3R - 017

AGWMR

AUGUST 2010

3R017

BP AMERICA PRODUCTION CO.

GROUNDWATER REMEDIATION REPORT

GCU #153E (C) SECTION 28, T29N, R12W, NMPM SAN JUAN COUNTY, NEW MEXICO

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

DECEMBER 2010

PREPARED BY: BLAGG ENGINEERING, INC.

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

BP AMERICA PRODUCTION COMPANY GCU # 153E NE¹/₄ NW¹/₄, Sec. 28, T29N, R12W

Monitor Well Sampling Dates:

5/26/09, 12/28/09, 3/2/10, 5/10/10, 7/21/10, 10/21/10

Pit Closure & Background:

A site earthen dehydrator pit closure was initiated in December 1994 by removing impacted soil via excavation. Documentation for this work and subsequent groundwater monitoring data for the site was previously submitted to the New Mexico Oil Conservation Division (**NMOCD**) for review. The reporting herein is for site monitoring conducted in 2009 and 2010.

Groundwater Monitor Well Sampling Procedures:

Groundwater monitor well MW #3R was purged of its well bore using a new disposable bailer, then given a sufficient amount of time to allow recovery prior to sample collections. The groundwater samples were collected following US EPA: SW-846 protocol, were placed into laboratory supplied containers with appropriate preservative, and stored in an ice chest for express delivery to an analytical laboratory for testing under strict chain-of-custody procedures. Analytical testing for benzene, toluene, ethylbenzene, and total xylenes (**BTEX**) by US EPA Method 8021B was conducted.

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

Water Quality and Gradient Information:

Bi-annual sampling of the groundwater monitor well MW #3R was conducted in 2009 and quarterly in 2010. A historical summary of laboratory analytical results is included within the table on the following pages and field/laboratory reports are included.

Groundwater contour maps (Figure 2 through Figure 7) reveal the relative elevations from the site wells have consistently shown an apparent southwest flow direction.

Summary and/or Recommendations:

Continued site monitoring per BP's NMOCD approved Ground Water Management Plan is recommended. Hydrocarbon impacts appear to be in a steady state condition. If warranted, alternative remedial actions will be evaluated.

Blagg Engineering, Inc. Consulting Engineers

BP AMERICA PROD. CO. GROUNDWATER LAB RESULTS SUBMITTED BY BLAGG ENGINEERING, INC.

GCU # 153E UNIT C, SEC. 28, T29N, R12W

REVISED DATE: November 2, 2010 FILENAME: (15-4Q-10.WK4) NJV

								BTE		HOD 8021B	(dqq)
SAMPLE	MONITOR	D.T.W.	T.D.	TDS	COND.	pН	PRODUCT			Ethyl	Total
DATE	WELL No:	(ft)	(ft)	(ft)	(umhos/cm)	•	(ft)	Benzene	Toluene	Benzene	Xylene
08-Mar-96	MW #1A	14.95	20.00	4,460	3,200	7.2		ND	0.73	ND	ND
12-Jan-93	MW #2A	11.50	15.83	4,460	5,700	6.6		11.5	12.1	ND	54.0
05-May-93		10.34			3,400	6.6		14.0	6.9	10.9	20.1
01-Sep-93		11.54		-	2,800	7.1		700	10.4	244	82.9
01-Dec-93		11.42			4,800	7.0		. 118	1.6	76.0	44.7
08-Mar-94		11.01			4,600	7.2		24.1	8.5	24.5	29.3
27-Jun-94		11.14			4,000	6.9		350	13.2	126	ND
21-Sep-94		11.80	•		3,500	6.9		328.7	13.3	140.8	1.5
16-Dec-94		11.55			3,800	7.1		6.7	9.6	1.1	8.7
15-Mar-95		11.15			4,400	6.8		1.7	5.0	ND	3.8
16-Jun-95		10.82			4,000	6.9		36.5	5.4	17.6	7.2
11-Sep-95		11.39			3,100	7.2		239	17.0	168	35.6
08-Dec-95		11.44			3,800	6.8		50.2	9.99	10.3	5.84
08-Mar-96		11.08			2,700	6.7		1.08	ND	2.71	0.87
17-Jun-96	1	11.30			2,700	6.9		230	10.2	77.7	32.54
25-Jun-97		10.52			2,600	6.8		522	6.6	82.6	44.6
12-Jun-98		10.59			2,400	7.3		125	7.3	22.7	44.7
28-May-99		10.05			2,700	6.8		185	47.8	44.1	73.4
26-May-00		10.10			3,500	7.0		220	· ND	96	15
28-Jul-01		10.87			3,700	7.26		66	ND	24	31
11-Mar-02		10.80			4,600	6.86		ND	ND	2.1	ND
21-Jun-02		11.18			4,700	7.63		63	ND	28	29.8
30-Jun-03		10.74			2,900	6.81		41	5.3	30	36
25-Jun-04		10.78			2.900	6.81		7.6	ND	3.5	5.5
22-Dec-04		11.03			N/A	N/A		ND	ND	ND	ND
29-Mar-05	···-	9.85			3.100	6.73		ND	ND	ND	ND
12-Jan-93	MW #3A	11.40			6,800	7.0		706.000	6,438,000	3.684.000	13.999.000
05-May-93		10.38			4,900	7.0		8.200	2.210	1.070	4.340
01-Sep-93		11.44	16.00		5.400	7.1		8,300	800	660	2.750
01-Dec-93		11.33					0.02				
08-Mar-94		11.03					0.03				
27-Jun-94							0.02				
21-Sep-94				_			0.01				
16-Dec-94		11.97	-				0.48				
28-Jun-95	WP #3B	11.73	15.00		6,500	7.4		1946.7	1734.5	434.3	3,150
11-Sep-95		12.14			8,400	7.8		752	102	427	1,386
08-Dec-95	· · · · ·	12.15			4,800	6.2	· ·	772	70.1	208	2,070
08-Mar-96		11.78			4,000	6.1		775	156	259	2,480
17-Jun-96		11.77			4,800	6.4		764	196	184	1,515
25-Jun-97		11.25			3,400	6.3		1,940	167	143	727
12-Jun-98		11.22			3,700	6.6		276	68.4	85.3	457.8
28-May-99		11.56			3,900	6.5		178	98.0	50.5	250.3
		NMWQ	CC GRC	UNDW	ATER ST.		ARDS	10	750	750	620

BP AMERICA PROD. CO. GROUNDWATER LAB RESULTS SUBMITTED BY BLAGG ENGINEERING, INC.

GCU # 153E UNIT C, SEC. 28, T29N, R12W

REVISED DATE: November 2, 2010 FILENAME: (15-4Q-10.WK4) NJV

								BTEX		10D 8021B ((ppb)
SAMPLE	MONITOR	D.T.W.	T.D.	TDS	COND.	pН	PRODUCT			Ethyl '	Total
DATE	WELL No:	(ft)	(ft)	(ft)	(umhos/cm)		(ft).	Benzene	Toluene	Benzene	Xylene
13-Jun-00	MW #3R	10.88			7,600	7.0		360	16	720	1,234
28-Jul-01		11.72			8,600	7.25		520	35	350	757
11-Mar-02		11.70			9,700	7.14		120	6.9	110	225
21-Jun-02		11.90			8,800	7.69		310	ND	300	551
30-Jun-03		11.39			5,200	7.11		300	ND	76	170
25-Jun-04		10.51			5,200	7.11		120	ND	44	63
27-Jun-05		10.78			6,200	7.00		160	12	54	84
29-Jun-06		11.51			7,800	6.93		470	39	170	180
25-Jun-07		10.70			6,000	6.94		180	ND	24	24
09-Jun-08		10.66			3,300	7.24		71.6	5.9	9.1	13.6
27-Aug-08		11.47			6,000	7.37		58	ND	4.7	9.3
26-May-09		11.10			5,200	7.50		63	ND	ND	ND
28-Dec-09		11.70			5,600	7.52		8.3	ND	ND	ND
02-Mar-10		11.05			4,400	7.53		66	ND	ND	ND
10-May-10		10.57			4,700	7.49		47	ND	ND	ND
21-Jul-10		11.45		•	7,900	7.48		38	ND	2.3	6.3
21-Oct-10		12.18			6,400	7.15		11	ND	1.6	3.3
08-Mar-96	MW #4A	10.59	13.05		3,600	7.4		ND	ND	ND	ND
08-Mar-96	MW #5A	11.75	14.04	٠	12,300	7.8		ND	1.14	ND	ND
12-Jan-93	MW #7A	12.42			12,400	7.3		ND	0.5	ND	1.1
05-May-93		10.56			10,600	7.5		ND	ND	ND	0.5
01-Sep-93		11.90	16.60		10,700	7.5		0.2	ND	ND	0.8
08-Mar-94		11.10			16,800	7.3		ND	ND	ND .	ND
27-Jun-94		11.23			13,700	7.3		ND	ND	ND	ND
21-Sep-94		12.30			13,100	7.3		0.8	1	ND	2.2
16-Dec-94		11.69			9,600	7.5		ND	ND	ND	ND
15-Mar-95		11.21			18,400	7.5		ND	ND	ND	ND
16-Jun-95		10.88			12,200	7.4		ND	ND ·	ND	ND
11-Sep-95		11.64			11,200	7.7		1.1	0.6	0.5	1.0
08-Dec-95	· · ·	11.50			10,800	7.4		ND	ND	ND	ND
08-Mar-96		11.18			8,300	7.3		ND	ND	ND	ND
17-Jun-96		11.28			9,000	7.4		ND	ND	ND	ND
28-Jul-01		10.87			8,300	7.59		ND	ND	ND	ND
08-Mar-96	MW #11A	12.10	20.17		3,100	6.9		ND	ND	ND	ND
08-Mar-96	MW #12A	10.76	19.79		2,800	7.0		ND	ND	ND	ND
		NMWQ	CC GRO	UNDW	ATER ST.	AND/	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).















BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N / A

LABORATORY (S) USED : HALL ENVIRONMENTAL

GCU #153E

UNIT C, SEC. 28, T29N, R12W

Date : May 19, 2009

SAMPLER : NJV

PROJECT MANAGER :

NJV

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							-		
WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	(ft)	(ft)	(ft)	(ft)					(gal.)
2A	100.40	90.03	10.37	15.83	-	-	-	-	-
3R	100.80	89.70	11.10	20.00	0910	7.50	5,200	15.5	1.50
7A	99.72	89.41	10.31	16.31	-	-	-	-	-
			INSTRUM	ENT CALIB	RATIONS =	4.01/7.00/10.00	2,800		
• •	•			DAT	E & TIME =	05/16/09	0810		۰.

NOTES: <u>Volume of water purged from well prior to sampling</u>; $V = pi X r^2 X h X 7.48 gal./ft3) X 3 (wellbores).$ (i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

Poor / fair recovery in MW # 3R. Bailed MW # 3R to total depth, then allowed recovery to approx. 15.00 ft. prior to collecting sample. Collected sample for BTEX per US EPA Method 8021B from from MW # 3R only.

on-site	8:44	temp	63 F
off-site	9:23	temp	66 F
sky cond.	Mostly	sunny	
wind speed	0 - 5	direct.	North

Hall Envir	conmental Analys	is Labor	atory, I	nc.	Date: 08-Ju	n-09
CLIENT:	Blagg Engineering			Client Sample I	D: MW #3R	
Lab Order:	0905496			Collection Da	te: 5/26/2009	9:10:00 AM
Project:	GCU #153E			Date Receive	ed: 5/27/2009)
Lab ID:	0905496-01			Matr	ix: AQUEOU	JS
Analyses	• • •	Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD	8021B: VOLATILES			······································		Analyst: DAM
Benzene		63	10	µg/L	10	6/5/2009 6:52:46 PM
Toluene		ND	10	µg/L	10	6/5/2009 6:52:46 PM
Ethylbenzene		ND	10	µg/L	. 10	6/5/2009 6:52:46 PM
Xylenes, Total		ND	20	μg/L	10	6/5/2009 6:52:46 PM
Surr: 4-Brom	ofluorobenzene	95.0	65.9-130	%REC	10	6/5/2009 6:52:46 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

		www.nalienvironmental.com 4901 Hawkins NE - Albuqueroue, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request	(les (////////////////////////////////////	€(802) •(802) •(802) •(802)	1) 3085 40 ⁵¹ 1) 1)	1 + <th>8 b 8 b 8 b 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0</th> <th>THX-(X) THX-(X) THX-(X) TPH (Metho TPH (Metho TPH (Metho TPH (Metho TPH (Metho TPH (Metho S) TPH (Metho S) TPH (Metho S) S) S) S) S) S) S) S) S) S) S) S) S)</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Remarks:</th> <th></th> <th>is possibility. Any sub-contracted data will be clearly notated on the anabrical record</th>	8 b 8 b 8 b 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	THX-(X) THX-(X) THX-(X) TPH (Metho TPH (Metho TPH (Metho TPH (Metho TPH (Metho TPH (Metho S) TPH (Metho S) TPH (Metho S) S) S) S) S) S) S) S) S) S) S) S) S)								Remarks:		is possibility. Any sub-contracted data will be clearly notated on the anabrical record
🕱 Standard 🛛 Rush	Project Name:	GOU # 153E	Project #:		Project Manager:	NELSON VELEZ	Sampler: NEUSON VEUEZ	Onitice the state of the state	Sample Vergenation of the state	Container Preservative Type and # Type	40m/-2 Hcl -1							Received by: Date Time	Received by:	intracted to other accredited laboratories. This serves as notice of this
AGE ENGR. / BP America		Iress: P. O. BOX 87	ELTC. NW 87413	632-1199	· · · · · · · · · · · · · · · · · · ·	age:		(be)		ime Matrix Sample Request ID	910 WATER MW # 3R							15 Relinquished by	e: Relinquished by:	ssary, samples submitted to Hall Environmental may be subcon
Client: R		Mailing Add		Phone #:	email or Fa:	QA/QC Pack	Other			Date	5/26/090 ;						i	- 1 mete: 1 mete:	Date: Time	If nece:

QA/QC SUMMARY REPORT

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- Q1	iciii;

Blagg Engineering

Project: GCU #153E Work Order: 0905496 Analyte Result Units PQL %Rec LowLimit HighLimit %RPD **RPDLimit** Qual Method: EPA Method 8021B: Volatiles Sample ID: 5ML RB MBLK Batch ID: R33978 Analysis Date: 6/5/2009 8:52:07 AM Benzene ND µg/L 1.0 Toluene ND 1.0 µg/L Ethylbenzene ND µg/L 1.0 Xylenes, Total ND 2.0 µg/L 6/5/2009 7:23:20 PM Sample ID: 100NG BTEX LCS LCS Batch ID: R33978 Analysis Date: 96.6 85.9 113 Benzene 19.32 µg/L 1.0 Toluene 19.52 µg/L 1.0 97.6 86.4 113 Ethylbenzene 83.5 19.52 97.6 118 1.0 µg/L 83.4 122 Xylenes, Total 59.44 µg/L 2.0 99.1 Sample ID: 100NG BTEX LCSD LCSD Batch ID: R33978 Analysis Date: 6/5/2009 7:53:53 PM Benzene 98.0 85.9 113 1.49 27 19.61 µg/L 1.0 Toluene 113 0.918 19 19.70 1.0 98.5 86.4 µg/L 0.613 10 Ethylbenzene 19.64 µg/L 1.0 98.2 83.5 118 Xylenes, Total 98.8 83.4 / 122 0.253 13 59.29 µg/L 2.0

Qualifiers:

J

R

- E Estimated value
 - Analyte detected below quantitation limits
 - RPD outside accepted recovery limits

- н
- H Holding times for preparation or analysis exceeded
 - ND Not Detected at the Reporting Limit
 - S Spike recovery outside accepted recovery limits

J

Sam	ple Receipt Cl	necklist	•	
Client Name BLAGG		Date Recei	ved:	5/27/2009
Work Order Number 0905496		Received	by: TLS	June -
10	5b	Sample ID	labels checked by:	
Signature		101		muais
Matrix: Carrier nar	me LIPS	·		
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 preserve
Water - VOA vials have zero headspace? No VOA vials s	ubmitted	Yes 🗹	No 🗔	bottles checked for pH:
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
Container/Temp Blank temperature?	4.9°	<6° C Accept	able	DƏIOW.
COMMENTS:		If given sufficie	ent time to cool.	
· · ·	•			
Client contacted Date contacted:			erson contacted	
Contacted by: Regarding:			·	
	<u>· ·.</u>			
			,	
- <u>- , , , , , , , , , , , , , , , , , ,</u>				
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Corrective Action	· · · · · · ·		·	· · · · · · · · · · · · · · · · · · ·
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BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP_AMERICA_PROD. CO.

CHAIN-OF-CUSTODY # : N / A

GCU # 153E

<u>UNIT C, SEC. 28, T29N, R12W</u>

Date : December 28, 2009

SAMPLER : N J V PROJECT MANAGER : N J V

LABORATORY (S) USED : HALL ENVIRONMENTAL

Filename : **12-28-09.WK4**

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	(ft)	(ft)	• (ft)	(ft)					(gal.)
2A	100.40	89.37	11.03	15.83	-	-	-	· _	-
3R	100.80	89.10	11.70	20.00	1440	7.52	5,600	11.2	1.75
7A	99.72	88.76	10.96	16.31	-	-	-	-	-
ż	· · ·		INSTRUM	ENT CALIE	BRATIONS =	4.01/7.00/10.00	2,800		
						12/28/09	1320		

NOTES: <u>Volume of water purged from well prior to sampling</u>; $V = pi X r^2 X h X 7.48 gal./ft3) X 3 (wellbores).$ (i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 ".

Poor / fair recovery in MW # 3R. Bailed MW # 3R to total depth, then allowed recovery to approx. 13.00 ft. prior to collecting sample. Collected sample for BTEX per US EPA Method 8021B from from MW # 3R only.

May 19, 2009

on-site	1:52	temp	32 F
off-site	2:58	temp	33 F
sky cond.	Mostly	cloudy	
wind speed	0 - 5	direct.	Е

Date: 05-Jan-10

CLIENT:	Blagg Engineering	Client Sample ID: MW #3R
Lab Order:	0912561	Collection Date: 12/28/2009 2:40:00 PM
Project:	GCU #153E	Date Received: 12/29/2009
Lab ID:	0912561-01	Matrix: AQUEOUS

Analyses	Kesult	PQL Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	8 .3	5.0	µg/L	5	12/31/2009 2:37:01 AM
Toluene	ND	5.0	µg/L	5	12/31/2009 2:37:01 AM
Ethylbenzene	ND	5.0 [`]	µg/L	5	12/31/2009 2:37:01 AM
Xylenes, Total	ND	10	µg/L	5	12/31/2009 2:37:01 AM
Surr: 4-Bromofluorobenzene	99.5	65.9-130	%REC	5	12/31/2009 2:37:01 AM

Qualifiers:

*

E Estimated value

- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Value exceeds Maximum Contaminant Level

- 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

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The second	Rush		く # 120			ager:	SON VEN	UZISON V	peratine	Preservative Type	Hel t COOL										07:UI	
Tum-Anound	X Standaro	Project Nam	P P	Project #:		Project Mana	NEC	Sampler: /	Sample Tem	Container Type and #	2 - 40m		-						_	C.	Redaived by	Referenced by:U
stody Record	2. BP AMERICA		10X 87	SITT 87413	1 632-1199		2 Level 4 (Full Validation)			Sample Request ID	MW #3R									-	pr. 11	by: J
	E ENGR		P.O. 6	BLFD.	(sas)					Matrix	NER										Relinquished	Rélinquished
	8r.46		Address		#	r Fax#:	Package: dard		' (adkı) ı	Time	Ohhi			T							Time: 1500	Time:
	Client:		Mailing		Phone :	email o	QA/QC			Date	128/07										nate: 2/28/09	Date:

QA/QC SUMMARY REPORT

CI	j	21	n	t:	
			_	- 4	

Blagg Engineering

GCU #153E roject: ·· Work Order: 0912561 Result Units PQL SPK Va SPK ref %Rec LowLimit HighLimit %RPD RPDLimit Qual Analyte EPA Method 8021B: Volatiles lethod: ample ID: 5ML RB MBLK Batch ID: R36771 Analysis Date: 12/30/2009 8:55:29 AM Benzene ND µg/Ŀ 1.0 oluene ND µg/L 1.0 thylbenzene ND µg/L 1.0 ylenes, Total ND µg/L 2.0 Analysis Date: ample ID: 100NG BTEX LCS LCS Batch ID: R36771 12/30/2009 7:32:46 PM 0 enzene 20.55 μg/L 1.0 103 85.9 113 20 oluene 21.01 1.0 20 0 105 86.4 113 µg/L Ethylbenzene 20.64 µg/L 1.0 20 0.1 103 83.5 118 122 ylenes, Total 62.32 µg/L 2.0 60 0 104 83.4 ample ID: 100NG BTEX LCSD 12/30/2009 8:03:02 PM Batch ID: R36771 LCSD Analysis Date: lenzene 19.64 µg/L 1.0 20 0 98.2 85.9 113 4.51 27 oluene 19.63 µg/L 1.0 20 0 98.2 86.4 113 6,75 19 thylbenzene 19.16 0.1 95.3 83.5 118 7.45 10 µg/L 1.0 20 ylenes, Total 0 83.4 58.67 µg/L 2.0 60 97.8 122 6.04 13

Qualifiers:

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Estimated value Analyte detected below quantitation limits RPD outside accepted recovery limits

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Page 1

3

/*			• • • •
le Receipt	Checklist		
	Date Rec	elved:	12/29/2009
12	Receive 2909 aie	d by: ARS ID labels checked b	by: 15
e: <u>Greyhour</u>	nd		
Yes 🗹	No 🗌	Not Present	
Yes 🗹	No 🗌	Not Present	Not Shipped
Yes 🗌	No 🗌	N/A	
Yes 🗹	No 🗔		
Yes 🗹	No 🗌		
Yes 🗹	No 🗌	÷	
Yes 🗹	No 🗌		
Yes 🗹	No 🗔		
Yəs 🗹	No 🗔		
Yes 🗹	No 🗔		Number of preserve
bmitted	Yes 🔽	No 🗔	potites checked for pH:
Yes 🗌	No 🗆	N/A 🗹	· · · · · · · · · · · · · · · · · · ·
Yes 🗌	No 🗔	N/A	<2 >12 unless noted
2.8°	<6° C Accep	otable	Delow.
	If given suffic	ient time to cool.	
		·	
			•.
	F	erson contacted	
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	Image:	Ie Receipt Checklist Date Receive Image: Receive Image: Sample Image:	Ie Receipt Checkiist Date Received: Received by: ARS J_J_J_J_J_J_ Sample ID labels checked to bail J_J_J_J_J_J_J_ e: Greyhound Yes No Yes Yes Yes Yes Yes Yes

Date: 05-Jan-10

CLIENT:Blagg EngineeringProject:GCU #153ELab Order:0912561

(

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_W, SAMPLE 0912561-01A: Necessary dilution for foamy matrix.

BLAGG ENGINEERING. INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP_AMERICA_PROD._CO.

CHAIN-OF-CUSTODY # : N/A

GCU #153E

LABORATORY (S) USED : HALL ENVIRONMENTAL

UNIT C, SEC. 28, T29N, R12W

Date : March 2, 2010

Filename : 03-02-10.WK4

SAMPLER : PROJECT MANAGER :

ŊJŴ

NJV

		1	-,,				,		
WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	(ft)	(ft)	(ft)	(ft)					(gal.)
2A	100.40	89.98	• 10.42	15.83	-	-	-	- ·	-
3R	100.80	89.75	11.05	20.00	1415	7.53	4,400	14.5	2.00
7 A	99.72	89.49	10.23	16.31	-	-	-	-	-
			INSTRUM	ENT CALIB	RATIONS =	4.01/7.00/10.00	2,800		

DATE & TIME = || 03/01/10 1215

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores). (i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 ".

Poor / fair recovery in MW # 3R. Bailed MW # 3R to total depth, then allowed recovery to approx. 11.70 ft. prior to collecting sample . Collected sample for BTEX per US EPA Method 8021B from from MW #3R only.

on-site	1:30	temp	52 F
off-site	2:30	temp	53 F
sky cond.	Mostly	sunny	
wind speed	0 - 5	direct.	Е

Date: 09-Mar-10

CLIENT: Lab Order: Project:	Blagg Engineering 1003073 GCU #153E	-		Client Sample I Collection Date	D: MW #3R e: 3/2/2010	2:15:00 PM
Lab ID:	1003073-01		• •	Matri	x: AQUEOU	JS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD	8021B: VOLATILES					Analyst: NSB
Benzene		66	10	μg/L	10	3/8/2010 11:52:07 AM
Toluene		ND	10	μg/L	10	3/8/2010 11:52:07 AM
Ethylbenzene	•	ND	10	μg/L	10	3/8/2010 11:52:07 AM
Xylenes, Total		ND	20	μg/L	10	3/8/2010 11:52:07 AM
Surr: 4-Brom	ofluorobenzene	97.8	65. 9 -130	%REC	10	3/8/2010 11:52:07 AM

Qualifiers:

- Value exceeds Maximum Contaminant Level
- Estimated value Е
- Analyte detected below quantitation limits J
- NC Non-Chlorinated

*

Practical Quantitation Limit PQL

Н Holding times for preparation or analysis exceeded

В

- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- Spike recovery outside accepted recovery limits S

Analyte detected in the associated Method Blank

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	□ Rush		× ₩ 153		. •	iger,	NELSON	VELSON V	<u>y</u> Oves and Jeranne av	Preservative Type	Hid of										3/3/4	-	coredited laboratories
	X Standard	Project Name	ry Ger	Project #:		Project Mana		Sampler. /	Ouvlice: ************************************	Container Type and #	2-40m										Received by:	Received	ontracted to other ac
	. / BP AMERICA		80X 87	UNCS WN	32-1199		Level 4 (Full Validation)			Sample Request ID	mw # 3R										my (1)		tted to Hall Environmental may be subor
5 P	ENGR		P.O.	RLFD.	505) 6					Matrix	NATER										Relinquishe	Kellinquisnec	samples submi
	99478		Address		¥	r Fax#:	Package: dard	2	(Type)	Time	1415			-							Time: /500		necessary,
	Client		Mailing		Phone :	email o	QA/QC X Stan			Date	3/2/10									-	3/2/10	Lale.	E

QA/QC SUMMARY REPORT

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Blagg Engineering

Project: GCU #153E	<u> </u>							Work	Order:	1003073
Analyte	Result	Units	PQL	SPK Va SPK re	f %Rec L	.owLimit Hi	ghLimit	%RPD	RPDLimi	t Qual
Method: EPA Method 8021B: \	/olatiles	:- ·	•							
Sample ID: 5ML RB		MBLK			Batch ID:	R37664	Analys	sis Date:	3/5/2010) 9:16:26 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: b 5		MBLK			Batch ID:	R37677	Analys	sis Date:	3/8/2010	11:21:44 AŃ
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	Analys	is Date:	3/5/2010) 8:43:42 PN
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	57.3 9	µg/L	2.0	60 0	95.7	83.4	122			
Sample ID: 100NG BTEX LCS		LCS			Batch ID:	R37677	Analys	is 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	Analys	is 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:

J

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

Date: 09-Mar-10

	Sample	Rec	eipt Che	ocklist		
Client Name BLAGG	•		•	Date Receive	d:	3/3/2010
Work Order Number 1003073				Received by	r: TLS	۵.
Checklist completed by:			5 / 5 / 1 Date	Sample ID la	abels checked by:	
Matrix:	Carrier name:	UPS	Ł			
Shipping container/cooler in good condition?		Yes		No 🗔	Not Present	
Custody seals intact on shipping container/cool	er?	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
Water - VOA vials have zero headspace?	No VOA vials subr	nitted		Yes 🗹	No 🗍	pH:
Water - Preservation labels on bottle and cap m	atch?	Yes		Νο	N/A 🔽	
Water - pH acceptable upon receipt?	•	Yes		Νο	N/A 🔽	<2 >12 unless noted
Container/Temp Blank temperature?		1.	. 9°	<6° C Acceptab If given sufficient	<i>le</i> t time to cool.	Delow,
		,				
Client contacted	Date contacted:			Pers	on contacted	
Contacted by:	Regarding:					·
Comments:					<u>.</u>	
Corrective Action						
· · · · · · · · · · · · · · · · · · ·			1.			

BLAGG ENGINEERING. INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N/A

GCU #153E

LABORATORY (S) USED : HALL ENVIRONMENTAL

UNIT C, SEC. 28, T29N, R12W

Date : May 10, 2010

Filename : 05-10-10.WK4

SAMPLER: NJV **PROJECT MANAGER:**

NJV

							-		
WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	рĤ	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
· · · · ·	(ft)	(ft)	(ft)	(ft)					(gal.)
2A	100.40	90.35	10.05	15.83	-	-	-	-	-
3R	100.80	90.23	10.57	20.00	1040	7.49	4,700	14.8	2.00
7A	99.72	89.87	9.85	16.31	-	-	-		-
			INSTRUM	ENT CALIB	RATIONS =	4.01/7.00/10.00	2,800		

DATE & TIME = 05/10/10 0915

NOTES : <u>Volume_of_water_purged_from_well_prior_to_sampling; V = pi X r2 X h_X 7.48 gal./ft3) X 3 (wellbores).</u> (i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

Poor / fair recovery in MW # 3R. Bailed MW # 3R to total depth, then allowed recovery to approx. 12.85 ft. prior to collecting sample . Collected sample for BTEX per US EPA Method 8021B from from MW #3R only.

on-site	10:02	temp	54 F
off-site	10:50	temp	57 F
sky cond.	Sunny / partly	cloudy	
wind speed	0 - 10	direct.	WSW

Date: 24-May-10

CLIENT:Blagg EngineeringClient Sample ID:MW #3RLab Order:1005292Collection Date:5/10/2010 10:40:00 AMProject:GCU #153EDate Received:5/12/2010Lab ID:1005292-01Matrix:AQUEOUS

Analyses	Result	rų, ų	ual Units	Dr	Date Analyzed
EPA METHOD 8021B: VOLATILES	····				Analyst: NSB
Benzene	47	10	µg/L	10	5/20/2010 6:16:11 PM
Toluene	ND	10	µg/L	10	5/20/2010 6:16:11 PM
Ethylbenzene	ND	10	µg/L	10	5/20/2010 6:16:11 PM
Xylenes, Total	ND	20	µg/L	10	5/20/2010 6:16:11 PM
Surr: 4-Bromofluorobenzene	88.7	65.9-130	%REC	10	5/20/2010 6:16:11 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

2

- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

	NMEN I AL 30RATORY		M 87109	4107		ACV. (AOV-ime2) 07S8																	
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- Un-Alound	X Standard	Project Name	Ъ	Project #:		Project Mana	NEW		Sampler: //	Sample Temp	Container Type and #	2-40ml										Repaired by:	Received by:
stody Record	(BP AMER -A		80X 87	SITTER MAN	32-1199			Level 4 (Full Validation)			Sample Request ID	MW #3R								-	-	the US	d by: 🖉
	ENGL		10.0	ELFD.	55 EJ			_	□ Other		Matrix	WRIER				·						Relinquishe	Relinquishe
han	2466		Address.		#: 50	r Fax#:	Package:	ndard	itation AP	(Type)	Time	1040										Time:	Time:
	Client		Mailing		Phone	email o	QAVQC	Star.	Accred		Date	5/0/10	-									Date:	Date:

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Blagg Engineering GCU #153E

Work Order: 1005292

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
ethod: EPA Method 8021B: V	olatiles									· · · ·	
ample ID: 5ML RB		MBLK				Batch ID:	R38838	Analysis	Date:	5/20/2010 9	9:10:09 AN
enzene	ND	µg/L	1.0								
oluene	ND	µg/L	1.0								
thylbenzene	ND	µg/L	1.0			•					
ylenes, Total	ND	µg/L	2.0								
ample ID: 100NG BTEX LCS		LCS				Batch ID:	R38838	Analysis	Date:	5/20/2010 8	3:48:11 PN
enzene	20.66	µg/L	1.0	20	0	103	87.9	121			
pluene	19.36	µg/L	1.0	20	Ö	96.8	83	124			
thylbenzene	19.10	μg/L	1.0	20	0.134	94.8	81.7	122			
ylenes, Total	59.26	µg/L	2.0	60	0	98.8	85.6 /	121			
ample ID: 100NG BTEX LCSD		LCSD				Batch ID:	R38838	Analysis	Date:	5/20/2010 9):18:30 PN
enzene	20.59	µg/L	1.0	20	0	103	87.9	121	0.330	14.6	
oluene	19.61	µg/L	1.0	20	0	98.1	83	124	1.29	18-	
hylbenzene	19.55	µg/L	1.0	20	0.134	97.1	81.7	122	2.33	15.8	
vlenes, Total	60.09	µg/L	2.0	60	0	100	85.6	121	1.39	15.9	

alifiers:

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

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated

3

R RPD outside accepted recovery limits

Page 1

Date: 24-May-10

	Sample Re	ceipt Chec	klist	· ·	
Client Name BLAGG		l	Date Receive	d:	5/12/2010
Work Order Number 1005292	(1	Received by	: ARS	21
Checklist completed by:	(5/12/1	Sample ID la	bels checked by:	Initials
Matrix:	Carrier name: <u>Gre</u>	eyhound			
Shipping container/cooler in good condition?	Yes	s 🗹	No 🔲	Not Present	
Custody seals intact on shipping container/cooler	? Yes	s 🗹	No 🗌	Not Present	Not Shipped
Custody seals intact on sample bottles?	Yes	3	No 🗌	N/A	
Chain of custody present?	Yes	s 🖌	No 🗌	•	
Chain of custody signed when relinquished and re	sceived? Yes	s 🗹	No 🗌		
Chain of custody agrees with sample labels?	Yes		No 🗌		
Samples in proper container/bottle?	Yes				
Sample containers intact?	Yes		No 🗍		
Sufficient sample volume for indicated test?	Yes	. 🔽	No 🗔		
All samples received within holding time?	Yes		No 🔲		Number of preserved
 Water - VOA vials have zero headspace?	No VOA vials submitted	П у	'es 🗹	No 🗔	bottles checked for pH:
Water - Preservation labels on bottle and cap mat	tch? Yes		No 🗌	N/A 🗹	
Water - pH acceptable upon receipt?	Yes		No 🗌	N/A 🗹	<2 >12 unless noted
Container/Temp Blank temperature?	3	.4° <6⁴ If g	°C Acceptable	e time to cool.	
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			(
1 1					
Client contacted D	ate contacted:		Perso	n contacted	
Contacted by:	egarding:			•	
Commente:	•				
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Corrective Action					
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Date: 24-May-10

CLIENT:Blagg EngineeringProject:GCU #153ELab Order:1005292

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_W, SAMPLE 1005292-01A: Necessary dilution for foamy matrix.

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT: BP AMERICA PROD. CO.

N/A CHAIN-OF-CUSTODY # :

GCU #153E

UNIT C, SEC. 28, T29N, R12W

Date : July 21, 2010

Filename : 07-21-10.WK4

SAMPLER: NJV

LABORATORY (S) USED : HALL ENVIRONMENTAL

PROJECT MANAGER :

N	T	\mathbf{V}
IN	J	v

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	ρН	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
ŭ	(ft)	(ft)	(ft)	(ft)					(gal.)
2A	100.40	89.61	10.79	15.83	-		-	-	-
3R	100.80	89.35	11.45	20.00	1530	7.48 ·	7,900	24.0	1.50
7A	99.72	88.31	11.41	16.31	-	-	-	-	-
			INSTRUM	BRATIONS =	4.01/7.00/10.00	2,800			

DATE & TIME = || 07/20/10 | 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".

Poor / fair recovery in MW #3R. Bailed MW #3R to total depth, then allowed recovery to approx. 15.00 ft. prior to collecting sample . Collected sample for BTEX per US EPA Method 8021B from from MW #3R only.

on-site	2:28	temp	93 F
off-site	3:40	temp	93 F
sky cond. S	unny / partly	cloudy	
wind speed `	0 - 10	direct.	S - W

Date: 28-Jul-10

CLIENT:Blagg EngineeringLab Order:1007843Project:GCU #153ELab ID:1007843-01

Client Sample ID: MW #3R Collection Date: 7/21/2010 3:30:00 PM Date Received: 7/23/2010 Matrix: AQUEOUS

Analyses	Result PQL Qual U		Units	DF	Date Analyzed					
EPA METHOD 8021B: VOLATILES					Analyst: NSB					
Benzene	38	1.0	µg/L	1	7/27/2010 3:30:23 AM					
Toluene	ND	1.0	µg/L	1	7/27/2010 3:30:23 AM					
Ethylbenzene	2.3	1.0	µg/L	1	7/27/2010 3:30:23 AM					
Xylenes, Total	6.3	2.0	µg/L	1	7/27/2010 3:30:23 AM					
Surr: 4-Bromofluorobenzene	123	65.9-130	%REC	1	7/27/2010 3:30:23 AM					

Qualifiers:

Ε

- * Value exceeds Maximum Contaminant Level
- J Analyte detected below quantitation limits
- NC Non-Chlorinated

Estimated value

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

	Date:	$\frac{Date:}{22/7}$												1/21/10	Date			Accredit	QAVQC P	email or	Phone #		Mailing /		Client:	<u>Ω</u>
	Time:	Time: 1530												530	Time	(Type)	5	ation	ackage: lard	Fax#:			Address:		4966	hain-
	Relinquish	Relinquish].					in M A A A A A A A A A A A A A	Matrix		D Othe				505	817	10		AND A	of-Cu
	ied by:	Mr VI												inu #3R	Sample Request ID				Level 4 (Full Validation)		632-1199	P. NM 87413	, 86X 87		K. / BP AMERICA	istody Record
	Received by	Received by												HOM - 2	Container Type and #	Sample Telu	Onter of	Sampler:		Project Mana		Project #:	GC	Project Name	X Standard	Turn-Around
		7/23/40												1005	Preservative Type	peratures		VEISA	VELSON	iger:			× # ~ U U	, <u>e</u>	C Rush	Time:
	Date Time	Date Time														C D D D D D D D D D D D D D D D D D D D		12127	Vere 2	, / 7 10			ň	\$		
		Ren												K	BTEX-MT	BE	# TN	4B'	s (802	1 B)					 [-] [
		narks													BTEX + MT	BE	+ TF	PH	(Gas c	only)		Te	490			
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2						}	}			}			Ì		POP1 Dootio					~	s Re	5 0	luero	nme	เง รู	5
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															Air Bubbles	(Y	or N)								

QA/QC SUMMARY REPORT

Client:	Blagg Engineering
Project:	GCU #153E

Work Order: 1007843

Analyte	Result	Units	PQL	SPK Va SP	K ref	%Rec L	owLimit Hi	ghLimit %RPD	RPDLimit Quai
Method: EPA Method 8021B:	Volatiles								
Sample ID: 5ML RB		MBLK				Batch ID:	R40035	Analysis Date:	7/26/2010 9:47:15 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:	R40035	Analysis Date:	7/26/2010 12:19:12 PM
Benzene	19.22	μg/L	1.0	20	0	96.1	87.9	121	1.e
Toluene	20.45	μg/L	1.0	20	0	102	83	124	
Ethylbenzene	20.00	µg/L	1.0	20	0	100	81.7	122	
Xylenes, Total	60.28	μg/L	2.0	60	0	100	85.6	121	

Qualifiers:

Ε

J

ND

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

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Sam	ple Heceipt Cł	necklist		7/00/0040
		Date Receiv	ed:	7/23/2010
Work Order Number 1007843	Ĺ	Received b	y: TLS	K
Checklist completed by:	723 Date	Sample ID	labels checked by:	Initials
Matrix: Carrier nar	me: <u>Greyhound</u>			
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
Water - VOA vials have zero headspace? No VOA vials s	submitted	Yes 🗹	No 🗌	bottles checked for pH:
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
Container/Temp Blank temperature?	∕0.7°	<6° C Accepta	<i>ble</i> ht time to cool.	Delow.
COMMENTS:				-
			·	•
Client contacted Data contacted		Pa	son contacted	
		F¢i	Son contacted	
Contacted by: Regarding:	······	<u> </u>	······	
Comments:				
		<u></u>		
	<u></u>			
Corrective Action	··································	-		
· · · · · · · · · · · · · · · · · · ·	- -	· · ·		

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N / A

LABORATORY (S) USED : HALL ENVIRONMENTAL

GCU #153E

UNIT C, SEC. 28, T29N, R12W

Date : October 21, 2010

SAMPLER : NJV

PROJ

-

Fil	lename	:	10-21-10.WK4	

PROJECT	MANAGER	:

Ν	J	V	
 			_

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pH .	CONDUCT	TEMP.	VOLUME
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	(celcius)	PURGED
	(ft)	(ft)	(ft)	(ft)					(gal.)
2A	100.40	89.06	11.34	15.83	-		-	-	- <i>,</i>
3R	100.80	88.62	12.18	20.00	1315	7.15	6,400	20.4	1.75
7A	99.72	87.68	12.04	16.31	-	-	-	-	-
			INSTRUM	ENT CALIB	RATIONS =	4.01/7.00/10.00	2,800	,	
		X		DATE	= & TIME =	10/21/10	0940		

NOTES: <u>Volume of water purged from well prior to sampling: $V = pi X r^2 X h X 7.48 gal./ft3) X 3 (wellbores)</u>.$ (i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)</u>

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

Poor / fair recovery in MW # 3R. Bailed MW # 3R to total depth, then allowed recovery to approx. 14.50 ft. prior to collecting sample. Collected sample for BTEX per US EPA Method 8021B from from MW # 3R only.

on-site	12:10	temp	56 F
off-site	1:30	temp	57 F
sky cond.	Sunny / pa	rtly cloudy	
wind speed	0 - 5	direct.	calm

Date: 29-Oct-10

CLIENT:	Blagg Engineering			Clie	nt Sample ID:	MW #3R	
Lab Order:	1010A02			Co	llection Date:	10/21/201	0 1:15:00 PM
Project:	GCU #153E			D	ate Received:	10/22/201	0
Lab ID:	1010A02-01				Matrix:	AQUEOU	S
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD	8021B: VOLATILES	····					Analyst: NSB
Benzene		11	1.0		µg/L	1	10/28/2010 4:00:35 AM
Toluene		ND	1.0		µg/L	1	10/28/2010 4:00:35 AM
Ethylbenzene	•	1.6	1.0		µg/L	1	10/28/2010 4:00:35 AM
Xylenes, Total		3.3	2.0		µg/L	1	10/28/2010 4:00:35 AM
Surr: 4-Brom	ofluorobenzene	118	81.3-151		%REC	1	10/28/2010 4:00:35 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- Е Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

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

Page 1 of 1

		www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel 505-345-3075 Fax 505-245-4107	Analysis Request	26 ()) ⁴)	2382 OL (8021	/) 3085 4) 4) 4) 4) 4) 4) 4) 4) 4) 4) 4) 4) 4)	<pre>F + = = = = = = = = = = = = = = = = = =</pre>	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	BTEX+M BTEX+M BTEX+M TPH Metho TPH Metho B310 (PUA 8310 (PUA 8310 (PUA 8081 Pesti 8081 Pesti 8081 Pesti 8081 Pesti 8081 Pesti 8081 Pesti 8081 Pesti 8250 (Sem							Remarks:			of this scenifility. Any sub-sector data will be deret
Furn-Around Time:	🕱 Standard 🛛 🗆 Rush	Project Name:	601 # 123E	Project #:		Project Manager:	NEUSON VELEZ	Sampler: NELEZ	0n loomen kendûn de seren El Norr yen. A 11 ferren de seren 21 met		Container Preservative HEAL NO Type and # Type	Yonl-2 Helt						keceived by: Date Time	Nelizvali never ioizola	ceceived by: Date Time	tracted to other accredited laboratories. This cance as action
Chain-of-Custody Record	Client BLAGE ENGR. (BP ANERICA		Mailing Address: P. O. 80X 87	BLFD, NM 87413	Phone #: (505) 632 -1199	email or Fax#:	QA/QC Package: X Standard D l evel 4 (Full Validation)	Accreditation			Date Time Matrix Sample Request ID	9/2/16 1315 WATER MW # 3R						 Date: Time: Reinquished by:	Tallo 1350 JUNA VI		If necessary samples submitted to Half Environmental may be subcom

QA/QC SUMMARY REPORT

Blagg Engineering
CCU #152E

ient:

oject:

Work Order: 1010A02

Analyte .	Result	Units	POL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit %RF	PD RPDLimit Qual
ethod: EPA Method 8021B: V	'olatiles						· .		
ample ID: 5ML RB		MBLK		٠		Batch ID:	R41813	Analysis Date): 10/27/2010 9:16:43 AN
enzene	ND	µg/L	1.0	•					
luene	ND	µg/L	1.0			-			
hylbenzene	ND	µg/L	1.0						
lenes, Total	ND	µg/L	2.0						
mpte ID: 100NG BTEX LCS	· ,	LCS				Batch ID:	R41813	Analysis Date	10/27/2010 12:52:24 PN
nzene	20.85	µg/L	1.0	20	0	104	84.7	118	
pluene	21.96	μg/L	1.0	20	0	110 [·]	82	123	
hylbenzene	22.04	µg/L	1.0	20	0.096	110	83	118	•
llenes, Total	69.60	µg/L	2.0	60	0.	116	85.4	119	

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

Sampl	e Receipt C	hecklist		·
Client Name BLAGG		Date Receive	d:	10/22/2010
Work Order Number 1010A02		Received by	r: MLW	X
Checklist completed by	10/27 Date	Sample ID I	abels checked by:	Initials
Matrix: Carrier name	: Priority US N	<u>Mail</u>		
Chipping 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 🗔	١	
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 preserve
Nater - VOA vials have zero headspace? No VOA vials sub	mitted	Yes 🗹	No 🗔	pH:
Water - Preservation labels on bottle and cap match?	Yes 🗹	No 🗔	N/A	
Water - pH acceptable upon receipt?	Yes 🗹	Νο	N/A 🗀	<2 >12 unless noted below.
Container/Temp Blank temperature?	2.7°	<6° C Accepteb If given sufficient	le t time to cool.	
Client contacted Date contacted:		Pers	on contacted	
ontacted by: Regarding:				
comments:	·		×	
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			<u> </u>	
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Corrective Action				
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