3R - 421

AGWMR

AUGUST 2010

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 NE'₄ SE'₄, 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

					•			BTEX	EPA METH	IOD 8021B (ppb)
SAMPLE DATE	WELL NAME or No.	D.T.W.	T.D.	TDS (mg/L)	COND.	рН	PRODUCT	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
		NMW	QCC GF	ROUNDW	VATER S	TAND	ARDS	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.

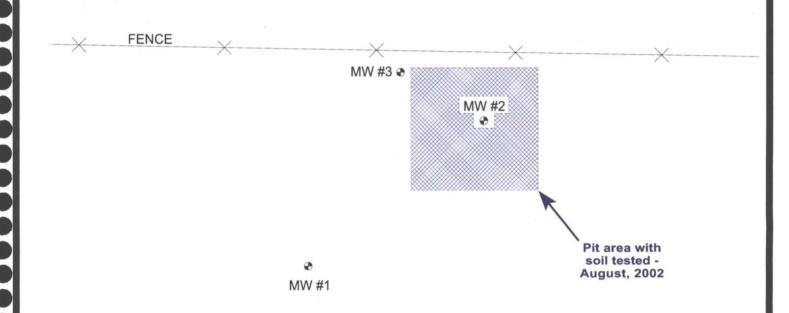
FIGURE 1







OPEN RANGE



P & A MARKER

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.

30 60 FT.
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

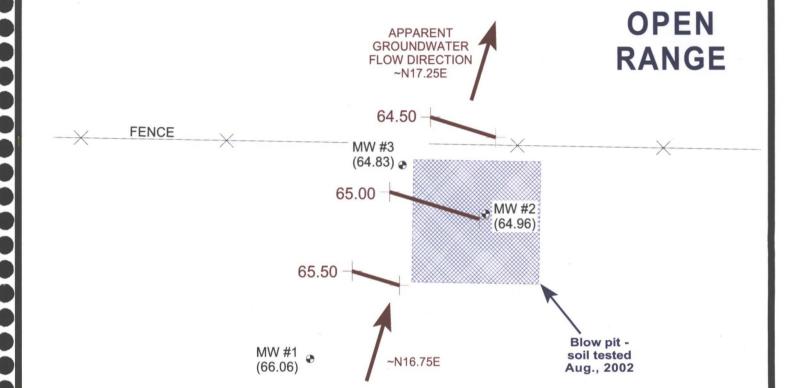
SITE

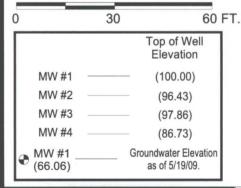


FIGURE 2 (2nd 1/4, 2009)



MW #4 (63.48)





P & A MARKER

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 SAMPLING

DRAWN BY: NJV

FILENAME: 05-19-09-GW.SKF

REVISED: 05-23-09 NJV

GROUNDWATER CONTOUR MAP

FIGURE 3 (4th 1/4, 2009) **Direction to** Gallegos wash. • MW #4 (63.76)**APPARENT GROUNDWATER OPEN** FLOW DIRECTION ~N17.75E **RANGE** 64.50 **FENCE** 65.00 MW #3 (65.17)**₩**MW #2 65.50 (65.30)66.00 Blow pit soil tested Aug., 2002 MW #1 (66.43)30 60 FT. Top of Well Elevation P & A MW #1 (100.00)**MARKER** MW #2 (96.43)MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE MW #3 (97.86)AS THE INSTRUMENTS USED IN OBTAINING THE

BP AMERICA PRODUCTION CO.

(86.73)

Groundwater Elevation

as of 12/17/09.

MW #4

(66.06)

● MW #1

GCU #229E

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

SAN JUAN COUNTY, NEW MEXICO

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CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

BE TO SCALE.

FOOTAGE & BEARING FROM THE WELL HEAD

(TAPE MEASURE, LASER RANGE FINDER, & BRUNTON

COMPASS). ALL OTHER STRUCTURES DISPLAYED ON

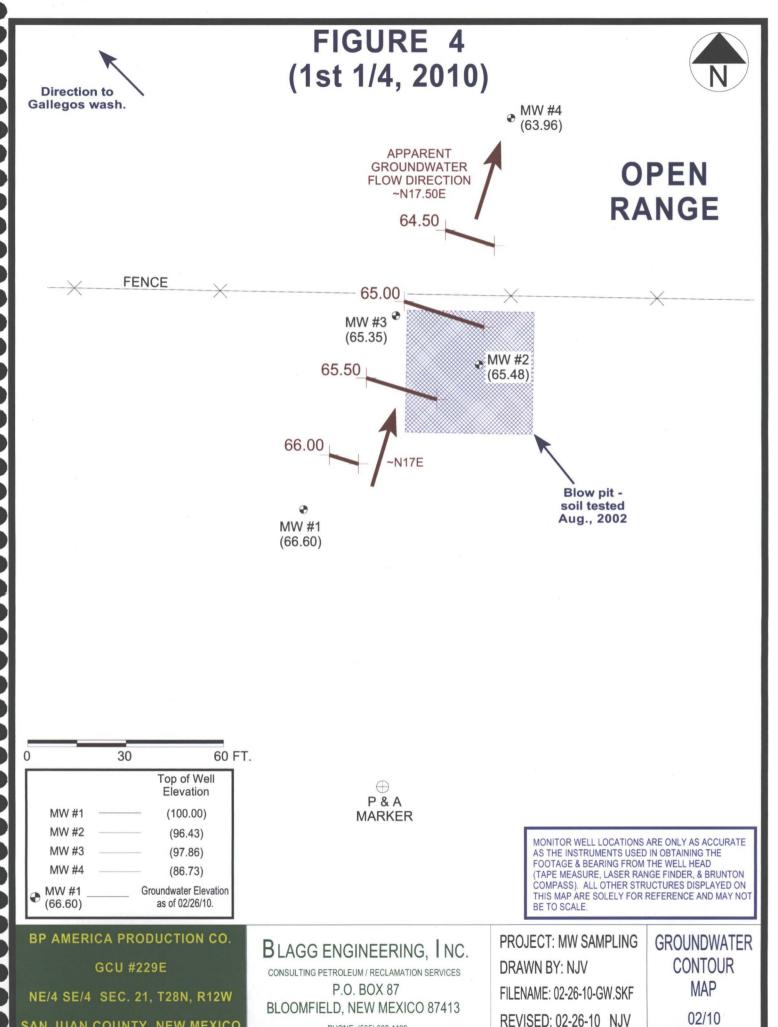
THIS MAP ARE SOLELY FOR REFERENCE AND MAY NOT

DRAWN BY: NJV

FILENAME: 12-17-09-GW.SKF

REVISED: 12-19-09 NJV

GROUNDWATER CONTOUR MAP



PHONE: (505) 632-1199

SAN JUAN COUNTY, NEW MEXICO

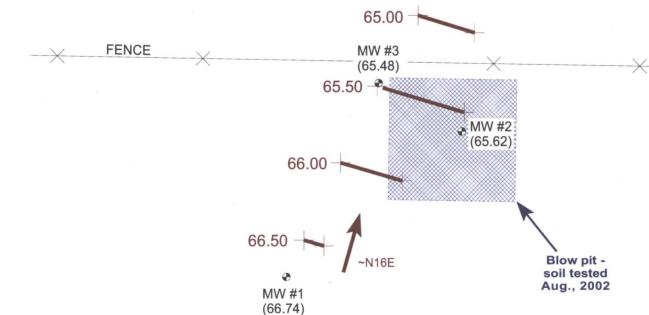


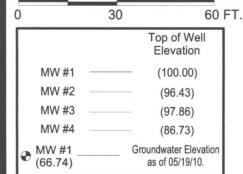
FIGURE 5 (2nd 1/4, 2010)



OPEN RANGE • MW #4 (64.08)

APPARENT GROUNDWATER FLOW DIRECTION ~N16.75E





P & A MARKER

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 SAMPLING

DRAWN BY: NJV

FILENAME: 05-19-10-GW.SKF

REVISED: 05-19-10 NJV

GROUNDWATER CONTOUR MAP 05/10



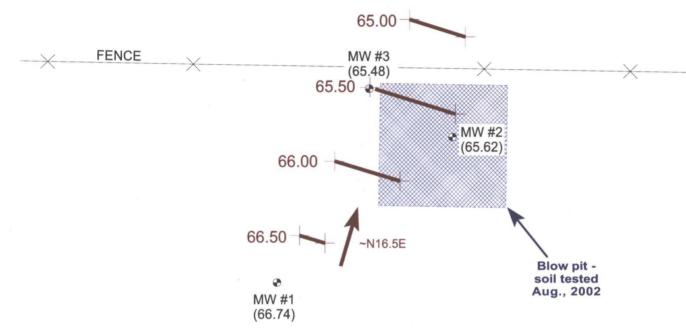
FIGURE 6 (3rd 1/4, 2010)

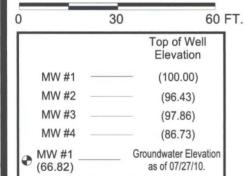


◆ MW #4 (64.08)

OPEN RANGE







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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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

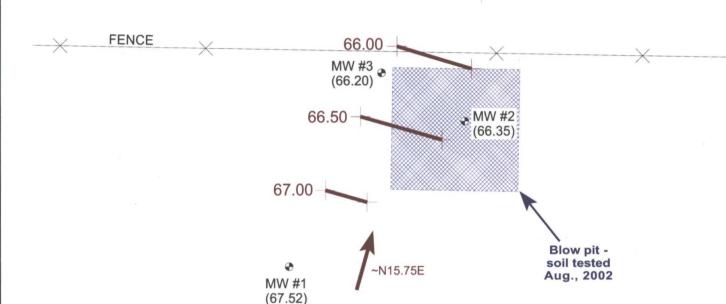


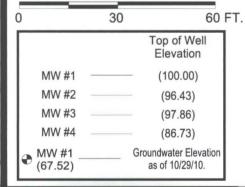
FIGURE 7 (4th 1/4, 2010)



OPEN RANGE ● MW #4 (64.72)







P & A MARKER

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

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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: 10-29-10-GW.SKF

REVISED: 10-29-10 NJV

GROUNDWATER CONTOUR MAP

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT:	BP	AMERICA	PROD.	CO.

CHAIN-OF-CUSTODY #:

GCU #229E - BLOW PIT

LABORATORY (S) USED: HALL ENVIRONMENTAL

UNIT I, SEC. 21, T28N, R12W

SAMPLER:

NJV

Date: May 19, 2009

Filename: 05-19-09.WK4

PROJECT MANAGER:

NJV

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	· (ft)	(ft)	(ft)	(ft)					(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 05/16/09 0810 DATE & TIME =

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 \sim 2.40 ft., MW #2 \sim 2.60 ft., MW #3 \sim 2.50 ft., MW #4 \sim 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

Date: 02-Jun-09

CLIENT:

Blagg Engineering

Lab Order:

0905359

GCU #229E (#316)

Project: Lab ID:

0905359-01

Client Sample ID: MW #4

Collection Date: 5/19/2009 11:25:00 AM

Date Received: 5/20/2009

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

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

Page 1 of 1

	ANALYSTS LABORATORY	www hallenvironme	/ 4901 Hawki	. 1	Analysis	(\rangle (\rangle (\rangle))	io ssi SelO\s	Gas Gas	HPH (1.8) (1.8) (1.9) (1	+ 38 108 104 100 218 218 218 218 218 218 218 218	TEX + MTE TEX + MET TEX + MTE TEX + MET TEX +	1							Time Remarks:		boratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
Alegre Time: O - O - O - O - O	Standard Rush	a i	6cu # 22 (#3/6	Project #:		Project Manager:	NEUSON VELEZ		Sampler: //ELSa/ /ELE/2	Sample Tempelatine 7.72	Container Preservative Type and # Type.	1-2 401							Received by: Date	Received by Date	ed to other accredited laboratories. This serves
Chair-of-Custody Record	Client: BLAGE ENER. / BP AMERICA X	1	. 80X 87	8. NM 87413	1-1199	Proj		L Level 4 (Full Validation)	Sam	LES .	Sample Request ID Co	MW #4 HOM							in Ch		If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited la
nain-or-Cui	LAGG ENE		ddress: P.O.	BLF	e 89	Fax#:			T.mo)) hc/	Time Matrix	1125 WATER						Î		Time: Relinquished by.	ecessary, samples submi
•	Client:		Mailing Address:		Phone #:	email or Fax#:	QA/QC Package:	X Standard	Other Other		Date	60/61/5							69	Date: Ti	H

Date: 02-Jun-09

QA/QC SUMMARY REPORT

Client:

Blagg Engineering

Project:

GCU #229E (#316)

Work Order:

0905359

Analyte	Result	Units	PQL	%Rec	LowLimit H	lighLimit	%RPD	RPD	Limit Qual
Method: EPA Method 8021B: V	olatiles								
Sample ID: 6ML RB	·	MBLK	•		Batch ID	: R33878	Analysis D	ate:	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 D	ate:	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 D	ate:	5/30/2009 5:54:51 AM
Benzene	20.56	μ g/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	



E Estimated value

Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike recovery outside accepted recovery limits

Page 1

Sample Receipt Checklist

Client Name BLAGG	Campic	11000	oipi Oi	Date Receive	ıd:	5/20/2009	
Work Order Number 0905359				Received by	r: TLS	۵N	•
Checklist completed by:			5 2 C	Sample ID I	abels checked by	r: (U)	•
Matrix:	Carrier name:	Grey	hound				
Shipping container/cooler in good condition?	,	Yes	\checkmark	No 🗆	Not Present		
Custody seals intact on shipping container/coole	n	Yes	V	No 🗀	, Not Present	☐ Not Shipped ☐	
Custody seals intact on sample bottles?		Yes		No 🗆	N/A	2	
Chain of custody present?		Yes	\checkmark	No 🗆			
Chain of custody signed when relinquished and r	eceived?	Yes	$ \mathbf{V} $	No 🗆	•	•	
Chain of custody agrees with sample labels?		Yes	\checkmark	No 🗆			
Samples in proper container/bottle?	·	Yes	V	No 🗆		•	
Sample containers intact?		Yes	\checkmark	No 🗆		•	
Sufficient sample volume for indicated test?		Yes	V	No 🗆			
All samples received within holding time?		Yes	\square	No 🗆		Number of prese	rved
Water - VOA vials have zero headspace?	No VOA vials subm	nitted		Yes 🗹	No 🗀	bottles checked f pH:	or
Water - Preservation labels on bottle and cap ma	itch?	Yes		No 🗀	N/A 🗹		
Water - pH acceptable upon receipt?		Yes		No 🗌	N/A 🗹	<2 >12 unless not	ted
Container/Temp Blank temperature?		3.8	8° .	<6° C Acceptal	le	below.	
COMMENTS:	•.			If given sufficien	t time to cool.		
					•	•	
=======================================	_======						=
·	•						
Client contacted	Date contacted:			Per	son contacted _		
Contacted by:	Regarding:						
Comments:	·						
				,			
							_
							_
						· · · · · · · · · · · · · · · · · · ·	
Corrective Action				· 	-,-		_
		,					
				(,*	<u> </u>		_

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

SAMPLER: NJV

Date: December 17, 2009

Filename: 12-17-09.WK4

PROJECT MANAGER: NJV

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	(ft)	(ft)	(ft)	(ft)					(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 \sim 2.40 ft., MW #2 \sim 2.60 ft., MW #3 \sim 2.50 ft., MW #4 \sim 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

Date: 30-Dec-09

CLIENT:

Blagg Engineering

Lab Order:

0912428

Project:

GCU #229E (#316)

Lab ID:

0912428-01

Client Sample ID: MW #4

Collection Date: 12/17/2009 2:25:00 PM

Date Received: 12/18/2009

Matrix: AQUEOUS

Analyses	Result	PQL Qua	al 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

- 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

	ANAL ENVIRONMENTAL		www.namerivilorimental.com $73/6$) 4901 Hawkins NF - Albuquergile NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis	(\rangle (\lambda)	sei⊡\sr	О ⁵ ; (С ⁵ С)	83108 1.814 1.803 (HAQ (HAQ M, ₆ OW (AO)	MTBE thod sthod Av or Meta (CI, P,CI, AOV)	### Bubb ###################################										Date Time Remarks:	ļ	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility.
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		,	(#316)				ever.	VEREN	ENONE CONTRACTOR												Date OQ	Date	
Тіте	□ Rush		# 239E			ager:	7	VELSON			Preservative Type	HCI &									12/19		
Jun Andur	Standard	Project Name:	672 # 23	Project #:	.	Project Manager:	NEUSON	Sampler /			Container Type and #	2-40ml								,	Received by:	Received by:	
3	2. 1 BP HARDICA		BOX 87	2			☐ Level 4 (Full Validation)				Sample Request ID	HA MU									The Miles	d by:	
73-15-15-15-15-15-15-15-15-15-15-15-15-15-	Client: RAR ENGR.		0.0	BLFO	(sos)						Matrix	WATER									Relinquishedo	Relinquished by:	Harry Solution
.Fair	2AK	1	Mailing Address:		#	r Fax#:	OA/QC Package:	<u>_</u>	□ EDD (Type)		Time	5841		.					}		Time: /57/5	Time:	7400000
	Client:		Mailing		Phone #:	email or Fax#:	OA/OC Packs	Other			Date	584/69/17									0ate: 12/0/09	Date:	=

Date: 30-Dec-09

QA/QC SUMMARY REPORT

Client: Project: Blagg Engineering

GCU #229E (#316)

Work Order:

0912428

Analyte	Result	Units	, PQL	SPK Va	SPK ref	%Rec L	owLimit H	ghLimit %RPD	RPDLimit Qual
flethod: EPA Method 8021B: \	/olatiles								
Sample ID: 5ML RB		MBLK				Batch ID:	R36711	Analysis Date:	12/24/2009 10:04:25 AM
Benzene	ND	µg/L	1.0						•
oluene	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/∟	1.0						
Kylenes, 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

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Spike recovery outside accepted recovery limits

Page 1

Hall Environmental Analysis Laboratory, Inc. Sample Receipt Checklist Client Name BLAGG Date Received: 12/18/2009 TLS Work Order Number 0912428 Received by: Sample ID labels checked by: Checklist completed by: 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? No 🗌 Yes N/A Chain of custody present? Yes No 🗀 No \square Chain of custody signed when relinquished and received? Yes Yes 🔽 No 🗌 Chain of custody agrees with sample labels? Samples in proper container/bottle? Yes 🔽 No 🗆 Yes 🗸 No 🗌 Sample containers Intact? Yes 🗸 No \square Sufficient sample volume for indicated test? No 🗌 Number of preserved All samples received within holding time? bottles checked for Yes 🔽 No 🗌 No VOA vials submitted pH: Water - VOA vials have zero headspace? Yes 🗌 No \square N/A 🗹 Water - Preservation labels on bottle and cap match? Yes 🗌 No 🗌 N/A 🗹 Water - pH acceptable upon receipt? <2 >12 unless noted below. Container/Temp Blank temperature? <6° C Acceptable 0.8° If given sufficient time to cool. COMMENTS: Client contacted Person contacted Date 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

Date: February 26, 2010

SAMPLER:

LABORATORY (S) USED: HALL ENVIRONMENTAL

NJV

Filename: 02-26-10.WK4

PROJECT MANAGER:

NJV

WELL #	WELL ELEV.	WATER ELEV.	DEPTH TO WATER	TOTAL DEPTH	SAMPLING TIME	рН	CONDUCT (umhos)	TEMP.	VOLUME PURGED
. "	(ft)	(ft)	(ft)	(ft)	Invic		(diffilos)	(0010103)	(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 \sim 2.40 ft., MW #2 \sim 2.60 ft., MW #3 \sim 2.50 ft., MW #4 \sim 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

Date: 09-Mar-10

CLIENT:

Blagg Engineering

Lab Order:

1003069

Project:

GCU #229E (#316)

Lab ID:

1003069-01

Client Sample ID: MW #4

Collection Date: 2/26/2010 2:45:00 PM

Date Received: 3/3/2010

Matrix: AQUEOUS

Analyses	Result	PQL Qua	l 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

Е Estimated value

Analyte detected below quantitation limits

NC Non-Chlorinated

Practical Quantitation Limit

Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded Н

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

Spike recovery outside accepted recovery limits page 1 of 1

Date: 09-Mar-10

QA/QC SUMMARY REPORT

Client:

Blagg Engineering

Project:

GCU #229E (#316)

Work Order:

1003069

Analyte	Result	Units	PQL	SPK Va S	PK ref	%Rec L	owLimit His	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: V	Volatiles										
Sample ID: 5ML RB		MBLK				Batch ID:	R37664	Analys	is 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							4	
Xylenes, Total	ND	μg/L	2.0								
Sample ID: b 5		MBLK				Batch ID:	R37677	Analysi	is Date:	3/8/2010 1	1:21:44 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	Analysi	is Date:	3/5/2010 8	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	Analysi	is Date:	3/8/2010 8	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			
Kylenes, Total	62.35	μg/L	2.0	60	0	104	83.4	122			
Sample ID: 100NG BTEX LCSD		LCSD				Batch ID:	R37664	Analysi	is Date:	3/5/2010 9	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

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

Page 1

Sample Receipt Checklist

Client Name BLAGG	-			Date Receiv	/ed:	3/3/2010
Work Order Number 1003069				Received	by: TLS	· C
Checklist completed by:		S	7/3	Sample ID	labels checked by:	Initfals
Signature			Date	,		
Matrix:	Carrier name:	UPS			•	
Shipping container/cooler in good condition?		Yes	~	No 🗆	Not Present	
Custody seals intact on shipping container/coo	ler?	Yes	V	No 🗌	Not Present	Not Shipped
Custody seals intact on sample bottles?		Yes		No 🗆	N/A ☑	
Chain of custody present?		Yes	V	No 🗀	•	
Chain of custody signed when relinquished and	d received?	Yes	V	No 🗆		
Chain of custody agrees with sample labels?		, Yes	✓ .	No 🗌	•	. '
Samples in proper container/bottle?		Yes	V	No 🗆		
Sample containers intact?		Yes	✓ .	No 🗆		,
Sufficient sample volume for indicated test?	·	Yes	V	No 🗆		
All samples received within holding time?		Yes	V	No 🗌		Number of preserved
Water - VOA vials have zero headspace?	No VOA vials subi	mitted		Yes 🗹	No 🗔	bottles checked for pH:
Water - Preservation labels on bottle and cap r	natch?	Yes		No 🗆	N/A 🗹	
Water - pH acceptable upon receipt?		Yes		No 🗆	N/A 🗹	<2 >12 unless noted below.
Container/Temp Blank temperature?		1.	9°	<6° C Accepta		Delow.
COMMENTS:				If given sufficie	ent time to cool.	
			-==			
				*		
						,
Client contacted	Date contacted:			Pe	rson contacted	
Contacted by:	Regarding:	 .				·
Comments:						
· · · · · · · · · · · · · · · · · · ·						
			-			
Corrective Action				•		
				*		
		<u>-</u>				

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP_AMERICA_PROD._CO. CHAIN-OF-CUSTODY #: N/A GCU #229E - BLOW PIT LABORATORY (S) USED: HALL ENVIRONMENTAL UNIT I, SEC. 21, T28N, R12W Date: May 19, 2010 **SAMPLER:** NJV NJVFilename: 05-19-10.WK4 **PROJECT MANAGER: WELL** WELL WATER **DEPTH TO** TOTAL SAMPLING pН CONDUCT TEMP. VOLUME . # ELEV. ELEV. WATER **DEPTH PURGED** TIME (umhos) (celcius) · (ft) (ft) (ft) (ft) (gal.) MW - 1 100.00 66.74 33.26 42.00 MW - 2 96.43 65.62 30.81 42.00

> 4.01/7.00/10.00 2,800 INSTRUMENT CALIBRATIONS = 05/19/10 1035 DATE & TIME =

7.70

1,300

16.9

7.00

1325

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:

32.38

22.65

MW - 3

MW - 4

97.86

86.73

65.48

64.08

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

42.00

36.88

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

Date: 26-May-10

CLIENT:

Blagg Engineering

Lab Order:

1005609

Project:

GCU #229E (#316)

Lab ID:

1005609-01

Client Sample ID: MW #4

Collection Date: 5/19/2010 1:25:00 PM

Date Received: 5/21/2010

Matrix: AQUEOUS

Analyses	Result	PQL Qua	al 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	μ g/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
- Estimated value
- Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- Not Detected at the Reporting Limit
- Spike recovery outside accepted recovery limits

	ANAI VSTS I ABODATODV	water halforwiggemental com	4901 Hawkins NE - Albuquerque, NM 87109		Analysis	(*() 26() 26()	no asi eejŪ\a	H (G	921 (1.8 (1.1) (1.1) (1.1) (1.1) (1.1) (1.1)	100 A O A O A O A O A O A O A O A O A O A	TTEX + MTE TEX + MTE TEX + MTE TPH (Method TPH (Method TEX + Method TPH (Method TEX + METHOD TEX + Method	33 33 34 34 34 34 34 34 34 34 34 34 34 3							Remarks:		as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
	X Standard Rush	Project Name:	6元 # 23年 (#316)	Project #:		Project Manager.	NEWS VELEZ	Cample: 1 1/2: F-7		· Second Company of the Company of	Container Preservative REFE OF Type and # Type	2-40m HEIF -1							Al sp	Received by: V Date Time	boratories. This serves
OF THE CHOSTON FREERS	BLAGE ENER. 1 BP AMERICA		s. P.O.80x 87	74/3	505/ 632-1199		7 - 23-24-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Level 4 (Full Validation)	□ Other		Matrix Sample Request ID	1325 WARER MW #4						. 1	Relinquished by:	Relinquished by:	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited is
• • • • • • • • • • • • • • • • • • •	Client: RLAS		Mailing Address:		Phone #:	email or Fax#:	OA/QC Package:	Accreditation	□ NELAP	☐ EDD (Type)	Date Time	5/19/10 (325			•				2	Date: Time:	lf necessary,

Date: 26-May-10

QA/QC SUMMARY REPORT

Client:

Blagg Engineering

roject: GCU #229E (#316)

Work Order:

1005609

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: \	/olatiles										
Sample ID: 5ML RB		MBLK				Batch ID:	R38920	Analys	is Date:	5/25/2010 9	9:21:20 AN
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	Analys	is Date:	5/25/2010	6:58:36 Pi
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			
Kylenes, Total	68.50	μg/L	2.0	60	0	114	85.6	121			,
-											



E Estimated value

Analyte detected below quantitation limits

NO Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

Page 1

,	Sample	Hece	elpt C	necklist				
Client Name BLAGG				Date Receive	ed:		5/21/2010	
Work Order Number 1005609			٠.	Received b	y: TL\$			
6			λ_	Sample ID	labels checked	by:		
Checklist completed by:		7	5 G	11 tro			Initials	
				•				
Matrix:	Carrier name:	Grey	hound					
		V	V	No 🗔	Not Organis	_		
Shipping container/cooler in good condition?		Yes	_		Not Present	_		
Custody seals intact on shipping container/cool	er?	Yes		No □	Not Present		Not Shipped	
Custody seals intact on sample bottles?				No □	N/A	V		
Chain of custody present?			$ \mathbf{Z} $	No 🗆				
Chain of custody signed when relinquished and	received?		\mathbf{Z}	No 🗆				
Chain of custody agrees with sample labels?	•		\checkmark	No 🗀				
Samples in proper container/bottle?	•	Yes		No 🗌				
Sample containers intact?		Yes	\checkmark	No 🗌				
Sufficient sample volume for Indicated test?	•	Yes	\checkmark	No \square				
All samples received within holding time?		Yes	V	No 🗆			Number of	preserved
Water - VOA vials have zero headspace?	No VOA vials subm	nitted		Yes 🗹	No 🗌		bottles che pH:	ecked for
Water - Preservation labels on bottle and cap m	natch?	Yes		. No 🗆	N/A 🗹			
Water - pH acceptable upon receipt?		Yes		No 🗌	N/A 🗹		<2 >12 unl	ess noted
Container/Temp Blank temperature?		-0.	6°	<6° C Acceptai	ble		below.	•
COMMENTS:				If given sufficier	it time to cool.			
•	•							
•				•				
							•	
Client contacted	Date contacted:			Pers	son contacted			
Contracted by	Danardina							
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

Filename: 07-27-10.WK4

UNIT I, SEC. 21, T28N, R12W

SAMPLER: NJV

LABORATORY (S) USED: HALL ENVIRONMENTAL

Date: July 27, 2010

PROJECT MANAGER:

NJV

WELL #	WELL ELEV.	WATER ELEV.	DEPTH TO WATER	TOTAL DEPTH	SAMPLING TIME	рН	CONDUCT (umhos)	TEMP.	VOLUME PURGED
,	(ft)	(ft)	(ft)	(ft)			(455)	(00.0.00)	(gal.)
MW - 1	100.00	66.82	. 33.18	42.00		-	-	-	/-
MW - 2	96.43	65.65	30.78	42.00	-	<u>-</u>	-	-	- ,
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

Date: 04-Aug-10

CLIENT:

Blagg Engineering

Lab Order:

1007A41

Project:

GCU #229E(#316)

Lab ID:

1007A41-01

Client Sample ID: MW#4

Collection Date: 7/27/2010 9:55:00 AM

Date Received: 7/29/2010

Matrix: AQUEOUS

Analyses	Result	PQL Q	ual - 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
- 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

	ANAI VOIC I ABODATODA	4901 Hawkins NE - Albuquerque, NM 87109		Analysis	(A)	eeiG\ss eeiG\ss	TPH (682 (4.1)	100 NOV	BTEX + MTE BTEX + MTE BTEX + MTE TPH (Method B310 (PNA d B310 (PNA d B310 (PNA d B260B (VOA B270 (Semi-)							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 norm
⊤um-Arodna-Time:	X Standard	 GC人 # 22年 (#3代)	Project #:		Project Manager:	DY VELEZ	Sampler: NELSON VEUEZ		Container Preservative Table Transfer T	40ml-2 Hil toool						Regived by Hill Hill 9/24/p 1000	Received by: Date Time	itracted to other accredited laboratories. This serves as notice of this
ody Record	Client: BLASE ENSER, / BP AMERICA	Mailing Address: P.O. BOX 87	18743	Phone #: (505) 632-1199	email or Fax#:	QA/QC Package: XStandard ☐ Level 4 (Full Validation)	Accreditation	□ EDD (Type)	Matrix Sample Request ID	1/27/10 0955 WATER MW # 4 1						Time: Relinquished by:	Date: Time: Relinquished by:	If necessary, samples submitted to Hall Environmental may be subcon

Date: 04-Aug-10

QA/QC SUMMARY REPORT

Client:

Blagg Engineering

roject: GCU #229E(#316)

Work Order:

1007A41

									·
Analyte	Result	Units	PQL	SPK Va SF	PK ref	%Rec L	owLimit His	ghLimit %RPD	RPDLimit Qual
ethod: EPA Method 8021	B: Volatiles			-					
ample ID: 5ML RB		MBLK				Batch ID:	R40133	Analysis Date:	7/30/2010 9:20:23 AM
Penzene ·	· ND	μ g/L	1.0						
roluene	ND	μg/L	1.0						
thylbenzene	ND	µg/L	1.0					•	
ylenes, Total	ND	µg/L	2.0						•
Sample ID: 100NG BTEX LC:	3	LCS				Batch ID:	R40133	Analysis Date:	7/30/2010 7:50:21 PM
denzene	18.83	µg/L	1.0	20	0	94.2	87.9	121	
aluene	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	
ylenes, Total	55.63	µg/L	2.0	60	0	92.7	85 .6	121	

Qualiflers:

E Estimated value

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 7/29/2010 lient Name BLAGG Date Received: ork Order Number 1007A41 **AMG** Received by: Sample ID labels checked by: Lhley M. Gallegos hecklist completed by: - Carrier name: Greyhound /latrix: No 🗆 Yes 🗹 Not Present Shipping container/cooler in good condition? No 🗌 Not Present Not Shipped Custody seals intact on shipping container/cooler? No 🗌 Yes Custody seals intact on sample bottles? N/A Yes 🗹 No 🗌 Chain of custody present? No 🔲 Chain of custody signed when relinquished and received? Yes 🗹 No 🔲 Chain of custody agrees with sample labels? V No 🗀 Samples in proper container/bottle? Yes Sample containers intact? Yes 🔽 No \square Yes 🔽 No 🗌 Sufficient sample volume for indicated test? No 🗀 Number of preserved All samples received within holding time? bottles checked for Yes 🗹 No 🗆 No VOA vials submitted pH: Water - VOA vials have zero headspace? No 🗀 N/A ✓ Water - Preservation labels on bottle and cap match? Yes 🔲 No 🗌 N/A 🗹 <2 >12 unless noted Water - pH acceptable upon receipt? below. Container/Temp Blank temperature? <6° C Acceptable -1.2° If given sufficient time to cool. COMMENTS: Client contacted Date contacted: Person contacted Contacted by: Comments: **Corrective Action**

BLAGG ENGINEERING, INC. MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT :	USTODY#:	: N/A									
GCU # 22	9E - BLOW	PIT			LAE	BORATORY	(S) USED:	HALL ENVI	RONMENTAL		
UNIT I, SI	EC. 21, T28	3N, R12W				÷	,				
Date :	SAMPLER:	N	JV								
Filename :	10-29-10.W	VK4			· I	PROJECT I	MANAGER :	N	J V		
WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	рН	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		
			INSTRUM	ENT CALIB	RATIONS =	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 gallor	ns per foot o	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 dected	cted . Collec	cted sample	for BTEX	per US EPA	Method 802	1B from MW	/ # 4 only.			
			,				-	•			

Top of casing MW #1 \sim 2.40 ft., MW #2 \sim 2.60 ft., MW #3 \sim 2.50 ft., MW #4 \sim 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

Date: 09-Nov-10

CLIENT:

Blagg Engineering

Lab Order:

1011109

1011109

Project: Lab ID: GCU #229 (#316)

1011109-01

Client Sample ID: MW #4

Collection Date: 10/29/2010 12:10:00 PM

Date Received: 11/2/2010

Matrix: AQUEOUS

Analyses	Result	POL Q	ual Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES S	HORT 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
- 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 Tum-Around Time:		
Client: BLASS ENSR. / Bf AMERICA X Standard Rush	ANAIVET	AALL ENVIRONMENTAL Anai Vets Larodatody
	mov hallenvironental com	mental com
Mailing Address: P.O. 80X 87	#3(6) 4901 Hawkins NE - Albuqu	Albuquerque, NM 87109
		505-345-4107
32-1199	Analysis	Request
email or Fax#: Project Manager:	sel)	
OA/OC Package:	e U/s	
Sampler: ハモンシー Sampler: ハモンシー	58 (G8 (1) (1)	
(adv	+ 3 801 1 418 1 504 1 504 1 504	(A O/
	bod hod hod stelk	(AC
Date Time Matrix Sample Request ID Container Preservative AEA	BTEX + Meth TPH Meth TPH (Meth B310 (PN/ 8310 (PN/ RCRA 8 N/	1209 (V0 50058 10058 1005) (Sen
9/29/10/210 WATER MW # 4 HOMI-2 Help		
Time:	Time Remarks: $0.3c$	
Date: Time: Relinquished by: / Received by: Date	Time	
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratones. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report	 as notice of this possibility. Any sub-contracted data will be clear	ly notated on the analytical report.

Date: 09-Nov-10

QA/QC SUMMARY REPORT

Client:

Blagg Engineering

roject: GCU #229 (#316)

Work Order:

1011109

Analyte	Result	Units	PQL	SPK Va SPK re	ef %Rec l	.owLimit Hi	ighLimit %RPD	RPDLimit Qual
ethod: EPA Method 8260	: Volatiles Shor	t List						
ample ID: 5ml-rb		MBLK			Batch ID:	R42024	Analysis Date:	11/8/2010 9:50:36 AM
Benzene	ND	μg/L	1.0					
Yoluene -	ND	μg/Ł	1.0					
hylbenzene	· ND	μg/L	1.0				•	•
vlenes, Total	ND	μg/L	2.0		. '	•		
Sample ID: b5		MBLK	•		Batch ID:	R42024	Analysis Date:	11/8/2010 9:14:52 PM
Senzene	ND .	µg/L	1.0					•
lue ne	ND	μg/L	1.0		•			
Ethylbenzene	· ND	μg/L	1.0				•	•
xylenes, Total	ND	μg/L	2.0	•				
Imple ID: 100ng Ics		LCS		•	Batch ID:	R42024	Analysis Date:	11/8/2010 10:43:06 AM
nzene	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	
Tample ID: 100ng ics2		LCS			Batch ID:	R42024	Analysis Date:	11/8/2010 10:07:09 PM
nzene	19.45 ·	µg/L	1.0	20 0	97.2	84.6	109	
luene	19.15	µg/L	1.0	20 0	95.8	- 81	114	ı

ualifiers:

E Estimated value

Analyte detected below quantitation limits

Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

Page 1

Sample Receipt Checklist

	Campie	1100	cibe one				,
Client Name BLAGG				Date Rece	eived:		11/2/2010
Vork Order Number 1011109				Receive	d by: MMG		
Checklist completed by:		11	2 / C	Sample	ID labels checked	b y :	initials
Matrix:	Carrier name:	<u>Prio</u>	rity US Ma	<u>il</u>			•
Shipping container/cooler in good condition?		Yes		No 🗀	Not Present		
custody seals intact on shipping container/coole	er?	Yes	V	No 🗌	Not Present		Not Shipped
Custody seals intact on sample bottles?		Yes		No 🗌	N/A	V	
Chain of custody present?		Yes	V	No 🗌			
Chain of custody signed when relinquished and	received?	Yes	\checkmark	No 🗆	•		
Chain of custody agrees with sample labels?		Yes	V	No 🗔			
samples in proper container/bottle?		Yes	\checkmark	No 🗆			·
Sample containers intact?		Yes	\checkmark	No 🗌			
Sufficient sample volume for indicated test?		Yes	\checkmark	No 🗆			
All samples received within holding time?		Yes	∠	No 🗀			Number of preserved
Nater - VOA vials have zero headspace?	No VOA vials subm	nitted		Yes 🗹	No 🗌		bottles checked for pH:
Nater - Preservation labels on bottle and cap ma	atch?	Yes		No 🗌	N/A 🗹		·
Nater - pH acceptable upon receipt?		Yes		No 🗌	N/A		<2 >12 unless noted
Container/Temp Blank temperature?	•	0.	_	6° C Accep	ntable sient time to cool.		below.
COMMENTS:			. "	given sume	asing turno to door.		
					,		
Client contacted	Date contacted:			F	Person contacted		
	D						
Comments:					·		
					<u></u>		
	<u> </u>		 			,	
					· · · · · · · · · · · · · · · · · · ·		
Ourselles Auton							
Corrective Action							•
							