

3RP-177

GW Remediation Report

**DATE:
Feb. 2008**

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BP AMERICA PRODUCTION CO.

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GROUNDWATER REMEDIATION REPORT

**GALLEGOS CANYON UNIT (GCU) #145E
(D) SECTION 26, T29N, R12W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

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

FEBRUARY 2008

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

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

BP AMERICA PRODUCTION COMPANY

Gallegos Canyon Unit (GCU) #145E

Nw/4 Nw/4, Sec. 26, T29N, R12W

Historical Information:

Pit Closure Dates: January, 1996
Monitor Well Installation Date: December, 2006
Reclamation Procedures: Excavation (Jan., 1996)
Monitor Well Sampling Dates: 12/27/06

Groundwater was encountered at a depth of approximately 7 feet below surface grade during excavation of impacted soils from a blow pit in January, 1996 (documentation attached). The excavation perimeter was measured at approximately 50 X 40 X 7 feet depth. Approximately 300 cubic yards of soils were removed and landfarmed on-site. The groundwater within the excavation perimeter was pumped via water hauling trucks and disposed at an approved facility. Afterwards, the exposed groundwater was sampled and tested for benzene, toluene, ethylbenzene, and total xylenes (**BTEX**) per US EPA method 8020 on January 16, 1996. Upon receipt of the laboratory results, the New Mexico Oil Conservation Division (**NMOCD**) was notified with letter dated March 5, 1996 of the groundwater impact (attached). A subsequent sampling of the groundwater was conducted on January 23, 1996. The BTEX results of the groundwater sampling from the excavation are as follows;

Sample ID	Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
Pit Water	01/16/96	162	420	60.9	964
Pit Water	01/23/96	8.90	15.0	1.54	48.84
NMWQCC regulatory standards		10	750	750	620

Note: NMWQCC = New Mexico Water Quality Control Commission, ppb = parts per billion.

Soil Lithology and Groundwater Investigation:

During the pit closure activity, it was noted that the soil removed and excavation sidewalls consisted of a sandy silt and that bedrock was encountered at approximately 7 feet below grade. During the boring advancement in December, 2006, no evidence of either case was observed. Instead, soil lithology at the pit area consists of primarily sand (probably backfill material), non cohesive, and firm. Medium gray discoloration with an apparent hydrocarbon odor was detected/observed physically from the auger cuttings between 8-11 feet below grade.

One (1) groundwater monitor well was installed in December, 2006 to test groundwater quality within the source area (see Figure 1). The boring log of the monitor well along with well completion information is contained within this report. There does not appear to be any known receptors ever impacted by the previous discovery of impacted soil and/or groundwater. In addition, there does not appear to be any physical evidence to indicate that a nearby swamp area immediately down gradient from the excavation has ever been impacted by the past operational use of the pit (see Pit Closure Verification pit perimeter diagram).

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from the site monitor well following US EPA: SW-846 protocol. After well development, samples were collected with new disposable bailers, placed into laboratory supplied containers with appropriate preservative and stored in an ice chest for express delivery to a qualified laboratory for testing. Analytical testing included BTEX by US EPA Method 8021B and general water chemistry.

Waste generated during monitor well sampling and development was disposed of utilizing the separator tank pit located on the well site.

Groundwater Quality & Flow Direction Information:

Groundwater from the site monitor well was sampled and tested in December, 2006. The general water chemistry does not reveal any abnormalities. The testing also indicates all BTEX constituents were at non-detectable or at very low levels, well below New Mexico Water Quality Control Commission (**NMWQCC**) standards. The following is a summary of laboratory BTEX analytical result;

Sample ID	Date	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
Pit Water	12/27/06	ND	ND	ND	12
NMWQCC regulatory standards		10	750	750	620

Note: **NMWQCC** = New Mexico Water Quality Control Commission, ppb = parts per billion, ND = Not Detected at Reporting Limit.

Since only one (1) site monitor well was installed, no groundwater contour map of relative water table elevations was obtainable. However, the general groundwater flow direction in all probability is toward the north.

Summary and Recommendations:

Hydrocarbon impacted soil and groundwater at the site has been remediated via excavation of impacted soils. The site monitor well within the source area meets NMWQCC standards for groundwater. Permanent site closure is recommended. Following approval by the NMOCD, the monitor well will be abandoned pursuant to the approved BP Ground Water Management Plan.

BLAGG ENGINEERING, INC.

P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS**

Client:	Amoco	Project #:	
Sample ID:	East Side @ 5'	Date Analyzed:	1-16-96
Project Location:	GCU 145E	Date Reported:	1-16-96
Laboratory Number:	TPH-1653	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	290	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	13,700	12,100	12

*Administrative Acceptance limits set at 30%.

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Blow Pit - B0319

R. E. O'Neill
Analyst

Nelson V. [Signature] 1/14/96
Review

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS**

Client:	Amoco	Project #:	
Sample ID:	East Side @ 6'	Date Analyzed:	1-18-96
Project Location:	GCU 145E	Date Reported:	1-18-96
Laboratory Number:	TPH-1659	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	14	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	13,700	12,100	12

*Administrative Acceptance limits set at 30%.

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Blow Pit - B0319

R. E. O'Neill
Analyst

Helson V. J.
Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Amoco/GCU 145E
Sample ID: Pit Water at 7' Blow Pit
Lab ID: 2423
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 01/22/96
Date Sampled: 01/16/96
Date Received: 01/17/96
Date Analyzed: 01/18/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	162	10.0
Toluene	420	10.0
Ethylbenzene	60.9	10.0
m,p-Xylenes	797	20.0
o-Xylene	167	10.0

Total BTEX	1,610
-------------------	--------------

ND - Analyte not detected at the stated detection limit.

Quality Control: Surrogate Percent Recovery Acceptance Limits
Trifluorotoluene 105 88 - 110%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Amoco/ GCU 145E	Report Date:	01/24/96
Sample ID:	Pit Water	Date Sampled:	01/23/96
Lab ID:	2496	Date Received:	01/23/96
Sample Matrix:	Water	Date Analyzed:	01/24/96
Preservative:	Cool, HgCl ₂		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	8.90	0.20
Toluene	15.0	0.20
Ethylbenzene	1.54	0.20
m,p-Xylenes	39.6	0.40
o-Xylene	9.24	0.20

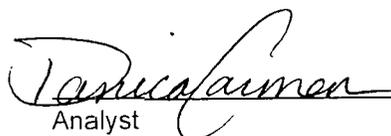
Total BTEX	74.3
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ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	107	88 - 110%
	Bromofluorobenzene	92	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

BLAGG ENGINEERING, INC.

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

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

March 5, 1996

Mr. Roger Anderson
Chief of Environmental Bureau
State of New Mexico Oil Conservation Division
2040 So. Pacheco
Santa Fe, New Mexico 87505

**RE: Groundwater Impact
Amoco Production Company:**

**GCU 145E Well site
Legal Description: Unit D, Sec. 26, T29N, R12W
San Juan County, New Mexico**

Dear Mr. Anderson:

Initial groundwater sample analytical results at the above referenced well site during pit closure activity indicated contamination to be above the State of New Mexico Water Quality Control Commission's regulatory standards for Benzene and total Xylenes. Sampling on the Blow pit was conducted January 16, 1996. Listed below are summary analytical results for Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX):

Parameter	Blow Pit (parts per billion)
Benzene	162
Toluene	420
Ethylbenzene	60.9
Total Xylenes	964

If you have any questions concerning this information, please do not hesitate to contact us at (505) 632-1199. Thank you for your cooperation.

Respectfully submitted,
Blagg Engineering, Inc.


Jeffrey C. Blagg, P.E.
President

cc: Denny Foust, Deputy Oil & Gas Inspector; NMOCD, Aztec, NM
Buddy Shaw, Environmental Coordinator, Amoco Production Company, Farmington, NM

NV/nv

GCU145E.LTR

CLIENT: BP

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

LOCATION NO: B0319

C.O.C. NO: HALL

FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: Gcu WELL #: 145E PITS: Blw
QUAD/UNIT: D SEC: 26 TWP: 29N RNG: 12W PMN: ST STNM
QTR/FOOTAGE: NW/4 NW/4 CONTRACTOR: N/A

DATE STARTED: 2/27/08
DATE FINISHED: _____

ENVIRONMENTAL SPECIALIST: NV

SOIL REMEDIATION:

REMEDIATION SYSTEM: LANDFARM
LAND USE: RANGE / RESIDENTIAL

APPROX. CUBIC YARDAGE: ~300
LIFT DEPTH (ft): 1-1.5

FIELD NOTES & REMARKS: DEPTH TO GROUNDWATER: <50' NEAREST SURFACE WATER: <200'

NEAREST WATER SOURCE: >1,000' NMOCD RANKING SCORE: 40 NMOCD TPH CLOSURE STD: 100 PPM

SOIL TYPE: ~~SAND~~ / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER SOME GRAVEL/COBBLE MIX
SOIL COLOR: DK. YELL. ORANGE

COHESION (ALL OTHERS): ~~NON COHESIVE~~ / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE

CONSISTENCY (NON COHESIVE SOILS): ~~LOOSE~~ / FIRM / DENSE / VERY DENSE

PLASTICITY (CLAYS): ~~NON PLASTIC~~ / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC

DENSITY (COHESIVE CLAYS & SILTS): ~~SOFT~~ / FIRM / STIFF / VERY STIFF / HARD

MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED

CLOSED

DISCOLORATION/STAINING OBSERVED: YES NO EXPLANATION - _____

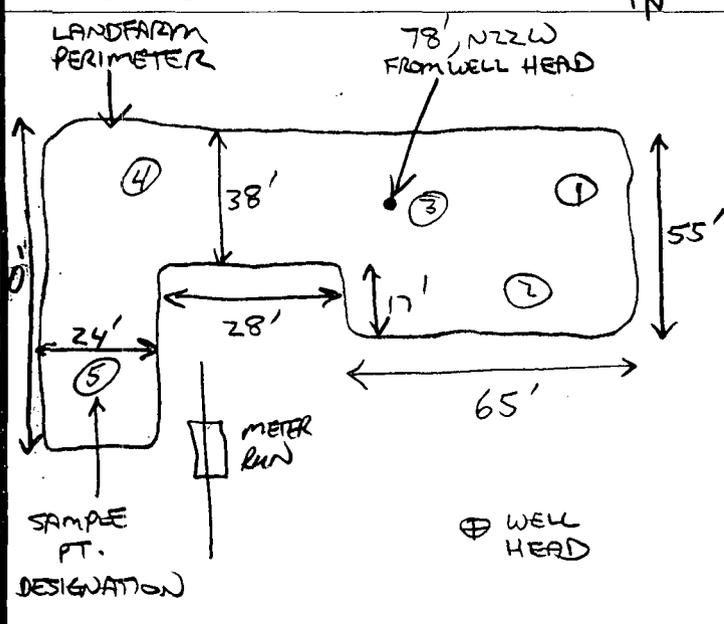
HC ODOR DETECTED: YES NO EXPLANATION - _____

SAMPLING DEPTHS (LANDFARMS): 4-12 (INCHES)

SAMPLE TYPE: GRAB / COMPOSITE # OF PTS. 5

ADDITIONAL COMMENTS: _____

SKETCH/SAMPLE LOCATIONS

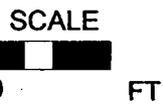


OVM CALIB. READ. = 52.7 ppm
 OVM CALIB. GAS = 100 ppm RF = 0.52
 TIME: 1:15 am/pm DATE: 2/27/08

OVM RESULTS

LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	0.0	LF-1	TPH (9015B)	1535	NO



TRAVEL NOTES: CALLOUT: _____

ONSITE: _____

Hall Environmental Analysis Laboratory, Inc.

Date: 07-Mar-08

CLIENT: Blagg Engineering
 Lab Order: 0802340
 Project: GCU #145E - Landfarm
 Lab ID: 0802340-01

Client Sample ID: LF-1 5pt. Composite
 Collection Date: 2/27/2008 3:35:00 PM
 Date Received: 2/29/2008
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: SCC
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/4/2008 7:52:26 PM
Surr: DNOP	99.0	61.7-135		%REC	1	3/4/2008 7:52:26 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/4/2008 8:22:00 PM
Surr: BFB	113	84-138		%REC	1	3/4/2008 8:22:00 PM
EPA METHOD 9056A: ANIONS						Analyst: SLB
Chloride	17	1.5		mg/Kg	5	3/4/2008 12:13:11 AM

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

CHAIN-OF-CUSTODY RECORD

Client: **BLAGE ENGR. / BP AMERICA**

Address: **P.O. BOX 87**

B.F.D., NM 87413

Phone #: **632-1199**

Fax #:

Date: **2/28/08**

Time: **1535**

Matrix: **SOIL**

Sample I.D. No.: **LF-1**

Number/Volume: **1-4 oz.**

Sample Temperature: **4.**

Project Manager: **NV**

Sampler: **NV**

Project #: **632-1199**

Other: **QA/QC Package: Std Level 4**

Project Name: **GCW #145E-LANDFARM**

HEAL No.: **0802340**

Preservative: **HgCl₂ HNO₃**

Received By: (Signature) **[Signature]**

Received By: (Signature) **[Signature]**

Other: **Std Level 4**

Project Name: **GCW #145E-LANDFARM**

Project #: **632-1199**

Project Manager: **NV**

Sampler: **NV**

Sample Temperature: **4.**

Project Manager: **NV**

Project #: **632-1199**

Project Name: **GCW #145E-LANDFARM**

HEAL No.: **0802340**

Preservative: **HgCl₂ HNO₃**

Received By: (Signature) **[Signature]**

Received By: (Signature) **[Signature]**



HALL ENVIRONMENTAL ANALYSIS LABORATORY
 4901 Hawkins NE, Suite D
 Albuquerque, New Mexico 87109
 Tel. 505.345.3975 Fax 505.345.4107
 www.hallenvironmental.com

ANALYSIS REQUEST

Analysis	Request
BTEX + MTBE + TMB's (8021)	
BTEX + MTBE + TPH (Gasoline Only)	
TPH Method 8015B (Gas/Diesel)	✓
TPH (Method 418.1)	
EDB (Method 504.1)	
EDC (Method 802.1)	
8310 (PNA or PAH)	
RCRA 8 Metals	
Anions (F, Cl, NO ₂ , NO ₃ , PO ₄ , SO ₄)	
8081 Pesticides / PCB's (8082)	
8260B (VOA)	
8270 (Semi-VOA)	✓
CHLORIDE	
Air Bubbles or Headspace (Y or N)	

Remarks: **GOR & DOR on TPA Analysis ONLY.**

QA/QC SUMMARY REPORT

Client: Blagg Engineering
 Project: GCU #145E - Landfarm

Work Order: 0802340

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 9056A: Anions									
Sample ID: MB-15268		MBLK				Batch ID: 15268	Analysis Date: 3/3/2008 5:50:12 PM		
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-15268		LCS				Batch ID: 15268	Analysis Date: 3/3/2008 6:07:37 PM		
Chloride	14.96	mg/Kg	0.30	99.7	90	110			

Method: EPA Method 8015B: Diesel Range Organics									
Sample ID: MB-15274		MBLK				Batch ID: 15274	Analysis Date: 3/4/2008 8:16:23 AM		
Diesel Range Organics (DRO)	ND	mg/Kg	10						
Sample ID: LCS-15274		LCS				Batch ID: 15274	Analysis Date: 3/4/2008 8:51:23 AM		
Diesel Range Organics (DRO)	43.20	mg/Kg	10	86.4	64.6	116			
Sample ID: LCSD-15274		LCSD				Batch ID: 15274	Analysis Date: 3/4/2008 9:26:22 AM		
Diesel Range Organics (DRO)	43.24	mg/Kg	10	86.5	64.6	116	0.102	17.4	

Method: EPA Method 8015B: Gasoline Range									
Sample ID: MB-15269		MBLK				Batch ID: 15269	Analysis Date: 3/4/2008 10:52:49 PM		
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0						
Sample ID: LCS-15269		LCS				Batch ID: 15269	Analysis Date: 3/4/2008 9:52:20 PM		
Gasoline Range Organics (GRO)	25.89	mg/Kg	5.0	104	69.5	120			

Qualifiers:

- E Value above quantitation range
- 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
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date Received:

2/29/2008

Work Order Number 0802340

Received by: TLS

Checklist completed by:

Jamie Shomin
Signature

2/29/08
Date

Sample ID labels checked by

AS
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?

4°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

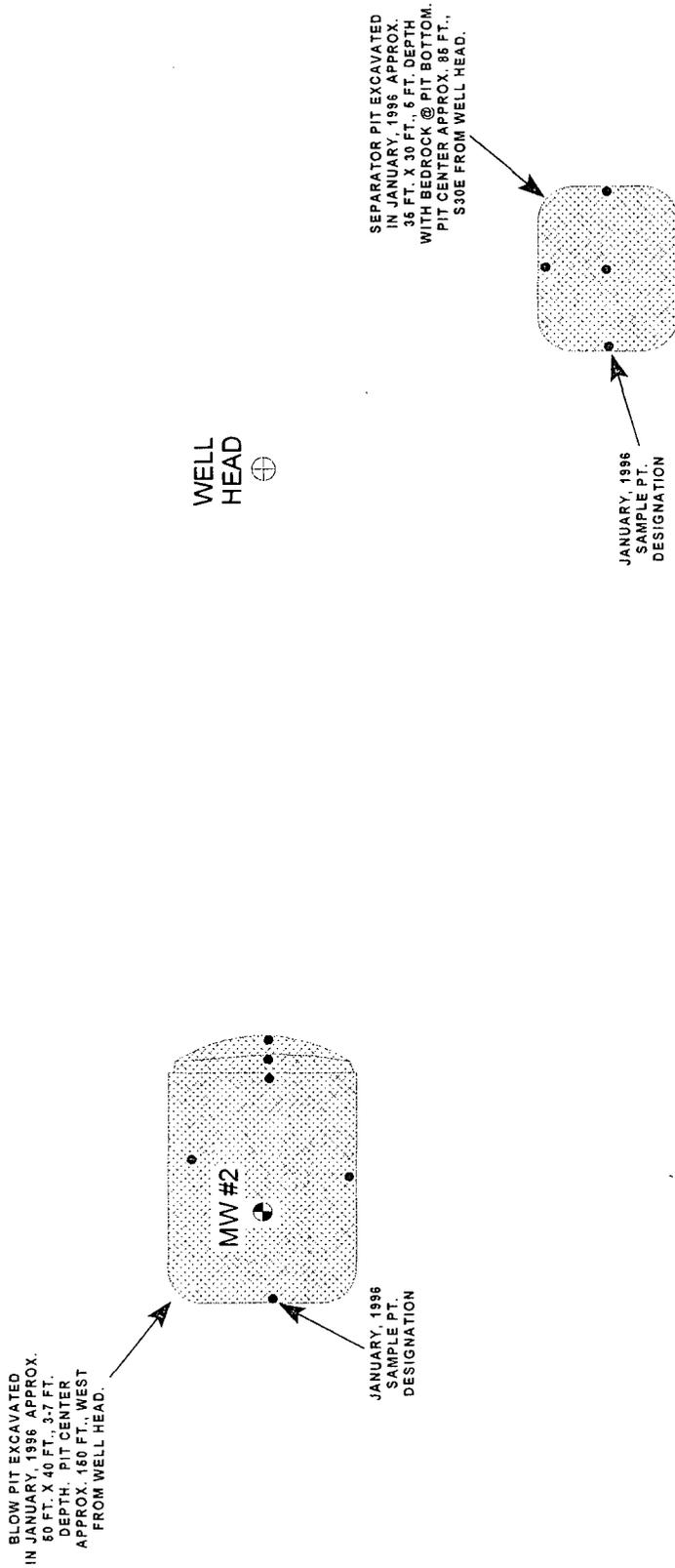
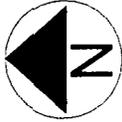
Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

FIGURE 1



1 INCH = 40 FT.



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.

<p>BIP AMERICA PRODUCTION CO GCJ #145E NW/4 NW/4 SEG. 26, T29N, R12W SAN JUAN COUNTY, NEW MEXICO</p>	<p>BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199</p>	<p>PROJECT: MW INSTALLATION DRAWN BY: NJV FILENAME: GCJ 145E-SM.SKF DRAFTED: 02-05-07</p>	<p>SITE MAP 12/06</p>
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BLAGG ENGINEERING, INC.

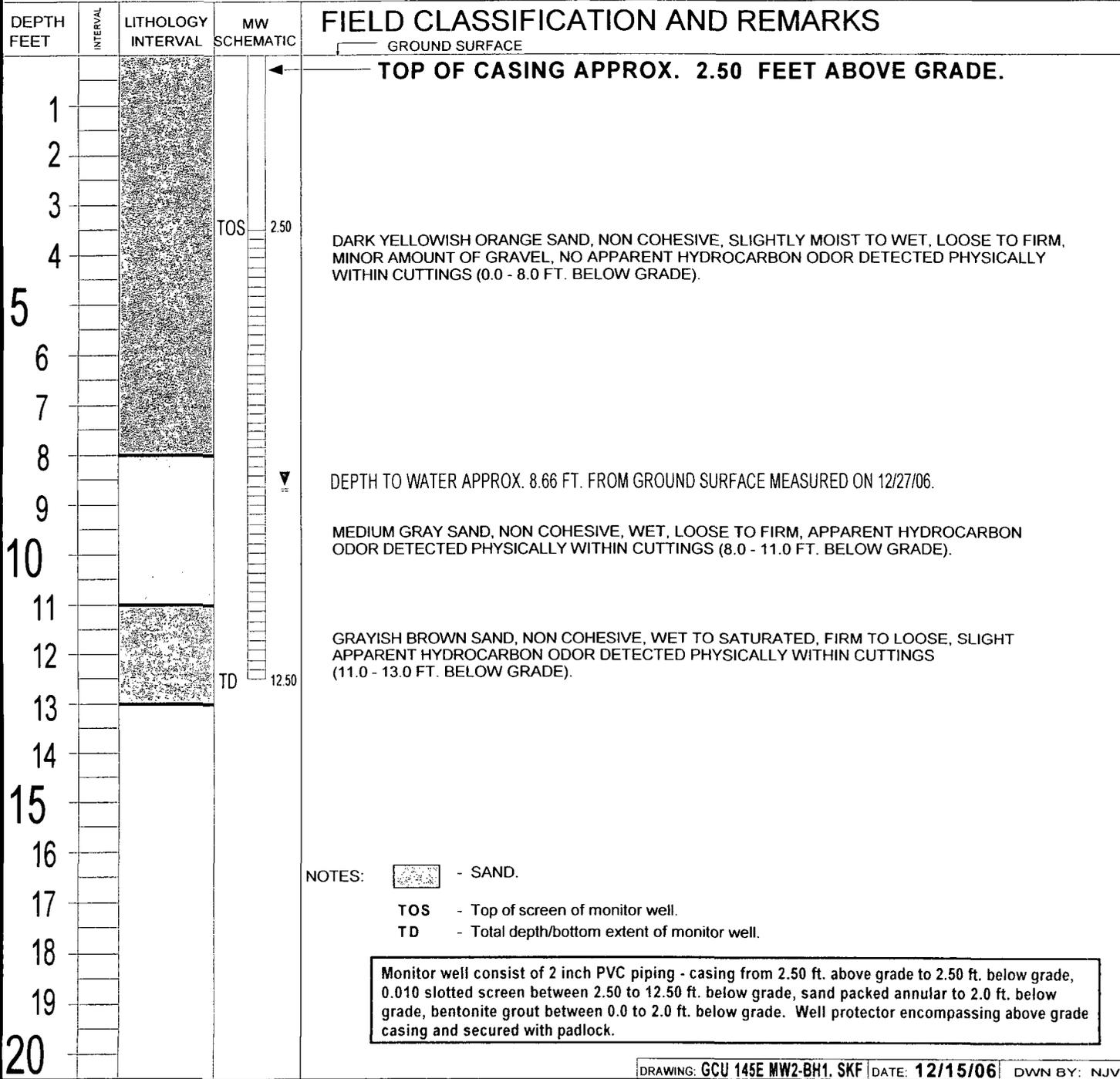
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

MW #2

BORE / TEST HOLE REPORT

BORING #.....	BH-1
MW #.....	2
PAGE #.....	1
DATE STARTED	12/15/06
DATE FINISHED	12/15/06
OPERATOR.....	DP
PREPARED BY	NJV

CLIENT:	BP AMERICA PRODUCTION CO.		
LOCATION NAME:	GCU #145E	UNIT D, SEC. 26, T29N, R12W	
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.		
EQUIPMENT USED:	MOBILE DRILL RIG (CME 75)		
BORING LOCATION:	159 FT., WEST FROM WELL HEAD.		



BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # : N / A & 14686

GCU # 145E - BLOW PIT
UNIT D, SEC. 26, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL
ENVIROTECH

Date : December 27, 2006

SAMPLER : N J V

Filename : 12-27-06.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW - 2	-	-	11.16	15.00	1040	7.08	1,100	8.6	2.00

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	12/27/06	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 $r = (1/12)$ 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 / good recovery . Murky brown in appearance with no apparent hydrocarbon odor detected physically within purged water . Collected samples for BTEX and major anions / cations analyses .

Top of casing MW # 2 ~ 2.50 ft. above grade .

Hall Environmental Analysis Laboratory, Inc.

Date: 02-Jan-07

CLIENT: Blagg Engineering
 Lab Order: 0612286
 Project: GCU #145E
 Lab ID: 0612286-01

Client Sample ID: MW #2
 Collection Date: 12/27/2006 10:40:00 AM
 Date Received: 12/28/2006
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: LMM
Benzene	ND	1.0		µg/L	1	12/28/2006 5:24:49 PM
Toluene	ND	1.0		µg/L	1	12/28/2006 5:24:49 PM
Ethylbenzene	ND	1.0		µg/L	1	12/28/2006 5:24:49 PM
Xylenes, Total	12	3.0		µg/L	1	12/28/2006 5:24:49 PM
Surr: 4-Bromofluorobenzene	82.5	70.2-105		%REC	1	12/28/2006 5:24:49 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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

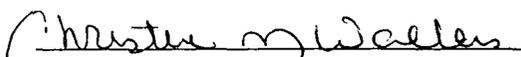
CATION / ANION ANALYSIS

Client:	Blagg / BP	Project #:	94034-010
Sample ID:	MW #2	Date Reported:	12-29-06
Laboratory Number:	39600	Date Sampled:	12-27-06
Chain of Custody:	14686	Date Received:	12-27-06
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	12-28-06
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		
pH	7.48	s.u.		
Conductivity @ 25° C	1,000	umhos/cm		
Total Dissolved Solids @ 180C	696	mg/L		
Total Dissolved Solids (Calc)	679	mg/L		
SAR	0.6	ratio		
Total Alkalinity as CaCO3	309	mg/L		
Total Hardness as CaCO3	496	mg/L		
Bicarbonate as HCO3	309	mg/L	5.06	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	0.002	mg/L	0.00	meq/L
Chloride	26.8	mg/L	0.76	meq/L
Fluoride	1.08	mg/L	0.06	meq/L
Phosphate	<0.1	mg/L	0.00	meq/L
Sulfate	256	mg/L	5.33	meq/L
Iron	0.009	mg/L	0.00	meq/L
Calcium	144	mg/L	7.19	meq/L
Magnesium	33.2	mg/L	2.73	meq/L
Potassium	1.05	mg/L	0.03	meq/L
Sodium	29.0	mg/L	1.26	meq/L
Cations			11.21	meq/L
Anions			11.20	meq/L
Cation/Anion Difference			0.02%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **GCU #145E** Grab Sample


Analyst


Review

QA/QC SUMMARY REPORT

Client: Blagg Engineering
 Project: GCU #145E

Work Order: 0612286

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8021

Sample ID: 5ML RB MBLK Batch ID: R21975 Analysis Date: 12/28/2006 9:42:29 AM

Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						

Sample ID: 100NG BTEX LCS LCS Batch ID: R21975 Analysis Date: 12/28/2006 11:30:42 AM

Benzene	18.08	µg/L	1.0	90.4	85.9	113			
Toluene	18.48	µg/L	1.0	92.4	86.4	113			
Ethylbenzene	18.09	µg/L	1.0	90.4	83.5	118			
Xylenes, Total	55.05	µg/L	3.0	91.8	83.4	122			

Sample ID: 100NG BTEX LCSD LCSD Batch ID: R21975 Analysis Date: 12/28/2006 3:51:55 PM

Benzene	17.77	µg/L	1.0	88.8	85.9	113	1.72	27	
Toluene	17.59	µg/L	1.0	87.9	86.4	113	4.94	19	
Ethylbenzene	17.33	µg/L	1.0	86.7	83.5	118	4.28	10	
Xylenes, Total	52.35	µg/L	3.0	87.3	83.4	122	5.02	13	

Qualifiers:

- E Value above quantitation range
- 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
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG

Date and Time Received:

12/28/2006

Work Order Number 0612286

Received by GLS

Checklist completed by [Signature] Date 12-28-06

Matrix Carrier name Greyhound

- Shipping container/cooler in good condition? Yes [checked] No [] Not Present []
Custody seals intact on shipping container/cooler? Yes [checked] No [] Not Present [] Not Shipped []
Custody seals intact on sample bottles? Yes [] No [] N/A [checked]
Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Samples in proper container/bottle? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []
All samples received within holding time? Yes [checked] No []
Water - VOA vials have zero headspace? No VOA vials submitted [] Yes [checked] No []
Water - pH acceptable upon receipt? Yes [] No [] N/A [checked]
Container/Temp Blank temperature? 2° 4° C ± 2 Acceptable If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

