

BLAGG ENGINEERING, INC.

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

3R 381

February 1, 2011

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:

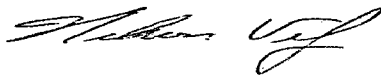
BP America Production Company (BP) has retained Blagg Engineering, Inc. (BEI) to conduct environmental monitoring of groundwater at the GCU # 170.

The last formal correspondence to NMOCD was conducted with letter dated, May 1, 2009. 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. Jeff Peace, Environmental Advisor, BP, Farmington, NM

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 2010

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

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

BP AMERICA PRODUCTION COMPANY
GCU # 170
NE¹/₄ SW¹/₄, Sec. 35, T29N, R12W

Monitor Well Sampling Dates: 5/26/09, 12/28/09, 5/10/10, 10/21/10

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 2009 and 2010.

Groundwater Monitor Well Sampling Procedures:

Groundwater monitor well MW #3R was purged of its well bore using a new disposable bailer, then given a sufficient amount of time to allow recovery prior to sample collections. 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:

Bi-annual sampling of the groundwater monitor well MW #3R was conducted in 2009 and 2010. 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 5) 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. Hydrocarbon impacts appear to be in a steady state condition. It is necessary to install at least one (1) groundwater monitor well down gradient of MW #3R for delineation of any residual/dissolve phase BTEX. If warranted, alternative remedial actions will be evaluated.

BP AMERICA GROUNDWATER MONITOR WELL LABORATORY RESULTS
SUBMITTED BY BLAGG ENGINEERING, INC.

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

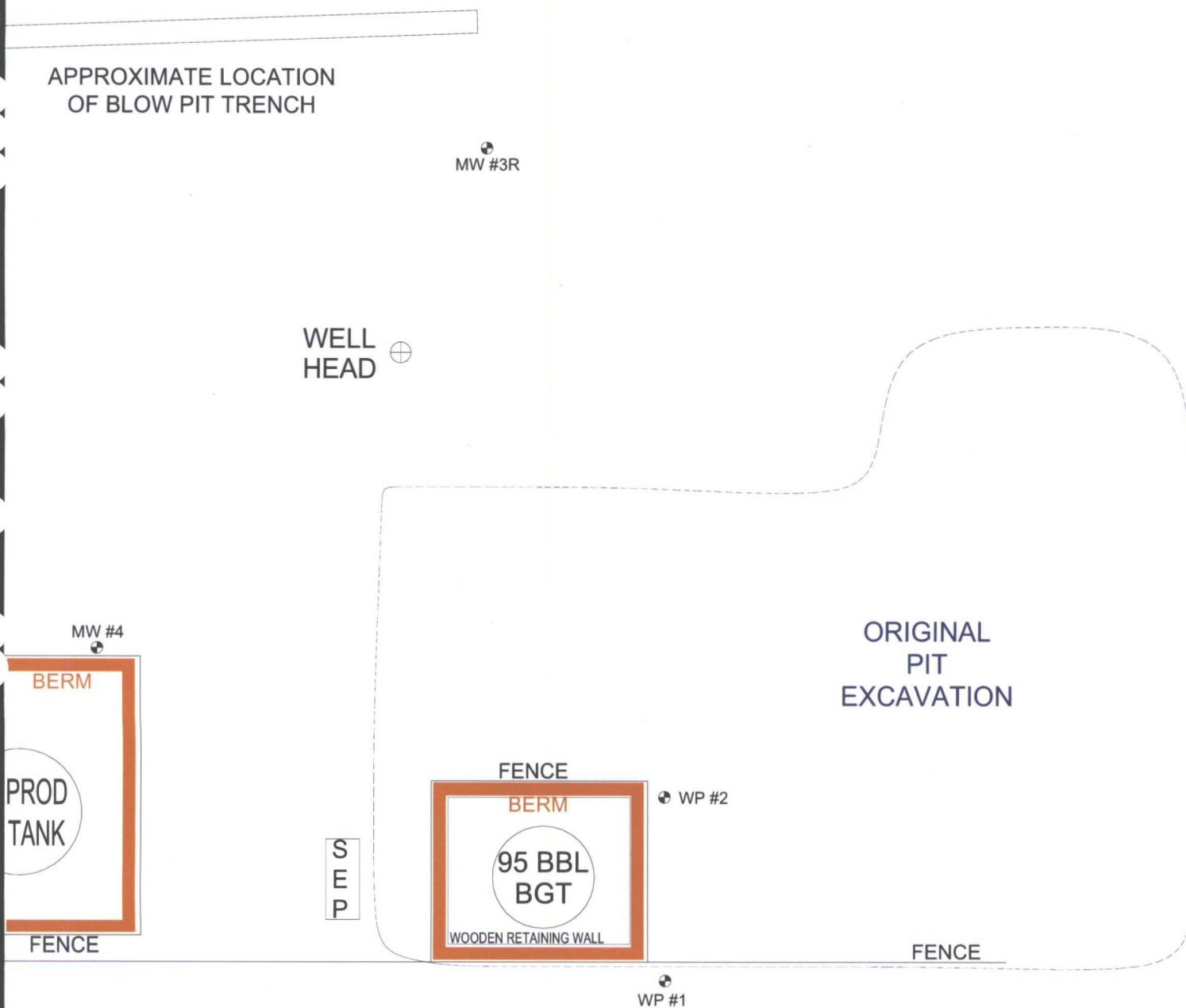
REVISED DATE: November 2, 2010

FILENAME: (17-4Q-10.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		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
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
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



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.

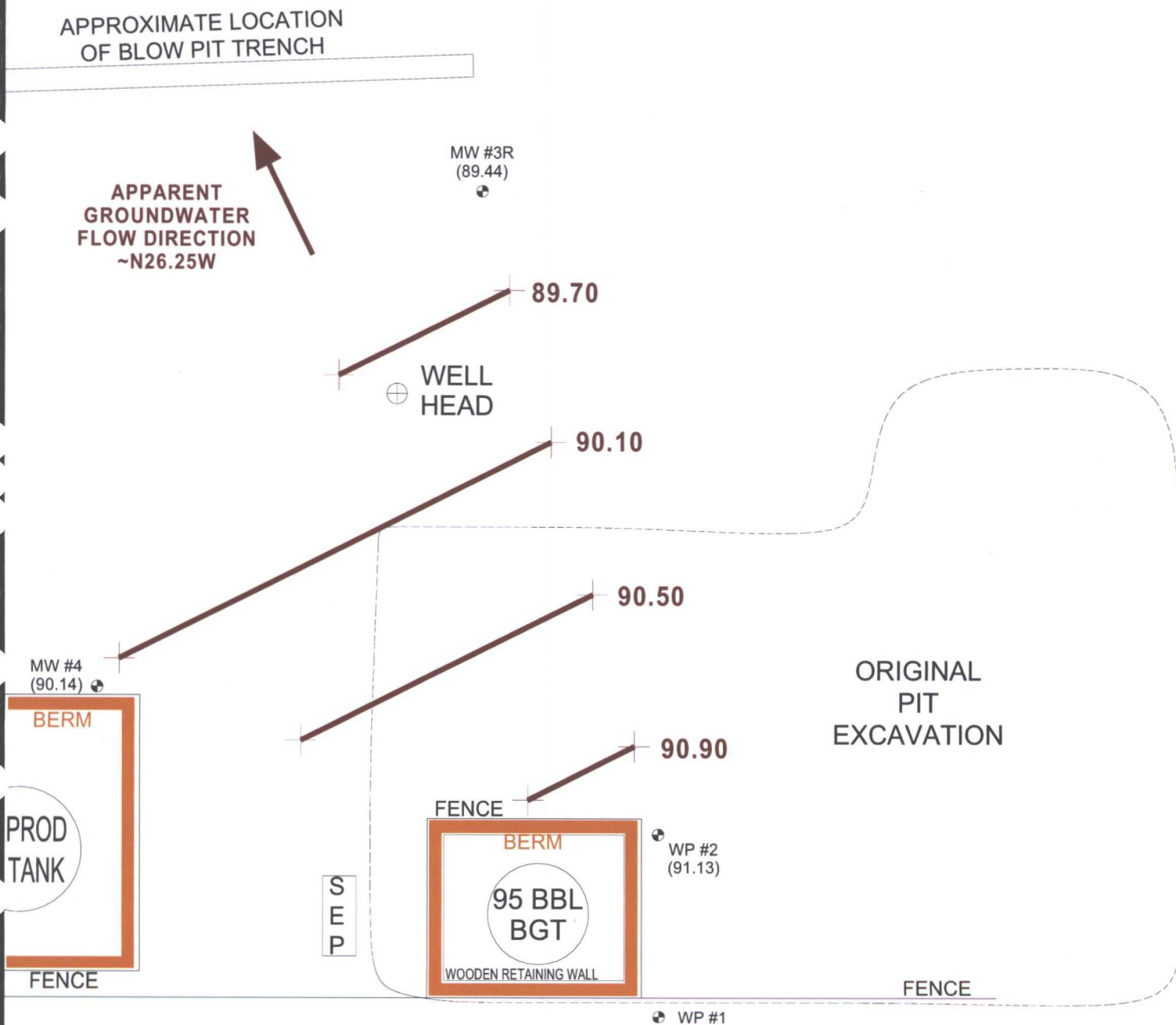
BP AMERICA PRODUCTION COMPANY
GCU 170
 NE/4 SW/4 SEC. 35, T29N, R12W
 SAN JUAN COUNTY, NEW MEXICO

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, 2009)



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 (90.14)	Groundwater Elevation as of 5/26/09.

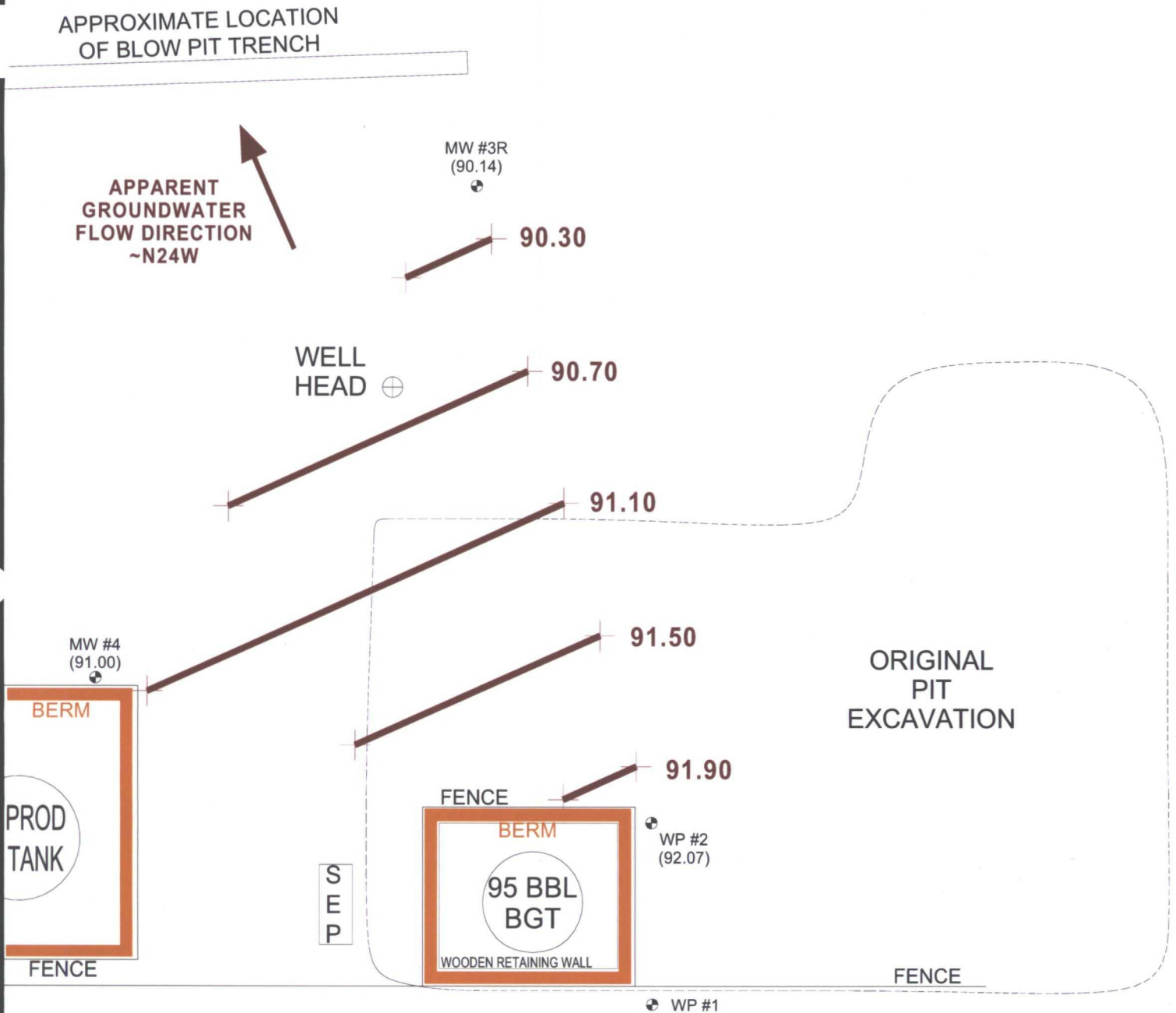
BP AMERICA PRODUCTION COMPANY
GCU # 170
NE/4 SW/4 SEC. 35, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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: 05-26-09-GW.SKF
REVISED: 05/27/09 NJV

**GROUNDWATER
CONTOUR
MAP**
05/09

FIGURE 3
(4th 1/4, 2009)



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)
Groundwater Elevation as of 12/28/09.	
⊕ MW #4 (91.00)	

FIGURE 4
(2nd 1/4, 2010)



APPROXIMATE LOCATION
OF BLOW PIT TRENCH

APPARENT
GROUNDWATER
FLOW DIRECTION
~N28.5W

MW #3R
(89.68)

WELL
HEAD

90.10

90.50

90.90

91.30

MW #4
(90.39)

BERM

PROD
TANK

FENCE

S
E
P

FENCE

BERM

95 BBL
BGT

WOODEN RETAINING WALL

WP #2
(91.52)

ORIGINAL
PIT
EXCAVATION

FENCE

WP #1

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 (90.39) Groundwater
Elevation
as of 5/10/10.

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

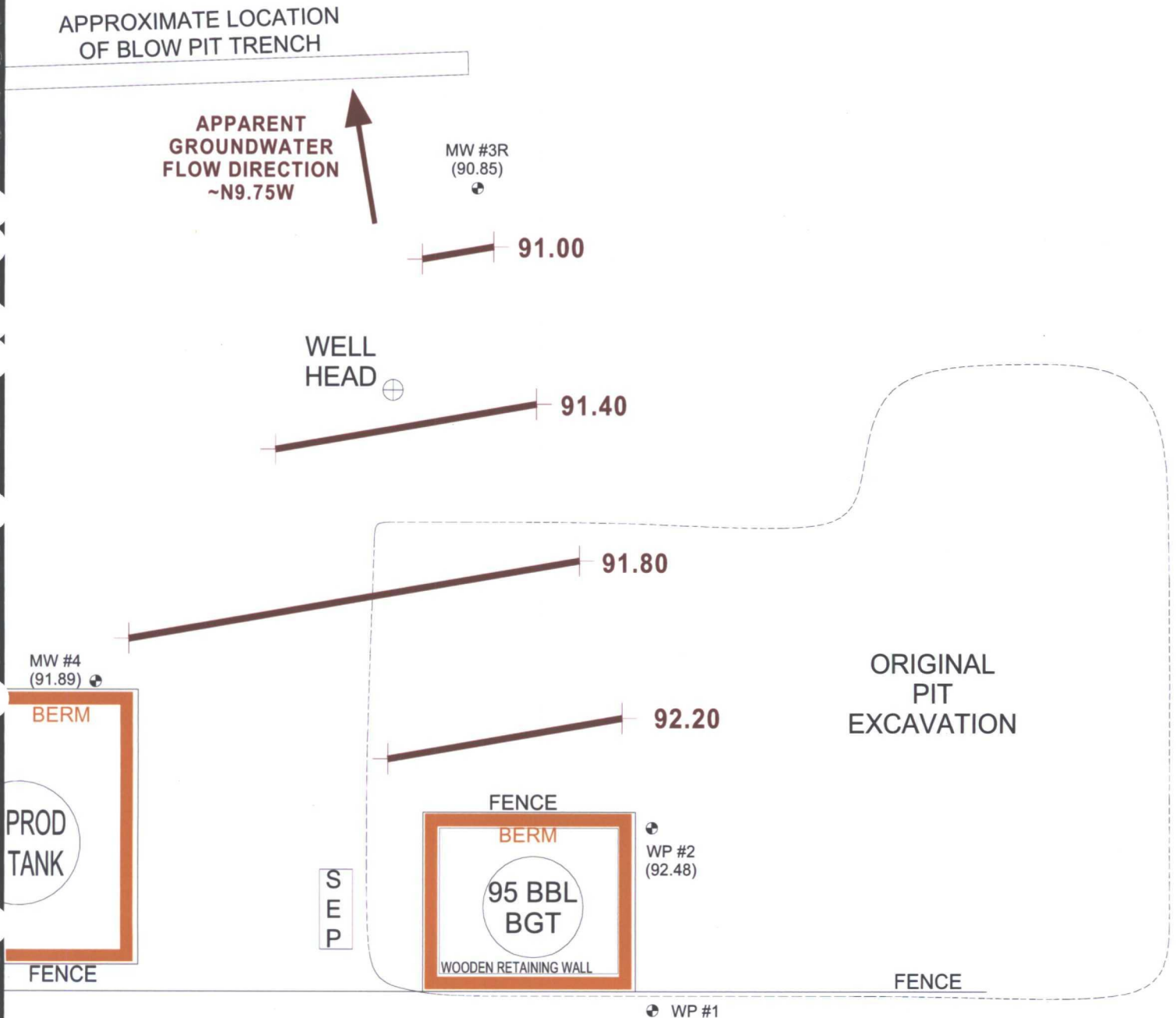
DRAWN BY: NJV

FILENAME: 05-10-10-GW.SKF

REVISED: 05/10/10 NJV

**GROUNDWATER
CONTOUR
MAP
05/10**

FIGURE 5
(4th 1/4, 2010)



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 (91.89)	Groundwater Elevation as of 10/21/10.

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: 10-21-10-GW.SKF
REVISED: 10/23/10 NJV

**GROUNDWATER
CONTOUR
MAP
10/10**

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N / A

GCU # 170 - SEPARATOR PIT

LABORATORY (S) USED : HALL ENVIRONMENTAL

UNIT K, SEC. 35, T29N, R12W

Date : May 19, 2009

SAMPLER : N J V

Filename : 05-19-09.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	91.13	9.67	15.00	-	-	-	-	-
MW-3R	99.59	89.44	10.15	19.50	0810	7.38	1,400	12.7	4.50
MW-4	101.14	90.14	11.00	18.50	-	-	-	-	-

INSTRUMENT CALIBRATIONS =

4.01/7.00/10.00

2,800

DATE & TIME =

05/16/09

0810

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 # 3R . Collected sample for BTEX per US EPA Method 8021B from
MW # 3R only .

on-site	7:42	temp	55 F
off-site	8:16	temp	59 F
sky cond.	Mostly sunny		
wind speed	0 - 5	direct.	North

Hall Environmental Analysis Laboratory, Inc.

Date: 08-Jun-09

CLIENT: Blagg Engineering
Lab Order: 0905495
Project: GCU #170
Lab ID: 0905495-01

Client Sample ID: MW-3R
Collection Date: 5/26/2009 8:10:00 AM
Date Received: 5/27/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	150	10		µg/L	10	6/6/2009 8:14:13 PM
Toluene	73	1.0		µg/L	1	6/5/2009 6:22:16 PM
Ethylbenzene	13	1.0		µg/L	1	6/5/2009 6:22:16 PM
Xylenes, Total	93	2.0		µg/L	1	6/5/2009 6:22:16 PM
Surr: 4-Bromofluorobenzene	116	65.9-130		%REC	1	6/5/2009 6:22:16 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- 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 #170

Work Order: 0905495

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		MBLK							
					Batch ID: R33978		Analysis Date:	6/5/2009 8:52:07 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: R33978		Analysis Date:	6/5/2009 7:23:20 PM	
Benzene	19.32	µg/L	1.0	96.6	85.9	113			
Toluene	19.52	µg/L	1.0	97.6	86.4	113			
Ethylbenzene	19.52	µg/L	1.0	97.6	83.5	118			
Xylenes, Total	59.44	µg/L	2.0	99.1	83.4	122			
Sample ID: 100NG BTEX LCSD		LCSD							
					Batch ID: R33978		Analysis Date:	6/5/2009 7:53:53 PM	
Benzene	19.61	µg/L	1.0	98.0	85.9	113	1.49	27	
Toluene	19.70	µg/L	1.0	98.5	86.4	113	0.918	19	
Ethylbenzene	19.64	µg/L	1.0	98.2	83.5	118	0.613	10	
Xylenes, Total	59.29	µg/L	2.0	98.8	83.4	122	0.253	13	

Qualifiers:

E	Estimated value	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:

5/27/2009

Work Order Number 0905495

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 ☒

Number of preserved
bottles checked for
pH:

<2 >12 unless noted
below.

Container/Temp Blank temperature?

4.9°

<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

LABORATORY (S) USED: HALL ENVIRONMENTAL

UNIT K, SEC. 35, T29N, R12W

Date: December 28, 2009

SAMPLER: N J V

Filename: 12-28-09.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	92.07	8.73	15.00	-	-	-	-	-
MW-3R	99.59	90.14	9.45	19.50	1325	7.26	1,700	13.4	5.00
MW-4	101.14	91.00	10.14	18.50	-	-	-	-	-

INSTRUMENT CALIBRATIONS =

4.01/7.00/10.00

2,800

DATE & TIME =

12/28/09

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 # 3R. Collected sample for BTEX per US EPA Method 8021B from
MW # 3R only.

on-site	12:55	temp	29 F
off-site	1:35	temp	31 F
sky cond.	Mostly cloudy		
wind speed	0 - 10	direct.	E

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Jan-10

CLIENT: Blagg Engineering
Lab Order: 0912560
Project: GCU #170
Lab ID: 0912560-01

Client Sample ID: MW #3R
Collection Date: 12/28/2009 1:25:00 PM
Date Received: 12/29/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	77	1.0		µg/L	1	12/31/2009 1:36:33 AM
Toluene	44	1.0		µg/L	1	12/31/2009 1:36:33 AM
Ethylbenzene	8.6	1.0		µg/L	1	12/31/2009 1:36:33 AM
Xylenes, Total	50	2.0		µg/L	1	12/31/2009 1:36:33 AM
Surr: 4-Bromofluorobenzene	104	65.9-130		%REC	1	12/31/2009 1:36:33 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- 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 #170

Work Order: 0912560

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: R36771											
Analysis Date: 12/30/2009 8:55:29 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: R36771											
Analysis Date: 12/30/2009 7:32:46 PM											
Benzene	20.55	µg/L	1.0	20	0	103	85.9	113			
Toluene	21.01	µg/L	1.0	20	0	105	86.4	113			
Ethylbenzene	20.64	µg/L	1.0	20	0.1	103	83.5	118			
Xylenes, Total	62.32	µg/L	2.0	60	0	104	83.4	122			
Sample ID: 100NG BTEX LCSD		LCSD									
Batch ID: R36771											
Analysis Date: 12/30/2009 8:03:02 PM											
Benzene	19.64	µg/L	1.0	20	0	98.2	85.9	113	4.51	27	
Toluene	19.63	µg/L	1.0	20	0	98.2	86.4	113	6.75	19	
Ethylbenzene	19.16	µg/L	1.0	20	0.1	95.3	83.5	118	7.45	10	
Xylenes, Total	58.67	µg/L	2.0	60	0	97.8	83.4	122	6.04	13	

Qualifiers:

E	Estimated value	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:

12/29/2009

Work Order Number **0912580**

Received by: **ARS**

Checklist completed by:

Signature

Date

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 ☐

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?

2.8°

<6° C Acceptable

If given sufficient time to cool.

Number of preserved
bottles checked for
pH:

<2 >12 unless noted
below.

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

LABORATORY (S) USED : HALL ENVIRONMENTAL

UNIT K, SEC. 35, T29N, R12W

Date : May 10, 2010

SAMPLER : N J V

Filename : 05-10-10.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	91.52	9.28	15.00	-	-	-	-	-
MW-3R	99.59	89.68	9.91	19.50	0925	7.35	1,400	13.3	4.75
MW-4	101.14	90.39	10.75	18.50	-	-	-	-	-

INSTRUMENT CALIBRATIONS =

4.01/7.00/10.00

2,800

DATE & TIME =

05/10/10

0915

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 # 3R . Collected sample for BTEX per US EPA Method 8021B from
MW # 3R only .

on-site	8:40	temp	49 F
off-site	9:35	temp	52 F
sky cond.	Sunny / partly	cloudy	
wind speed	10 - 20	direct.	W - WSW

Hall Environmental Analysis Laboratory, Inc.

Date: 26-May-10

CLIENT: Blagg Engineering**Client Sample ID:** MW #3R**Lab Order:** 1005290**Collection Date:** 5/10/2010 9:25:00 AM**Project:** GCU #170**Date Received:** 5/12/2010**Lab ID:** 1005290-01**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	130	10		µg/L	10	5/21/2010 1:05:05 PM
Toluene	72	1.0		µg/L	1	5/20/2010 5:15:41 PM
Ethylbenzene	12	1.0		µg/L	1	5/20/2010 5:15:41 PM
Xylenes, Total	110	2.0		µg/L	1	5/20/2010 5:15:41 PM
Surr: 4-Bromofluorobenzene	103	65.9-130		%REC	1	5/20/2010 5:15:41 PM

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

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: 1005290

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: R38838 Analysis Date: 5/20/2010 9:10:09 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: 5ML RB

MBLK

Batch ID: R38870 Analysis Date: 5/21/2010 9:16:27 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: R38838 Analysis Date: 5/20/2010 8:48:11 PM

Benzene	20.66	µg/L	1.0	20	0	103	87.9	121
Toluene	19.36	µg/L	1.0	20	0	96.8	83	124
Ethylbenzene	19.10	µg/L	1.0	20	0.134	94.8	81.7	122
Xylenes, Total	59.26	µg/L	2.0	60	0	98.8	85.6	121

Sample ID: 100NG BTEX LCSD

LCSD

Batch ID: R38838 Analysis Date: 5/20/2010 9:18:30 PM

Benzene	20.59	µg/L	1.0	20	0	103	87.9	121	0.330	14.6
Toluene	19.61	µg/L	1.0	20	0	98.1	83	124	1.29	18
Ethylbenzene	19.55	µg/L	1.0	20	0.134	97.1	81.7	122	2.33	15.8
Xylenes, Total	60.09	µg/L	2.0	60	0	100	85.6	121	1.39	15.9

Qualifiers:

E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded
NC Non-Chlorinated
R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

5/12/2010

Work Order Number **1005290**

Received by: **ARS**

Checklist completed by:

Signature

Date

Sample ID labels checked by:

Initials

Matrix:

Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Not Shipped <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Number of preserved bottles checked for pH: _____
Water - Preservation labels on bottle and cap match?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	<2 >12 unless noted below.
Container/Temp Blank temperature?	3.4°	<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

LABORATORY (S) USED: HALL ENVIRONMENTAL

UNIT K, SEC. 35, T29N, R12W

Date: October 21, 2010

SAMPLER: N J V

Filename: 10-21-10.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	92.48	8.32	15.00	-	-	-	-	-
MW-3R	99.59	90.85	8.74	19.50	0950	7.25	1,500	16.0	5.25
MW-4	101.14	91.89	9.25	18.50	-	-	-	-	-

INSTRUMENT CALIBRATIONS =

4.01/7.00/10.00	2,800
10/21/10	0940

DATE & TIME =

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 #3R. Collected sample for BTEX per US EPA Method 8021B from MW # 3R only.

on-site	8:50	temp	47 F
off-site	10:00	temp	50 F
sky cond.	Sunny / partly cloudy		
wind speed	0 - 5	direct.	E - NE

Hall Environmental Analysis Laboratory, Inc.

Date: 29-Oct-10

CLIENT: Blagg Engineering
Lab Order: 1010A01
Project: GCU #170
Lab ID: 1010A01-01

Client Sample ID: MW #3R
Collection Date: 10/21/2010 9:50:00 AM
Date Received: 10/22/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	87	5.0		µg/L	5	10/28/2010 2:59:43 AM
Toluene	46	5.0		µg/L	5	10/28/2010 2:59:43 AM
Ethylbenzene	12	5.0		µg/L	5	10/28/2010 2:59:43 AM
Xylenes, Total	86	10		µg/L	5	10/28/2010 2:59:43 AM
Surr: 4-Bromofluorobenzene	107	81.3-151		%REC	5	10/28/2010 2:59:43 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits

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

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: 1010A01

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		MBLK		Batch ID: R41813		Analysis Date: 10/27/2010 9:16:43 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: R41813		Analysis Date: 10/27/2010 12:52:24 PM					
Benzene	20.85	µg/L	1.0	20	0	104	84.7	118			
Toluene	21.96	µg/L	1.0	20	0	110	82	123			
Ethylbenzene	22.04	µg/L	1.0	20	0.096	110	83	118			
Xylenes, Total	69.60	µg/L	2.0	60	0	116	85.4	119			

Qualifiers:

E Estimated value
 J Analyte detected below quantitation limits
 H Holding times for preparation or analysis exceeded
 NC Non-Chlorinated

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

10/22/2010

Work Order Number **1010A01**

Received by: **MLW**

Checklist completed by:

Signature

10/22/10
Date

Sample ID labels checked by:

Initials

Matrix:

Carrier name: **Priority US Mail**

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

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

Container/Temp Blank temperature?

2.7°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted: _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____