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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

Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Monday, February 05, 2018  
WELL WORK PERMIT  
Vertical / Plugging

CABOT OIL & GAS CORPORATION  
2000 PARK LANE, SUITE 300

PITTSBURGH, PA 15275

Re: Permit approval for C-48  
47-081-01183-00-00

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.

Please be advised that form WR-35, Well Operators Report of Well Work 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: C-48  
Farm Name: BEAVER COAL CO., LTD.  
U.S. WELL NUMBER: 47-081-01183-00-00  
Vertical / Plugging  
Date Issued: 2/5/2018

Promoting a healthy environment.

02/09/2018

## 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.

WW-4B  
Rev. 2/01

1) Date January 8, 2018  
2) Operator's  
Well No. Beaver Coal C-48  
3) API Well No. 47-081-01183

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

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

5) Location: Elevation 1,778.43' Watershed Bailey Branch of Winding Gulf  
District Slab Fork County Raleigh Quadrangle Lester

6) Well Operator Cabot Oil & Gas Corporation 7) Designated Agent Phillip Hill - Cabot Oil & Gas Corporation  
Address 2000 Park Lane, Suite 300 Address 900 Lee Street East, Suite 1500  
Pittsburgh, PA 15275 Charleston, WV 25301

8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Gary Kennedy Name Francis Brothers  
Address 252 Circle Ave. Address 622 North Church Street  
Rainelle, WV 25962 Ripley, WV 25271

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

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

Work order approved by inspector  Date 1/22/18

## Beaver Coal C-48 API # 47 - 081 - 01183 PLUGGING PROCEDURE

### Current Configuration

TD @ 2,343'

16" conductor @ 30', not cemented

9-5/8" casing @ 266' cemented and grouted to surface

7" casing @ 842' cemented and grouted to surface

4 1/2" casing @ with cement top estimated to be at 861'

1-1/2" tubing @ 1,628' with Arrow Model PAD-1 Tension Packer @ 953'

Fresh water @ 105', 140', 400', 425', 432', 500'

Coal @ 60'-63', 72'-76', 110'-114', 135'-140', 188'-192'

Ravenciff @ 826' - 962'; perforations @ 884' - 914'; flowed gas but isolated behind packer and not produced due to excessive water production

Maxton @ 1548' - 1640'; "Upper Maxton" perforations @ 1,406' to 1,416'; "Middle Maxton" perforations @ 1,574' - 1,604'

### Check Rock Pressure PROCEDURE

1. Contact Pineville Office a minimum of 48 hours prior to starting work.
2. Contact State Inspector a minimum of 24 hours prior to starting work.
3. Lay 2" line from wellhead to tank and stake down securely.
4. MIRU service rig and blow down well. Have vacuum truck available to catch any fluids circulated from well.
5. Unpack wellhead.
6. Latch onto 1 1/2" tubing, unset Arrow Model PAD-1 tension packer, POOH.
7. Run freepoint on 4 1/2" casing, cut above freepoint, and POOH. (NOTE: cement top is estimated @ 861')
8. TIH with 2 3/8" work string to 1,800'
9. MIRU Cement Company and pump 5.5 bbls 6% Gel.
10. Pump 46 sks (9 3/4 bbls) of Class A cement for cement plug #1 @ 1,800' - 1,300'.
11. Displace w/ 5 bbls of 6% Gel.
12. Pull work string up to +/- 1,000', safely above cement top. WOC minimum 8 hours.
13. RIH with workstring, tag TOC to confirm.
14. PU workstring to 950'.
15. Pump 6.5 bbls 6% gel followed by 36.5 sks (7 3/4 bbls) of Class A cement for cement plug #2 @ 950' - 700'.
16. Displace w/ 3 bbls of 6% Gel
17. Pull work string up to +/- 500', safely above cement top. WOC minimum 8 hours.
18. RIH with workstring, tag TOC to confirm.
19. PU workstring to 550'.
20. Pump 108.5 sks (22.8 bbls) of Class A cement for cement plug #3 @ 550' to surface
21. TOOH with work string and lay down.
22. RDMO Cementing Company.
23. Place monument as required by law on top of well bore.
24. Reclaim well site.

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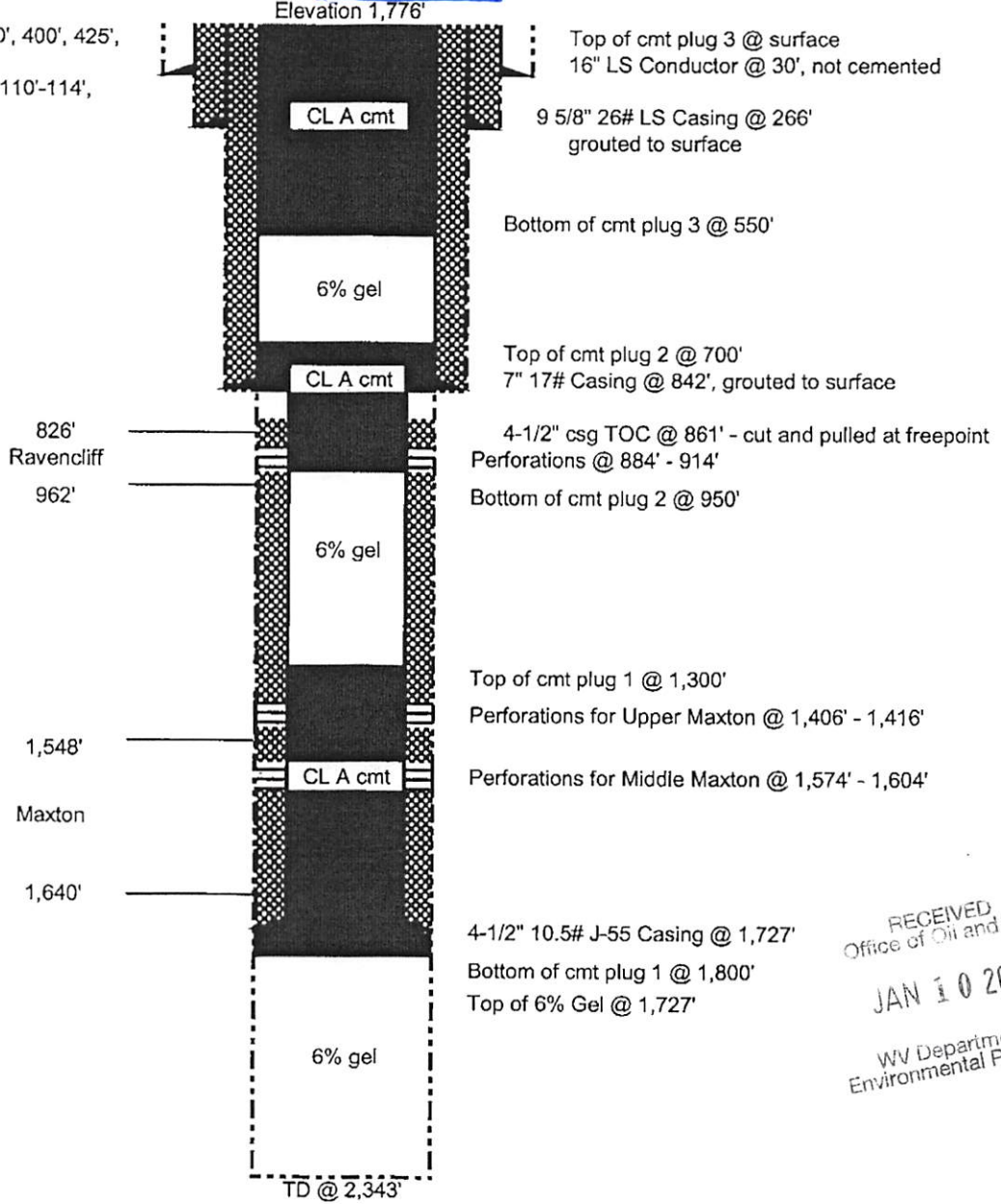
JAN 23 2018

WV Department of  
Environmental Protection

02/09/2018

**PROPOSED PLUGGING** **Beaver Coal C-48**  
API 47-081-01183  
**CURRENT CONFIGURATION**

Fresh water @ 105', 140', 400', 425',  
432, 500'  
Coal @ 60'-63', 72'-76', 110'-114',  
135'-140', 188'-192'



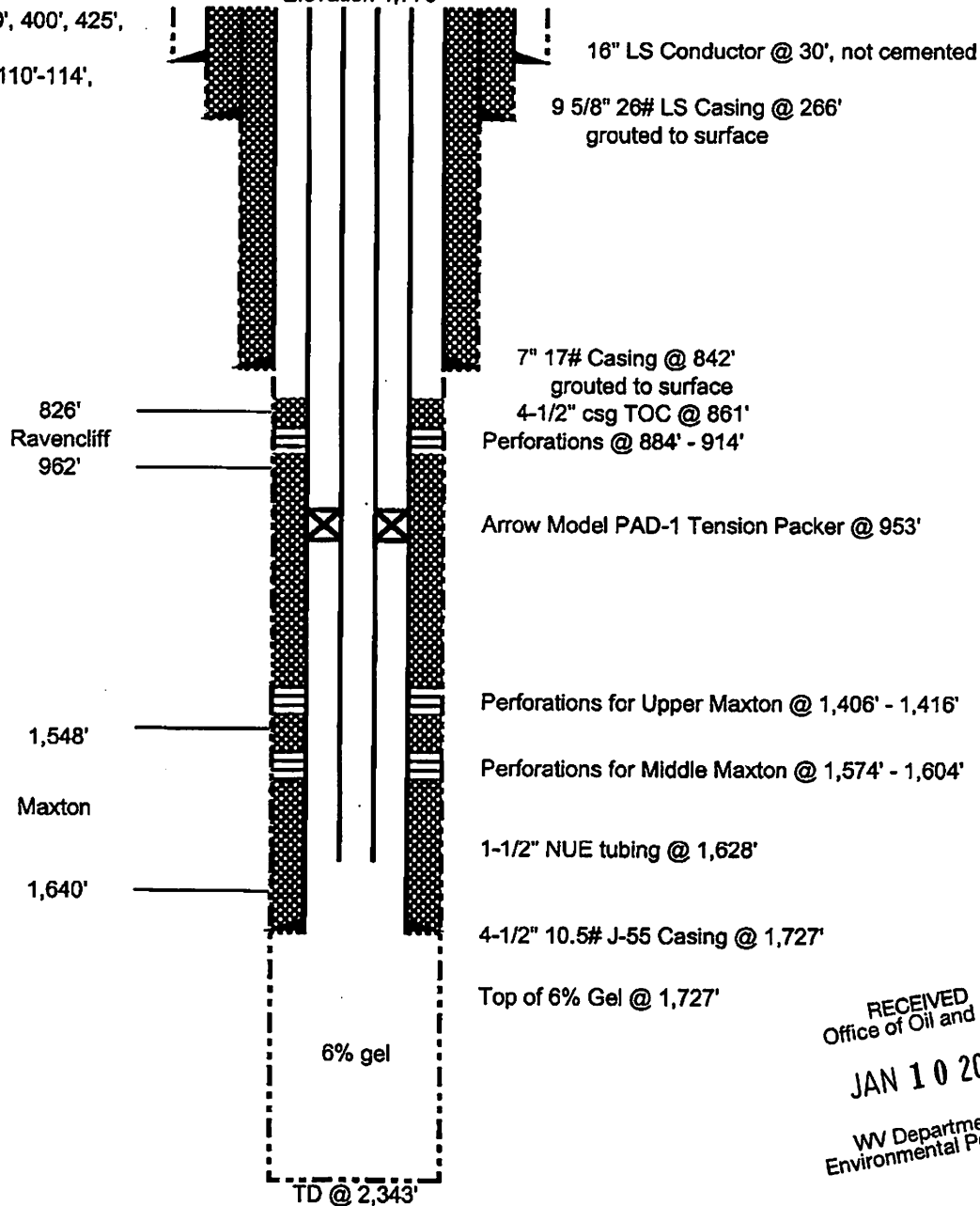
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A Wolfe 11/08/17

**Beaver Coal C-48**  
API 47-081-01183  
CURRENT CONFIGURATION  
Elevation 1,776'

Fresh water @ 105', 140', 400', 425',  
432, 500'  
Coal @ 60'-63', 72'-76', 110'-114',  
135'-140', 188'-192'



Schematic is not to scale

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Wbgs 11/08/2017

Date: Nov. 8, 2000  
API # 47-081-01183

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

Reviewed: Ar

Farm name: Beaver Coal Company LTD.

Operator Well No.: Beaver Coal C-48

LOCATION: Elevation: 1776'      Quadrangle: Lester  
District: Slab Fork      County: Raleigh  
Latitude: 14960' feet South of 37° DEG. 42' MIN. 30" SEC.  
Longitude: 5140' feet West of 81° DEG. 17' MIN. 30" SEC.

Company: Cabot Oil & Gas Corporation  
900 Lee Street, East - Suite 500  
Charleston, WV 25301

Agent: John Abshire  
Inspector: Rodney Dillon  
Permit Issued: 11/24/99  
Well Work Commenced: 8/30/00  
Well Work Completed: 10/23/00  
Verbal Plugging  
Permission granted on: \_\_\_\_\_  
Rotary X Cable \_\_\_\_\_  
Total Depth (feet) 2343', PBSD 1736'  
Fresh Water Depths (ft) 105', 140', 400', 425',  
432', 500'  
Salt Water Depths (ft) \_\_\_\_\_

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill up Cu. Ft.
16"	30'	30'	
9 5/8"	266'	266'	150 sks
7"	841.95'	841.95'	200 sks
4 1/2"	1726.75'	1726.75'	90 sks
1 1/2"		1628'	

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Is coal being mined in area (Y/N)? \_\_\_\_\_  
Coal Depths (ft) 60'-63', 72'-76', 110'-114', 135'-140', 188'-192'

OPEN FLOW DATA

Producing formation Upper Maxton Pay zone depth 1406'-1416'  
Gas: Initial open flow 100 MCF/d Oil: Initial open flow N/A Bbl/d  
Final open flow 119 MCF/d Final open flow N/A Bbl/d  
Time of open flow between initial and final tests 15 Hours  
Static rock pressure 130/340 psig (surface pressure after 96 Hours)

Second producing formation Middle Maxton Pay zone depth 1574-1604'  
Gas: Initial open flow TSTM MCF/d Oil: Initial open flow N/A Bbl/d  
Final open flow 400 MCF/d Final open flow N/A Bbl/d  
Time of open flow between initial and final tests 4 Hours  
Static rock pressure 340 psig (surface pressure after 96 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.

For: CABOT OIL & GAS CORPORATION

By: Ray Prudnick Jr. Operations Manager  
Date: 12/7/00 02/09/2018

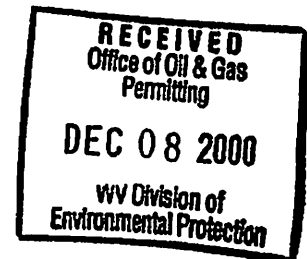
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Permitting  
DEC 08 2000  
WV Division of  
Environmental Protection

Perforated Middle Maxton from 1574'-1604' KB using bi-wire, 2 SPF (22 gram, 0.49 entry hole, 9" penetration), 61 shots. 75Q Foam Frac with 250 gals of 15% HCl, 217,300 scf N2 @ 3700 scf/min., and 68,171# 20/40 sand. BD @ 563#, ISIP after BD 0#, ATP - 630 # @ 20 BM/Foam. MTP - 815#, ISIP - 1012#, 5min - 787#, 10 min - 664#. Total fluid used - 290 bbls clean.

Spotted frac ball and acid on. RIH with 3-1/8" HSC . Perforated Upper Maxton section from 1406'-1416', 4 SPF, 41 holes. Set frac plug @ 1530' KB. 75Q Foam Frac using 30,500# 20/40 sand, 1-2.5 PPA. BD - 3108#. ATP-3285#. MTP-3584#. ATR 18 BPM foam. Avg N2 rate - 13,800 scfm. Total N2 - 366,000 cf. Total fluid 139 BBlS clean volume. ISIP 2531#, 5min 2211#, 10 min. 2106#, 15 min. 2037#.

Perforated Ravencliff using 3 1/8" HCG 2 SPF (16 gram, 0.33 diameter hole) 61H/ from 884-914' KB. Set Large Mouth Alpha frac plug @ 940' KB. 75Q Foam Frac using 44,700# 20/40 sand, 1-3 PPA. BD-1457#. ATP-2050#. MTP-2106#. ATR 18 BPM foam. Avg. N2 rate - 10,400 scfm. Total N2 - 393,000 cf. Total fluid - 207 bbl, clean volume. ISIP 1500#, 5 min. 1364#, 10 min. 1309#, 15 min. 1263#. Ravencliff is dead due to water production and isolated above Arrow Model PAD-1 Tension packer set @ 963'

FORMATION	TOP	BOTTOM	REMARKS
Shale	0	826'	
Ravencliff	826'	962'	
Avis	962'	1006'	
Silt/Shale	1006'	1548'	
Maxton	1548'	1640'	
Silt/Shale	1640'	1810'	
Maxton	1810'	1938'	
Shale	1938'	1950'	
L. Lime	1950'	2092'	
Big Lime	2092'	2343' TD	



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WW-4A  
Revised 6-07

1) Date: January 8, 2018  
2) Operator's Well Number  
Beaver Coal C-48

3) API Well No.: 47 - 081 - 01183

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

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Beaver Coal Company Limited</u>	Name <u>See Addendum "A"</u>
Address <u>115 1/2 S. Kanawha Street</u>	Address _____
<u>Beckley, WV 25801</u>	_____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Beaver Coal Company Limited</u>
_____	Address <u>115 1/2 S. Kanawha Street</u>
(c) Name _____	<u>Beckley, WV 25801</u>
Address _____	Name _____
_____	Address _____
6) Inspector <u>Gary Kennedy</u>	(c) Coal Lessee with Declaration
Address <u>252 Circle Ave.</u>	Name <u>See Addendum "A"</u>
<u>Rainelle, WV 25962</u>	Address _____
Telephone <u>304-382-8402</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 Cabot Oil & Gas Corporation  
 By: Kenneth L. Marcum *Kenneth L. Marcum*  
 Its: Regulatory Supervisor  
 Address 2000 Park Lane, Suite 300  
Pittsburgh, PA 15275  
 Telephone 412-249-3850

Commonwealth of Pennsylvania - Notary Seal  
 Constance C. Carden, Notary Public  
 Washington County  
 My commission expires November 16, 2021  
 Commission number 1252953

MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

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Subscribed and sworn before me this 8th day of January, 2018  
Constance C. Carden Notary Public  
 My Commission Expires November 16, 2021

JAN 10 2018  
 WV Department of  
 Environmental Protection

**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 [depprivacyoffier@wv.gov](mailto:depprivacyoffier@wv.gov).

ADDENDUM "A"  
Coal Operator/Lessee with Declaration

BEAVER COAL C-48

47-081-01183

Newgate Development of Beckley, LLC  
302 South Jefferson Street  
Roanoke, Virginia 24011

Newgate Development of Beckley, LLC  
818 North Eisenhower Drive  
Beckley, WV 25801

Kentucky Fuel Corporation  
818 North Eisenhower Drive  
Beckley, WV 25801

Pocahontas Coal Company, LLC  
109 Appalachian Drive  
Beckley, WV 25801

ICG Beckley, LLC  
P.O. Box 49  
Eccles, WV 25836

Baylor Mining, Inc.  
P.O. Box 577  
Mabscott, WV 25871

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WW-9  
(2/15)

API Number 47 - 081 - 01183

Operator's Well No. Beaver Coal C-48

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Cabot Oil & Gas Corporation OP Code 08145

Watershed (HUC 10) Bailey Branch of Winding Gulf Quadrangle Lester

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
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number \_\_\_\_\_ )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No treated pit wastes will be produced *work tank?*)

*ANY WELL EFFLUENT MUST BE CONTAINED IN TANKS AND DISPOSED OFFSITE, PROPERLY.*

*gwm*

*notak*

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. no drilling proposed

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

Additives to be used in drilling medium? N/A

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. No cuttings produced during plugging operation

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

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

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

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

Company Official Signature *Kenneth L. Marcum*

Company Official (Typed Name) Kenneth L. Marcum

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 8th day of January, 2018

Constance C. Carden

Notary Public  
Commonwealth of Pennsylvania - Notary Seal  
Constance C. Carden, Notary Public  
Washington County  
My commission expires November 16, 2021  
Commission number 02/09/2018  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

My commission expires 11/16/2021

Form WW-9

Operator's Well No. Beaver Coal C-48

Cabot Oil & Gas Corporation

Proposed Revegetation Treatment: Acres Disturbed 0.50 Prevegetation pH 6.5

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20/20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch Pulp Fiber at 1000 to 1500 lbs. Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type	lbs/acre
(Grain Rye - 100) (Red Clover - 5) (Fescue - 40)	
(Annual Rye - 20) (White Clover - 5)	
(Perennial Rye - 10) (Alta Sweet Clover - 5)	
(Yellow Clover - 5) (Birdsfoot Trefoil - 10)	

Seed Type	lbs/acre
(Grain Rye - 100) (Red Clover - 5) (Fescue - 40)	
(Annual Rye - 20) (White Clover - 5)	
(Perennial Rye - 10) (Alta Sweet Clover - 5)	
(Yellow Clover - 5) (Birdsfoot Trefoil - 10)	

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: Inspector

Date: 1/22/18

Field Reviewed? ( ) Yes ( ) No

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**GENERAL NOTES:**

THIS DRAWING REPRESENTS A SCHEMATIC REPRESENTATION OF THE PROPOSED WELL SITE AND ACCESS ROAD. PROPOSED STRUCTURES SUCH AS THE DRILLING PIT, ROADWAY, CULVERTS, SEDIMENT BARRIERS, ETC. ARE SHOWN IN THEIR APPROXIMATE PREPLANNING CONFIGURATION. GIVEN UNFORESEEN CIRCUMSTANCES, THE AS-BUILT LOCATION OF THESE STRUCTURES MAY VARY SLIGHTLY FROM THE LOCATION SHOWN ON THE ATTACHED DRAWINGS.

ALL ROADS SHOWN THEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH GUIDELINES AND REQUIREMENTS OF WEST VIRGINIA DEPARTMENT OF OIL AND GAS EROSION AND SEDIMENT CONTROL MANUAL.

ALL CULVERTS SHOWN ON THIS DRAWING ARE PROPOSED AND WILL BE A MINIMUM OF 15" IN DIAMETER UNLESS OTHERWISE NOTED.

DITCH LINES AND CULVERTS WILL BE INSTALLED WHENEVER PRACTICAL. HOWEVER PORTIONS OF THE EXISTING/PROPOSED ROADS WHICH ARE LOCATED IN SOLID ROCK SHALL NOT REQUIRE DITCHES OR CROSS DRAINS, UNLESS OTHERWISE WARRANTED BY FIELD CIRCUMSTANCES.

SUPPLEMENTAL DRAINAGE AND/OR SEDIMENT CONTROL STRUCTURES MEASURES IN ADDITION TO THOSE SHOWN ON THE ATTACHED DRAWINGS WILL BE INSTALLED WHEN AND WHERE DEEMED NECESSARY. SUCH ADDITIONAL MEASURES MAY CONSIST OF EITHER STRAW BALES, SILT FENCES OR OTHER MEASURES OUTLINED IN THE WEST VIRGINIA DEPARTMENT OF OIL AND GAS EROSION AND SEDIMENT CONTROL FIELD MANUAL.

SEDIMENT BASINS (TRAPS) WILL BE CONSTRUCTED AT ALL CULVERTS AND CROSS DRAINS INLETS AS REQUIRED IN THE WEST VIRGINIA DEPARTMENT OF OIL AND GAS EROSION AND SEDIMENT CONTROL MANUAL. FIELD CONDITIONS SUCH AS ROCK OUTCROPS AND BEDROCK MAY PROHIBIT INLET TRAPS BEING INSTALLED WHEN THESE CONDITIONS EXIST. ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.

A SEDIMENT BARRIERS OF EITHER BRUSH, STRAW BALES, FILTER FENCE, ETC. WILL BE INSTALLED AND MAINTAINED BELOW THE OUT FALL OF ALL PROPOSED CULVERTS AND AT ALL OTHER STORM WATER DRAINAGE POINTS FROM EITHER THE ROADWAY OR THE LOCATION.

ALL NECESSARY TIMBER OR BRUSH WILL BE REMOVED FROM ROUTE OF THE ROADWAY AND LOCATION BY CLEANING AND GRUBBING ACTIVITIES. ANY SALVAGEABLE TIMBER WILL BE CUT AND STACKED TO THE SIDE OF THE ROADWAY OR REMOVED TO A STOCKPILE AREA. THE REMAINING TIMBER OR BRUSH WILL BE CUTUP AND WIND ROWED BELOW THE OUTSLOPE OF THE CONSTRUCTION AREAS TO BE UTILIZED AS A SEDIMENT BARRIER.

SEPARATE PERMITS WILL BE OBTAINED FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION FOR ALL POINTS OF INGRESS AND EGRESS FROM COUNTY AND STATE ROADS. THESE INGRESS AND EGRESS POINTS WILL BE MAINTAINED IN ACCORDANCE WITH CURRENT WEST VIRGINIA DEPARTMENT OF TRANSPORTATION REGULATIONS. A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF 8" OF CRUSHED STONE WILL BE CONSTRUCTED FOR A MINIMUM DISTANCE OF 50' FROM THE INGRESS AND EGRESS POINTS OF ALL PUBLIC ROADWAYS IN ACCORDANCE WITH CURRENT WEST VIRGINIA DEPARTMENT OF TRANSPORTATION REGULATIONS.

ALL CULVERTS SHOWN ON THE ATTACHED DRAWINGS ARE TO BE CONSIDERED PERMANENT AND WILL REMAIN IN PLACE AFTER COMPLETION OF CONSTRUCTION ACTIVITIES UNLESS NOTED OTHERWISE. A STABILIZED OUTLET CONTROL DEVICE SUCH AS RIP RAP, NATURAL STONE, BRUSH, ETC. WILL BE INSTALLED BELOW THE OUT FALL OF ANY ROADWAY CULVERT(S) WHICH ARE NOT LOCATED IN A STREAM OR CREEK.

PERMANENT CROSS DRAINS OR WATER BARS WILL BE INSTALLED AS AN INTEGRAL PART OF THE RECLAMATION PROCESS AND SHALL BE SPACED IN ACCORDANCE WITH AS-BUILT ROADWAY SLOPES AND TABLE 11-4 OF THE WEST VIRGINIA DEPARTMENT OF OIL AND GAS EROSION AND SEDIMENT CONTROL FIELD MANUAL.

TEMPORARY SEEDING AND MULCHING WILL BE UTILIZED TO PROVIDE A VEGETATIVE COVER ON ALL DISTURBED AREAS I.E. ROADWAYS, LOCATION, ROAD/LOCATION SLOPES AND ANY OTHER AREAS THAT ARE DISTURBED BY CONSTRUCTION ACTIVITIES.

THE LOCATION OF DRILLING PIT(S) MAY BE ADJUSTED TO THE MOST ENVIRONMENTAL SAFE SITE TO MEET THE REQUIREMENTS OF THE WVDEP.

**CONTRACTORS NOTE:**

IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND CONDITION OF ALL UNDERGROUND UTILITIES, SANITARY SEWERS, STORM SEWERS, ETC. PRIOR TO THE COMMENCEMENT OF ANY/OR CONSTRUCTION ACTIVITIES. DIG WITH C.A.R.E. CALL MISS UTILITY 1-800-245-4848.

ROAD GRADE (%)	DISTANCE (FT)
1	400
2	250
5	135
10	80
15	60
20	45

ROAD GRADE (%)	DISTANCE (FT)
2-5	500-300
6-10	300-200
11-15	200-100
16-20	100



1-800-245-4848

RECEIVED  
JAN 10 2018  
WV Department of  
Environmental Protection

**DRAWING LEGEND**

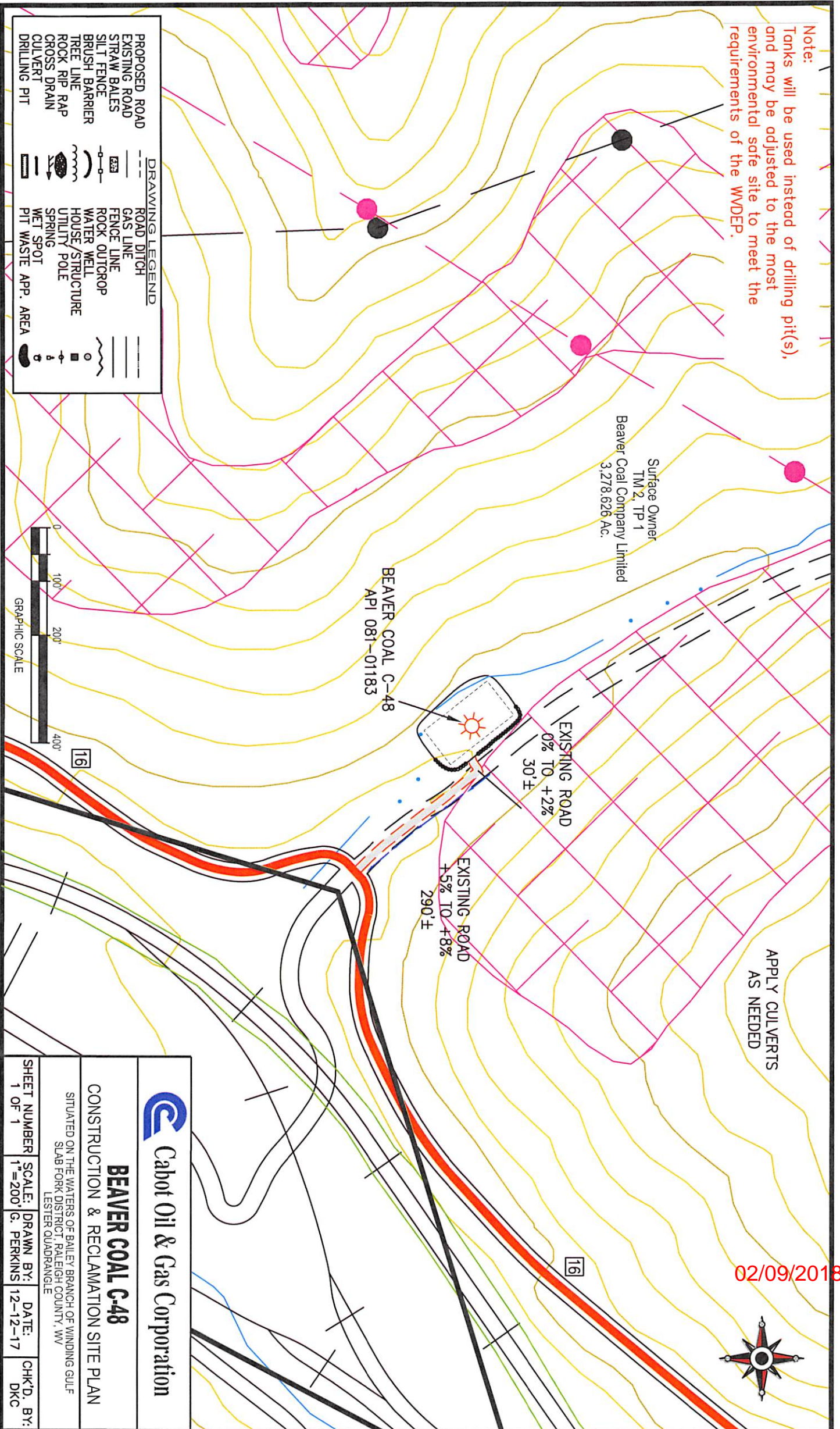
PROPOSED ROAD	-----
EXISTING ROAD	=====
STRAW BALES	[Symbol]
SILT FENCE	[Symbol]
BRUSH BARRIER	[Symbol]
TREE LINE	[Symbol]
ROCK RIP RAP	[Symbol]
CROSS DRAIN	[Symbol]
CULVERT	[Symbol]
DRILLING PIT	[Symbol]
ROAD DITCH	[Symbol]
GAS LINE	[Symbol]
FENCE LINE	[Symbol]
ROCK OUTCROP	[Symbol]
WATER WELL	[Symbol]
HOUSE/STRUCTURE	[Symbol]
UTILITY POLE	[Symbol]
SPRING	[Symbol]
WET SPOT	[Symbol]
PIT WASTE APP. AREA	[Symbol]

**DRIVING DIRECTIONS FOR BEAVER COAL C-48**

- 1.) FROM INTERSTATE 64/77, EXIT 42, IN BECKLEY, WV, DRIVE SOUTHWEST ON STATE ROUTE 16 AND 97 FOR 3.5 MILES± TO SOPHIA, WV.
- 2.) TURN RIGHT AND CONTINUE WEST ON STATE ROUTE 16 AND 54 FOR 6.5 MILES± TO THE BEGINNING OF THE EXISTING ACCESS ROAD LOCATED ON THE RIGHT-HAND SIDE OF THE ROAD.
- 3.) FROM THE AFOREMENTIONED SITE, FOLLOW THE EXISTING ROAD FOR APPROXIMATELY 300 FEET± TO THE EXISTING WELL SITE AS SHOWN ON THE "CONSTRUCTION AND RECLAMATION PLAN".

02/09/2018

Note:  
Tanks will be used instead of drilling pit(s),  
and may be adjusted to the most  
environmental safe site to meet the  
requirements of the WUDEP.

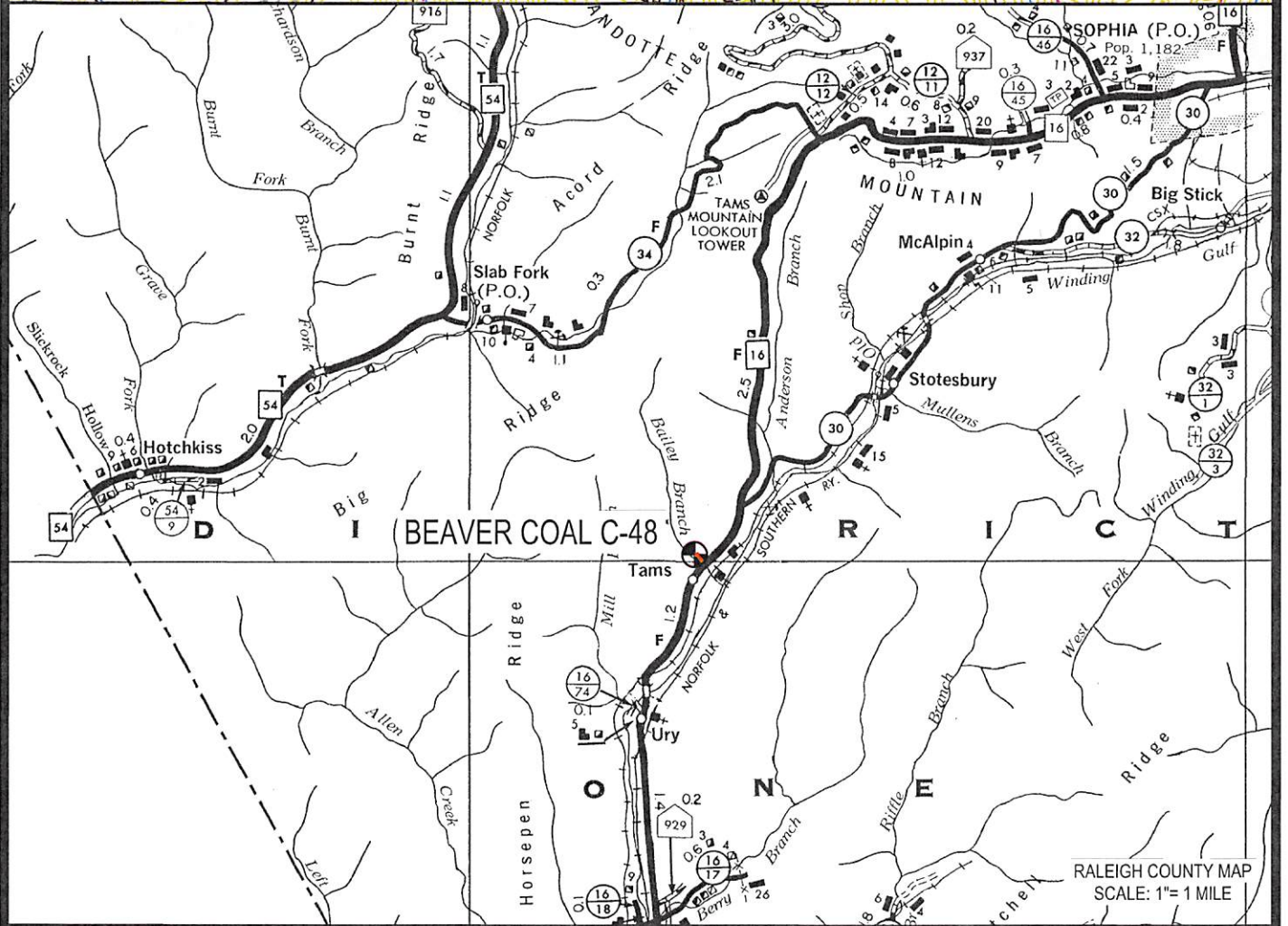
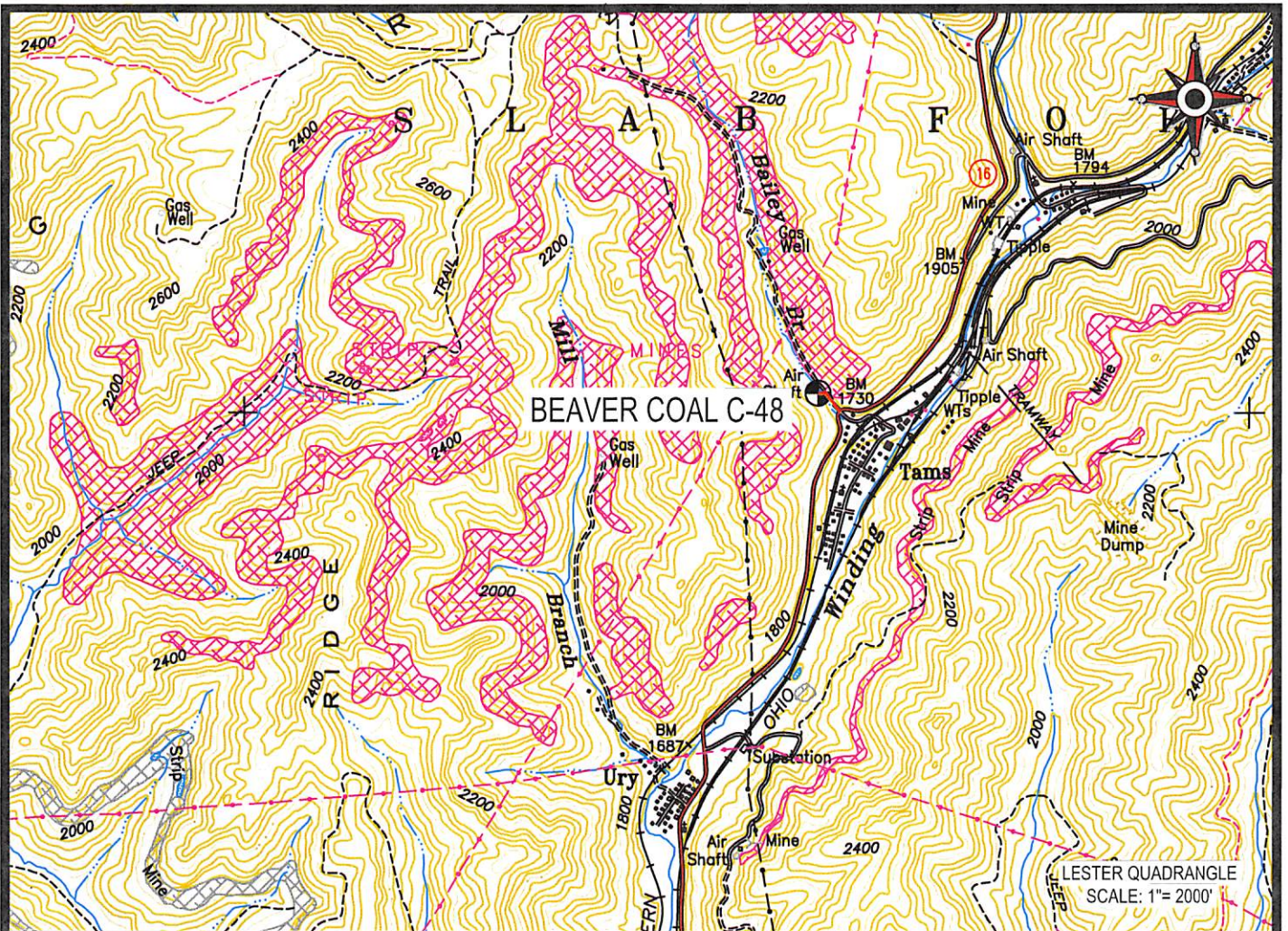


DRAWING LEGEND	
PROPOSED ROAD	ROAD DITCH
EXISTING ROAD	GAS LINE
STRAW BALES	FENCE LINE
SILT FENCE	ROCK OUTCROP
BRUSH BARRIER	WATER WELL
TREE LINE	HOUSE/STRUCTURE
ROCK RIP RAP	UTILITY POLE
CROSS DRAIN	SPRING
CULVERT	WET SPOT
DRILLING PIT	PIT WASTE APP. AREA



02/09/2018

<p><b>BEAVER COAL C-48</b> CONSTRUCTION &amp; RECLAMATION SITE PLAN</p>			
<p>SITUATED ON THE WATERS OF BAILEY BRANCH OF WINDING GULF SLAB FORK DISTRICT, RALEIGH COUNTY, WV LESTER QUADRANGLE</p>			
SHEET NUMBER	SCALE:	DRAWN BY:	DATE:
1 OF 1	1"=200' G.	PERKINS	12-12-17
CHK'D. BY:			
DKC			

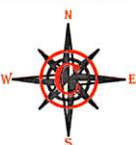


 Cabot Oil & Gas Corporation

**BEAVER COAL C-48**  
LOCATION MAP

02/09/2018

LOCATED ON THE WATERS OF BAILEY BRANCH  
OF WINDING GULF  
SLAB FORK DISTRICT, RALEIGH COUNTY, WV  
LESTER QUADRANGLE

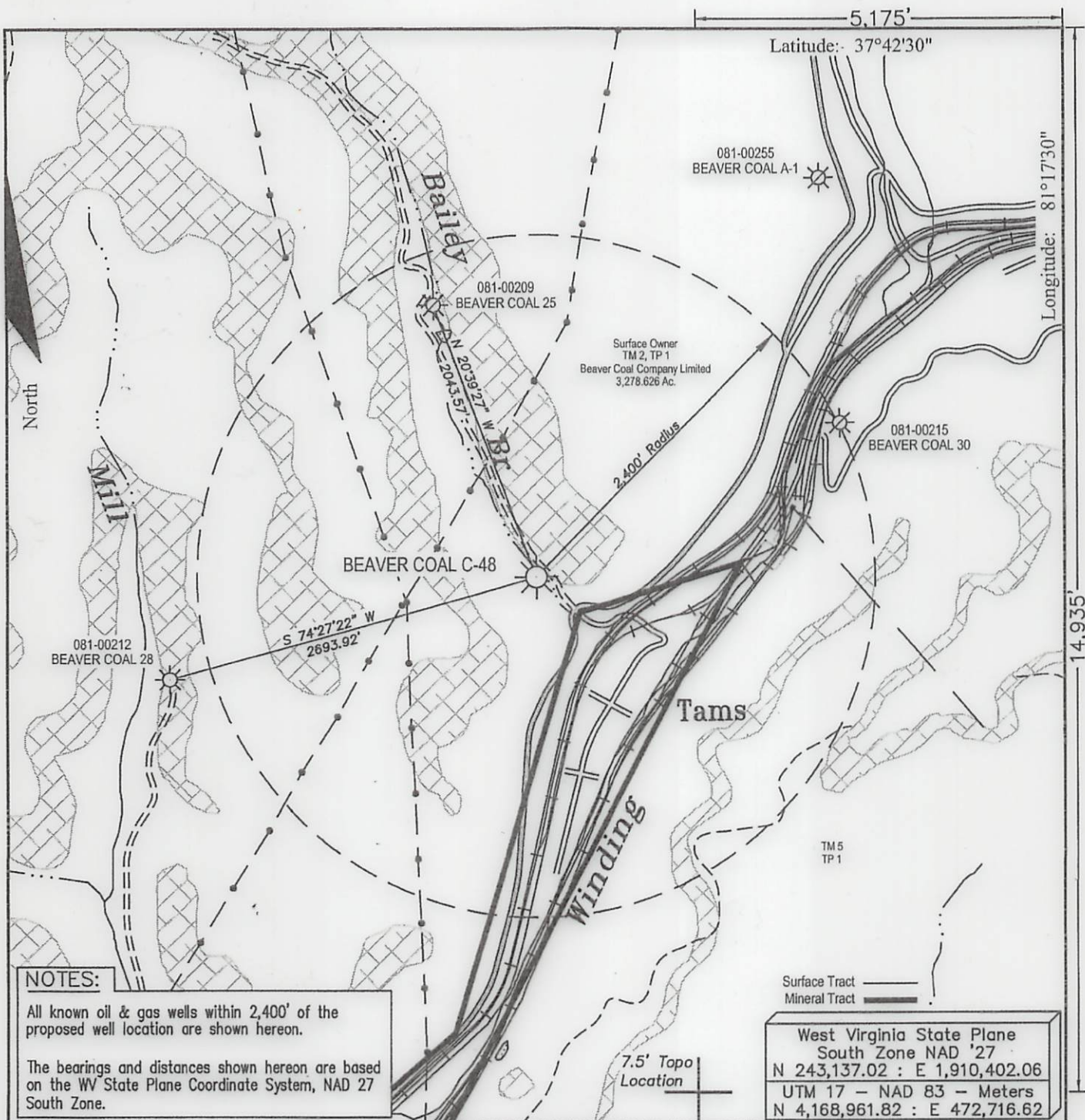


**CUNNINGHAM**

LAND SURVEYING & MAPPING SERVICES, LLC

- 5213 STEPHEN WAY •
- CROSS LANES, WEST VIRGINIA 25313 •
- VOICE (304) 561-4129 • FAX (304) 776-0703 •
- E-MAIL ADDRESS • DKCUNNINGHAM@SUDDENLINK.NET •

PROJECT NO. CABOT	DWG. NO. BEAVER COAL C-48 LOC
DATE: 12-12-17	SCALE: AS NOTED
DRAWN BY: G. PERKINS	CHK'D BY: D.K.C.
FILE: C:\PROJECT FOLDER\CABOT	

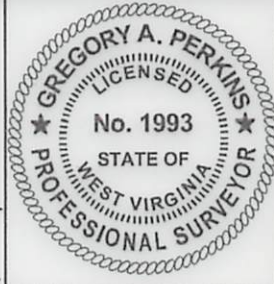


**NOTES:**  
 All known oil & gas wells within 2,400' of the proposed well location are shown hereon.  
 The bearings and distances shown hereon are based on the WV State Plane Coordinate System, NAD 27 South Zone.

West Virginia State Plane  
 South Zone NAD '27  
 N 243,137.02 : E 1,910,402.06  
 UTM 17 - NAD 83 - Meters  
 N 4,168,961.82 : E 472,716.62

FILE #: \_\_\_\_\_  
 DRAWING #: Beaver Coal C-48  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1 : 2,500  
 PROVEN SOURCE OF ELEVATION: Global Positioning System (GPS)

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 ENVIRONMENTAL PROTECTION.  
 Signed: \_\_\_\_\_  
 R.P.E.: \_\_\_\_\_ L.L.S.: 1993



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: December 12, 2017  
 OPERATOR'S WELL #: Beaver Coal C-48  
 API WELL #: 47 081 01183P  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: Bailey Branch of Winding Gulf ELEVATION: 1,778.43'  
 COUNTY/DISTRICT: Raleigh / Slab Fork QUADRANGLE: Lester  
 SURFACE OWNER: Beaver Coal Company, Limited ACREAGE: 3,278.626  
 OIL & GAS ROYALTY OWNER: Beaver Coal Company, Limited ACREAGE: 9,400.00  
 LEASE #: 47-0615 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: \_\_\_\_\_ ESTIMATED DEPTH: \_\_\_\_\_  
 WELL OPERATOR Cabot Oil & Gas Corp. DESIGNATED AGENT Phillip Hill  
 Address 2000 Park Lane, Suite 300 Address 29 Starbuck Lane  
 City Pittsburgh State PA Zip Code 15275 City Saulsville State WV Zip Code 25876

02/09/2018