



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

Earl Ray Tomblin , Governor
Randy C. Huffman , Cabinet Secretary
www.dep.wv.gov

Monday, January 09, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for 516847
47-103-03166-00-00

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: 516847
Farm Name: COASTAL FOREST RESOURCES COMPANY D/B/A COASTAL
U.S. WELL NUMBER: 47-103-03166-00-00
Horizontal 6A / New Drill
Date Issued: 1/9/2017

Promoting a healthy environment.

01/13/2017

PERMIT CONDITIONS 47 10303166

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

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: 516847 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 Elevation, proposed post-construction: 1473

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

*DMH
10-8-16*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 7558', 51', 2620 PSI

8) Proposed Total Vertical Depth: 7558'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13417'

11) Proposed Horizontal Leg Length: 4799'

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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Office of Oil and Gas
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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	13417	13417	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 40° inclination	
Liners							

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	1102	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance Order 2014-1755	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance Order 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:				

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 5025'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

DHT
10-6-16

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, gelling agent, gel breaker, 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 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

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

22) Area to be disturbed for well pad only, less access road (acres): No new 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.

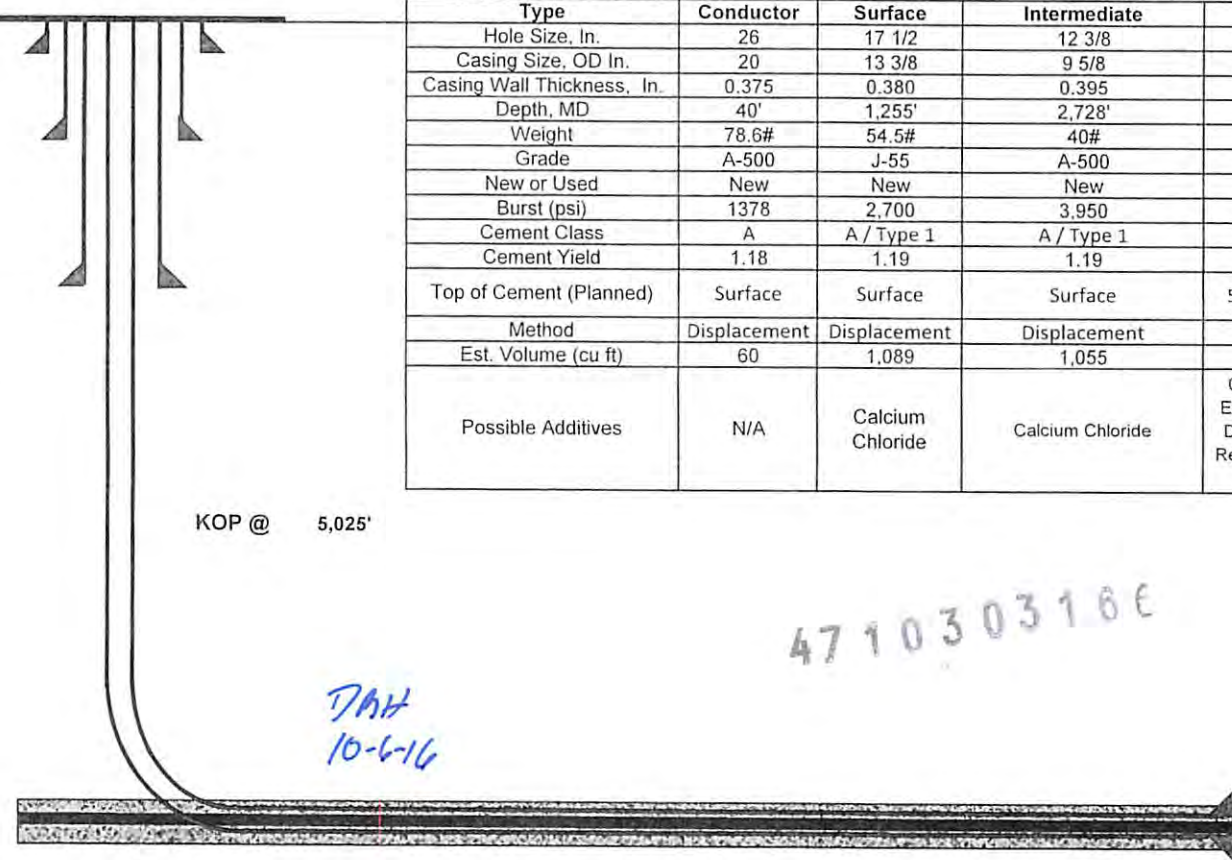
Well 516847 (BIG190H19)
 EQT Production
 Big Run Quad
 Wetzel County, WV

Azimuth 343
 Vertical Section 5540

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	13417	MD
Onondaga	7589	

4710303166



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'	13,417'
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	2,680
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersant, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

KOP @ 5,025'

DAH
10-6-16

4710303166

Land curve @ 7,558' TVD 8,618' MD Est. TD @ 7,558' TVD 13,417' MD

4,799' Lateral

Proposed Well Work:
 Drill and complete a new horizontal well in the Marcellus formation.
 Drill the vertical to an approximate depth of 5025'.
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.



west virginia department of environmental protection

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Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

**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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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.

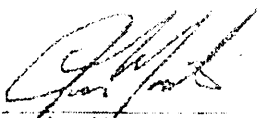
ORDER

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

47 10303166



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
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(304) 926-0452 fax

Larl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

March 18, 2014

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

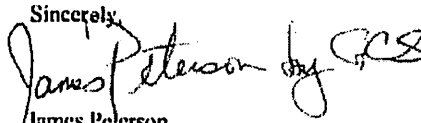
Re: Cement Variance Request

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

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01/13/2017

EQT Production
Hydraulic Fracturing Monitoring Plan
Pad ID: BIG190
Wetzel County, WV

9/28/16

471030

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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Wetzel County, WV prior to hydraulic fracturing at the following EQT wells on BIG190 pad: 516847, 516848, 516849, 516850

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (7,500 TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Alexander formation (approximately 5,900' TVD).

The plan is being implemented as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the site. These additional measures include pre-notification of conventional well operators of the timing and location of the hydraulic fracturing, establishment of measures conventional well operators should implement, and assurance that the OOG is notified of the timeline, as well as any issues that may arise during fracturing.

1. Communications with Conventional Well Operators

EQT, using available data (WV Geological Survey, WVDEP website, and IHS data service), has identified all known conventional wells and well operators within 500 feet of this pad and the lateral sections. A map showing these wells along with a list of the wells and operators is included in **Attachment A**.

Upon approval of this plan, EQT will notify these operators, via letter, of the hydraulic fracturing schedule for these wells. A copy of this letter is included in **Attachment B**.

The letter provides recommendations to these conventional operators to 1) increase their monitoring of their wells during that time period, 2) ensure that their well head equipment is sound, and 3) provide immediate notification to EQT and the OOG in the event of any changes in their well conditions.

Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity
4. Notify the OOG and EQT if any changes in water, gas production, pressure, or other anomalies are identified

2. Reporting

EQT will provide information relating to the hydraulic fracturing schedule, communication with conventional operators, and ongoing monitoring of the work upon request of OOG or immediately in the event of any noted abnormalities.

WellID	Well Status	Comp Date	ABAND DATE	FmatTD	Permit	Operator	Longitude	Latitude	Target Fm	Datum Eleva	SS DEPTH	Total Depth	
47103011480000	GAS	10/6/1978			01148	TRANS ENERGY	-80.5898	39.5331			1234	-1965	3199
47103302530000	ABD-OW	10/15/1902	2/5/1938	GORDON	30253	SOUTH PENN OIL	-80.6056	39.5318			956		2830
47103304130000	ABD-GW		2/4/1942	HURON LOWER	30413	PITTSBURGH & W VA GAS	-80.6111	39.5560			1013		2845
47103307840000	ABD-OW	11/23/1900	2/19/1949	HAMPSHIRE	30784	INTERSTATE PIPE & SUPPLY THE	-80.5935	39.5479			942		2782
47103309340000	ABD-OW	1/1/1916	10/13/1951	POCONO	30934	VALLEY STEEL PRODUCTS COMPANY	-80.6030	39.5341			1021		1927
47103309350000	ABD-OW	9/16/1916	11/22/1951	HAMPSHIRE	30935	VALLEY STEEL PRODUCTS COMPANY	-80.6008	39.5331			955		2925
47103309360000	ABD-OW	2/16/1916	10/21/1951	HAMPSHIRE	30936	VALLEY STEEL PRODUCTS COMPANY	-80.6006	39.5344			1113		3149
47103309370000	ABD-OW	1/17/1919	10/31/1951	HAMPSHIRE	30937	VALLEY STEEL PRODUCTS COMPANY	-80.6032	39.5396			1170		2914
47103309380000	ABD-OW	2/16/1919	11/14/1951	HAMPSHIRE	30938	VALLEY STEEL PRODUCTS COMPANY	-80.5998	39.5364			1350		2251
47103309390000	ABD-OW	6/17/1921	3/11/1951	BIG LIME	30939	VALLEY STEEL PRODUCTS COMPANY	-80.6002	39.5393			1372		2287
47103008360000	UNKWN		10/24/1997		00836	EQUITABLE GAS COMPANY	-80.5959	39.5515			1153		2918
47103006330000	GAS	10/26/1977		FIFTH SAND	00633	DIVERSIFIED RESOURCES INCORPORATED	-80.5918	39.5372	BIG INJUN /SD/		1058		3400
47103006860000	PSEUDO				00686	EQT PRODUCTION COMPANY	-80.5923	39.5607					
47103008050000	PSEUDO				00805	EQT PRODUCTION COMPANY	-80.6111	39.5621					
47103700260000	PSEUDO				70026	CARTER OIL COMPANY	-80.5929	39.5460					
47103702920000	PSEUDO				70292	CARTER OIL COMPANY	-80.6043	39.5421					
47103702930000	PSEUDO				70293	CARTER OIL COMPANY	-80.6023	39.5433					
47103704430000	PSEUDO				70443	CARTER OIL COMPANY	-80.6045	39.5431					
47103006710000	GAS	8/12/1904		HAMPSHIRE	00671	EQT PRODUCTION COMPANY	-80.5970	39.5555					2963
47103006890000	GAS	9/25/1914		SQUAW /SD/	00689	EQT PRODUCTION COMPANY	-80.6088	39.5645					2350
47103011390000	OIL	3/21/1901		HAMPSHIRE	01139	DIVERSIFIED RESOURCES INCORPORATED	-80.5961	39.5465					2775
47103011400000	OIL	6/13/1901		HAMPSHIRE	01140	DIVERSIFIED RESOURCES INCORPORATED	-80.5976	39.5444					2762
47103014040000	UNKWN		8/27/1986		01404	SOUTH PENN OIL	-80.6000	39.5457					
47103302630000	ABDOGW		2/6/1938	GORDON	30263	DEEM F S	-80.6058	39.5325		855			2715
47103308530000	ABD-OW		1/27/1951	MAXTON	30853	INTERSTATE PIPE & SUPPLY THE	-80.6045	39.5404		877			1838
47103310110000	ABD-OW	11/1/1916	5/8/1955	HAMPSHIRE	31011	UNKNOWN	-80.6036	39.5366		1161			3026
47103310120000	ABD-OW	7/1/1920	2/9/1955	HAMPSHIRE	31012	UNKNOWN	-80.5996	39.5375		1368			3230
47103310650000	ABD-OW		6/9/1957	HAMPSHIRE	31065	SMITH TRUMAN C	-80.6047	39.5349		969			2834
47103720210000	UNKWN				72021	UNKNOWN	-80.6058	39.5616					
47103720220000	UNKWN				72022	HOPE NATURAL GAS	-80.6032	39.5597					
47103720230000	UNKWN				72023	UNKNOWN	-80.6082	39.5559					
47103720250000	UNKWN				72025	UNKNOWN	-80.6107	39.5526					
47103720260000	UNKWN				72026	UNKNOWN	-80.6053	39.5543					
47103720270000	UNKWN				72027	HOPE NATURAL GAS	-80.5983	39.5623					
47103720290000	UNKWN				72029	UNKNOWN	-80.5994	39.5656					
47103722130000	UNKWN				72213	UNKNOWN	-80.6081	39.5321					
47103722140000	UNKWN				72214	UNKNOWN	-80.6058	39.5315					
47103722430000	UNKWN				72243	UNKNOWN	-80.6066	39.5330					
47103722590000	UNKWN				72259	UNKNOWN	-80.6094	39.5383					
47103722600000	UNKWN				72260	UNKNOWN	-80.6079	39.5417					
47103722610000	UNKWN				72261	UNKNOWN	-80.6056	39.5428					
47103722620000	UNKWN				72262	UNKNOWN	-80.6023	39.5468					
47103722650000	UNKWN				72265	UNKNOWN	-80.6013	39.5420					
47103722680000	UNKWN				72268	UNKNOWN	-80.5979	39.5476					
47103722690000	UNKWN				72269	UNKNOWN	-80.5938	39.5507					
47103722700000	UNKWN				72270	UNKNOWN	-80.6088	39.5367					
47103722710000	UNKWN				72271	UNKNOWN	-80.6075	39.5389					
47103722720000	UNKWN				72272	UNKNOWN	-80.6054	39.5380					
47103722730000	UNKWN				72273	UNKNOWN	-80.6058	39.5363					
47103722740000	UNKWN				72274	UNKNOWN	-80.6058	39.5347					
47103722750000	UNKWN				72275	UNKNOWN	-80.6028	39.5389					
47103722760000	UNKWN				72276	UNKNOWN	-80.6021	39.5402					
47103722770000	UNKWN				72277	UNKNOWN	-80.6017	39.5411					
47103722810000	UNKWN				72281	UNKNOWN	-80.5912	39.5449					
47103308530001	ABD-GW	2/16/1917	1/27/1951	GORDON	30853	UNKNOWN	-80.6045	39.5404					

4710303106

OCT 04 2016

Attachment A-2

UWI	Name	Depth Top	Base Depth
47103011480000	BIG LIME	1862	1920
47103011480000	BIG INJUN /SD/	1920	1986
47103011480000	POCONO	2028	2072
47103011480000	GORDON /SD/	2524	2604
47103011480000	FOURTH SAND	3110	3130
47103006330000	ALLEGHENY /SERIES/	1338	
47103006330000	POTTSVILLE /SERIES/	1653	
47103006330000	BIG LIME	2062	
47103006330000	BIG INJUN	2162	
47103006330000	POCONO	2175	
47103006330000	BEREA	2707	
47103006330000	HURON LOWER	2712	
47103006330000	GORDON STRAY /SD/	2889	

Perforated

4710303160

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Office of Oil and Gas
OCT 04 2016
Department of
Energy and Environmental Protection

01/13/2017
Attachment A-2



625 Liberty Ave, Suite 1700
Pittsburgh PA 15222
www.eqt.com

TEL: (412) 395-3305
FAX: (412) 395-2156

John Centofanti
Corporate Director,
Environmental Affairs

(date)

[Conventional Well Operator]
[address]
[state]

RE: Wetzel County Hydraulic Fracturing Notice

4710303766

Dear Sir/Madam,

EQT has developed a Marcellus pad (Big 190 pad) located in Wetzel County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,500' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability, Alexander formation (approximately 5,900' TVD).

EQT anticipates conducting hydraulic fracturing at the BIG 190 pad during the [first,second, third, fourth] quarter of [year]. We have identified conventional natural gas wells operated by your company within 500' (lateral distance) of our new/planned laterals. Plats for each well on this pad are attached.

We recommend that conventional well operators conduct the following activities before, during, and after fracturing operations:

1. Inspect surface equipment, prior to fracturing, to establish integrity and establish well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and EQT if any changes in water, gas production, pressure, or other anomalies are identified.

Please feel free to contact me at 412-395-3305 with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0440.

Sincerely,
EQT Production

John Centofanti
Corporate Director, Environmental Affairs

cc: James Martin, WV Office of Oil and Gas

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WV Department of
Environmental Protection

Attachment B 01/13/2017

WW-9
(2/15)

API Number 47 - 103 - _____
Operator's Well No. 516847

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name EQT Production Company OP Code 306686

Watershed (HUC 10) Upper Run & North Fork Quadrangle Big Run

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.? 60ml

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number 0014, 8462, 4037)
- Reuse (at API Number Various)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

*DMH
10-6-16*

Will closed loop system be used? If so, describe: Yes. The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility. _____

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

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

Additives to be used in drilling medium? See Attached

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

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

-Landfill or offsite name/permit number? See Attached List

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.

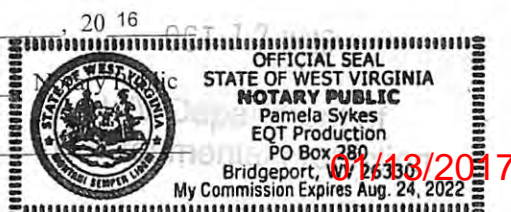
Company Official Signature *Victoria J. Roark*

Company Official (Typed Name) Victoria J. Roark

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 29 day of Sept.

My commission expires 8-24-22



08/18/2017

EQT Production Company

Proposed Revegetation Treatment: Acres Disturbed no new disturbance Prevegetation pH 6.1

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type Granular 10-20-20

Fertilizer amount 1/3 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

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: Oil + Gas Inspector

Date: 10-6-16

Field Reviewed? () Yes

() No

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OCT 17 2016

WV Department of
Environmental Protection

01/13/2017

WW-9 Attachment

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

- Air is used to drill the top-hole sections of the wellbore (surface, intermediate, and pilot). Water based mud may be necessary depending on hole conditions to stabilize and drill the intermediate section. The pilot hole, curve, and lateral sections will be drilled with either air, water based mud, or oil based mud.

Additives to be used in drilling medium?

- Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud – Barite, viscosifer, alkalinity control, lime, filtration control, deflocculates, biodegradable oil lubricant, defoaming, walnut shell, salt, x-cide, carbonates. Oil based mud – synthetic base oil, emulsifier, salt, lime, viscosifer, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant, defoaming, carbonates.

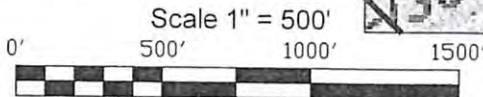
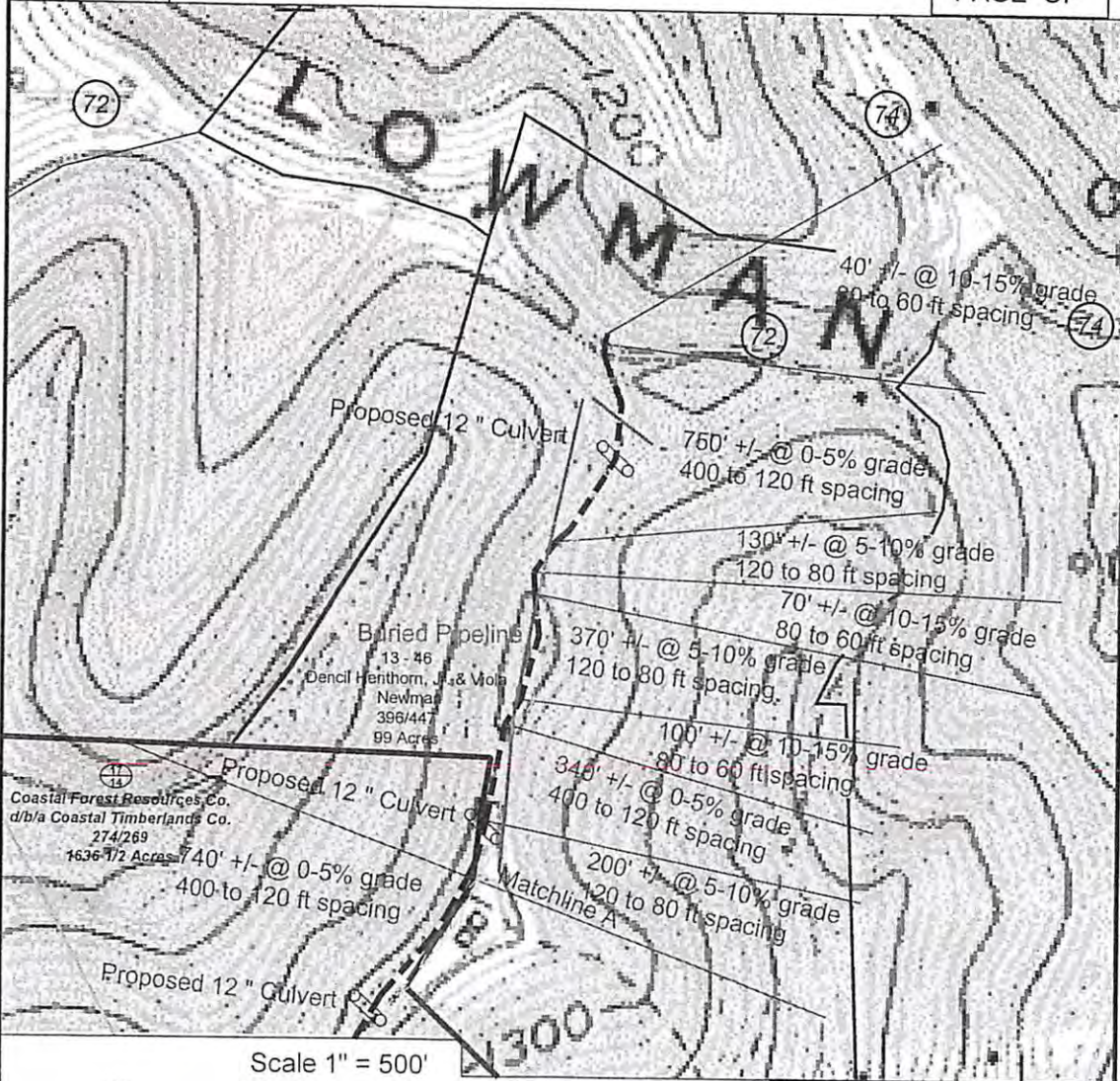
DMH
10-6-16

REGISTRY
Oil & Gas

OCT 17 2016

REGISTRY
Oil & Gas

01/13/2017



Ⓒ Denotes to install 12' minimum culvert ⊗ Denotes a proposed stream crossing (if applies) *see table for culvert detail*

Unless otherwise noted, all roads shown hereon are existing and shall be maintained in accordance with WV D.E.P., Office of Oil and Gas Erosion and Sediment Control Field Manual as revised 2/98

Entrances upon county/state roads shall be maintained in accordance with WV D.O.T. regulations, however, separate permits may be required by the WV D.O.T.

Sediment basins (traps) and appropriate erosion control barriers are to be constructed at all culverts and cross-drains as required in the aforementioned Erosion and Sediment Control Field Manual. Where field conditions dictate, alternative erosion control measures shall be enacted as required.

Earthwork contractors are responsible for notification to the operator and inspector prior to any deviation from this plan.

Temporary seed and mulch all slopes after construction of location.

Cut and stack all marketable timber.

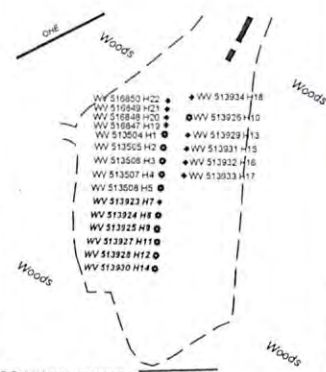
Stacked brush may be used for sediment control.

Applications for separate Public Land Corporation Permits on the access roads stream crossings have been prepared (if applies).

Additional culverts and/or other drainage structures and sediment control devices may be required by the WV D.E.P. Oil & Gas Inspector.

Operator is responsible for the coordination with contractor and Allegheny Surveys regarding any changes or additions the state may require

Big 190 Well Pad



DmH 10-6-16

DRAWING IS NOT TO SCALE

SECTION OF THE Big Run 7.5' USGS QUADRANGLE	
Projected culvert inventory. (for bid purposes only)	
12" minimum diameter culverts	0 Culverts
15" minimum diameter culverts	0 Culverts

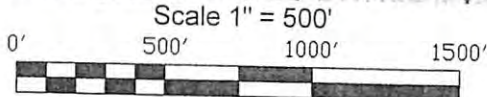
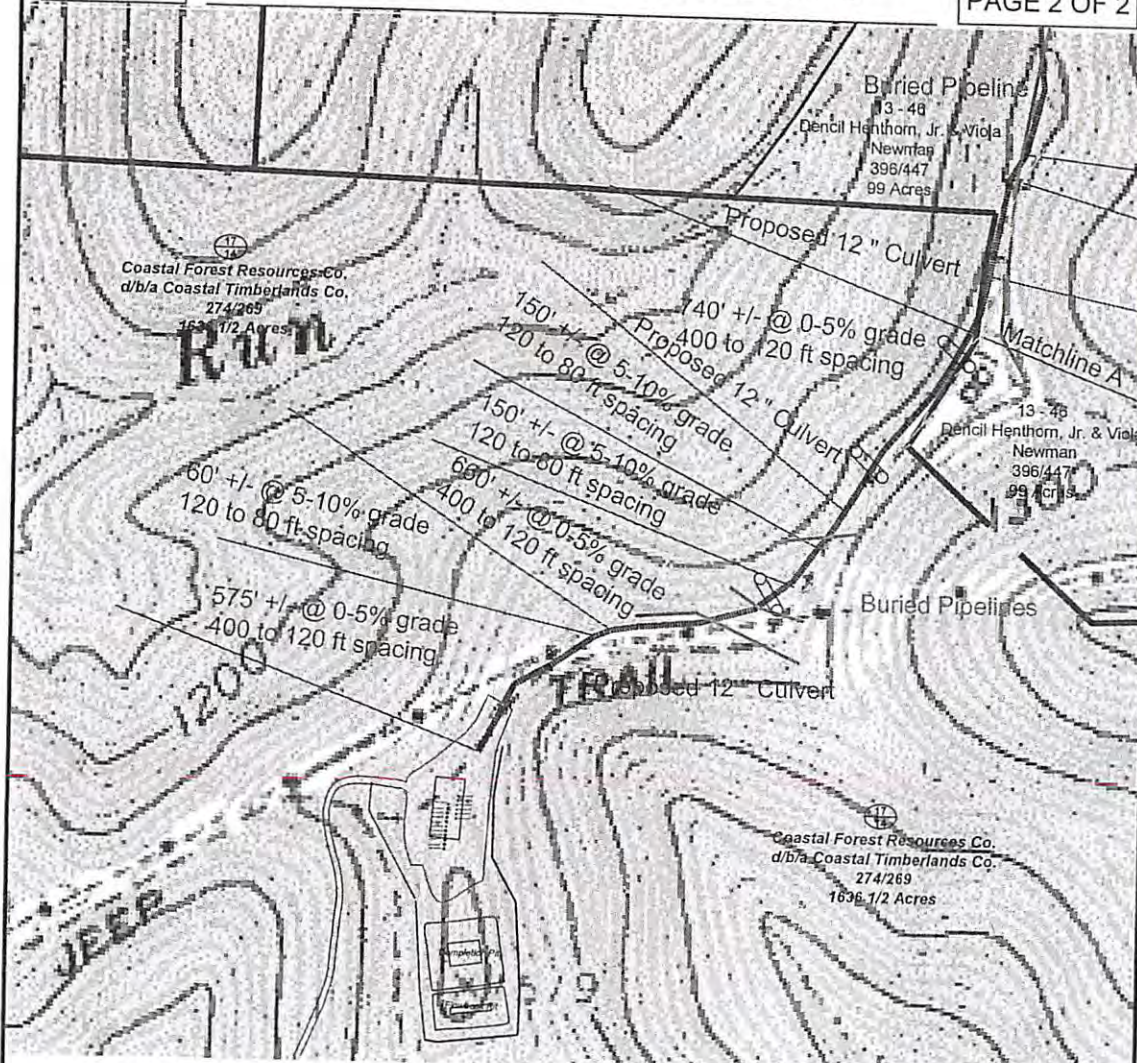
DRAWN BY: Scott Brown DATE: July 19, 2016 FILE NO: 196-34-G-10 DRAWING FILE NO: BIG 190 Well Pad Rec pg 1



SURVEYING AND MAPPING SERVICES PERFORMED BY:
ALLEGHENY SURVEYS, INC.
Birch River Office 1-800-482-8606 237 Birch River Road
Phone: (304) 649-8606 P.O. Box 438
Fax: (304) 649-8608 Birch River, WV 26610

- PROPERTY BOUNDARY
- ROAD
- DITCH
- SILT FENCE
- PROPOSED WELL LOCATION
- BROAD BASED BIP
- EXISTING GATE
- EXISTING CULVERT
- PROPOSED CULVERT
- CROSS DRAIN
- PIT-CUT WALLS
- PIT-COMPACTED WALLS
- AREA OF LAND APPLICATION OF PIT WASTE

01/13/2017



ⓐ Denotes to install 12" minimum culvert ⊗ Denotes a proposed stream crossing (if applies)
 see table for culvert detail

Unless otherwise noted, all roads shown hereon are existing and shall be maintained in accordance with WV D.E.P., Office of Oil and Gas Erosion and Sediment Control Field Manual as revised 2/98

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Earthwork contractors are responsible for notification to the operator and inspector prior to any deviation from this plan.

Temporary seed and mulch all slopes after construction of location.

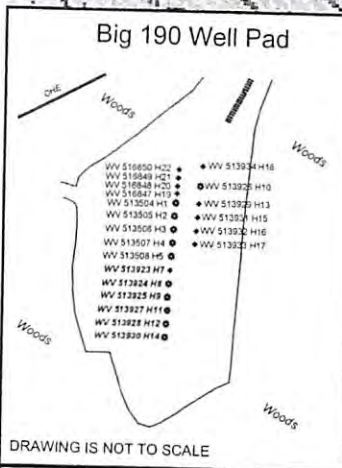
Cut and stack all marketable timber.

Stacked brush may be used for sediment control.

Applications for separate Public Land Corporation Permits on the access roads stream crossings have been prepared (if applies).

Additional culverts and/or other drainage structures and sediment control devices may be required by the WV D.E.P. Oil & Gas Inspector.

Operator is responsible for the coordination with contractor and Allegheny Surveys regarding any changes or additions the state may require



SECTION OF THE Big Run 7.5' USGS QUADRANGLE		Proposed Disturbance Area	
Projected culvert inventory (for bid purposes only)		Well Site Location	Construction Complete
12" minimum diameter culverts	0 Culverts	Proposed Access Road	Construction Complete
15" minimum diameter culverts	0 Culverts	Approximate Total Disturbance	Construction Complete

DRAWN BY: Ben Singleton DATE: July 19, 2016 FILE NO: 196-34-G-10 DRAWING FILE NO: BIG 190 Well Pad Rec pg 2



SURVEYING AND MAPPING SERVICES PERFORMED BY:
ALLEGHENY SURVEYS, INC.
 Birch River Office 1-800-482-8606 237 Birch River Road
 Phone: (304) 649-8608 P.O. Box 438
 Fax: (304) 649-8608 Birch River, WV 26610

DRAWING IS NOT TO SCALE

PROPERTY BOUNDARY	
ROAD	
DITCH	
SILT FENCE	
PROPOSED WELL LOCATION	
BROAD BASED DIP	
EXISTING GATE	
EXISTING CULVERT	
PROPOSED CULVERT	
CROSS DRAIN	
PIT-CUT WALLS	
PIT-COMPACTED WALLS	
AREA OF LAND APPLICATION OF PIT WASTE	

01/13/2017



west virginia department of environmental protection

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

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

March 18, 2014

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

4710303166

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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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

01/13/2017



west virginia department of environmental protection

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

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

**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

47 10303166

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.

Promoting a healthy environment.

01/13/2017

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

4710303166

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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

01/13/2017

EQT Production Water plan

Offsite disposals for Marcellus wells

CWS TRUCKING INC.

P.O. Box 391
Williamstown, WV 26187
740-516-3586
Noble County/Noble Township
Permit # 3390

BROAD STREET ENERGY LLC

37 West Broad Street
Suite 1100
Columbus, Ohio 43215
740-516-5381
Washington County/Belpre Twp.
Permit # 8462

LAD LIQUID ASSETS DISPOSAL INC.

226 Rankin Road
Washington, PA 15301
724-350-2760
724-222-6080
724-229-7034 fax
Ohio County/Wheeling
Permit # USEPA WV 0014

4710303166

TRIAD ENERGY

P.O. Box 430
Reno, OH 45773
740-516-6021 Well
740-374-2940 Reno Office Jennifer
Nobel County/Jackson Township
Permit # 4037

TRI COUNTY WASTE WATER MANAGEMENT, INC.

1487 Toms Run Road
Holbrook, PA 15341
724-627-7178 Plant
724-499-5647 Office
Greene County/Waynesburg
Permit # TC-1009

KING EXCAVATING CO.

Advanced Waste Services
101 River Park Drive
New Castle, Pa. 16101
Facility Permit# PAR000029132

Waste Management - Meadowfill Landfill

Rt. 2, Box 68 Dawson Drive
Bridgeport, WV 26330
304-326-6027
Permit #SWF-1032-98
Approval #100785WV

Waste Management - Northwestern Landfill

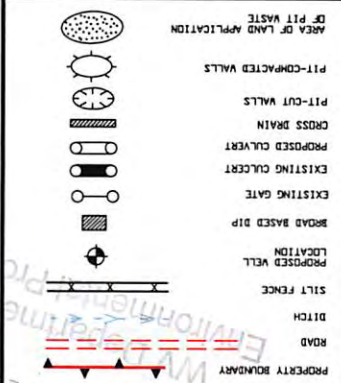
512 E. Dry Road
Parkersburg, WV 26104
304-428-0602
Permit #SWF-1025 WV-0109400
Approval #100833WV

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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

01/13/2017



ALLEGHENY SURVEYS, INC.
 SURVEYING AND MAPPING SERVICES PERFORMED BY:
 Birch River Office
 Phone: (304) 649-8606
 Fax: (304) 649-8608
 P.O. Box 438
 237 Birch River Road
 Birch River, WV 26610



DATE	July 19, 2016
FILE NO.	198-34-G-10
DRAWING FILE NO.	BIG 190 Well Pad Rec pg 1
DRAWN BY:	Scott Brown
12" minimum diameter culverts	0 Culverts
15" minimum diameter culverts	0 Culverts
(for bid purposes only)	
Projected culvert inventory.	
SECTION OF THE Big Run 7.5 USGS QUADRANGLE	

Operator is responsible for the coordination with contractor and Allegheny Surveys regarding any changes or additions the state may require.

Additional culverts and/or other drainage structures and sediment control devices may be required by the WV D.E.P., Oil & Gas Inspector.

Applications for separate Public Land Corporation Permits on the access roads stream crossings have been prepared (if applicable).

Stacked brush may be used for sediment control.

Cut and stack all marketable timber.

Temporary seed and mulch all slopes after construction of location.

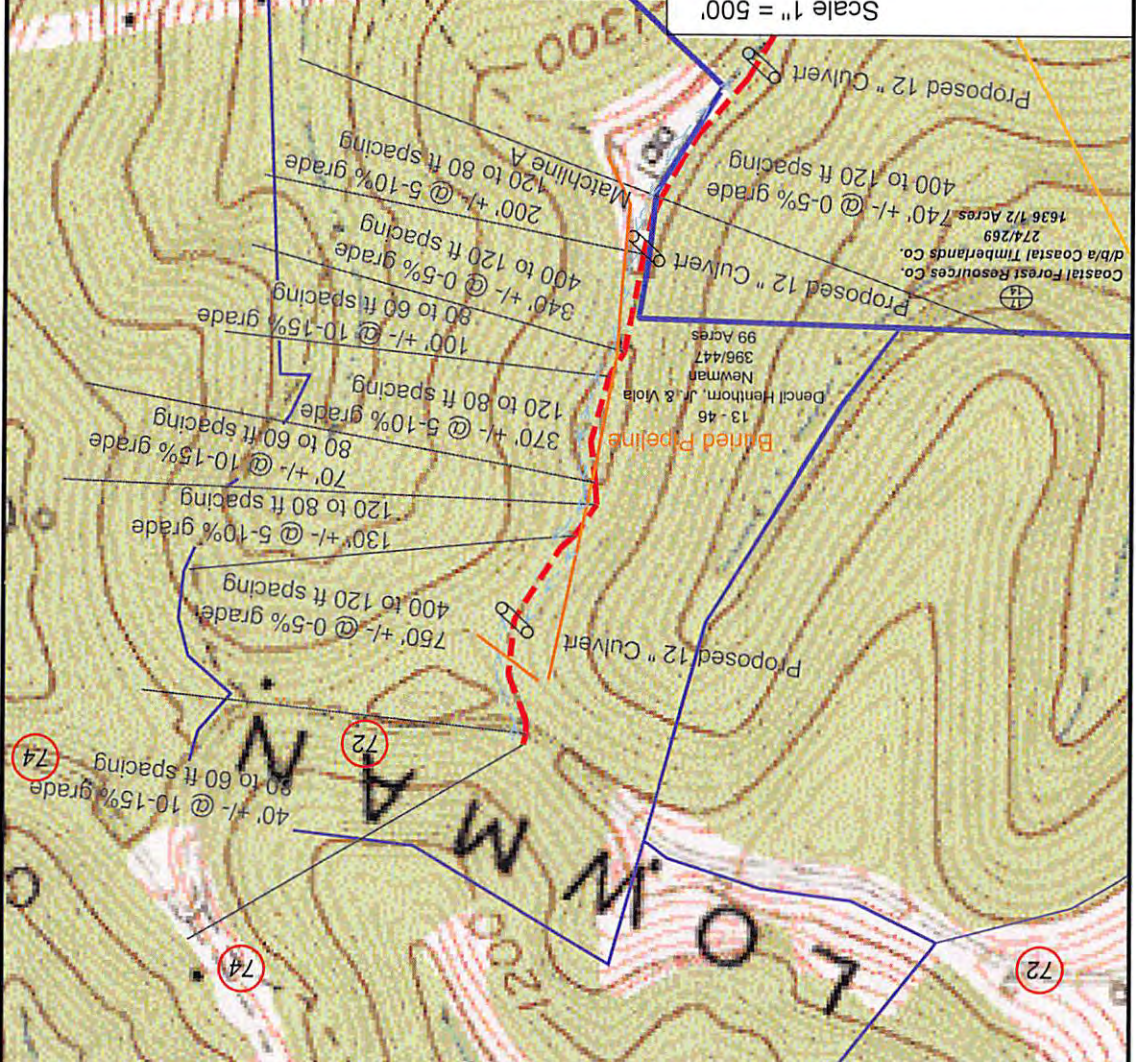
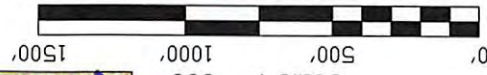
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Denotes to install 12" minimum culvert (X) Denotes a proposed stream crossing (if applies) * See table for culvert detail.





Where energy meets innovation.™

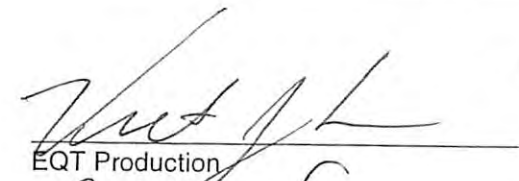
Site Specific Safety Plan

EQT BIG 190 Pad

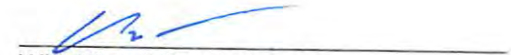
Pine Grove

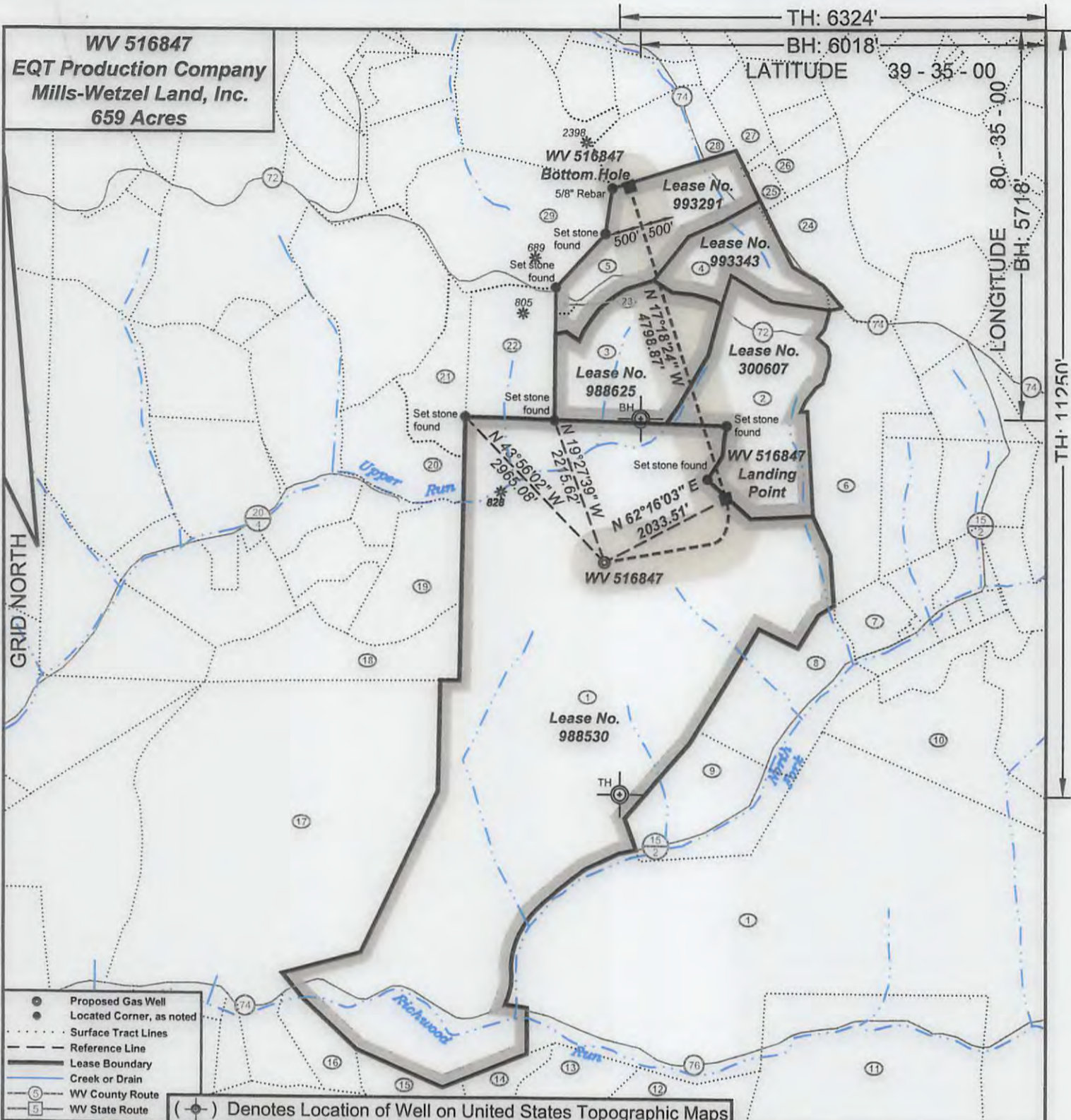
Wetzel County, WV

516847 _____ For Wells: _____


EQT Production
Permitting Supervisor
Title
9-29-16
Date

Date Prepared: September 28, 2016


WV Oil and Gas Inspector
Oil + Gas Inspector
Title
10-6-16
Date
OCT 17 2016



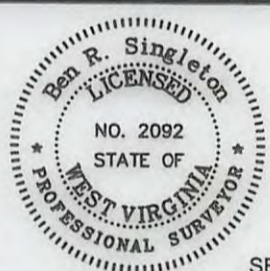
- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route

(⊙) 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 H19
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: September 7 20 16
OPERATOR'S WELL NO.: 516847
API WELL NO
47 - 103 - 03166 HGA
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: 7,558

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 516847
EQT Production Company
Mills-Wetzel Land, Inc.
659 Acres

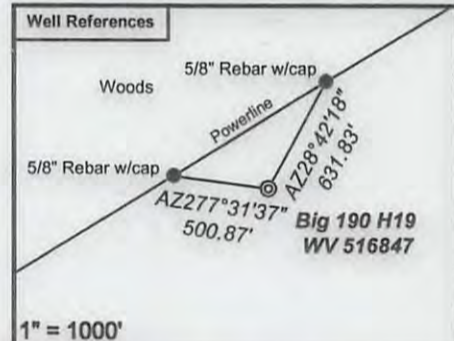
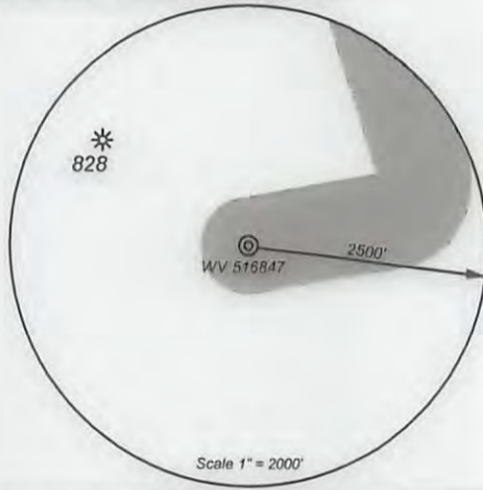
Notes:
WV 516847 coordinates are
NAD 27 N: 385,242.81 E: 1,688,212.17
NAD 27 Lat: 39.552449 Long: -80.805759
NAD 83 UTM N: 4,378,168.74 E: 533,886.80
WV 516847 Landing Point coordinates are
NAD 27 N: 386,189.09 E: 1,690,012.09
NAD 27 Lat: 39.555107 Long: -80.599417
NAD 83 UTM N: 4,378,466.20 E: 534,430.37
WV 516847 Bottom Hole coordinates are
NAD 27 N: 390,770.70 E: 1,688,584.49
NAD 27 Lat: 39.567637 Long: -80.604680
NAD 83 UTM N: 4,379,854.77 E: 533,972.19
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.

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	13	46	Wetzel	Grant	Burl Henthorn Est, et al.	99.00
3	12	47	Wetzel	Grant	Coastal Forest Resources Co.	87.50
4	13	35	Wetzel	Grant	Jennie B. Goddard, et al.	50.00
5	12	43	Wetzel	Grant	Jennie B. Goddard, et al.	74.50
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	46	Wetzel	Grant	Jimmy L & James C. Yoho	56.10
23	12	49	Wetzel	Grant	George W. Cain	1.00
24	13	36	Wetzel	Grant	Sara Miller, et al.	49.00
25	13	28	Wetzel	Grant	Kenneth D. Eiford	4.59
26	13	29	Wetzel	Grant	Kenneth D. Eiford	17.50
27	13	19	Wetzel	Grant	Larry D. & Mary A. Huggins	19.25
28	12	35	Wetzel	Grant	H. G. Kirkpatrick Est	49.50
29	12	42	Wetzel	Grant	Jimmy L & James C. Yoho	103.30

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
300607	99	ET Blue Grass LLC, et al.
988625	87.5	Jeffrey Scott Cozart, et al.
993343	50	Mary R. Huggins, et al.
993291	74.5	Mary Margaret Price & James G. Price, et al.

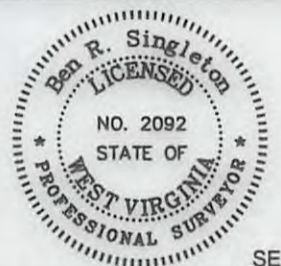


- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- Ⓢ WV County Route
- Ⓢ WV State Route



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 R. Singleton
P.S. 2092



FILE NO: 196-34-G-10
DRAWING NO: 196-10 Big 190 H19
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: September 7 20 16
OPERATOR'S WELL NO.: 516847
API WELL NO
47 - 103 - 03166 HGA
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: 7,558

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

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>ET Blue Grass LLC, et al. (current surface owner)</u>				
<u>300607</u>	W. C. Henthom, 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
<u>988625</u>	Jeffrey Scott Cozart, et al.	EQT Production Company	***	DB 135A/589
<u>993291</u>	Mary Margaret Price & James G. Price, et al.	EQT Production Company	***	DB 140/671
<u>993343</u>	Mary R. Huggins, et al.	EQT Production Company	47 1 0.3 0 3 1 8	DB 143A/204

***We certify that we will pay a minimum one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced or marketed before deducting the amount to be paid to or set aside for the owner of the oil or gas in place, on all such oil or gas to be extracted, produced or marketed from the well.

RECORDED
 Office of Oil and Gas
 OCT 04 2016
 WVD Division of
 Energy Production



September 28, 2016

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

Re: BIG190 well pad, well number 516847
Grant District, Wetzel County

Dear Mr. Martin,

EQT Production Company is submitting an application for a new well work permit for the above well number. Upon information and belief, Operator's lease and/ or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

Sincerely,

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

Vicki Roark
Permitting Supervisor-WV

4710303166

RECEIVED
Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 9-30-16

API No. 47- 103 - _____
Operator's Well No. 516847
Well Pad Name: BIG190

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>WV</u>	UTM NAD 83 Easting: <u>533,886.796</u>
County: <u>Wetzel</u>	UTM NAD 83 Northing: <u>4,378,168.738</u>
District: <u>Grant</u>	Public Road Access: <u>Co Rt 15/2</u>
Quadrangle: <u>Big Run</u>	Generally used farm name: <u>Coastal Forest Resources Co</u>
Watershed: <u>Upper Run & North Fork</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
---	---

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Certification of Notice is hereby given:

THEREFORE, I *[Signature]*, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: EQT Production Company
By: Victoria Roark
Its: Permitting Supervisor
Telephone: 304-848-0076

Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Facsimile: 304-848-0041
Email: vroark@eqt.com



Subscribed and sworn before me this 29 day of Sept 2016.
[Signature] Notary Public
My Commission Expires 8-24-22

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

4710303166

RECEIVED
Office of Oil and Gas
OCT 04 2016
Department of
Environmental Protection

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 9-30-16 **Date Permit Application Filed:** 9-30-16

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: See Attached
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: See Attached
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: See Attached
Address: _____

COAL OWNER OR LESSEE

Name: See Attached
Address: _____

COAL OPERATOR

Name: 471030316
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: _____
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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Office of Oil and Gas
OCT 04 2016
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Surface Owners:

Coastal Forest Resources
DBA Coastal Timberlands Company
PO Box 709
Buckhannon WV 26201

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WV Department of
Environmental Protection
01/13/2017

Surface Owners Access Road:

Coastal Forest Resources
DBA Coastal Timberlands Company
PO Box 709
Buckhannon WV 26201

Dencil Henthorn Jr
Mary Beth Henthorn
81 Gravel Lane
New Martinsville WV 26155
(ADDRESS CHANGE PER SURFACE OWNER PHONE CALL)

Terry L Henthorne
Katherine R Henthorne
Rt 20 box 505
Pine Grove WV 26419

Viola K Newman
Ronald M Newman
200 West Harrison St
Paden City WV 26159
(ADDRESS CHANGE PER SURFACE OWNER PHONE CALL)

Vesta G Kesler
332 Van Deman St
Washington CH, OH 43160

Avis A Arnett
Fred J Arnett
385 Greenwood St
Newport OH 45768

Estel F Loy
372 Johnson Ave
Alliance OH 44601

Betty Maxine Hostutler
36101 Westfield Dr
N. Ridgeville OH 44039

Randy Henthorne
PO Box 934
Olalla WA 98359

Robin Day Duffield
9670 Stone Rd
Litchfield OH 44253

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DEPARTMENT OF
Environmental Protection

William Clarence Henthorne ✓
1001 N Main St
Amherst OH 44001

Ronnie Henthorn ✓
8755 Chatham Rd
Medina OH 44256

Ricky Dean Henthorn ✓
116 Hamilton St
Elyria OH 44035

Russell D Henthorn ✓
1103 Paris Ave
Port Royal SC 29935

Heather M Henthorn ✓
3158 Sandy Hook Rd
Sandy Hook VA 23153

Todd W Henthorn ✓
1106 Hodge Dr
Beaufort SC 29906

Roshanda Smith ✓
104 Waynewoods Pl
Goldsboro NC 27534

Phillip S Wernette ✓
1528 Treasure Isle Rd
Hot Springs National Park AR 71913

Shirley A Edmonds ✓
Charles R Edmonds ✓
22907 US Hwy 425 S
Star City AR 71667

47 1 0 3 0 3 1 6 6

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Department of
Environmental Protection

01/13/2017

Surface Owners Pit/Impoundment:

Coastal Forest Resources
DBA Coastal Timberlands Company
PO Box 709
Buckhannon WV 26201

47 103 03 166

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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection

01/13/2017

Coal Owners:

Millz-Wetzel Land Inc ✓
222 North LaSalle St 26th
Suite 2400
Chicago IL 60601

CNX Land LLC ✓
CNX Center
1000 Consol Energy Dr
Canonsburg PA 15317

CBM Owner:

CNX Gas Company LLC ✓
CNX Center
1000 Consol Energy Dr
Canonsburg PA 15317

4710303150

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CNGO, Oil and Gas
OCT 04 2016
Department of
Environmental Protection
01/13/2017

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

4710303166

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

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

Office of Oil and Gas
OCT 04 2015

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

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

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

47 103 03 166

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Oil and Gas
OCT 04 2016

WW-6A
(8-13)

API NO. 47- 103 -
OPERATOR WELL NO. 516847
Well Pad Name: BIG190

Notice is hereby given by:

Well Operator: EQT Production Company
Telephone: 304-848-0076
Email: vroark@eqt.com

Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Facsimile: 304-848-0041

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.



[Signature]
Subscribed and sworn before me this 29 day of Sept, 2016.
[Signature] Notary Public
My Commission Expires 8-24-22

471030316

RECEIVED
Office of Oil and Gas
OCT 04 2016
Department of
Environmental Protection

01/13/2017

Topo Quad: Big Run 7.5'

Scale: 1" = 2000'

County: Wetzel

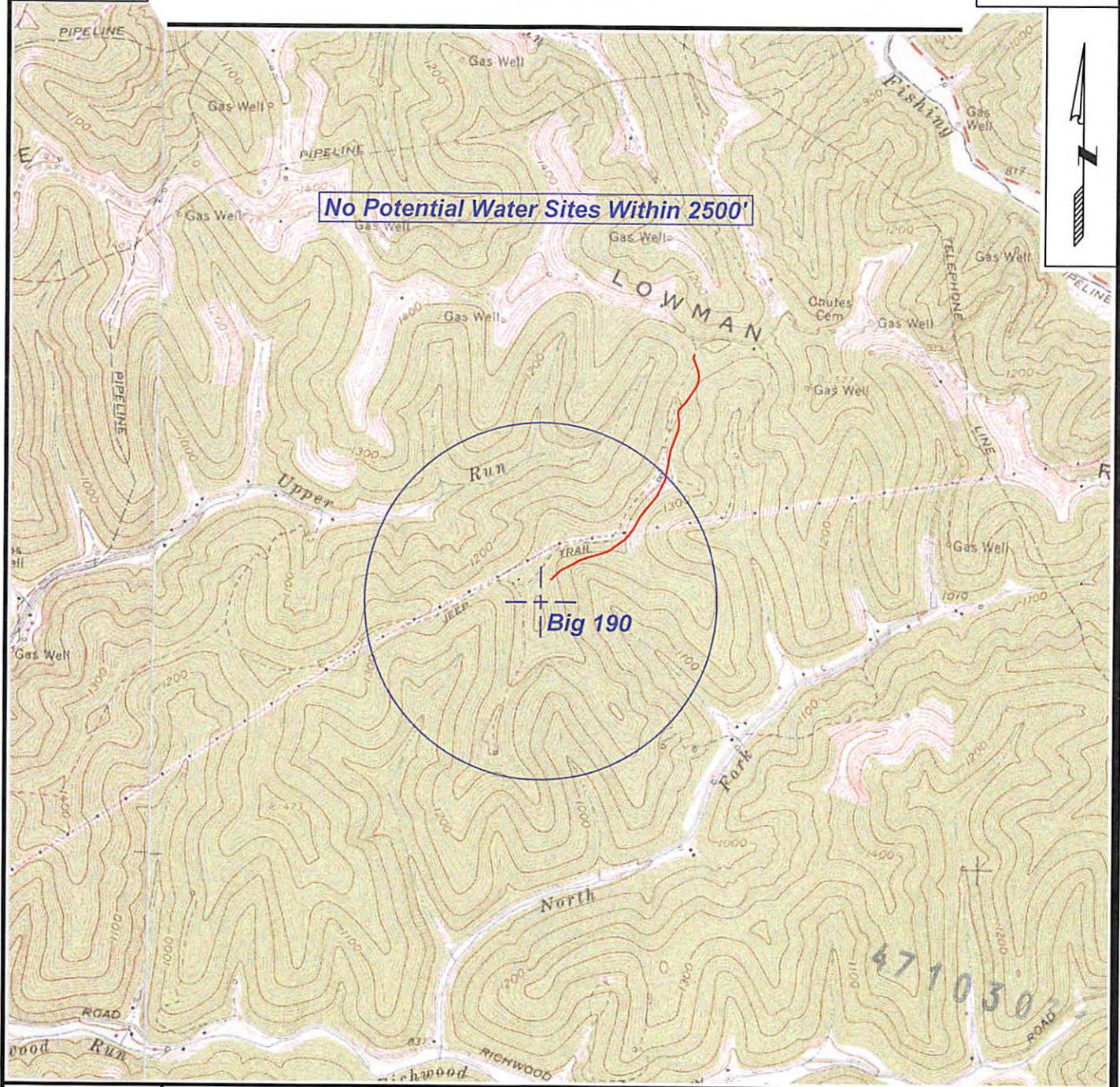
Date: August 31, 2016

District: Grant

Project No: 196-34-G-10

BIG 190

Topo



SURVEYING AND MAPPING SERVICES PERFORMED BY:
ALLEGHENY SURVEYS, INC.
 1-800-482-8606
 P.O. BOX 438
 BIRCH RIVER, WV 26610
 PH: (304) 649-8606
 FAX: (304) 649-8608

PREPARED FOR:
EQT Production Co. Inc.
 115 Professional Place, PO Box 280
 Bridgeport, WV 26330

RECEIVED
 Office of Oil and Gas
 WV Department of Environmental Protection
 01/13/2017

Surface Owners:

Coastal Forest Resources
DBA Coastal Timberlands Company
PO Box 709
Buckhannon WV 26201

Dencil Henthorn Jr
Mary Beth Henthorn
81 Gravel Lane
New Martinsville WV 26155
(ADDRESS CHANGE PER SURFACE OWNER PHONE CALL)

Terry L Henthorne
Katherine R Henthorne
Rt 20 box 505
Pine Grove WV 26419

Viola K Newman
Ronald M Newman
200 West Harrison St
Paden City WV 26159
(ADDRESS CHANGE PER SURFACE OWNER PHONE CALL)

Vesta G Kesler
332 Van Deman St
Washington CH, OH 43160

Avis A Arnett
Fred J Arnett
385 Greenwood St
Newport OH 45768

Estel F Loy
372 Johnson Ave
Alliance OH 44601

Betty Maxine Hostutler
36101 Westfield Dr
N. Ridgeville OH 44039

Randy Henthorne
PO Box 934
Olalla WA 98359

Robin Day Duffield
9670 Stone Rd
Litchfield OH 44253

4710303166

Oil & Gas
OCT 04 2016
E...

01/13/2017

William Clarence Henthorne ✓
1001 N Main St
Amherst OH 44001

Ronnie Henthorn ✓
8755 Chatham Rd
Medina OH 44256

Ricky Dean Henthorn ✓
116 Hamilton St
Elyria OH 44035

Russell D Henthorn ✓
1103 Paris Ave
Port Royal SC 29935

Heather M Henthorn ✓
3158 Sandy Hook Rd
Sandy Hook VA 23153

Todd W Henthorn ✓
1106 Hodge Dr
Beaufort SC 29906

Roshanda Smith ✓
104 Waynewoods Pl
Goldsboro NC 27534

Phillip S Wernette ✓
1528 Treasure Isle Rd
Hot Springs National Park AR 71913

Shirley A Edmonds ✓
Charles R Edmonds
22907 US Hwy 425 S
Star City AR 71667

471030

Industrial
Oil and Gas
OCT 04 2016
Department of
Energy

Surface Owners:

Coastal Forest Resources
DBA Coastal Timberlands Company
PO Box 709
Buckhannon WV 26201

Dencil Henthorn Jr
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81 Gravel Lane
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36101 Westfield Dr
N. Ridgeville OH 44039

Randy Henthorne
PO Box 934
Olalla WA 98359

Robin Day Duffield
9670 Stone Rd
Litchfield OH 44253



4710307

RECORDED
INDEXED
OCT 04 2016
COUNTY OF
LITCHFIELD

William Clarence Henthorne
1001 N Main St
Amherst OH 44001

Ronnie Henthorn
8755 Chatham Rd
Medina OH 44256

Ricky Dean Henthorn
116 Hamilton St
Elyria OH 44035

Russell D Henthorn
1103 Paris Ave
Port Royal SC 29935

Heather M Henthorn
3158 Sandy Hook Rd
Sandy Hook VA 23153

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Phillip S Wernette
1528 Treasure Isle Rd
Hot Springs National Park AR 71913

Shirley A Edmonds
Charles R Edmonds
22907 US Hwy 425 S
Star City AR 71667



471030318

471030318
Class

OCT 04 2016

of
-

01/13/2017



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

September 23, 2016

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the BIG190 Pad Site, Wetzel County

516847 BIG190H19 516848 BIG190H20 516849 BIG190H21 516850 BIG190H22

Dear Mr. Martin,

This well site will be accessed from existing Permit # 06-2013-0437 issued to EQT Production Company for access to the State Road for a well site located off of Wetzel County Route 72 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: Nick Bumgardner
EQT Production Company
CH, OM, D-6, File

4710303
OCT 04 2016

Anticipated Frac Additives

Chemical Names and CAS numbers

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Water		
Sand	Hydrotreated light petroleum distillate	14808-60-7
Friction Reducer	Tributyl tetradecyl phosphonium chloride	64742-47-8
Biocide	Ammonium chloride	81741-28-8
Scale Inhibitor	Hydrochloric Acid	12125-02-9
15% Hydrochloric Acid	Propargyl Alcohol	7647-01-0
Corrosion Inhibitor	Methanol	107-19-7
Corrosion Inhibitor	Guar Gum	67-56-1
Gelling Agent	Sodium Persulfate	9000-30-0
Oxidizing Breaker	Potassium Carbonate	7775-27-1
Buffering Agent		584-08-7

4710303166

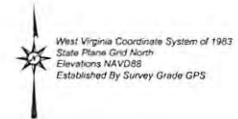
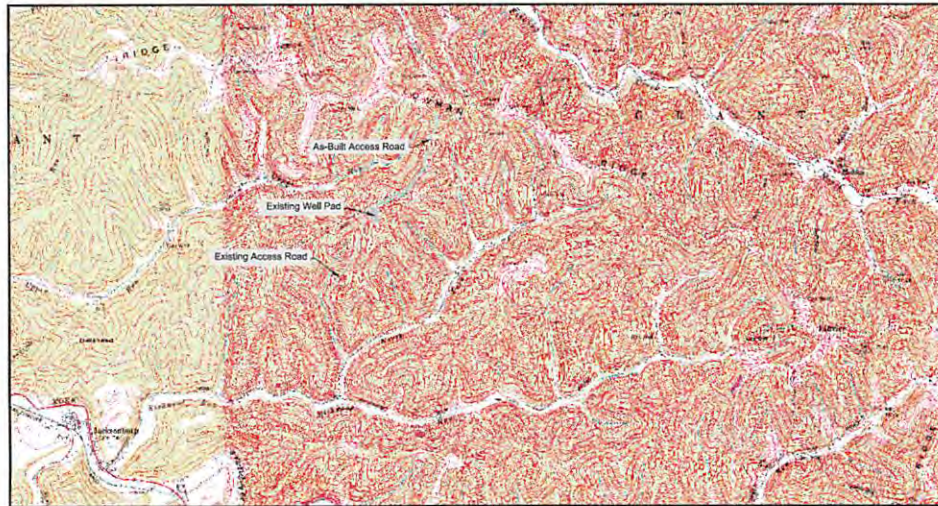
4710303166
Oil and Gas
OCT 04 2016

01/13/2017

BIG 190 AS-BUILT ACCESS ROAD PLANS EQT PRODUCTION COMPANY

THESE VOLUMES ARE BASED ON THE AERIAL TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING AND THE FIELD COLLECTED AS-BUILT SURF ACC PROVIDED BY ALLEGHENY SURVEYS, INC.

AS-BUILT GRADING VOLUMES			
DESCRIPTION	CUY (CY)	FILL (CY)	NET (CY)
MAIN ACCESS ROAD	6,931	19,094	-12,163
TOTAL	6,931	19,094	-12,163



AFFECTED TAX PARCELS: 13-46, & 17-14
GRANT DISTRICT, WETZEL COUNTY, WV

TM 13 - PCL 46 Dencil Henthorn Jr. et al.
DB 396 PG 447 99 Acres
(Affected area from Proposed Access Road = 1,910 feet, 2.64 Acres)
(Affected area of Timber Clearing = 1.27 Acres)

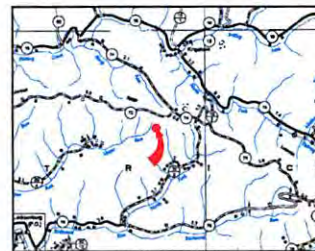
TM 17 - PCL 14 Coastal Lumber Co.
DB 274 PG 269 1,636.5 Acres
(Affected area from Proposed Access Road = 2,159 feet, 4.45 acres)
(Affected area of Timber Clearing = 2.99 Acres)

WELL LEGEND

- 47-103-02727
- 47-103-02728
- 47-103-02730
- 47-103-02731
- 47-103-02732
- 47-103-02733
- 47-103-02734
- 47-103-02735
- 47-103-02736
- 47-103-02856

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54103C0215C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A

SITE LOCATIONS WGS 84 (WV NORTH ZONE)		
BEGINNING OF ACCESS ROAD	EASTING	NORTHING
14 717526	36 563072	40 488529



Project Contacts
WJL 8/27/2016

Surveyor & Engineer:
Ben Singleton - PS - Allegheny Surveys Inc.
304-649-8606 Off

Tom Corathers - PE, PS - Hornor Brothers Engineers
304-624-5445 Office

SHEET INDEX	
COVER SHEET / LOCATION MAP	1
AS-BUILT SITE PLANS	2-4
AS-BUILT ROAD PROFILE	5

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XIV: Chapter 24-C)
Requires that you call two business
days before you dig in the state of
West Virginia.
IT'S THE LAW!!



Know what's below.
Call before you dig.

Design Certification
The drawings, construction notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21.

As-Built Certification:
These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site, to the best of my knowledge.



Allegany Surveys Inc.
P.O. Box 438
237 Birch River Road
Birch River, WV 26610
304-649-8606



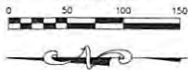
Hornor
Since
1902
Bros. Engineers
Civil, Mining, Environmental and
145 South Third Street, 2nd Floor, Wheeling,
West Virginia, USA
Charleston, West Virginia, 26010 (304) 344-4444

THIS DOCUMENT
PREPARED FOR
EQT PRODUCTION
COMPANY

AS-BUILT COVER SHEET / LOCATION MAP
BIG 190
ALTERNATE ACCESS ROAD
GRANT DISTRICT
WETZEL COUNTY, WV

Date: 7-16-2014
Scale: AS SHOWN
Designed By: TRC
Page: 1 of 5

GRID NORTH AND SURVEYED ELEVATIONS SHOWN WERE ESTABLISHED BY SURVEY GRADE GPS AND GROUND BASED SCANNING LIDAR
SCANNED 5-15-12

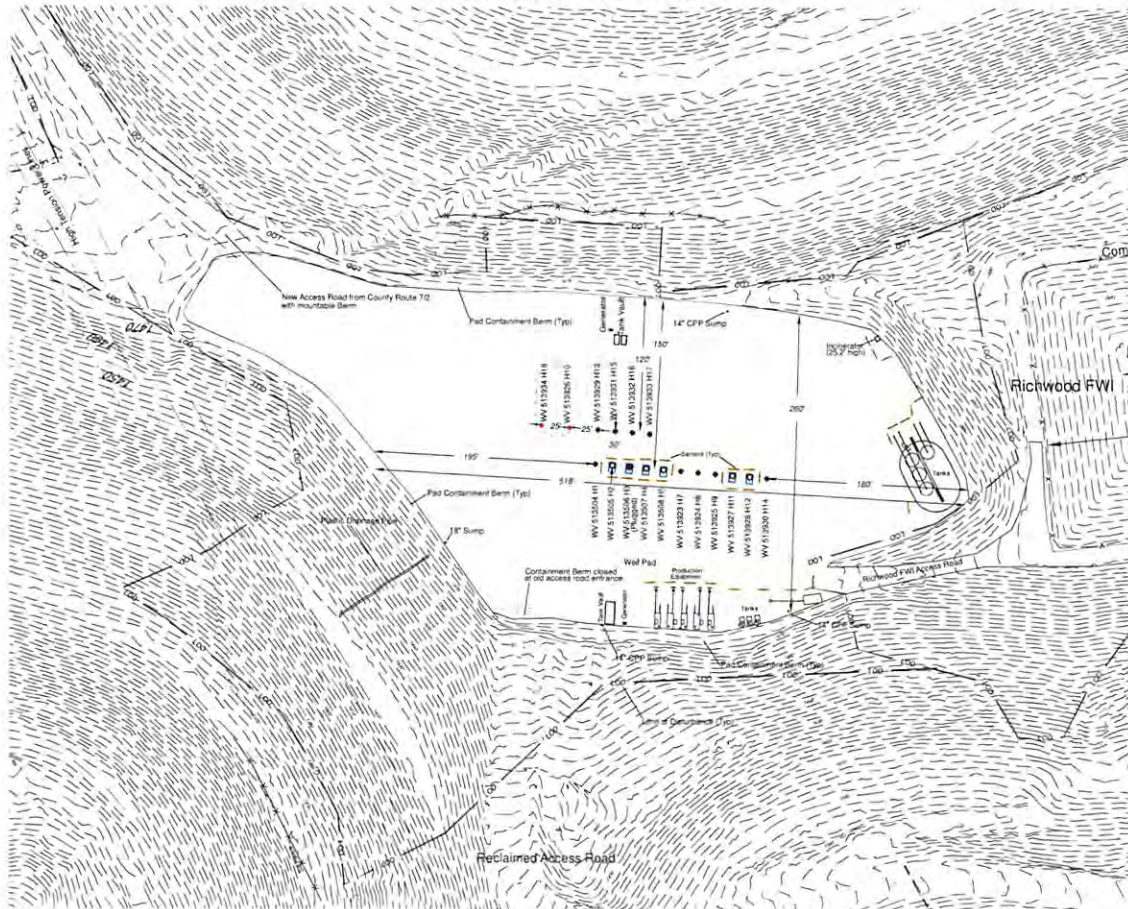


BIG 190 WELL PAD AS-BUILT EQT PRODUCTION COMPANY

PROPOSED WELLS H10 & H18
NEAR PINE GROVE IN GRANT DISTRICT
WETZEL COUNTY, WEST VIRGINIA

**WVDEP O&G
ACCEPTED AS-BUILT**

WJL 8 / 27 / 2018



Well Table			
API	EQT Well Number		Status
47-103-02727	WW 513504	H1	Permitted - Not Drilled
47-103-02728	WW 513505	H2	Drilled
47-103-02729	WW 513506	H3	Plugged
47-103-02730	WW 513507	H4	Drilled
47-103-02731	WW 513508	H5	Drilled
47-103-02732	WW 513923	H7	Permitted - Not Drilled
47-103-02733	WW 513924	H8	Permitted - Not Drilled
47-103-02734	WW 513925	H9	Permitted - Not Drilled
47-103-02735	WW 513927	H11	Drilled
47-103-02736	WW 513928	H12	Drilled
47-103-02856	WW 513930	H14	Permitted - Not Drilled
47-103-03020	WW 513929	H13	Permitted - Not Drilled
47-103-03021	WW 513931	H15	Permitted - Not Drilled
47-103-03022	WW 513933	H16	Permitted - Not Drilled
47-103-03023	WW 513933	H17	Permitted - Not Drilled

Proposed Wells		
API	EQT Well Number	Status
WW513926	H10	Proposed for Permitting
WW 513934	H18	Proposed for Permitting

This As-built is provided as support documentation for the permitting of two (2) new horizontal wells on the Existing BIG 190 Well Pad. Wells H10 and H18. H18 was previously submitted at a position south of H17 but is now moved to the position shown.

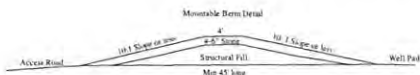
A previous As-built was submitted on 6/26/12 to add Well H14 and an additional As-built was submitted on 11/11/13 to add Wells H13, H15, H16, H17, and H18.

Water for the Proposed Wells will be provided by the adjacent Richwood Freshwater Impoundment and BIG 190 Flowback Pit.

Prior to Drilling Operations, the pad containment berms will be repaired and the old access road entrance closed to ensure full secondary containment on the well pad.

As-Built Design Certification

The drawings, notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas § CSR 35-8



Mountable Berms shall be minimum 20' wide and 2' higher than the Well Pad surface and prevent outside water from flowing onto the well pad. Surface inside shall be maintained to prevent exposure of fill below.

- Legend**
- - - - - Existing 1' Contour
 - - - - - Existing 5' Contour
 - - - - - Existing Tree Line
 - - - - - Fence
 - - - - - Edge of Gravel Pad
 - Well Drilled
 - Well Plugged
 - Well Proposed
 - Well Permitted - Not Drilled



L&W ENTERPRISES, INC.
PO BOX 626
14 SOUTH GROVE ST.
PETERSBURG, WV 26847
EMAIL: KIRK.WILSON@OUTLOOK.COM
PH: 304-257-4818
FAX: 304-257-2234



THIS DOCUMENT PREPARED FOR EQT PRODUCTION COMPANY

BIG 190 WELL PAD
Proposed Wells H10 & H18
GRANT DISTRICT
WETZEL COUNTY, WV

Date: 2/12/15
Scale: 1" = 50'
Designed by: CKW/CKM
File No. 312-10
Page 1 of 1

4710303166

BIG 190 WELL PAD AS-BUILT

WETZEL COUNTY, WEST VIRGINIA

WELL COORDINATES

NAD 27 WV North Zone

Well	API #	Latitude (DM5)	Longitude (DM5)	Northing	Easting
513534	47-103-02727	N39°33'58.7"	W80°36'20.1"	385232.84	1688213.33
513505	47-103-02728	N39°33'58.6"	W80°36'20.8"	385218.11	1688210.11
513506	47-103-02729	N39°33'58.4"	W80°36'20.8"	385203.27	1688208.74
513507	47-103-02730	N39°33'58.3"	W80°36'20.8"	385188.59	1688207.47
513508	47-103-02731	N39°33'58.1"	W80°36'20.8"	385173.83	1688206.20
513923	47-103-02732	N39°33'58.0"	W80°36'20.8"	385159.34	1688205.06
513924	47-103-02733	N39°33'57.8"	W80°36'20.8"	385143.39	1688203.84
513925	47-103-02734	N39°33'57.7"	W80°36'20.8"	385129.44	1688202.58
513927	47-103-02735	N39°33'57.5"	W80°36'20.9"	385113.50	1688201.33
513928	47-103-02736	N39°33'57.4"	W80°36'20.9"	385099.55	1688200.07
513930	47-103-02856	N39°33'57.2"	W80°36'20.9"	385083.60	1688198.82
513929	47-103-03020	N39°33'57.1"	W80°36'20.4"	385239.55	1688214.26
513931	47-103-03021	N39°33'56.5"	W80°36'20.4"	385215.60	1688240.01
513932	47-103-03022	N39°33'56.4"	W80°36'20.4"	385200.65	1688238.75
513933	47-103-03023	N39°33'56.3"	W80°36'20.4"	385185.70	1688237.50
513926	47-103-03109	N39°33'56.9"	W80°36'20.3"	385255.46	1688243.35
513934	NOT PERMITTED	N39°33'56.2"	W80°36'20.3"	385280.37	1688245.44
516847	NOT PERMITTED	N39°33'58.8"	W80°36'20.7"	385242.81	1688212.17
516848	NOT PERMITTED	N39°33'58.9"	W80°36'20.7"	385252.77	1688213.05
516849	NOT PERMITTED	N39°33'59.0"	W80°36'20.7"	385262.74	1688213.84
516850	NOT PERMITTED	N39°33'59.1"	W80°36'20.7"	385272.70	1688214.68

NAD 83 WV North Zone

Well	API #	Latitude (DM5)	Longitude (DM5)	Northing	Easting
513504	47-103-02727	N39°33'59.0"	W80°36'20.1"	385209.72	168771.76
513505	47-103-02728	N39°33'58.9"	W80°36'20.1"	385194.68	168770.58
513506	47-103-02729	N39°33'58.7"	W80°36'20.1"	385179.63	168769.39
513507	47-103-02730	N39°33'58.6"	W80°36'20.1"	385164.59	168768.21
513508	47-103-02731	N39°33'58.4"	W80°36'20.1"	385149.54	168767.03
513923	47-103-02732	N39°33'58.3"	W80°36'20.1"	385134.49	168765.85
513924	47-103-02733	N39°33'58.1"	W80°36'20.2"	385119.44	168764.67
513925	47-103-02734	N39°33'58.0"	W80°36'20.2"	385104.39	168763.49
513927	47-103-02735	N39°33'57.8"	W80°36'20.2"	385089.34	168762.31
513928	47-103-02736	N39°33'57.7"	W80°36'20.2"	385074.29	168761.13
513930	47-103-02856	N39°33'57.5"	W80°36'20.2"	385059.24	168759.95
513929	47-103-03020	N39°33'59.2"	W80°36'19.7"	385267.42	168766.71
513931	47-103-03021	N39°33'58.6"	W80°36'19.7"	385252.47	168765.53
513932	47-103-03022	N39°33'58.0"	W80°36'19.7"	385237.52	168764.35
513933	47-103-03023	N39°33'58.6"	W80°36'19.7"	385222.56	168763.17
513926	47-103-03109	N39°33'59.2"	W80°36'19.7"	385292.33	168770.83
513934	NOT PERMITTED	N39°33'58.5"	W80°36'19.7"	385277.28	168769.65
516847	NOT PERMITTED	N39°33'59.1"	W80°36'20.1"	385279.68	168772.62
516848	NOT PERMITTED	N39°33'59.2"	W80°36'20.1"	385289.65	168773.45
516849	NOT PERMITTED	N39°33'59.3"	W80°36'20.1"	385299.61	168774.28
516850	NOT PERMITTED	N39°33'59.4"	W80°36'20.1"	385309.58	168775.12



PINE GROVE AND BIG RUN QUADS
0 2000 4000 6000

SITE LOCATIONS NAD 83				SITE LOCATIONS NAD 27			
	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE		LATITUDE
Begin Access Road	39 562130	80 398527		39 562047	80 598212		
Center of Well Pad	39 532444	80 654938		39 552402	80 650982		
	UTM Coordinates			UTM Coordinates			
Begin Access Road	N=4378728.8 m	E=5324930.5 m		N=4379218.2 m	E=5324515.5 m		
Center of Well Pad	N=4378743.6 m	E=5328834.4 m		N=4377945.2 m	E=533876.8 m		



NTS

Land Owner Disturbance Table (Acres)					
Owner	Total Acres	Dist. Acres	Flowback	Flowback	Total Disturbance
County	268447	0	239	239	239
Private Land	274268	4.64	5.08	1.94	7.66
Site Totals		4.64	8.26	12.90	

West Virginia State Plane Coordinate System
North Zone, NAD 83
Elevation Based on NAVD83
Established By Survey Control Dept
and CPUS Post Processing



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 648-5935

L&W ENTERPRISES, INC.
1000 W. MARKET ST.
PETERSBURG, WV 26103
TEL: 800.678.8110 FAX: 304.752.1111



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304-688-0365 cell



Well Pad Looking North
From Flowback Pit

As-Built Design Certification
The drawings, notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas § CSR 35-8. The well site was constructed in reasonable conformity to approved application and modified for a new access road.

Water for the Proposed Wells will be provided by the adjacent Richwood Freshwater Impoundment and BIG 190 Flowback Pit.

Prior to Drilling Operations, the pad containment berms must be repaired/raised 24" to ensure full secondary containment on the well pad.

DMH
10-6-16

Sheet	Description
1	Cover Sheet
2	As-Built Site Plan 1
3	As-Built Site Plan 2
4	As-Built Site Plan 3
5	Reclamation Plan

THIS DOCUMENT
PREPARED FOR
EQT PRODUCTION
COMPANY

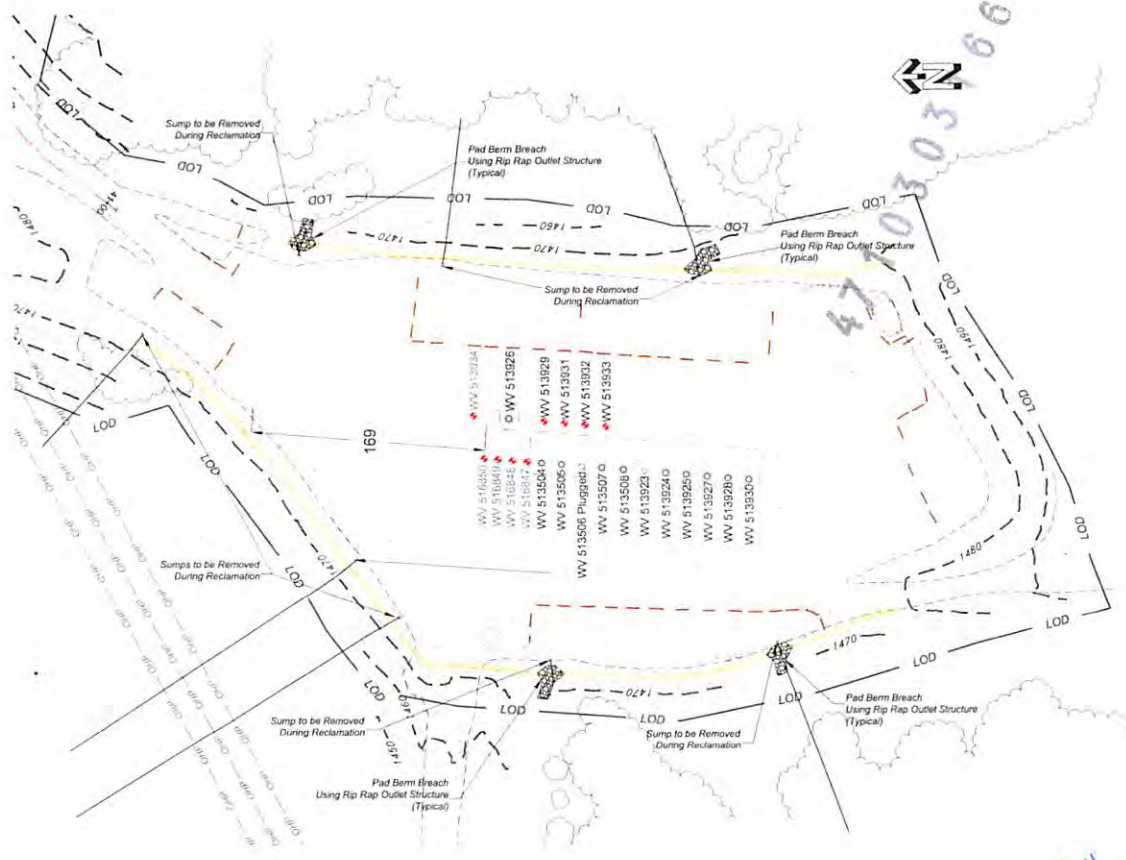
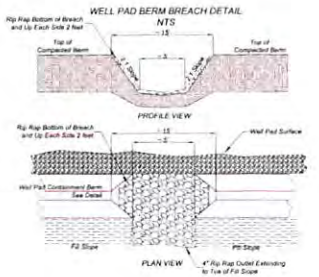


COVER SHEET/LOCATION MAP
BIG 190 WELL PAD AS-BUILT
GRANT DISTRICT
WETZEL COUNTY, WV

Drawn: 8/25/16
Title: W-10
Designed By: CWK
File No: 212 H
Sheet: 2 of 8

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RECLAMATION PLAN



- Legend**
- 1200 --- As-Built 2' Contour
 - 1000 --- As-Built 10' Contour
 - --- As-Built Tree Line
 - --- Existing Utility Line / Pole
 - --- Surface Owner Property Line
 - --- As-Built Culvert W/ Inlet & Outlet Protection
 - --- As-Built Rip-Rap
 - --- Limits of Disturbance

***NOTE:** An additional 15 tons of 4" Rip Rap is required for pad outlet structures.

***NOTE:** No Additional Grading Will be Done for Reclamation

***NOTE:** Impoundments will be reclaimed per the Richwood FWI Reclamation Plan

POST CONSTRUCTION ENVIRONMENTAL MONITORING REQUIREMENTS

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES IN AREAS WHERE AT LEAST 10% TOP SOIL HAS NOT BEEN REFINISHED OR EROSION HAS OCCURRED SINCE INITIAL CONSTRUCTION. REPAIRS TO EROSION AREAS (INCLUDING GULLIES) AND WASH BASIN OUTFLOW STRUCTURES SHALL BE COMPLETED IMMEDIATELY UPON NOTIFICATION BY THE DISTRICT. ALL OUTFLOW STRUCTURES SHALL BE MAINTAINED AND OPERATED AS DESIGNED.

2. MAINTENANCE AND OTHER CONSIDERATIONS AND POLLUTION PREVENTION: ALL EROSION AND SEDIMENT CONTROL AND DRILL PAD CONTAMINATION MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 1/2 INCH OR MORE. THEY WILL BE ADJUSTED FOR UNDERMINING, INTERFERENCE, EROSION AND EXCESS UNEXPECTED WEAR. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EROSION PREVENTION SHALL BE MAINTAINED ON THE BRUSH AND BARRIER BERM AT ALL TIMES TO ENSURE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES CLEAN OUT LEVELS. EROSION PREVENTION MEASURES SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT. THE DISTRICT SHALL CONDUCT VISUAL INSPECTIONS OF THE CONSTRUCTION SITE AND SHALL BE AVAILABLE FOR THE SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE SHALL BE PROPERLY STORED AND COVERED TO PREVENT DUST. EXCESS CONCRETE SHALL NOT BE ALLOWED TO REMAIN ON THE SITE. EXCESS FUEL, OIL, OR ANTI-FREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLS WILL BE CLEANED AND TAKEN OFF SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE REMOVED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS.

DAH 10-6-14

RECEIVED
Oncor Oil and Gas
OCT 17 2017



THIS DOCUMENT PREPARED FOR
EQT PRODUCTION COMPANY



RECLAMATION PLAN
BIG 190 WELL PAD AS-BUILT
GRANT DISTRICT
WETZEL COUNTY, WV

Rev: #4/2011
Scale: As Shown
Designed By: CAW
Proj No: 212-10
Sheet: 1 of 1

Anticipated Frac Additives

Chemical Names and CAS numbers

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Water		
Sand		
Friction Reducer	Hydrotreated light petroleum distillate	14808-60-7
Biocide	Tributyl tetradecyl phosphonium chloride	64742-47-8
Scale Inhibitor	Ammonium chloride	81741-28-8
15% Hydrochloric Acid	Hydrochloric Acid	12125-02-9
Corrosion Inhibitor	Propargyl Alcohol	7647-01-0
Corrosion Inhibitor	Methanol	107-19-7
Gelling Agent	Guar Gum	67-56-1
Oxidizing Breaker	Sodium Persulfate	9000-30-0
Buffering Agent	Potassium Carbonate	7775-27-1
		584-08-7

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DMH
10-6-16

OCT 17 2016