCTION COMPANY<br>GCU # 170<br>NE/4 SW/4 SEC. 35, T29N, R12W<br>SAN JUAN COUNTY, NEW MEXICO | BLAGG ENGINEERING, INC.<br>CONSULTING PETROLEUM / RECLAMATION SERVICES<br>P.O. BOX 87<br>BLOOMFIELD, NEW MEXICO 87413<br>PHONE: (505) 632-1199 | PROJECT: MW SAMPLING<br>DRAWN BY: NJV<br>FILENAME: 06-25-07-GW.SKF<br>REVISED: 06/25/07 NJV | GROUNDWATER CONTOUR MAP<br>06/07 |

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

**CLIENT :** BP AMERICA PROD. CO.

**CHAIN-OF-CUSTODY # :** N / A

**GCU # 170 - SEPARATOR PIT**
**UNIT K, SEC. 35, T29N, R12W**

**LABORATORY (S) USED :** HALL ENVIRONMENTAL

*Date :* **June 29, 2006**

**SAMPLER :** N J V

*Filename :* **06-29-06.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.) |
|---|---|---|---|---|---|---|---|---|---|
| **WP-2** | 100.80 | 91.38 | 9.42 | 15.00 | - | - | - | - | - |
| **MW-3R** | 99.59 | 89.68 | 9.91 | 19.50 | 1255 | 6.92 | 1,900 | 24.5 | 4.75 |
| **MW-4** | 101.14 | 90.47 | 10.67 | 18.50 | - | - | - | - | - |
| | | | | | **INSTRUMENT CALIBRATIONS =** | 7.00 | 2,800 | | |
| | | | | | **DATE & TIME =** | 06/26/06 | 0630 | | |

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

Comments or note well diameter if not standard 2 ".

**Poor / fair recovery in MW # 3R . Collected BTEX sample from MW # 3R only .**

# Hall Environmental Analysis Laboratory, Inc.

**Date:** *12-Jul-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Blagg Engineering | **Client Sample ID:** | MW #3R |
| **Lab Order:** | 0606375 | **Collection Date:** | 6/29/2006 12:55:00 PM |
| **Project:** | GCU #170 | **Date Received:** | 6/30/2006 |
| **Lab ID:** | 0606375-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 130 | 5.0 | | µg/L | 5 | 7/11/2006 1:20:17 PM |
| Toluene | 39 | 1.0 | | µg/L | 1 | 7/10/2006 5:10:06 PM |
| Ethylbenzene | 8.3 | 1.0 | | µg/L | 1 | 7/10/2006 5:10:06 PM |
| Xylenes, Total | 150 | 15 | | µg/L | 5 | 7/11/2006 1:20:17 PM |
| Surr: 4-Bromofluorobenzene | 112 | 72.2-125 | | %REC | 1 | 7/10/2006 5:10:06 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| 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 |
| S | Spike Recovery outside accepted recovery limits | | |

# CHAIN-OF-CUSTODY RECORD

Accreditation Applied:
NELAC ☐ USACE ☐
Other: _____

Client: BLAGG ENER. / BP AMERICA

Project Name: GCU #170

Address: P.O. BOX 87
BLFD., NM 87413

Project #: NV

Project Manager: NV

Phone #: 632-1199

Sampler: NV

Fax #:

Sample Temperature: 6°

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | Preservative | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 6/29/06 | 1255 | WATER | MW #3R | 2-40ml | ✓ | | | 606350-1 |

| Date | Time | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 6/30/06 | | Nelson Velez | P Schwippe 6/30/06 @ 1655 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks:


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


## ANALYSIS REQUEST

| (BTEX) + MTBE + TMB's (8021B) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ✓ | | | | | | | | | | | | | | | | |

# QA/QC SUMMARY REPORT

**Client:** Blagg Engineering
**Project:** GCU #170 **Work Order:** 0606375

| Analyte | Result | Units | PQL | %Rec | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: SW8021** | | | | | | | | | |
| **Sample ID: 5ML RB** | | *MBLK* | | | Batch ID: | **R19846** | Analysis Date: | | 7/10/2006 8:44:37 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: 5ML RB** | | *MBLK* | | | Batch ID: | **R19868** | Analysis Date: | | 7/11/2006 8:11:30 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: | **R19846** | Analysis Date: | | 7/10/2006 1:14:32 PM |
| Benzene | 19.16 | µg/L | 1.0 | 95.8 | 85 | 115 | | | |
| Toluene | 18.37 | µg/L | 1.0 | 90.3 | 85 | 118 | | | |
| Ethylbenzene | 19.10 | µg/L | 1.0 | 95.5 | 85 | 116 | | | |
| Xylenes, Total | 59.24 | µg/L | 3.0 | 96.2 | 85 | 119 | | | |
| **Sample ID: 100NG BTEX LCS** | | *LCS* | | | Batch ID: | **R19868** | Analysis Date: | | 7/11/2006 7:20:12 PM |
| Benzene | 18.97 | µg/L | 1.0 | 94.8 | 85 | 115 | | | |
| Toluene | 17.83 | µg/L | 1.0 | 89.1 | 85 | 118 | | | |
| Ethylbenzene | 18.23 | µg/L | 1.0 | 91.1 | 85 | 116 | | | |
| Xylenes, Total | 56.77 | µg/L | 3.0 | 93.1 | 85 | 119 | | | |
| **Sample ID: 100NG BTEX LCSD** | | *LCSD* | | | Batch ID: | **R19846** | Analysis Date: | | 7/10/2006 6:40:10 PM |
| Benzene | 19.17 | µg/L | 1.0 | 95.9 | 85 | 115 | 0.0730 | 27 | |
| Toluene | 17.96 | µg/L | 1.0 | 88.2 | 85 | 118 | 2.27 | 19 | |
| Ethylbenzene | 18.63 | µg/L | 1.0 | 93.2 | 85 | 116 | 2.46 | 10 | |
| Xylenes, Total | 59.62 | µg/L | 3.0 | 96.8 | 85 | 119 | 0.643 | 13 | |
| **Sample ID: 100NG BTEX LCSD** | | *LCSD* | | | Batch ID: | **R19868** | Analysis Date: | | 7/11/2006 7:49:12 PM |
| Benzene | 19.72 | µg/L | 1.0 | 98.6 | 85 | 115 | 3.88 | 27 | |
| Toluene | 19.09 | µg/L | 1.0 | 95.4 | 85 | 118 | 6.84 | 19 | |
| Ethylbenzene | 19.91 | µg/L | 1.0 | 99.6 | 85 | 116 | 8.83 | 10 | |
| Xylenes, Total | 61.88 | µg/L | 3.0 | 102 | 85 | 119 | 8.61 | 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 | Spike Recovery outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

## Sample Receipt Checklist

Client Name BLAGG | Date and Time Received: 6/30/2006

Work Order Number 0606375 | Received by AT

Checklist completed by _____ (Signature) | 6/30/06 (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? | 6° | *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 # 170 - SEPARATOR PIT**
**UNIT K, SEC. 35, T29N, R12W**

**LABORATORY (S) USED :** HALL ENVIRONMENTAL

*Date :* **June 25, 2007**

**SAMPLER :** N J V

*Filename :* **06-25-07.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.) |
|---|---|---|---|---|---|---|---|---|---|
| **WP-2** | 100.80 | 91.83 | 8.97 | 15.00 | - | - | - | - | - |
| **MW-3R** | 99.59 | 89.88 | 9.71 | 19.50 | 0815 | 6.76 | 2,000 | 15.8 | 4.75 |
| **MW-4** | 101.14 | 90.72 | 10.42 | 18.50 | - | - | - | - | - |
| | | | | | **INSTRUMENT CALIBRATIONS =** | 7.00 | 2,800 | | |
| | | | | | **DATE & TIME =** | 06/25/07 | 0550 | | |

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

Comments or note well diameter if not standard 2 ".

**Excellent recovery in MW # 3R . Collected sample from MW # 3R for BTEX analysis only .**

# Hall Environmental Analysis Laboratory, Inc.

**Date:** *02-Jul-07*

| | | | |
|---|---|---|---|
| **CLIENT:** | Blagg Engineering | **Client Sample ID:** | MW #3R |
| **Lab Order:** | 0706378 | **Collection Date:** | 6/25/2007 8:15:00 AM |
| **Project:** | GCU #170 | **Date Received:** | 6/26/2007 |
| **Lab ID:** | 0706378-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 270 | 10 | | µg/L | 10 | 7/1/2007 7:54:53 AM |
| Toluene | 170 | 10 | | µg/L | 10 | 7/1/2007 7:54:53 AM |
| Ethylbenzene | 27 | 10 | | µg/L | 10 | 7/1/2007 7:54:53 AM |
| Xylenes, Total | 310 | 20 | | µg/L | 10 | 7/1/2007 7:54:53 AM |
| Surr: 4-Bromofluorobenzene | 88.2 | 70.2-105 | | %REC | 10 | 7/1/2007 7:54:53 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | MCL | Maximum Contaminant Level |
| ND | Not Detected at the Reporting Limit | RL | Reporting Limit |
| S | Spike recovery outside accepted recovery limits | | |

# CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
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Client: BLAGG ENGR. / BP AMERICA
Address: P.O. BOX 87
BLFD, NM 87413
Phone #: 632-1199
Fax #:

Project Name: GCU #170
Project #:
Project Manager: NV
Sampler: NV
Sample Temperature: 8

## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | Preservative | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 6/25/07 | 0815 | WATER | MW #3R | 2-40ml | ✓ | | | 0706378 1 |

| BTEX + ~~MTBE + TMB's~~ (8021B) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ✓ | | | | | | | | | | | | | | | | |

| Date | Time | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 6/25/07 | 1515 | | 13:55 6/26/07 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks:

# QA/QC SUMMARY REPORT

**Client:** Blagg Engineering
**Project:** GCU #170
**Work Order:** 0706378

| Analyte | Result | Units | PQL | %Rec | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method:** SW8021 | | | | | | | | | |
| **Sample ID: 5ML REAGENT BLA** | | *MBLK* | | | | Batch ID: **R24198** | Analysis Date: | 6/30/2007 6:59:05 PM | |
| 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: **R24198** | Analysis Date: | 6/30/2007 11:44:25 PM | |
| Benzene | 19.42 | µg/L | 1.0 | 97.1 | 85.9 | 113 | | | |
| Toluene | 19.80 | µg/L | 1.0 | 99.0 | 86.4 | 113 | | | |
| Ethylbenzene | 20.03 | µg/L | 1.0 | 100 | 83.5 | 118 | | | |
| Xylenes, Total | 59.67 | µg/L | 2.0 | 99.4 | 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 and Time Received: 6/26/2007

Work Order Number 0706378 | Received by ARS

Checklist completed by  Signature 6/26/07 Date

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? **8°** *4° C ± 2 Acceptable*

If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action