



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

August 30, 2013

WELL WORK PERMIT

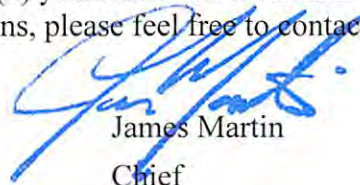
Horizontal Well

This permit, API Well Number: 47-1304742, issued to BUCKEYE OIL PRODUCING CO, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: BUCKEYE 2H
Farm Name: BUCKEYE OIL PRODUCING CO.
API Well Number: 47-1304742
Permit Type: Horizontal Well
Date Issued: 08/30/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.

CK# 88779
\$650⁰⁰

WW - 2B
(Rev. 8/10)

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION**

13 01 379

1) Well Operator: Buckeye Oil Producing Co. 306103 Calhoun Center Grantsville 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Buckeye 2H 3) Elevation: 961'

4) Well Type: (a) Oil or Gas
(b) If Gas: Production / Underground Storage _____
Deep _____ / Shallow

5) Proposed Target Formation(s): Berea Proposed Target Depth: 2,450' **TVD**

6) Proposed Total Depth: 5,750' **MO** Feet Formation at Proposed Total Depth: Berea

7) Approximate fresh water strata depths: 60'

8) Approximate salt water depths: 990'

9) Approximate coal seam depths: None

10) Approximate void depths,(coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Drill and set 60' conductor. Drill & set 300' - 9-5/8 casing & cement to surface. Drill to 1,775' & set 7" casing & cement to surface. Drill to 1,825' & start to build curve 10° - 100'. At 90° drill to T.D. Run 4-1/2" casing & set 6-8 packer.

See attached sheet - cement above KOP. Also see attached Well Bore Schematic.

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS		FOOTAGE		INTERVALS	CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill-up (Cu. Ft.)
Conductor	11-3/4"	J-55	38#	60'	0	
Fresh Water	9-5/8"	J-55	29#	300'	300'	CTS
Coal						
Intermediate	7"	J-55	17#	1775'	1775'	CTS
Production	4-1/2"	J-55	10.5#	5750'	5750'	By Rule 35 CSR 4-11.1
Tubing						
Liners						

Received

Packers: Kind: Stimpact
 Sizes: 4-1/2 x 5.75" openhole packer
 Depths Set 1650' - 5200' setting 7 packers

Buckeye Oil Producing

Calhoun, West Virginia

Buckeye Unit

Buckeye #2H

Wellbore #1

Plan: Design #1

DDC Well Planning Report

13 June, 2013



Office of Oil and Gas
WV Dept. of Environmental Protection

DDC
Well Planning Report



Database: EDM 5000.1 Single User Db
Company: Buckeye Oil Producing
Project: Calhoun, West Virginia
Site: Buckeye Unit
Well: Buckeye #2H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well Buckeye #2H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Calhoun, West Virginia		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Southern Zone		

Site	Buckeye Unit				
Site Position:		Northing:	0.00 usft	Latitude:	36° 48' 13.366 N
From:	Map	Easting:	0.00 usft	Longitude:	87° 43' 40.515 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-4.16 °

Well	Buckeye #2H					
Well Position	+N/-S	722,887.4 usft	Northing:	722,887.44 usft	Latitude:	38° 59' 6.252 N
	+E/-W	1,938,553.2 usft	Easting:	1,938,553.26 usft	Longitude:	81° 6' 19.242 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	0.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/13/2013	-8.14	66.71	52,307

Design	Design #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	283.13	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,831.9	0.00	0.00	1,831.9	0.0	0.0	0.00	0.00	0.00	0.00	
2,737.3	90.51	268.50	2,405.0	-15.1	-578.1	10.00	10.00	0.00	268.50	
3,697.3	90.51	268.50	2,396.5	-40.3	-1,537.7	0.00	0.00	0.00	0.00	
4,680.9	90.51	307.85	2,387.4	260.5	-2,454.0	4.00	0.00	4.00	89.83	
5,408.0	90.51	307.85	2,381.0	706.6	-3,028.0	0.00	0.00	0.00	0.00	PBHL Buckeye #2H

Received

JUN 17 2013

DDC
Well Planning Report



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Company: Buckeye Oil Producing
Project: Calhoun, West Virginia
Site: Buckeye Unit
Well: Buckeye #2H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well Buckeye #2H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buld Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 10°/100'									
1,831.9	0.00	0.00	1,831.9	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	6.81	268.50	1,899.8	-0.1	-4.0	3.9	10.00	10.00	0.00
2,000.0	16.80	268.50	1,997.6	-0.6	-24.5	23.7	10.00	10.00	0.00
2,100.0	26.80	268.50	2,090.3	-1.6	-61.5	59.6	10.00	10.00	0.00
2,200.0	36.80	268.50	2,175.2	-3.0	-114.2	110.5	10.00	10.00	0.00
2,300.0	46.79	268.50	2,249.7	-4.7	-180.7	174.9	10.00	10.00	0.00
2,400.0	56.79	268.50	2,311.4	-6.8	-259.2	250.8	10.00	10.00	0.00
2,500.0	66.79	268.50	2,358.7	-9.1	-347.1	336.0	10.00	10.00	0.00
2,600.0	76.78	268.50	2,389.9	-11.6	-442.0	427.8	10.00	10.00	0.00
2,700.0	86.78	268.50	2,404.1	-14.2	-540.8	523.4	10.00	10.00	0.00
EOB @ 90.51° Inc / 268.50° Azm									
2,737.3	90.51	268.50	2,405.0	-15.1	-578.1	559.5	10.00	10.00	0.00
2,800.0	90.51	268.50	2,404.5	-16.8	-640.7	620.2	0.00	0.00	0.00
2,900.0	90.51	268.50	2,403.6	-19.4	-740.7	716.9	0.00	0.00	0.00
3,000.0	90.51	268.50	2,402.7	-22.0	-840.7	813.7	0.00	0.00	0.00
3,100.0	90.51	268.50	2,401.8	-24.6	-940.6	910.4	0.00	0.00	0.00
3,200.0	90.51	268.50	2,400.9	-27.2	-1,040.6	1,007.2	0.00	0.00	0.00
3,300.0	90.51	268.50	2,400.0	-29.9	-1,140.5	1,103.9	0.00	0.00	0.00
3,400.0	90.51	268.50	2,399.1	-32.5	-1,240.5	1,200.7	0.00	0.00	0.00
3,500.0	90.51	268.50	2,398.2	-35.1	-1,340.5	1,297.4	0.00	0.00	0.00
3,600.0	90.51	268.50	2,397.3	-37.7	-1,440.4	1,394.2	0.00	0.00	0.00
Turn 4°/100'									
3,697.3	90.51	268.50	2,396.5	-40.3	-1,537.7	1,488.3	0.00	0.00	0.00
3,700.0	90.51	268.61	2,396.5	-40.3	-1,540.4	1,490.9	4.00	0.01	4.00
3,800.0	90.52	272.61	2,395.6	-39.3	-1,640.4	1,588.5	4.00	0.01	4.00
3,900.0	90.53	276.61	2,394.6	-31.2	-1,740.0	1,687.4	4.00	0.01	4.00
4,000.0	90.54	280.61	2,393.7	-16.3	-1,838.9	1,787.0	4.00	0.01	4.00
4,100.0	90.54	284.61	2,392.8	5.5	-1,936.4	1,887.0	4.00	0.00	4.00
4,200.0	90.54	288.61	2,391.8	34.1	-2,032.2	1,986.8	4.00	0.00	4.00
4,300.0	90.54	292.61	2,390.9	69.3	-2,125.8	2,085.9	4.00	0.00	4.00
4,400.0	90.53	296.61	2,390.0	110.9	-2,216.7	2,183.9	4.00	0.00	4.00
4,500.0	90.52	300.61	2,389.0	158.8	-2,304.5	2,280.3	4.00	-0.01	4.00
4,600.0	90.51	304.61	2,388.1	212.7	-2,388.7	2,374.5	4.00	-0.01	4.00

Received

JUN 17 2013

DDC
Well Planning Report



Database: EDM 5000.1 Single User Db
Company: Buckeye Oil Producing
Project: Calhoun, West Virginia
Site: Buckeye Unit
Well: Buckeye #2H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well Buckeye #2H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
EOT @ 307.85° Azm									
4,680.9	90.51	307.85	2,387.4	260.5	-2,454.0	2,449.0	4.00	-0.01	4.00
4,700.0	90.51	307.85	2,387.2	272.2	-2,469.0	2,466.3	0.00	0.00	0.00
4,800.0	90.51	307.85	2,386.4	333.6	-2,548.0	2,557.1	0.00	0.00	0.00
4,900.0	90.51	307.85	2,385.5	394.9	-2,626.9	2,648.0	0.00	0.00	0.00
5,000.0	90.51	307.85	2,384.6	456.3	-2,705.9	2,738.8	0.00	0.00	0.00
5,100.0	90.51	307.85	2,383.7	517.6	-2,784.9	2,829.6	0.00	0.00	0.00
5,200.0	90.51	307.85	2,382.8	579.0	-2,863.8	2,920.5	0.00	0.00	0.00
5,300.0	90.51	307.85	2,382.0	640.3	-2,942.8	3,011.3	0.00	0.00	0.00
5,400.0	90.51	307.85	2,381.1	701.7	-3,021.7	3,102.1	0.00	0.00	0.00
TD @ 5408' MD / 2381' TVD									
5,408.0	90.51	307.85	2,381.0	706.6	-3,028.0	3,109.4	0.00	0.00	0.00

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Bennett #11 - plan misses target center by 2498.1usft at 5207.4usft MD (2382.8 TVD, 583.5 N, -2869.7 E) - Circle (radius 800.0)	0.00	0.00	0.0	-21.5	-3,313.2	722,865.93	1,935,240.02	38° 59' 6.000 N	81° 7' 1.200 W
Bennett, JM #26 - plan misses target center by 1066.8usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Circle (radius 800.0)	0.00	0.00	0.0	-753.1	-755.6	722,134.36	1,937,797.63	38° 58' 58.800 N	81° 6' 28.800 W
Bennett, JM #25 - plan misses target center by 1498.4usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Circle (radius 800.0)	0.00	360.00	0.0	704.5	-1,322.5	723,591.96	1,937,230.80	38° 59' 13.200 N	81° 6' 36.000 W
PBHL Buckeye #2H - plan hits target center - Point	0.00	360.00	2,381.0	706.6	-3,028.0	723,594.04	1,935,525.21	38° 59' 13.200 N	81° 6' 57.600 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,831.9	1,831.9	0.0	0.0	Build 10°/100'
2,737.3	2,405.0	-15.1	-578.1	EOB @ 90.51° Inc / 268.50° Azm
3,697.3	2,396.5	-40.3	-1,537.7	Turn 4°/100'
4,680.9	2,387.4	260.5	-2,454.0	EOT @ 307.85° Azm
5,408.0	2,381.0	706.6	-3,028.0	TD @ 5408' MD / 2381' TVD

Received

JUN 17 2013

Buckeye Oil Producing

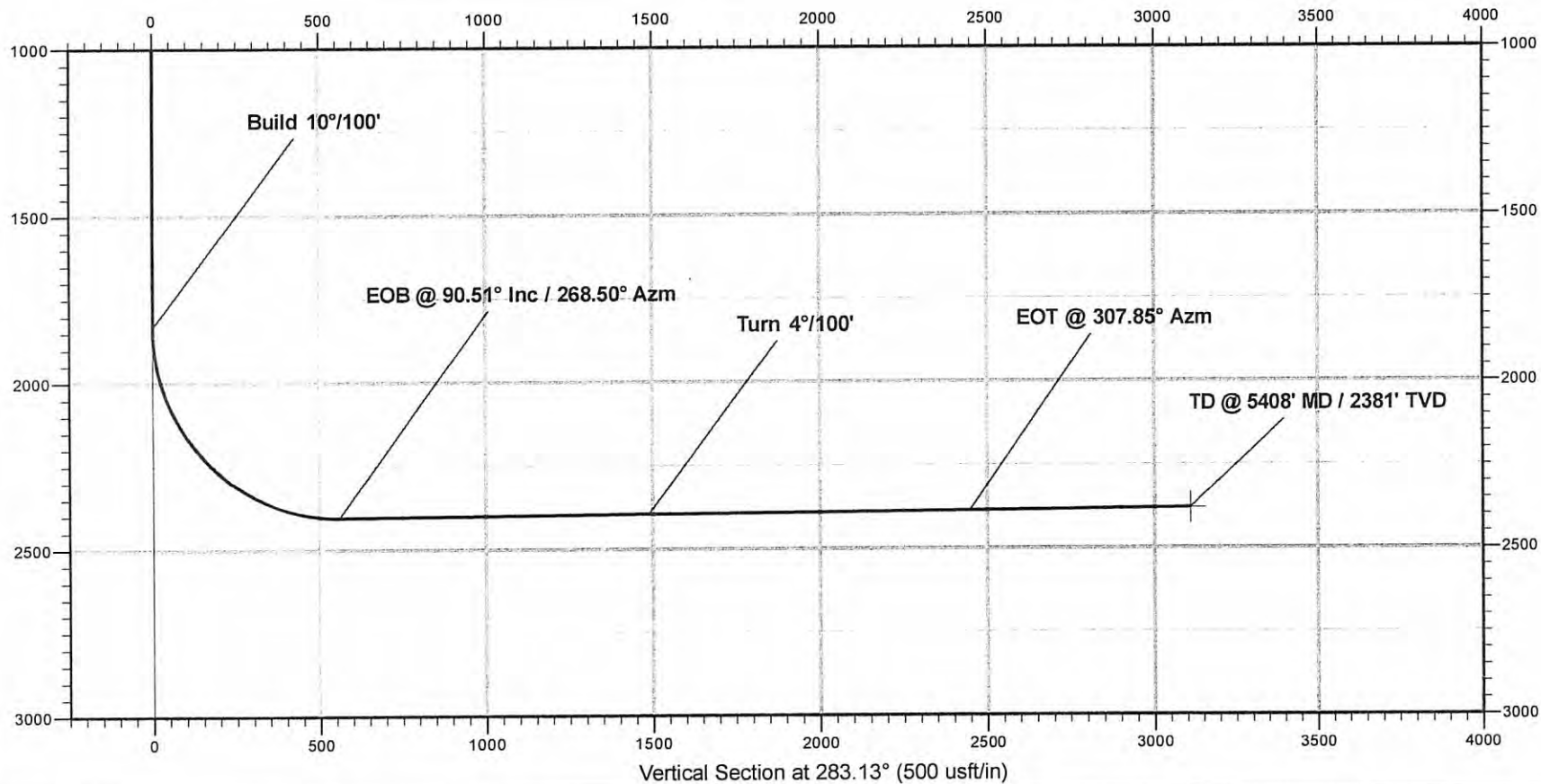
Calhoun, West Virginia
Buckeye #2H
Design #1



Received

JUL 17 2011

Office of Oil and Gas
WV Dept. of Environmental Protection



Buckeye Oil Producing

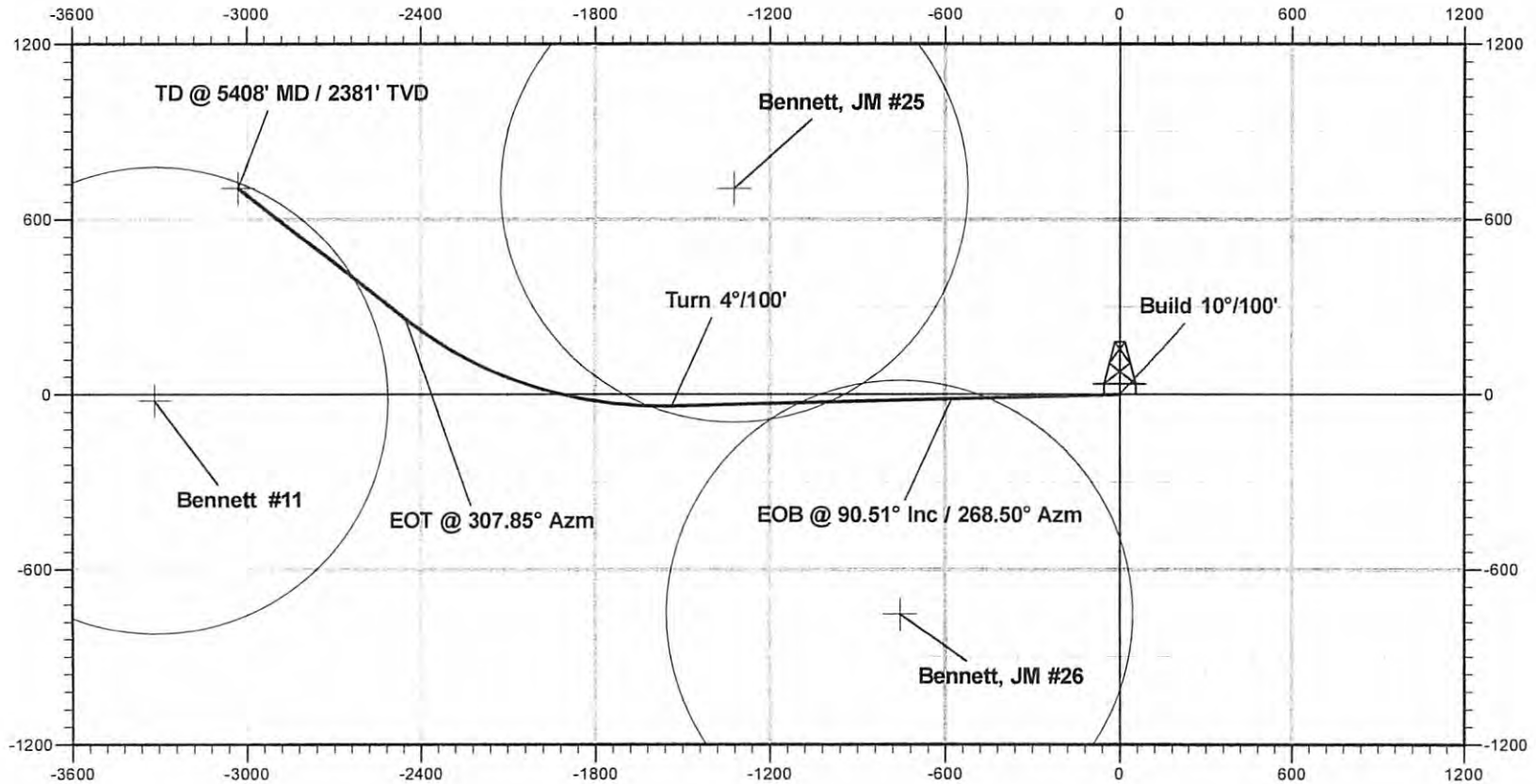
Calhoun, West Virginia
Buckeye #2H
Design #1



Received

JUL 17 2013

Office of Oil and Gas
WV Dept. of Environmental Protection



ADC - Buckeye #2H Design #1.txt

Customer Buckeye Oil Producing Creation Date 1/1/1990
 Project Calhoun, West Virginia Profile Type
 Field Calhoun, West Virginia Your Ref
 Structure Buckeye Unit Job Number
 Wellhead Buckeye #2H Kelly Bushing Elev. 0.00
 Profile Design #1 Print Date 6/13/2013

MD Coord (ft) (ft)	Incl. Global Deg.	Azim. E Coord Deg.	Sub-Sea Dogleg (ft)	TVD Vertical (ft)	Local N Coord (ft)	Local E Coord (ft)	Global N Coord (ft)	Global N (°/100ft)
0.000		0.000		0.000	0.000		0.000	
0.000		0.000		722887.448	1938553.254		0.000	0.00
1831.900		0.000		0.000	1831.900		1831.900	
0.000		0.000		722887.448	1938553.254		0.000	0.00
1899.996		6.807		268.500	1899.836		1899.836	
-0.106		-4.039		722887.342	1938549.215		9.997	3.91
1999.996		16.804		268.500	1997.597		1997.597	
-0.641		-24.465		722886.807	1938528.789		9.997	23.68
2099.996		26.801		268.500	2090.326		2090.326	
-1.612		-61.546		722885.836	1938491.708		9.997	59.57
2199.996		36.797		268.500	2175.208		2175.208	
-2.989		-114.155		722884.459	1938439.099		9.997	110.49
2299.995		46.794		268.500	2249.666		2249.666	
-4.732		-180.696		722882.716	1938372.559		9.997	174.89
2399.995		56.791		268.500	2311.439		2311.439	
-6.786		-259.146		722880.662	1938294.108		9.997	250.82
2499.995		66.787		268.500	2358.650		2358.650	
-9.090		-347.126		722878.358	1938206.129		9.997	335.98
2599.995		76.784		268.500	2389.868		2389.868	
-11.573		-441.962		722875.875	1938111.292		9.997	427.77
2699.995		86.781		268.500	2404.143		2404.143	
-14.161		-540.776		722873.287	1938012.479		9.997	523.41
2737.300		90.510		268.500	2405.025		2405.025	
-15.137		-578.051		722872.311	1937975.203		9.997	559.49
2799.994		90.510		268.500	2404.467		2404.467	
-16.778		-640.722		722870.670	1937912.533		0.000	620.15
2899.994		90.510		268.500	2403.577		2403.577	
-19.395		-740.683		722868.052	1937812.571		0.000	716.90
2999.994		90.510		268.500	2402.687		2402.687	
-22.013		-840.645		722865.435	1937712.609		0.000	813.65
3099.994		90.510		268.500	2401.797		2401.797	
-24.631		-940.606		722862.817	1937612.648		0.000	910.40
3199.994		90.510		268.500	2400.907		2400.907	
-27.248		-1040.568		722860.200	1937512.686		0.000	1007.15
3299.993		90.510		268.500	2400.016		2400.016	
-29.866		-1140.529		722857.582	1937412.725		0.000	1103.90
3399.993		90.510		268.500	2399.126		2399.126	
-32.483		-1240.491		722854.964	1937312.763		0.000	1200.66
3499.993		90.510		268.500	2398.236		2398.236	
-35.101		-1340.453		722852.347	1937212.802		0.000	1297.41
3599.993		90.510		268.500	2397.346		2397.346	
-37.719		-1440.414		722849.729	1937112.840		0.000	1394.16
3697.300		90.510		268.500	2396.480		2396.480	
-40.266		-1537.684		722847.182	1937015.570		0.000	1488.30
3699.993		90.510		268.608	2396.456		2396.456	
-40.334		-1540.376		722847.114	1937012.878		4.000	1490.91
3799.992		90.521		272.608	2395.555		2395.555	
-39.273		-1640.346		722848.175	1936912.909		4.000	1588.51
3899.992		90.530		276.608	2394.638		2394.638	
-31.241		-1739.998		722856.206	1936813.256		4.000	1687.38
3999.992		90.535		280.608	2393.709		2393.709	

Received

		ADC - Buckeye #2H Design #1.txt		
-16.278	-1838.847	722871.170	1936714.407	4.000 1787.04
4099.992	90.538	284.608	2392.771	2392.771
5.545	-1936.411	722892.993	1936616.843	4.000 1887.01
4199.992	90.539	288.608	2391.831	2391.831
34.121	-2032.215	722921.569	1936521.039	4.000 1986.80
4299.991	90.537	292.609	2390.892	2390.892
69.310	-2125.793	722956.758	1936427.462	4.000 2085.93
4399.991	90.532	296.609	2389.959	2389.959
110.942	-2216.687	722998.390	1936336.567	4.000 2183.90
4499.991	90.525	300.609	2389.036	2389.036
158.813	-2304.456	723046.261	1936248.798	4.000 2280.26
4599.991	90.515	304.609	2388.129	2388.129
212.690	-2388.672	723100.138	1936164.582	4.000 2374.51
4680.943	90.505	307.847	2387.408	2387.408
260.525	-2453.963	723147.973	1936099.291	4.000 2448.96
4699.991	90.505	307.847	2387.240	2387.240
272.211	-2469.003	723159.659	1936084.251	0.000 2466.27
4799.990	90.505	307.847	2386.359	2386.359
333.565	-2547.965	723221.013	1936005.290	0.000 2557.10
4899.990	90.505	307.847	2385.477	2385.477
394.918	-2626.926	723282.366	1935926.328	0.000 2647.94
4999.990	90.505	307.847	2384.596	2384.596
456.272	-2705.888	723343.719	1935847.366	0.000 2738.78
5099.990	90.505	307.847	2383.715	2383.715
517.625	-2784.849	723405.073	1935768.405	0.000 2829.62
5199.990	90.505	307.847	2382.833	2382.833
578.978	-2863.811	723466.426	1935689.443	0.000 2920.46
5299.989	90.505	307.847	2381.952	2381.952
640.332	-2942.773	723527.780	1935610.481	0.000 3011.30
5399.989	90.505	307.847	2381.070	2381.070
701.685	-3021.734	723589.133	1935531.520	0.000 3102.13
5407.985	90.505	307.847	2381.000	2381.000
706.591	-3028.048	723594.039	1935525.206	0.000 3109.40

Received

APR 17 2008

Office of Oil and Gas
WV Dept. of Environmental Protection

Frac well --

- Stage 1 Pump out end of 4-1/2" with 350 Bbl. total water and 8,000# sand**
- Stage 2 Frac with 650 Bbls. total water and 30,000# 20/40 sand**
- Stage 3 Frac with 650 Bbls. total water and 30,000# 20/40 sand**
- Stage 4 Frac with 625 Bbls. total water and 30,000# 20/40 sand**
- Stage 5 Frac with 625 Bbls. total water and 25,000# 20/40 sand**
- Stage 6 Frac with 600 Bbls. total water and 25,000# 20/40 sand**
- Stage 7 Frac with 600 Bbls. total water and 20,000# 20/40 sand**

Received

FEB 17 2012

Office of Oil and Gas
WV Dept. of Environmental Protection

1304742

WW-2A
(Rev. 6-07)

1). Date: _____
2.) Operator's Well Number Buckeye 2H
State _____ County _____ Permit _____
3.) API Well No.: 47- _____ - _____

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE AND APPLICATION FOR A WELL WORK PERMIT**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Buckeye Oil Producing Co.</u> <i>W</i>	Name <u>N/A</u>
Address <u>P.O. Box 129</u>	Address _____
<u>Wooster, OH 44691</u>	_____
(b) Name <u>Ruth & James Richards</u> <i>W</i>	(b) Coal Owner(s) with Declaration
Address <u>852 Kites Run Road</u>	Name <u>N/A - No Mineable Coal in Area</u>
<u>Walker, WV 26180</u>	Address _____
(c) Name <u>Charles Givens</u> <i>W</i>	Name _____
Address <u>824 Givens Road</u>	Address _____
<u>Big Springs, WV 26137</u>	_____
6) Inspector <u>Ed Gainer</u>	(c) Coal Lessee with Declaration
Address <u>P.O. Box 821</u>	Name <u>N/A</u>
<u>Spencer, WV 25276</u>	Address _____
Telephone <u>304-389-7582</u>	_____

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

OR
 Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

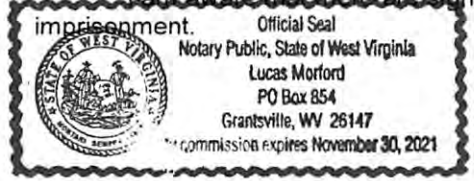
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

- Personal Service (Affidavit attached)
- Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator Buckeye Oil Producing Co.
 By: Henry W. Sinnett
 Its: Designated Agent
 Address Rt. 1 Box 150A
Big Ben, WV 26136
 Telephone 330-264-8847

Subscribed and sworn before me this 16 day of July

[Signature]

Notary Public

My Commission Expires November 30, 2021

Oil and Gas Privacy Notice

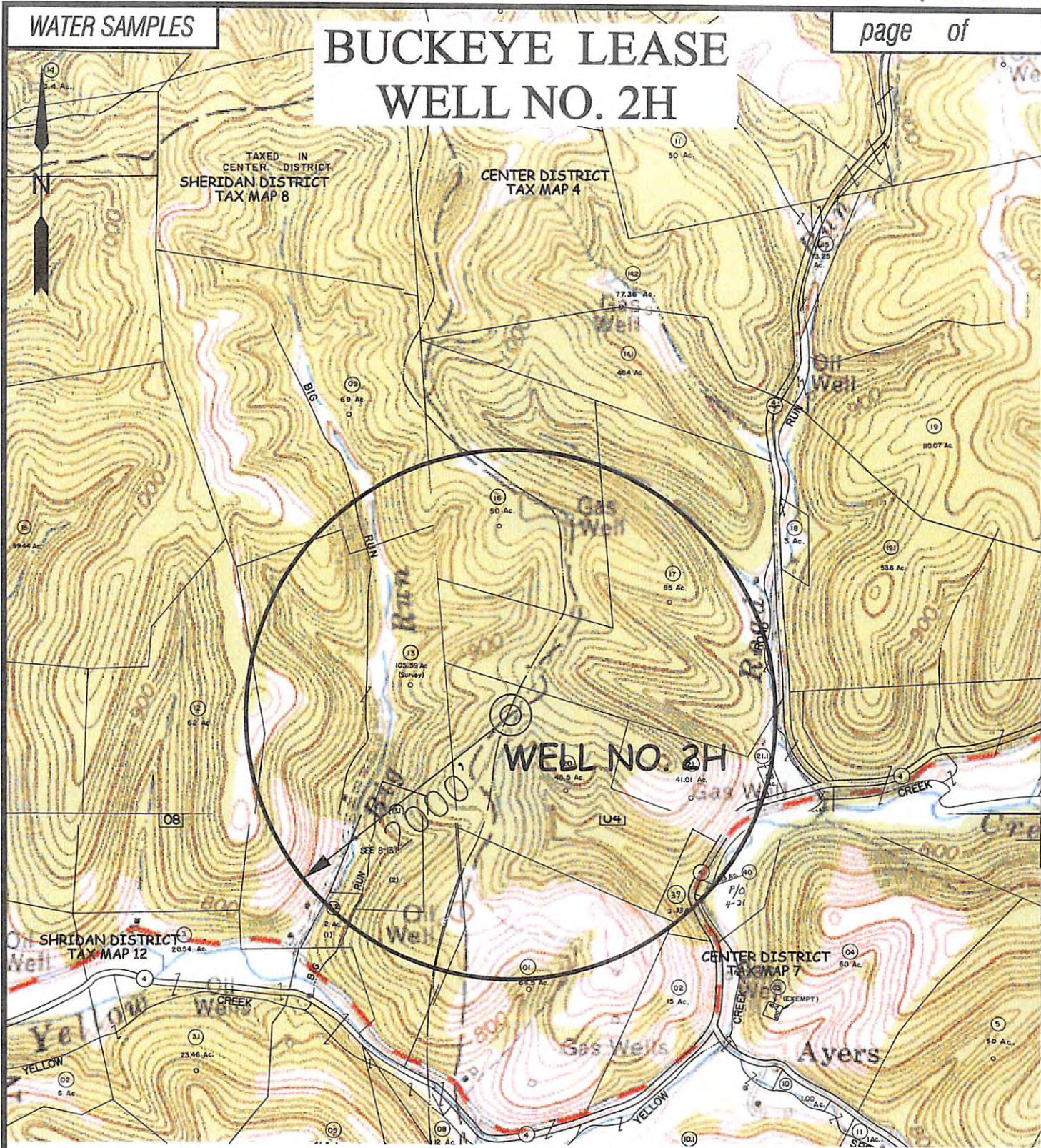
Received

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov

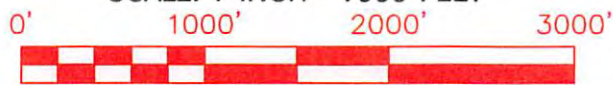
WATER SAMPLES

page of

BUCKEYE LEASE WELL NO. 2H



SCALE: 1-INCH=1000-FEET



Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING

SURVEYORS
PROJECT MGMT. **SLS** ENGINEERS
ENVIRONMENTAL

228 West 12th St.
P.O. Box 120
Granville, OH 43041
(614) 482-3634

36060 Drexel Bottom Road
Shelbyville, OH 43157
(740) 871-9111

HONESTY. INTEGRITY. QUALITY

TOPO SECTION OF:
GRANTSVILLE, WV 7.5' QUAD.

OPERATOR:
**BUCKEYE OIL PRODUCING
CO.**
P.O. BOX 129
WOOSTER, OH 44691

Received

JUL 17 2013

DRAWN BY K.D.W.	FILE NO. 8040	DATE 07/11/13	CADD FILE: 8040WS2H.dwg
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COUNTY	DISTRICT	TAX MAP-PARCEL NO.
CALHOUN	CENTER	4-20

Office of Oil and Gas
WV Dept. of Environmental Protection

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Buckeye Oil Producing Co. OP Code 306103

Watershed (HUC 10) Big Run of Yellow Creek Quadrangle Grantsville 7.5'

Elevation 961' County Calhoun District Center

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes _____ No X

Will a pit be used for drill cuttings? Yes X No _____

If so, please describe anticipated pit waste: Rock cuttings/drilled solids, drilling and completion fluids

Will a synthetic liner be used in the pit? Yes X No _____ If so, what ml.? 60 30

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? Air drilling operations - no; Fluid drilling operations (if necessary) - yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air, foam/soap, fresh water, water based polymer mud

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used in drilling medium? Drilling Mud - sodium/calcium/potassium chloride(s), starch, xanthan gum, sodium bicarbonate, caustic soda, biocide

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Primary plan - Leave in pit; Alternate plan - Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) Cement or lime, depending on product availability

-Landfill or offsite name/permit number? If necessary, haul to Meadowfill Landfill

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

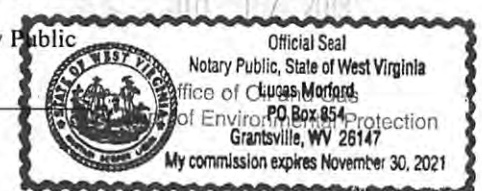
Company Official Signature Henry W. Sinnett
Company Official (Typed Name) Henry W. Sinnett
Company Official Title Designated Agent

Subscribed and sworn before me this 16 day of July, 20 13

[Signature]
Notary Public

My commission expires November 30, 2021

Received



LEGEND

- Property Boundary
- Road
- Existing Fence
- Planned Fence
- Stream
- Open Ditch
- Rock
- North
- Buildings
- Water wells
- Drill site

- Diversion
- Spring
- Wet Spot
- Drain Pipe with size-in inches
- Waterway
- Cross Drain
- Artificial Filter Strip
- Pit: cut walls
- Pit: compacted fill walls
- Area for Land Application of Pit Waste

Proposed Revegetation Treatment: Acres Disturbed 2.12 +/- Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 1/3 TON lbs/acre (500 lbs minimum)

Mulch HAY 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	ORCHARD GRASS	15
ALSIKE CLOVER	5	ALSIKE CLOVER	5
ANNUAL RYE	15		

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Title: Inspector

Date: 7/16/13

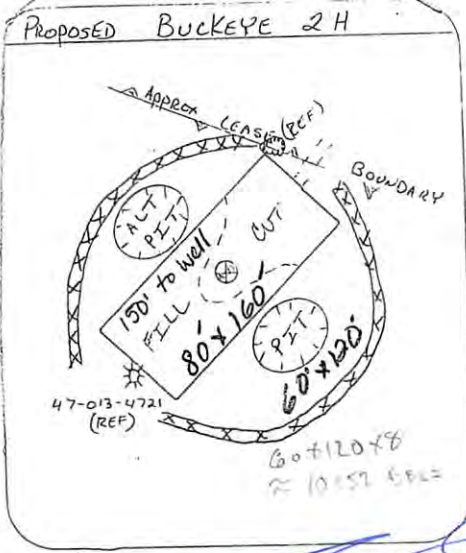
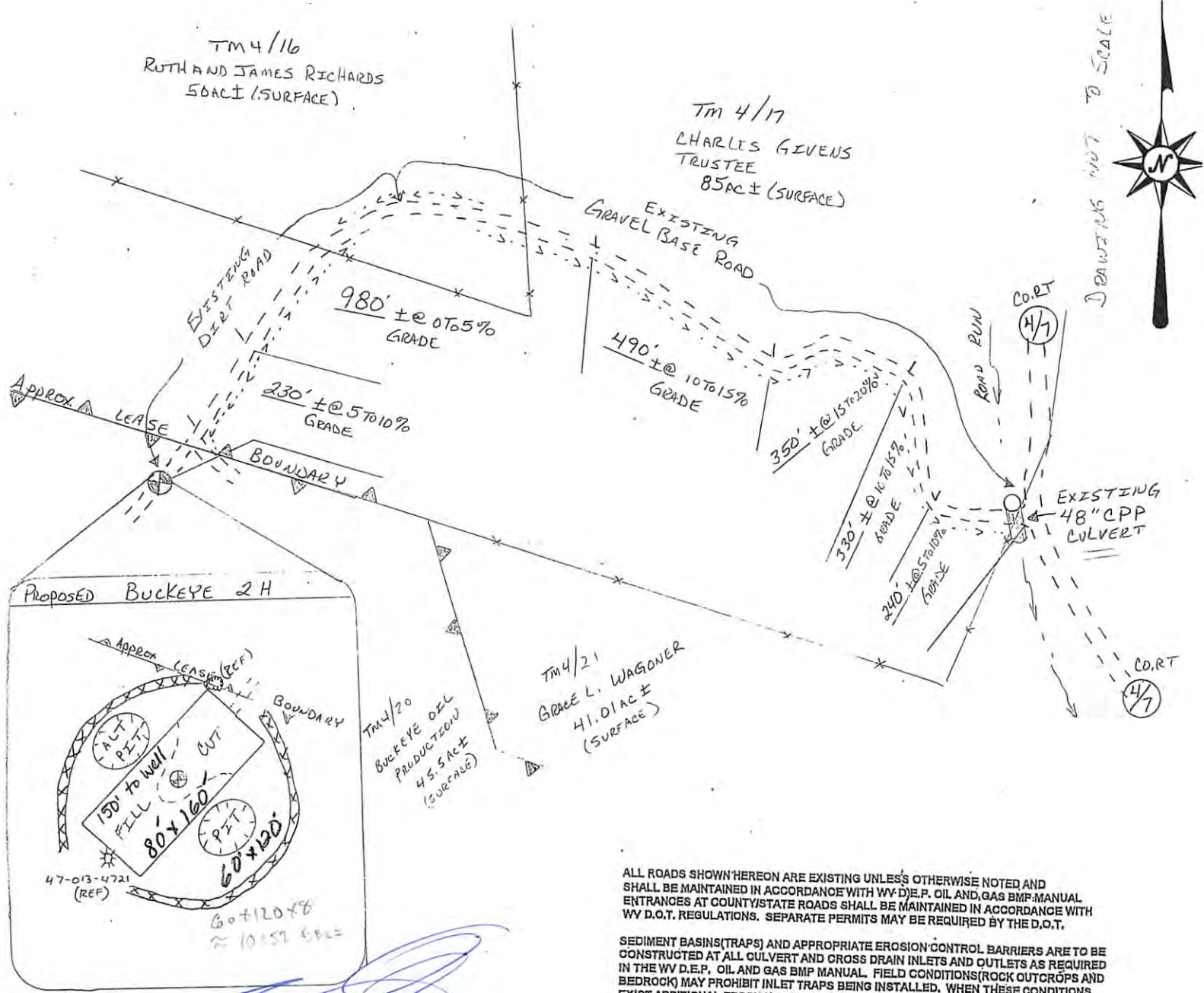
Field Reviewed?

Yes

No

1304742

Buckeye Lease Well No. 2H



[Handwritten signature]
17/16/13

ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.E.P. OIL AND GAS BMP-MANUAL ENTRANCES AT COUNTY/STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. SEPARATE PERMITS MAY BE REQUIRED BY THE D.O.T.

SEDIMENT BASINS (TRAPS) AND APPROPRIATE EROSION CONTROL BARRIERS ARE TO BE CONSTRUCTED AT ALL CULVERT AND CROSS DRAIN INLETS AND OUTLETS AS REQUIRED IN THE WV D.E.P. OIL AND GAS BMP MANUAL. FIELD CONDITIONS (ROCK OUTCROPS AND BEDROCK) MAY PROHIBIT INLET TRAPS BEING INSTALLED. WHEN THESE CONDITIONS EXIST ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.

EARTHWORK CONTRACTORS ARE RESPONSIBLE FOR NOTIFICATION TO THE OPERATOR AND INSPECTOR PRIOR TO ANY DEVIATION FROM THIS PLAN.

TEMPORARY SEED & MULCH ALL SLOPES AFTER CONSTRUCTION OF LOCATION.
CUT & STACK ALL MARKETABLE TIMBER.

STACK BRUSH BELOW LOCATION FOR SEDIMENT CONTROL.

Received

SLS SMITH LAND SURVEYING, INC.
P.O. BOX 150 GLENVILLE, WV. 26351

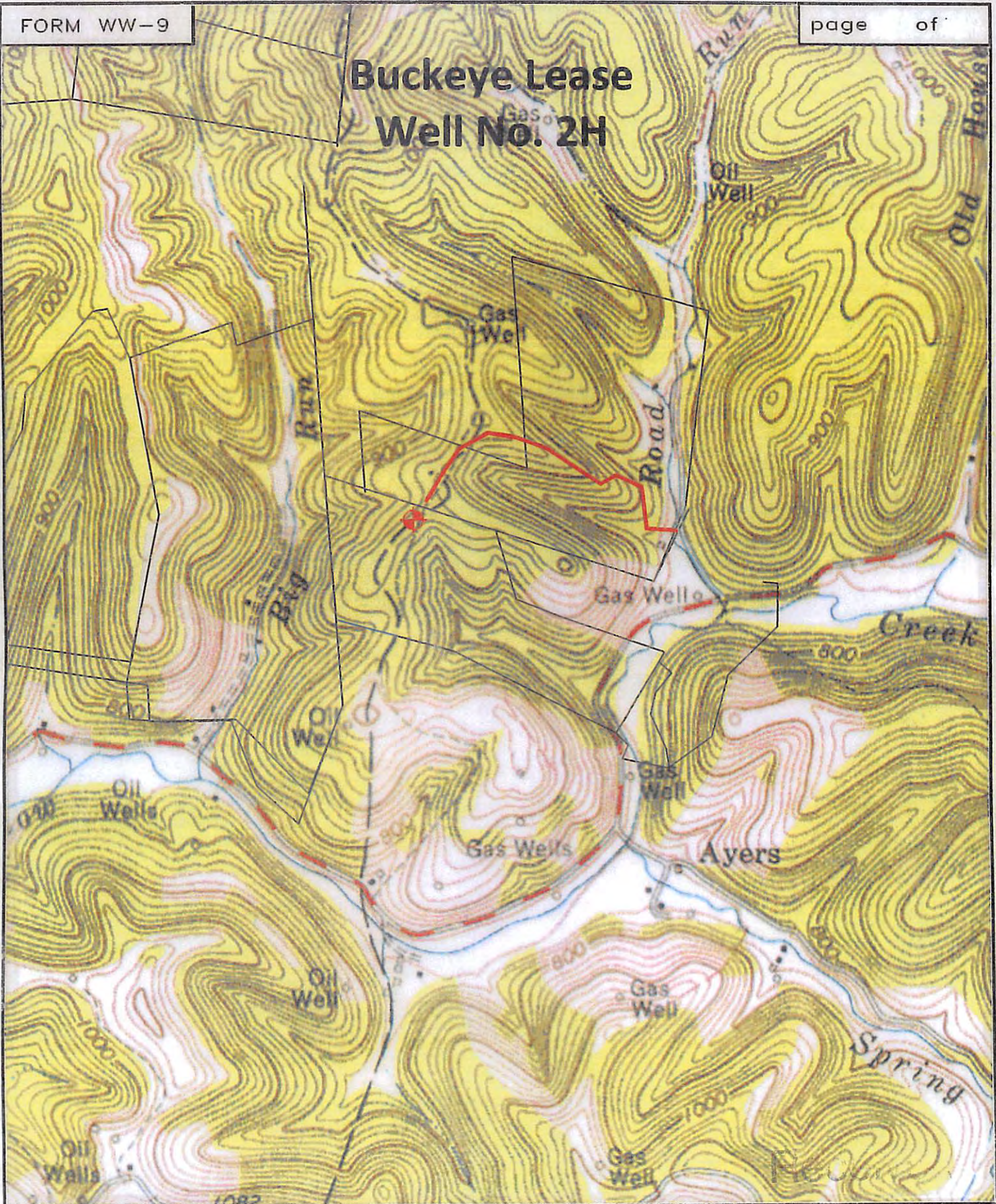
Office of Oil and Gas
WV Dept. of Environmental Protection
Phone: (304) 462-5634 Fax: 462-5656 email: sls@slssurveys.com
DRAWN BY JAS DATE 5/29/13 FILE NO. 8040

1304742

FORM WW-9

page of

Buckeye Lease Well No. 2H



SMITH LAND SURVEYING
P.O. BOX 150 GLENVILLE, WV. 26351

TOPO SECTION OF GRANTSVILLE 7.5' 17 2010

FILE NO. 8040

DATE 7/1/13

SCALE 1" = 1,000'

WV Dept. of Environmental Protection

BUCKEYE LEASE WELL NO. 2H

DOUGLAS & SHIRLEY TAYLOR
99.44 ACRES±

BOTTOM HOLE
WELL NO. 2H

DOUGLAS & SHIRLEY TAYLOR
62 ACRES±

WELL NO. 2H
STATE PLANE COORDINATES
(SOUTH ZONE) NAD 27

N. 722,872
E. 1,970,053

LAT=(N) 38.98507
LONG=(W) 81.10534

UTM (NAD83)(METERS)
N. 4,315,134
E. 490,890

RUTH & JAMES
RICHARDS
50 ACRES±

GAS WELL

CHARLES GIVENS
85 ACRES±

BOTTOM HOLE
WELL NO. 2H
STATE PLANE COORDINATES
(SOUTH ZONE) NAD 27

N. 723,578
E. 1,967,024

LAT=(N) 38.98610
LONG=(W) 81.11510

UTM (NAD83)(METERS)
N. 4,315,350
E. 489,968

DOUGLAS & SHIRLEY TAYLOR
105.59 ACRES±

N 88°30' W
1540.90'

WELL NO. 2H
47-013-4721

47-013-4741

BUCKEYE OIL
PRODUCING CO.
45.5 ACRES±

JACK WEBB HRS
64.5 ACRES±

REFERENCES

NOTES ON SURVEY

1. TIES TO WELLS AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD'27.
2. TIES TO REFERENCES ARE BASED ON MAGNETIC NORTH
3. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DB 200 PG 317 AND OTHERS.
4. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF CALHOUN COUNTY IN JULY, 2012.
5. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SUBMETER MAPPING GRADE).



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 849 *C. Victor Moyers*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JUNE 24, 20 13
OPERATORS WELL NO. 2H
API WELL NO. 47 - 013 - 04742
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8040P2H (460-54)
PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 500'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 961' WATERSHED BIG RUN OF YELLOW CREEK
DISTRICT CENTER COUNTY CALHOUN QUADRANGLE GRANTSVILLE 7.5'
SURFACE OWNER BUCKEYE OIL PRODUCING CO. ACREAGE 45.5 ±
ROYALTY OWNER BUCKEYE OIL PRODUCING CO. (45.5 AC.±) / J.M. BENNETT (700 AC.±)
PROPOSED WORK: LEASE NO. _____
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION BEREA
ESTIMATED DEPTH 2,450'

WELL OPERATOR BUCKEYE OIL PRODUCING CO. DESIGNATED AGENT HENRY W. SINNETT
ADDRESS P.O. BOX 129 ADDRESS RT. 1 BOX 150A
WOOSTER, OH 44691 BIG BEN, WV 26136