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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](http://www.dep.wv.gov)

Monday, June 11, 2018  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

EQT PRODUCTION COMPANY  
625 LIBERTY AVE., SUITE 1700

PITTSBURGH, PA 15222

Re: Permit Modification Approval for BIG464H28  
47-103-03215-00-00

**Modification for Lateral Extension**

EQT PRODUCTION COMPANY

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the typed name and title.

Operator's Well Number: BIG464H28  
Farm Name: COASTAL FOREST RESOURCES COMPANY D/B/A  
U.S. WELL NUMBER: 47-103-03215-00-00  
Horizontal 6A New Drill  
Date Modification Issued: June 11, 2018

Promoting a healthy environment.

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

1) Well Operator: EQT Production Company 306686 Wetzel Grant Big Run  
Operator ID County District Quadrangle

2) Operator's Well Number: BIG464H28 Well Pad Name: BIG464

3) Farm Name/Surface Owner: Coastal Forest Resources DBA Coastal Timberlands Co Public Road Access: Rt 250

4) Elevation, current ground: 1305 Elevation, proposed post-construction: 1246

5) Well Type (a) Gas  Oil  Underground Storage

Other \_\_\_\_\_

(b) If Gas Shallow \_\_\_\_\_ Deep \_\_\_\_\_

Horizontal  \_\_\_\_\_

6) Existing Pad: Yes or No yes

*DMH  
1-16-18*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus, 7419', 51', 2620 PSI

8) Proposed Total Vertical Depth: 7419

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16961

11) Proposed Horizontal Leg Length: 8840

12) Approximate Fresh Water Strata Depths: 109,184,432

13) Method to Determine Fresh Water Depths: From offset wells

14) Approximate Saltwater Depths: 1724,1848

15) Approximate Coal Seam Depths: 559,796,899,919

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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18)

**CASING AND TUBING PROGRAM**

| <b>TYPE</b>  | <b>Size (in)</b> | <b>New or Used</b> | <b>Grade</b> | <b>Weight per ft. (lb/ft)</b> | <b>FOOTAGE: For Drilling (ft)</b> | <b>INTERVALS: Left in Well (ft)</b>                              | <b>CEMENT: Fill-up (Cu. Ft.)/CTS</b> |
|--------------|------------------|--------------------|--------------|-------------------------------|-----------------------------------|--|--------------------------------------|
| Conductor    | 26               | New                | A-500        | 85.6                          | 40                                | 40   | 49 ft <sup>3</sup> / CTS             |
| Fresh Water  | 13 3/8           | New                | J-55         | 54.5                          | 1019                              | 1019   | 952 ft <sup>3</sup> / CTS            |
| Coal         |                  |                    |              |                               |                                   |  |                                      |
| Intermediate | 9 5/8            | New                | A-500        | 40                            | 2841                              | 2841   | 1108 ft <sup>3</sup> / CTS           |
| Production   | 5 1/2            | New                | P-110        | 20                            | 16961                             | 16961  | 500' above top producing zone        |
| Tubing       | 2 3/8            |                    | J-55         | 4.7                           |                                   | May not be run, if run set 40' above top perf or 80' inclination |                                      |
| Liners       |                  |                    |              |                               |                                   |  |                                      |

*DmH  
1-16-18*

| <b>TYPE</b>  | <b>Size (in)</b> | <b>Wellbore Diameter (in)</b> | <b>Wall Thickness (in)</b> | <b>Burst Pressure (psi)</b> | <b>Anticipated Max. Internal Pressure (psi)</b> | <b>Cement Type</b> | <b>Cement Yield (cu. ft./k)</b> |
|--------------|------------------|-------------------------------|----------------------------|-----------------------------|---|--------------------|---------------------------------|
| Conductor    | 26               | 30                            | .312                       | 1378                        | 17  | Class A            | 1.18                            |
| Fresh Water  | 13 3/8           | 17 1/2                        | .38                        | 2700                        | 2160  | See Variance       | 1.19                            |
| Coal         |                  |                               |                            |                             |   |                    |                                 |
| Intermediate | 9 5/8            | 12 3/8                        | .395                       | 3950                        | 3160  | See Variance       | 1.19                            |
| Production   | 5 1/2            | 8 1/2                         | .361                       | 12640                       | 10112   | Class A/H          | 1.123/2.098                     |
| Tubing       | 2 3/8            | NA                            | .19                        | 7700                        |   |                    |                                 |
| Liners       |                  |                               |                            |                             |   |                    |                                 |

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**PACKERS**

|             |  |  |  |  |
|-------------|--|--|--|--|
| Kind:       |  |  |  |  |
| Sizes:      |  |  |  |  |
| Depths Set: |  |  |  |  |

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical to an approximate depth of 5992'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

*DMH  
1-16-18*

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 350,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 400,000 pounds of sand per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): no additional

22) Area to be disturbed for well pad only, less access road (acres): no additional

23) Describe centralizer placement for each casing string:

- Surface: Bow spring centralizers – One centralizer at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One centralizer at the shoe and one spaced every 500'.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Conductor: Class A no additives  
 Surface (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries  
 Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries.  
 Production:  
 Lead (Class A Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time) .15% SEC-10 (fluid loss).  
 Tail (Class H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss) .2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) water lost to formation. 60 % Calcium Carbonate. Acid solubility.

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25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.  
Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.  
Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

\*Note: Attach additional sheets as needed.

**WEST VIRGINIA GEOLOGICAL PROGNOSIS**

Horizontal Well  
BIG464H28

v 2016 5

**Drilling Objectives:** Marcellus  
**County:** Wetzel  
**Quad:** Big Run  
**Elevation:** 1259 KB 1246 GL  
**Surface location** Northing: 390393.07 Easting: 1713392.56  
**Landing Point** Northing: 390214.31 Easting: 1714608.98  
**Toe location** Northing: 382077.16 Easting: 1718063.00  
**Recommended Azimuth** 157 Degrees

TVD: 7419  
 Recommended LP to TD: 8,840'

**Proposed Logging Suite:** @ Intermediate Casing Point: The open hole logs need to consist of Gamma Ray, Neutron, Density, and Induction CONTACT JEFF DEREUME PRIOR TO LOGGING (412.328.5054)  
 @ Pithole TD - Run OH logs for evaluation of uphole zones.  
 An elog should be run for the first well on every horizontal well pad.  
 Please have mudloggers rigged up on location by 6892.5' TVD.

**Recommended Gas Tests:** 1800, 2050, 2600, Intm Csg Pt., 3400, 4900, 5250, KOP, (Gas test at any mine void)  
 Gas test during any trip or significant downtime while drilling the lateral section

**ESTIMATED FORMATION TOPS**

| Formation        | Top (TVD) | Base (TVD) | Lithology             | Comments   | Top RR | Base RR     |
|------------------|-----------|------------|-----------------------|--|--------|-------------|
| Fresh Water Zone | 1         | 432        |                       | FW @ 109,184,432, , ,                                      | 69     | 73          |
| Waynesburg Coal  | 556       | 559        | Coal                  |  | 76     | 80          |
| Coal             | 795       | 797        | Coal                  | No known past present and or future mining within the area | 96     | 114         |
| Sewickley Coal   | 897       | 899        | Coal                  |  | 125    | 132         |
| Pittsburgh Coal  | 912       | 919        | Coal                  |  |        | Base of Red |
| Maxton           | 1812      | 1991       | Sandstone             | Storage is NOT of concern                                  |        |             |
| Big Lime         | 2254      | 2330       | Limestone             | SW @ 1724,1848, , ,  |        |             |
| Big Injun        | 2342      | 2411       | Sandstone             |  |        |             |
| Weir             | 2540      | 2690       | Sandstone             |  |        |             |
| Top Devonian     | 2755      |            |                       |  |        |             |
| Gantz            | 2755      | 2791       | Silty Sand            |  |        |             |
| Int csg pt       | 2841      |            |                       |  |        |             |
| Fifty foot       | 2896      | 2952       | Silty Sand            |  |        |             |
| Thirty foot      | 2991      | 3018       | Silty Sand            |  |        |             |
| Gordon           | 3047      | 3092       | Silty Sand            |  |        |             |
| Forth Sand       | 3117      | 3130       | Silty Sand            |  |        |             |
| Fifth Sand       | 3189      | 3208       | Silty Sand            | Base of Offset Well Perforations at 3129' TVD              |        |             |
| Bayard           | 3242      | 3260       | Silty Sand            |  |        |             |
| Warren           | 3665      | 3689       | Silty Sand            |  |        |             |
| Speechley        | 3785      | 3833       | Silty Sand            |  |        |             |
| Balltown A       | 4143      | 4158       | Silty Sand            |  |        |             |
| Riley            | 4628      | 4670       | Silty Sand            |  |        |             |
| Benson           | 5257      | 5306       | Silty Sand            |  |        |             |
| Alexander        | 5671      | 5738       | Silty Sand            |  |        |             |
| Elks             | 5738      | 6937       | Gray Shales and Silts |  |        |             |
| Sonyea           | 6937      | 7100       | Gray shale            |  |        |             |
| Middlesex        | 7100      | 7156       | Shale                 |  |        |             |
| Genesee          | 7156      | 7243       | with black shale      |  |        |             |
| Genesee          | 7243      | 7275       | Black Shale           |  |        |             |
| Tully            | 7275      | 7300       | Limestone             |  |        |             |
| Hamilton         | 7300      | 7398       | calcareous shales     |  |        |             |
| Marcellus        | 7398      | 7449       | Black Shale           |  |        |             |
| Purcell          | 7413      | 7416       | Limestone             |  |        |             |
| -Lateral Zone    | 7419      |            |                       | Start Lateral at 7418.5'                                   |        |             |
| Cherry Valley    | 7429      | 7433       | Limestone             |  |        |             |
| Onondaga         | 7449      |            | Limestone             |  |        |             |

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|                               |          |
|-------------------------------|----------|
| Target Thickness              | 51 feet  |
| Max Anticipated Rock Pressure | 2620 PSI |

**Comments:**  
 Note that this is a TVD prog for a horizontal well (azimuth of 157 degrees; target formation = Marcellus). All measurements taken from estimated KB elevation. Water and coal information estimated from surrounding well data.  
 Intermediate casing point is recommended beneath the Gantz to shut off any water production from the Upper Devonian sands. Intermediate casing should be cemented into the surface string, per WV regulations.  
 The estimated landing point TVD is 7418.5'. Rig geologist may adjust landing point. After the well is landed, drill to reported bed dips/ geologists' recommendation. The geologic structure is unknown at this time.

**LATERAL DRILLING TOLERANCES**

**Mapview - Lateral:** Deviate as little as possible to the left or right of the planned wellbore  
**Mapview - TD:** DO NOT EXTEND beyond recommended wellbore to avoid lease line

**RECOMMENDED CASING POINTS**

|                         |        |        |           |      |                             |
|-------------------------|--------|--------|-----------|------|-----------------------------|
| <b>Fresh Water/Coal</b> | CSG OD | 13 3/8 | CSG DEPTH | 1019 | Beneath Pittsburgh Coal     |
| <b>Intermediate 1:</b>  | CSG OD | 9 5/8  | CSG DEPTH | 2841 | Beneath the Gantz formation |
| <b>Production:</b>      | CSG OD | 5 1/2  | CSG DEPTH | @ TD |                             |

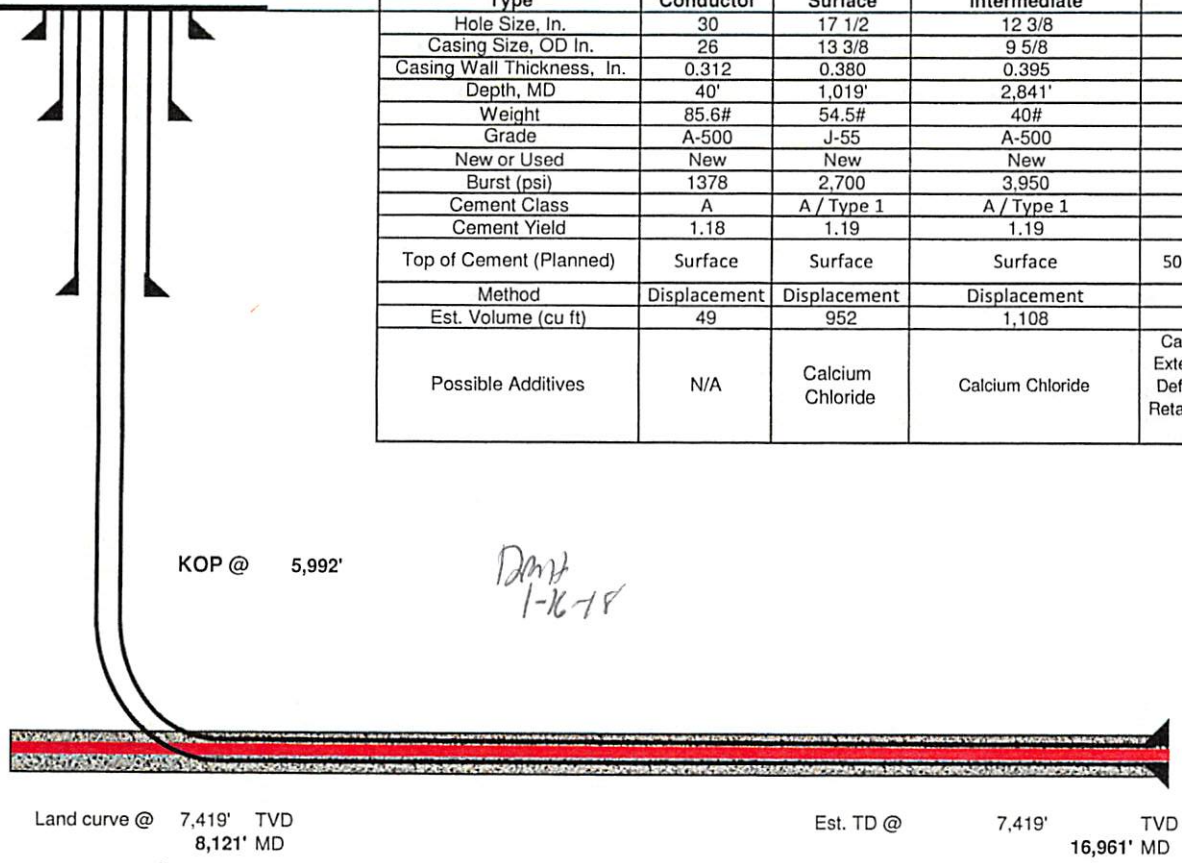
**Well** **BIG464H28**  
**EQT Production**  
**Big Run Quad**  
**Wetzel County, WV**

Azimuth 157  
 Vertical Section 9488

Note: Diagram is not to scale

| Formations          | Top TVD | Base TVD |
|---------------------|---------|----------|
| Conductor           | 40      |          |
| Base Red Rock       | 132     |          |
| Base Fresh Water    | 432     |          |
| Surface Casing      | 1019    |          |
| Intermediate Casing | 2841    |          |
| Maxton              | 1812    | 1991     |
| Big Lime            | 2254    | 2330     |
| Big Injun           | 2342    | 2411     |
| Weir                | 2540    | 2690     |
| Gantz               | 2755    | 2791     |
| Fifty foot          | 2896    | 2952     |
| Thirty foot         | 2991    | 3018     |
| Gordon              | 3047    | 3092     |
| Forth Sand          | 3117    | 3130     |
| Bayard              | 3242    | 3260     |
| Warren              | 3665    | 3689     |
| Speechley           | 3785    | 3833     |
| Balltown A          | 4143    | 4158     |
| Riley               | 4628    | 4670     |
| Benson              | 5257    | 5306     |
| Alexander           | 5671    | 5738     |
| Sonyea              | 6937    | 7100     |
| Middlesex           | 7100    | 7156     |
| Genesee             | 7156    | 7243     |
| Genesio             | 7243    | 7275     |
| Tully               | 7275    | 7300     |
| Hamilton            | 7300    | 7398     |
| Marcellus           | 7398    | 7449     |
| Production Casing   | 16961   | MD       |
| Onondaga            | 7449    |          |

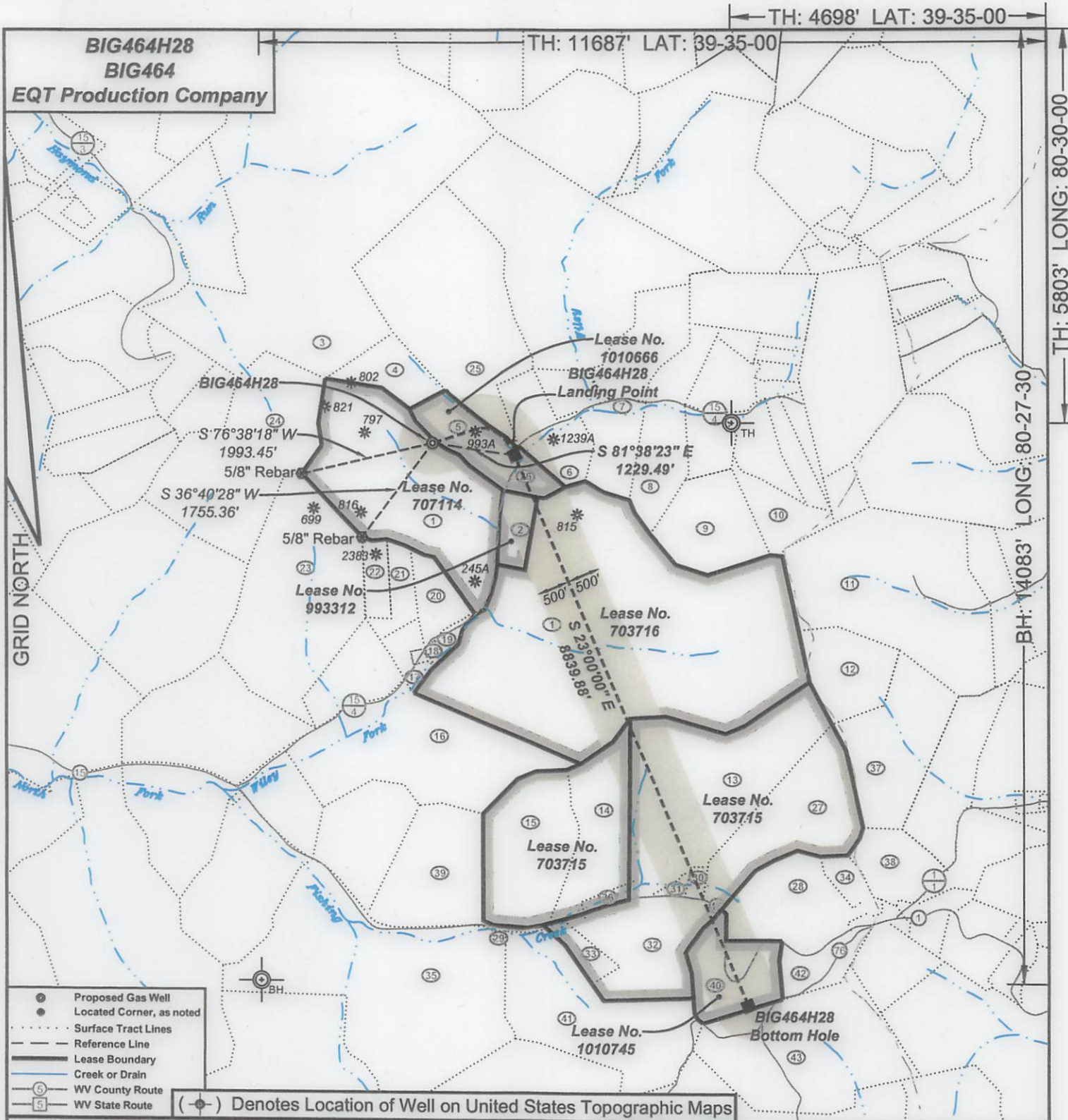
| Casing and Cementing       |              |                  |                  | Deepest Fresh Water: 432'  |
|----------------------------|--------------|------------------|------------------|--|
| Type                       | Conductor    | Surface          | Intermediate     | Production   |
| Hole Size, In.             | 30           | 17 1/2           | 12 3/8           | 8 1/2  |
| Casing Size, OD In.        | 26           | 13 3/8           | 9 5/8            | 5 1/2  |
| Casing Wall Thickness, In. | 0.312        | 0.380            | 0.395            | 0.361  |
| Depth, MD                  | 40'          | 1,019'           | 2,841'           | 16,961'  |
| Weight                     | 85.6#        | 54.5#            | 40#              | 20#  |
| Grade                      | A-500        | J-55             | A-500            | P-110  |
| New or Used                | New          | New              | New              | New  |
| Burst (psi)                | 1378         | 2,700            | 3,950            | 12,640   |
| Cement Class               | A            | A / Type 1       | A / Type 1       | A / H  |
| Cement Yield               | 1.18         | 1.19             | 1.19             | 1.123 / 2.098  |
| Top of Cement (Planned)    | Surface      | Surface          | Surface          | 500' above top Producing Zone  |
| Method                     | Displacement | Displacement     | Displacement     | Displacement   |
| Est. Volume (cu ft)        | 49           | 952              | 1,108            | 3,658  |
| Possible Additives         | N/A          | Calcium Chloride | Calcium Chloride | Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent |



Proposed Well Work:  
 Drill and complete a new horizontal well in the Marcellus formation.  
 Drill the vertical to an approximate depth of 5992'.  
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

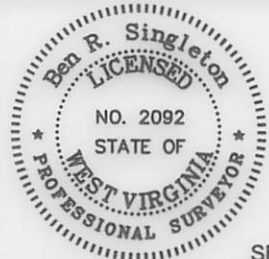
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47-103-03215



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.

*Ben R. Singleton*  
P.S. 2092



SEAL

FILE NO: 125-16  
DRAWING NO: 125-16 BIG464H28  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1:2500  
PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: November 9 20 17  
OPERATOR'S WELL NO.: BIG464H28  
API WELL NO  
47 - 103 - 03215  
STATE COUNTY PERMIT

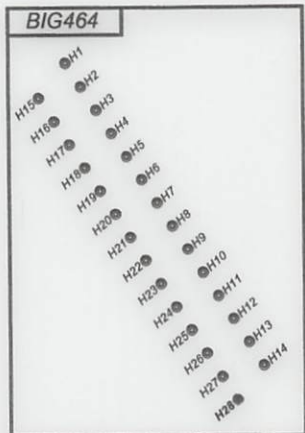
WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: Existing: 1305.0 Proposed: 1246.0 WATERSHED Wiley Fork QUADRANGLE: Big Run  
DISTRICT: Grant COUNTY: Wetzel  
SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 542.5  
ROYALTY OWNER: Ridgetop Royalties LLC, et al LEASE NO: 707114 ACREAGE: 78  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: 7,419'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson  
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280  
Bridgeport, WV 26330 Bridgeport, WV 26330

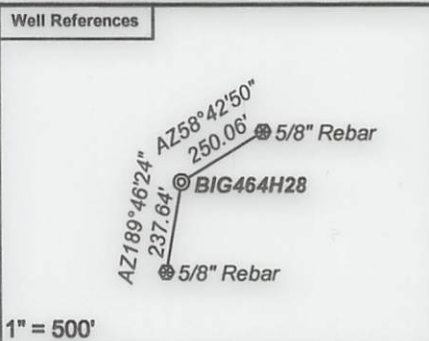
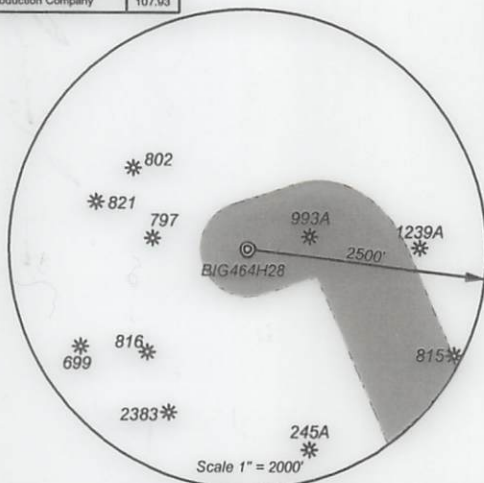
**BIG464H28**  
**BIG464**  
**EQT Production Company**

| Tract I.D. | Tax Map No. | Parcel No. | County | District   | Surface Tract Owner                    | Acres   |
|------------|-------------|------------|--------|------------|--|---------|
| 1          | 20          | 1          | Wetzel | Grant      | Coastal Forest Resources Co.           | 542.50  |
| 2          | 15          | 27         | Wetzel | Grant      | William J. Barr                        | 10.00   |
| 3          | 14          | 6          | Wetzel | Grant      | Coastal Lumber Co.                     | 332.00  |
| 4          | 14          | 27         | Wetzel | Grant      | The E. Lorna Howard Trust, LLC, et al. | 22.00   |
| 5          | 14          | 34         | Wetzel | Grant      | The E. Lorna Howard Trust, LLC, et al. | 25.25   |
| 6          | 15          | 16         | Wetzel | Grant      | Donald J. D'Lusky                      | 25.00   |
| 7          | 15          | 18         | Wetzel | Grant      | Donald J. D'Lusky                      | 36.40   |
| 8          | 15          | 29         | Wetzel | Grant      | Terry W. & Carolyn P. Phillips         | 40.00   |
| 9          | 15          | 34         | Wetzel | Grant      | John C. & Donald J. D'Lusky            | 42.00   |
| 10         | 15          | 35         | Wetzel | Grant      | John C. & Donald J. D'Lusky            | 17.83   |
| 11         | 43          | 11         | Marion | Mannington | Robert & Maxine Tonkery                | 85.00   |
| 12         | 43          | 11.1       | Marion | Mannington | David A. & Diane E. Floyd              | 30.00   |
| 13         | 20          | 3          | Wetzel | Grant      | Chester R. & Audra I. Powell           | 99.82   |
| 14         | 20          | 2          | Wetzel | Grant      | Marsha L. Barr, et al.                 | 41.40   |
| 15         | 20          | 2.1        | Wetzel | Grant      | Larry & Marry Shimp                    | 83.00   |
| 16         | 19          | 19.3       | Wetzel | Grant      | Richard M. & Mary G. Underwood         | 99.82   |
| 17         | 19          | 14         | Wetzel | Grant      | William D. & Mabel F. Barr             | 1.00    |
| 18         | 19          | 12         | Wetzel | Grant      | William D. & Mabel F. Barr             | 1.10    |
| 19         | 19          | 13         | Wetzel | Grant      | William D. & Mabel F. Barr             | 2.00    |
| 20         | 14          | 45         | Wetzel | Grant      | Coastal Forest Resources Co.           | 11.06   |
| 21         | 14          | 44         | Wetzel | Grant      | Mabel F. Barr                          | 11.00   |
| 22         | 14          | 43         | Wetzel | Grant      | Mabel F. Barr                          | 11.01   |
| 23         | 14          | 42         | Wetzel | Grant      | Donald J. D'Lusky                      | 111.00  |
| 24         | 14          | 33         | Wetzel | Grant      | Atlee & Hilda Conaway                  | 108.00  |
| 25         | 14          | 20         | Wetzel | Grant      | Elsie L. Hill Trust                    | 126.50  |
| 26         | none        | none       | Wetzel | Grant      | Unknown                                | unknown |
| 27         | 20          | 4          | Wetzel | Grant      | Jennifer L. Archer, et al.             | 70.00   |
| 28         | 20          | 10         | Wetzel | Grant      | Chester R. & Sandra L. Craver          | 46.76   |
| 29         | 20          | 5          | Wetzel | Grant      | Mary G. & Richard M. Underwood         | 1.00    |
| 30         | 20          | 3.1        | Wetzel | Grant      | Gary F. Fisher                         | 2.25    |
| 31         | 20          | 3.2        | Wetzel | Grant      | Linda Corwin, et al.                   | 1.18    |
| 32         | 20          | 8          | Wetzel | Grant      | Stephen J. & Richard M. Underwood      | 64.00   |
| 33         | 20          | 7          | Wetzel | Grant      | Bernard D. Holbert, et al.             | 8.00    |
| 34         | 20          | 12         | Wetzel | Grant      | Beverly Powell, et al.                 | 6.74    |
| 35         | 19          | 29         | Wetzel | Grant      | Michael J. & Doris L. Cegalski         | 39.70   |
| 36         | 20          | 7.1        | Wetzel | Grant      | John H. Frye, Jr. & Denise Frye        | 3.91    |
| 37         | 45          | 29         | Marion | Mannington | Raymond C. Tesgarden                   | 81.017  |
| 38         | 45          | 30         | Marion | Mannington | Keith A. & Rita G. Powell              | 21.50   |
| 39         | 19          | 20         | Wetzel | Grant      | First Exchange Bank                    | 49.90   |
| 40         | 20          | 9          | Wetzel | Grant      | Roger B. & Marry A. Powell             | 34.50   |
| 41         | 20          | 8          | Wetzel | Grant      | Bernard D. Holbert, et al.             | 102.50  |
| 42         | 20          | 11         | Wetzel | Grant      | Nancy Wyckoff, et al.                  | 16.41   |
| 43         | 20          | 18         | Wetzel | Grant      | EQT Production Company                 | 107.93  |

**Notes:**  
BIG464H28 coordinates are  
NAD 27 N: 390,393.08 E: 1,713,392.56  
NAD 27 Lat: 39.567404 Long: -80.516671  
NAD 83 UTM N: 4,379,866.08 E: 541,532.28  
BIG464H28 Landing Point coordinates are  
NAD 27 N: 390,214.31 E: 1,714,608.98  
NAD 27 Lat: 39.566951 Long: -80.512350  
NAD 83 UTM N: 4,379,817.81 E: 541,903.79  
BIG464H28 Bottom Hole coordinates are  
NAD 27 N: 382,077.16 E: 1,718,063.00  
NAD 27 Lat: 39.544718 Long: -80.499777  
NAD 83 UTM N: 4,377,356.30 E: 542,997.39  
West Virginia Coordinate system of 1927 (North Zone)  
based upon Differential GPS Measurements.  
Plat orientation, corner and well ties are based upon  
the grid north meridian.  
Well location references are based upon the grid north  
meridian.  
UTM coordinates are NAD83, Zone 17, Meters.



| Lease No. | Acres  | Owner                         |
|-----------|--------|-------------------------------|
| 703716    | 400    | Ridgetop Royalties LLC, et al |
| 1010666   | 32     | Ridgetop Royalties LLC, et al |
| 703715    | 110.67 | Nancy Hobbs, et al            |
| 703715    | 265.00 | Nancy Hobbs, et al            |
| 1010745   | 34.5   | Jim Ott, et al                |
| 993312    | 10     | James S. Allen, et al         |

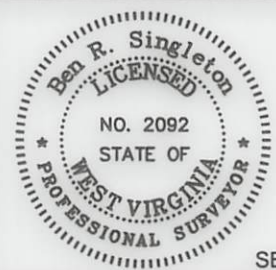


- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route



*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.*

*Ben R. Singleton*  
P.S. 2092



FILE NO: 125-16  
DRAWING NO: 125-16 BIG464H28  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1:2500  
PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: November 9 20 17  
OPERATOR'S WELL NO.: BIG464H28  
API WELL NO: 47 - 103 - 03215  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: Existing: 1305.0 Proposed: 1246.0 WATERSHED: Wiley Fork QUADRANGLE: Big Run  
DISTRICT: Grant COUNTY: Wetzel  
SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 542.5  
ROYALTY OWNER: Ridgetop Royalties LLC, et al LEASE NO: 707114 ACREAGE: 78  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: 7,419'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson  
ADDRESS: 115 Professional Place PO Box 280 Bridgeport, WV 26330  
ADDRESS: 115 Professional Place PO Box 280 Bridgeport, WV 26330



WW-6A1  
(5/13)

Operator's Well No. BIG464H28

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

| Lease Name or Number | Grantor, Lessor, etc. | Grantee, Lessee, etc. | Royalty | Book/Page |
|----------------------|-----------------------|-----------------------|---------|-----------|
| See Attached         |                       |                       |         |           |

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: EQT Production Company  
 By: Todd Klaner  
 Its: Regional Land Manager

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Protection

WW-6A1 attachment

Operator's Well No.

BIG 4104 H28

| Lease No.      | Grantor, Lessor, etc.   | Grantee, Lessee, etc.                       | Royalty | Book/Page               |
|----------------|---|---|---------|-------------------------|
| <u>707114</u>  | <u>Ridgetop Royalties LLC, et al. (current royalty owner)</u> |   | **      |                         |
|                | W.S. Furbee, et ux  | Carnegie Natural Gas Company                |         | DB 2A/182               |
|                | Carnegie Natural Gas Company                                  | Carnegie Production Company                 |         | DB 78A/513              |
|                | Carnegie Production Company                                   | Equitable Production - Eastern States, Inc. |         | see attached merger     |
|                | Equitable Production - Eastern States, Inc.                   | Equitable Production Company                |         | see attached merger     |
|                | Equitable Production Company                                  | EQT Production Company                      |         | CB 281/347              |
| <u>1010666</u> | Ridgetop Royalties LLC, et al.                                | EQT Production Company                      | **      | DB 166A/638             |
| <u>993312</u>  | James S. Allen & Carol Sue Allen, et al.                      | EQT Production Company                      | **      | DB 141A/177             |
|                | <u>Ridgetop Royalties LLC, et al. (current royalty owner)</u> |   | **      |                         |
| <u>703716</u>  | Sara J. Furbee  | C.D. Greenlee                               |         | DB 63/89                |
|                | C.D. Greenlee   | Carnegie Natural Gas Company                |         | See attached assignment |
|                | Carnegie Natural Gas Company                                  | Carnegie Production Company                 |         | DB 78A/513              |
|                | Carnegie Production Company                                   | Equitable Production - Eastern States, Inc. |         | see attached merger     |
|                | Equitable Production - Eastern States, Inc.                   | Equitable Production Company                |         | see attached merger     |
|                | Equitable Production Company                                  | EQT Production Company                      |         | CB 281/347              |
| <u>703715</u>  | Nancy Hobbs, et al.   | EQT Production Company                      | **      | DB 176A/176             |
| <u>1010745</u> | Jim Ott, et al.   | EQT Production Company                      | **      | DB 169A/215             |

\*\*Per West Virginia Code Section 22-6-8.

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JAN 22 2018

WV Department of  
Environmental Protection