



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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

EQT PRODUCTION COMPANY
120 PROFESSIONAL PLACE
BUILDING II
BRIDGEPORT, WV 26330

Re: Permit Modification Approval for 516849
47-103-03168-00-00

To extend and shift the lateral

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

Operator's Well Number: 516849
Farm Name: COASTAL FOREST RESOURCES D/B/A COASTAL TIMBERLAND
U.S. WELL NUMBER: 47-103-03168-00-00
Horizontal 6A / New Drill
Date Issued: 4/27/2017

Promoting a healthy environment.

04/28/2017

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: 516849 Well Pad Name: Big190

3) Farm Name/Surface Owner: Coastal Forest Resources Co DBA Coastal Timberlands Co. Public Road Access: Co Rt 15/2

4) Elevation, current ground: 1473.5 Elevation, proposed post-construction: 1473.5

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

DMH
4-17-17

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 7572' TVD, 51' thick, 2620 PSI

8) Proposed Total Vertical Depth: 7572'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16542'

11) Proposed Horizontal Leg Length: 7229'

12) Approximate Fresh Water Strata Depths: 85', 388', 507'

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

14) Approximate Saltwater Depths: 2230', 2355'

15) Approximate Coal Seam Depths: 734', 857', 1048', 1199'

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

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

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	40	40	60 ft ³ / CTS
Fresh Water	13 3/8	New	J-55	54.5	1255	1255	1089 ft ³ / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	2728	2728	1055 ft ³ / CTS
Production	5 1/2	New	P-110	20	16542	16542	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
4-17-17*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	.375	1378	18	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance 2014-17	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance 2014-17	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							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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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 2846'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

DmH
4-17-17

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 250,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 250,000 pounds of sand per stage.

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

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

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) 50:50 POZ (extender)
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) Reduces amount of water lost to formation. 60 % Calcium Carbonate. Acid solubility.

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.

Well 516849 (BIG190H21)

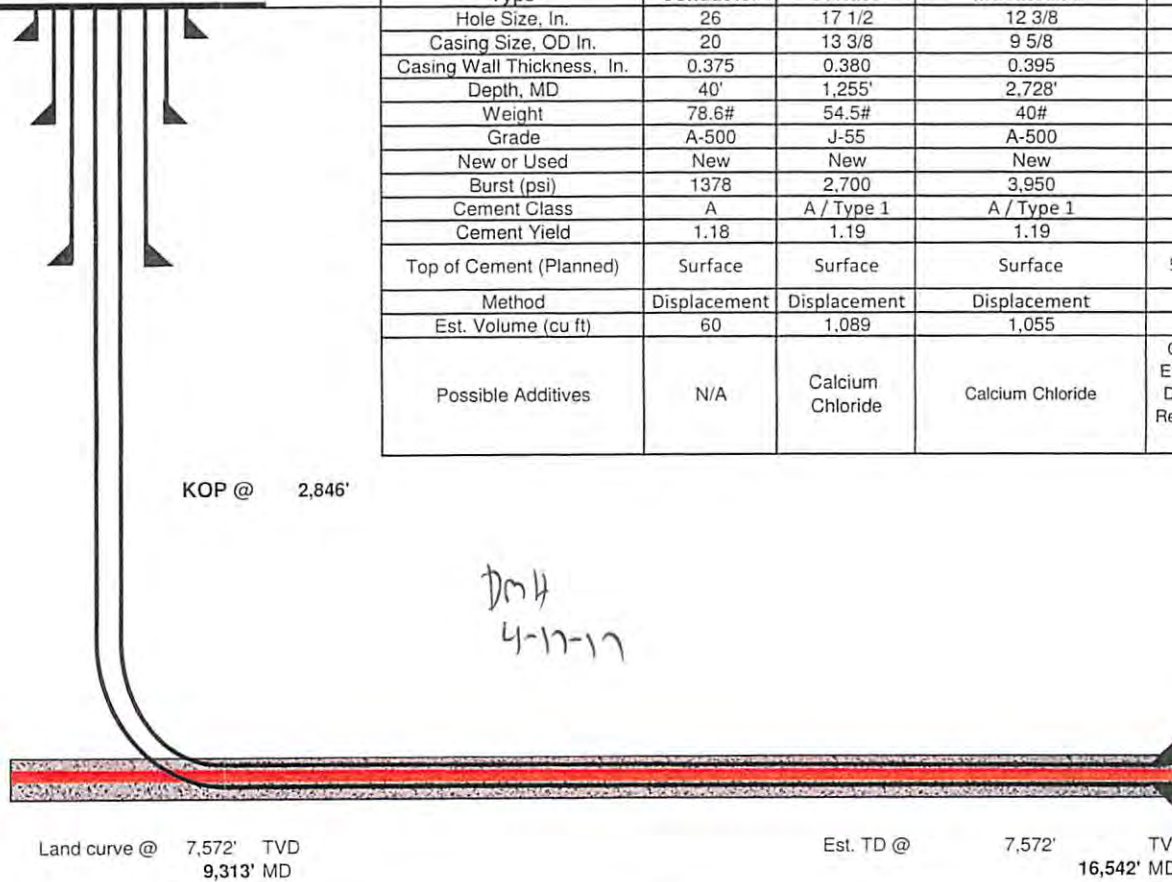
EQT Production
Big Run Quad
Wetzel County, WV

Azimuth 342
 Vertical Section 7110

Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	40	
Base Fresh Water	507	
Surface Casing	1255	
Maxton	2262 - 2340	
Big Lime	2418 - 2532	
Base Red Rock	2455	
Big Injun	2547 - 2653	
Intermediate Casing	2728	
Weir	2824 - 2881	
Gantz	2992 - 3027	
Fifty foot	3027 - 3068	
Thirty foot	3122 - 3153	
Gordon	3267 - 3267	
Forth Sand	3340 - 3381	
Bayard	3497 - 3530	
Warren	3876 - 3887	
Speechley	4077 - 4205	
Balltown A	4448 - 4580	
Riley	4905 - 4958	
Benson	5549 - 5629	
Alexander	5924 - 5964	
Sonyea	7129 - 7268	
Middlesex	7268 - 7321	
Genesee	7321 - 7394	
Geneseo	7394 - 7426	
Tully	7426 - 7444	
Hamilton	7444 - 7538	
Marcellus	7538 - 7589	
Production Casing	16542	MD
Onondaga	7589	

Casing and Cementing					Deepest Fresh Water: 507'
Type	Conductor	Surface	Intermediate	Production	
Hole Size, In.	26	17 1/2	12 3/8	8 1/2	
Casing Size, OD In.	20	13 3/8	9 5/8	5 1/2	
Casing Wall Thickness, In.	0.375	0.380	0.395	0.361	
Depth, MD	40'	1,255'	2,728'	16,542'	
Weight	78.6#	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)	60	1,089	1,055	3,467	
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 2846'.
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

7,229' Lateral



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Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
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March 18, 2014

Nabors Completion & Production Services Company
1380 Route 286 Hwy E #121
Indiana PA 15701

Re: Cement Variance Request

Dear Sir or Madam,

This agency is approving a variance request for the cement blend listed below to be used on surface and coal protection strings for the drilling of oil and gas wells in the state of West Virginia. The variance cannot be used without requesting its use on a permit application and approval by this agency:

- Type 1 (2% Calcium Chloride-Accelerator, 0.25% Super Flake-Lost Circulation, 5.2% Water, 94% Type "1" Cement)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

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WV Department of
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04/28/2017



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Charleston, WV 25304
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**BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA**

IN THE MATTER OF A VARIANCE FROM) ORDER NO. 2014 - 17
REGULATION 35 CSR § 4-11.4/11.5/14.1)
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE)
THE OPERATIONAL)
REGULATIONS OF CEMENTING OIL)
AND GAS WELLS)

REPORT OF THE OFFICE

Nabors Completion & Production Services Co. requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

- 1.) Nabors Completion & Production Services Co. proposes the following cement blend:
- 2% Calcium Chloride (Accelerator)
 - 0.25 % Super Flake (Lost Circulation)
 - 94% Type "1" Cement
 - 5.20 % Water
- 2.) Laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 6 hours and a 2,435 psi compressive strength within 24 hours.

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04/28/2017

CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

ORDER

It is ordered that Nabors Completion & Production Services Co. may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Nabors Completion & Production Services Co. shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 18th day of March, 2014.

IN THE NAME OF THE STATE OF WEST VIRGINIA

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



James Martin, Chief
Office of Oil and Gas

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Environmental Protection
04/28/2017



August 22, 2016

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Casing plan on Wells (BIG190)

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 1255' KB, 50' below the workable Pittsburgh Coal seam. We will set the 9-5/8" intermediate string at 2728' KB, 75' below the base of the Big Injun formation.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki Roark', is written over a light blue horizontal line.

Vicki Roark
Permitting Supervisor

Enc.

**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
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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: Victoria Roark
 Its: Permitting Supervisor

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[Signature]
Office of Oil and Gas
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 04/28/2017

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>988530</u>	Mills Wetzel Lands, Inc.	EQT Production Company	**	OG 126A/288
	<u>Lois A. Dennis, et al. (Current Royalty Owner)</u>		**	
<u>300720</u>	A.C. Calvert (1/3 interest)	C. L. Johnston		DB 3A/133
	W.L. Calvert (1/3 interest)	C.L. Johnston		DB 3A/134
	C.L. Johnston	Hope Natural Gas Company		DB 96/295
	Willis L. Calvert (1/3 interest)	Hope Natural Gas Company		DB 3A/136
	Hope Natural Gas Company	Consolidated Gas Supply Corporation		DB 13/151
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		OG 66A/69
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation		CB 13/151
	CNG Transmission Corporation	Eastern States Oil and Gas, Inc.		OG 76A/232
	Eastern States Oil and Gas, Inc.	Blazer Energy		CB 12/253
	Blazer Energy	Eastern States Oil and Gas, Inc.		CB 12/259
	Eastern States Oil and Gas, Inc.	Equitable Production - Eastern States Oil & Gas, Inc.		CB 13/14
	Equitable Production - Eastern States Oil & Gas, Inc.	Equitable Production Company		CB 13/14
	Equitable Production Company	EQT Production Company		CB 13/14
	<u>ET Blue Grass LLC, et al. (current mineral owner)</u>		**	
<u>300607</u>	W. C. Henthorn, et ux.	South Penn Oil Company		DB 49/323
	South Penn Oil Company	Hope Natural Gas Company		OG 9A/230
	Hope Natural Gas Company	Consolidated Gas Supply Corporation		DB 233/387
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		OG 66A/69
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation		CB 13/151
	CNG Transmission Corporation	Eastern States Oil and Gas, Inc.		OG 76A/232
	Eastern States Oil and Gas, Inc.	Blazer Energy		CB 12/253
	Blazer Energy	Eastern States Oil and Gas, Inc.		CB 12/259
	Eastern States Oil and Gas, Inc.	Equitable Production - Eastern States Oil & Gas, Inc.		CB 13/14
	Equitable Production - Eastern States Oil & Gas, Inc.	Equitable Production Company		CB 13/14
	Equitable Production Company	EQT Production Company		CB 13/14
	Shiben Estates, Inc.	EQT Production Company		OG 178A/15
<u>993343</u>	Mary R. Huggins, et al.	EQT Production Company	**	DB 143A/204
<u>993291</u>	Mary Margaret Price & James G. Price, et al.	EQT Production Company	**	DB 140/671
<u>994536</u>	Gary Lee Wright and Sharon Wright, et al.	EQT Production Company	**	DB 150A/402

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

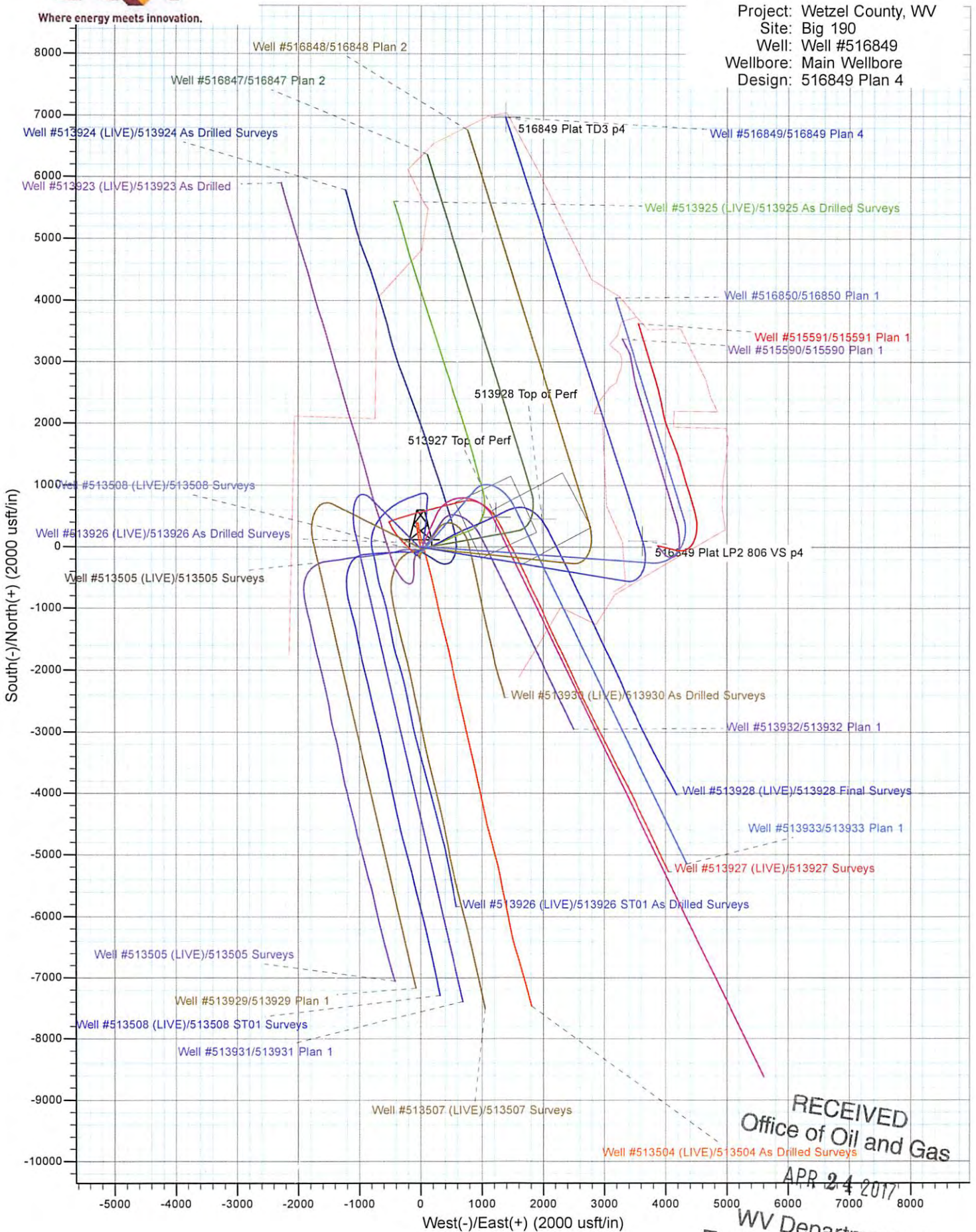
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EQT PRODUCTION

Project: Wetzel County, WV
 Site: Big 190
 Well: Well #516849
 Wellbore: Main Wellbore
 Design: 516849 Plan 4

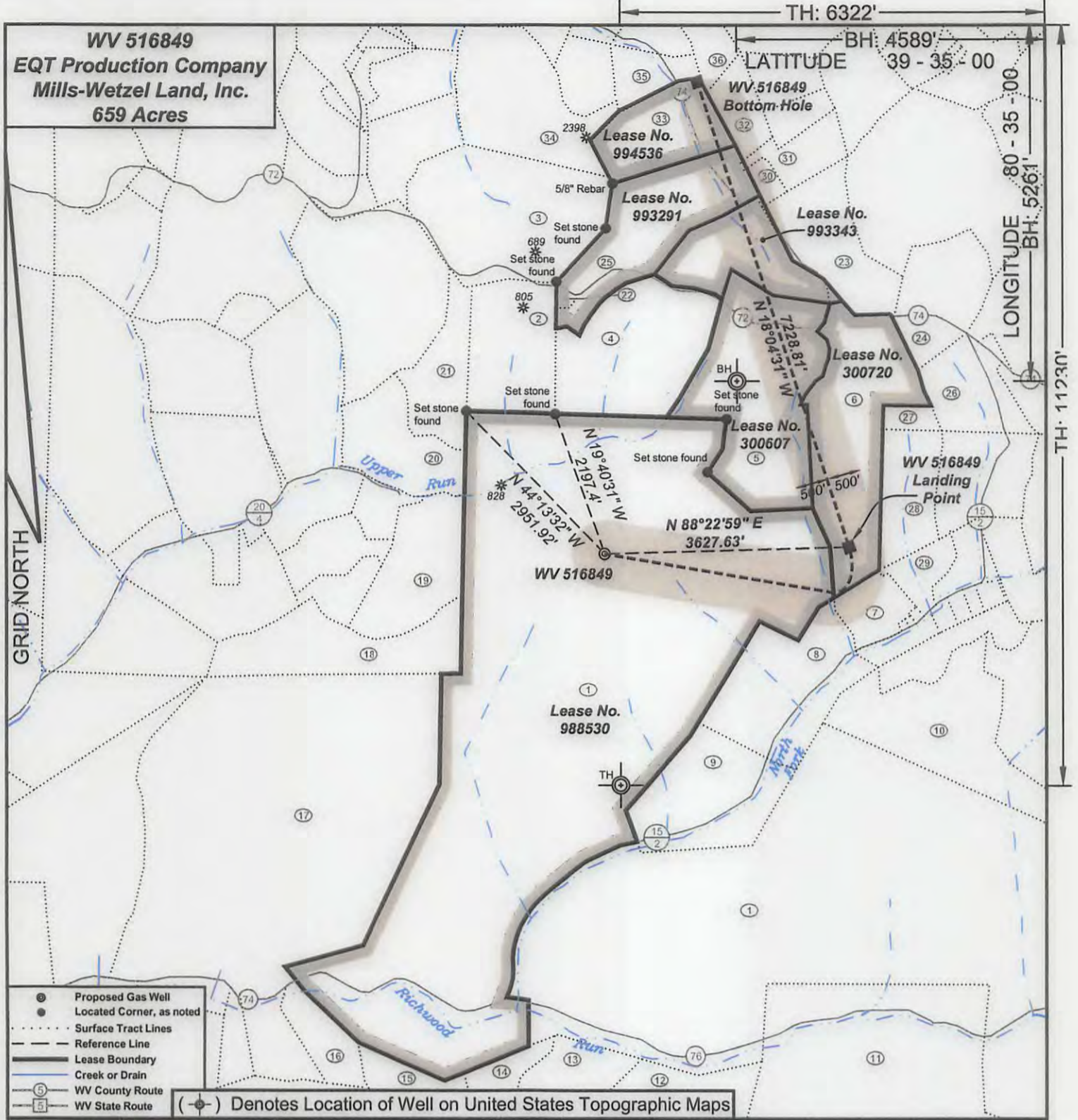
Where energy meets innovation.



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

(⊙) Denotes Location of Well on United States Topographic Maps



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: 196-34-G-10
DRAWING NO: 196-10 Big 190 H21
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: March 28 20 17
OPERATOR'S WELL NO.: 516849
API WELL NO
47 - 103 - 03168
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: 1473.5' (As-built) WATERSHED Upper Run and North Fork QUADRANGLE: Big Run
DISTRICT: Grant COUNTY: Wetzel
SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 659
ROYALTY OWNER: Mills-Wetzel Land, Inc. LEASE NO: 988530 ACREAGE: 659
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: 7,572

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330 Bridgeport, WV 26330

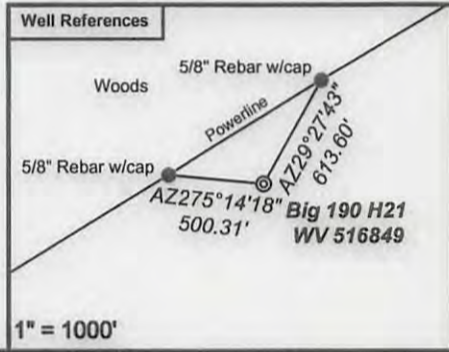
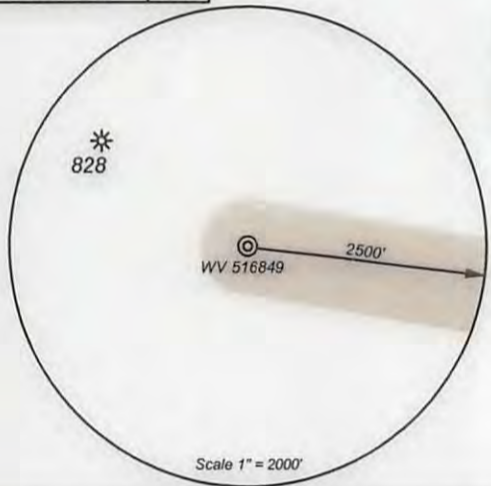
WV 516849
EQT Production Company
Mills-Wetzel Land, Inc.
659 Acres

Tract I.D.	Tax Map No.	Parcel No.	County	District	Surface Tract Owner	Acres
1	17	14	Wetzel	Grant	Coastal Forest Resources Co.	1627.60
2	12	46	Wetzel	Grant	Jimmy L & James C. Yoho	56.10
3	12	42	Wetzel	Grant	Jimmy L & James C. Yoho	103.30
4	12	47	Wetzel	Grant	Coastal Forest Resources Co.	87.50
5	13	46	Wetzel	Grant	Burl Henthorn Est, et al.	99.00
6	18	1	Wetzel	Grant	McKinley E. Calvert Heirs	100.00
7	18	14	Wetzel	Grant	Frank M. & Frankie L. Dulaney	9.55
8	18	13	Wetzel	Grant	Ralph G. Dulaney	87.50
9	18	17	Wetzel	Grant	Alan D. & Diana L. Barr	13.00
10	18	22	Wetzel	Grant	Karen R. Dennison, et al.	111.40
11	23	5	Wetzel	Grant	Thomas E. Wyatt, et al.	174.68
12	23	4	Wetzel	Grant	Dallison Lumber Inc.	36.10
13	23	2	Wetzel	Grant	Billy D. Arnolds, Jr.	38.80
14	23	1	Wetzel	Grant	Billy D. Arnolds, Jr.	16.50
15	22	27	Wetzel	Grant	Dallison Lumber Inc.	31.35
16	22	13	Wetzel	Grant	James Jones, et al.	16.75
17	17	16	Wetzel	Grant	David A. Arnolds	402.61
18	17	13	Wetzel	Grant	David A. Arnolds	62.25
19	17	12	Wetzel	Grant	Rhonda K. Spencer	57.20
20	17	4	Wetzel	Grant	George W. Cain	42.60
21	12	45	Wetzel	Grant	Jimmy L & James C. Yoho	44.10
22	12	49	Wetzel	Grant	George W. Cain	1.00
23	13	36	Wetzel	Grant	Sara Miller, et al.	49.00
24	13	37	Wetzel	Grant	Lydie Martin	16.00
25	12	43	Wetzel	Grant	Jennie B. Goddard, et al.	74.50
26	18	3	Wetzel	Grant	Lydie Martin	32.25
27	18	2	Wetzel	Grant	Frederick Jewell, et al.	4.66
28	18	6	Wetzel	Grant	Dwight Beckett	37.00
29	18	17	Wetzel	Grant	Alan D. & Diana L. Barr	13.00
30	13	28	Wetzel	Grant	Kenneth D. Eiford	4.59
31	13	29	Wetzel	Grant	Kenneth D. Eiford	17.50
32	13	19	Wetzel	Grant	Larry D. & Mary A. Huggins	19.25
33	12	35	Wetzel	Grant	H. G. Kirkpatrick Est	49.50
34	12	34	Wetzel	Grant	HFP LLC	75.28
35	12	21	Wetzel	Grant	John Laws, et al.	11.50
36	12	22	Wetzel	Grant	Esther Ruth Coen	51.60

Notes:
WV 516849 coordinates are
NAD 27 N: 385,262.74 E: 1,688,213.84
NAD 27 Lat: 39.552503 Long: -80.605754
NAD 83 UTM N: 4,378,174.82 E: 533,887.20
WV 516849 Landing Point coordinates are
NAD 27 N: 385,365.10 E: 1,691,840.03
NAD 27 Lat: 39.552906 Long: -80.592900
NAD 83 UTM N: 4,378,224.47 E: 534,991.46
WV 516849 Bottom Hole coordinates are
NAD 27 N: 392,237.17 E: 1,689,597.18
NAD 27 Lat: 39.571697 Long: -80.601152
NAD 83 UTM N: 4,380,306.70 E: 534,273.28
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.

Big 190	
H22, 516850	●
H21, 516849	●
H20, 516848	●
H19, 516847	●
47-103-02727	●
47-103-02728	●
47-103-02729	●
47-103-02730	●
47-103-02731	●
47-103-02732	●
47-103-02733	●
47-103-02734	●
47-103-02735	●
47-103-02736	●
47-103-02856	●

Lease No.	Acres	Owner
300720	103	Lois A. Dennis, et al.
300607	99	ET Blue Grass LLC, et al.
993343	50	Mary R. Huggins, et al.
993291	74.5	Mary Margaret Price & James G. Price, et al.

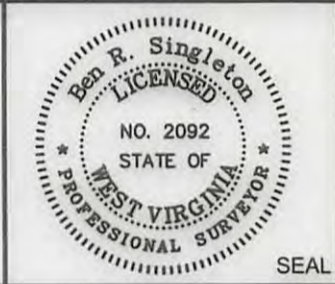


- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- ⊙ WV County Route
- ⊙ WV State Route



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 B. Singleton
P.S. 2092



FILE NO: 196-34-G-10
DRAWING NO: 196-10 Big 190 H21
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: March 28 20 17
OPERATOR'S WELL NO.: 516849
API WELL NO
47 - 103 - 03168
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: 1473.5' (As-built) WATERSHED: Upper Run and North Fork QUADRANGLE: Big Run
DISTRICT: Grant COUNTY: Wetzel
SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 16365
ROYALTY OWNER: Mills-Wetzel Land, Inc. LEASE NO: 988530 ACREAGE: 659
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: 7,572

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330 Bridgeport, WV 26330



March 29, 2017

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Modification of API 47-10303168

Dear Mr. Smith,

Enclosed are forms WW6B, schematic, Mylar plat, and WW6A1. EQT would like to extend and shift the lateral.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki L'.

Vicki Roark
Permitting Supervisor-WV

Enc.

RECEIVED
Office of Oil and Gas
APR 24 2017
WV Department of
Environmental Protection