3R - 421

AGWMR

AUGUST 2010

3R421

BP AMERICA PRODUCTION CO.

GROUNDWATER REMEDIATION REPORT

GCU # 229E
(I) SECTION 21, T28N, 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 # 229E - Blow Pit
NE¼ SE¼, Sec. 21, T28N, R12W

Monitor Well Installation Dates: **11/1/06 (MW #2), 1/18/07 (MW #1, MW #3), 8/30/07 (MW #4)**

Monitor Well Sampling Dates: **5/19/09, 12/17/09, 2/26/10, 5/19/10, 7/27/10, 10/29/10**

Pit Closure and Background:

The well site is located in a very remote area of San Juan County near the Navajo Agricultural Product Industry (NAPI) area. A site earthen blow pit closure was initiated in August 2002. Groundwater impacts were identified from sampling and testing of MW #2 in November 2006. After receipt of the laboratory results, the New Mexico Oil Conservation Division (**NMOCD**) was notified with a letter dated March 2, 2007 of the groundwater impacts and implementation of BP's NMOCD approved Groundwater Management Plan (GMP). Documentation of this work and subsequent groundwater monitoring data for the site was previously submitted to NMOCD for review. No additional remedial action until further review of future BTEX analyses was suggested within the reports. The reporting herein is for site monitoring conducted in 2009 and 2010.

Groundwater Monitor Well Sampling Procedures:

Monitor well MW #4 was developed by hand-bailing, using new disposable bailers after installation. Prior to sample collections, the monitor well was purged approximately three (3) well bore volumes with a new disposable bailer. 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 or 8260 was conducted.

Fluids generated during monitor well development and purging were managed by discarding into BP's GCU #316 below-grade tank (BGT) located on the same well pad. The GCU #316 was later plugged and abandoned in February 2010. The fluids generated during the last four (4) sampling events were transferred to BP's GCU #6 well site (NW¼ SW¼, Sec. 22, T28N, R12W) and disposed within that site's BGT. 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 #4 was conducted in 2009 and quarterly in 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 7) reveal the relative elevations from the site wells have consistently shown an apparent north-northeast flow direction toward MW #4.

Summary and/or Recommendations:

Since March 2010, BTEX within MW #4 has tested at non-detectable levels or below NMWQCC standards. It is necessary to install at least one (1) groundwater monitor well down gradient of MW #4 for delineation of any residual/dissolved phase BTEX detected previously in MW #4. Sampling and testing of the furthest down gradient monitor well will adhere to BP's GMP. No additional remedial actions are indicated or proposed at this time. If warranted, alternative remedial actions will be evaluated.

BP AMERICA PROD. CO. GROUNDWATER LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

GCU # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

REVISED DATE: November 12, 2010

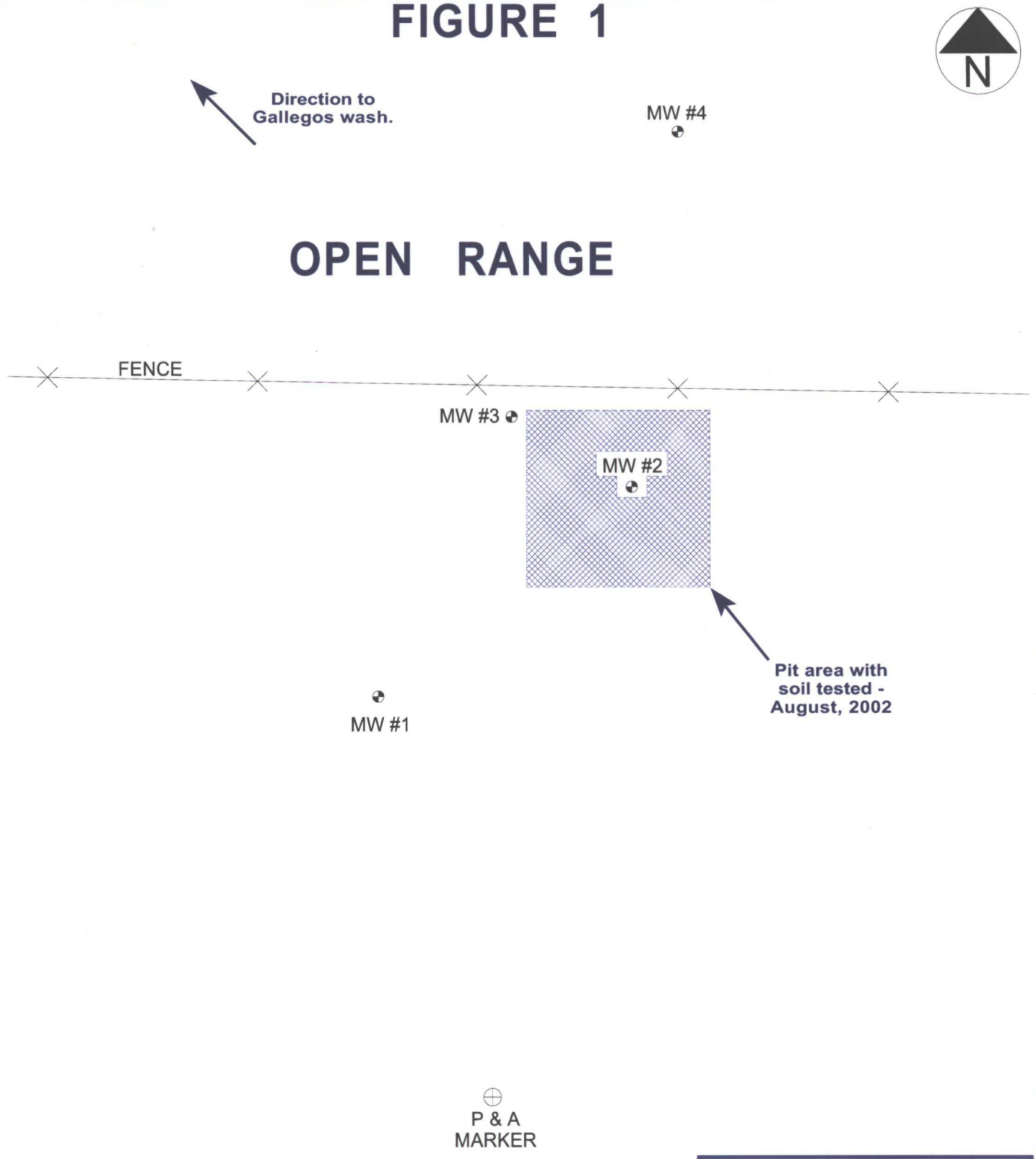
FILENAME: (229E4Q10.WK4) NJV

SAMPLE DATE	WELL NAME or No.	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. umhos	pH	PRODUCT (ft)	BTEX EPA METHOD 8021B (ppb) Benzene	Toluene	Ethyl Benzene	Total Xylene
30-Jan-07	MW #1	34.11	42.00	730	1,200	7.13		ND	ND	ND	ND
14-Nov-06	MW #2	31.60	42.00	866	1,300	7.05		ND	25	110	**1,800**
30-Jan-07		31.63			1,200	6.96		ND	ND	7.9	**200**
25-Apr-07		31.76			1,200	6.92		ND	ND	1.0	**140**
23-Jul-07		31.78			1,200	6.87		ND	ND	4.1	**130**
15-Nov-07		31.73			1,500	6.97		ND	ND	5.1	**170**
30-Jan-07	MW #3	33.20	42.00	762	1,200	7.18		ND	ND	ND	ND
25-Apr-07		33.34			1,200	7.07		ND	ND	ND	ND
23-Jul-07		33.38			1,100	6.98		ND	ND	ND	ND
15-Nov-07		33.30			1,300	7.16		ND	ND	ND	ND
17-Sep-07	MW #4	23.58	36.88		1,300	7.06		1.2	ND	13	340
15-Nov-07		23.55			1,400	7.15		2.2	1.9	150	**6,500**
14-Apr-08		23.39			1,000	7.26		**13.3**	8.7	**1,480**	**10,400**
28-Aug-08		24.16			800	7.39		**ND**	ND	**750**	**18,000**
19-May-09		23.25			1,200	7.22		**ND**	23	**56**	**1,200**
17-Dec-09		22.97			1,200	7.45		**ND**	24	**31**	**890**
03-Mar-10		22.77			1,100	7.43		**ND**	9.5	**2.0**	**56**
19-May-10		22.65			1,300	7.70		**ND**	7.6	**1.5**	**30**
27-Jul-10		22.67			1,500	7.57		**ND**	4.3	**ND**	**16**
29-Oct-10		22.01			1,400	7.28		**ND**	ND	**ND**	**20**
					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 & 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 #229E

NE/4 SE/4 SEC. 21, T28N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW INSTALL.

DRAWN BY: NJV

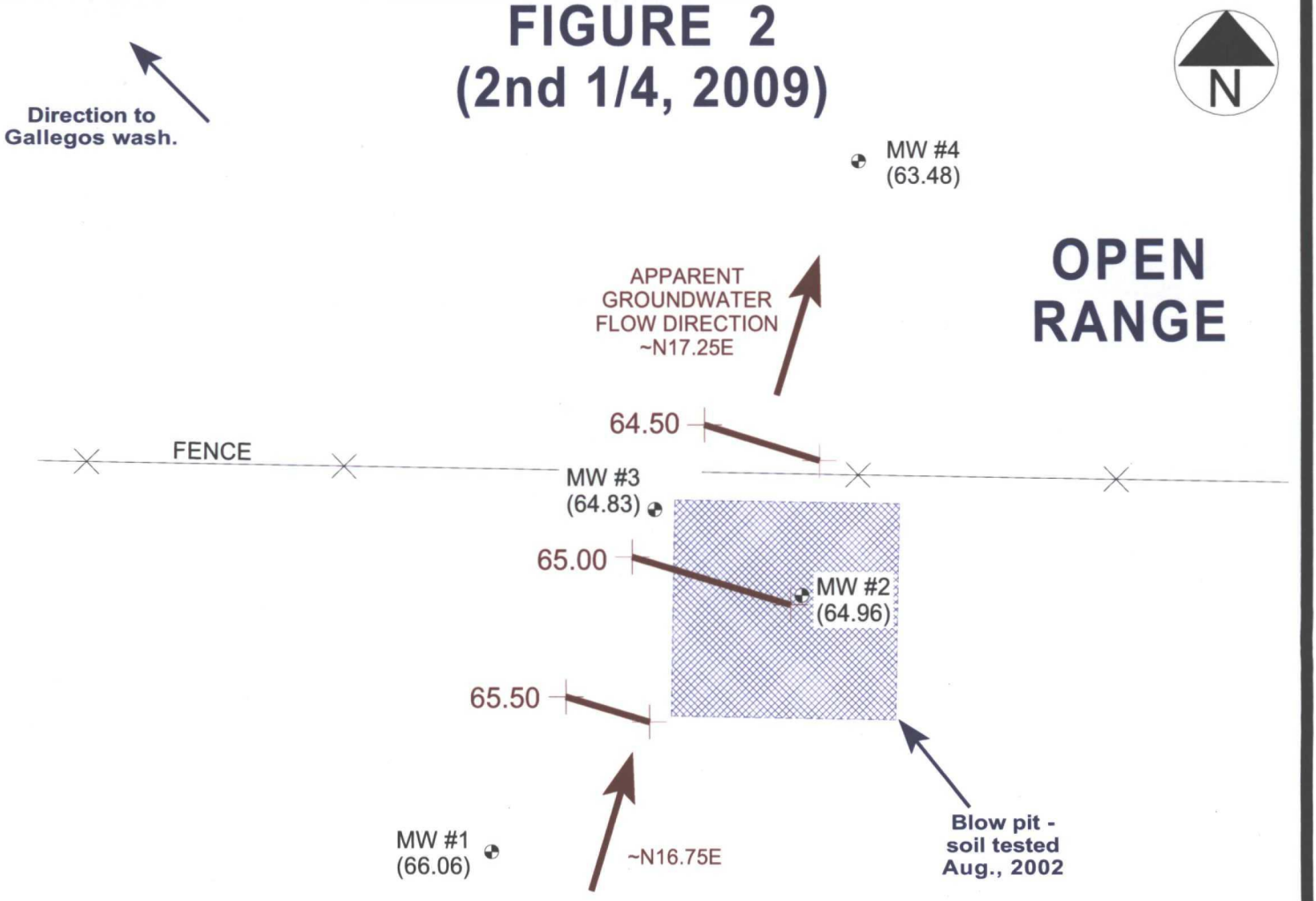
FILENAME: GCU 229E-SM2.SKF

DRAFTED: 08-30-07 NJV

SITE MAP

08/07

FIGURE 2
(2nd 1/4, 2009)



0 30 60 FT.

	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (66.06)	Groundwater Elevation as of 5/19/09.

P & A MARKER

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NE/4 SE/4 SEC. 21, T28N, R12W
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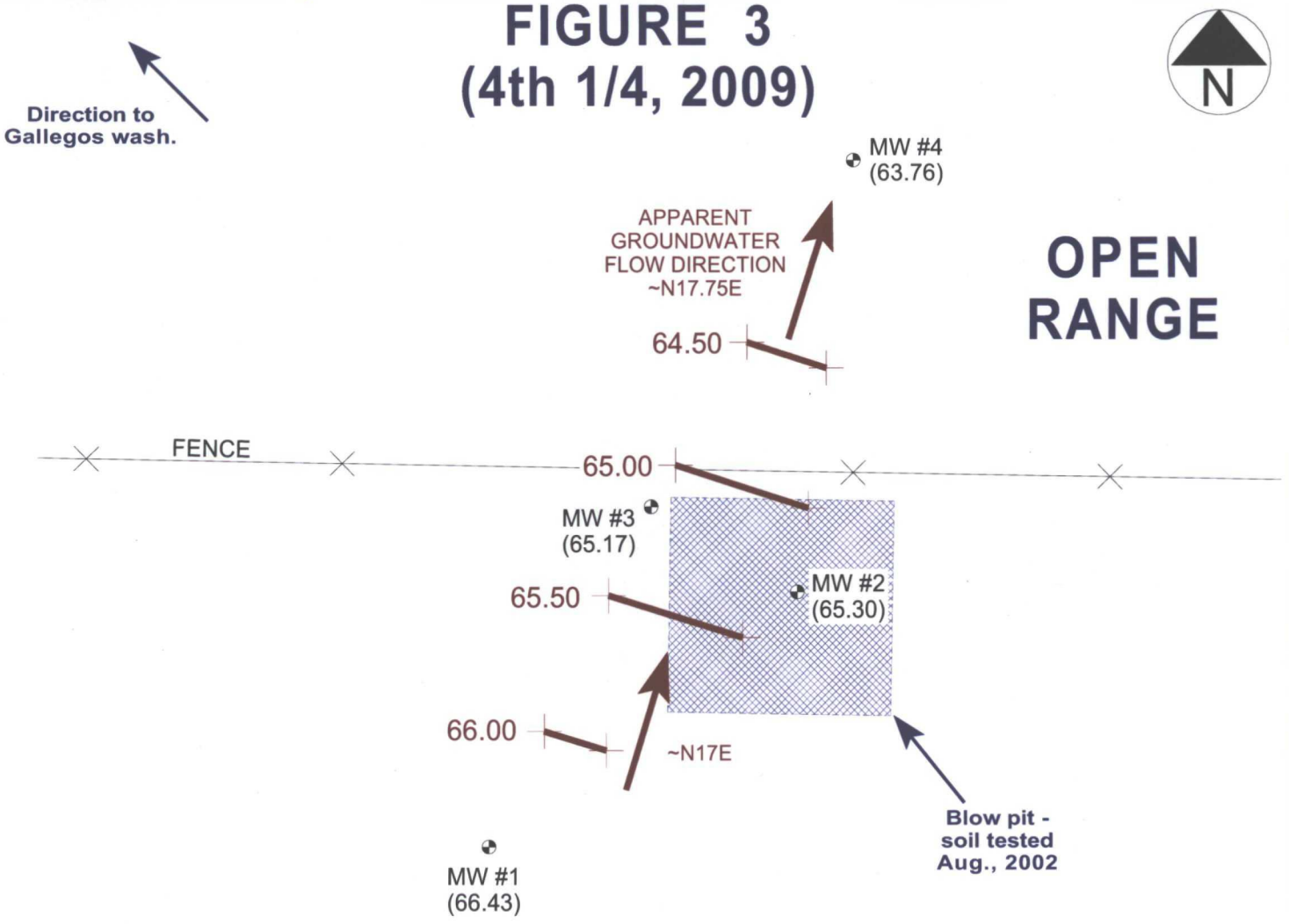
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 05-19-09-GW.SKF
REVISED: 05-23-09 NJV

GROUNDWATER CONTOUR MAP
05/09

FIGURE 3
(4th 1/4, 2009)



0 30 60 FT.

	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (66.06)	Groundwater Elevation as of 12/17/09.

P & A MARKER

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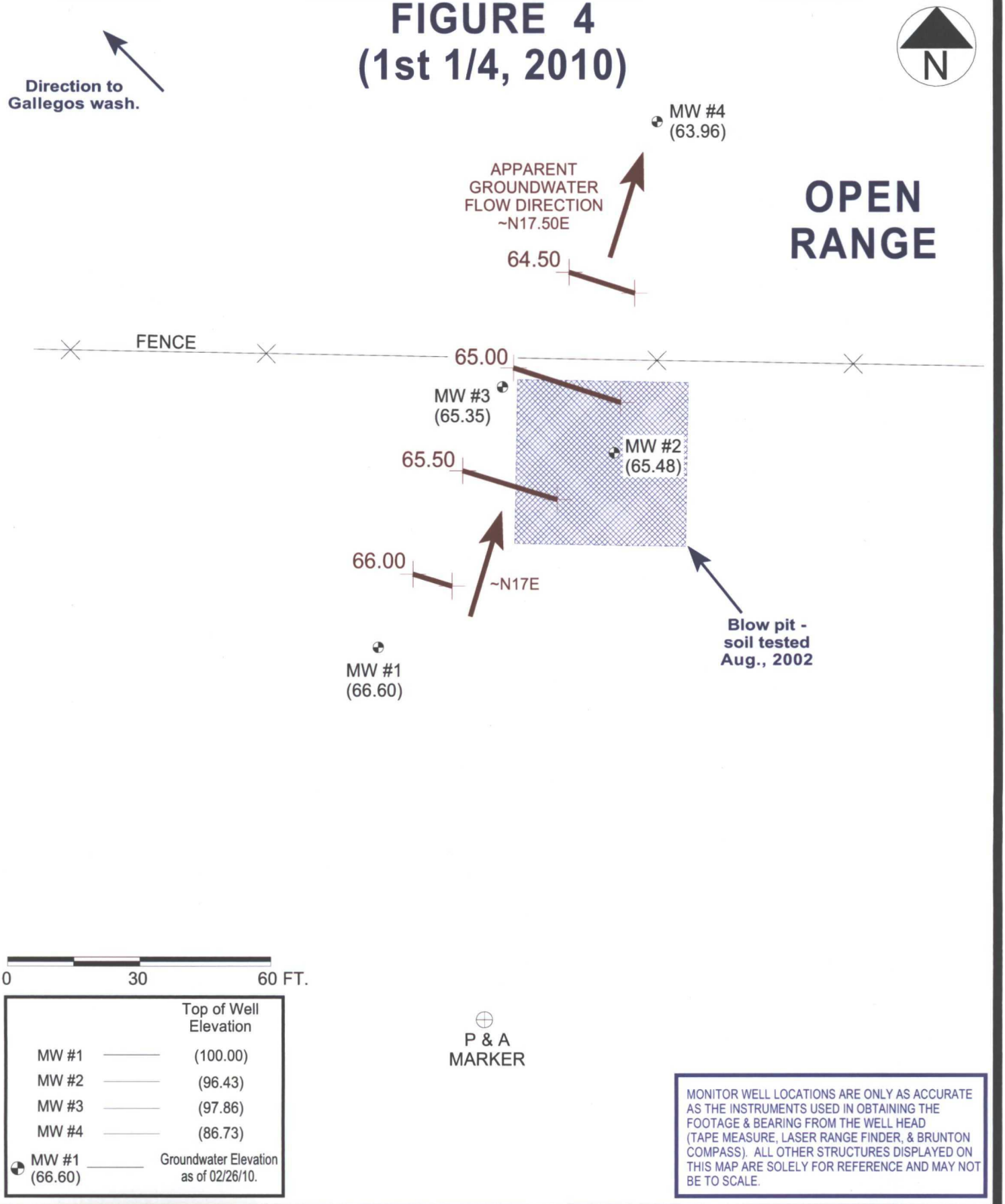
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 12-17-09-GW.SKF
REVISED: 12-19-09 NJV

GROUNDWATER CONTOUR MAP
12/09

FIGURE 4
(1st 1/4, 2010)



	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (66.60)	Groundwater Elevation as of 02/26/10.

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.

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GCU #229E
NE/4 SE/4 SEC. 21, T28N, R12W
SAN JUAN COUNTY, NEW MEXICO

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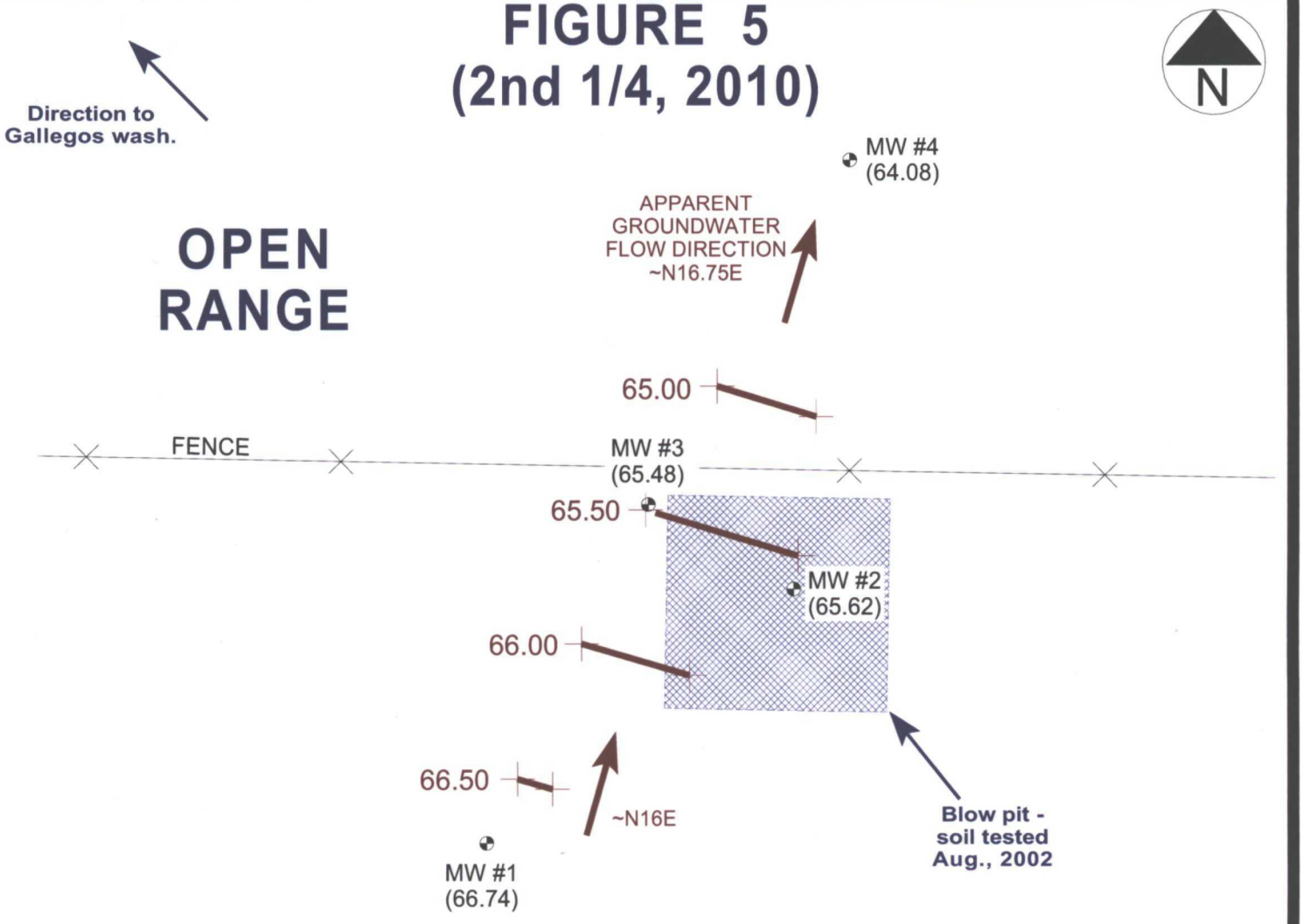
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 02-26-10-GW.SKF
REVISED: 02-26-10 NJV

GROUNDWATER CONTOUR MAP
02/10

FIGURE 5
(2nd 1/4, 2010)



0 30 60 FT.

	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (66.74)	Groundwater Elevation as of 05/19/10.

P & A MARKER

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NE/4 SE/4 SEC. 21, T28N, R12W
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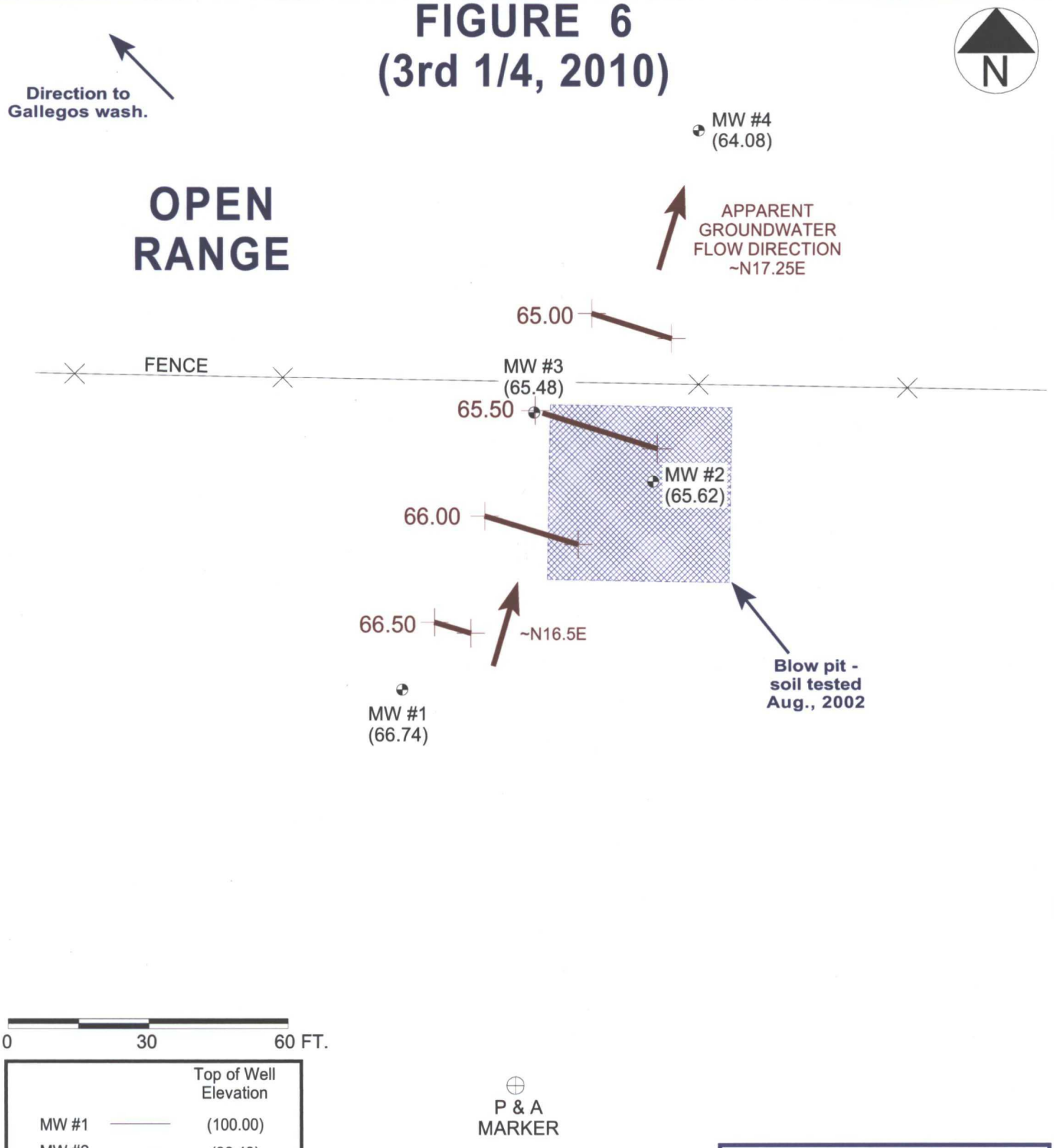
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 05-19-10-GW.SKF
REVISED: 05-19-10 NJV

GROUNDWATER CONTOUR MAP
05/10

FIGURE 6
(3rd 1/4, 2010)



	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (66.82)	Groundwater Elevation as of 07/27/10.

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.

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NE/4 SE/4 SEC. 21, T28N, R12W
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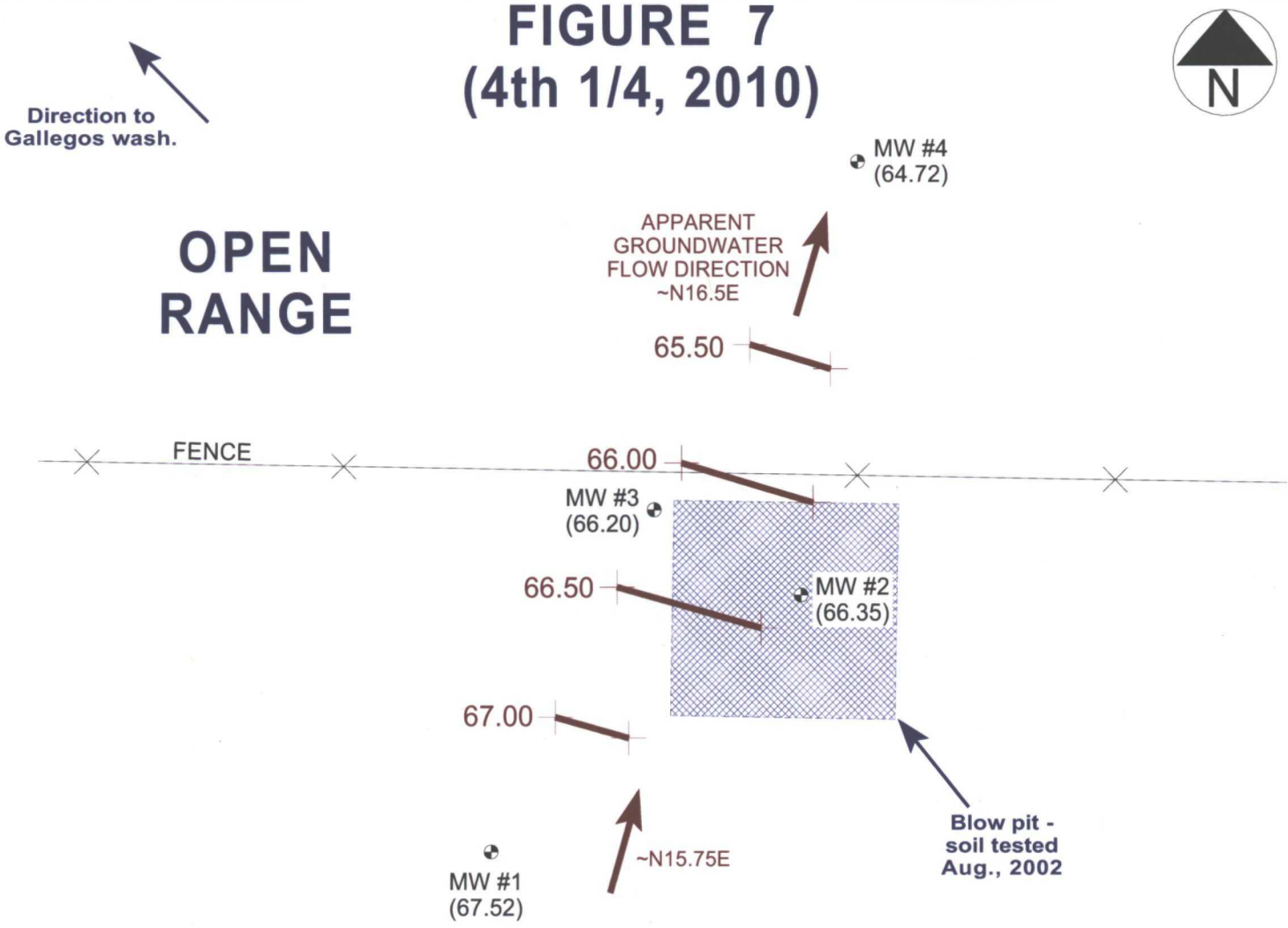
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 07-27-10-GW.SKF
REVISED: 07-27-10 NJV

GROUNDWATER CONTOUR MAP
07/10

FIGURE 7
(4th 1/4, 2010)



0 30 60 FT.

	Top of Well Elevation
MW #1	(100.00)
MW #2	(96.43)
MW #3	(97.86)
MW #4	(86.73)
MW #1 (67.52)	Groundwater Elevation as of 10/29/10.

P & A MARKER

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BP AMERICA PRODUCTION CO.
GCU #229E
NE/4 SE/4 SEC. 21, T28N, R12W
SAN JUAN COUNTY, NEW MEXICO

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P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 10-29-10-GW.SKF
REVISED: 10-29-10 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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

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.)
MW - 1	100.00	66.06	33.94	42.00	-	-	-	-	-
MW - 2	96.43	64.96	31.47	42.00	-	-	-	-	-
MW - 3	97.86	64.83	33.03	42.00	-	-	-	-	-
MW - 4	86.73	63.48	23.25	36.88	1125	7.22	1,200	21.9	6.75
					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 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 # 4 . MW # 4 physically displayed murky brown appearance with hydrocarbon odor . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft., MW # 2 ~ 2.60 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.25 ft. above grade .

on-site	**10:38**	temp	**82 F**
off-site	**11:35**	temp	**86 F**
sky cond.	**Partly cloudy**		
wind speed	**0 - 10**	direct.	**S**

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jun-09*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4
Lab Order:	0905359	**Collection Date:**	5/19/2009 11:25:00 AM
Project:	GCU #229E (#316)	**Date Received:**	5/20/2009
Lab ID:	0905359-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	10		µg/L	10	5/30/2009 1:31:09 PM
Toluene	23	10		µg/L	10	5/30/2009 1:31:09 PM
Ethylbenzene	56	10		µg/L	10	5/30/2009 1:31:09 PM
Xylenes, Total	1200	20		µg/L	10	5/30/2009 1:31:09 PM
Surr: 4-Bromofluorobenzene	97.9	65.9-130		%REC	10	5/30/2009 1:31:09 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Chain-of-Custody Record

Client: BLAGG ENER. / BP AMERICA

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

Phone #: 632-1199

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: GCU #229E (#316)

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.8

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. 0905359	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 ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
5/19/09	1125	WATER	MW #4	40ml-2	HCl	-1	✓															

Date: 5/19/09 Time: 1425 Relinquished by: Nelson Velez
Received by: Date 5/20/09 Time 850

Date: Time: Relinquished by:
Received by: Date Time

Remarks:

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 #229E (#316) **Work Order:** 0905359

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R33878**		Analysis Date:		5/29/2009 9:06:58 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: **R33878**		Analysis Date:		5/30/2009 5:24:25 AM
Benzene	19.92	µg/L	1.0	99.6	85.9	113			
Toluene	19.82	µg/L	1.0	99.1	86.4	113			
Ethylbenzene	20.29	µg/L	1.0	101	83.5	118			
Xylenes, Total	60.55	µg/L	2.0	101	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: **R33878**		Analysis Date:		5/30/2009 5:54:51 AM
Benzene	20.56	µg/L	1.0	103	85.9	113	3.18	27	
Toluene	20.46	µg/L	1.0	102	86.4	113	3.14	19	
Ethylbenzene	20.86	µg/L	1.0	104	83.5	118	2.79	10	
Xylenes, Total	62.33	µg/L	2.0	104	83.4	122	2.90	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: 5/20/2009

Work Order Number 0905359 | Received by: TLS

Checklist completed by: _____ 5/20/09 | 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?	**3.8°**	*<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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **December 17, 2009**

SAMPLER : N J V

Filename : **12-17-09.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.)
MW - 1	100.00	66.43	33.57	42.00	-	-	-	-	-
MW - 2	96.43	65.30	31.13	42.00	-	-	-	-	-
MW - 3	97.86	65.17	32.69	42.00	-	-	-	-	-
MW - 4	86.73	63.76	22.97	36.88	1425	7.45	1,200	11.8	6.75

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	12/16/09	0835

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 # 4 . MW # 4 physically displayed murky brown appearance with slight hydrocarbon odor . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft., MW # 2 ~ 2.60 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.25 ft. above grade .

on-site	**1:45**	temp.	**38 F**
off-site	**2:42**	temp.	**39 F**
sky cond.	**Mostly sunny**		
wind speed	**0 - 10**	direct.	**W**

Hall Environmental Analysis Laboratory, Inc.

Date: *30-Dec-09*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4
Lab Order:	0912428	**Collection Date:**	12/17/2009 2:25:00 PM
Project:	GCU #229E (#316)	**Date Received:**	12/18/2009
Lab ID:	0912428-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	10		µg/L	10	12/28/2009 4:31:18 PM
Toluene	24	10		µg/L	10	12/28/2009 4:31:18 PM
Ethylbenzene	31	10		µg/L	10	12/28/2009 4:31:18 PM
Xylenes, Total	890	20		µg/L	10	12/28/2009 4:31:18 PM
Surr: 4-Bromofluorobenzene	106	65.9-130		%REC	10	12/28/2009 4:31:18 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Chain-of-Custody Record

Client: BLAGG ENGR / BP AMERICA

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

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: GCU # 229E (#316)

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.8

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. 0912128	Analysis Request: 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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
12/17/09	1425	WATER	MW #4	2-40ml	HCl & COOL	-1	✓															

Date: 12/17/09 Time: 1515 Relinquished by:

Date: Time: Relinquished by:

Received by: Date: 12/18/09 Time: 1010

Received by: Date: Time:

Remarks:

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 #229E (#316) **Work Order:** 0912428

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: **R36711**		Analysis Date: 12/24/2009 10:04:25 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: **R36728**		Analysis Date: 12/28/2009 9:33:12 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: **R36711**		Analysis Date: 12/24/2009 6:11:13 PM			
Benzene	20.55	µg/L	1.0	20	0	103	85.9	113			
Toluene	20.53	µg/L	1.0	20	0	103	86.4	113			
Ethylbenzene	20.09	µg/L	1.0	20	0.066	100	83.5	118			
Xylenes, Total	61.73	µg/L	2.0	60	0	103	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*				Batch ID: **R36728**		Analysis Date: 12/28/2009 7:33:50 PM			
Benzene	19.19	µg/L	1.0	20	0	96.0	85.9	113			
Toluene	19.21	µg/L	1.0	20	0	96.0	86.4	113			
Ethylbenzene	19.09	µg/L	1.0	20	0	95.5	83.5	118			
Xylenes, Total	57.94	µg/L	2.0	60	0	96.6	83.4	122			

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: **12/18/2009**

Work Order Number **0912428** Received by: **TLS**

Checklist completed by: _____ 12/18/09 Sample ID labels checked by: _____
Signature Date 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 ☐		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?	**0.8°**	*<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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **February 26, 2010**

SAMPLER : N J V

Filename : **02-26-10.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.)
MW - 1	100.00	66.60	33.40	42.00	-	-	-	-	-
MW - 2	96.43	65.48	30.95	42.00	-	-	-	-	-
MW - 3	97.86	65.35	32.51	42.00	-	-	-	-	-
MW - 4	86.73	63.96	22.77	36.88	1445	7.43	1,100	15.5	7.00
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	02/23/10	1000		

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 # 4 . MW # 4 physically displayed murky brown appearance with slight hydrocarbon odor . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft., MW # 2 ~ 2.60 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.25 ft. above grade .

on-site	**2:06**	temp.	**44 F**
off-site	**2:59**	temp.	**44 F**
sky cond.	**Mostly sunny**		
wind speed	**0 - 10**	direct.	**NW**

Hall Environmental Analysis Laboratory, Inc.

Date: *09-Mar-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4
Lab Order:	1003069	**Collection Date:**	2/26/2010 2:45:00 PM
Project:	GCU #229E (#316)	**Date Received:**	3/3/2010
Lab ID:	1003069-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/8/2010 1:53:21 PM
Toluene	9.5	1.0		µg/L	1	3/8/2010 1:53:21 PM
Ethylbenzene	2.0	1.0		µg/L	1	3/8/2010 1:53:21 PM
Xylenes, Total	56	2.0		µg/L	1	3/8/2010 1:53:21 PM
Surr: 4-Bromofluorobenzene	110	65.9-130		%REC	1	3/8/2010 1:53:21 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
BLFD., NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

☒ Standard ☐ Rush

Project Name: GCU # 229E (#316)

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.9

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. 1003029	Analysis Request: 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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles (Y or N)
2/26/10	1445	WATER	MW #4	2-40ml	HCl & cool	1	✓														

Date: 3/2/10 Time: 1500 Relinquished by:

Received by: Date 3/3/10 Time 1.9

Date: Time: Relinquished by:

Received by: Date Time

Remarks:

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 #229E (#316) **Work Order:** 1003069

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: **R37664**		Analysis Date:		3/5/2010 9:16:26 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: b 5		*MBLK*				Batch ID: **R37677**		Analysis Date:		3/8/2010 11:21:44 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: **R37664**		Analysis Date:		3/5/2010 8:43:42 PM	
Benzene	19.65	µg/L	1.0	20	0	98.3	85.9	113			
Toluene	19.01	µg/L	1.0	20	0	95.0	86.4	113			
Ethylbenzene	18.98	µg/L	1.0	20	0	94.9	83.5	118			
Xylenes, Total	57.39	µg/L	2.0	60	0	95.7	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*				Batch ID: **R37677**		Analysis Date:		3/8/2010 8:58:22 PM	
Benzene	21.82	µg/L	1.0	20	0	109	85.9	113			
Toluene	21.28	µg/L	1.0	20	0	106	86.4	113			
Ethylbenzene	20.95	µg/L	1.0	20	0	105	83.5	118			
Xylenes, Total	62.35	µg/L	2.0	60	0	104	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*				Batch ID: **R37664**		Analysis Date:		3/5/2010 9:13:58 PM	
Benzene	19.07	µg/L	1.0	20	0	95.4	85.9	113	3.02	27	
Toluene	18.37	µg/L	1.0	20	0	91.8	86.4	113	3.43	19	
Ethylbenzene	18.16	µg/L	1.0	20	0	90.8	83.5	118	4.39	10	
Xylenes, Total	55.07	µg/L	2.0	60	0	91.8	83.4	122	4.14	13	

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: 3/3/2010

Work Order Number 1003089 | Received by: TLS

Checklist completed by: [signature] Signature | 3/3/10 Date | Sample ID labels checked by: [initials] 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?	1.9°	<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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **May 19, 2010**

SAMPLER : N J V

Filename : **05-19-10.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.)
MW - 1	100.00	66.74	33.26	42.00	-	-	-	-	-
MW - 2	96.43	65.62	30.81	42.00	-	-	-	-	-
MW - 3	97.86	65.48	32.38	42.00	-	-	-	-	-
MW - 4	86.73	64.08	22.65	36.88	1325	7.70	1,300	16.9	7.00
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	05/19/10	1035		

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 # 4 . MW # 4 - murky brown appearance , no apparent hydrocarbon odor dectected . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft., MW # 2 ~ 2.60 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.25 ft. above grade .

on-site	**12:35**	temp.	**67 F**
off-site	**1:35**	temp.	**68 F**
sky cond.	**Partly cloudy**		
wind speed	**10 - 20**	direct.	**WNW - W**

Hall Environmental Analysis Laboratory, Inc.

Date: *26-May-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4
Lab Order:	1005609	**Collection Date:**	5/19/2010 1:25:00 PM
Project:	GCU #229E (#316)	**Date Received:**	5/21/2010
Lab ID:	1005609-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/26/2010 3:34:09 AM
Toluene	7.6	1.0		µg/L	1	5/26/2010 3:34:09 AM
Ethylbenzene	1.5	1.0		µg/L	1	5/26/2010 3:34:09 AM
Xylenes, Total	30	2.0		µg/L	1	5/26/2010 3:34:09 AM
Surr: 4-Bromofluorobenzene	107	65.9-130		%REC	1	5/26/2010 3:34:09 AM

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

Turn-Around Time: ☒ Standard ☐ Rush

Client: BLAGG ENGR. / BP AMERICA

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

Phone #: (505) 632-1199

email or Fax#:

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

Accreditation ☐ NELAP ☐ Other

☐ EDD (Type)

Project Name: GCU # 229E (#316)

Project #:

Project Manager: NELSON VELEZ NV

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.6

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. 1005064	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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
5/19/10	1325	WATER	MW #4	2-40ml	HCl & Cool	-1	✓															

Date: 5/20/10 Time: 1600 Relinquished by:

Received by: Date: 5/21/10 Time: 920

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks:

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 #229E (#316) **Work Order:** 1005609

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: **R38920**		Analysis Date:	5/25/2010 9:21:20 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: **R38920**		Analysis Date:	5/25/2010 6:58:36 PM		
Benzene	22.78	µg/L	1.0	20	0	114	87.9	121			
Toluene	23.15	µg/L	1.0	20	0	116	83	124			
Ethylbenzene	22.55	µg/L	1.0	20	0.138	112	81.7	122			
Xylenes, Total	68.50	µg/L	2.0	60	0	114	85.6	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: **5/21/2010**

Work Order Number **1005609** Received by: TLS

Checklist completed by: _____ 5/21/10 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?	**-0.6°**	*<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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **July 27, 2010**

SAMPLER : N J V

Filename : **07-27-10.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.)
MW - 1	100.00	66.82	33.18	42.00	-	-	-	-	-
MW - 2	96.43	65.65	30.78	42.00	-	-	-	-	-
MW - 3	97.86	65.51	32.35	42.00	-	-	-	-	-
MW - 4	86.73	64.06	22.67	36.88	0955	7.57	1,500	20.9	7.00
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	07/26/10	1630		

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 # 4 . MW # 4 - murky brown appearance , no apparent hydrocarbon odor dectected . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft. , MW # 2 ~ 2.60 ft. , MW # 3 ~ 2.50 ft. , MW # 4 ~ 2.25 ft. above grade .

on-site	**8:50**	temp.	**74 F**
off-site	**10:04**	temp.	**78 F**
sky cond.	**Mostly sunny**		
wind speed	**0 - 5**	direct.	**E - S**

Hall Environmental Analysis Laboratory, Inc.

Date: *04-Aug-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#4
Lab Order:	1007A41	**Collection Date:**	7/27/2010 9:55:00 AM
Project:	GCU #229E(#316)	**Date Received:**	7/29/2010
Lab ID:	1007A41-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	7/31/2010 6:58:32 AM
Toluene	4.3	1.0		µg/L	1	7/31/2010 6:58:32 AM
Ethylbenzene	ND	1.0		µg/L	1	7/31/2010 6:58:32 AM
Xylenes, Total	16	2.0		µg/L	1	7/31/2010 6:58:32 AM
Surr: 4-Bromofluorobenzene	113	65.9-130		%REC	1	7/31/2010 6:58:32 AM

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 ENER. / BP AMERICA

Mailing Address: P.O. BOX 87
BLFD. 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 # 229E (#316)

Project #:

Project Manager:
NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.2 °C

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. 1007411	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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
7/27/10	0955	WATER	MW # 4	40ml - 2	HCl & cool	1	✓															

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/28/10	1530			7/29/10	1000
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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 #229E(#316) **Work Order:** 1007A41

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: **R40133**		Analysis Date:	7/30/2010 9:20:23 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: **R40133**		Analysis Date:	7/30/2010 7:50:21 PM		
Benzene	18.83	µg/L	1.0	20	0	94.2	87.9	121			
Toluene	18.38	µg/L	1.0	20	0	91.9	83	124			
Ethylbenzene	18.23	µg/L	1.0	20	0	91.2	81.7	122			
Xylenes, Total	55.63	µg/L	2.0	60	0	92.7	85.6	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: **7/29/2010**

Work Order Number **1007A41** Received by: **AMG**

Checklist completed by: Ashley M Gallegos 7/29/10 (Signature / Date) Sample ID labels checked by: G (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?	**-1.2°**	*<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 # 229E - BLOW PIT
UNIT I, SEC. 21, T28N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **October 29, 2010**

SAMPLER : N J V

Filename : **10-29-10.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.)
MW - 1	100.00	67.52	32.48	42.00	-	-	-	-	-
MW - 2	96.43	66.35	30.08	42.00	-	-	-	-	-
MW - 3	97.86	66.20	31.66	42.00	-	-	-	-	-
MW - 4	86.73	64.72	22.01	36.88	1210	7.28	1,400	16.1	7.25
					INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800		
					DATE & TIME =	10/28/10	0800		

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 # 4 . MW # 4 - murky brown appearance , no apparent hydrocarbon odor dectected . Collected sample for BTEX per US EPA Method 8021B from MW # 4 only .

Top of casing MW # 1 ~ 2.40 ft., MW # 2 ~ 2.60 ft., MW # 3 ~ 2.50 ft., MW # 4 ~ 2.25 ft. above grade .

on-site	**11:10**	temp.	**55 F**
off-site	**12:25**	temp.	**62 F**
sky cond.	**Mostly sunny**		
wind speed	**0 - 10**	direct.	**ESE - E**

Hall Environmental Analysis Laboratory, Inc.

Date: *09-Nov-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4
Lab Order:	*1011109*	**Collection Date:**	10/29/2010 12:10:00 PM
Project:	GCU #229 (#316)	**Date Received:**	11/2/2010
Lab ID:	1011109-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	11/8/2010 8:48:46 PM
Toluene	ND	1.0		µg/L	1	11/8/2010 8:48:46 PM
Ethylbenzene	ND	1.0		µg/L	1	11/8/2010 8:48:46 PM
Xylenes, Total	20	2.0		µg/L	1	11/8/2010 8:48:46 PM
Surr: 4-Bromofluorobenzene	102	76.4-106		%REC	1	11/8/2010 8:48:46 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
BLFD., 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 # 229E (#316)

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.8°

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. 1011109	(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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
10/29/10	1210	WATER	MW #4	40ml - 2	HCl & COOL	-1	✓															

Date	Time	Relinquished by:	Received by:	Date	Time
11/1/10	1450	[signature]	[signature] Michael Garcia	11/2/10	10:30

Remarks:

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 #229 (#316)

Work Order: 1011109

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5ml-rb		*MBLK*				**Batch ID: R42024**		**Analysis Date: 11/8/2010 9:50:36 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: b5		*MBLK*				**Batch ID: R42024**		**Analysis Date: 11/8/2010 9:14:52 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 lcs		*LCS*				**Batch ID: R42024**		**Analysis Date: 11/8/2010 10:43:06 AM**			
Benzene	20.74	µg/L	1.0	20	0	104	84.6	109			
Toluene	19.27	µg/L	1.0	20	0	96.3	81	114			
Sample ID: 100ng lcs2		*LCS*				**Batch ID: R42024**		**Analysis Date: 11/8/2010 10:07:09 PM**			
Benzene	19.45	µg/L	1.0	20	0	97.2	84.6	109			
Toluene	19.15	µg/L	1.0	20	0	95.8	81	114			

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: 11/2/2010

Work Order Number 1011109 | Received by: MMG

Checklist completed by: Signature 11/2/10 Date | Sample ID labels checked by: initials

Matrix: | Carrier name: Priority US Mail

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?	0.8°	<6° C Acceptable If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____