



west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Thursday, November 10, 2022
WELL WORK PLUGGING PERMIT
Coal Bed Methane Well Plugging

SUMMIT APPALACHIA OPERATING COMPANY, LLC
33300 EGYPT LANE, SUITE E-300

MAGNOLIA, TX 77354

Re: Permit approval for CO-4C
47-081-01454-00-00

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: CO-4C
Farm Name: BEAVER COAL COMPANY, L
U.S. WELL NUMBER: 47-081-01454-00-00
Coal Bed Methane Well Plugging
Date Issued: 11/10/2022

Promoting a healthy environment.

11/18/2022

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. 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.

4708101454P

WW-4B
Rev. 2/01

1) Date 8-02, 2022
2) Operator's
Well No. CO-4C
3) API Well No. 47-081 - 01454

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SEP 14 2022

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

WV Department of
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APPLICATION FOR A PERMIT TO PLUG AND ABANDON

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

5) Location: Elevation 2300.76 Watershed Tributary of Stephens Branch of Millers Camp Branch
District Trap Hill County Raleigh Quadrangle Eccles

6) Well Operator Summit Appalachia Operating Company, LLC 7) Designated Agent Tim Shortridge
Address 33300 Egypt Lane, Suite E-300 Address 8112 Riverside Drive
Magnolia, TX 77354 Oakwood, VA 24631

8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name Gary Kennedy Name TBD
Address 66 Old Church Lane Address _____
Pipestem, WV 25979

10) Work Order: The work order for the manner of plugging this well is as follows:

See attached Plugging Procedure and the MSHA 101C Exemption.

This CBM has a vertical cased portion, along with open holed laterals through the coal seam. In accordance with the MSHA 101C Exemption, the laterals must be infused with Bentonite Gel.

The mining company is requesting that the O&G operator infuse the laterals first to allow for mining to be done.

The laterals will be infused with gel to provide for mine through.

After mine through, the well will be plugged and abandoned after applying of and receiving a permit from WVDEP, Office of Oil & Gas.

LATERALS DRILLED THROUGH ACCESS WELL
API 47-081-01452.

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

Work order approved by inspector Gary Kennedy Date 9/12/2022

11/18/2022

CO-4C PROPOSED WELL WORK

The CO-4C well was previously permitted as a horizontal CBM well (API# 4708101454, previous permit issued 10-25-07) and only the vertical portion of the well was drilled at that time. The multi-lateral horizontal portions of the CO-4C will now be drilled from the CO-4A well (API# 4708101452, previous permit issued 3-17-11.)

11) (a): Produce CBM from the POCA 3 and POCA 2A coal seams from a multilateral horizontal well initiated from well CO-4A. The horizontal portion of the well bore drilled from CO-4A will intersect the existing vertical portion of the CO-4C well slightly after the curve. After drilling the horizontal laterals, the curve from the CO-4A will be plugged to allow for production from the CO-4C.

13) (b) The Beckley Coal is workable, estimated Top Beckley = 750 feet (md), Sewell Coal may be present but may not be workable, estimated Top Sewell = 474 feet (md). The Beckley Coal is protected by two strings of casing; 7" set @ 1014' (md) and 9 5/8" set at 801' (md). The Sewell Coal is protected by three strings of casing – the above strings and 13 3/8" set @ 505' (md). (See: attached casing diagram)

14) (b): Horizontal drilling will take place from the CO-4A well and intersect the vertical CO-4C well. Please see: 11) (a) above and attached plats for proposed multi-lateral horizontal pattern.

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CO 4C

API# 81-01454

Partial Plugging Procedure

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Summit Appalachia Operating Company, LLC proposes to perform a 2-6% bentonite squeeze using a redundant pumping system. The following procedures will be used for partial plugging:

- Record Rock Pressures*
1. Blow down well.
 2. Tubing rods and pump will be pulled from the well.
 3. 64 barrels (1 barrel = 42 gallon) of water will be pumped into the well. This is 150% of the wells *VOLUME* TVD. This will ensure lateral entrance to be open and accepting fluid.
 4. *SEE ATTACHMENT* 1180 barrels (1 barrel = 42 gallons) of 2% - 6% bentonite gel will then be pumped. This is 125% of the volume of the laterals in the Poca 3. Gel formulation will be a simple mixture of 2% - 6% bentonite and fresh water with no other additives.
 5. The bentonite will be displaced with 64 barrels of water. This is 150% of the TVD, *VOLUME*
 6. The vertical well will be left open until that time is released to be plugged with cement.

Prior to mixing bentonite, a water sample will be taken and submitted to the cement company to verify suitability.

Flow rates, pressures and densities of fluids will be continuously monitored and recorded. Samples of the bentonite will be taken and weighed on mud balance every 15 minutes. *JK*

AFTER COMPLETING THE MINE THROUGH OF PINNATE COAC, THE WELL WILL ULTIMATELY BE PLOGGED FROM THE BOTTOM OF THE 7" CASING TO SURFACE. AFTER SETTING A CIBP AS CLOSE TO BOTTOM OF 7" CASING AS PRACTICAL, EXPANDING CEMENT SHALL BE SET FROM THE TOP OF THE CIBP TO A POINT 100' ABOVE THE SHALLOWEST COAL (SEWELL @ 365'). AT SUCH POINT, CLASS A CEMENT SHALL BE PUMPED TO THE SURFACE. A MONUMENT SHALL BE SET ACCORDING TO RULES OF THE WV STATE CODE.

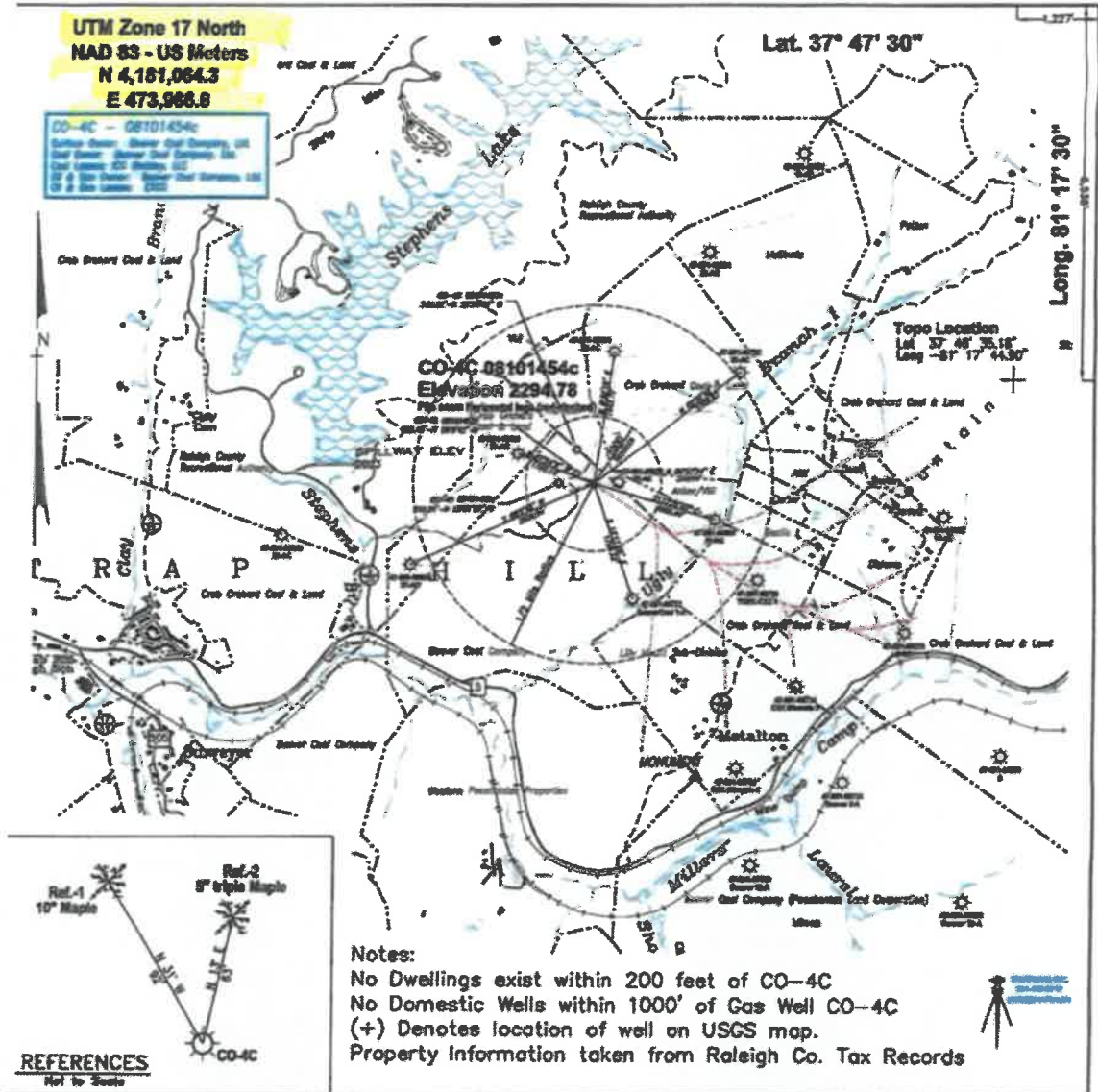
NOTE: THE MINE THROUGH OF PINNATE COAC MAY TAKE A CONSIDERABLE AMOUNT OF TIME. THIS PERMIT WILL EXPIRE IN 2 YEARS AFTER ISSUANCE. IF THE CASED VERTICAL PORTION OF THIS CBM WELL WAS NOT BEEN PLOGGED BY THEN, A NEW PERMIT MUST BE SOUGHT.

JWM
11/18/2022

ATTACHMENT

4708101454P

4.750 bit		6" bit	
Footage #16	844	Footage #3	163
Footage #15	9241	Footage #2	120
Footage #14	4508	Footage #1	131
Footage #13	6063		
Footage #12	6564		
Footage #11	789		
Footage #10	3296		
Footage #9	1115		
Footage #8	0		
Footage #7	6148		
Footage #6	2172		
Footage #5	1369		
Footage #4	287		
	42396		414
gal/ft 4.750"	0.9205	gal/ft 6"	1.4691
Total Gallons	39025.518	Total Gallons	608.166
42 gal/ barrel		42gal/barrel	
Total Barrels	929.179	Total Barrels	14.48014
Total Barrels	943.66		
125% Total	1179.57		



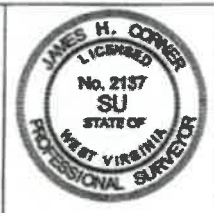
Notes:
 No Dwellings exist within 200 feet of CO-4C
 No Domestic Wells within 1000' of Gas Well CO-4C
 (+) Denotes location of well on USGS map.
 Property Information taken from Raleigh Co. Tax Records

REFERENCES
 Not to Scale

FILE No. VITRUVIAN EXPLORATION, LLC
 DIRECTORY STN40\WORK\VITRUVIAN
 DRAWING NAME Plot CO-4C(a2a).dwg
 SCALE 1" = 2000'
 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]
 R.P.E. _____ R.P.S. 2137



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

DATE April 1, 2011
 OPERATOR'S WELL No. CO-4C

API WELL No. 47 - STATE 081 - COUNTY 01454C PERMIT

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

LOCATION: ELEVATION 2294.78 WATER SHED UGLY BR OF MILLERS CAMP BR OF MARSH FK OF BIG COAL RIVER
 DISTRICT TRAP HILL COUNTY RALEIGH
 QUADRANGLE ECCLIS, WV 7 1/2'

SURFACE OWNER BEAVER COAL COMPANY ACREAGE 817 (Dist 12 - Strip 15 Parcel 7)
 ROYALTY OWNER VARIOUS - SEE APPLICATION LEASE ACREAGE _____

LEASE No. _____

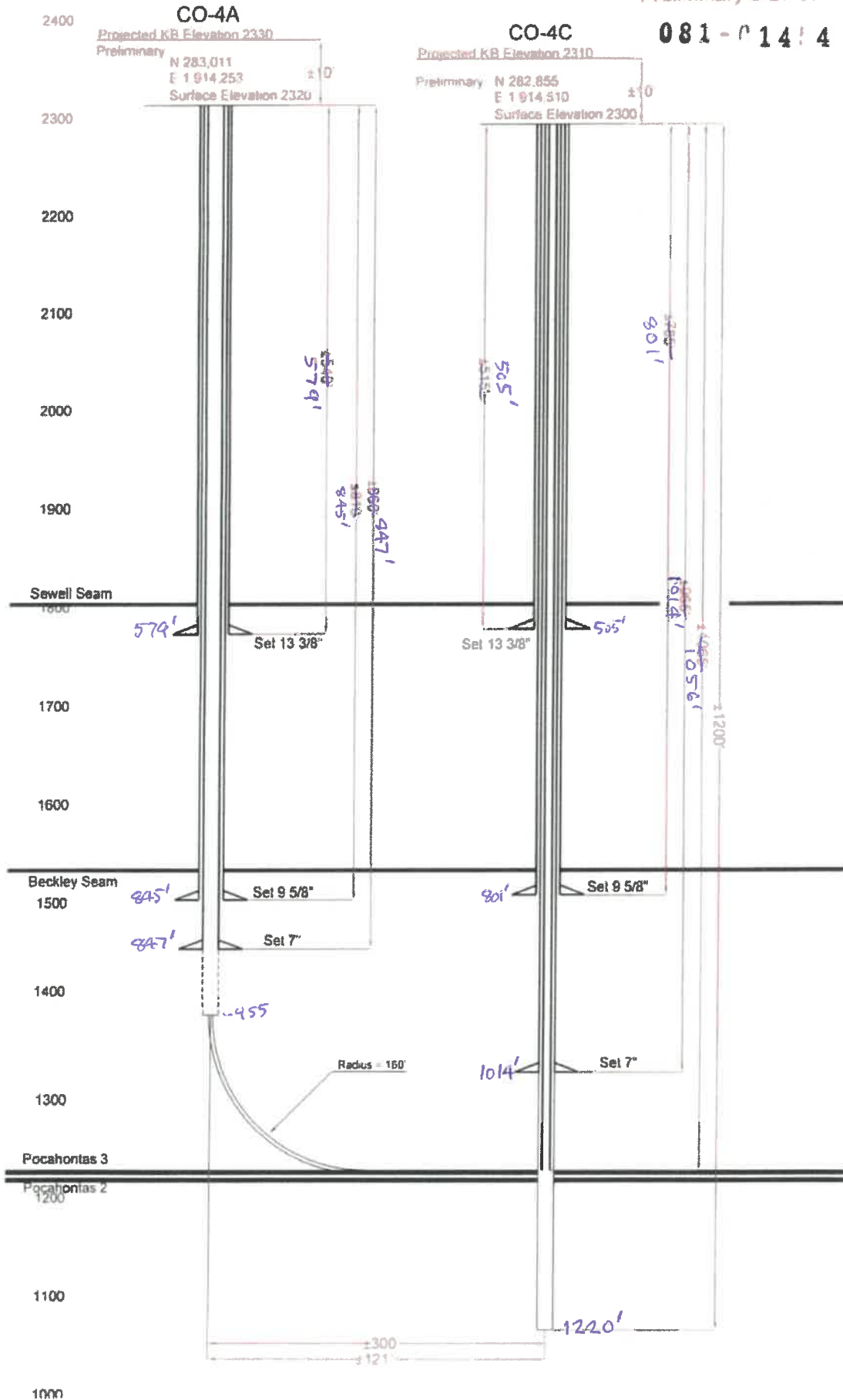
PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL FRACTURE OR
 STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW
 FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) "as-built" location

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION POCA 2A & POCA 3 SEAMS ESTIMATED DEPTH 1220 FEET
 WELL OPERATOR VITRUVIAN EXPLORATION, LLC DESIGNATED AGENT RYAN J MORGAN, ESQ.
 ADDRESS 2388 HARPER RD ADDRESS 787 VIRGINIA STREET EAST
BECKLEY, WV 25801 CHARLESTON, WV 25326

(Refer to Permit Plat for Pattern Design)

CDX GAS, LLC
Preliminary 9-27-07



47081014549

WR-35
Rev (8-10)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: August 9, 2011
API #: 47-081-01454

Farm name: Beaver Coal Company Operator Well No.: CO-4C

LOCATION: Elevation: 2294.78' Quadrangle: Eccles

District: Trap Hill County: Raleigh
Latitude: 5544 Feet South of 37 Deg. 47 Min. 30 Sec.
Longitude: 1190 Feet West of 81 Deg. 17 Min. 30 Sec.

Company: Vitruvian Exploration, LLC

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
4 Waterway Square, Ste 400, The Woodlands, TX 77380	13-3/8"	505'	505'	351
Agent:	9-5/8"	801'	801'	251
Inspector:	7"	1,014'	1,014'	165
Date Permit Issued: 10/25/2007	2-7/8"		1,065'	
Date Well Work Commenced: 4/8/2008				
Date Well Work Completed: 08/01/2011				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig				
Total Vertical Depth (ft): 1,220'				
Total Measured Depth (ft): 1,220'				
Fresh Water Depth (ft.): 490'				
Salt Water Depth (ft.): NA				
Is coal being mined in area (N/Y)? Y				
Coal Depths (ft.):	Lower Beckley - 750'	Poca 3 - 1,056'	Poca 2A - 1,071'	
Void(s) encountered (N/Y) Depth(s) N				

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OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Poca 3 Pay zone depth (ft) 1,056'
Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d
Final open flow NA MCF/d Final open flow NA Bbl/d
Time of open flow between initial and final tests NA Hours
Static rock Pressure NA psig (surface pressure) after NA Hours

Second producing formation Poca 2A Pay zone depth (ft) 1,071'
Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d
Final open flow NA MCF/d Final open flow NA Bbl/d
Time of open flow between initial and final tests NA Hours
Static rock Pressure NA psig (surface pressure) after NA Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.


Signature

08/08/2011
Date

11/18/2022

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes _____ No X

Were N Electrical, N Mechanical, Y or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

None

Formations Encountered: _____ Top Depth _____ / _____ Bottom Depth
Surface:

(see attached page for Formations Encountered)

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CO-4C

TD = 1216 (MD)

Formations Encountered:	Total Depth	Bottom Depth
Sandstone	0	15
Sandy-Shale	15	67
Shale	67	123
Sandy-Shale	123	167
Shale	167	233
SandStone	233	277
Shale	277	381
Sandy-Shale	381	396
Sandstone	396	474
Sewell Coal	474	477
Shale	477	504
Sandy-Shale	504	560
Sandstone	560	587
Siltstone	587	609
Sandstone	609	633
Shale	633	717
Sandy-Shale	717	725
Shale	725	729
Sandstone	729	743
Upper Beckley Coal	743	746
Shale	746	751
Lower Beckley Coal	751	755
Sandy-Shale	755	801
Shale	801	821
Sandstone	821	826
Shale	826	846
Fire Creek Coal	846	848
Shale	848	860
Sandy-Shale	860	865
Shale	865	869
Sandy-Shale	869	873
Shale with thin beds of sandstone	873	903
Sandstone	903	910
Sandy-Shale	910	924
Sandstone	924	926
Sandy-Shale	926	947
Sandstone	947	950
Shale	950	955
Pocahontas 6 Coal	955	957
Sandy-Shale	957	961
Shale	961	993
Sandy-Shale	993	997
Pocahontas 4 Coal	997	1002
Sandstone	1002	1005

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Sandy-Shale	1005	1022
Sandstone	1022	1037
Shale	1037	1056
Pocahontas 3 Coal	1056	1060
Shale	1060	1067
Sandstone	1067	1069
Sandy-Shale	1069	1070
Pocahontas 2A Coal	1070	1072
Sandy-Shale	1072	1082
Sandstone	1082	1123
Sandy-Shale	1123	1132
Sandstone	1132	1144
Sandy-Shale	1144	1216

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U.S. Department of Labor

DEC 16 2011

In the matter of:

Wolf Run Mining Company

Sentinel Mine

I.D. No. 46-04168

Mine Safety and Health Administration

1100 Wilson Boulevard

Arlington, Virginia 22209-3939

Petition for Modification



Docket No. M-2009-050-C

Proposed Decision and Order

MSHA 101C

Exemption

On October 29, 2009, a petition was filed seeking a modification of the application of 30 C.F.R. § 75.1700 to Petitioner's Sentinel 2 Mine located in Barbour County, West Virginia. The petitioner alleges that the alternative method outlined in the petition will at all times guarantee no less than the same measure of protection afforded by the standard.

Section 30 C.F.R. § 75.1700 provides:

Each operator of a coal mine shall take reasonable measures to locate oil and gas wells penetrating coalbeds or any underground area of a coal mine. When located, such operator shall establish and maintain barriers around such oil and gas wells in accordance with State laws and regulations, except that such barriers shall not be less than 300 feet in diameter, unless the Secretary or his authorized representative permits a lesser barrier consistent with the applicable State laws and regulations where such lesser barrier will be adequate to protect against hazards from such wells to the miners in such mine, or unless the Secretary or his authorized representative requires a greater barrier where the depth of the mine, other geologic conditions, or other factors warrant such a greater barrier.

The extraction of methane from coal seams and surrounding strata is a rapidly growing component of the domestic natural gas supply. Recent innovations in drilling techniques have resulted in development of several types of wells and production methods to extract coalbed methane (CBM) resources. Drill holes are deviated in both the horizontal and vertical planes using these techniques. These techniques differ from vertical gas wells and require different techniques in order to plug the wells. Procedures to address the potential hazards presented by CBM wells must be implemented to protect the coal miners who will be exposed to these wells. When coal mines intersect inadequately plugged CBM wells, methane inundations, ignitions and explosions are possible.

The alternative method proposed by Petitioner would include well plugging procedures, water infusion and ventilation methods, and procedures for mining through each CBM well and/or its branches.

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You can now file your MSHA forms online at www.MSHA.gov. It's easy, it's fast, and it saves you money!

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Finding of Fact and Conclusion of Law

The Sentinel 2 Mine is an underground coal mine that operates in the Lower Kittanning Seam. The mine includes one slope and two shafts, employs nearly 245 people, and operates three shifts per day, six days per week. The mine currently has three working sections utilizing continuous mining machines. On average, the Sentinel Mine produces 8,000 tons of run-of-mine coal daily. The coal bed ranges from 60 to 108 inches in height and the mine is ventilated by one blowing fan. The second quarter 2011 total liberation results for the mine were 4,139,677 cubic feet of methane in 24 hours.

Sentinel Mine extracts CBM from the coal seam prior to mining in order to reduce methane emissions and, thus, the incidence of face ignitions. The wells are drilled from the surface using directional drilling technology to develop horizontal branches within the coal seam being mined. Drill holes may be deviated in both the horizontal and vertical planes using these techniques. Multiple horizontal branches may be developed from a single well and multiple seams may be developed from a single well. The drilling industry has trademarked several different proprietary names for these drilling processes. For purposes of this Order, these proprietary drilling processes will be referred to as generic "surface directional drilled" (SDD) wells.

On February 16, 2010, MSHA conducted an investigation of Sentinel's petition and filed a report of its findings and recommendations with the Administrator for Coal Mine Safety and Health. Based on information gathered during the investigation, MSHA evaluated Petitioner's proposed alternative method and, as amended by the terms and conditions of MSHA, concluded that it would provide the same measure of protection afforded by 30 C.F.R. § 75.1700. The alternative method has been successfully used to prepare CBM wells for safe intersection by using one or more of the following methods: (1) Cement Plug, (2) Polymer Gel, (3) Bentonite Gel, (4) Active Pressure Management and Water Infusion, and (5) Remedial Work. The alternate method will prevent the CBM well methane from entering the underground mine.

Petitioner's proposed alternative method includes provisions from previously approved petition requests that permit a smaller barrier and/or permit mining through properly plugged oil and gas wells. These alternative methods have proven safe and effective when properly implemented. In addition, Sentinel's petition request also includes additional provisions that are specific to SDD wells.

Accordingly, after a review of the entire record, including the petition and MSHA's investigative report, Wolf Run Mining Company is granted a modification of the application of 30 C.F.R. § 75.1700 to its Sentinel 2 Mine, and this Proposed Decision and Order (PDO) is issued.

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ORDER

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Coal Mine Safety and Health, and pursuant to Section 101(c) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. § 811(c), and 30 C.F.R. Part 44, a modification of the application of 30 C.F.R. § 75.1700 at the Sentinel 2 Mine is hereby:

GRANTED, to allow mining within or through the 300 foot barrier around SDD oil and gas wells, conditioned upon compliance with the following terms and conditions:

1. **DISTRICT MANAGER APPROVAL REQUIRED**

A minimum working barrier of 300 feet in diameter shall be maintained around all SDD wells until approval to proceed with mining has been obtained from the District Manager. This barrier extends around all vertical and horizontal branches drilled in the coal seam. This barrier also extends around all vertical and horizontal branches within overlying coal seams subject to caving or subsidence from the coal seam being mined when methane leakage through the subsidence zone is possible. The District Manager may choose to approve each branch intersection, each well, or a group of wells as applicable to the conditions. The District Manager may require a certified review of the proposed methods to prepare the SDD wells for intersection by a professional engineer in order to assess the applicability of the proposed system(s) to the mine-specific conditions.

2. **MANDATORY PROCEDURES FOR PREPARING, PLUGGING, AND REPLUGGING SDD WELLS**

a. **MANDATORY COMPUTATIONS AND ADMINISTRATIVE PROCEDURES PRIOR TO PLUGGING OR REPLUGGING**

1. Probable Error of Location - Directional drilling systems rely on sophisticated angular measurement systems and computer models to calculate the estimated location of the well bore. This estimated hole location is subject to cumulative measurement errors so that the distance between actual and estimated location of the well bore increases with the depth of the hole. Modern directional drilling systems are typically accurate within one or two degrees depending on the specific equipment and techniques. The probable error of location is defined by a cone described by the average accuracy of angular measurement around the length of the hole. For example: a hole that is drilled 500 vertical feet and deviated into a coal seam at a depth of 700 feet would have a probable error of location at a point that is 4,000 feet from the hole collar (about 2,986 ft. horizontally from the well collar) of 69.8 ft. (4,000 ft. x sine (1.0

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degree)) if the average accuracy of angular measurement was one degree and 139.6 ft if the average accuracy of angular measurement was two degrees. In addition to the probable error of location, the true hole location is also affected by underground survey errors, surface survey errors, and random survey errors.

2. Minimum Working Barrier Around Well - For purposes of this Order, the minimum working barrier around any coalbed methane well or branches of a coalbed methane well in the coal seam is 50 feet plus the probable error of location. For example: for a hole that is drilled 500 vertical feet and deviated into a coal seam at a depth of 700 feet using drilling equipment that has an average accuracy of angular measurement of one degree, the probable error of location at a point that is 4,000 feet from the hole collar is 69.8 ft. Therefore, the minimum working barrier around this point of the well bore is 120 ft. (69.8 ft. plus 50 ft., rounded up to the nearest foot). The 50 additional feet is a reasonable separation between the probable location of the well and mining operations. When mining is within the minimum working barrier distance from a coalbed methane well or branch, the mine operator must comply with the provisions of this Order. Coalbed methane wells must be prepared in advance for safe intersection and specific procedures must be followed on the mining section in order to protect the miners when mining within this minimum working barrier around the well. The District Manager may require a greater minimum working barrier around coalbed methane wells where geologic conditions, historical location errors, or other factors warrant a greater barrier.

3. Ventilation Plan Requirements - The ventilation plan shall contain a description of all SDD coalbed methane wells drilled in the area to be mined. This description should include the well numbers, the date drilled, the diameter, the casing information, the coal seams developed, maximum depth of the wells, abandonment pressures, and any other information required by the District Manager. All or part of this information may be listed on the 30 C.F.R. § 75.372 map. The ventilation plan shall include the techniques that the mine operator plans to use to prepare the SDD wells for safe intersection, the specifications and steps necessary to implement these techniques, and the required operational precautions that are required when mining within the minimum working barrier. In addition, the ventilation plan will contain any additional information or provisions related to the SDD wells required by the District Manager.

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4. Ventilation Map - The ventilation map specified in 30 C.F.R. § 75.372 shall contain the following information:

- i. The surface location of all coalbed methane wells in the active mining area and any projected mining area as specified in 30 C.F.R. § 75.372(b)(14);
- ii. Identifying information of coalbed methane wells (i.e. API hole number or equivalent);
- iii. The date that gas production began from the well;
- iv. The coal seam intersection of all coalbed methane wells;
- v. The horizontal extents in the coal seam of all coalbed methane wells and branches;
- vi. The outline of the probable error of location of all coalbed methane wells; and
- vii. The date of mine intersection and the distance between estimated and actual locations for all intersections of the coalbed methane well and branches.

b. **MANDATORY PROCEDURES FOR PLUGGING OR REPLUGGING SDD WELLS**

The mine operator shall include one or more of the following methods to prepare SDD wells for safe intersection in the mine ventilation plan. The methods approved in the ventilation plan must be completed on each SDD well before mining encroaches on the minimum working barrier around the well or branch of the well in the coal seam being mined. If methane leakage through subsidence cracks is a problem when retreat mining, the minimum working barrier must be maintained around wells and branches in overlying coal seams or the wells and branches must be prepared for safe intersection as specified in the mine ventilation plan.

1. Cement Plug - Cement may be used to fill the entire SDD hole system. Squeeze cementing techniques are necessary for SDD plugging due to the lack of tubing in the hole. Cement should fill void spaces and eliminate methane leakage along the hole. Once the cement has cured, the SDD system may be intersected multiple times without further hole preparation. Gas cutting occurs if the placement pressure of the cement is less than the methane pressure in the coal seam. Under these conditions, gas will bubble out of the coal seam and into the unset cement creating a pressurized void or series of interconnected pressurized voids. Water cutting occurs when formation water and standing water in the hole invades or displaces the unset cement. Standing water has to be bailed out of the hole or driven into the formation with compressed gas to minimize water cutting of the cement.

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pressure must be maintained higher than the formation pressure until the cement sets to minimize both gas and water cutting. The cementing program in the ventilation plan must address both gas and water cutting.

Due to the large volume to be cemented and potential problems with cement setting prior to filling the entire SDD system, adequately sized pumping units with back-up capacity must be used. Various additives such as retarders, lightweight extenders, viscosity modifiers, thixotropic modifiers, and fly ash may be used in the cement mix. The volume of cement pumped should exceed the estimated hole volume to ensure the complete filling of all voids. The complete cementing program, including hole dewatering, cement, additives, pressures, pumping times and equipment must be specified in the ventilation plan. The material safety data sheets (MSDS) for all cements, additives and components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the cement and cement components should be included in the ventilation plan. Records of cement mixes, cement quantities, pump pressures, and flow rates and times should be retained for each hole plugged.

SDD holes may be plugged with cement years in advance of mining. However, the District Manager shall require suitable documentation of the cement plugging in order to approve mining within the minimum working barrier around coalbed methane wells.

2. Polymer Gel - Polymer gels start out as low viscosity, water-based mixtures of organic polymers that are crosslinked using time-delayed activators to form a water-insoluble, high-viscosity gel after being pumped into the SDD system. Although polymer gel systems never solidify, the activated gel should develop sufficient strength to resist gas flow. A gel that is suitable for treating SDD wells for mine intersection will reliably fill the SDD system and prevent gas-filled voids. Any gel chemistry used for plugging SDD wells should be resistant to bacterial and chemical degradation and remain stable for the duration of mining through a SDD system.

Water may dilute the gel mixture to the point where it will not set to the required strength. Water in the holes should be removed before injecting the gel mixture. Water removal can be accomplished by conventional bailing and then injecting compressed gas to squeeze the water that accumulates in low spots back into the formation. Gas pressurization should be continued until the hole is dry. Another potential problem with gels is that dissolved salts in the formation waters may interfere with the cross-linking reactions. Any proposed gel mixtures must be tested with actual formation waters.

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Equipment to mix and pump gels should have adequate capacity to fill the hole before the gel sets. Back-up units should be available in case something breaks while pumping. The volume of gel pumped should exceed the estimated hole volume to ensure the complete filling of all voids and allow for gel to infiltrate the joints in the coal seam surrounding the hole. Gel injection and setting pressures should be specified in the ventilation plan. To reduce the potential for an inundation of gel, the final level of gel should be close to the level of the coal seam and the remainder of the hole should remain open to the atmosphere until mining in the vicinity of the SDD system is completed. Packers may be used to isolate portions of the SDD system.

The complete polymer gel program, including advance testing of the gel with formation water, dewatering systems, gel specifications, gel quantities, gel placement, pressures, and pumping equipment must be specified in the ventilation plan. The MSDS for all gel components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the gel and gel components should be included in the ventilation plan. A record of the calculated hole volume, gel quantities, gel formulation, pump pressures, and flow rates and times should be retained for each hole that is treated with gel. Other gel chemistries other than organic polymers may be included in the ventilation plan with appropriate methods, parameters, and safety precautions.

3. **Bentonite Gel** - High-pressure injection of bentonite gel into the SDD system will infiltrate the cleat and butt joints of the coal seam near the well bore and effectively seal these conduits against the flow of methane. Bentonite gel is a thixotropic fluid that sets when it stops moving. Bentonite gel has a significantly lower setting viscosity than polymer gel. While the polymer gel fills and seals the borehole, the lower strength bentonite gel must penetrate the fractures and jointing in the coal seam in order to be effective in reducing formation permeability around the hole. The use of bentonite gel is restricted to depleted CBM applications that have low abandonment pressures and limited recharge potential. In general, these applications will be mature CBM fields with long production histories.

A slug of water should be injected prior to the bentonite gel in order to minimize moisture-loss bridging near the well bore. The volume of gel pumped should exceed the estimated hole volume to ensure that the gel infiltrates the joints in the coal seam for several feet surrounding the hole. Due to the large gel volume and potential problems with premature thixotropic setting, adequately sized pumping units with back-up capacity are required. Additives to the gel may be required to modify viscosity, reduce filtrates, reduce surface tension, and promote sealing of the cracks and

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joints around the hole. To reduce the potential for an inundation of bentonite gel, the final level of gel should be approximately the elevation of the coal seam and the remainder of the hole should remain open to the atmosphere until mining in the vicinity of the SDD system is completed. If a water column is used to pressurize the gel, it must be bailed down to the coal seam elevation prior to intersection.

The complete bentonite gel program, including formation infiltration and permeability reduction data, hole pretreatment, gel specifications, additives, gel quantities flow rates, injection pressures and infiltration times, must be specified in the ventilation plan. The ventilation plan should list the equipment used to prepare and pump the gel. The MSDS for all gel components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the gel and additives should be included in the ventilation plan. A record of hole preparation, gel quantities, gel formulation, pump pressures, and flow rates and times should be retained for each hole that is treated with bentonite gel.

4. Active Pressure Management and Water Infusion - Reducing the pressure in the hole to less than atmospheric pressure by operating a vacuum blower connected to the wellhead may facilitate safe intersection of the hole by a coal mine. The negative pressure in the hole will limit the quantity of methane released into the higher pressure mine atmosphere. If the mine intersection is near the end of a horizontal branch of the SDD system, air will flow from the mine into the upstream side of the hole and be exhausted through the blower on the surface. On the downstream side of the intersection, if the open hole length is short, the methane emitted from this side of the hole may be diluted to safe levels with ventilation air. Conversely, safely intersecting this system near the bottom of the vertical hole may not be possible because the methane emissions from the multiple downstream branches may be too great to dilute with ventilation air. The methane emission rate is directly proportional to the length of the open hole. Successful application of vacuum systems may be limited by caving of the hole or water collected in dips in the SDD system. Another important factor in the success of vacuum systems is the methane liberation rate of the coal formation around the well – older, more depleted wells that have lower methane emission rates are more amenable to this technique. The remaining methane content and the formation permeability should be addressed in the ventilation plan.

Packers may be used to reduce methane inflow into the coal mine after intersection. All packers on the downstream side of the hole must be equipped with a center pipe so that the inby methane pressure may be measured or so that water may be injected. Subsequent intersections should

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not take place if pressure in a packer-sealed hole is excessive. Alternatively, methane produced by the downstream hole may be piped to an in-mine degas system to safely transport the methane out of the mine or may be piped to the return air course for dilution. In-mine methane piping should be protected as stipulated in "Piping Methane in Underground Coal Mines," MSHA IR 1094, (1978). Protected methane diffusion zones may be established in return air courses if needed. Detailed sketches and safety precautions for methane collection, piping and diffusion systems must be included in the ventilation plan (30 C.F.R. § 75.371(ee)).

Water infusion prior to intersecting the well will temporarily limit methane flow. Water infusion may also help control coal dust levels during mining. High water infusion pressures may be obtained prior to the initial intersection by the hydraulic head resulting from the hole depth or by pumping. Water infusion pressures for subsequent intersections are limited by leakage around in-mine packers and limitations of the mine water distribution system. If water infused prior to the initial intersection, the water level in the hole must be lowered to the coal seam elevation before the intersection.

The complete pressure management strategy including negative pressure application, wellhead equipment, and use of packers, in-mine piping, methane dilution, and water infusion must be specified in the ventilation plan. Procedures for controlling methane in the downstream hole must be specified in the ventilation plan. The remaining methane content and formation permeability should be addressed in the ventilation plan. The potential for the coal seam to cave into the well should be addressed in the ventilation plan. Dewatering methods should be included in the ventilation plan. A record of the negative pressures applied to the system, methane liberation, use of packers and any water infusion pressures and application time should be retained for each intersection.

5. Remedial work - If problems are encountered in preparing the holes for safe intersection, then remedial measures must be taken to protect the miners. For example: if only one-half of the calculated hole volume of cement could be placed into a SDD well due to hole blockage, holes should be drilled near each branch that will be intersected and squeeze cemented using pressures sufficient to fracture into the potentially empty SDD holes. The District Manager will approve remedial work in the ventilation plan on a case-by-case basis.

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3. **MANDATORY PROCEDURES AFTER APPROVAL HAS BEEN GRANTED BY THE DISTRICT MANAGER TO MINE WITHIN THE MINIMUM WORKING BARRIER AROUND THE WELL OR BRANCH OF THE WELL**

- a. The mine operator, the District Manager, the miners' representative, or the State may request a conference prior to any intersection or after any intersection to discuss issues or concerns. Upon receipt of any such request, the District Manager shall schedule a conference. The party requesting the conference shall notify all other parties listed above within a reasonable time prior to the conference to provide opportunity for participation.
- b. The mine operator must notify the District Manager, the State and the miners' representative at least 48 hours prior to the intended intersection of any coalbed methane well.
- c. The initial intersection of a well or branch of a well typically has a higher risk than subsequent intersections. The initial intersection typically indicates if the well preparation is sufficient to prevent the inundation of methane. For the initial intersection of a well or branch, the following procedures are mandatory:
 1. When mining advances within the minimum barrier distance of the well or branches of the well, the entries that will intersect the well or branches must be posted with a readily visible marking. For longwalls, both the head and tailgate entries must be so marked. Marks must be advanced to within 100 feet of the working face as mining progresses. Marks will be removed after well or branches are intersected in each entry or after mining has exited the minimum barrier distance of the well.
 2. Entries that will intersect vertical segments of a well shall be marked with drivage sights in the last open crosscut when mining is within 100 feet of the well. When a vertical segment of a well will be intersected by a longwall, drivage sights shall be installed on 10-foot centers starting 50 feet in advance of the anticipated intersection. Drivage sights shall be installed in both the headgate and tailgate entries of the longwall.
 3. The operator shall ensure that fire-fighting equipment, including fire extinguishers, rock dust, and sufficient fire hose to reach the working fact are of the mine-through (when either the conventional or the continuous mining method is used) is ~~REMOVED~~ **REMOVABLE** and operable

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during all well mine-throughs. The fire hose shall be located in the last open crosscut of the entry or room. The operator shall maintain the water line to the belt conveyor tailpiece along with a sufficient amount of fire hose to reach the farthest point of penetration on the section. When the longwall mining method is used, a hose to the longwall water supply is sufficient. All fire hoses shall be connected and ready for use, but do not have to be charged with water, during the cut-through.

4. The operator shall ensure that sufficient supplies of roof support and ventilation materials are available at the working section. In addition, emergency plugs, packers, and setting tools to seal both sides of the well or branch shall be available in the immediate area of the cut-through.
5. When mining advances within the minimum working barrier distance from the well or branch of the well, the operator shall service all equipment and check for permissibility at least once daily. Daily permissibility examinations must continue until the well or branch is intersected or until mining exits the minimum working barrier around the well or branch.
6. When mining advances within the minimum working barrier distance from the well or branch of the well, the operator shall calibrate the methane monitor(s) on the longwall, continuous mining machine, or cutting machine and loading machine at least once daily. Daily methane monitor calibration must continue until the well or branch is intersected or until mining exits the minimum working barrier around the well or branch.
7. When mining is in progress, the operator shall perform tests for methane with a handheld methane detector at least every 10 minutes from the time that mining with the continuous mining machine or longwall face is within the minimum working barrier around the well or branch. During the cutting process, no individual shall be allowed on the return side until the mine-through has been completed and the area has been examined and declared safe. The shearer must be idle when any miners are in by the tail drum.
8. When using continuous or conventional mining methods, the working place shall be free from accumulations of dust and coal spillages, and rock dust shall be placed on the roof, rib, and

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- floor within 20 feet of the face when mining through the well or branch. On longwall sections, rock dust shall be applied on the roof, rib, and floor up to both the headgate and tailgate gob.
9. Immediately after the well or branch is intersected, the operator shall de-energize all equipment, and the certified person shall thoroughly examine and determine the working place safe before mining is resumed.
 10. After a well or branch has been intersected and the working place determined safe, mining shall continue in by the well a sufficient distance to permit adequate ventilation around the area of the well or branch.
 11. No open flame shall be permitted in the area until adequate ventilation has been established around the well bore or branch. Any casing, tubing or stuck tools will be removed using the methods approved in the ventilation plan.
 12. No person shall be permitted in the area of the mine-through operation in by the last open crosscut during active mining except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA, and personnel from the appropriate State agency.
 13. The operator shall warn all personnel in the mine to the planned intersection of the well or branch 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 or branch has been intersected.
 14. The mine-through operation shall be under the direct supervision of a certified person. Instructions concerning the mine-through operation shall be issued only by the certified person in charge.
 15. All miners shall be in known locations and in constant two-way communications with the responsible person under 30 C.F.R. § 75.1501 when active mining occurs within the minimum working barrier of the well or branch.
 16. The responsible person required under 30 C.F.R. § 75.1501 is responsible for well intersection emergencies. ~~The well~~ intersection

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procedures must be reviewed by the responsible person prior to any planned intersection.

17. A copy of the order shall be maintained at the mine and be available to the miners.
18. The provisions of this order do not impair the authority of representatives of MSHA to interrupt or halt the mine-through operation and to issue a withdrawal order when they deem it necessary for the safety of the miners. MSHA may order an interruption or cessation of the mine-through operation and/or a withdrawal of personnel by issuing either a verbal or a written order to that effect to a representative of the operator, which order shall include the basis for the order. Operations in the affected area of the mine may not resume until a representative of MSHA permits resumption of mine-through operations. The mine operator and miners shall comply with verbal or written MSHA orders immediately. All verbal orders shall be committed to writing within a reasonable time as conditions permit.
- d. For subsequent intersections of branches of a well, appropriate procedures to protect the miners shall be specified in the ventilation plan.

4. MANDATORY PROCEDURES AFTER SDD INTERSECTIONS

- a. All intersections with SDD wells and branches that are in intake air courses shall be examined as part of the pre-shift examinations required under 30 C.F.R. § 75.360.
- b. All other intersection with SDD wells and branches shall be examined as part of the weekly examinations required under 30 C.F.R. § 75.364.

5. OTHER REQUIREMENTS

- a. Within 30 days after this Order becomes final, the operator shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plan to the District Manager. These proposed revisions shall include initial and refresher training regarding compliance with the terms and conditions stated in the Order. The operator shall provide all miners involved in the mine-through of a well or branch with training regarding the requirements of this Order prior to mining within the minimum working barrier of the next well or branch intended to be mined through.

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- b. Within 30 days after this Order becomes final, the operator shall submit proposed revisions for its approved mine emergency evacuation and firefighting program of instruction required by 30 C.F.R § 75.1501. The operator shall revise the program to include the hazards and evacuation procedures to be used for well intersections. All underground miners shall be trained in this revised program within 30 days of the approval of the revised mine emergency evacuation and firefighting program of instruction.

Any party to this action desiring a hearing on this matter must file in accordance with 30 C.F.R. § 44.14, within 30 days. The request for hearing must be filed with the Administrator for Coal Mine Safety and Health, 1100 Wilson Boulevard, Arlington, Virginia 22209-3939.

If a hearing is requested, the request shall contain a concise summary of position on the issues of fact or law desired to be raised by the party requesting the hearing, including specific objections to the proposed decision. A party other than Petitioner who has requested a hearing may also comment upon all issues of fact or law presented in the petition, and any party to this action requesting a hearing may indicate a desired hearing site. If no request for a hearing is filed within 30 days after service thereof, the Proposed Decision and Order will become final and must be posted by the operator on the mine bulletin board at the mine.



Charles J. Thomas
Deputy Administrator for
Coal Mine Safety and Health

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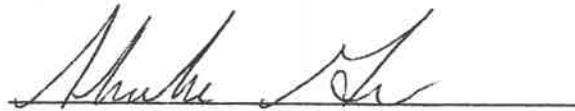
AUG 23 2022

WV Department of
Environmental Protection

Certificate of Service

I hereby certify that a copy of this proposed decision was served personally or mailed, postage prepaid, this 16 day of December, 2011, to:

April Min
ICG, LLC
300 Corporate Center Drive
Scott Depot, WV 25560



Shameka Green
Secretary

cc: Mr. C.A. Phillips, Director, West Virginia Department of Energy, Division of
Mines and Minerals

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WV Department of
Environmental Protection

WW-4A
Revised 6-07

1) Date: _____
2) Operator's Well Number
CO-4C _____

3) API Well No.: 47 - 081 - 01454

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

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Beaver Coal Company, Ltd. ✓</u>	Name <u>Wolf Run Mining Company ✓</u>
Address <u>354 Log Cabin Road</u>	Address <u>300 Corporate Centre Drive</u>
<u>Beaver, WV 25813-6700</u>	<u>Scott Depot, WV 25560</u>
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Crab Orchard Coal and Land Company ✓</u>
(c) Name _____	Address <u>P.O. Box 443</u>
Address _____	<u>Charleston, WV 25322</u>
6) Inspector	Name <u>Beaver Coal Company, Ltd.</u>
Address _____	Address <u>115-B South Kanawha Street ✓</u>
Telephone _____	<u>Beckley, WV 25801</u>
	(c) Coal Lessee with Declaration
	Name <u>ICG Beckley, LLC ✓</u>
	Address <u>300 Corporate Centre Drive</u>
	<u>Scott Depot, WV 25560</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 Summit Appalachia Operating Company, LLC
 By: [Signature]
 Its: Production Foreman
 Address 8112 Riverside Drive
Oakwood, VA 24831
 Telephone 276-221-4302

Subscribed and sworn before me this 13 day of October 2022
Jerry Edwards Grizzle Notary Public
 My Commission Expires 2-29-2024

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.

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 Certified Mail Restricted Delivery \$0.00
 Adult Signature Required \$0.00
 Adult Signature Restricted Delivery \$0.00

Postage \$9.90

Total Postage and Fees \$17.15

Sent To: Beaver Coal Company LTD
 Street and Apt. No., or PO Box No. 345 Log Cabin Road
 City, State, ZIP+4® Beaver, WV 25813

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



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 Return Receipt (electronic) \$0.00
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 Adult Signature Required \$0.00
 Adult Signature Restricted Delivery \$0.00

Postage \$9.90

Total Postage and Fees \$17.15

Sent To: Wolf Run Mining LLC
 Street and Apt. No., or PO Box No. 100 Tygart Drive
 City, State, ZIP+4® Grafton, WV 26354

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



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 Return Receipt (electronic) \$0.00
 Certified Mail Restricted Delivery \$0.00
 Adult Signature Required \$0.00
 Adult Signature Restricted Delivery \$0.00

Postage \$9.90

Total Postage and Fees \$17.15

Sent To: ICG Beckley, LLC
 Street and Apt. No., or PO Box No. P.O. Box 49
 City, State, ZIP+4® Eccles, WV 25963 36

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



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Extra Services & Fees (check box, add fees to postage)
 Return Receipt (hardcopy) \$3.25
 Return Receipt (electronic) \$0.00
 Certified Mail Restricted Delivery \$0.00
 Adult Signature Required \$0.00
 Adult Signature Restricted Delivery \$0.00

Postage \$9.90

Total Postage and Fees \$17.15

Sent To: Crab Orchard Coal and Land Company
 Street and Apt. No., or PO Box No. P.O. Box 443
 City, State, ZIP+4® Charleston, WV 25322

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



7202 2410 0003 4122 5382

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 Beaver, WV 25813

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Certified Mail Fee \$4.00

Extra Services & Fees (check box, add fees to postage)
 Return Receipt (hardcopy) \$3.25
 Return Receipt (electronic) \$0.00
 Certified Mail Restricted Delivery \$0.00
 Adult Signature Required \$0.00
 Adult Signature Restricted Delivery \$0.00

Postage \$9.90

Total Postage and Fees \$17.15

Sent To: Beaver Coal Company LTD (Surface)
 Street and Apt. No., or PO Box No. 354 Log Cabin Road
 City, State, ZIP+4® Beaver, WV 25813

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



11/18/2022

SURFACE OWNER WAIVER

Operator's Well
Number

CO-4C

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.

FOR EXECUTION BY A CORPORATION,

Signature	RECEIVED Office of Oil and Gas AUG 23 2022 WV Department of Environmental Protection	Name	_____	
		By	_____	
		Its	_____	Date
			_____	Date
			_____	11/18/2022

4708101454P

WW-4B

API No. 47-081-01454 P
Farm Name Beaver Coal Company
Well No. CO-4C

**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.

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WAIVER

WV Department of
Environmental Protection

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 _____

11/18/2022

4708101454P

WW-9
(5/16)

API Number 47 - 081 - 01454
Operator's Well No. CO-4C

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

Operator Name Summit Appalachia Operating Company, LLC OP Code _____

Watershed (HUC 10) Tributary of Stephens Branch of Millers Camp Branch Quadrangle Eccles

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: No fluids will be collected

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: _____

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

-If oil based, what type? Synthetic, petroleum, etc. _____

Additives to be used in drilling medium? _____

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

-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.

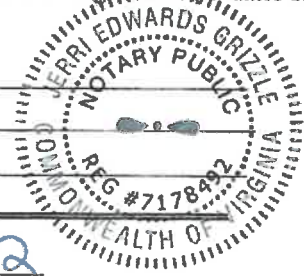
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 *Tim Shortridge*

Company Official (Typed Name) Tim Shortridge

Company Official Title Production Foreman



Subscribed and sworn before me this 13 day of October, 2022

Jerri Edwards Grizzle Notary Public

My commission expires 2.29.2024

Operator's Well No. _____

Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation pH 5-6.5

Lime 2 Tons/acre or to correct to pH 6

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay/Straw Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

Seed Type lbs/acre

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Tall Fescue or Orchard Grass 40

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Annual Rye Grass 5

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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: *Ang Kennedy*

Comments: _____

Title: *Inspector* Date: *9/12/22*

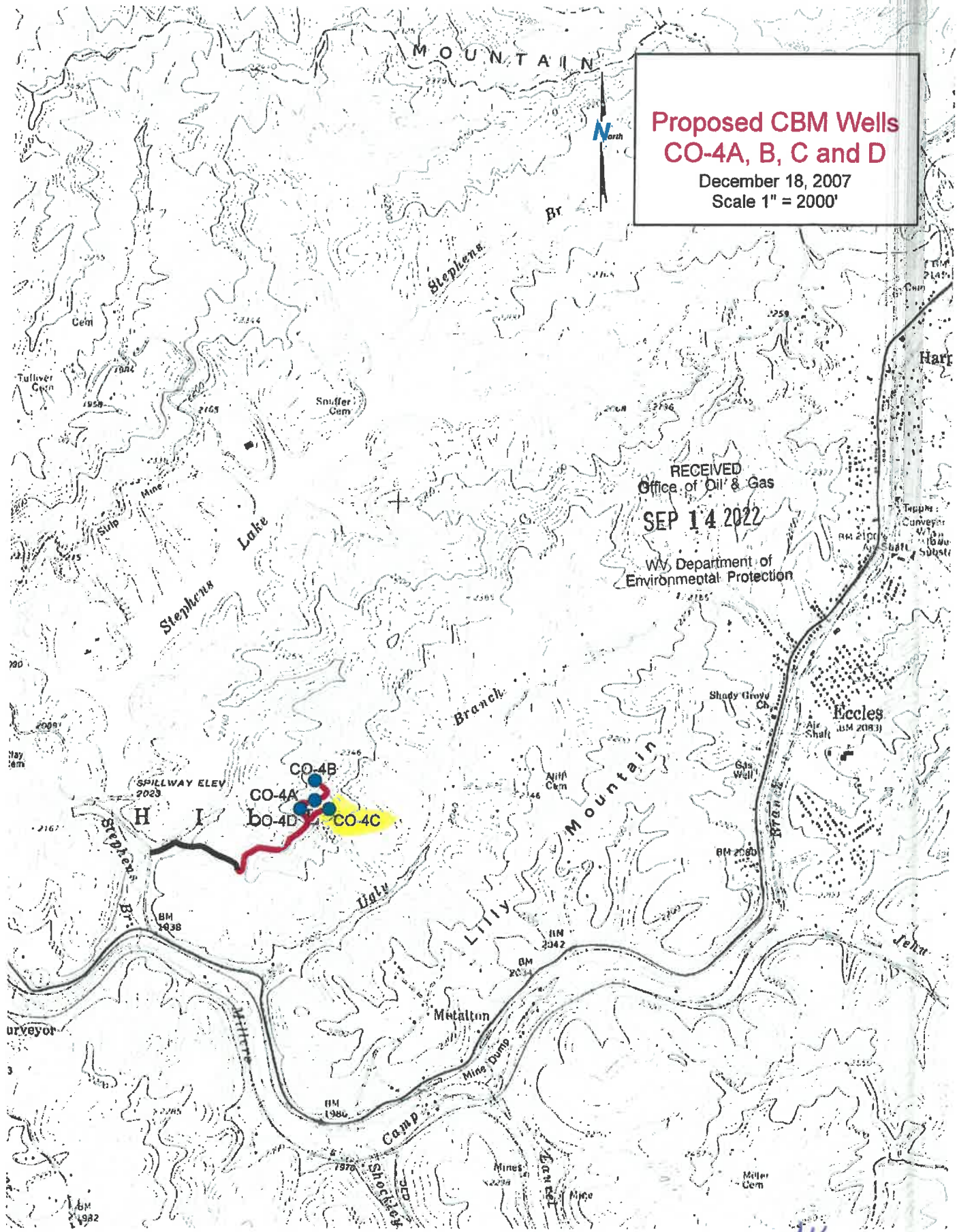
Field Reviewed? () Yes () No

**Proposed CBM Wells
CO-4A, B, C and D**

December 18, 2007
Scale 1" = 2000'

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Environmental Protection



[Handwritten signature]

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas

WELL LOCATION FORM: GPS

API: 47-081-01454 WELL NO.: CO-4C

FARM NAME: Beaver Coal Company

RESPONSIBLE PARTY NAME: Summit Appalachia Operating Company, LLC

COUNTY: Raleigh DISTRICT: Trap Hill

QUADRANGLE: Eccles

SURFACE OWNER: Beaver Coal Company

ROYALTY OWNER: _____

UTM GPS NORTHING: - 4181064

UTM GPS EASTING: 473966 GPS ELEVATION: 2300.76

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 X: Post Processed Differential _____

Real-Time Differential _____

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AUG 23 2022

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.

Tom Statler
Signature

Production Foreman
Title

10-11-22
Date

PINPOINT		MOTOR RUN SHEET							
CUSTOMER:	VITRUVIAN	MOTOR SERIAL	PP 375-301	DATE:	07/18/11				
OIL COMPANY:	VITRUVIAN	MOTOR SIZE:	3 3/4	SITE REP.:	Scott Treadway				
COUNTY:	Raleigh	RIG:	7/8 2.6S LS 1.75F 1	DIR. DRILLER:	Hendrick Gibson				
WELL:	CO-4C								
		RUN # 14	RUN #	RUN #	RUN #	RUN #	RUN #	RUN #	RUN #
DATE IN:	7/18/11 12:00								
HOLE SIZE:	4 3/4								
DEPTH IN:	4135								
MUD TYPE:	H2O								
MUD WEIGHT:	8.3								
PH LEVEL:	10								
SOLID CONTENT:									
CHOROIDES:									
G.P.M.:	140								
R.P.M.:	370								
P.S.I. DROP @ MOTOR:	100								
MOTOR DIFF. PRESS.:	50								
NOZZLES / TFA:	0.442								
BOTTOM HOLE TEMP.:									
ADJ. HOUSING SETTING:	1.75 FIXED								
BRG. STABILIZER O.D.:									
BIT TYPE:	405ZX								
TIME OUT:	7/22/11 17:30								
HOURS IN HOLE:	101:30:00								
DEPTH OUT:	5234								
FOOTAGE:	4508								
R.O.P.:	75.13								
CIRCULATING HOURS:	20.25								
DRILLING HOURS:	60.00								
TOTAL HOURS:	80.25								
CUM. HOURS:									
Build Rates:									
Comments:	PRESSURED UP								

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PINPOINT		MOTOR RUN SHEET							
CUSTOMER:	VITRUVIAN	MOTOR SERIAL:	K-09	DATE:	07/05/11				
OIL COMPANY:	VITRUVIAN	MOTOR SIZE:	4 3/4	SITE REP.:	Scott Treadway				
COUNTY:	WYOMING	RIG:	7/8 2.8S LS 1.76F 1	DIR. DRILLER:	Hendrick Durant				
WELL:	CO-4C								
		RUN # 11	RUN # 12	RUN #	RUN #	RUN #	RUN #	RUN #	RUN #
DATE IN:		7/5/11 21:30	7/7/11 17:00						
HOLE SIZE:		4 3/4	4 3/4						
DEPTH IN:		5374	3632						
MUD TYPE:		H20	H20						
MUD WEIGHT:		8.3	8.3						
PH LEVEL:		10	10						
SOLID CONTENT:									
CHOROIDES:									
G.P.M.:		140	140						
R.P.M.:		370	370						
P.S.I. DROP @ MOTOR:		100	100						
MOTOR DIFF. PRESS.:		50	50						
NOZZLES / TFA:		0.442	0.442						
BOTTOM HOLE TEMP.:									
ADJ. HOUSING SETTING:		1.75 FIXED	1.75 FIXED						
BRO. STABILIZER O.D.:									
BIT TYPE:		405ZX	405ZX						
TIME OUT:		7/7/11 15:30	7/13/11 20:30						
HOURS IN HOLE:		42:00:00	147:30:00						
DEPTH OUT:		3632	7050						
FOOTAGE:		789	6564						
R.O.P.:		50.90	69.09						
CIRCULATING HOURS:		15.50	35.50						
DRILLING HOURS:		15.50	95.00						
TOTAL HOURS:		31.00	130.50						
CUM. HOURS:		31.00	161.50						
Build Rates:		.18 - .20							
Comments:		Motor Ran Good							

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PINPOINT		MOTOR RUN SHEET							
CUSTOMER:	VITRUVIAN	MOTOR SERIAL	376-303	DATE:	06/30/11				
OIL COMPANY:	VITRUVIAN	MOTOR SIZE:	4 3/4	SITE REP.:	Scott Treadway				
COUNTY:	WYOMING	RIG:	4/5 8.8S MS 1.75F 1	DIR. DRILLER:	Hendrick Durant				
WELL:	CO-4C								
		LEG 4 RUN # 8	MAIN LEG RUN # 9	MAIN LEG A RUN # 10	RUN #	RUN #	RUN #	RUN #	RUN #
DATE IN:									
HOLE SIZE:		4 3/4	4 3/4	4 3/4					
DEPTH IN:		6334	6334	5450					
MUD TYPE:		H20	H20	H20					
MUD WEIGHT:		8.3	8.3	8.3					
PH LEVEL:		10	10	10					
SOLID CONTENT:									
CHOROIDES:									
G.P.M.:		140	140	140					
R.P.M.:		370	370	370					
P.S.I. DROP @ MOTOR:		100	100	100					
MOTOR DIFF. PRESS.:		50	50	50					
NOZZLES / TFA:		0.442	0.442	0.442					
BOTTOM HOLE TEMP.:									
ADJ. HOUSING SETTING:		1.75 FIXED	1.75 FIXED	1.75 FIXED					
BRG. STABILIZER O.D.:									
BIT TYPE:		4052X	4052X	4052X					
TIME OUT:		6/30/11 20:30	7/2/11 7:00	7/5/11 18:00					
HOURS IN HOLE:		977396:30:00	977431:00:00	977515:00:00					
DEPTH OUT:		6334	5450	5374					
FOOTAGE:			1115	3296					
R.O.P.:									
CIRCULATING HOURS:		1.50	12.50	20.50					
DRILLING HOURS:		0.00	10.00	48.50					
TOTAL HOURS:		1.50	22.50	69.00					
CUM. HOURS:		1.60	24.00	93.00					
Build Rates:		0.12							
Comments:	BUILD RATES VERY LOW, MOTOR RAN GOOD								

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11/18/2022


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PINPOINT		MOTOR RUN SHEET							
CUSTOMER:	VITRUVIAN	MOTOR SERIAL:	H65	DATE:	06/16/11				
OIL COMPANY:	PINPOINT DRILLING & DIRECTIONAL SERVICE LLC	MOTOR SIZE:	4 3/4	SITE REP.:	GREG LAWSON				
COUNTY:	WYOMING	RIG:	4/6 3.5S MS 1.75F 1	DIR. DRILLER:	DURANT GIBSON				
WELL:	CO-4C								
		MAIN LEG BHA # 4	MAIN LEG BHA # 5	MAIN LEG A RUN #3	RUN #4	RUN #5	RUN #6	RUN #7	RUN #8
DATE IN:		6/20/11 0:00	6/20/11 6:30						
HOLE SIZE:		4 3/4	4 3/4						
DEPTH IN:		1319	1606						
MUD TYPE:		H20	H20						
MUD WEIGHT:		8.3	8.3						
PH LEVEL:		10	10						
SOLID CONTENT:									
CHOROIDES:									
G.P.M.:		140	140						
R.P.M.:		250	250						
P.S.I. DROP @ MOTOR:		100	100						
MOTOR DIFF. PRESS.:		50	50						
NOZZLES / TFA:		0.442	0.442						
BOTTOM HOLE TEMP.:									
ADJ. HOUSING SETTING:		1.75 FIXED	1.75 FIXED						
BRG. STABILIZER O.D.:									
BIT TYPE:		4052X	4052X						
TIME OUT:		6/20/11 6:30	6/21/11 3:00						
HOURS IN HOLE:		6:30:00	20:30:00						
DEPTH OUT:		1606	2482						
FOOTAGE:		287	1369						
R.O.P.:		95.67	72.05						
CIRCULATING HOURS:		0.00	4.50						
DRILLING HOURS:		3.00	19.00						
TOTAL HOURS:		3.00	23.50						
CUM. HOURS:		3.00	26.50						
Build Rates:									
Comments:		WEAK	WEAK	WEAK LAYED DOWN					

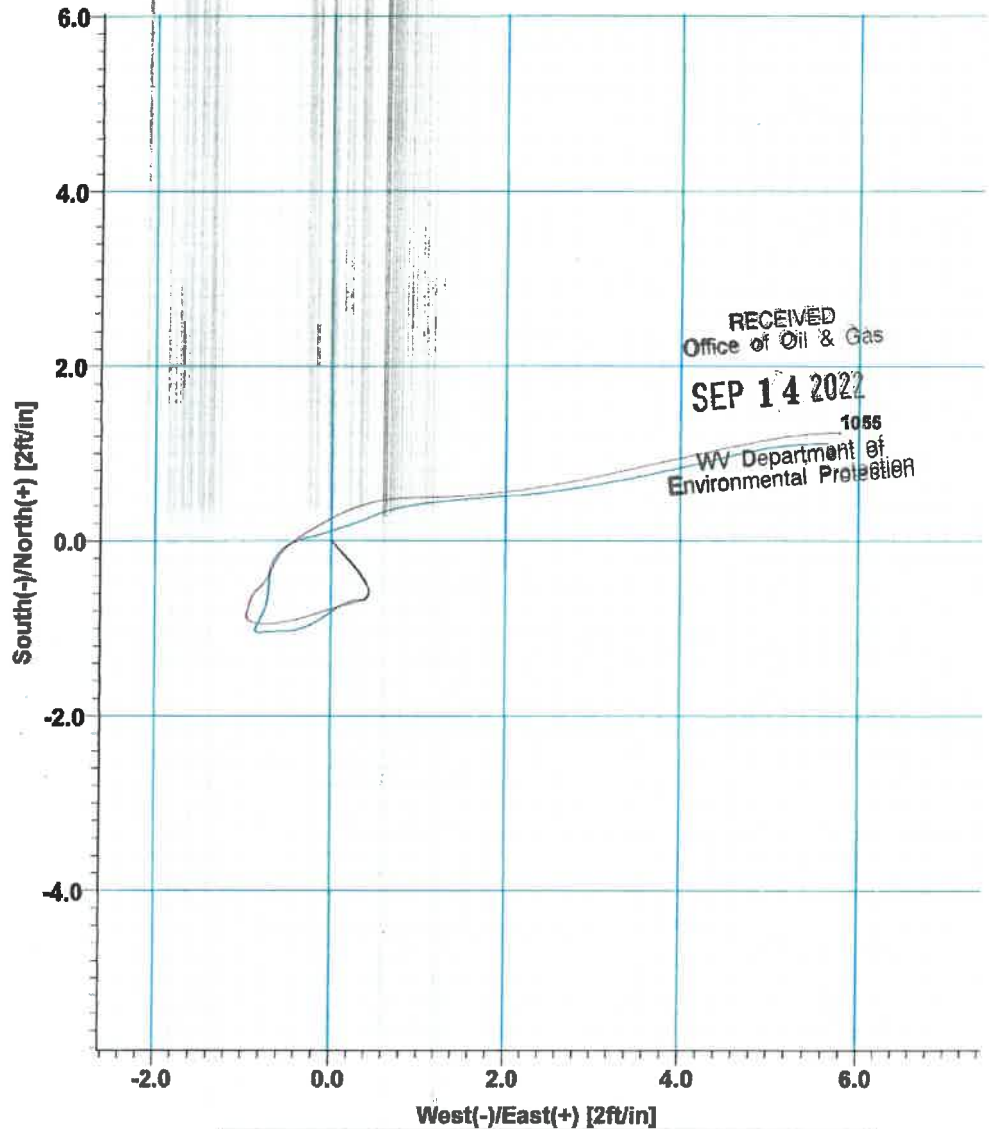
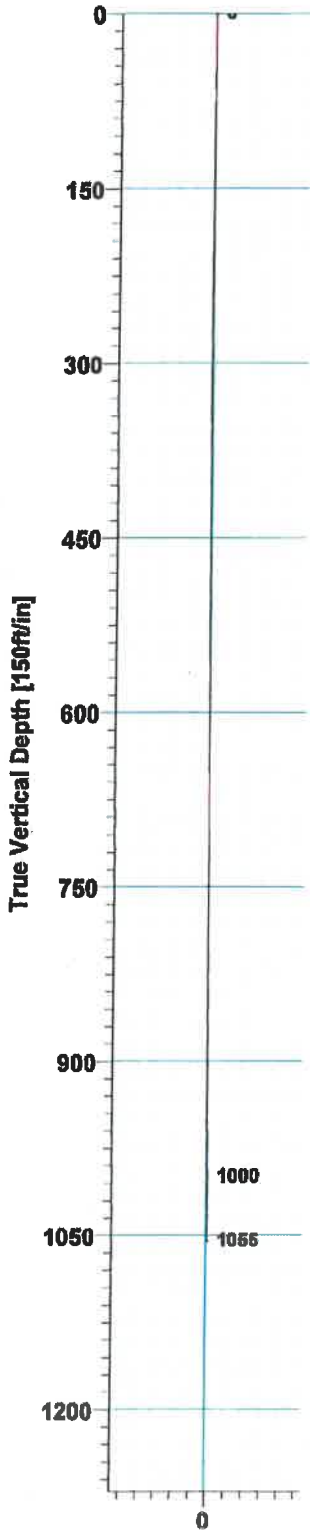
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CDX GAS

Field: **CRAB ORCHARD**
 Site: **CO-004-C**
 Well: **004-C**
 Survey: **INRUN/OUTRUN**



Scientific
Drilling



SURFACE LOCATION
 Northing: 282,856.63'
 Easting: 1,914,504.25'

GROUND 2298.64' ABOVE MEAN SEA LEVEL
 ZERO REFERENCED TO GROUND



Azimuths to Grid North
 True North: 0.18°
 Magnetic North: -7.24°
 Magnetic Field
 Strength: 52310nT
 Dip Angle: 66.28°
 Date: 5/6/2008
 Model: igrf2005

Plot Date: 5/6/2008
By: Vic Blair
vic.blair@scientificdrilling.com
Scientific Drilling
337-232-7302

4708101454P



Scientific Drilling International

Lafayette Survey Report

Company: CDX GAS	Date: 5/6/2008	Time: 13:04:17	Page: 1
Field: CRAB ORCHARD	Co-ordinate(NE) Reference:	Site: CO-004-C, Grid North	
Site: CO-004-C	Vertical (TVD) Reference:	SITE 0.0	
Well: 004-C	Section (VS) Reference:	Well (0.00N,0.00E,0.00Azi)	
Wellpath: CBM WELL	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Field: CRAB ORCHARD
RALEIGH COUNTY, WV

Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: West Virginia, Southern Zone
Coordinate System: Site Centre
Geomagnetic Model: igrf2005

Site: CO-004-C
ZERO REFERENCED TO GROUND LEVEL
API# 47-081-01454

Site Position:	Northing: 282856.62 ft	Latitude: 37 46 35.171 N
From: Map	Easting: 1914504.24 ft	Longitude: 81 17 44.893 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 2298.64 ft		Grid Convergence: -0.18 deg

Well: 004-C	Slot Name:	RECEIVED Office of Oil & Gas
Well Position: +N/-S 0.00 ft	Northing: 282856.62 ft	Latitude: 37 46 35.171 N
+E/-W 0.00 ft	Easting: 1914504.24 ft	Longitude: 81 17 44.893 W
Position Uncertainty: 0.00 ft		SEP 14 2022

Wellpath: CBM WELL	Drilled From: Surface	WV Department of Environmental Protection
Current Datum: SITE	Tie-on Depth: 0.00 ft	
Magnetic Data: 5/6/2008	Above System Datum: Mean Sea Level	
Field Strength: 52310 nT	Declination: -7.42 deg	
Vertical Section: Depth From (TVD)	Mag Dip Angle: 66.28 deg	
ft	+N/-S	Direction
	ft	deg
0.00	0.00	0.00

Survey: INRUN
KEEPER SURVEY FROM GROUND TO 1055' MD
Company: Scientific Drilling
Tool: Keeper, Keeper Rate Gyro

Start Date: 4/29/2008
Engineer: GRACE/BERGERON
Tied-to: From Surface

Survey

MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	ClsD	ClsA	Tool
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Keeper
50.00	0.62	137.32	50.00	-0.20	0.18	-0.20	1.24	0.27	137.32	Keeper
100.00	0.35	157.28	100.00	-0.54	0.43	-0.54	0.63	0.69	141.67	Keeper
150.00	0.35	271.17	150.00	-0.68	0.33	-0.68	1.17	0.75	153.85	Keeper
200.00	0.43	233.23	200.00	-0.79	0.03	-0.79	0.53	0.79	177.88	Keeper
250.00	0.33	242.58	249.99	-0.96	-0.25	-0.96	0.23	1.00	194.48	Keeper
300.00	0.40	268.97	299.99	-1.03	-0.55	-1.03	0.36	1.17	208.08	Keeper
350.00	0.18	261.90	349.99	-1.05	-0.80	-1.05	0.44	1.32	217.49	Keeper
400.00	0.12	19.38	399.99	-1.01	-0.86	-1.01	0.52	1.33	220.56	Keeper
450.00	0.31	25.79	449.99	-0.84	-0.79	-0.84	0.38	1.15	223.22	Keeper
500.00	0.29	3.20	499.99	-0.59	-0.72	-0.59	0.24	0.93	230.73	Keeper
550.00	0.21	3.77	549.99	-0.37	-0.71	-0.37	0.16	0.80	242.28	Keeper
600.00	0.28	35.35	599.99	-0.18	-0.63	-0.18	0.30	0.66	253.99	Keeper
650.00	0.20	62.09	649.99	-0.04	-0.48	-0.04	0.27	0.49	265.18	Keeper
700.00	0.40	75.31	699.99	0.04	-0.24	0.04	0.42	0.24	280.52	Keeper
750.00	0.37	71.87	749.99	0.14	0.08	0.14	0.08	0.16	31.17	Keeper
800.00	0.64	68.33	799.99	0.29	0.50	0.29	0.54	0.58	59.55	Keeper
850.00	0.88	83.84	849.98	0.44	1.14	0.44	0.63	1.22	69.02	Keeper
900.00	1.17	86.33	899.97	0.51	2.03	0.51	0.59	2.09	75.86	Keeper
950.00	1.56	79.29	949.96	0.67	3.21	0.67	0.85	3.28	78.21	Keeper
1000.00	1.48	75.77	999.94	0.95	4.50	0.95	0.25	4.60	78.03	Keeper
1050.00	1.00	90.42	1049.93	1.11	5.56	1.11	1.14	5.67	78.72	Keeper
1055.00	0.97	85.20	1054.93	1.11	5.65	1.11	1.89	5.76	78.85	Keeper



Scientific Drilling International

Lafayette Survey Report

Company: CDX GAS	Date: 5/6/2008	Time: 12:59:15	Page: 1
Field: CRAB ORCHARD	Co-ordinate(NE) Reference:	Site: CO-004-C, Grid North	
Site: CO-004-C	Vertical (TVD) Reference:	SITE: 0.0	
Well: 004-C	Section (VS) Reference:	Well (0.00N,0.00E,0.00Azi)	
Wellpath: CBM WELL	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Field: CRAB ORCHARD RALEIGH COUNTY, WV		
Map System: US State Plane Coordinate System 1927	Map Zone:	West Virginia, Southern Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System:	Site Centre
Sys Datum: Mean Sea Level	Geomagnetic Model:	igrf2005

Site: CO-004-C ZERO REFERENCED TO GROUND LEVEL API# 47-081-01454			
Site Position:	Northing: 282856.62 ft	Latitude:	37 46 35.171 N
From: Map	Easting: 1914504.24 ft	Longitude:	81 17 44.893 W
Position Uncertainty:	0.00 ft	North Reference:	Grid
Ground Level:	2298.64 ft	Grid Convergence:	-0.18 deg

Well: 004-C	Slot Name:	RECEIVED Office of Oil & Gas
Well Position:	+N/-S 0.00 ft Northing: 282856.62 ft	Latitude: 37 46 35.171 N
	+E/-W 0.00 ft Easting: 1914504.24 ft	Longitude: 81 17 44.893 W
Position Uncertainty:	0.00 ft	SEP 14 2022

Wellpath: CBM WELL				WV Department of Environmental Protection
Current Datum: SITE	Height 0.00 ft	Drilled From: Surface	Tie-on Depth: 0.00 ft	
Magnetic Data: 5/6/2008		Above System Datum: Mean Sea Level	Declination: -7.42 deg	
Field Strength: 52310 nT		Mag Dip Angle: 66.28 deg	+E/-W ft	Direction deg
Vertical Section: Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg	
0.00	0.00	0.00	0.00	

Survey: OUTRUN	Start Date: 4/29/2008
KEEPER SURVEY FROM 1055' TO GROUND	
Company: Scientific Drilling	Engineer: GRACE/BERGERON
Tool: Keeper, Keeper Rate Gyro	Tied-to: From Surface

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	ClsD ft	ClsA deg	Tool
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Keeper
50.00	0.63	139.17	50.00	-0.21	0.18	-0.21	1.26	0.27	139.17	Keeper
100.00	0.30	151.53	100.00	-0.53	0.42	-0.53	0.69	0.68	141.54	Keeper
150.00	0.27	254.33	150.00	-0.68	0.37	-0.68	0.89	0.77	151.32	Keeper
200.00	0.30	255.82	200.00	-0.74	0.13	-0.74	0.06	0.75	170.02	Keeper
250.00	0.43	251.28	250.00	-0.83	-0.17	-0.83	0.27	0.85	191.79	Keeper
300.00	0.41	260.05	299.99	-0.93	-0.53	-0.93	0.13	1.07	209.71	Keeper
350.00	0.23	276.17	349.99	-0.95	-0.80	-0.95	0.40	1.24	220.38	Keeper
400.00	0.11	309.84	399.99	-0.90	-0.94	-0.90	0.30	1.30	226.14	Keeper
450.00	0.14	16.86	449.99	-0.81	-0.96	-0.81	0.28	1.26	229.67	Keeper
500.00	0.18	17.07	499.99	-0.68	-0.92	-0.68	0.08	1.14	233.45	Keeper
550.00	0.23	47.08	549.99	-0.54	-0.82	-0.54	0.23	0.98	236.82	Keeper
600.00	0.44	25.07	599.99	-0.30	-0.67	-0.30	0.49	0.73	246.12	Keeper
650.00	0.34	54.27	649.99	-0.04	-0.47	-0.04	0.44	0.47	265.70	Keeper
700.00	0.35	58.64	699.99	0.13	-0.21	0.13	0.06	0.25	301.38	Keeper
750.00	0.41	62.19	749.99	0.29	0.07	0.29	0.13	0.30	14.07	Keeper
800.00	0.50	75.52	799.99	0.43	0.44	0.43	0.28	0.62	45.73	Keeper
850.00	1.02	89.27	849.98	0.49	1.10	0.49	1.09	1.20	65.88	Keeper
900.00	1.26	82.80	899.97	0.57	2.09	0.57	0.54	2.17	74.82	Keeper
950.00	1.46	77.09	949.96	0.78	3.26	0.78	0.48	3.35	76.56	Keeper
1000.00	1.63	77.83	999.94	1.07	4.57	1.07	0.34	4.70	76.82	Keeper
1050.00	0.97	87.59	1049.93	1.24	5.69	1.24	1.39	5.82	77.73	Keeper
1055.00	0.93	95.41	1054.93	1.24	5.77	1.24	2.71	5.90	77.92	Keeper

CO4AIN

Measured	Inclination	Azimuth [d-True	Vertic Vertical Se	Northing (L	Easting (D	Dog Leg S	Closure Di	Closure Angle [deg]
0	0	0	0	0	0	0 Invalid	0	0
50	0.43	4.6	50	0.19	0.19	0.01	0.85	0.19 4.6
100	0.27	356.64	100	0.49	0.49	0.02	0.34	0.49 2.72
150	0.2	290.74	150	0.63	0.63	-0.07	0.52	0.64 354.05
200	0.17	270.49	200	0.67	0.67	-0.22	0.14	0.7 341.46
250	0.12	196.36	250	0.62	0.62	-0.31	0.36	0.69 333.06
300	0.03	74.84	300	0.57	0.57	-0.32	0.27	0.85 330.82
350	0.07	171.57	350	0.54	0.54	-0.3	0.15	0.82 330.86
400	0.19	184.63	400	0.43	0.43	-0.3	0.24	0.83 324.87
450	0.45	209.74	450	0.18	0.18	-0.41	0.59	0.45 293.79
500	0.5	209.11	500	-0.18	-0.18	-0.81	0.09	0.64 253.57
550	0.58	222.9	549.99	-0.56	-0.56	-0.89	0.31	1.05 238.05
600	0.56	221.92	599.99	-0.92	-0.92	-1.23	0.05	1.53 239.04
650	0.48	216.54	649.99	-1.27	-1.27	-1.51	0.18	1.98 229.94
700	0.56	211.21	699.99	-1.65	-1.65	-1.77	0.19	2.42 226.92
750	0.64	222.51	749.98	-2.07	-2.07	-2.08	0.28	2.93 225.2
800	0.52	235.85	799.98	-2.4	-2.4	-2.46	0.36	3.44 225.89
850	0.24	285.29	849.98	-2.5	-2.5	-2.75	0.82	3.72 227.72
900	0.55	324.47	899.98	-2.28	-2.28	-2.99	0.79	3.76 232.75
915	0.92	308.59	914.98	-2.14	-2.14	-3.13	2.78	3.79 235.82
925 w/k8		924.98		-2.10	-3.11			

CO4A OTRUN

Measured	Inclination	Azimuth [d-True	Vertic Vertical Se	Northing (L	Easting (D	Dog Leg S	Closure Di	Closure Angle [deg]
0	0	0	0	0	0	0 Invalid	0	0
50	0.43	15.81	50	0.18	0.18	0.05	0.86	0.19 15.81
100	0.23	26.71	100	0.45	0.45	0.15	0.42	0.47 18.09
150	0.24	238.41	150	0.48	0.48	0.1	0.8	0.49 12.02
200	0.19	247.24	200	0.4	0.4	-0.06	0.11	0.4 351.02
250	0.07	146.23	250	0.34	0.34	-0.12	0.44	0.36 340.15
300	0.03	150.51	300	0.3	0.3	-0.1	0.09	0.31 341.98
350	0.15	188	350	0.22	0.22	-0.1	0.25	0.24 336.01
400	0.26	200.27	400	0.05	0.05	-0.15	0.24	0.16 289.92
450	0.48	210.45	450	-0.23	-0.23	-0.29	0.45	0.37 231.53
500	0.53	208.32	499.99	-0.61	-0.61	-0.51	0.1	0.8 219.56
550	0.58	219.12	549.99	-1.01	-1.01	-0.78	0.24	1.28 217.46
600	0.48	217.35	599.99	-1.38	-1.38	-1.06	0.21	1.74 217.69
650	0.51	208.98	649.98	-1.74	-1.74	-1.3	0.16	2.17 216.77
700	0.6	218.32	699.99	-2.14	-2.14	-1.56	0.22	2.85 216.07
750	0.62	228.32	749.98	-2.53	-2.53	-1.92	0.26	3.18 217.12
800	0.53	241.57	799.98	-2.82	-2.82	-2.32	0.32	3.66 219.45
850	0.22	287.49	849.98	-2.94	-2.94	-2.62	0.69	3.94 221.75
900	0.46	326.47	899.98	-2.77	-2.77	-2.83	0.8	3.96 225.59
915	0.92	308.59	914.98	-2.65	-2.65	-2.96	3.34	3.97 228.18
925 w/k8		924.98		-2.61	-2.95			

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Office of Oil & Gas
SEP 14 2022

Department of
Environmental Protection

August 02, 2022

Mr. Jeffery McLaughlin

Office of Oil and Gas

601 57th Street Charleston, WV 25304

Dear Mr. McLaughlin:

Please find attached the partial plugging permit application for API # 47-081-01454.

In preparation for mine through by ICG Beckley, LLC. Summit Appalachia Operating Company will partially plug the CO 4C Well API # 47-081-01454.

The CO 4C will be partially plugged by infusing bentonite gel into mineable coal in the Poca 3 seam.

Please let me know if have any questions regarding the application.

Sincerely,



Shortridge, Tim
Production Foreman
Summit Appalachia Operating Co., LLC
8112 Riverside Dr
Oakwood, VA 24631
Phone: (276) 971-9389
tshortridge@summitnr.com

RECEIVED
Office of Oil and Gas

AUG 23 2022

WV Department of
Environmental Protection



Kennedy, James P <james.p.kennedy@wv.gov>

plugging permit has been issued for 4708101454

1 message

Kennedy, James P <james.p.kennedy@wv.gov>

Mon, Nov 14, 2022 at 1:25 PM


To: Gary L Kennedy <gary.l.kennedy@wv.gov>, raleigh@wvassessor.com

To whom it may concern a plugging permit has been issued for 4708101454.

James Kennedy

WVDEP OOG

2 attachments

 **4708101454.pdf**
4415K

 **IR-8 Blank.pdf**
237K

11/18/2022