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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, July 19, 2024

**WELL WORK PLUGGING PERMIT**  
Coal Bed Methane Well Plugging

BOONE EAST DEVELOPMENT CO., LLC  
PO BOX 261

JULIAN, WV 25529

Re: Permit approval for PC-026B  
47-109-02605-00-00

This well work permit 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 any additional specific 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.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. Please be advised that form WR-38, Affidavit of Plugging and Filling Well, is to be submitted to this office within 90 days of 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.

Per 35 CSR 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- 0450.

James A. Martin  
Chief

Operator's Well Number: PC-026B  
Farm Name: HEARTWOOD FORESTLANE  
U.S. WELL NUMBER: 47-109-02605-00-00  
Coal Bed Methane Well Plugging  
Date Issued: 7/19/2024

## 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

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1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. 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.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. 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.

1) Date 05/30, 2024  
2) Operator's  
Well No. PC-026B  
3) API Well No. 47-104 - 02606

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

CBM

APPLICATION FOR A PERMIT TO PLUG AND ABANDON A CBM WELL.

4) Well Type: Oil  / Gas  / Liquid injection  / Waste disposal  /  
(If "Gas, Production  or Underground storage  ) Deep  / Shallow

5) Location: Elevation 1,762 Watershed Shop Branch of Indian Creek of Guyandotte River  
District Baileysville County Wyoming Quadrangle Pineville

6) Well Operator Boone East Development Co., LLC 7) Designated Agent \_\_\_\_\_  
Address 636 Shelby Street, 3rd Floor Address \_\_\_\_\_  
Bristol, TN 37620

8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Christian Porter Name Ultra Production Company, LLC  
Address PO Box 181 Address PO Box 289  
Holden, WV 25625 Cedar Bluff, VA 24609

10) Work Order: The work order for the manner of plugging this well is as follows:  
\* SEE MSHA 101 C EXEMPTION  
To facilitate coal mining operations, the horizontal CBM well PC-026B is intended to be plugged in a 4 stage process. The first stage will be the infusion of approximately 24,000 gallons of water into the Pocahontas 3 coal seam. The second stage will be the injection of a 2% bentonite solution in 75,000 gallons of water at an approximate rate of 100 gallons per minute. The third stage will be the injection of approximately 215,000 gallons of water. Lastly the vertical portion of the well will then be plugged in its entirety using expanding Class A cement with no more than 3% CaCl<sub>2</sub>, and no other additives from a depth of 1,192' to the surface. A monument will be placed no less than 10' below the surface to no less than 30" above the surface with a minimum of 6" casing. The casing shall be filled with cement and follow further requirements of WV State Code 35 CSR 4 Section 5.5 Identification Markings.

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Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector [Signature] Date 6-14-24

Ultra Production Company, LLC  
 Plugging Volumes  
 PC-026B

WR-35 Addendum  
 5/29/2024  
 47-109-02605

	Footage	Diameter (in)	Volume (CuFt)	Beginning X Coord	Beginning Y Coord.	Ending X Coord.	Ending Y Coord.
PC-026C	1,192	7	318.40	4,159,300.24	445,323.45	-	-
Leg 1A	3,420	4.5	377.55	4,159,233.35	445,166.36	4,158,217.26	445,277.52
Leg 1B	666	4.5	73.48	4,159,039.99	445,047.87	4,158,844.72	444,999.12
Leg 1C	4,077	4.5	450.04	4,159,276.80	445,259.18	4,158,284.91	444,547.08
Leg 2A	2,219	4.5	244.93	4,159,297.20	445,409.33	4,159,279.16	444,552.90
Leg 2B	2,829	4.5	312.34	4,159,277.67	445,003.44	4,158,751.81	444,611.25
Leg 2C	2,561	4.5	282.66	4,159,278.34	445,013.30	4,159,891.40	444,572.07
Leg 3A	2,301	4.5	253.96	4,159,365.18	445,157.36	4,160,046.68	445,280.70
Leg 3B	1,709	4.5	188.70	4,159,570.44	445,023.15	4,160,087.14	445,046.00
Leg 3C	3,369	4.5	371.93	4,159,278.02	445,263.33	4,160,122.43	444,710.01
			2,874.00				

\*Coordinate Values: UTM - NAD 83 - 17 North - Meters

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# PC-026B (47-109-02605) Plan View



07/19/2024

PC026B	length ft	Dia in	Dia ft	Rad ft	area ft	vol ft3	Total Tanks
Vert.	1,192	7	0.583	0.2917	0.2671180556	318	37
Leg 1A	3,420	4.5	0.375	0.1875	0.110390625	378	
Leg 1B	666	4.5	0.375	0.1875	0.110390625	73	
Leg 1C	4,077	4.5	0.375	0.1875	0.110390625	450	
Leg 2A	2,219	4.5	0.375	0.1875	0.110390625	245	
Leg 2B	2,829	4.5	0.375	0.1875	0.110390625	312	
Leg 2C	2,561	4.5	0.375	0.1875	0.110390625	283	
Leg 3A	2,301	4.5	0.375	0.1875	0.110390625	254	
Leg 3B	1,709	4.5	0.375	0.1875	0.110390625	189	
Leg 3C	3,369	4.5	0.375	0.1875	0.110390625	372	
	24,342					2,874	

Phase I Fresh Water							
	Vol ft3	Vol + 25%	Gallons	GPH	GPM	Hours	Tanks
Required	2,556	3,194	23,895	2,500	42	10	3
Requested	2,556	3,194	47,789.60	6,000	100	8	6

Phase II 2% Bentonite								
Vol ft3	Vol + 100%	Water Vol	Bentonite Vol	Water Gal	Bent. Lbs	Tanks of Water	Sacks of Bent.	Sacks per tank
2,556	5,111	10,017.93	204.45	74,934	15,333.56	9	5.1	0.6

Phase III Fresh Water							
	Vol ft3	Vol + 25%	Gallons	GPH	GPM	Hours	Tanks
Required	2,556	3,194	215,053	6,000	100	36	26
Requested	2,556	3,194	430,106	6,000	100	72	51

**Treatment Actual**

Phase I Fresh Water 3/27/21 - 3/28/21						
Pump Rate gpm	Volume bbls.	Volume gals.	Start	Stop	Time Hrs.	Gals / Min
26	594	24960	7:00 PM	11:00 AM	16	26

Phase II Bentonite								
Date	Tank #	Volume bbls.	Volume gals.	Start	Stop	Time Mins.	GPM	Sack of Bent.
3/29/2021	WT1	200	8400	935	1025	50	168	0.6
3/29/2021	WT2	200	8400	1025	1130	65	129	0.6
3/29/2021	WT3	200	8400	1130	1245	75	112	0.5
3/29/2021	WT4	200	8400	1245	1330	45	187	0.6
3/29/2021	WT5	200	8400	1330	1420	50	168	0.5
3/30/2021	WT1	200	8400	1420	1535	75	112	0.6

47109026050

3/30/2021	WT2	200	8400	900	955	55	153	0.6
3/30/2021	WT3	200	8400	955	1050	55	153	0.5
3/30/2021	WT4	200	8400	1050	1155	65	129	0.5
							146	5.0
							75600	

## Phase III Fresh Water

Date	Time	Bucket Test	GPM	Gallons	Remaining	Completed
3/30/2021	1200	18.6	16	-	215,053	0%
3/31/2021	900	18.2	16	20,769	194,284	10%
4/1/2021	900	18.4	16	23,736	170,548	21%
4/2/2021	900	18.4	16	20,543	150,004	30%
4/3/2021	900	18.8	16	23,478	126,526	41%
4/4/2021					126,526	41%
4/5/2021	900	17.7	17	45,957	80,569	63%
4/6/2021	900	18.3	16	24,407	56,162	74%
4/7/2021	900	16.6	18	23,607	32,555	85%
4/8/2021	1500	17.4	17	32,530	25	100%

07/19/2024

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GPH	GPM	Total Hours	Hours per Tank	Minutes per Sack
6,000	100.00	12.5	1.40	147

Bent. Lbs.	Bent. Vol.	Water Vol.	% Gel
1800	24	1123	2.1%
1800	24	1123	2.1%
1500	20	1123	1.7%
1800	24	1123	2.1%
1500	20	1123	1.7%
1800	24	1123	2.1%

07/19/2024







Select County: (109) Wyoming  **Select datatypes:**  (Check All)

Enter Permit #: 02605

Location  Production  Plugging  
 Owner/Completion  Stratigraphy  Sample  
 Pay/Show/Water  Logs  Btm Hole Loc

4710902605

[Table Descriptions](#)  
[County Code Translations](#)  
[Permit-Numbering Series](#)  
[Usage Notes](#)  
[Contact Information](#)  
[Disclaimer](#)  
[WVGES Main](#)  
[Pipeline-Plus New](#)

**Well: County = 109 Permit = 02605** [Link to all digital records for well](#)

Report Time: Tuesday, July 16, 2024 1:53:42 PM

WV Geological & Economic Survey:

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710902605	Wyoming	2605	Baileysville	Pineville	Pineville	37.579093	-81.619251	445321.9	4159296.4

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PI
4710902605	3/7/2006	Original Loc	Completed	Heartwood Forestland	PC-026				Plum Creek Timberlands LP	CDX Gas, LLC			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G	
4710902605	3/7/2006	1/14/2006	1778	Ground Level	Baileysville	Pocahontas Fm	Pocahontas No.3 coal	Development Well	Development Well	Methane (CBM)	Rotary	unknown	1192						

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4710902605	3/7/2006	Methane Pay	Gas	Vertical			1142	Pocahontas No.3 coal					

Production Gas Information: (Volumes in Mcf) \* 2023 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4710902605	CDX Gas, LLC	2006	93,687	0	0	0	0	13,645	12,469	4,796	7,216	6,149	17,933	19,793	11,686
4710902605	CDX Gas, LLC	2007	109,882	10,741	9,592	10,638	9,997	9,530	7,602	9,223	9,629	7,608	7,826	7,900	9,596
4710902605	CDX Gas, LLC	2008	89,975	8,969	8,939	8,869	8,299	7,904	6,370	8,833	6,309	5,774	6,860	6,854	5,995
4710902605	Vitruvian Exploration, LLC	2009	57,481	4,971	5,646	6,399	5,994	5,859	5,376	5,211	4,683	3,501	3,817	3,268	2,756
4710902605	Vitruvian Exploration, LLC	2010	41,748	3,931	4,028	2,007	4,006	3,112	3,607	3,643	2,605	4,253	3,778	3,403	3,375
4710902605	Vitruvian Exploration, LLC	2011	2,925	0	0	0	0	0	0	0	0	0	0	0	2,825
4710902605	Geomet Operating Company, Inc.	2011	35,262	3,064	3,226	3,698	3,251	3,267	3,257	3,130	3,001	3,197	3,472	2,699	0
4710902605	Vitruvian Exploration, LLC	2011	14,027	3,008	2,642	2,602	2,281	2,525	969	0	0	0	0	0	0
4710902605	Geomet Operating Company, Inc.	2012	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Geomet Operating Company, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil \* 2023 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4710902605	CDX Gas, LLC	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	CDX Gas, LLC	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	CDX Gas, LLC	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Vitruvian Exploration, LLC	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Vitruvian Exploration, LLC	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Geomet Operating Company, Inc.	2011	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Vitruvian Exploration, LLC	2011	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Geomet Operating Company, Inc.	2012	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Geomet Operating Company, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil \* 2023 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4710902605	Geomet Operating Company, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) \* 2023 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4710902605	Boone East Development Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4710902605	Boone East Development Co., LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4710902605	Original Loc	Pocahontas No.3 coal	Well Record	1144	Reasonable	4	Reasonable	1778	Ground Level

Wireline (E-Log) Information:

- \* There is no Scanned/Raster Log data for this well
  - \* There is no Digitized/LAS Log data for this well
  - \* There is no Scanned or Digital Logs available for download
- There is no Plugging data for this well
- There is no Sample data for this well

should contain the name, address and telephone number of the person filing the comment, the well operator's name and well number, and the approximate location of the proposed well site including district and county as indicated in the permit application. Comments may be accompanied by other pertinent documents in support of the comment. Other than as prescribed in this rule, no particular form for the comment is prescribed.

#### 5.5. Identification Markings.

5.5.a. Every well shall have attached or stamped, in a permanent manner, the API identification number which consists of the state (47), county (001 through 109), and permit number. Such number shall be no less than one-half (1/2) inch in height and detectable by any interested person approaching the well. Any additional information the well operator may desire to display may be incorporated in the permanent identification plat or stamp in such a manner that it will not confuse or distort the permanent API identification number.

5.5.b. Except as provided below, upon the completion of the plugging and filling of any abandoned well, a permanent monument or marker consisting of a length of pipe (minimum diameter size six (6) inches) filled with concrete (or the equivalent thereof if approved by the Chief) shall be erected over the well; the marker shall extend no less than thirty (30) inches above the surface and not less than ten (10) feet below the surface and into the well, and shall be sealed with concrete for the purpose of making the marker permanent. The API well identification number which consists of the state (47), county (001 through 109), and permit number shall be attached or stamped in a permanent manner to said monument; and such numbering shall be no less than one half (1/2) inch in height and detectable by any interested person approaching the marker. The erection of the marker shall in no way interfere with the bleeder pipe from the well where such pipe is required, or the vent or other device installed pursuant to W. Va. Code § 22-6-24. Such manner shall be accurately described on Form WR-38, "Affidavit of Plugging and Filling Well" (see subsection 13.10 below) as to time and manner of plugging and filling the well, and shall be approved by the Chief as a satisfactory landmark that may be used as such in the location of adjacent wells. Two (2) permanent reference points with courses and distances from the abandoned well shall be designated and prescribed on the plat required by subdivision 5.2.d above in the form prescribed by section 9 below, accompanying Form WW-4, "Notice of Intention to Plug and Abandon a Well," if any change in the plat is necessary, accompanying Form IV-38, "Affidavit of Plugging and Filling Well" (see subsection 13.10 below).

5.6. Parties Responsible. All contractors and drillers, including all service companies carrying on business or doing work in oil and gas fields in West Virginia, as well as lease holders and operators generally, shall take notice of and are hereby directed to observe and apply the provisions of W. Va. Code § 22-6 and this rule; and all contractors, drillers, service companies and operators shall be held responsible for violations thereof.

#### 5.7. Evidence of Performance.

5.7.a. After the completion of the work authorized to be done by any permit required by W. Va. Code § 22-6-6, the permittee shall comply with filing requirements of W. Va. Code § 22-6-22 and section 12 of this rule.

5.7.b. In addition to the requirements of subdivision 5.7.a, following completion of plugging a well, the permittee shall also comply with the affidavit requirements of W. Va. Code § 22-6-23 and subsection 13.10 below.

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WV Department of  
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MSHA 101C EXEMPTION

MSHA  
FINEVILLE WV

REVISED MAY 11, 2010  
ADDENDUM TO VENTILATION PLAN  
SPARTAN MINING COMPANY  
ROAD FORK #51 MINE  
MSHA ID# 46-01544  
WVOMHST PERMIT # U-4001-05

JUN 13 2013

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VENTILATION

PROCEDURE FOR MINING THROUGH HORIZONTAL COALBED METHANE WELLS

Background:

It is anticipated that the in-seam methane in some of the Mine #51 reserve areas will be reduced prior to mining by development of both horizontal and vertical coalbed methane wells, with horizontal wells being the predominant methodology. It is anticipated that the horizontal wells will be multi-lateral and of pinnate pattern, similar to the CDX Gas, Inc. wells drilled in adjacent reserve areas. The surface wellheads for the horizontal wells will typically be 800' or more above the pavement of the coal seam. Each lateral wellbore in the coal seam will be 4" to 6" in diameter, and may be up to 4,000' in length in-seam.

Mine #51 will employ the continuous mining room-and-pillar method of mining. It is anticipated that each lateral wellbore will be mined through at least once.

A factor of major importance to be considered for the case of Road Fork #51 Mine to mine through horizontal coalbed methane wells is that the mine is ventilated via a predominantly positive pressure ventilation system. This blowing type fan system greatly enhances the proposed procedures and safety procedures outlined through this addendum in that positive pressure is constantly applied against any intersected wellbore. A 9 ft diameter return shaft with exhausting fan is within the system and does assist the system is a push/pull scenario, but the positive pressure effect far overpowers the negative pressure effect leaving the exhausting fan to act primarily as a helper fan. With the open atmosphere vertical well bore, ventilation air at the intersection of the lateral well bore will effectively seek to vent itself to the open atmosphere through the well bore and vertical well, the path of least resistance. Any gas accumulating in the lateral bores will have to build to a pressure exceeding the ventilation pressure of the fan before it will vent to the mine void. This is in the direct opposite of exhaust fan systems which are norm in the industry and have a negative pressure effect.

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Wells to be encountered or intersected at this time.

Be advised that each coal bed methane well system consists of two vertical wellbores with a common set of horizontal production wellbores or branch line system. The first vertical well drilled is the well or bore from which all horizontal legs and branches are developed. The second vertical well drilled is the actual production well. This second vertical well is the conduit by which the gas is brought to the surface as well as any water or impurities that accumulate at the bottom of the vertical well during the extraction process. No vertical wells are currently proposed for cut through. See Attachment - Cross-Section of Typical Well System.

~~Well no. PC-002A was drilled prior to PC-002B and was used to drill or establish the horizontal branch system. Its API No. is 47-109-02724. The well was then intersected by the production well PC-002B. Well PC-002A is a non-producing well.~~

Well no. PC-002B was drilled and began initial production on 12/12/06. Its API No. is 47-109-02725. The horizontal bore diameter is 4 5/8" diameter. The vertical well is cased with 7" diameter casing.

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ROAD FORK #51 MINE  
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cemented in place, to a depth of 726' or 87' above the coal seam. The well's maximum horizontal depth is 3,414 ft. The horizontal legs are completely within the Pocahontas No. 3 coal seam. The well is not yet abandoned but will be abandoned shortly after issuance of this revision. The current average production pressure is -3 p.s.i. (gauge) as the well is operated on vacuum. Current average production is 72 MCF/day. Maximum average production of 618 MCF/day occurred in January, 2007. The well has produced a total of 324,573 MCF through the end of 2009. A summary of the well's production history, taken from the WVDEP Office of Oil & Gas website, is attached. Peak well pressure would have occurred prior to initial production in December, 2006 and is estimated to have been 352 p.s.i. or less, based on 813' of seam cover. Average well life is estimated at 5 years.

Well no. PC-003A was drilled prior to PC-003B and was used to drill or establish the horizontal branch system. Its API No. is 47-109-02768. The well was then intersected by the production well PC-003B. Well PC-002A is a non-producing well.

Well no. PC-003B was drilled and began initial production on 12/21/06. Its API No. is 47-109-02769. The horizontal bore diameter is 4 5/8" diameter. The vertical well is cased with 7" diameter casing, cemented in place, to a depth of 909', or 184' above the coal seam. The well's maximum horizontal depth is 3,944 ft. The horizontal legs are completely within the Pocahontas No. 3 coal seam. The well is not yet abandoned but will be abandoned shortly after issuance of this revision. The current average production pressure is -1 p.s.i. (gauge) as the well is operated on vacuum. Current average production is 87 MCF/day. Maximum average production of 895 MCF/day occurred in April, 2007. The well has produced a total of 361959 MCF through the end of 2009. A summary of the well's production history, taken from the WVDEP Office of Oil & Gas website, is attached. Peak well pressure would have occurred prior to initial production in December, 2006 and is estimated to have been 473 p.s.i. or less, based on 1,093' of seam cover. Average well life is estimated at 5 years.

Equipment used to drill the well and borings was not immediately available from the well operator. The accuracy of the machine was reported from the operator as a maximum deviation of 25 feet in 3,000 feet of boring. That equates to an accuracy of +/- 0.48 degrees or 0 degrees 28 minutes and 39 seconds. We propose an accuracy factor over double that or +/- 1 degree plus an addition static barrier of 50 feet.

Procedure for Mining Within 50' + 1 Degree Factor of A Horizontal Wellbore:

Prior to mining within 50' + 1 degree deviation or accuracy factor (tangent of 1 degree multiplied by the length of the horizontal wellbore at the anticipated cut-through point) of a horizontal wellbore, Spartan Mining Company ("Spartan") will verify that the following procedures have been performed on the well:

1. Prior to the mining unit entering the minimum barrier zone established for the CBM well and/or well bores or set of intersections, a notice from a professional engineer will be submitted to the District Manager noting that a review of the proposed method(s) to prepare coal bed methane wells for intersection has been completed and that the applicability of the proposed system of procedures in regard to the mine specific conditions is appropriate. A section advancing seven

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- entries, all entries intersecting a single well bore would be deemed a set of intersections and one would be deemed
2. The well will be vented to outside atmospheric pressure for at least 8 hours.
  3. A volume of fresh water sufficient to fill the horizontal (lateral) wellbores, plus 25%, will be injected into the well. Fresh water will be injected at an approximate flow rate of 2,500 gph. Fresh water only injection will be gravity fed, not pressure injected. A daily record of water quantities pumped and pumping times will be recorded and maintained.
  4. A volume of gel, sufficient to fill the horizontal wellbores plus 25% excess, will be injected into the well. Gel formulation will be a simple mixture of made up of 2% to 4% bentonite and fresh water with no other additives. The bentonite and water formulation will be pumped at an approximate flow rate of 2,500 gph and with either (a) sufficient pressure to attain a bottom hole pressure of approximately 500 p.s.i., or (b) sufficient volume to equal or exceed 200% of the volume of the horizontal wellbores. Because no gel has yet been pumped or injected, no background data has been gathered or obtained for this area or these strata and therefore no gel infiltration and permeability reduction data are yet available. A daily record of gel quantities pumped and pumping times will be recorded and maintained.
  5. The well bore will be filled to the surface with fresh water, if possible, and allowed to stand for at least 72 hours, with the water level being supplemented as required. In the alternative, water will be injected into the wellbore for 72 hours at an average rate of 2 gallons per minute or more.
  6. A record will be prepared, maintained and signed by the drill/pump operator outlining the procedures of all well or hole preparations. Specifics to be recorded shall at a minimum be as follows: 1. Time of well or hole opening for venting purposes and duration. 2. Any test results showing levels of venting gases and times. 3. Water injection showing quantities, times, pumping pressure and flow rates. 4. Gel formulation. 5. Gel quantity. 6. Pumping pressures. 7. Pumping times. 8. Quantities, flow rates and pumping times for well evacuations or bailing shall be documented as well.

**Procedure for Mining Through A Horizontal Wellbore (Initial Minethrough):**

Prior to mining through the first lateral wellbore of a horizontal coalbed methane well, Spartan will verify that the following procedures have been performed on the well:

- a. The water will be bailed from the vertical section of the wellbore, as close to the coal seam elevation as practical using normal bailing equipment.
- b. The surface wellhead will be maintained open, so as to bring the vertical section of the wellbore to outside atmospheric pressure.

In addition, Spartan will:

- c. Notify the MSHA District Manager and the appropriate WVOMHST representative at least 72 hours prior to the anticipated minethrough time.

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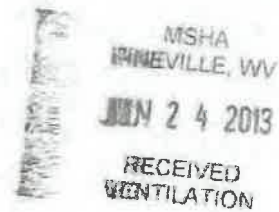
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- d. Drivage sites or site lines shall be installed prior to mining within 80 ft. of the projected well cut-through. Drivage sites or site lines set in excess of 100 ft. prior to well bore intersection will not be deemed to comply with this requirement.
- e. A mobile sled or trailer will be stocked and maintained with equipment and supplies as outlined herein on the working section at all times. The sled or trailer will be positioned at or near (not to exceed 500 feet outby) the last open crosscut near the projected mine through immediately upon reaching the minimum barrier distance. The trailer or sled will be labeled as "Firefighting Equipment and Emergency Supplies for CBM Minethroughs" to distinguish it from general supply or stationary equipment stores. Equipment or supplies required on this sled or trailer are:
1. Firefighting equipment to include a minimum of two 10-pound fire extinguishers, 240 pounds of rock dust, fire hose of sufficient length to reach the working face and capable of delivering at least 50 gallons per minute of water at a minimum pressure of 50 psi.. The fire hose shall be located in the last open crosscut and shall be connected and ready for use but shall not be required being charged with water during the cut-through.
  2. Roof support supplies sufficient to handle emergency or unplanned roof control situations associated with the well mine through.
  3. Ventilation supplies sufficient to handle emergency or unplanned ventilation situations associated with the well mine through.
  4. An emergency plug or plugs to plug the mined through well bore in the event such measures are required or become necessary.
- f. An airflow quantity of at least 9,000 CFM and mean air velocity of 60 fpm shall be supplied at the mine face. This quantity shall be required beginning at the minimum barrier distance line and shall continue until mining has progressed 20 ft. past the initial mine through point. In no circumstances shall the quantity be less than that approved in the current ventilation plan if greater.
- g. Cut depths will be limited to 20 ft. from the end of the line curtain beginning at the minimum barrier distance line and continue until mining has progressed 20 ft. past the initial mine through point.
- h. MMU's to be performing mine throughs in areas shown as part of this revision will maintain stoppings between intake and return air courses up to and including the third connecting crosscut outby the working face.
- i. Service all equipment to be used in the immediate area of the mine through and assure it's permissibility, prior to use, once every 24 hours during which the mine through is anticipated or is occurring.
- j. Calibrate the continuous miner methane monitor, prior to use, once every 24 hours during which the mine through is anticipated or is occurring.
- k. When mining, tests for methane with a hand held methane detector at least every 10 minutes from the time mining commences at the minimum barrier distance line or within thirty feet of the wellbore, whichever is greater and continue until such time as the well is intersected. Tests for methane with a hand held detector will be made immediately prior to mining through the wellbore regardless of timing.

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- l. De-energize all equipment and thoroughly examine the area when the wellbore is intersected. The area will be determined safe by a certified person before mining is resumed.
- m. Once the wellbore is intersected and the area is determined safe, mining may resume. Hand held methane detector tests, however, will continue at least every 10 minutes while mining, until mining has progressed 20 feet past the initial mine through point.
- n. Once the wellbore is intersected and the area has been determined safe, mining shall continue a sufficient distance to permit adequate ventilation in or around the area of the well.
- o. No open flame shall be permitted in the area until adequate ventilation has been established around the wellbore.
- p. During the actual cutting process, no individuals shall be allowed on the return side until the wellbore has been intercepted and the area has been examined by a certified person and declared safe.
- q. All workplace examinations shall be conducted on the return side of the continuous miner while the continuous miner is idle.
- r. The working place shall be free from accumulations of coal dust and coal spillage. Rock dust shall be placed on the roof, rib and floor to within 20 feet of the face when mining through the wellbore.
- s. No person shall be permitted in the area of the mine through operation except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA and personnel from the appropriate State agency.
- t. Alert all personnel in the mine to the planned intersection of the well prior to their going underground if the planned intersection is to occur during their shift. This warning shall be repeated for all shifts until the well has been mined through.
- u. The mine through operation shall be under the direct supervision of a certified individual. Instructions concerning the mine through operations shall be issued only by the certified individual in charge.

Procedure for Mining Through A Horizontal Wellbore (Subsequent Minethroughs):

Prior to mining through a lateral wellbore of a coalbed methane well which has already had at least one lateral wellbore mined through, Spartan will verify that the following procedures have been performed on the well:

- a. The water will be bailed from the vertical section of the wellbore, as close to the coal seam elevation as practical using normal bailing equipment.
- b. The surface wellhead will be maintained open, so as to bring the vertical section of the wellbore to outside atmospheric pressure.

In addition, Spartan will:

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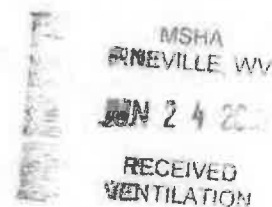
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 MSHA ID# 46-01544  
 WVOMHST PERMIT # U-4001-05



- c. Prior to the mining unit entering the minimum barrier zone of subsequent intersections or sets of intersections, a notice from a professional engineer will be submitted to the District Manager noting that a review of the proposed method(s) to prepare coal bed methane wells for intersection has been completed and that the applicability of the proposed system or procedures in regard to the mine specific conditions is still appropriate.
- d. Drivage sites or site lines shall be installed prior to mining within 80 ft. of the projected well cut-through. Drivage sites or site lines set in excess of 100 ft. prior to well bore intersection will not be deemed to comply with this requirement.
- e. A mobile sled or trailer will be stocked and maintained with equipment and supplies as outlined herein on the working section at all times. The sled or trailer will be positioned at or near (not to exceed 500 feet outby) the last open crosscut near the projected mine through immediately upon reaching the minimum barrier distance. The trailer or sled will be labeled as "Firefighting Equipment and Emergency Supplies for CBM Minethroughs" to distinguish it from general supply or stationary equipment stores. Equipment or supplies required on this sled or trailer are:
1. Firefighting equipment to include a minimum of two 10-pound fire extinguishers, 240 pounds of rock dust, fire hose of sufficient length to reach the working face and capable of delivering at least 50 gallons per minute of water at a minimum pressure of 50 psi.. The fire hose shall be located in the last open crosscut and shall be connected and ready for use but shall not be required being charged with water during the cut-through.
  2. Roof support supplies sufficient to handle emergency or unplanned roof control situations associated with the well mine through.
  3. Ventilation supplies sufficient to handle emergency or unplanned ventilation situations associated with the well mine through.
  4. An emergency plug or plugs to plug the mined through well bore in the event such measures are required or become necessary.
- f. An airflow quantity of at least 9,000 CFM and mean air velocity of 60 fpm shall be supplied at the mine face. This quantity shall be required beginning at the minimum barrier distance line and shall continue until mining has progressed 20 ft. past the initial mine through point. In no circumstances shall the quantity be less than that approved in the current ventilation plan if greater.
- g. Cut depths will be limited to 20 ft. from the end of the line curtain beginning at the minimum barrier distance line and continue until mining has progressed 20 ft. past the initial mine through point.
- b. MMU's to be performing mine throughs in areas shown as part of this revision will maintain stoppings between intake and return air courses up to and including the third connecting crosscut outby the working face.
- i. Service all equipment to be used in the immediate area of the mine through and assure it's permissibility, prior to use, once every 24 hours during which the mine through is anticipated or is occurring.
- j. Calibrate the continuous miner methane monitor, prior to use, once every 24 hours during which the mine through is anticipated or is occurring.

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- k. When mining, tests for methane with a hand held methane detector at least every 10 minutes from the time mining commences at the minimum barrier distance line or within thirty feet of the wellbore, whichever is greater and continue until such time as the well is intersected. Tests for methane with a hand held detector will be made immediately prior to mining through the wellbore regardless of timing.
- l. De-energize all equipment and thoroughly examine the area when the wellbore is intersected. The area will be determined safe by a certified person before mining is resumed.
- m. Once the wellbore is intersected and the area is determined safe, mining may resume. Hand held methane detector tests, however, will continue at least every 10 minutes while mining, until mining has progressed 20 feet past the initial mine through point.
- n. Once the wellbore is intersected and the area has been determined safe, mining shall continue a sufficient distance to permit adequate ventilation in or around the area of the well.
- o. No open flame shall be permitted in the area until adequate ventilation has been established around the wellbore.
- p. During the actual cutting process, no individuals shall be allowed on the return side until the well bore has been intercepted and the area has been examined by a certified person and declared safe.
- q. All workplace examinations shall be conducted on the return side of the continuous miner while the continuous miner is idle.
- r. The working place shall be free from accumulations of coal dust and coal spillage. Rock dust shall be placed on the roof, rib and floor to within 20 feet of the face when mining through the wellbore.
- s. No person shall be permitted in the area of the mine through operation except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA and personnel from the appropriate State agency.
- t. Alert all personnel in the mine to the planned intersection of the well prior to their going underground if the planned intersection is to occur during their shift. This warning shall be repeated for all shifts until the well has been mined through.
- u. The mine through operation shall be under the direct supervision of a certified individual. Instructions concerning the mine through operations shall be issued only by the certified individual in charge.

Other Plan Specifics

Mining with a Parallel Wellbore

When mining parallel with a horizontal wellbore, every attempt will be made to adjust projections to intersect the wellbore in the crossovers as opposed to continuously in the advancing entry. However, should mining be conducted such that it advances parallel and continuously cutting the wellbore, the following modifications will be made to the procedures. All other requirements and precautions listed herein shall apply.

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1. Cut depths will be limited to 20 ft. from the end of the line curtain.
2. Upon completion of the cut, the workplace shall be thoroughly examined by a certified person and declared safe.
3. No person(s) shall be allowed on the return side until the cut has been completed and the area declared safe by a certified person.
4. Tests for methane with a hand-held methane detector at least every 10 minutes from the time mining commences while mining and while bolting until the cut-through is completed.

Over Drilling

No vertical wells are currently proposed for cut-through.

Separation of airways connected by horizontal bores

Should a wellbore be intersected multiple times and subsequently provide an open wellbore or conduit between different or uncommon splits of air, the hole will be plugged with a minimum of a temporary plug as soon as all required safety precautions are met and it is declared safe to do so by a certified person. A permanent plug will be installed as soon as practical but shall not be required until the section has advanced a full line of crosscuts in by the wellbore intersection or 120 ft. Permanent plugging may consist of: 1.) the wellbore will be completely filled with cement for a length of at least 3 feet or its equivalent or 2.) manufactured plugs or casings cemented into place that are typically used in conjunction with drivable horizontal long hole drilling machines with a sampling port and that use cement and or epoxy compounds. Wellbore connections between common or like air splits will not require any plugs.

Plugging A Wellbore or Leg

Should a wellbore be intersected and should it then be determined by mine management that the wellbore or leg will not be intersected again or subsequently for reasons as determined by mine management, it may be permanently plugged. The hole may be left open as in the normal sequence outlined herein and then plugged, it may be first temporarily plugged as soon as all required safety precautions are met and it is declared safe to do so by a certified person or it may be immediately permanently plugged. A permanent plug may be installed at the determination of mine and can be installed as soon as all required safety precautions are met and it is declared safe to do so by a certified person. Permanent plugging may consist of: 1.) the wellbore will be completely filled with cement for a length of at least 3 feet or its equivalent or 2.) manufactured plugs or casings cemented into place that are typically used in conjunction with drivable horizontal long hole drilling machines with a sampling port and that use cement and or epoxy compounds. In the event a wellbore is permanently plugged, its location will be located by survey within 1 week of the installation of such permanent plug and such information posted to the permanent maps.

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Intersection Map to Be Kept On the Mining Section

A map shall be kept on the section showing all projected mining, all CBM gas wells with the vertical holes and their horizontal bores or legs for that area, outlines of minimum safety barrier to each bore for that area and anticipated intersections with those bores. The section map will be updated at a minimum of once per shift and preferably at the ending of each shift. Updating will consist of the

progression of mining, all hole intersections, the date holes were intersected, the number of the intersection and how far from the anticipated intersection the actually was. Such information will then be transferred to the wall map or 1200 map outside at the mine office in a like manner. Connections or intersections with the wellbores will be located by survey within 1 week of their connection and such information posted to the permanent maps. Any large discrepancies in actual location verses anticipated location will be reported to mine management and adequately evaluated for need of corrective action. Large discrepancy will be considered "outside of the probable error of 1 degree.

Specific times when actions are to be taken.

Specific times when checks or tests are made, supplies and/or emergency equipment are delivered and positioned or driveage sights are outlined throughout these guidelines. However, unless otherwise stated they are required upon reaching the minimum required barrier.

Equipment List

List all equipment to be used to prepare and pump the water and gel: Equipment used to prepare and pump the water and gel will include a truck-mounted triplex pump and mixing vat of the type used to mix and pump cement in gas well applications. We will likely use BJ Services or Schlumberger on these holes so we can get a computer printout of the weight and volume of the gel mix. The exact make and model of the pump and vat used by the contractor will not be known until the day we use it. Fresh water only injection will be gravity feed not pressure injected.

MSDS and PPE

See attached, MSDS sheets for bentonite clay. Bentonite is the only component to be injected into the wells other than fresh water.

No special personal protective equipment (PPE) is required in using bentonite compounds. Normal PPE is required at all times on the active site such as metatarsal hard toe boots, eye protection, noise protection, reflective high visibility clothing, gloves and hard hat.

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 WVOMHST PERMIT # U-4001-05

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Minimum Air quantities.

A quantity of at least 9,000 CFM, but no less than the approved ventilation plan amount, of intake air shall be supplied at the mine face. A minimum quantity of 15,000 cfm shall be maintained in the LOB when mining within the minimum required barrier.

Ongoing Examinations

- All intersections with wells, legs, horizontal bores or branches that are in the intake air courses shall be examined as part of the preshift examinations required under 75.360.
- All other intersections with wells, legs, horizontal bores or branches shall be examined as part of the weekly examinations required under 75.364.
- All examinations shall be recorded in the appropriate record book and shall be specific to the hole, leg, and intersection number with location.

Mine Map Requirements

The mine map shall show all wells in the current and projected areas of the mine as per 75.372(a)(14) and shall include:

- Identify CBM wells (i.e. API hole # or equivalent)
- Date gas production began.
- Seams intersected.
- All vertical holes and all horizontal segments with an outline of minimum barriers.
- Dates holes were intersected and the distance of variance.

Review By Responsible Person

The responsible person required per 30 CFR 75.1501 is responsible for well intersection emergencies.

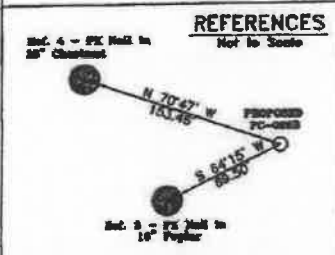
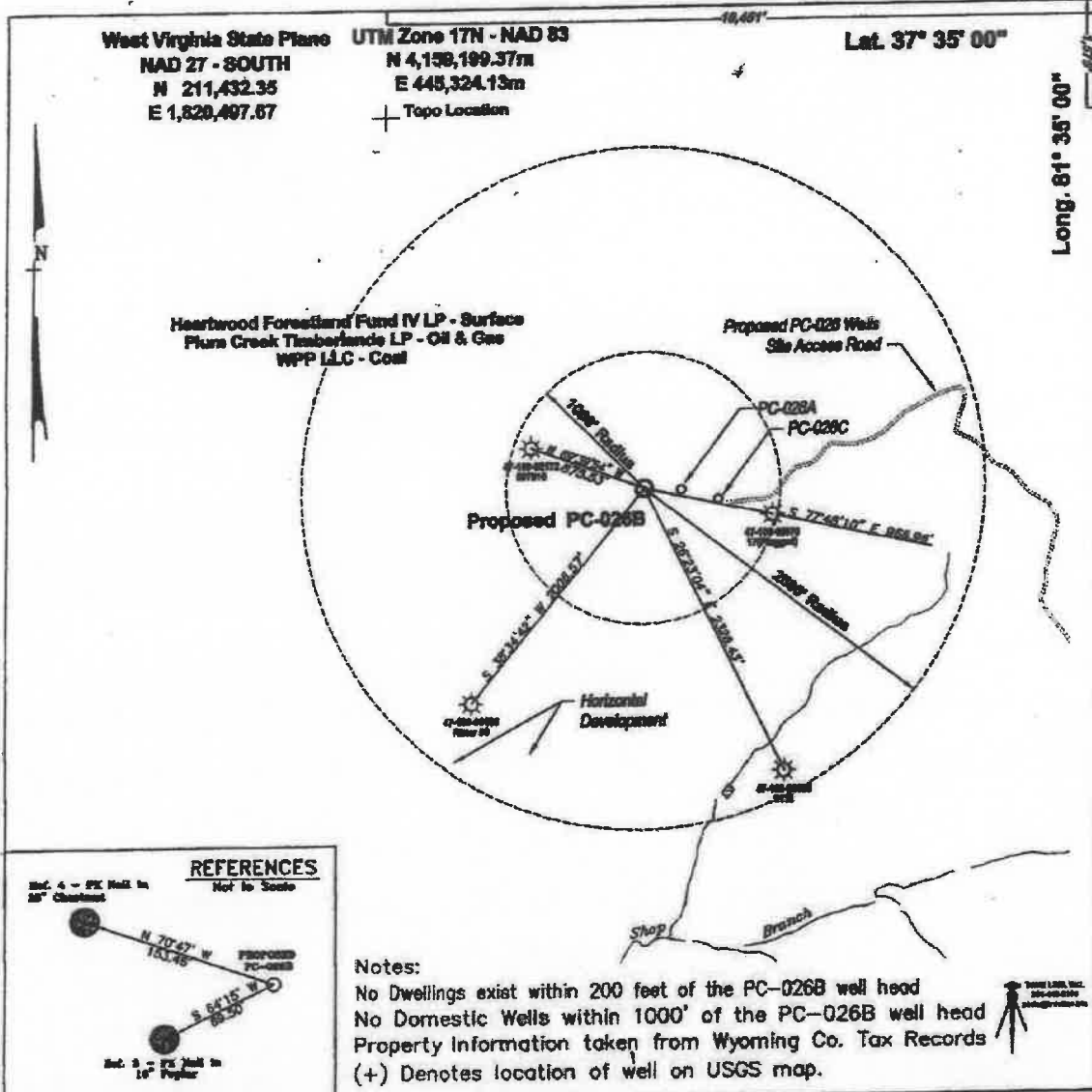
The well intersection procedures shall be reviewed by the responsible person prior to any planned well intersection or cut-through.

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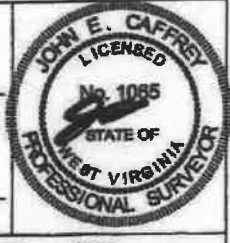


**Notes:**  
 No Dwellings exist within 200 feet of the PC-026B well head  
 No Domestic Wells within 1000' of the PC-026B well head  
 Property Information taken from Wyoming Co. Tax Records  
 (+) Denotes location of well on USGS map.

FILE No. CDX Gas  
 DIRECTORY C:\CDX Gas\CDX-2005\PC-026  
 DRAWING NAME PlotPC-026B.dwg  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1 : 2500  
 PROVEN SOURCE OF ELEVATION GPS GLOBAL POSITIONING SYSTEM (Sub meter accuracy)

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 DEPARTMENT OF MINES.

(SIGNED) [Signature] P.P.E. No. 1065



**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**OFFICE OF OIL AND GAS**  
**CHARLESTON, WV**

DATE OCTOBER 18, 2005  
 OPERATOR'S WELL No. PC-026B

API WELL No. 47 - STATE 108 - COUNTY 026059 PERMIT

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW CBM X

LOCATION: ELEVATION 1778.32 WATER SHED SHOP BRANCH OF INDIAN CREEK OFF GUYANDOTTE RIVER  
 DISTRICT BAILEYSVILLE COUNTY WYOMING  
 QUADRANGLE PINEVILLE, WV

SURFACE OWNER HEARTWOOD FORESTLAND FUND IV LP ACREAGE 2004.26 (Per Map 116, Parcel PID 111-7)  
 ROYALTY OWNER PLUM CREEK TIMBERLANDS LP LEASE ACREAGE 60.372.5

LEASE No. \_\_\_\_\_  
 PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR  
 STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW  
 FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) NOV 18 2005

PLUG AND ABANDON CLEAN OUT AND REPLUG  
 TARGET FORMATION POCAHONTAS NO. 3 AND PENN COALS ESTIMATED DEPTH 1130  
 WELL OPERATOR CDX Gas, LLS DESIGNATED AGENT JOSEPH A. ZUPANICK  
 ADDRESS PO Box 609 ADDRESS PO BOX 609  
Pineville, WV 24874 PINEVILLE, WV 24874

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 Office of Oil and Gas  
 JUN 17 2024  
 WV Department of  
 Environmental Protection

WYO 2005 C

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WR-35

State of West Virginia  
Division of Environmental Protection  
Section of Oil & Gas  
Well Operator's Report of Well Work

Farm name: Heartwood Forestland  
Location: Elevation: 1778.32'  
District: Baileysville

Operator Well No: PC-026B  
Quadrangle: Pineville  
County: Wyoming

Latitude: 10451 Feet South of 37 Deg. 35 Min. 00 Sec.  
Longitude: 1575 Feet West of 81 Deg. 35 Min. 00 Sec.

Company: CDX Gas, LLC  
P.O. Box 609  
Pineville, WV 24874

Agent: JOSEPH A. ZUPANICK

Inspector: Barry Stollings  
Permit Issued: 11/14/2005  
Well Work commenced: 1/14/2006  
Well Work completed: 3/7/2006  
Verbal plugging  
Permission granted on:  
Rotary x Cable \_\_\_\_\_ Rig  
Total depth (ft) 1192'  
Fresh water depths (ft) N/A  
Salt water depths (ft) N/A  
Is coal being mined in the area (Y/N)? Y  
Coal depths (ft): 1142.

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill up Cu.ft.
13 3/8"	32	32	22.2
9 5/8 "	529	529	165.7
7"	1067	1067	160.4
2 7/8"	1142	1142	Hanging

OPEN FLOW DATA

Producing formation Poca No.3 Pay zone depth (ft) 1142  
Gas: Initial open flow N/A Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow N/A Mcf/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests: \_\_\_\_\_ hours  
Static rock pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ hours

Second Producing formation \_\_\_\_\_ Pay zone depth \_\_\_\_\_ (ft)  
Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ Mcf/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests: \_\_\_\_\_ hours  
Static rock pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ hours

Third Producing formation \_\_\_\_\_ Pay zone depth \_\_\_\_\_ (ft)  
Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ Mcf/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests: \_\_\_\_\_ hours  
Static rock pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ hours

Note: ON BACK OF THIS FORM, PUT THE FOLLOWING: 1) DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2) THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE. Department of Environmental Protection

Charles T. Akers  
For: CDX Gas, LLC  
By: [Signature]  
Date: 5/19/06  
MAY 19 2006

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JUN 17 2024

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2605C

07/19/2024

4710902605P

Operator: PC-026B  
API No. 47-109-02605  
Location: Wyoming County

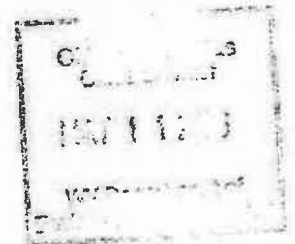
Details of Perforated Intervals, Fracturing or Stimulation, Physical Change, Etc. - N/A

Well Log & Geologic Record - Depths from G.L.

Lithology	Depth in feet	
	Top	Bottom
Casing	0	20
Sandy Shale	20	48
Shale	48	145
Sandy Shale	145	175
Shale	175	205
Sandy Shale	205	234
Shale	234	275
Sandy Shale	275	350
Sandstone	350	405
Shale	405	477
Sandy Shale	477	570
Shale	570	595
Sandy Shale	595	635
Shale	635	723
Sandy Shale	723	750
Shale	750	840
Sandstone	840	872
Shale	872	940
Sandstone	940	985
Sandy Shale	985	1060
Shale	1060	1090
Sandy Shale	1090	1135
Shale	1135	1144
Coal	1144	1148
Sandy Shale	1148	1190
TD		

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MAY 19 2006

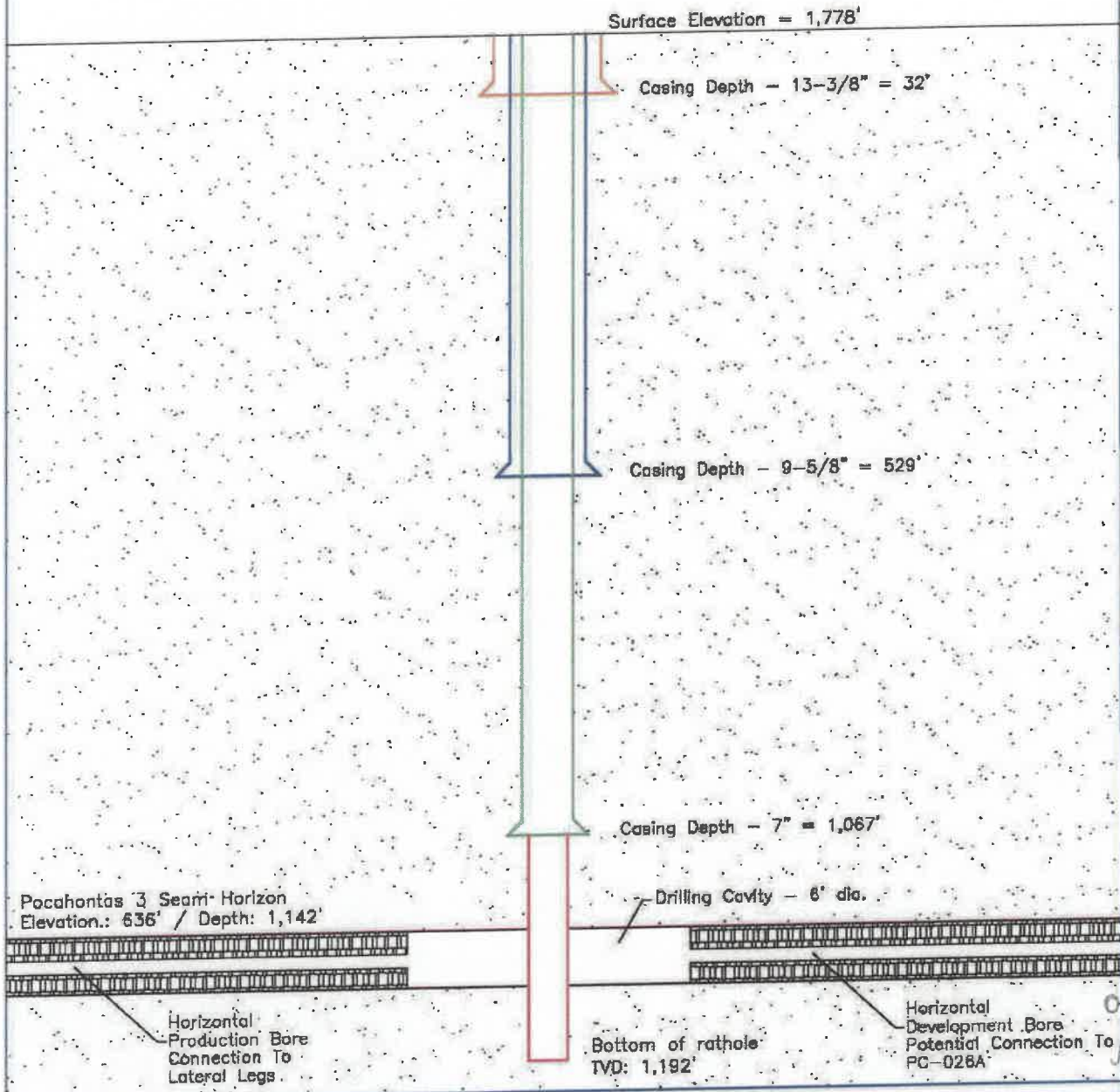


07/19/2024








WELL NO. PC-026B

API: 47-109-02605



LEGEND

-  Coal Seam
-  13 3/8" Diameter Casing
-  9 5/8" Diameter Casing
-  7" Diameter Casing
-  Open Hole / No Casing

PC-026B Well Profile

Information gathered from WV - DEP - Oil & Gas Form WR-35

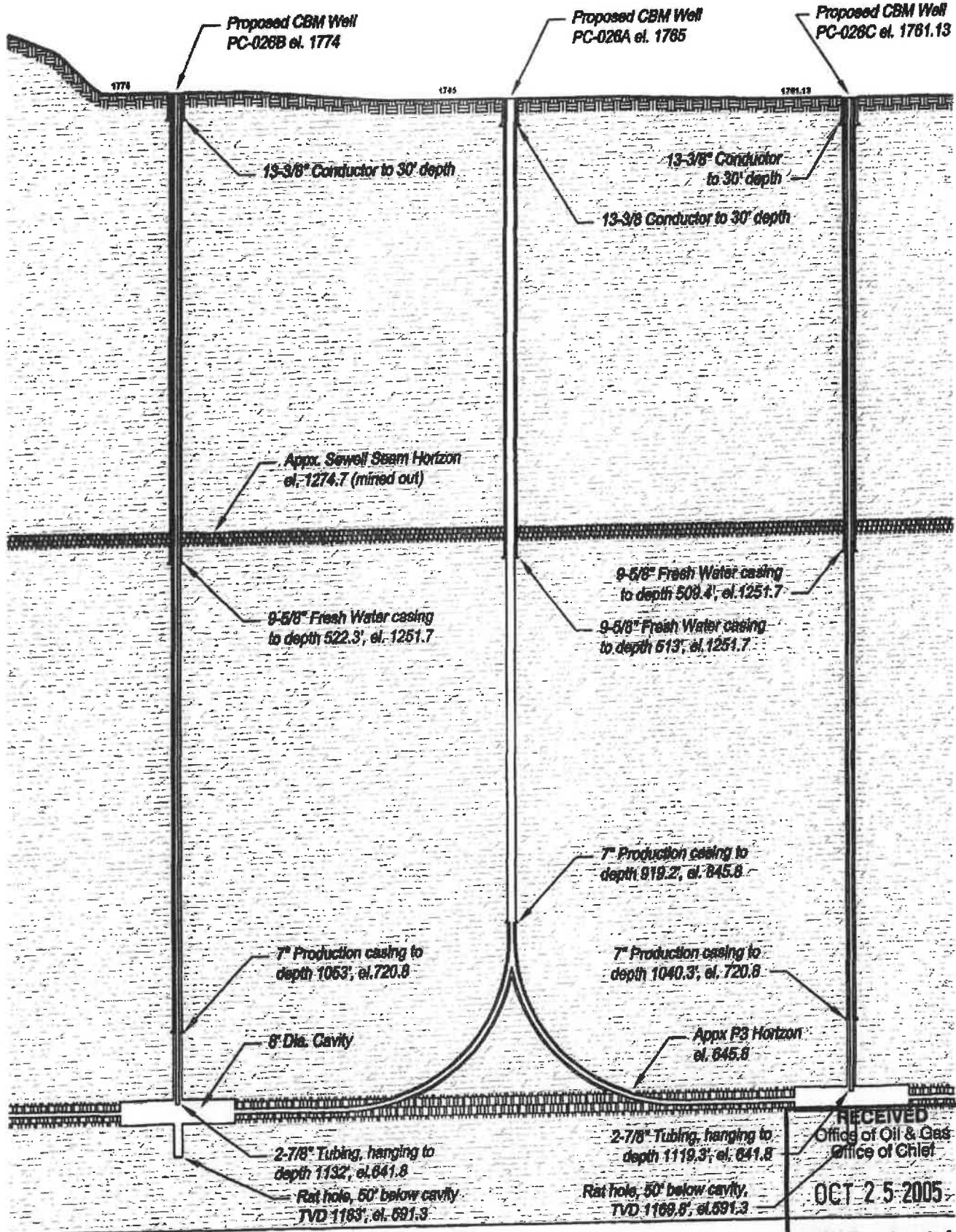
SCALE: NTS	ULTRA PRODUCTION CO., LLC	DRAWN BY: AH
DATE: 05/29/2024	PO Box 289 Cedar Bluff, VA 24609	FILE: Well Profiles

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# CDX Gas, LLC

## Proposed CBM Wells PC-026A, PC-026B & PC-026C

109-02605



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Office of Chief  
OCT 25 2005  
WV Department of  
Environmental Protection  
07/19/2024

WW-4A  
Revised 6-07

1) Date: \_\_\_\_\_  
2) Operator's Well Number  
PC-028B \_\_\_\_\_  
3) API Well No.: 47 - 109 - 02605

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL (CBM well)**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Heartwood Forest Land Fund</u>	Name <u>Spartan Mining Co.</u>
Address <u>19045 Stone Mountain Road</u>	Address <u>PO Box 480</u>
<u>Abingdon, VA 24210</u>	<u>Brenton, WV 24818</u>
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Western Pocahontas Properties, LLC</u>
(c) Name _____	Address <u>5260 Irwin Road</u>
Address _____	<u>Huntington, WV 25705</u>
6) Inspector <u>Murdock Howard</u>	(c) Coal Lessee with Declaration
Address <u>173 Baumgartner Ave.</u>	Name <u>Spartan Mining Co.</u>
<u>Oakwood, WV 25901</u>	Address <u>PO Box 480</u>
Telephone <u>861-990-2568</u>	<u>Brenton, WV 24818</u>

**TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:**

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator Boone East Development Co., LLC

By: [Signature] RECEIVED  
Office of Oil and Gas  
JUN 17 2024

Its: Manager & President

Address 340 Martin Luther King Jr. Blvd.  
Bristol, TN 37620  
WV Department of  
Environmental Protection

Telephone 423-573-0300

Subscribed and sworn before me this 30<sup>th</sup> day of May 2024  
My Commission Expires 11/2/2027 Notary Public



**Oil and Gas Privacy Notice**  
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](mailto:depprivacyofficer@wv.gov).

7022 1670 0001 8532 0055

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Abingdon, VA 24210

**OFFICIAL USE**

Certified Mail Fee	\$4.40	4637
Extra Services & Fees (check box, add fee as appropriate)	\$7.25	47
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$2.59	
<b>Total Postage and Fees</b>	<b>\$10.64</b>	

Postmark Here: JUN 14 2024 06/14/2024

Sent To: Heartwood Forest Land Fund  
19045 Stone Mountain Rd  
Abingdon, VA 24210

PS Form 3800, April 2019

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Brenton, WV 24818

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Certified Mail Fee	\$4.40	4637
Extra Services & Fees (check box, add fee as appropriate)	\$7.25	47
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$2.59	
<b>Total Postage and Fees</b>	<b>\$10.64</b>	

Postmark Here: JUN 14 2024 06/14/2024

Sent To: Spartan Mining Company  
PO Box 460  
Brenton, WV 24818

See Reverse for Instructions

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Charleston, WV 25304

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Extra Services & Fees (check box, add fee as appropriate)	\$7.25	47
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$2.59	
<b>Total Postage and Fees</b>	<b>\$10.64</b>	

Postmark Here: JUN 14 2024 06/14/2024

Sent To: WV Department of Environmental Protection  
Office of Oil & Gas  
601 57th Street SE  
Charleston, WV 25304

7022 1670 0001 8532 0079

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Huntington, WV 25705

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Certified Mail Fee	\$4.40	4637
Extra Services & Fees (check box, add fee as appropriate)	\$7.25	47
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$2.59	
<b>Total Postage and Fees</b>	<b>\$10.64</b>	

Postmark Here: JUN 14 2024 06/14/2024

Sent To: Western Pocahontas Properties LLC  
5260 Irwin Rd  
Huntington, WV 25705

See Reverse for Instructions

4710902605P

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**SURFACE OWNER WAIVER**

Operator's Well  
Number

PC-026B

**INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A**

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.  
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57th St. SE  
Charleston, WV 25304  
(304) 926-0450

**Time Limits and methods for filing comments.** The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

**Comments must be in writing.** Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

**If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.**

**VOLUNTARY STATEMENT OF NO OBJECTION**

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application For A Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON  
ETC.

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Office of Oil and Gas  
FOR EXECUTION BY A CORPORATION

JUN 17 2024

_____	Date	_____	Name	_____
Signature		By	_____	_____
		Its	_____	_____

WV Department of  
Environmental Protection  
Date

Signature Date

07/19/2024

4710902605 P

WW-4B

API No.	<u>47-109-02605</u>
Farm Name	<u>Heartwood Forestland</u>
Well No.	<u>PC-026B</u>

**INSTRUCTIONS TO COAL OPERATORS  
OWNERS AND LESSEE**

The well operator named on the obverse side of WW-4 (B) is about to abandon the well described in the enclosed materials and will commence the work of plugging and abandoning said well on the date the inspector is notified. Which date shall not be less than five days after the day on which this notice and application so mailed is received, or in due course should be received by the Department of Environmental Protection Office of Oil & Gas.

This notice and application is given to you in order that your respective representatives may be present at the plugging and filling of said well. You are further notified that whether you are represented or not the operator will proceed to plug and fill said well in the manner required by Section 24, Article 6, Chapter 22 of the Code and given in detail on obverse side of this application.

NOTE: If you wish this well to be plugged according to 22-6-24(d) then as per Regulation 35CSR4-13.9 you must complete and return to this office on form OB-16 "Request by Coal Operator, Owner, or Lessee for plugging" prior to the issuance of this plugging permit.

**WAIVER**

The undersigned coal operator \_\_\_\_/ owner \_\_\_\_/ lessee \_\_\_\_/ of the coal under this well location has examined this proposed plugging work order. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

Its \_\_\_\_\_

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WV Department of  
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WW-9  
(5/16)

API Number 47 - 109 - 02605  
Operator's Well No. PC-026B

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Boone East Development Co., LLC OP Code \_\_\_\_\_

Watershed (HUC 10) 0507010103 Quadrangle Pineville

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: \_\_\_\_\_

Will a synthetic liner be used in the pit? Yes  No  If so, what ml? \_\_\_\_\_

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- 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? If so, describe: N/A

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. N/A

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

Additives to be used in drilling medium? N/A

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. N/A

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust)

-Landfill or offsite name/permit number? \_\_\_\_\_

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, 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 [Signature]

Company Official (Typed Name) James R. Cappuccini

Company Official Title Manager & President

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WV Department of  
Environmental Protection

Subscribed and sworn before me this 30<sup>th</sup> day of May, 2024

[Signature] Notary Public  
Timothy R. McGrady  
My commission expires March 3, 2027



Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation pH \_\_\_\_\_

Lime 2 Tons/acre or to correct to pH 6.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 0.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Orchard Grass	6	Orchard Grass	6
Perennial Rye Grass	39	Perennial Rye Grass	39
Red Clover	17	Red Clover	17

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: Operator is to cover all oil & Gas formations including salt, elevation, Bats and freshwater with cement

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JUN 17 2024

WV Department of  
Environmental Protection

Title: Inspector

Date: 6-14-24

Field Reviewed?  Yes

No



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

Operator Name: Boone East Development Co., LLC  
Watershed (HUC 10): 0507010103 Quad: Pineville  
Farm Name: Heartwood Forestland

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

The only fluid involved in this operation is fresh water; therefore, no threat to groundwater contamination exists.

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

N/A

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Indian Creek of Guyandotte River is 0.6 miles from location.

4. Summarize all activities at your facility that are already regulated for groundwater protection.

N/A

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JUN 17 2024  
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5. Discuss any existing groundwater quality data for your facility or an adjacent property.

N/A

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material will be used for deicing or fill material.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

N/A

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

N/A

Signature: [Handwritten Signature]

Date: 5-30-2024

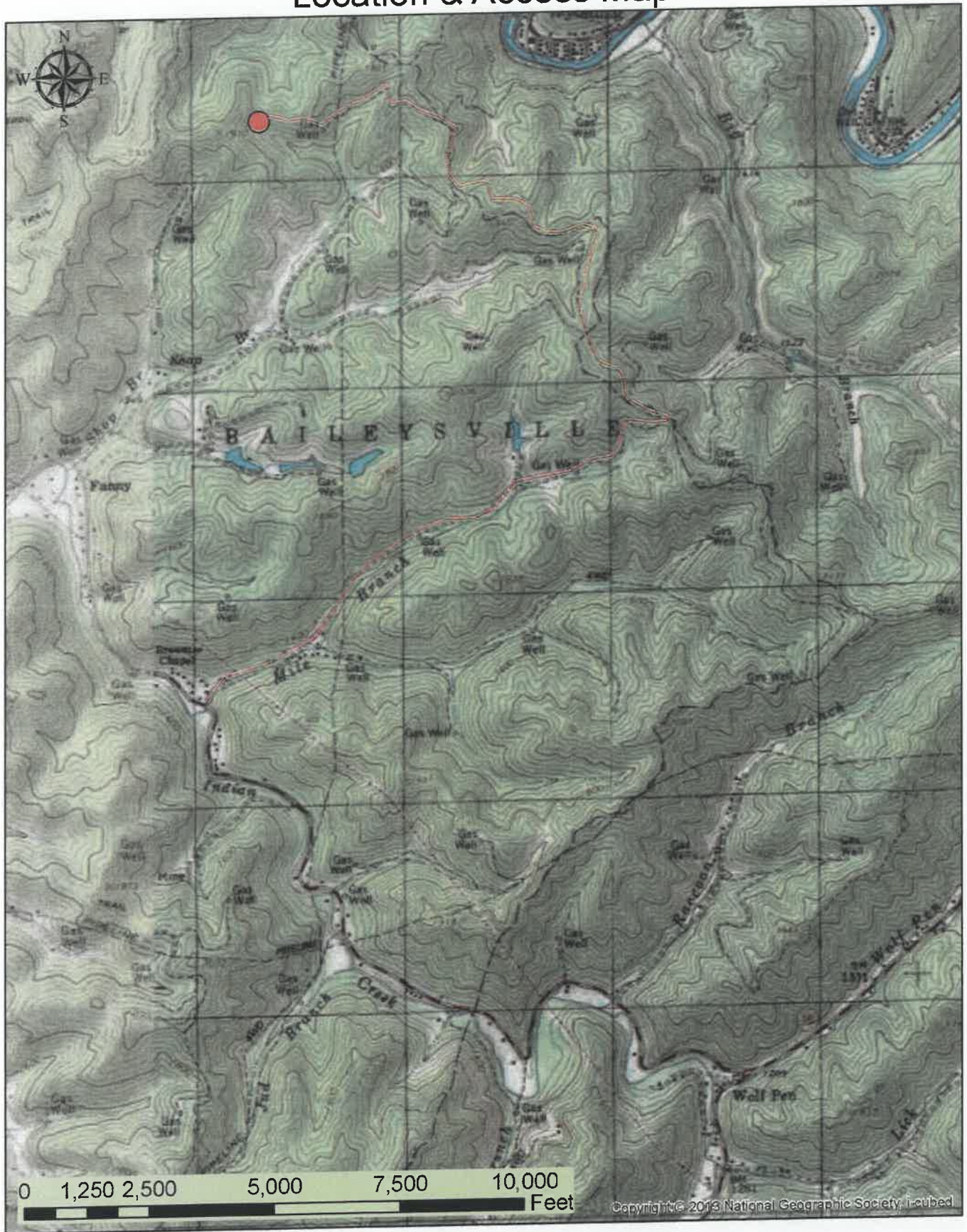
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# PC-026B (47-109-02605) Location & Access Map



4710902605P

WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas

**WELL LOCATION FORM: GPS**

API: 47-109-02605 WELL NO.: PC-026B

FARM NAME: Heartwood Forestland

RESPONSIBLE PARTY NAME: Boone East Development Co., LLC

COUNTY: Wyoming DISTRICT: Baileysville

QUADRANGLE: Pineville

SURFACE OWNER: Heartwood Forest Land Fund

ROYALTY OWNER: Plum Creek Timberlands

UTM GPS NORTHING: 4159300.24

UTM GPS EASTING: 445323.45 GPS ELEVATION: 1,778.32ft.

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS  : Post Processed Differential


Real-Time Differential

Mapping Grade GPS  : Post Processed Differential

Real-Time Differential

4. **Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

                      Manager                      5-30-2024  
 Signature    Title    Date

RECEIVED  
Office of Oil and Gas

JUN 17 2024

WV Department of  
Environmental Protection

07/19/2024



47 10902605P

P.O. Box 289  
Cedar Bluff, Virginia 24609  
Telephone (276) 345-9161  
Telefax (540) 301-5996

6-14-2024

WV Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

**RE: Plugging Permit for 47-109-02605 (PC-026B)**

Please find enclosed on behalf of Boone East Development Co., LLC, the permit application for plugging the horizontal CBM Well PC-026B (API 47-109-02605), located in Wyoming County, West Virginia. This well is being plugged due to the advancement of underground mining activities and to ensure the safety of such operations. Should you have any questions or concerns in regards to this application, please feel free to contact me using the information provided below.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Hrovatic", is written over a horizontal line.

Andy Hrovatic  
Ultra Production Company, LLC  
Cell: 276-970-6431  
Email: [ahrovatic@ultraproductioncompany.com](mailto:ahrovatic@ultraproductioncompany.com)

07/19/2024