

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

Heather Riley
Division Director
Oil Conservation Division



April 13, 2018

Mr. Steve Moskal
380 Airport Road
Durango, CO 81303

Re: Sandoval Gas Com A 001A
(3RP-1057) API# 30-045-22294

Dear Mr. Moskal,

OCD has reviewed the subject work plan. OCD approves this work plan with the following conditions.

- 1.) BP will maintain a SVE runtime greater than or equal to 90% per quarter.
- 2.) BP will collect an initial gas sample for laboratory analysis shortly after the startup of SVE Operations and then a quarterly sample thereafter. The gas sample will be analyzed for EPA Method 8260 Full List and include Carbon dioxide and Oxygen.
 - o The gas sample port needs to be installed prior to the inlet of the vacuum pump but, after the convergence of all sve wells.
- 3.) BP will submit to OCD District III a quarterly update report detailing remediation operations the report will include at a minimum.
 - o Summary of remediation activity for the quarter.
 - o SVE run time
 - o SVE mass removal and product recovery.
 - o Gas Sample Analysis

BP will submit to the OCD District III a closure sampling plan prior to initiating closure of the site.

Randolph Bayliss, P.E.
Hydrologist
505-476-3084

Vanessa Fields
Environmental Specialist
505-334-6178 ext. 119

Cc: Jim Griswold, Randolph Bayliss, Brandon Powell, Cory Smith

BP Remediation Plan

To: Randy Bayliss, Cory Smith, Vanessa Fields (NMOCD)
From: Steve Moskal (BP)
CC: Blagg Engineering
Date: 4/4/2018
Re: Sandoval Gas Com A 001A – SVE Plan
API#30-045-22294 (C) S35, T30N, R09W

Dear Mr. Bayliss, Mr. Smith, Mrs. Fields,

The Sandoval Gas Com A 001A site is an active natural gas production pad within the San Juan Basin Gas Field in San Juan County, New Mexico. The site is located on land controlled by the Bureau of Land Management. The well site has known soil and suspected perched groundwater impacts discovered by BP, formerly Amoco, and shared historically by El Paso Fields Services and currently by Kinder Morgan.

BACKGROUND

Each company has performed some degree of remediation or investigation in the past. The well pad is located in an area primarily used by oil and gas production but also for recreational and livestock grazing, surrounded by sparse, rural residences. Confirmation of usable, connected, groundwater is unknown at this time. BP suspects the water found in monitoring wells drilled by BP and Kinder Morgan are perched and artificially created by an excavation performed by El Paso Field Services in the late 1990's. The excavation was not properly backfilled and compacted and has since settled and acted as an infiltration point for stormwater to collect and permeate to the subsurface. This is evident on groundwater gradient maps provided by Kinder Morgan in their 2016 GWM Report. Without this infiltration mechanism, BP believes there would be no water found in the monitoring wells. This is evident in the various depths to water recovery rates of each well on location.

A historical compressor discharge pit was noted by BP during closure of a pit in 2003. The pit was sampled with results above the pit closure standards as well as the spill and release guidelines. BP installed one soil boring with refusal at ~17' bgs. with a soil sample collected at that depth. This sample too was above the site closure standards. The perched groundwater is estimated to be 30-35' bgs. BP excavated approximately 50 cubic yards of soil in 2006 and treated with onsite composting and advanced one additional boring.

To date, BP has installed a total of 4 groundwater monitoring wells; MW-1-dry; MW-2- LNAPL; MW-3-dry; MW-4-dry. Due to either dry wells or free product, BP does not have any ground water quality data. Kinder Morgan has installed several wells in the vicinity of the former El Paso dehy pit, near the current meter run.

REMEDATION PLAN

BP proposes to employ soil vapor extraction (SVE) technology to MW-1 described above. The system will incorporate the following:

- 1) An explosion proof, (Class 1, Div. 1) electrically driven skid mounted SVE pump will be installed on site. This pump will be driven with the largest of one of the following, depending on electric drop capabilities:
 - a. Rotron EN454 (1.5 HP, single phase, 230 volt, 9.5 amp continuous, 48 amp inrush).
 - b. Rotron EN505 (2.0 HP, single phase, 230 volt, 12 amp continuous, 56 amp inrush).

The SVE package will be fitted with a water/product knockout drum, high water level shutoff, two vacuum gauges, one flow rate gauge and explosion proof starter switch.

- 2) The air extraction points will be fitted with 2-inch quick-connect fittings.
- 3) A 2-inch diameter PVC pipe and/or flexible hose with quick connect fittings will be connected from the SVE blower to one SVE well at a time. The hose will be long enough to reach any of the four (4) SVE points.
- 4) During operation, the flexible air hose will be moved to other points as deemed necessary by site monitoring:
 - A) Exhaust vapors from the SVE pump will be measured with an organic vapor meter (OVM) on a daily basis for the first 5 days operation, weekly for the first month of operation, and then monthly thereafter.
 - B) Upon start up, a gas sample will be collected from the vacuum stream; thereafter, an annual sample will be collected from the vacuum stream and will be laboratory analyzed for total petroleum hydrocarbons (TPH) by U.S. EPA Method 8015B and volatile hydrocarbons (BTEX) by U.S. EPA Method 8021. The location of the collection point will be determined based on the SVE system setup, but will preferably be upstream of the blower to reduce impacts of heat and turbulence to the air stream.
 - C) When exhaust vapors appear to reach an asymptotic limit, the air injection hose will be moved to various other injection points and exhaust vapors from other unused observation points will be measured with an organic vapor meter (OVM) on a monthly basis.
- 5) When site remediation appears to be complete based on monitoring results from the active remediation system, a test borings will be advanced to a depth of approximately 30-35 feet at locations about 8 feet from the remediation point. Soil samples will be collected at various depths for laboratory determination of residual hydrocarbons. This testing will include total petroleum hydrocarbons (TPH) by U.S. EPA Method 8015B and volatile hydrocarbons (BTEX) by U.S. EPA Method 8021. Note that the New Mexico Oil Conservation Division (NMOCD), Aztec District Office, will be notified prior to this drilling and sampling so that personnel may be available for witnessing.
- 5) NMOCD will be provided with laboratory test results. Following review of the remediation system monitoring and laboratory test results, either site closure, continued system operation or modifications to the remediation plan will be requested.

During operation, BP will strive to operate the system continuously, with hopes of achieving 90% or greater run time.

REPORTING

The performance of the SVE system and remediation will be reported quarterly with field OVM data, estimated run times, system performance, mass removal and product recovery and maintenance or changes in the system configuration will be included. The sampling of the vacuum stream will be reported in an annual report.

A final report will be provided within 60 days of the final closure sampling event.

Regards,

A handwritten signature in blue ink, appearing to read "Steve Moskal", written in a cursive style.

Steve Moskal
BP America Production Co.

BP AMERICA PRODUCTION COMPANY

ENVIRONMENTAL PRIORITY ASSESSMENT ON FEDERAL LEASE

Submitted by Blagg Engineering, Inc., Consultant, Bloomfield, NM

PRIORITY: 16

WELL NAME: SANDOVAL GC A #1A

WELL STATUS: ACTIVE

SURFACE OWNER: Bureau Land Management (BLM)

LEGALS: UNIT C (NE/NW), SEC. 35, T30N, R9W
(General area description): North of Blanco on CR4599 6.5 miles from of HWY 64

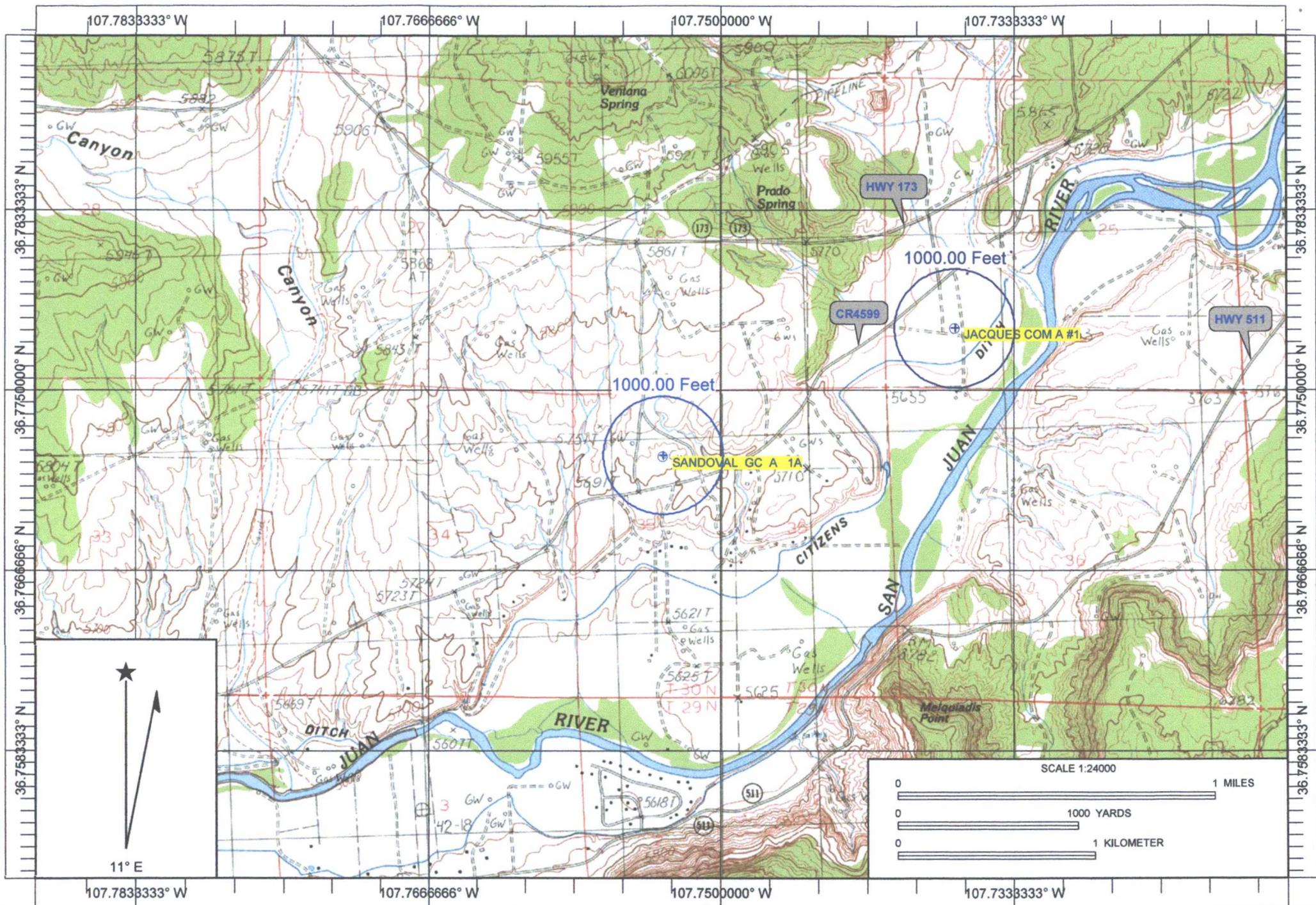
BRIEF SUMMARY OF HISTORICAL ENVIRONMENTAL CONDITION(S)

Pit closure investigation was conducted at a compressor pit in October, 2003. Soil testing from the pit bottom exceeded New Mexico Oil Conservation Division (NMOCD) standards for TPH (total petroleum hydrocarbon, benzene, and total BTEX (benzene, toluene, ethylbenzene, and total xylenes). A boring was conducted in September, 2006 in order to establish vertical extent of the hydrocarbon impacted soil. Auger refusal due to large cobbles, terminated drilling at 17 feet below grade. Sample collected near refusal also exceeded NMOCD standards for TPH, benzene, and total BTEX. *Document research from NMOCD web site has revealed depth to groundwater to be between 30-35 feet below grade.*

FUTURE INVESTIGATION RECOMMENDED

Conduct limited excavation of the impacted soil at the source area. Thereafter, install three (3) groundwater monitor wells (MW's) located up gradient of the excavation (background information purposes), within the excavated area, and the suspected down gradient direction. Development (purgings) of MW's, survey of MW tops for gradient direction information, initial sampling for BTEX, certain anions (i.e. chlorides), TDS (total dissolved solids), pH, and iron. If a sheen of suspected hydrocarbon is observed during the development phase, PAH analysis may be included (polynuclear aromatic hydrocarbons - naphthalenes).

12/06/07



Name: TURLEY
 Date: 12/6/2007
 Scale: 1 inch equals 2000 feet

Location: 036.7719316° N 107.7533950° W
 Caption: Sandoval GC A #1A
 Unit C, Sec. 35, T30N, R9W

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-144
June 1, 2004

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes No

Type of action: Registration of a pit or below-grade tank Closure of a pit or below-grade tank

Operator: BP AMERICA PROD. CO. Telephone: (505)-326-9200 e-mail address: _____
Address: 200 ENERGY COURT, FARMINGTON, NM 87410
Facility or well name: SANDOVAL GC A #1A API #: 30-045- 22294 U/L or Qtr/Qtr C Sec 35 T 30N R 9W
County: SAN JUAN Latitude 36.77166 Longitude 107.75353 NAD: 1927 1983 Surface Owner Federal State Private Indian

Pit	Below-grade tank		
Type: Drilling <input type="checkbox"/> Production <input checked="" type="checkbox"/> Disposal <input type="checkbox"/> <u>COMPRESSOR</u> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input type="checkbox"/> Unlined <input checked="" type="checkbox"/> Liner type: Synthetic <input type="checkbox"/> Thickness _____ mil Clay <input type="checkbox"/> Pit Volume _____ bbl	Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____		
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet 50 feet or more, but less than 100 feet 100 feet or more	(20 points) (10 points) (0 points)	20
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes No	(20 points) (0 points)	0
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet 200 feet or more, but less than 1000 feet 1000 feet or more	(20 points) (10 points) (0 points)	0
Ranking Score (Total Points)			20

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite offsite If offsite, name of facility _____. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No Yes If yes, show depth below ground surface _____ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments: **PIT LOCATED APPROXIMATELY 183 FT. N40W FROM WELL HEAD.**
PIT EXCAVATION: WIDTH 15 ft., LENGTH 14 ft., DEPTH 7 ft. .
PIT REMEDIATION: CLOSE AS IS: , LANDFARM: , COMPOST: , STOCKPILE: , OTHER (explain) ESTABLISH VERTICAL EXTENT.
Cubic yards:

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines , a general permit , or an alternative OCD-approved plan .

Date: 11/11/06

PrintedName/Title Jeff Blagg – P.E. # 11607 Signature *Jeff Blagg*

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:
Printed Name/Title _____ Signature _____ Date: _____

VUL

B1298

District I
P.O. Box 1981, Santa Fe, NM
District II
Denver DD, Azusa, NM
District III
1000 Elm Street Rd., Azusa, NM

State of New Mexico
Energy, Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

SUBMIT 1 COPY TO
APPROPRIATE
DISTRICT OFFICE
AND 1 COPY TO
SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

Operator: BP AMERICA PRODUCTION CO. Telephone: (505) 326-9200

Address: 200 ENERGY COURT, FARMINGTON, NM 87401

Facility or Well Name: Sandoval GC A #1A

Location: Unit or Qtr/Qtr Sec C Sec 35 T 30N R 9W County San Juan

Pit Type: Separator Dehydrator Other Compressor

Land Type: BLM , State , Fee , Other

Pit Location: (Attach diagram) Pit dimensions: length NA, width NA, depth NA

Reference: wellhead , other

Footage from reference: 103'

Direction from reference: 40 Degrees East North South West

Depth To Groundwater: (Vertical distance from contaminants to seasonal high water elevation of groundwater)

Less than 50 feet	(20 points)	
50 feet to 99 feet	(10 points)	
Greater than 100 feet	(0 points)	<u>10 Kag</u>

Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)

Yes	(20 points)	
No	(0 points)	<u>0</u>

Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)

Less than 100 feet	(20 points)	
100 feet to 1000 feet	(10 points)	
Greater than 1000 feet	(0 points)	<u>0</u>

RANKING SCORE (TOTAL POINTS): 10 Kag

Comp B1298

Date Remediation Started: _____ Date Completed: 11-3-03

Remediation Method: Excavation 1 kg Approx. cubic yards 1 kg NA 50

(Check all appropriate sections) Landfarmed _____ Insitu Bioremediation _____

Other CLOSE AS IS

Remediation Location: Onsite Offsite _____
(i.e. landfarmed onsite, name and location of offsite facility)

General Description of Remedial Action: Excavation. Test hole advanced. No remediation necessary.
Investigate Vertical extent

Groundwater Encountered: No Yes _____ Depth _____

Final Pit Closure Sampling: Sample location see Attached Documents

(if multiple samples, attach sample results and diagram of sample locations and depths) Sample depth 10' (Test hole bottom)
Sample date 11/3/03 Sample time 1146

Sample Results

Soil: Benzene	(ppm)	<u>1.1</u>	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	<u>83.2</u>	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>654</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>3040</u>	Total Xylenes	(ppb)	_____

Groundwater Sample: Yes _____ No (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 11-3-03 PRINTED NAME Jeffrey C. Blagg

SIGNATURE Jeffrey C. Blagg AND TITLE President P.E. # 11607

VUL

CLIENT: BP

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

LOCATION NO: 81298
COCR NO: HALL

FIELD REPORT: PIT CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: SANDOVAL GC A WELL#: 1A TYPE: COMPR.
QUAD/UNIT: C SEC. 35 TWP. 30N RNG. 9W PM. NM CNTY. SJ ST. NM
QTR/FOOTAGE: 1150'N | 1590'W NELNW CONTRACTOR: FLINT (LARRY)

DATE STARTED: 10/28/03
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 15 FT. x 14 FT. x 7 FT. DEEP. CUBIC YARDAGE: 50

DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: LANDFARM

LAND USE: RANGE - BLM LEASE: NM 073292 FORMATION: MV

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 183 FT. N40W FROM WELLHEAD.
DEPTH TO GROUNDWATER: <100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 10 NMOCD TPH CLOSURE STD: 1000 PPM

SOIL AND EXCAVATION DESCRIPTION:

OVM CALIB. READ. = 53.3 ppm
OVM CALIB. GAS = 100 ppm RF = 0.62
TIME: 2:25 am/pm DATE: 10/27/03

SOIL TYPE: SAND / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER _____
SOIL COLOR: MED. GRAY TO BLACK (3-10' BELOW GRADE)
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
DISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION - TEST HOLE / EXCAVATED SOIL
HC ODOR DETECTED: YES / NO EXPLANATION - EXCAVATION + OVM SAMPLE
SAMPLE TYPE: GRAB / COMPOSITE - # OF PTS. _____
ADDITIONAL COMMENTS: VERTICAL EXTENT NEEDS TO BE ESTABLISHED.

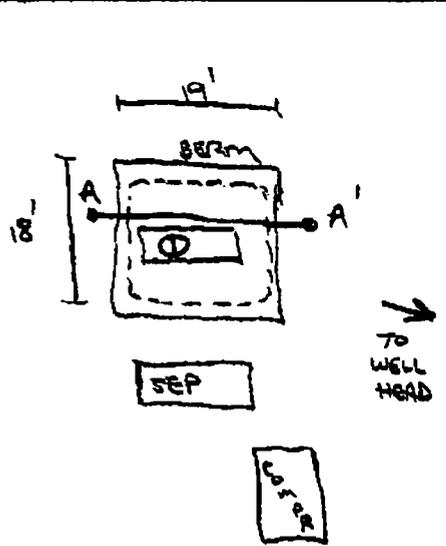
INVESTIGATE VERTICAL EXTENT

FIELD 418.1 CALCULATIONS



SAMP. TIME	SAMP. ID	LAB NO.	WEIGHT (g)	mL FREON	DILUTION	READING	CALC. (ppm)

PIT PERIMETER



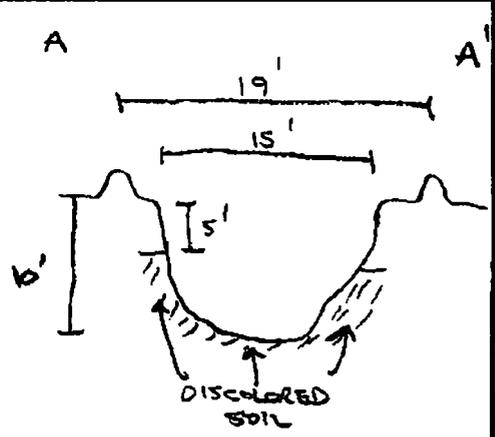
OVM READING

SAMPLE ID	FIELD HEADSPACE (ppm)
1 @ 7'	1477
2 @ 10'	654
3 @	
4 @	
5 @	

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
DA-7	TPH (80158)	0950 10/28/03
"	ATEX (85218)	"
DE10'	TPH (80158)	1146 11/8/03
"	ATEX (85218)	"

PIT PROFILE



P.D. = PIT DEPRESSION; B.G. = BELOW GRADE; B = BELOW T.H. = TEST HOLE; ~ = APPROX.; T.B. = TANK BOTTOM

TRAVEL NOTES: CALLOUT: 10/27/03 - MORN. ONSITE: 10/28/03 - MORN.

Hall Environmental Analysis Laboratory

Date: 07-Nov-03

CLIENT: Blagg Engineering
 Lab Order: 0310222
 Project: Sandoval GC A #1A
 Lab ID: 0310222-03

Client Sample ID: 1 @ 7 Compressor Pit
 Collection Date: 10/28/2003 9:50:00 AM

Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	720	100		mg/Kg	20	10/31/2003 1:00:23 PM
Motor Oil Range Organics (MRO)	1700	1000		mg/Kg	20	10/31/2003 1:00:23 PM
Surr: DNOP	0	60-124	S	%REC	20	10/31/2003 1:00:23 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	3200	500		mg/Kg	100	11/3/2003 10:45:29 PM
Surr: BFB	115	74-118		%REC	100	11/3/2003 10:45:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	4.3	2.5		mg/Kg	100	11/3/2003 10:45:29 PM
Toluene	110	2.5		mg/Kg	100	11/3/2003 10:45:29 PM
Ethylbenzene	38	2.5		mg/Kg	100	11/3/2003 10:45:29 PM
Xylenes, Total	300	2.5		mg/Kg	100	11/3/2003 10:45:29 PM
Surr: 4-Bromofluorobenzene	131	74-118	S	%REC	100	11/3/2003 10:45:29 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

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

Hall Environmental Analysis Laboratory

Date: 14-Nov-03

CLIENT: Blagg Engineering
 Lab Order: 0311023
 Project: Sandoval GC A #1A
 Lab ID: 0311023-01

Client Sample ID: 2@10' Compressor Pit
 Collection Date: 11/3/2003 11:46:00 AM

Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	550	50		mg/Kg	10	11/7/2003 9:53:39 PM
Motor Oil Range Organics (MRO)	1800	500		mg/Kg	10	11/7/2003 9:53:39 PM
Surr: DNOP	0	60-124	S	%REC	10	11/7/2003 9:53:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	690	50		mg/Kg	10	11/8/2003 11:08:52 AM
Surr: BFB	117	74-118		%REC	10	11/8/2003 11:08:52 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	1.1	0.25		mg/Kg	10	11/8/2003 11:08:52 AM
Toluene	12	0.25		mg/Kg	10	11/8/2003 11:08:52 AM
Ethylbenzene	7.1	0.25		mg/Kg	10	11/8/2003 11:08:52 AM
Xylenes, Total	63	0.25		mg/Kg	10	11/8/2003 11:08:52 AM
Surr: 4-Bromofluorobenzene	151	74-118	S	%REC	10	11/8/2003 11:08:52 AM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

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

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

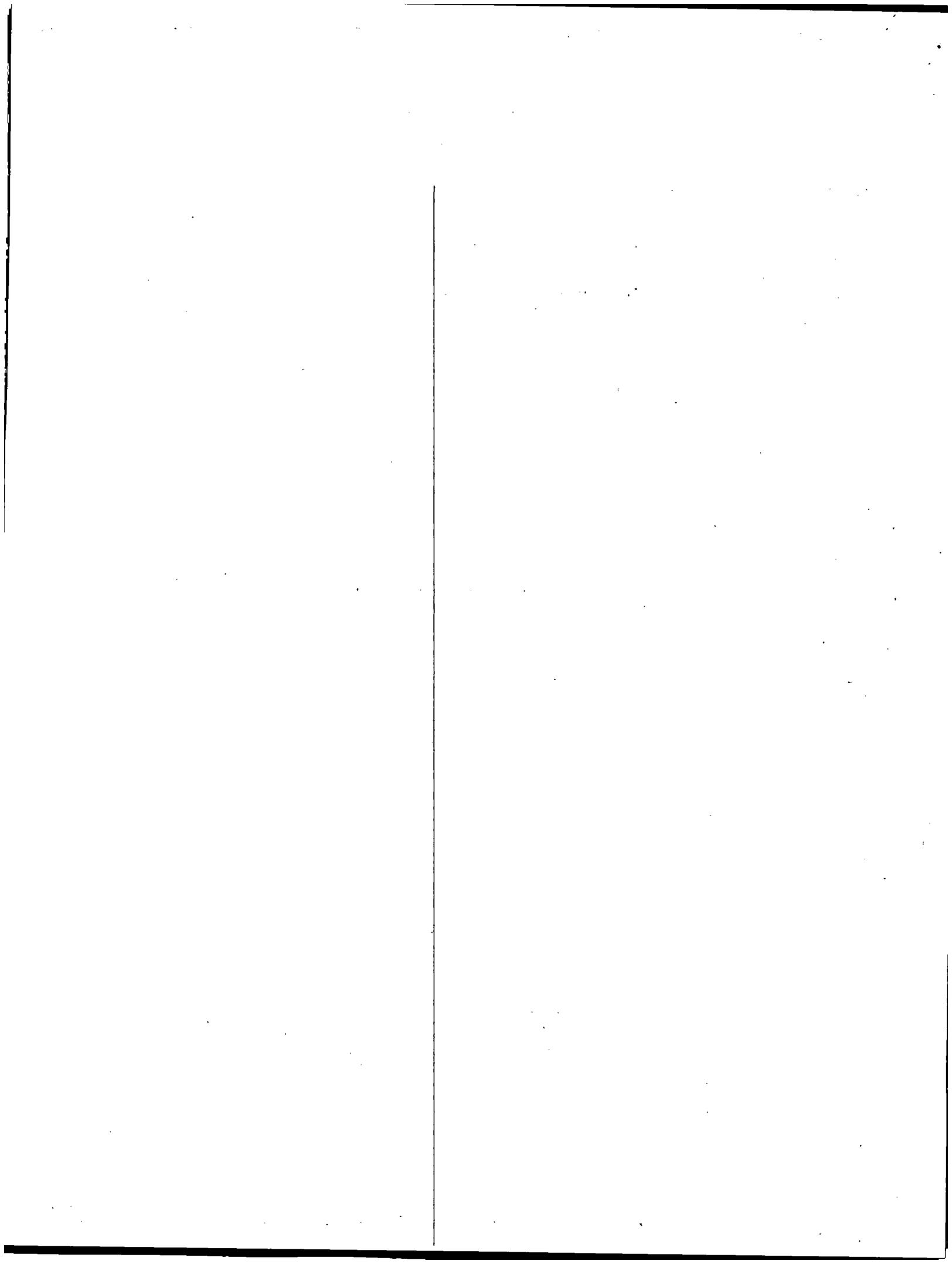
BORING #..... BH1
 MW #..... NA
 PAGE #..... 1
 DATE STARTED 09/20/06
 DATE FINISHED 09/20/06
 OPERATOR..... DP
 PREPARED BY NJV

CLIENT: **BP AMERICA PRODUCTION CO.**
 LOCATION NAME: SANDOVAL GC A #1A COMPRESSOR PIT UNIT C, SEC. 35, T30N, R9W
 CONTRACTOR: **BLAGG ENGINEERING, INC. / ENVIROTECH, INC.**
 EQUIPMENT USED: **MOBILE DRILL RIG (CME 75)**
 BORING LOCATION: 180 FEET, N40W FROM WELL HEAD.

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	OVM READING (ppm)	FIELD CLASSIFICATION AND REMARKS
				— GROUND SURFACE
2				DARK YELLOWISH ORANGE TO DARK YELLOWISH BROWN SAND (FILL MATERIAL), NON COHESIVE, SLIGHTLY MOIST, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 7.0 FT. BELOW GRADE).
4				
6				
8				DARK YELLOWISH BROWN / MEDIUM GRAY SAND INTERMIXED, NON COHESIVE, SLIGHTLY MOIST, FIRM, STRONG APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (7.0 - 12.0 FT. BELOW GRADE).
10				
12				MEDIUM GRAY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, STRONG APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (12.0 - 17.0 FT. BELOW GRADE).
14				
16			1,491	
18				BH1 @ 15-17 FT. TIME: 1218 BLOW COUNT = 50 PER 20 INCHES COLLECTED WITH SPLIT SPOON SAMPLER. TPH = 10,000 ppm, BENZENE = 19 ppm, TOTAL BTEX = 1,183 ppm, CHLORIDE = 5.5 ppm. AUGER REFUSAL - COBBLES ENCOUNTERED AT 17 FEET BELOW GRADE.
20				
22				
24				
26				
28				
30				
32				
34				
36				
38				
40				

- NOTES: - SAND.
- OVM** - Organic Vapor Meter or Photo-ionization Detector (PID).
TPH - Total Petroleum Hydrocarbons EPA Method 8015B.
BTEX - benzene, toluene, ethylbenzene, total xylenes EPA Method 8021B.
ppm - Parts per million (unit value).

OVM CALIBRATION = 51.3 ppm
 with 100 ppm Isobutylene gas &
 response factor set @ 0.52;
 DATE - 09/19/06, TIME - 1535.



Hall Environmental Analysis Laboratory, Inc.

Date: 06-Oct-06

CLIENT: Blagg Engineering	Client Sample ID: BH1 @15'-17' COMPRESSOR P
Lab Order: 0609259	Collection Date: 9/20/2006 12:18:00 PM
Project: Sandoval GC A #1A	Date Received: 9/21/2006
Lab ID: 0609259-01	Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: SCC
Diesel Range Organics (DRO)	1800	200		mg/Kg	20	9/26/2006 11:49:36 PM
Motor Oil Range Organics (MRO)	6800	1000		mg/Kg	20	9/26/2006 11:49:36 PM
Surr: DNOP	0	61.7-135	S	%REC	20	9/26/2006 11:49:36 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	8200	250		mg/Kg	50	9/29/2006 2:50:06 PM
Surr: BFB	348	84.5-129	S	%REC	50	9/29/2006 2:50:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	19	2.5		mg/Kg	50	9/29/2006 2:50:06 PM
Toluene	320	5.0		mg/Kg	100	10/1/2006 6:10:42 PM
Ethylbenzene	64	2.5		mg/Kg	50	9/29/2006 2:50:06 PM
Xylenes, Total	780	15		mg/Kg	100	10/1/2006 6:10:42 PM
Surr: 4-Bromofluorobenzene	124	76.8-115	S	%REC	50	9/29/2006 2:50:06 PM
EPA METHOD 9056A: ANIONS						Analyst: TES
Chloride	5.5	1.5		mg/Kg	5	9/26/2006 3:18:32 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

CLIENT: BP

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

LOCATION NO: 81298C.O.C. NO: 13919

FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: SANDOVAL GC A WELL#: HA PITS: COMPR.
 QUAD/UNIT: C SEC: 35 TWP: 30N RNG: 9W PM: NM CNTY: ST ST: NM
 QTR/FOOTAGE: _____ NE/NW CONTRACTOR: FLMT (LARRY)

DATE STARTED: 7/22/05

DATE FINISHED: _____

ENVIRONMENTAL SPECIALIST: NV

SOIL REMEDIATION:

REMEDIATION SYSTEM: LANDFARM

APPROX. CUBIC YARDAGE: _____

LAND USE: RANGE

LIFT DEPTH (ft): _____

0.5

FIELD NOTES & REMARKS:

DEPTH TO GROUNDWATER: <100'NEAREST SURFACE WATER: >1,000'NEAREST WATER SOURCE: >1,000'NMOCD RANKING SCORE: 10NMOCD TPH CLOSURE STD: 1,000 PPMSOIL TYPE: SAND / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER _____SOIL COLOR: DR. YELL. ORANGECOHESION (ALL OTHERS): NON COHESIVE / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVECONSISTENCY (NON COHESIVE SOILS): COARSE / FIRM / DENSE / VERY DENSE

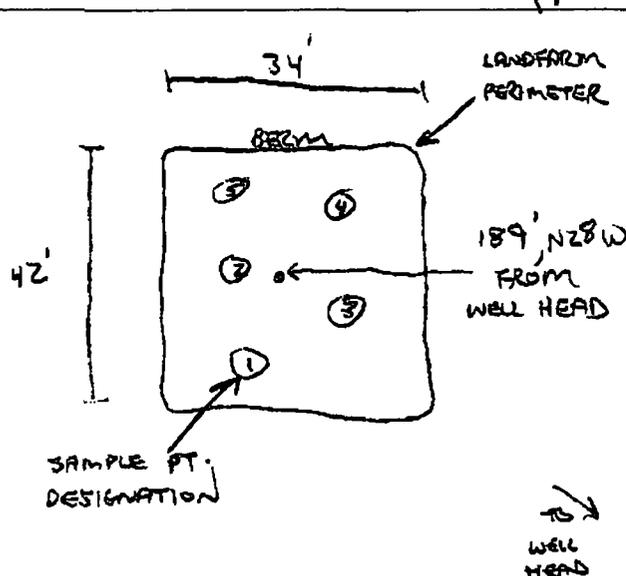
PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC

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

MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATEDCLOSEDDISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION - _____HC ODOR DETECTED: YES / NO EXPLANATION - _____SAMPLING DEPTHS (LANDFARMS): 4-6 (INCHES)SAMPLE TYPE: GRAB / COMPOSITE # OF PTS. 5

ADDITIONAL COMMENTS: _____

SKETCH/SAMPLE LOCATIONS



OVM CALIB. READ. = 53.4 ppm
 OVM CALIB. GAS = 100 ppm RF = 0.52
 TIME: 7:10 @ ppm DATE: 7/20/05

OVM RESULTS

LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	0.0	LF-1	TPH (80158)	1255	ND

P.C. - 10/28/03

SCALE

0 FT

TRAVEL NOTES: CALLOUT: N/AONSITE: 7/22/05

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

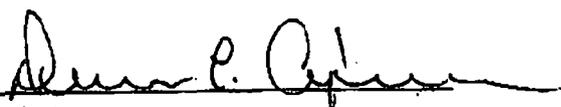
Client:	Blagg / BP	Project #:	94034-010
Sample ID:	LF - 1	Date Reported:	07-28-05
Laboratory Number:	33833	Date Sampled:	07-22-05
Chain of Custody No:	13919	Date Received:	07-25-05
Sample Matrix:	Soil	Date Extracted:	07-27-05
Preservative:	Cool	Date Analyzed:	07-28-05
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

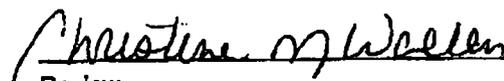
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Sandoval GC A #1A Landfarm 5 Pt. Composite Sample.


Analyst


Review

CHAIN OF CUSTODY RECORD

13919

Client / Project Name			Project Location			ANALYSIS / PARAMETERS					
BLAGG / BP			SANDOVAL GC A #1A								
Sampler: NTV			Client No. 94034-010			No. of Containers		TPH (8015B)		Remarks	
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015B)					Remarks
LF-1	7/2/05	1255	33833	SOIL	1	✓					RESERVED COOL 5 FT. AVG COMPOSITE SAMPLE
											LANDFARM
Relinquished by: (Signature)			Date	Time	Received by: (Signature)			Date	Time		
<i>[Signature]</i>			7/25/05	0812	<i>[Signature]</i>			7-25-05	0812		
Relinquished by: (Signature)					Received by: (Signature)						
Relinquished by: (Signature)					Received by: (Signature)						
ENVIROTECH INC.							Sample Receipt				
5796 U.S. Highway 64 Farmington, New Mexico 87401 (505) 632-0615								Y	N	N/A	
							Received Intact	✓			
							Cool - Ice/Blue Ice	✓			



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87508
(505) 827-7131

July 9, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. 7-235-437-308

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: SAN JUAN BASIN PIT GROUND WATER SITES

Dear Mr. Shaw:

Information in El Paso Field Services (EPFS) recent annual ground water monitoring report shows the presence of shallow ground at some well sites operated by Amoco Production Company (Amoco). Disposal activities at EPFS pits on these locations have resulted in contamination of shallow ground water. These sites also apparently have former unlined production pits operated by Amoco, some of which appear to be contributing to ground water contamination seen in EPFS monitoring wells.

Due to the presence of ground water contamination at these sites and the apparent commingling of contaminated waters from EPFS's former unlined dehy pit and Amoco's former unlined production pits, the OCD requests that Amoco cooperate with EPFS to investigate and remediate contaminated ground water at the sites listed below:

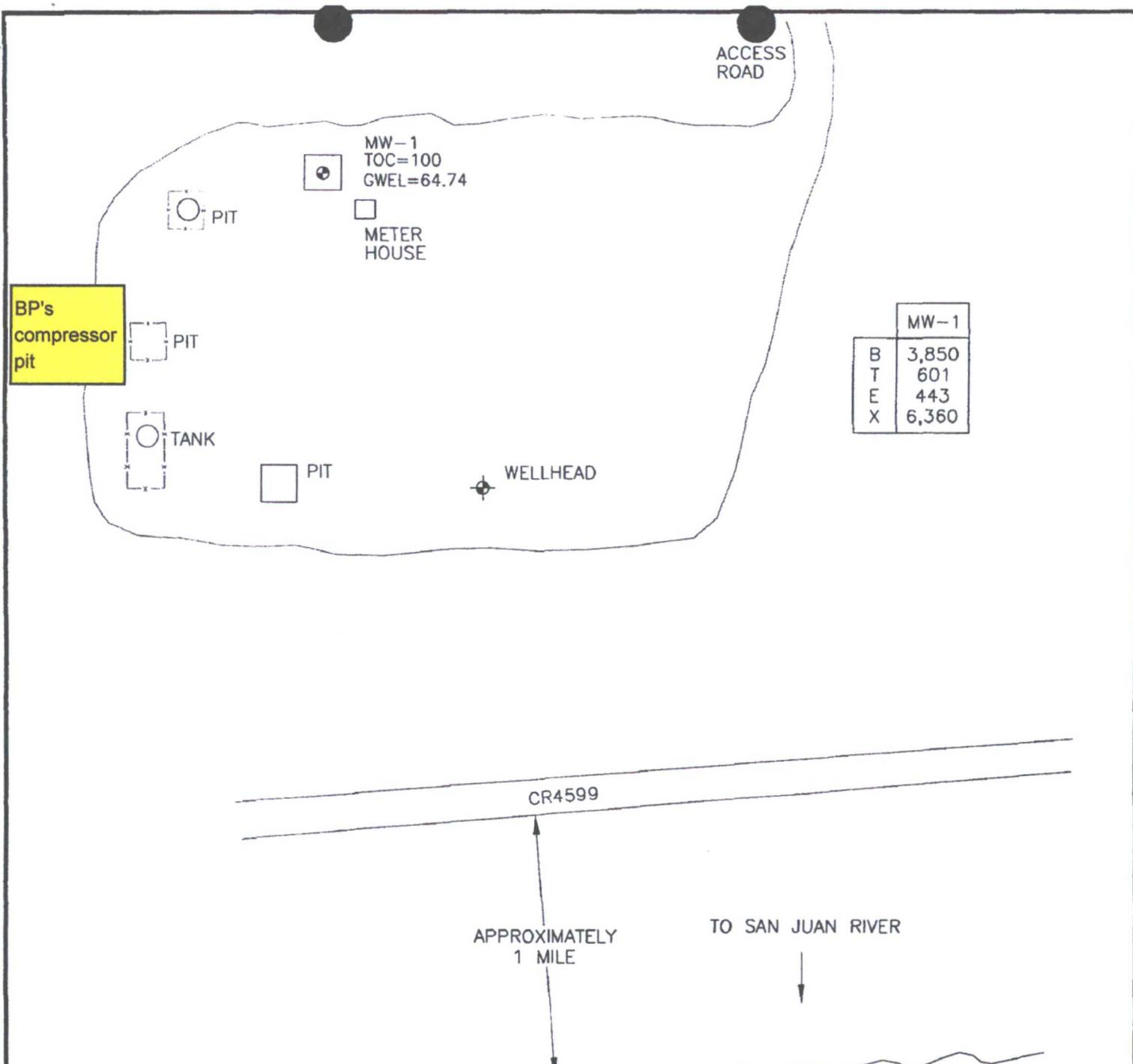
- | | |
|-------------------------------------|------------------------------|
| 1. Coldiron Com A#1 | Unit K, Sec. 02, T30N, R11W. |
| 2. Fields A #7A | Unit E, Sec. 34, T32N, R11W. |
| 3. Gallegos Canyon Unit Com A #142E | Unit G, Sec. 25, T29N, R12W. |
| 4. Sandoval Gas Com A #1A | Unit C, Sec. 35, T30N, R09W. |

If you have any questions, please contact me at (505) 827-7154.

Sincerely,


William C. Olson
Hydrologist
Environmental Bureau

cc: Denny Foust, OCD Aztec District Office
Sandra D. Miller, El Paso Field Services
Bill Liess, BLM Farmington Office



LEGEND

- ⊙ MW-1 Approximate Monitoring Well Location and Number
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC Top of Casing
- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)



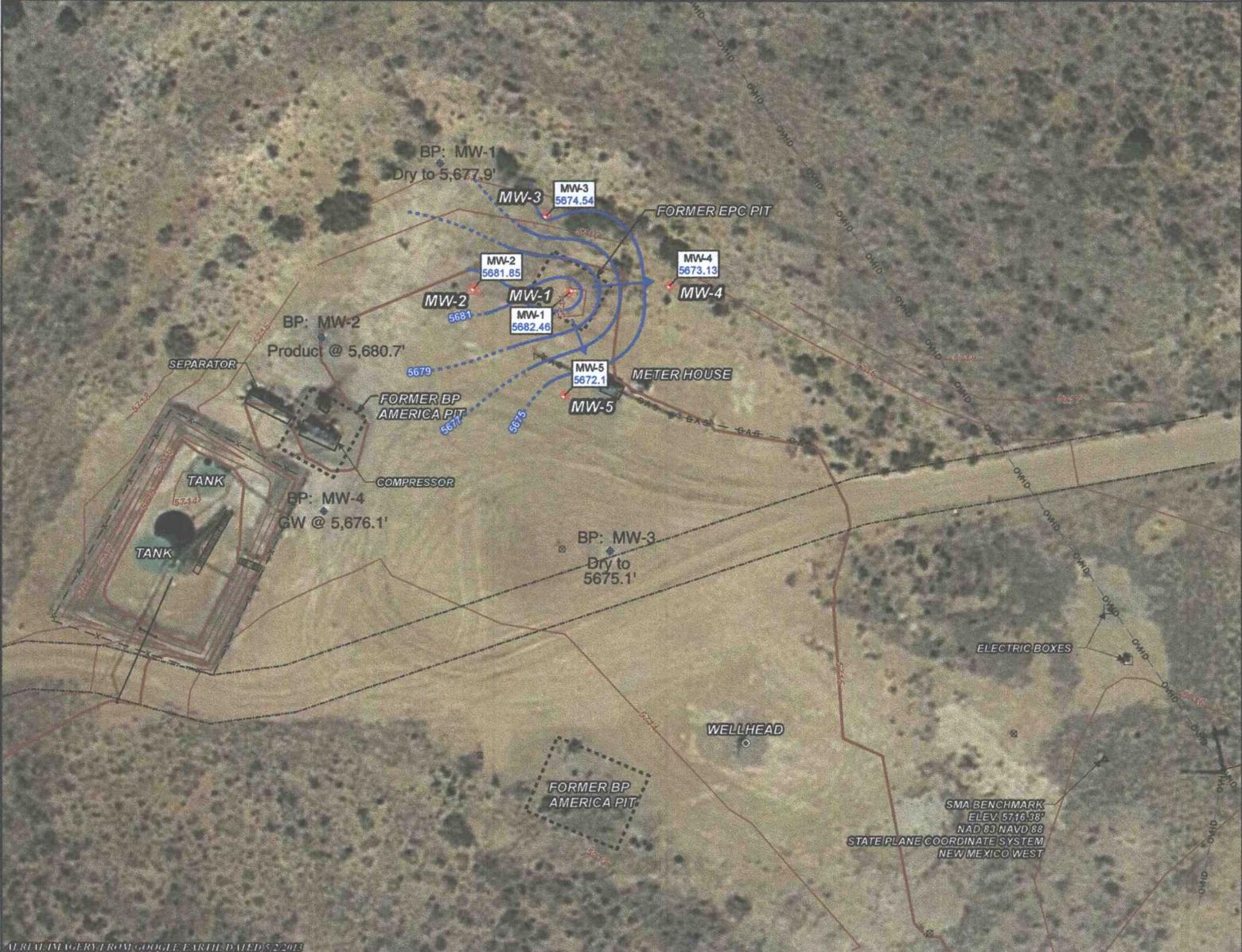
NOT TO SCALE

sandovalgas_03.dwg

SANDOVAL GAS COM A #1A, METER 89620
MAY 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



LEGEND:

- 6500 APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- - - - - FORMER PIT
- NATURAL GAS LINE
- OVERHEAD ELECTRIC LINE
- ◆ MONITORING WELL
- ▲ MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- ◆ OTHER MONITORING WELL
- ▲ SMA BENCHMARK
- ⊗ RIG ANCHOR

NOTES:

- 5673.19 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 5679 WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 2 FOOT CONTOUR INTERVAL).
- DIRECTION OF APPARENT GROUNDWATER FLOW



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	08/09/17	OCJ	OCJ	SRV

TITLE: **GROUNDWATER ELEVATION MAP
OCTOBER 16, 2016**

PROJECT: **SANDOVAL GC AS#1A
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**

MWH Figure No.: **4**

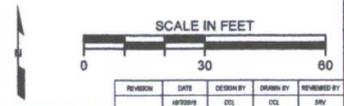


LEGEND:

- 6500 APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- - - - FORMER PIT
- A— NATURAL GAS LINE
- O—H— OVERHEAD ELECTRIC LINE
- ⊕ MONITORING WELL
- ◆ OTHER MONITORING WELL
- △ SMA BENCHMARK
- ⊗ RIG ANCHOR

NOTES:

- 5673.19 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 2 FOOT CONTOUR INTERVAL).
- DIRECTION OF APPARENT GROUNDWATER FLOW



REVISION	DATE	DESIGNED BY	DRAWN BY	REVIEWED BY

TITLE: **GROUNDWATER ELEVATION MAP**
APRIL 19, 2016

PROJECT: **SANDOVALL GC A#1A**
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

MWH Figure No.: **2**

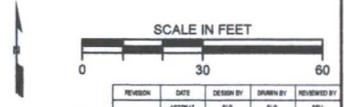


LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- NATURAL GAS LINE
- OVERHEAD ELECTRIC LINE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- OTHER MONITORING WELL
- SMA BENCHMARK
- RIG ANCHOR

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:
 RESULTS IN BOLDFACE TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
 NS = NOT SAMPLED
 µg/L = MICROGRAMS PER LITER
 <10 = BELOW REPORTING LIMIT

ANALYTE	NMWCQCC STANDARDS
B = Benzene	10 µg/L
T = Toluene	750 µg/L
E = Ethylbenzene	750 µg/L
X = Total Xylenes	620 µg/L



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY

TITLE:

**GROUNDWATER ANALYTICAL RESULTS
 OCTOBER 16, 2016**

PROJECT: **SANDOVAL GC A#1A
 SAN JUAN RIVER BASIN
 SAN JUAN COUNTY, NEW MEXICO**

MWH Figure No.: **3**

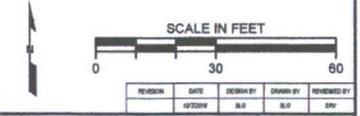


LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
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TITLE:
GROUNDWATER ANALYTICAL RESULTS
APRIL 19, 2016

PROJECT:
SANDOVAL GC A#1A
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: **1**