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

January 30, 2012

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 letter dated, February 1, 2011. 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, Inspection and Enforcement Supervisor, NMOCD District III Office, Aztec, NM
Mr. Jeff Peace, Environmental Advisor, BP, Farmington, NM

NJV/njv

GCU 170 01-30-12 CVL.DOC

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

DECEMBER 2011

PREPARED BY:
BLAGG ENGINEERING, INC.

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

BP AMERICA PRODUCTION COMPANY
GCU # 170
NE¼ SW¼, Sec. 35, T29N, R12W

Monitor Well Sampling Dates: **5/28/11, 9/28/11, 12/21/11**

Pit Closure and Background:

A site earthen 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 was previously submitted to the New Mexico Oil Conservation Division (**NMOCD**) for review. The reporting herein is for site monitoring conducted in 2011.

Groundwater Monitor Well Sampling Procedures:

Monitor well MW #3 was purged by hand-bailing, using new disposable bailers. A two (2) inch submersible electrical pump with new, clear vinyl tubing was utilized during the September and December 2011 sampling events. 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 for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by US EPA Method 8021B was conducted.

Fluids generated during monitor well development and purging were managed by discarding into the separator below-grade tank (BGT) located on the well site. The BGT contents are eventually disposed through approved NMOCD operational procedures for removal of produced fluids.

Water Quality and Gradient Information:

Quarterly sampling of the groundwater within monitor well MW #3R was initiated in May 2011. A historical summary of laboratory analytical BTEX results are included within the table on the following page. Field data sheets, laboratory reports, and laboratory quality assurance/quality control information are also included within this report.

Groundwater contour maps (Figure 2 through Figure 4) reveal the relative elevations from the site wells have consistently shown an apparent northwest flow direction.

Summary and/or Recommendations:

Continued site monitoring per BP's NMOCD approved Ground Water Management Plan is recommended. Installation of one (1) groundwater monitor well down gradient of MW #3R for delineation of any residual/dissolve phase BTEX is planned in 2012. Hydrocarbon impacts still remain above the New Mexico Water Quality Control Commission's groundwater standard for benzene within monitor well MW #3R. Oxygen release compound (**ORC**) filter socks were initially introduced within MW #3R on March 25, 2011. Dissolved oxygen, pH, and temperature readings were collected immediately after removal to create a baseline for future determination of continued use. The ORC filter socks were removed at a minimum of two (2) days prior to each sampling event. Currently, no definitive conclusion(s) can be ascertained as to the ORC effectiveness at this time.

BP AMERICA GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

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

REVISED DATE: January 03 , 2012
FILENAME: (17-4Q-11.WK4) NJV

SAMPLE DATE	MONITOR WELL #	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. (umhos/cm)	pH	PRODUCT (ft)	BTEX EPA METHOD 8021B (ppb) 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		**2,115.7**	**4,485.8**	318	**2,704.4**
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**
09-Jun-08		9.82			1,100	7.01		**142**	**104**	12.2	**114**
27-Aug-08		9.39			1,800	7.06		**200**	**150**	24	**190**
26-May-09		10.15			1,400	7.38		**150**	**73**	13	**93**
28-Dec-09		9.45			1,700	7.26		**77**	**44**	8.6	**50**
10-May-10		9.91			1,400	7.35		**130**	**72**	12	**110**
21-Oct-10		8.74			1,500	7.25		**87**	**46**	12	**86**
28-May-11		9.90			2,000	7.29		**59**	**17**	4.0	**29**
28-Sep-11		8.77			2,100	7.29		**48**	**ND**	2.0	**ND**
21-Dec-11		9.15			2,700	7.26		**100**	**ND**	ND	**10**
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) .**
4) **NMWQCC INDICATES NEW MEXICO WATER QUALITY CONTROL COMMISSION.**

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.

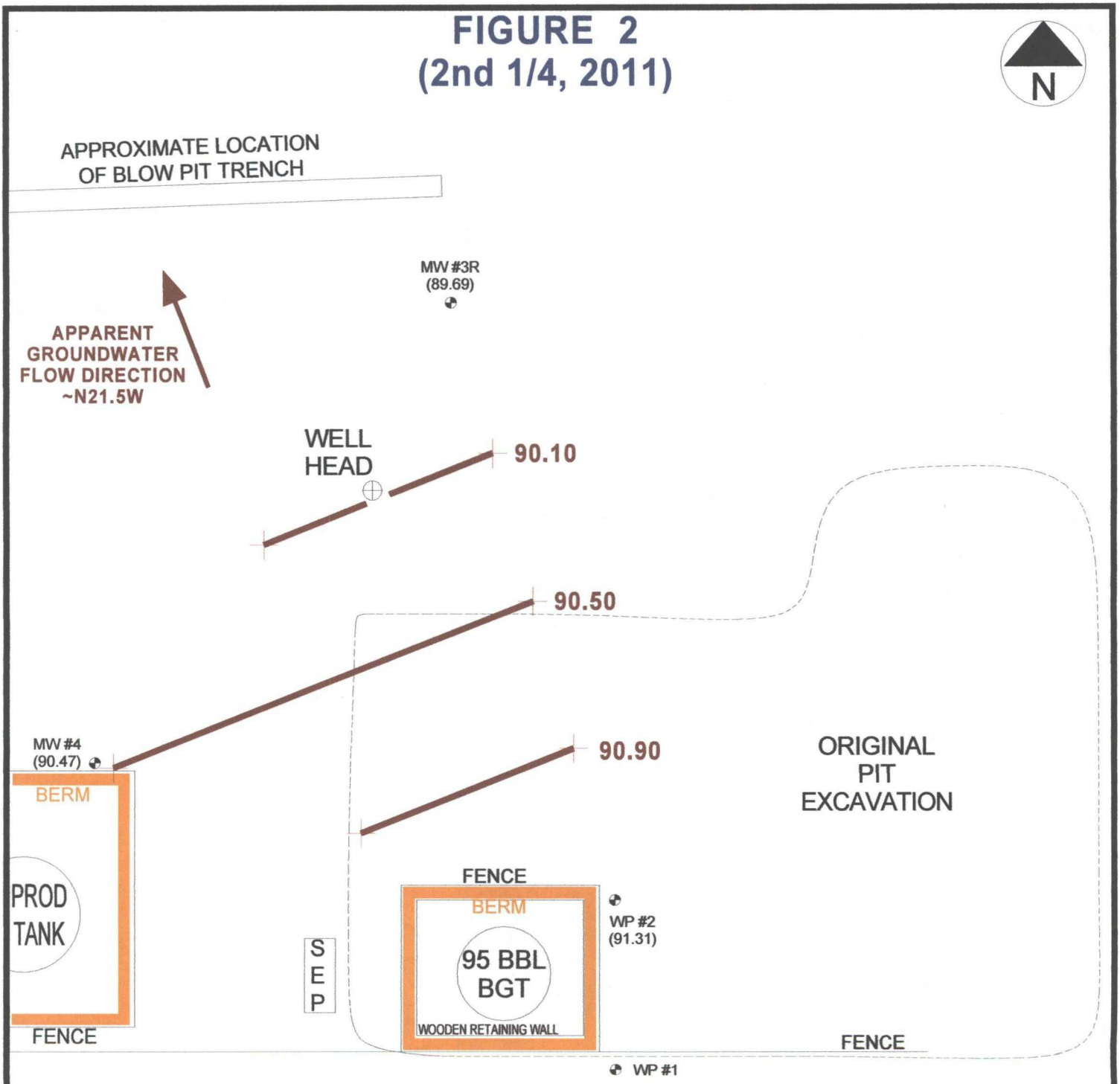
BP AMERICA PRODUCTION COMPANY
GCU 170
NE/4 SW/4 SEC. 35, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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: GCU170-SM-05-10.SKF
REVISED: 05/10/10 NJV

SITE MAP
05/10

FIGURE 2
(2nd 1/4, 2011)



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
WELL HEAD FLANGE	(100.00)
WP #2	(100.80)
MW #3R	(99.59)
MW #4	(101.14)
MW #4 (90.47)	Groundwater Elevation as of 05/28/11.

BP AMERICA PRODUCTION COMPANY

GCU # 170

NE/4 SW/4 SEC. 35, 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

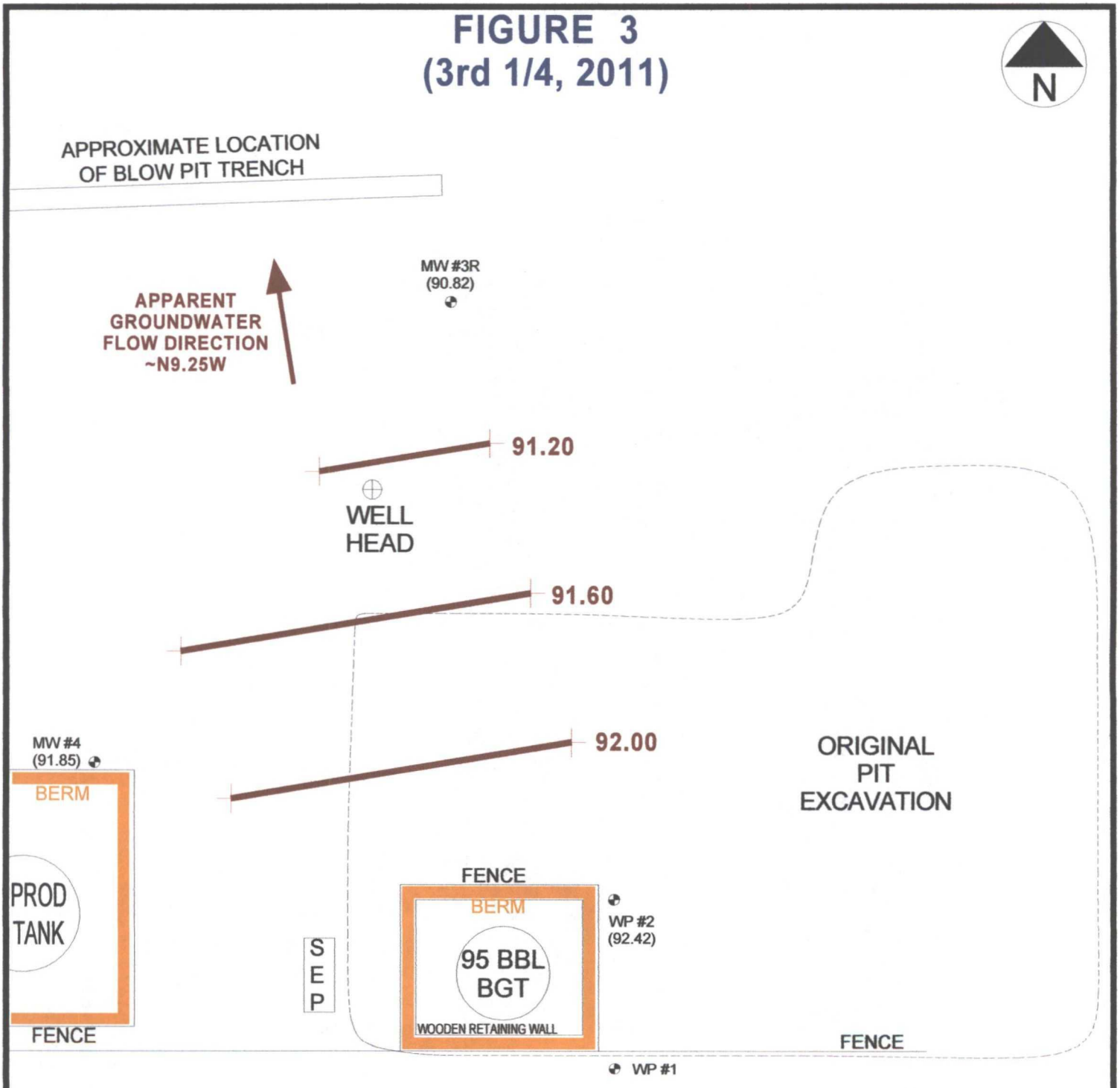
FILENAME: 05-28-11-GW.SKF

REVISED: 05/28/11 NJV

GROUNDWATER CONTOUR MAP

05/11

FIGURE 3
(3rd 1/4, 2011)



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
WELL HEAD FLANGE	(100.00)
WP #2	(100.80)
MW #3R	(99.59)
MW #4	(101.14)
MW #4 (91.85)	Groundwater Elevation as of 09/29/11.

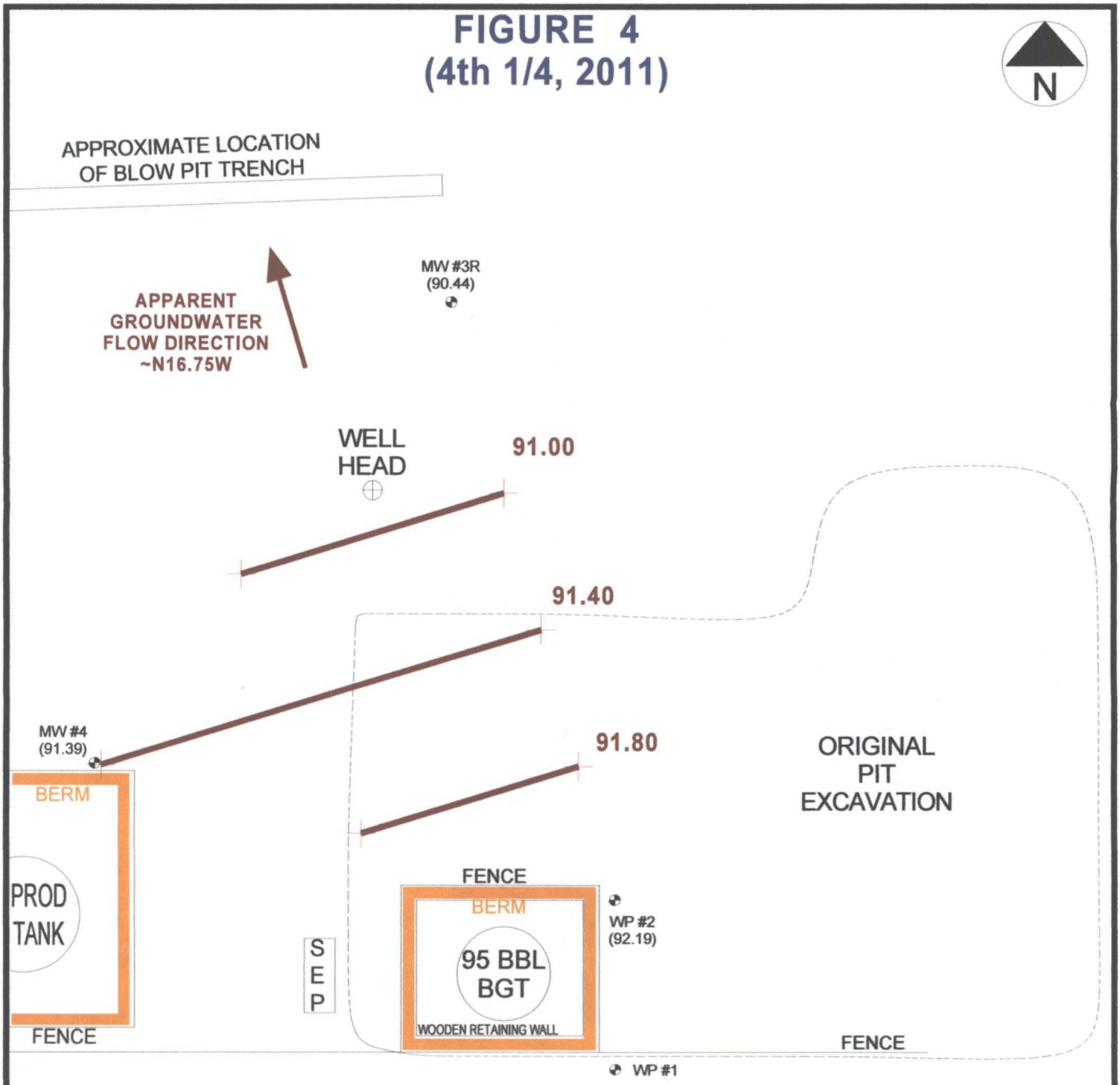
BP AMERICA PRODUCTION COMPANY
GCU # 170
NE/4 SW/4 SEC. 35, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 09-29-11-GW.SKF
REVISED: 09/30/11 NJV

GROUNDWATER CONTOUR MAP
09/11

FIGURE 4
(4th 1/4, 2011)



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
WELL HEAD FLANGE	(100.00)
WP #2	(100.80)
MW #3R	(99.59)
MW #4	(101.14)
MW #4 (91.39)	Groundwater Elevation as of 12/21/11.

BP AMERICA PRODUCTION COMPANY
GCU # 170
NE/4 SW/4 SEC. 35, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 12-21-11-GW.SKF
REVISED: 12/21/11 NJV

GROUNDWATER CONTOUR MAP
12/11

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 : **May 28, 2011**

SAMPLER : N J V

Filename : **05-28-11.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	91.31	9.49	15.00	-	-	-	-	-
MW-3R	99.59	89.69	9.90	19.50	1135	7.29	2,000	15.8	4.75
MW-4	101.14	90.47	10.67	18.50	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	05/28/2011	1130

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 ".

Removed ORC filter socks within MW # 3R water column on 5 / 20 / 11 . Excellent recovery in MW # 3R , purged water clearer appearance relative to previous sampling events . Collected sample for BTEX per US EPA Method 8021B from MW # 3R only . Inserted 3 new ORC filter socks within MW # 3R water column after sample collection .

on-site	**10:58**	temp	**75 F**
off-site	**12:00**	temp	**78 F**
sky cond.	**Sunny**		
wind speed	**0 - 5**	direct.	**SSW - W**

Hall Environmental Analysis Laboratory, Inc.

Date: *06-Jun-11*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #3R
Lab Order:	1106048	**Collection Date:**	5/28/2011 11:35:00 AM
Project:	GCU #170	**Date Received:**	6/1/2011
Lab ID:	1106048-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	59	1.0		µg/L	1	6/2/2011 2:53:53 PM
Toluene	17	1.0		µg/L	1	6/2/2011 2:53:53 PM
Ethylbenzene	4.0	1.0		µg/L	1	6/2/2011 2:53:53 PM
Xylenes, Total	29	2.0		µg/L	1	6/2/2011 2:53:53 PM
Surr: 4-Bromofluorobenzene	107	96.8-145		%REC	1	6/2/2011 2:53:53 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Chain-of-Custody Record

Client: BLAGG ENGR. / BP AMERICA

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: GCU #170

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☐ Yes ☐ No

Sample Temperature: 1.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1105045	BTEX + ~~MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (300.0)			5 pt. composite sample	Air Bubbles (Y or N)
5/28/11	1135	WATER	MW #3R	40 ml VOA - 2	HCl & Cool	-1	✓															

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/31/11	1445			5/31/11	1445
5/31/11	1602			6/1/11	9:50

Remarks:

Bill to Blagg Engineering, Inc.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: GCU #170 **Work Order:** 1106048

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		*MBLK*				**Batch ID:**	**R45717**	**Analysis Date:**		**6/2/2011 9:23:06 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:**	**R45717**	**Analysis Date:**		**6/2/2011 11:53:29 AM**	
Benzene	22.42	µg/L	1.0	20	0	112	93.4	120			
Toluene	22.61	µg/L	1.0	20	0	113	96.2	122			
Ethylbenzene	21.44	µg/L	1.0	20	0	107	95	121			
Xylenes, Total	66.46	µg/L	2.0	60	0	111	97.6	122			
Sample ID: 100NG BTEX LCSD		*LCSD*				**Batch ID:**	**R45717**	**Analysis Date:**		**6/2/2011 12:23:35 PM**	
Benzene	21.67	µg/L	1.0	20	0	108	93.4	120	3.40	10.1	
Toluene	22.20	µg/L	1.0	20	0	111	96.2	122	1.83	14.3	
Ethylbenzene	20.95	µg/L	1.0	20	0	105	95	121	2.29	15.5	
Xylenes, Total	65.05	µg/L	2.0	60	0	108	97.6	122	2.14	10.4	

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG | Date Received: 6/1/2011

Work Order Number 1106048 | Received by: MMG

Checklist completed by: _____ 06/01/11 | Sample ID labels checked by: _____
Signature | Date | Initials

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 ☐		Number of preserved bottles checked for pH:
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 ☑	_____ *<2 >12 unless noted below.*
Container/Temp Blank temperature?	1.4°	*<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 # 170 - SEPARATOR PIT
UNIT K, SEC. 35, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **September 29, 2011** **SAMPLER :** N J V

Filename : **09-29-11.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	92.42	8.38	15.00	-	-	-	-	-
MW-3R	99.59	90.82	8.77	19.50	0945	7.29	2,100	16.2	5.25
MW-4	101.14	91.85	9.29	18.50	-	-	-	-	-
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	09/28/2011	1030		

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 ".

Removed ORC filter socks within MW # 3R water column on 9 / 26 / 11 . Excellent recovery in MW # 3R , purged water clearer appearance relative to previous sampling events . Collected sample for BTEX per US EPA Method 8021B from MW # 3R only . Purged well using 2 inch submersible electrical pump , new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing . Inserted 3 new ORC filter socks within MW # 3R water column after sample collection .

on-site	**8:50**	temp	**57 F**
off-site	**10:15**	temp	**65 F**
sky cond.	**Sunny**		
wind speed	**0 - 5**	direct.	**ESE**

Hall Environmental Analysis Laboratory, Inc.

Date: *10-Oct-11*

Analytical Report

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW # 3R
Lab Order:	1109C46	**Collection Date:**	9/29/2011 9:45:00 AM
Project:	GCU #170	**Date Received:**	9/30/2011
Lab ID:	1109C46-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	48	1.0		µg/L	1	10/6/2011 8:15:27 PM
Toluene	ND	1.0		µg/L	1	10/6/2011 8:15:27 PM
Ethylbenzene	2.0	1.0		µg/L	1	10/6/2011 8:15:27 PM
Xylenes, Total	ND	2.0		µg/L	1	10/6/2011 8:15:27 PM
Surr: 4-Bromofluorobenzene	91.5	76.5-115		%REC	1	10/6/2011 8:15:27 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Chain-of-Custody Record

Client: BLAGG ENGR. / BP AMERICA

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name:
GCU # 170

Project #:

Project Manager:
NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☑ Yes ☐ No

Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (300.0)				Air Bubbles (Y or N)
9/29/11	0945	WATER	MW # 3R	40 ml VOA - 2	HCl & Cool	1109C96-1	✓															

Analysis Request

Remarks:
BILL DIRECTLY TO BP:
Jeff Peace, 200 Energy Court, Farmington, NM 87401
Work Order: N1316552 Paykey: ZPEACJDENV

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/29/11	1320	Nelson Velez	Christine Walters	9/29/11	1320
9/29/11	1545	Christine Walters		9/30/11	1300

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: GCU #170 **Work Order:** 1109C46

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML-RB		*MBLK*				**Batch ID: R48262**		**Analysis Date: 10/6/2011 10:14:00 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: R48262**		**Analysis Date: 10/6/2011 12:44:44 PM**			
Benzene	20.09	µg/L	1.0	20	0	100	80	120			
Toluene	20.37	µg/L	1.0	20	0	102	80	120			
Ethylbenzene	20.06	µg/L	1.0	20	0	100	80	120			
Xylenes, Total	60.62	µg/L	2.0	60	0	101	80	120			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG | Date Received: 9/30/2011

Work Order Number 1109C46 | Received by: AMF

Checklist completed by: David (Signature) Date 9/30/11 | Sample ID labels checked by: (Initials)

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		Number of preserved bottles checked for pH:
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 ✓	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	4.5°	*<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 # 170 - SEPARATOR PIT
UNIT K, SEC. 35, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : December 21, 2011

SAMPLER : N J V

Filename : 12-21-11.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	92.19	8.61	15.00	-	-	-	-	-
MW-3R	99.59	90.44	9.15	19.50	1110	7.26	2,700	13.4	5.00
MW-4	101.14	91.39	9.75	18.50	-	-	-	-	-
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	12/21/2011	1100		

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 ".

Removed ORC filter socks within MW # 3R water column on 12 / 14 / 11 . Excellent recovery in MW # 3R , purged water clearer appearance relative to previous sampling events . Collected sample for BTEX per US EPA Method 8021B from MW # 3R only . Purged well using 2 inch submersible electrical pump , new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing . Inserted 3 new ORC filter socks within MW # 3R water column after sample collection .

on-site	10:46	temp	33 F
off-site	11:40	temp	36 F
sky cond.	Cloudy		
wind speed	0 - 5	direct.	calm

Hall Environmental Analysis Laboratory, Inc.

Date: *03-Jan-12*
Analytical Report

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#3R
Lab Order:	1112951	**Collection Date:**	12/21/2011 11:10:00 AM
Project:	GCU#170	**Date Received:**	12/22/2011
Lab ID:	1112951-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	100	10		µg/L	10	12/29/2011 8:37:22 PM
Toluene	ND	1.0		µg/L	1	12/28/2011 1:30:50 AM
Ethylbenzene	ND	1.0		µg/L	1	12/28/2011 1:30:50 AM
Xylenes, Total	10	2.0		µg/L	1	12/28/2011 1:30:50 AM
Surr: 4-Bromofluorobenzene	104	76.5-115		%REC	1	12/28/2011 1:30:50 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Estimated value
J	Analyte detected below quantitation limits
NC	Non-Chlorinated
PQL	Practical Quantitation Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits

Chain-of-Custody Record

Client: BLAGG ENGR. / BP AMERICA

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: GCU # 170

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☑ Yes ☐ No

Sample Temperature: 0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 111295	BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (300.0)				Air Bubbles (Y or N)
12/21/11	1110	WATER	MW # 3R	40 ml VOA - 2	HCl & Cool	-1	V															

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/21/11	1505			12/21/11	1505
12/22/11	1045			12/22/11	1445

Remarks:

BILL DIRECTLY TO BP:
Jeff Peace, 200 Energy Court, Farmington, NM 87401

Work Order: N1316552 Paykey: ZPEACJDENV

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: GCU#170 **Work Order:** 1112951

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML-RB		*MBLK*				**Batch ID:**	**R49831**	**Analysis Date:**	12/27/2011 1:01:00 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: 5ML-RB		*MBLK*				**Batch ID:**	**R49871**	**Analysis Date:**	12/29/2011 12:45:04 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:**	**R49831**	**Analysis Date:**	12/27/2011 1:29:51 PM		
Benzene	19.22	µg/L	1.0	20	0	96.1	80	120			
Toluene	19.14	µg/L	1.0	20	0	95.7	80	120			
Ethylbenzene	19.94	µg/L	1.0	20	0	99.7	80	120			
Xylenes, Total	58.84	µg/L	2.0	60	0	98.1	78.6	121			
Sample ID: 100NG BTEX LCS		*LCS*				**Batch ID:**	**R49871**	**Analysis Date:**	12/29/2011 12:16:10 PM		
Benzene	20.31	µg/L	1.0	20	0	102	80	120			
Toluene	20.55	µg/L	1.0	20	0.1242	102	80	120			
Ethylbenzene	19.96	µg/L	1.0	20	0	99.8	80	120			
Xylenes, Total	60.50	µg/L	2.0	60	0	101	78.6	121			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG | Date Received: 12/22/2011

Work Order Number 1112951 | Received by: AMG

Checklist completed by: Signature Date 12/22/11 | Sample ID labels checked by: Initials JA

Matrix: | Carrier name: Courier

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 ☐		Number of preserved bottles checked for pH:
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 ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	1.0°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____