

3R - 423

GWMR

12 / 2010

3R-423

BP AMERICA PRODUCTION CO.

GROUNDWATER REMEDIATION REPORT

**HUTTON GC #1E
(F) SECTION 6, 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
Hutton GC #1E
SW¹/₄ NE¹/₄, Sec. 6, T29N, R12W

Remediation via Excavation Date: **October 2008**

Monitor Well Installation Dates: **September 2006, 10/20/09 (MW # 2R)**

Monitor Well Sampling Dates: **9/12/08, 5/16/09, 10/26/09, 2/27/10, 5/11/10**

Pit Closure & Background:

Site separator and production tank pit closures were conducted in June 1994 and February 1995 respectively by removing impacted soil via excavation. Groundwater impact was identified within the source area via installation of a monitor well in September 2006 (MW #2). Documentation for this work and subsequent groundwater monitoring data for the site has previously been submitted for New Mexico Oil Conservation Division (NMOCD) review. The reporting herein is for further site soil remediation, groundwater monitor well installation, and site monitoring conducted in 2008 and 2010.

Soil Remediation and Groundwater Abatement:

In October 2008, excavation of a potential source area was conducted using a trackhoe (Figure 1A). Groundwater depth was recorded at approximately four (4) to five (5) feet below surface grade during the removal of apparent impacted soils. The excavation area was approximately 2,900 square feet with an average depth of approximately 5½ feet. A recorded 747 cubic yards of soil were removed and transported to BP's Crouch Mesa Facility.

MW #2R was installed on October 20, 2009 and quarterly sampling was initiated in January 2010. Boring log of MW #2R along with its well completion information is contained within this report.

Surface owner notification requesting approval of a down gradient groundwater monitor well be installed outside the site's western security perimeter fencing was denied by the landowner. It was communicated that future liability of groundwater impact confirmation data may be obligated by the landowner if such action is required by any authoritative regulatory agency.

Groundwater Monitor Well Sampling Procedures:

Groundwater monitor well MW #2R 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 above-grade tank (AGT) located on the well site. The AGT contents are eventually disposed through approved NMOCD operational procedures for removal of produced fluids.

Water Quality and Gradient Information:

Quarterly sampling of the groundwater monitor well MW #2R was conducted in September 2008 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 6) reveal the relative elevations from the site wells have shown an apparent south-southwest or southwest flow direction.

Summary and/or Recommendations:

Hydrocarbon impacted soils and groundwater at the site appear to have been remediated via excavation. Continued site monitoring per BP's NMOCD approved Ground Water Management Plan is recommended. No additional remedial actions are indicated or suggested at this time.

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

Hutton GC # 1E
UNIT F, SEC. 6, T29N, R12W

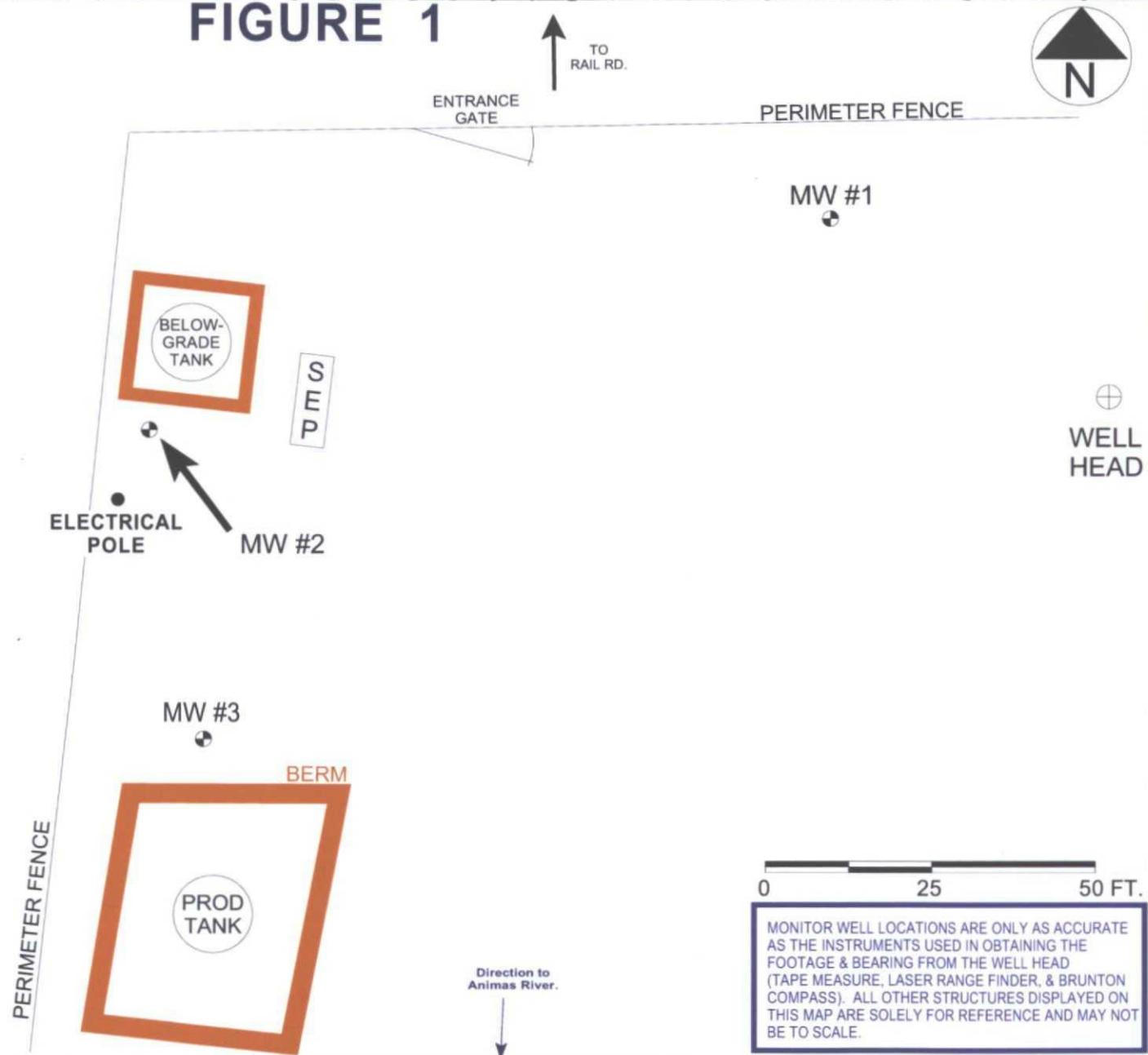
REVISED DATE: October 28, 2010

FILENAME: (Hut-4Q10.WK4) NJV

SAMPLE DATE	WELL NAME or No.	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. umhos	pH	PRODUCT (ft)	BTEX EPA METHOD 8021B (ppb)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
02-Oct-06	MW #1	6.80	15.00		2,100	6.93		ND	ND	ND	ND
02-Oct-06	MW #2	7.39	15.00		2,000	7.14		2.4	13	12	81
20-Dec-06		6.75			2,100	7.25		1.7	24	58	1,000
17-May-07		7.03					0.04				
12-Sep-08		7.71			1,500	7.36		ND	ND	ND	ND
13-Jan-10	MW #2R	5.88			1,500	7.35		40	20	86	770
"	dup.	"			"	"		38.4	ND	92.0	816
29-Apr-10		5.87			1,600	7.18		20	5.3	13	110
21-Jul-10		7.31			2,100	7.08		37	5.4	61	100
12-Oct-10		6.56			1,800	7.11		1.9	ND	1.3	ND
02-Oct-06	MW #3	7.63	15.00		1,900	7.39		ND	ND	4.9	34
20-Dec-06		7.04			2,000	7.44		ND	ND	ND	ND
21-Feb-07		6.95			1,900	7.31		ND	ND	ND	ND
17-May-07		7.34			2,100	7.25		ND	ND	ND	ND
02-Oct-06	MW #4	7.01	15.00		2,200	7.17		ND	ND	ND	ND
20-Dec-06		6.65			1,900	7.49		ND	ND	ND	ND
21-Feb-07		6.59			1,800	7.34		ND	ND	ND	ND
17-May-07		6.96			2,000	7.35		ND	ND	ND	ND
NMWQCC GROUNDWATER STANDARDS								10	750	750	620

- NOTES :
- 1) RESULTS IN BOLD RED TYPE INDICATE EXCEEDING NMWQCC STANDARDS .
 - 2) RESULTS IN BOLD BLUE TYPE INDICATE BELOW NMWQCC STANDARDS AFTER PREVIOUS RESULTS IN BOLD RED TYPE EXCEEDED .
 - 3) ND INDICATES NOT DETECTED AT THE REPORTING LIMITS (less than regulatory standards of at least a magnitude of 10) .
 - 4) NMWQCC INDICATES NEW MEXICO WATER QUALITY CONTROL COMMISSION.

FIGURE 1



BP AMERICA PRODUCTION CO.

HUTTON GC # 1E

SE/4 NW/4 SEC. 6, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: REMEDIATION

DRAWN BY: NJV

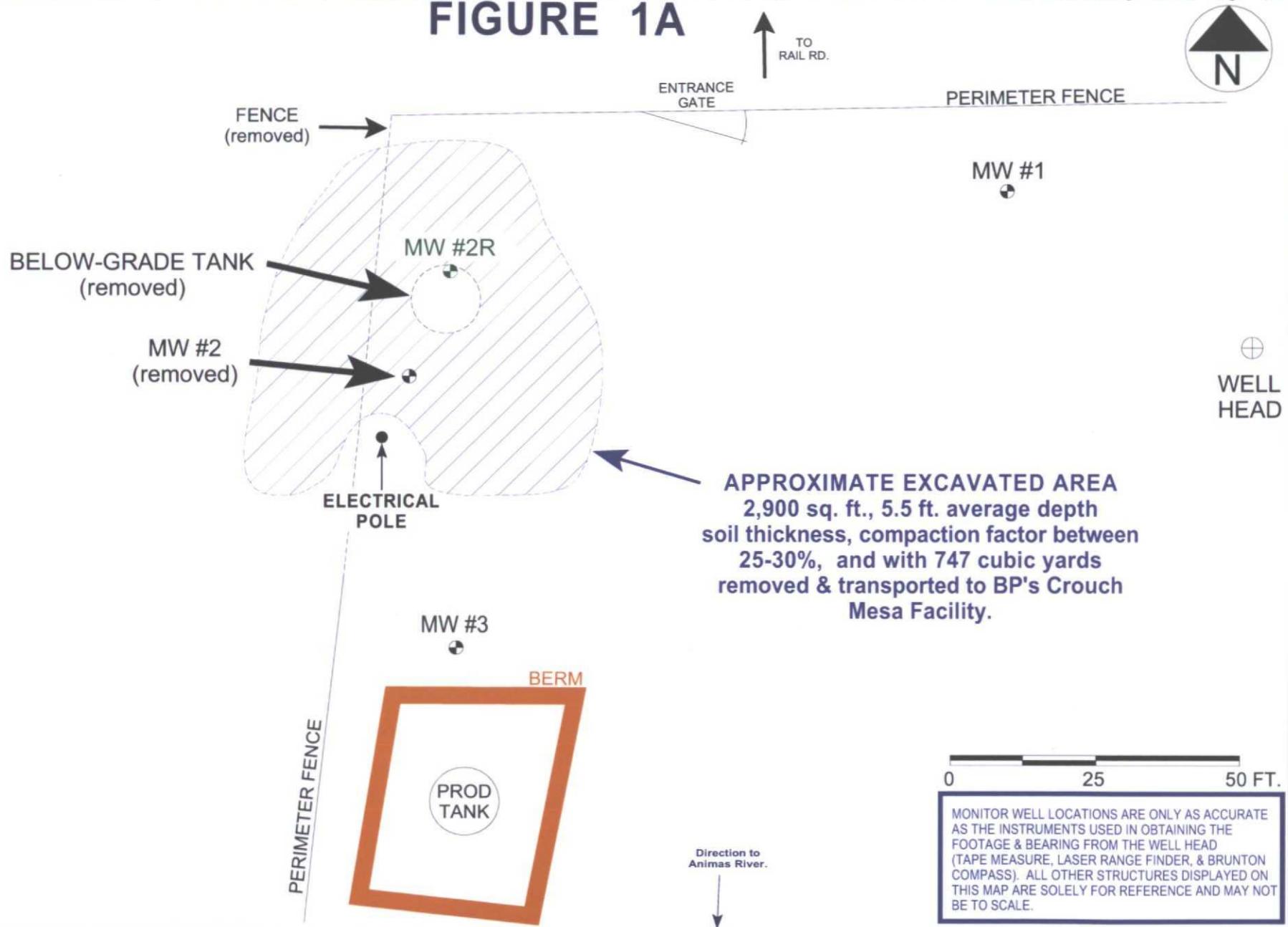
FILENAME: HUTTON GC 1E-PREEXCAV.SKF

REVISED: 09-30-10 NJV

PRE
EXCAVATION
MAP

10/08

FIGURE 1A



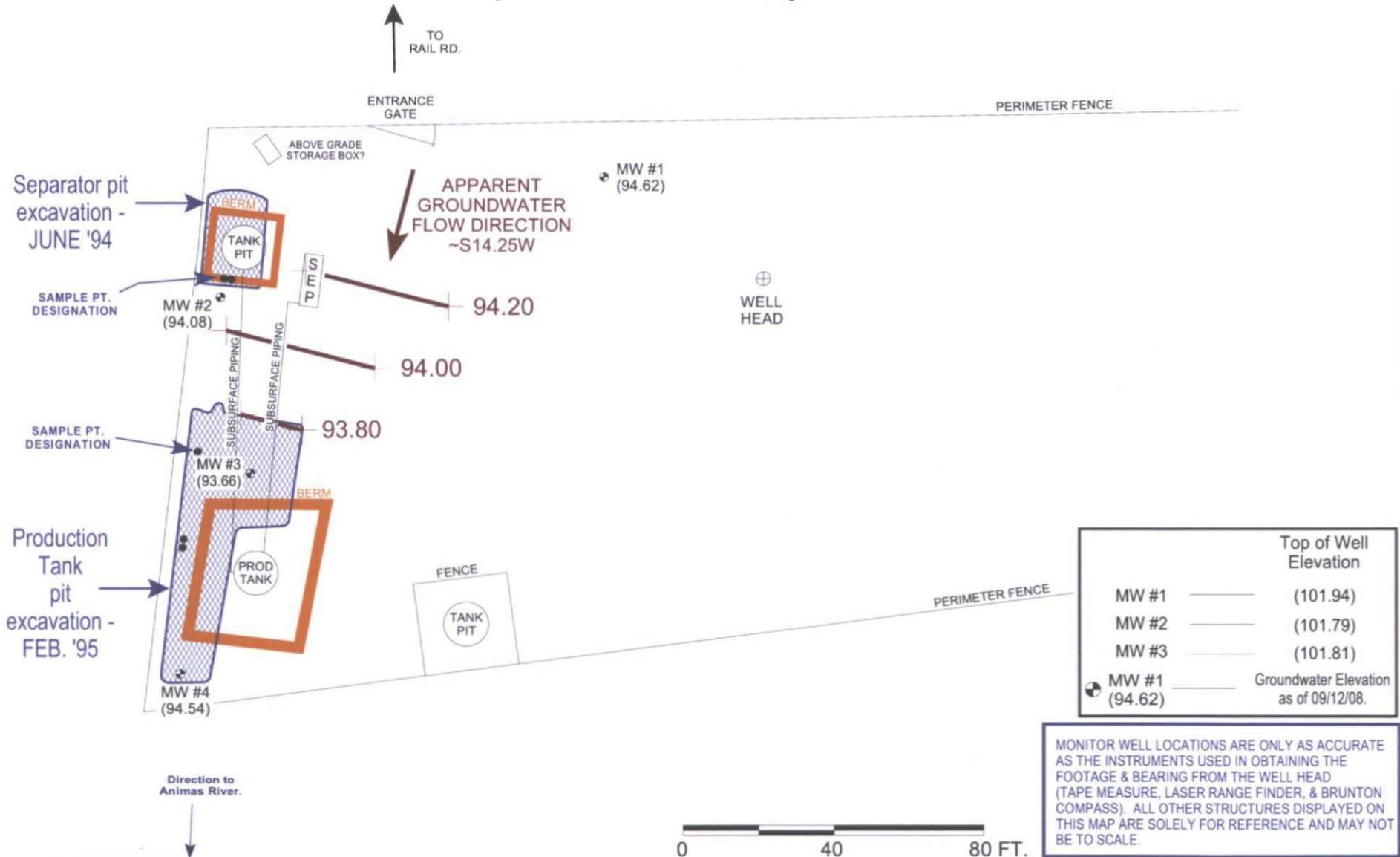
BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: REMEDIATION
 DRAWN BY: NJV
 FILENAME: HUTTON GC 1E-EXCAV.SKF
 REVISED: 09-30-10 NJV

**EXCAVATION
 MAP**
 10/08

FIGURE 2 (3rd 1/4, 2008)



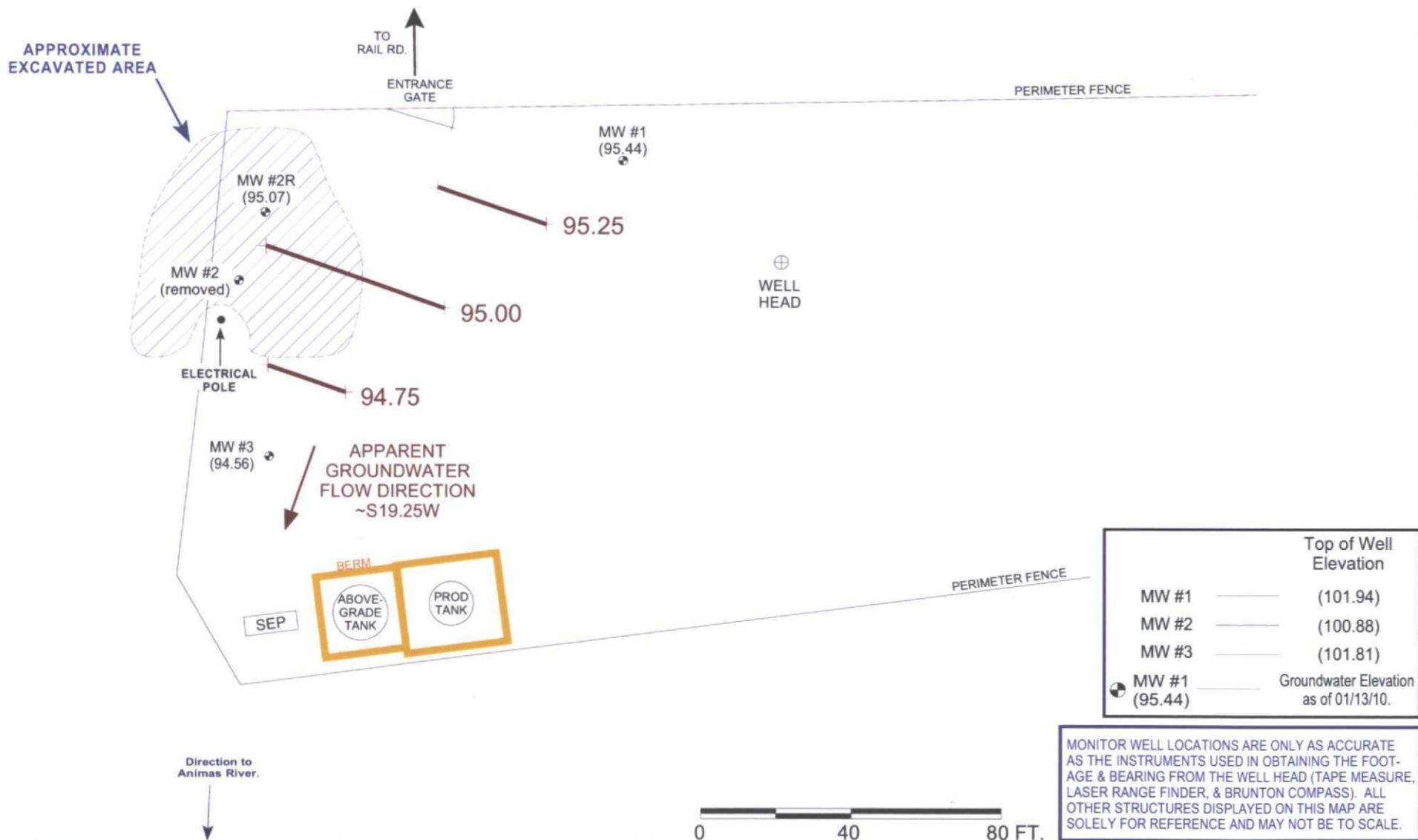
BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
 DRAWN BY: NJV
 FILENAME: 09-12-08-GW.SKF
 REVISED: 09-12-08 NJV

**GROUNDWATER
 GRADIENT
 MAP**
 09/08

FIGURE 3 (1st 1/4, 2010)



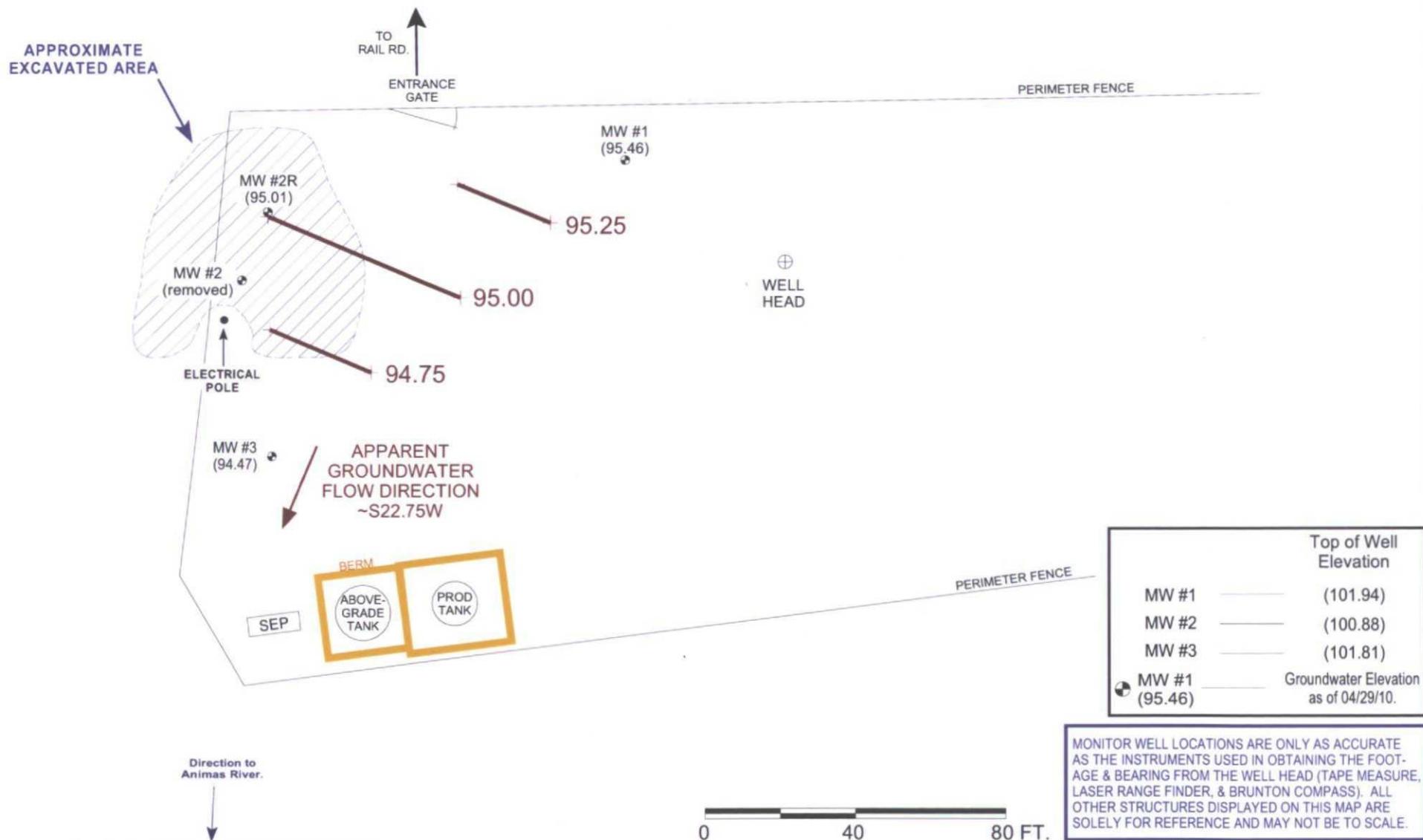
BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
 DRAWN BY: NJV
 FILENAME: 01-13-10-GW.SKF
 REVISED: 04-30-10 NJV

**GROUNDWATER
 CONTOUR
 MAP**
 01/10

FIGURE 4 (2nd 1/4, 2010)



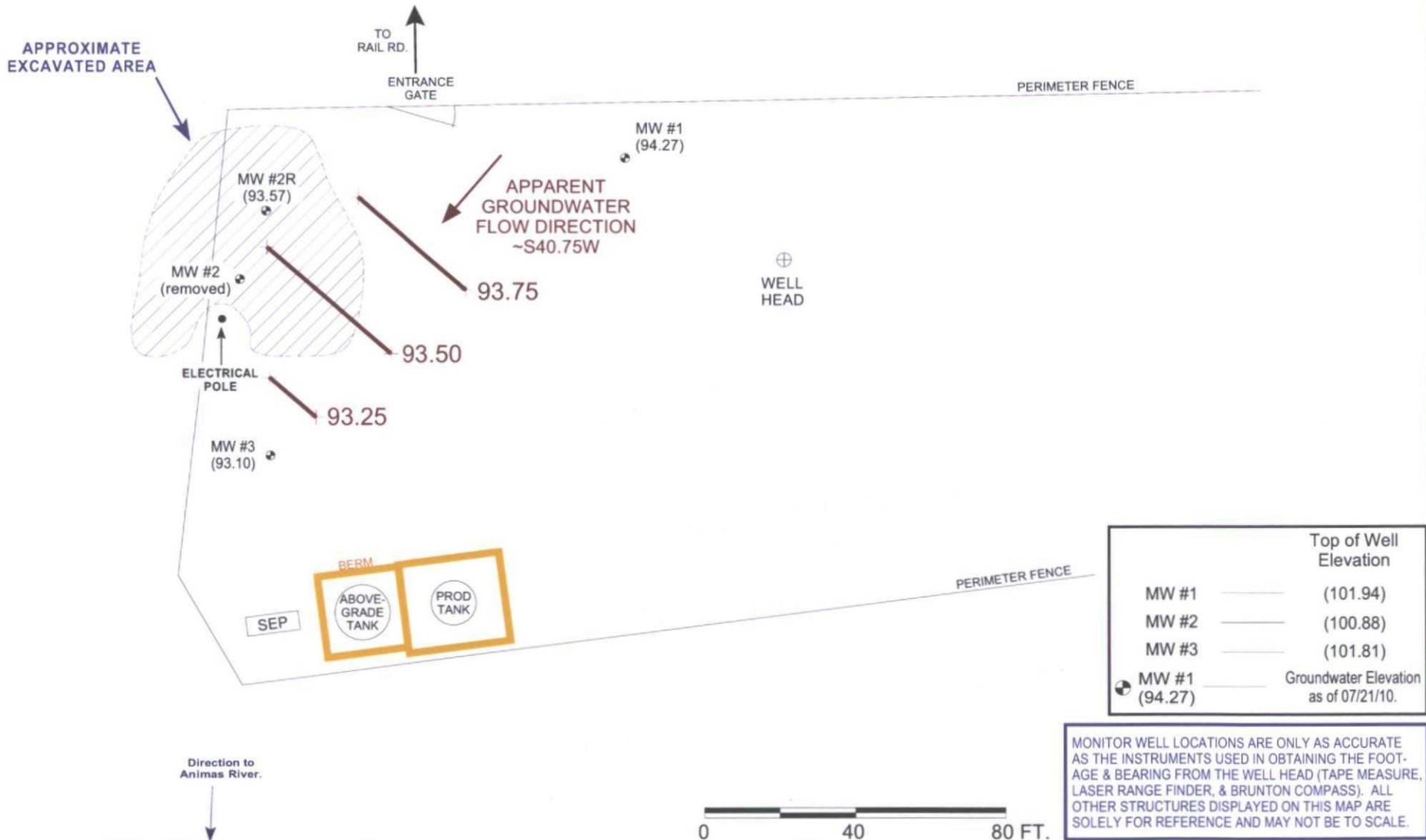
BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
 DRAWN BY: NJV
 FILENAME: 04-29-10-GW.SKF
 REVISED: 04-30-10 NJV

**GROUNDWATER
 CONTOUR
 MAP
 04/10**

FIGURE 5 (3rd 1/4, 2010)



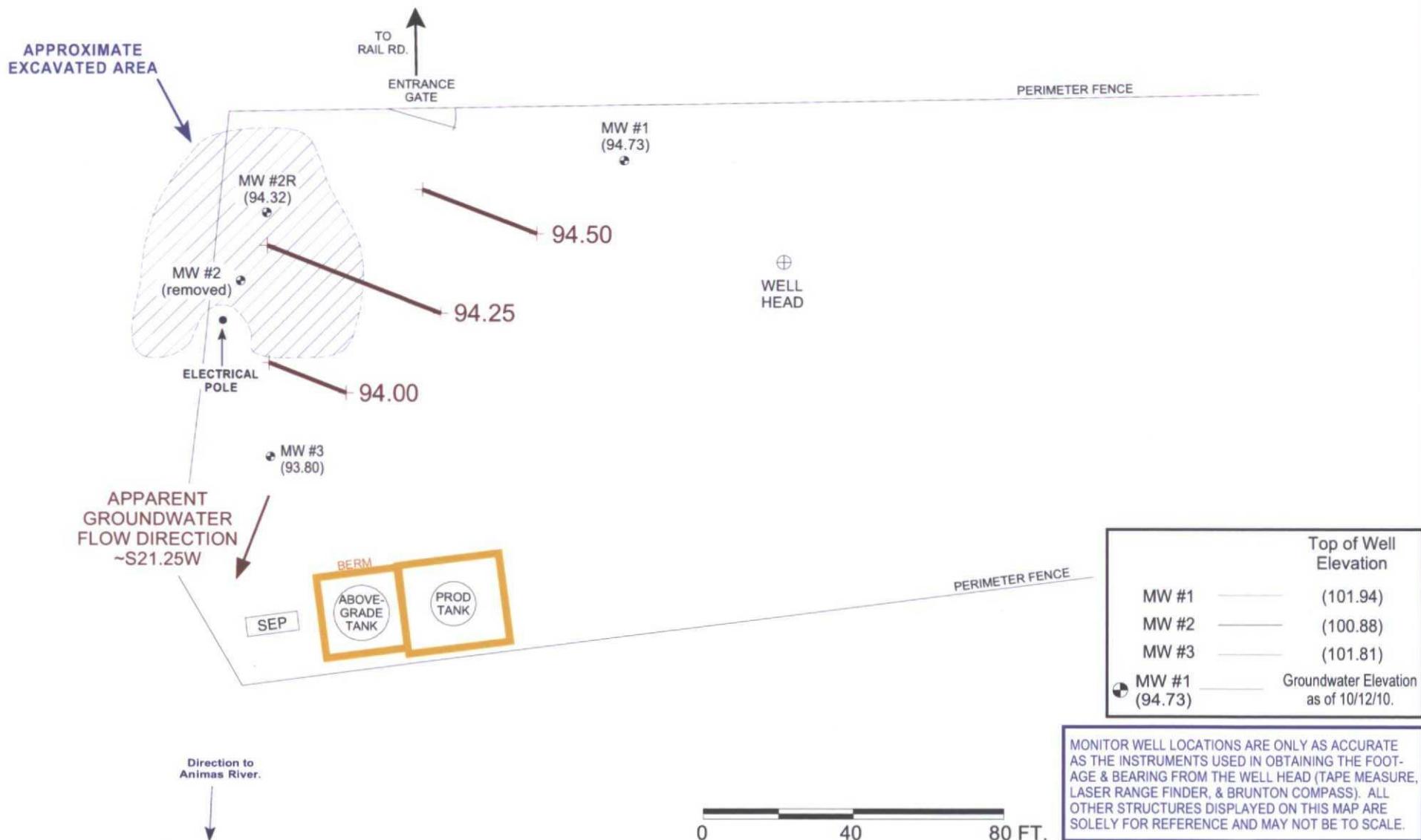
BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
 DRAWN BY: NJV
 FILENAME: 07-21-10-GW.SKF
 REVISED: 07-21-10 NJV

**GROUNDWATER
 CONTOUR
 MAP**
 07/10

FIGURE 6 (4th 1/4, 2010)



BP AMERICA PRODUCTION CO.
HUTTON GC # 1E
SE/4 NW/4 SEC. 6, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW SAMPLING
 DRAWN BY: NJV
 FILENAME: 10-12-10-GW.SKF
 REVISED: 10-12-10 NJV

**GROUNDWATER
 CONTOUR
 MAP
 10/10**

BLAGG ENGINEERING, INC.

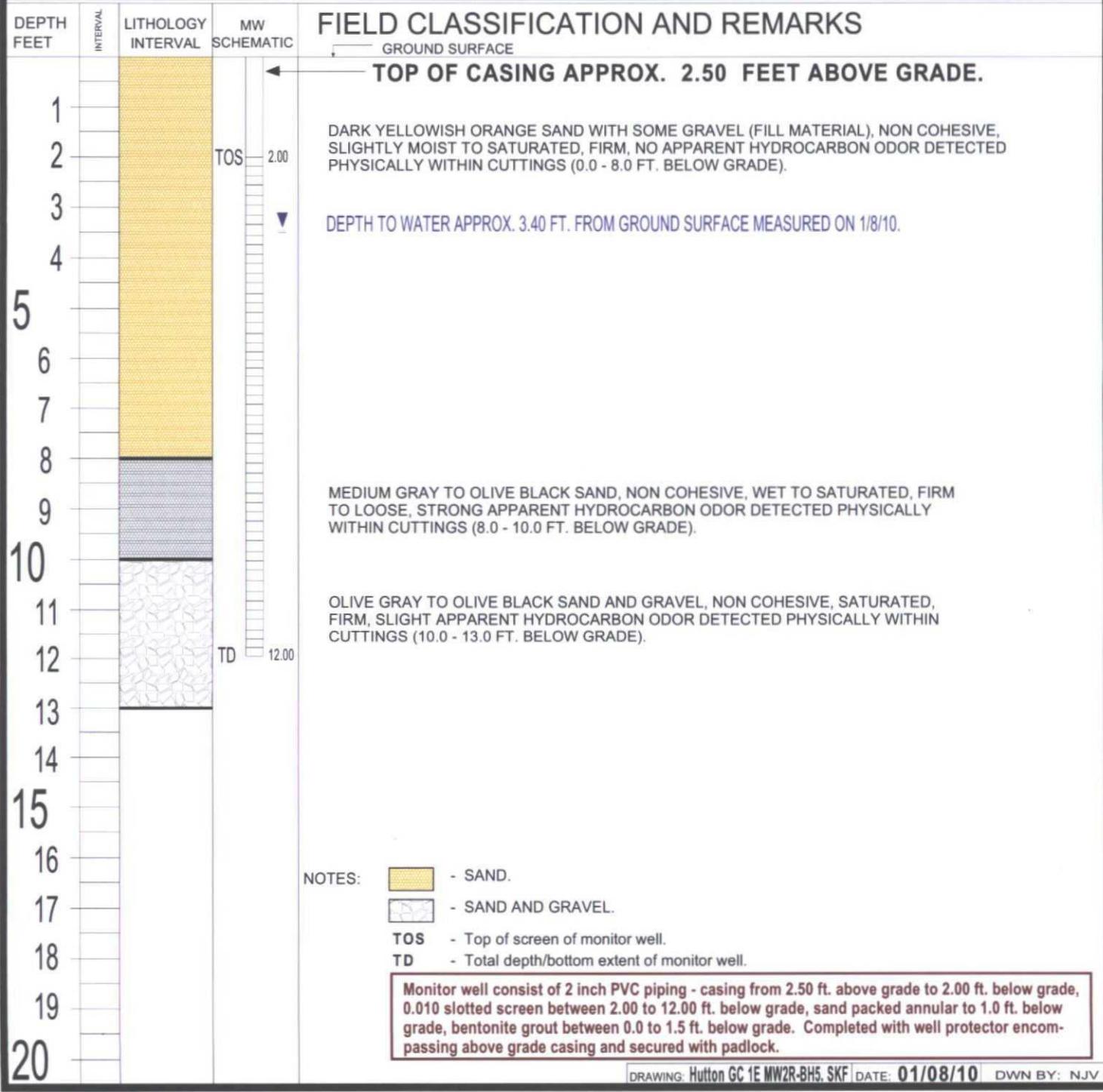
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

MW #2R

BORE / TEST HOLE REPORT

BORING #.....	BH-5
MW #.....	2R
PAGE #.....	5
DATE STARTED	1/7/10
DATE FINISHED	1/7/10
OPERATOR.....	KP
PREPARED BY	NJV

CLIENT:	BP AMERICA PRODUCTION CO.	
LOCATION NAME:	HUTTON GC #1E	UNIT F, SEC. 6, T29N, R12W
CONTRACTOR:	BLAGG ENGINEERING, INC. / KYVEK ENERGY SERVICE, INC.	
EQUIPMENT USED:	MOBILE DRILL RIG (CME 75)	
BORING LOCATION:	139 FT., N 84.5 W FROM WELL HEAD.	



BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # : N / A

HUTTON GC # 1E
UNIT F, SEC. 6, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : September 12, 2008

SAMPLER : N J V

Filename : 09-12-08.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.94	94.62	7.32	15.00	-	-	-	-	-
2	101.79	94.08	7.71	15.00	1100	7.36	1,500	23.7	4.50
DEPTH TO PRODUCT (FT.) =			n/a	PRODUCT THICKNESS (FT.) =			n/a		
3	101.81	93.66	8.15	15.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	09/12/08	1055

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 # 2 . Collected BTEX samples from MW # 2 only .

Dusky black appearance in MW # 3 & # 4 , physically detected hydrocarbon odor in MW # 2 .

MW # 4 casing cut below surface grade to accomodate landowner's request and not resurveyed .

Top of casing MW # 1 ~ 2.70 ft. , MW # 2 ~ 2.60 ft. , MW # 3 ~ 2.80 ft. above grade .

on-site	9:55	temp	71 F
off-site	11:21	temp	75 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	W

Hall Environmental Analysis Laboratory, Inc.

Date: 25-Sep-08

CLIENT: Blagg Engineering
Lab Order: 0809321
Project: Hutton GC #1E
Lab ID: 0809321-01

Client Sample ID: MW #2
Collection Date: 9/12/2008 11:00:00 AM
Date Received: 9/16/2008
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	2.0		µg/L	2	9/23/2008 2:08:22 PM
Toluene	ND	2.0		µg/L	2	9/23/2008 2:08:22 PM
Ethylbenzene	ND	2.0		µg/L	2	9/23/2008 2:08:22 PM
Xylenes, Total	ND	4.0		µg/L	2	9/23/2008 2:08:22 PM
Surr: 4-Bromofluorobenzene	102	65.9-130		%REC	2	9/23/2008 2:08:22 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: Hutton GC #1E

Work Order: 0809321

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		<i>MBLK</i>	Batch ID: R30332 Analysis Date: 9/22/2008 9:16:23 AM						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: B		<i>MBLK</i>	Batch ID: R30332 Analysis Date: 9/22/2008 11:18:17 AM						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		<i>MBLK</i>	Batch ID: R30349 Analysis Date: 9/23/2008 9:31:50 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		<i>LCS</i>	Batch ID: R30332 Analysis Date: 9/23/2008 1:01:38 AM						
Benzene	19.05	µg/L	1.0	95.3	85.9	113			
Toluene	18.72	µg/L	1.0	93.6	86.4	113			
Ethylbenzene	19.18	µg/L	1.0	95.9	83.5	118			
Xylenes, Total	57.91	µg/L	2.0	96.5	83.4	122			
Sample ID: LCS-BTEX 100NG		<i>LCS</i>	Batch ID: R30349 Analysis Date: 9/23/2008 8:42:42 PM						
Benzene	18.28	µg/L	1.0	91.4	85.9	113			
Toluene	17.89	µg/L	1.0	89.5	86.4	113			
Ethylbenzene	18.40	µg/L	1.0	92.0	83.5	118			
Xylenes, Total	55.93	µg/L	2.0	93.2	83.4	122			

Qualifiers:

- | | |
|--|--|
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| R RPD outside accepted recovery limits | S Spike recovery outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

9/16/2008

Work Order Number 0809321

Received by: **ARS**

Checklist completed by: [Signature]
Signature

9/16/08
Date

Sample ID labels checked by: TS
Initials

Matrix:

Carrier name UPS

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

Container/Temp Blank temperature? 1° <6° C Acceptable
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # : N / A

HUTTON GC # 1E UNIT F, SEC. 6, T29N, R12W
--

LABORATORY (S) USED : HALL ENVIRONMENTAL
 PACE ANALYTICAL

Date : January 13, 2010

DEVELOPER / SAMPLER : N J V

Filename : 01-13-10.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.94	95.44	6.50	15.00	-	-	-	-	-
2R	100.88	95.07	5.81	14.50	1320	7.37	1,500	10.8	4.50
3	101.81	94.56	7.25	15.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	01/11/10	1510

NOTES : Volume of water purged from well prior to sampling; $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3$ (wellbores), (i.e. 2" MW $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

MW # 2R installed on 01 / 07 / 10 and initial development on 01 / 08 / 10. Excellent recovery in MW # 2R , grayish tint appearance and very slight hydrocarbon odor detected physically . Collected sample from MW # 2R only for BTEX per US EPA Method 8021B (duplicate collected).
Surveyed monitor well tops on 4 / 30 / 10 .

Top of casing MW # 1 ~ 2.70 ft. , MW # 2R ~ 2.50 ft. , MW # 3 ~ 2.80 ft. above grade .

on-site	12:52	temp	39 F
off-site	2:08	temp	44 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	SE - E

Hall Environmental Analysis Laboratory, Inc.

Date: 25-Jan-10

CLIENT: Blagg Engineering
Lab Order: 1001169
Project: Hutton GC #1E
Lab ID: 1001169-01**Client Sample ID:** MW #2R
Collection Date: 1/13/2010 1:20:00 PM
Date Received: 1/14/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual.	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	40	10		µg/L	10	1/22/2010 11:46:57 AM
Toluene	20	10		µg/L	10	1/22/2010 11:46:57 AM
Ethylbenzene	86	10		µg/L	10	1/22/2010 11:46:57 AM
Xylenes, Total	770	20		µg/L	10	1/22/2010 11:46:57 AM
Surr: 4-Bromofluorobenzene	103	65.9-130		%REC	10	1/22/2010 11:46:57 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

ANALYTICAL RESULTS

Project: HUTTON GC
Pace Project No.: 6072335

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW #2R		Lab ID: 6072335001		Collected: 01/13/10 13:20	Received: 01/14/10 09:00	Matrix: Water		
8260 MSV UST, Water		Analytical Method: EPA 8260						
Benzene	38.4	ug/L	5.0	5		01/23/10 18:08	71-43-2	
Ethylbenzene	92.0	ug/L	5.0	5		01/23/10 18:08	100-41-4	
Toluene	ND	ug/L	5.0	5		01/23/10 18:08	108-88-3	
Xylene (Total)	816	ug/L	15.0	5		01/23/10 18:08	1330-20-7	
Dibromofluoromethane (S)	103	%	87-113	5		01/23/10 18:08	1868-53-7	
Toluene-d8 (S)	101	%	89-111	5		01/23/10 18:08	2037-26-5	
4-Bromofluorobenzene (S)	104	%	87-115	5		01/23/10 18:08	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	81-121	5		01/23/10 18:08	17060-07-0	
Preservation pH	1.0		1.0	5		01/23/10 18:08		

QA/QC SUMMARY REPORT

Client: Blagg Engineering
 Project: Hutton GC #1E

Work Order: 1001169

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		MBLK			Batch ID: R37065		Analysis Date: 1/21/2010 9:38:32 AM				
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ML RB		MBLK			Batch ID: R37089		Analysis Date: 1/22/2010 9:15:10 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: R37085		Analysis Date: 1/21/2010 8:15:33 PM				
Benzene	19.98	µg/L	1.0	20	0	99.9	85.9	113			
Toluene	19.44	µg/L	1.0	20	0	97.2	86.4	113			
Ethylbenzene	19.76	µg/L	1.0	20	0	98.8	83.5	118			
Xylenes, Total	60.05	µg/L	2.0	60	0	100	83.4	122			
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R37089		Analysis Date: 1/22/2010 8:52:53 PM				
Benzene	20.72	µg/L	1.0	20	0	104	85.9	113			
Toluene	20.44	µg/L	1.0	20	0	102	86.4	113			
Ethylbenzene	20.79	µg/L	1.0	20	0	104	83.5	118			
Xylenes, Total	63.16	µg/L	2.0	60	0	105	83.4	122			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

1/14/2010

Work Order Number 1001169

Received by: **TLS**

Sample ID labels checked by:

B
Initials

Checklist completed by:

[Signature]
Signature

1/14/10
Date

Matrix:

Carrier name: Greyhound

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

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

Container/Temp Blank temperature? **1.8°** <6° C Acceptable
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

CERTIFICATIONS

Project: HUTTON GC
Pace Project No.: 6072335

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A

Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

REPORT OF LABORATORY ANALYSIS

Page 2 of 10

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SAMPLE SUMMARY

Project: HUTTON GC
Pace Project No.: 6072335

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6072335001	MW #2R	Water	01/13/10 13:20	01/14/10 09:00
6072335002	TRIP BLANKS	Water	01/13/10 00:00	01/14/10 09:00

REPORT OF LABORATORY ANALYSIS

Page 3 of 10

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SAMPLE ANALYTE COUNT

Project: HUTTON GC
Pace Project No.: 6072335

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6072335001	MW #2R	EPA 8260	NLM	9
6072335002	TRIP BLANKS	EPA 8260	NLM	9

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: HUTTON GC
Pace Project No.: 6072335

Method: EPA 8260
Description: 8260 MSV UST, Water
Client: BP-Blagg Engineering
Date: January 25, 2010

General Information:

2 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/26365

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

Page 5 of 10

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ANALYTICAL RESULTS

Project: HUTTON GC
Pace Project No.: 6072335

Sample: TRIP BLANKS	Lab ID: 6072335002	Collected: 01/13/10 00:00	Received: 01/14/10 09:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		01/23/10 18:26	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		01/23/10 18:26	100-41-4	
Toluene	ND ug/L		1.0	1		01/23/10 18:26	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		01/23/10 18:26	1330-20-7	
Dibromofluoromethane (S)	102 %		87-113	1		01/23/10 18:26	1868-53-7	
Toluene-d8 (S)	98 %		89-111	1		01/23/10 18:26	2037-26-5	
4-Bromofluorobenzene (S)	102 %		87-115	1		01/23/10 18:26	460-00-4	
1,2-Dichloroethane-d4 (S)	102 %		81-121	1		01/23/10 18:26	17060-07-0	
Preservation pH	1.0		1.0	1		01/23/10 18:26		

QUALITY CONTROL DATA

Project: HUTTON GC
Pace Project No.: 6072335

QC Batch: MSV/26365 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 6072335001, 6072335002

METHOD BLANK: 594919 Matrix: Water
Associated Lab Samples: 6072335001, 6072335002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	01/23/10 16:18	
Ethylbenzene	ug/L	ND	1.0	01/23/10 16:18	
Toluene	ug/L	ND	1.0	01/23/10 16:18	
Xylene (Total)	ug/L	ND	3.0	01/23/10 16:18	
1,2-Dichloroethane-d4 (S)	%	100	81-121	01/23/10 16:18	
4-Bromofluorobenzene (S)	%	101	87-115	01/23/10 16:18	
Dibromofluoromethane (S)	%	100	87-113	01/23/10 16:18	
Toluene-d8 (S)	%	95	89-111	01/23/10 16:18	

LABORATORY CONTROL SAMPLE: 594920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	10	9.3	93	81-114	
Ethylbenzene	ug/L	10	10.2	102	82-115	
Toluene	ug/L	10	9.7	97	82-114	
Xylene (Total)	ug/L	30	28.9	96	81-116	
1,2-Dichloroethane-d4 (S)	%			101	81-121	
4-Bromofluorobenzene (S)	%			97	87-115	
Dibromofluoromethane (S)	%			103	87-113	
Toluene-d8 (S)	%			99	89-111	

QUALIFIERS

Project: HUTTON GC
Pace Project No.: 6072335

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/26365

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HUTTON GC
Pace Project No.: 6072335

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6072335001	MW #2R	EPA 8260	MSV/26365		
6072335002	TRIP BLANKS	EPA 8260	MSV/26365		



Sample Condition Upon Receipt

Client Name: BLAEG

Project # 6072335

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 8664 8408 3922

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no



Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used (-19) / T-194

Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.8

Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: SM 4/14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>051208-7</u>		

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

Shannon Hoover at UPS no longer associated with BPB bags. mw 4/14/10

Project Manager Review: mw

Date: 4/15/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # : N / A

HUTTON GC # 1E UNIT F, SEC. 6, T29N, R12W
--

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : April 29, 2010

DEVELOPER / SAMPLER : N J V

Filename : 04-29-10.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.94	95.46	6.48	15.00	-	-	-	-	-
2R	100.88	95.01	5.87	14.50	1240	7.18	1,600	15.0	4.25
3	101.81	94.47	7.34	15.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	04/29/10	1230

NOTES : Volume of water purged from well prior to sampling; $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3$ (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 # 2R , Collected sample from MW # 2R only for BTEX per US EPA Method 8021B . Surveyed monitor well tops on 4 / 30 / 10 .

Top of casing MW # 1 ~ 2.70 ft. , MW # 2R ~ 2.50 ft. , MW # 3 ~ 2.80 ft. above grade .

on-site	1:10	temp	48 F
off-site	2:20	temp	51 F
sky cond.	Partly cloudy		
wind speed	10-25 G 30	direct.	W

Hall Environmental Analysis Laboratory, Inc.

Date: 06-May-10

CLIENT: Blagg Engineering
Lab Order: 1005036
Project: Hutton GC #1E
Lab ID: 1005036-01**Client Sample ID:** MW #2R
Collection Date: 4/29/2010 12:40:00 PM
Date Received: 5/4/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	20	1.0		µg/L	1	5/6/2010 2:40:50 AM
Toluene	5.3	1.0		µg/L	1	5/6/2010 2:40:50 AM
Ethylbenzene	13	1.0		µg/L	1	5/6/2010 2:40:50 AM
Xylenes, Total	110	2.0		µg/L	1	5/6/2010 2:40:50 AM
Surr: 4-Bromofluorobenzene	98.9	65.9-130		%REC	1	5/6/2010 2:40:50 AM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: Hutton GC #1E

Work Order: 1005036

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		MBLK			Batch ID: R38525		Analysis Date: 5/4/2010 9:52:23 AM				
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ML RB		MBLK			Batch ID: R38553		Analysis Date: 5/5/2010 9:30:20 AM				
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R38525		Analysis Date: 5/5/2010 5:34:55 AM				
Benzene	21.22	µg/L	1.0	20	0	106	85.9	113			
Toluene	20.93	µg/L	1.0	20	0	105	86.4	113			
Ethylbenzene	20.75	µg/L	1.0	20	0	104	83.5	118			
Xylenes, Total	62.80	µg/L	2.0	60	0	105	83.4	122			
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R38553		Analysis Date: 5/5/2010 8:07:02 PM				
Benzene	19.89	µg/L	1.0	20	0	99.5	85.9	113			
Toluene	19.79	µg/L	1.0	20	0	99.0	86.4	113			
Ethylbenzene	19.47	µg/L	1.0	20	0	97.4	83.5	118			
Xylenes, Total	58.94	µg/L	2.0	60	0	98.2	83.4	122			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R38553		Analysis Date: 5/5/2010 8:37:27 PM				
Benzene	21.56	µg/L	1.0	20	0	108	85.9	113	8.04	27	
Toluene	21.12	µg/L	1.0	20	0	106	86.4	113	6.47	19	
Ethylbenzene	20.53	µg/L	1.0	20	0	103	83.5	118	5.26	10	
Xylenes, Total	60.73	µg/L	2.0	60	0	101	83.4	122	3.00	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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

5/4/2010

Work Order Number 1005036

Received by: TLS

Checklist completed by:

Signature

[Handwritten Signature]

5/4/10
Date

Sample ID labels checked by:

Initials

[Handwritten Initials]

Matrix:

Carrier name: Greyhound

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

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

Container/Temp Blank temperature?

2.1°

<6°C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # : N / A

HUTTON GC # 1E
UNIT F, SEC. 6, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : July 21, 2010

DEVELOPER / SAMPLER : N J V

Filename : 07-21-10.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.94	94.27	7.67	15.00	-	-	-	-	-
2R	100.88	93.57	7.31	14.50	1245	7.08	2,100	23.6	3.50
3	101.81	93.10	8.71	15.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	07/20/10	0800

NOTES : Volume of water purged from well prior to sampling; $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3$ (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 # 2R , Collected sample from MW # 2R only for BTEX per US EPA Method 8021B .

Top of casing MW # 1 ~ 2.70 ft. , MW # 2R ~ 2.50 ft. , MW # 3 ~ 2.80 ft. above grade .

on-site	12:00	temp	83 F
off-site	1:00	temp	87 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	SE

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Aug-10

CLIENT: Blagg Engineering
Lab Order: 1007845
Project: Hutton GC #1E
Lab ID: 1007845-01

Client Sample ID: MW #2R
Collection Date: 7/21/2010 12:45:00 PM
Date Received: 7/23/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	37	1.0		µg/L	1	7/30/2010 2:16:41 PM
Toluene	5.4	1.0		µg/L	1	7/30/2010 2:16:41 PM
Ethylbenzene	61	1.0		µg/L	1	7/30/2010 2:16:41 PM
Xylenes, Total	100	2.0		µg/L	1	7/30/2010 2:16:41 PM
Surr: 4-Bromofluorobenzene	121	65.9-130		%REC	1	7/30/2010 2:16:41 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Blagg Engineering
 Project: Hutton GC #1E

Work Order: 1007845

Analyte	Result	Units	PQL	SPK Va	SPK ref.	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		MBLK									
Batch ID: R40133 Analysis Date: 7/30/2010 9:20:23 AM											
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		LCS									
Batch ID: R40133 Analysis Date: 7/30/2010 7:50:21 PM											
Benzene	18.83	µg/L	1.0	20	0	94.2	87.9	121			
Toluene	18.38	µg/L	1.0	20	0	91.9	83	124			
Ethylbenzene	18.23	µg/L	1.0	20	0	91.2	81.7	122			
Xylenes, Total	55.63	µg/L	2.0	60	0	92.7	85.6	121			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

7/23/2010

Work Order Number 1007845

Received by:

ARS

Checklist completed by:

Signature

Date

7/23/10

Sample ID labels checked by:

Initials

Matrix:

Carrier name: Greyhound

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A
- Container/Temp Blank temperature? **0.7°** <6° C Acceptable
If given sufficient time to cool.

Number of preserved bottles checked for pH: _____
<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # : N / A

HUTTON GC # 1E
UNIT F, SEC. 6, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : October 12, 2010

DEVELOPER / SAMPLER : N J V

Filename : 10-12-10.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.94	94.73	7.21	15.00	-	-	-	-	-
2R	100.88	94.32	6.56	14.50	1515	7.11	1,800	21.8	4.00
3	101.81	93.80	8.01	15.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	10/12/10	0900

NOTES : Volume of water purged from well prior to sampling; $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3$ (wellbores), (i.e. 2" MW $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

Excellent recovery in MW #2R, Collected sample from MW #2R only for BTEX per US EPA Method 8021B.

Top of casing MW #1 ~ 2.70 ft., MW #2R ~ 2.50 ft., MW #3 ~ 2.80 ft. above grade.

on-site	2:35	temp	71 F
off-site	3:30	temp	73 F
sky cond.	Sunny		
wind speed	0-5	direct.	W

Hall Environmental Analysis Laboratory, Inc.

Date: 25-Oct-10

CLIENT: Blagg Engineering
Lab Order: 1010604
Project: Hutton GC #1E
Lab ID: 1010604-01

Client Sample ID: MW# 2R
Collection Date: 10/12/2010 3:15:00 PM
Date Received: 10/13/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	1.9	1.0		µg/L	1	10/19/2010 3:23:48 AM
Toluene	ND	1.0		µg/L	1	10/19/2010 3:23:48 AM
Ethylbenzene	1.3	1.0		µg/L	1	10/19/2010 3:23:48 AM
Xylenes, Total	ND	2.0		µg/L	1	10/19/2010 3:23:48 AM
Surr: 4-Bromofluorobenzene	105	81.3-151		%REC	1	10/19/2010 3:23:48 AM

Qualifiers:

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

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

QA/QC SUMMARY REPORT

Client: Blagg Engineering
 Project: Hutton GC #1E

Work Order: 1010604

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	---------	---------	------	----------	-----------	------	----------	------

Method: EPA Method 8021B: Volatiles

Sample ID: 5ML RB

MBLK

Batch ID: R41614 Analysis Date: 10/18/2010 9:37:01 AM

benzene	ND	µg/L	1.0							
toluene	ND	µg/L	1.0							
o-xylene	ND	µg/L	1.0							
benzenes, Total	ND	µg/L	2.0							

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R41614 Analysis Date: 10/18/2010 1:10:34 PM

benzene	19.57	µg/L	1.0	20	0.16	97.1	84.7	118
toluene	19.27	µg/L	1.0	20	0.196	95.4	82	123
o-xylene	19.30	µg/L	1.0	20	0.276	95.1	83	118
benzenes, Total	58.89	µg/L	2.0	60	0	98.2	85.4	119

Qualifiers:

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

Sample Receipt Checklist

Client Name **BLAGG**

Date Received:

10/13/2010

Work Order Number 1010604

Received by: **MLW**

Checklist completed by:

[Handwritten Signature]
Signature

10/13/10
Date

Sample ID labels checked by:

[Handwritten Initials]
Initials

Matrix:

Carrier name: Priority US Mail

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Main of custody present? Yes No
- Main of custody signed when relinquished and received? Yes No
- Main of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A
- Container/Temp Blank temperature? **2.1°** <6° C Acceptable
If given sufficient time to cool.

Number of preserved bottles checked for pH: _____
<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____