



west virginia department of environmental protection

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

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

Monday, March 20, 2017  
WELL WORK PERMIT  
Horizontal 6A / New Drill

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

Re: Permit approval for 513172  
47-017-06788-00-00

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: 513172  
Farm Name: HART, RONALD & JEFFERY  
U.S. WELL NUMBER: 47-017-06788-00-00  
Horizontal 6A / New Drill  
Date Issued: 3/20/2017

Promoting a healthy environment.

03/24/2017

# PERMIT CONDITIONS

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

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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. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. 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.
10. 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.

API Number: \_\_\_\_\_

# PERMIT CONDITIONS 4701700700

11. 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](mailto:DEPOOGNotify@wv.gov).

03/24/2017

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

1) Well Operator: EQT Production Company 306686 Doddridge Southwest Oxford  
Operator ID County District Quadrangle

2) Operator's Well Number: 513172 Well Pad Name: OXF160

3) Farm Name/Surface Owner: Ronald Hart & Jeffery Hart Public Road Access: WV-18

4) Elevation, current ground: 1220 Elevation, proposed post-construction: 1220

5) Well Type (a) Gas X Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

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

Horizontal X

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus, 6638', 58', 2951 PSI

8) Proposed Total Vertical Depth: 6638'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 11269

11) Proposed Horizontal Leg Length: 4025

12) Approximate Fresh Water Strata Depths: 31, 215, 262, 358, 578'

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

14) Approximate Saltwater Depths: None noted

15) Approximate Coal Seam Depths: None noted

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 X

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

Depth: \_\_\_\_\_

Seam: \_\_\_\_\_

Owner: \_\_\_\_\_

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18)

**CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	81	81	122 ft <sup>3</sup> / CTS
Fresh Water	13 3/8	New	J-55	54.5	678	678	617 ft <sup>3</sup> / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	3072	3072	1211 ft <sup>3</sup> / CTS
Production	5 1/2	New	P-110	20	11269	11269	500' above top producing zone
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40' above top perf or 80° inclination	
Liners							

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	35	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance 2014-17	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance 2014-17	1.19
Production	5 1/2	8 1/2	.361	12640	10112	Class A/H	1.123/2.098
Tubing	2 3/8	NA	.19	7700			
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

DAF  
3/3/17

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 5300'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

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

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 250,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 250,000 pounds of sand per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.9

22) Area to be disturbed for well pad only, less access road (acres): 7.5

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.

DAF  
3/23/17  
*[Handwritten signature]*

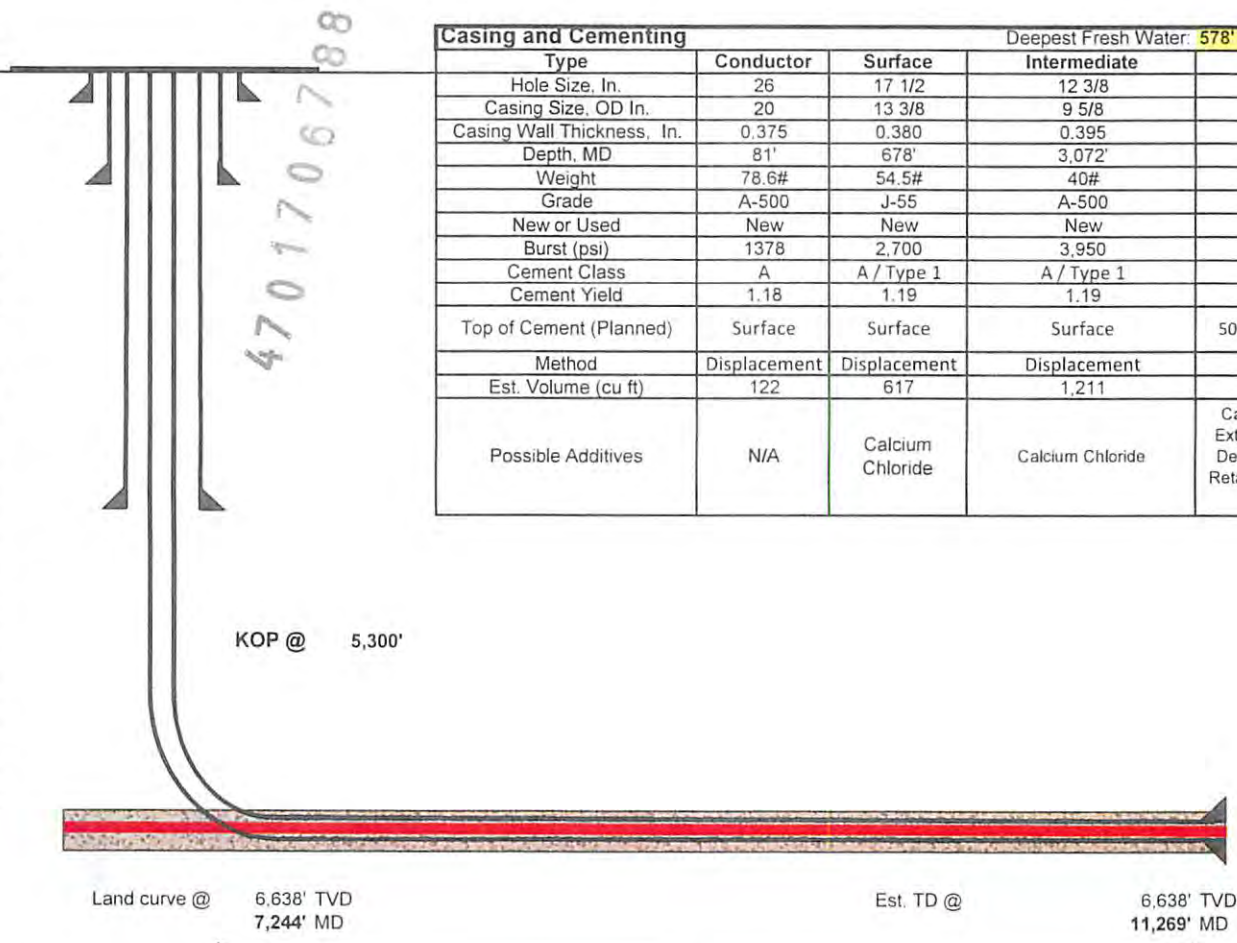
017-06788

Well **513172**  
 EQT Production  
 Oxford Quad  
 Doddridge County, WV

Azimuth 167  
 Vertical Section 5175

Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	81	
<b>Base Fresh Water</b>	<b>578</b>	
Surface Casing	678	
<b>Base Red Rock</b>	<b>1278</b>	
Maxton	1760 - 1799	
Big Lime	1949 - 2053	
Big Injun	2067 - 2081	
Weir	2172 - 2358	
Gantz	2464 - 2478	
Fifty foot	2639 - 2672	
Gordon	2735 - 2744	
Bayard	3002 - 3022	
Intermediate Casing	3072	
Warren	3268 - 3302	
Speechley	3318 - 3335	
Balltown A	3848 - 4774	
Riley	4774 - 4800	
Benson	4865 - 4875	
Alexander	5111 - 5211	
Sonyea	6275 - 6406	
Middlesex	6406 - 6460	
Genesee	6460 - 6527	
Geneseo	6527 - 6571	
Tully	6571 - 6591	
Hamilton	6591 - 6603	
Marcellus	6603 - 6661	
Production Casing	11269 MD	
Onondaga	6661	



Casing and Cementing				Deepest Fresh Water: 578'
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	81'	678'	3,072'	11,269'
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)	122	617	1,211	1,663
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

Proposed Well Work:  
 Drill and complete a new horizontal well in the Marcellus formation.  
 Drill the vertical to an approximate depth of 5300'.  
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

4,025' Lateral

DAF  
 3/6/17

EQT Production  
Hydraulic Fracturing Monitoring Plan  
Pad ID: OXF160  
Doddridge County, WV

9/12/16

4701706783  
4701706789



## Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Doddridge County, WV prior to hydraulic fracturing at the following EQT wells on the OXF160 pad: 513172, 514102

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 6,600' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Alexander formation (approximately 5,100' 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.

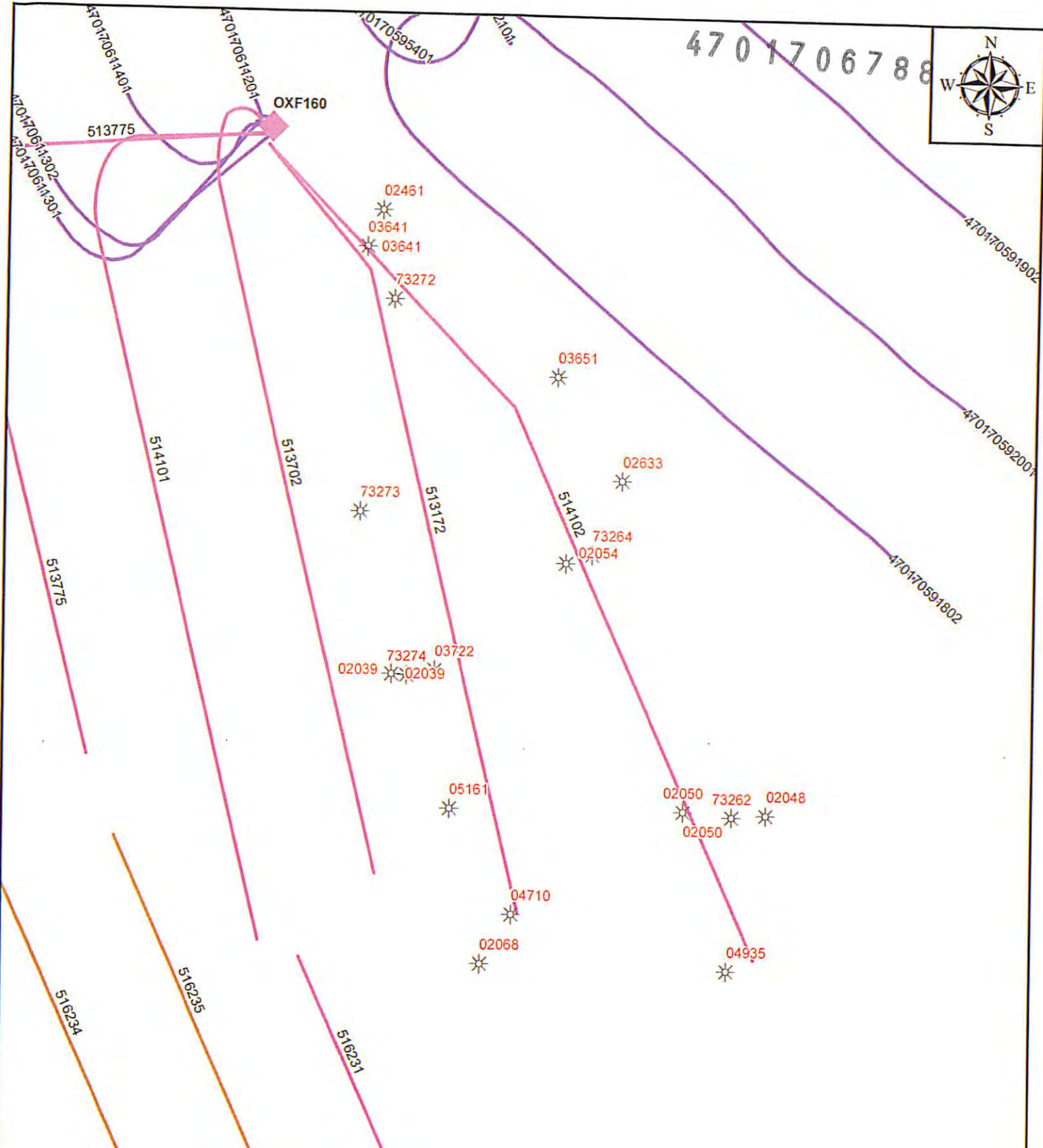
Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

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.

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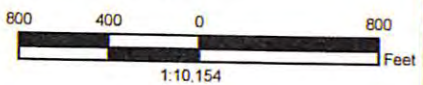


**EQT** Corporation  
 625 Liberty Avenue  
 Pittsburgh, PA 15222

**OXF160 513172, 514102**

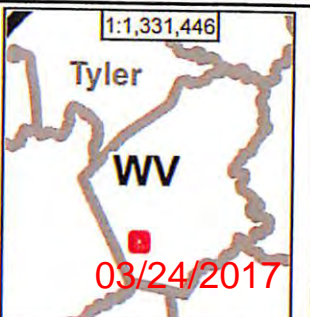
**Vertical Offsets and Foreign Laterals within 500'**

- Legend**
- OXF160\_Offsets\_GGX\_9\_9\_2018
  - OXF160\_Offsets\_GIS\_9\_9\_2010
- Target Formation**
- Utica
  - Genesee
  - Marcellus
  - Middlesex
  - Genesee Spud
  - Marcellus Spud
  - Middlesex Spud
  - Utica Spud



**Disclaimer:**

This map is confidential and is to be used only for the express informational purposes for which it was created. Unauthorized use, copying, or dissemination is strictly prohibited. EQT does not warrant the accuracy of the location of any items shown on this map, including, but not limited to, any structures, well or pipeline facilities, property boundaries, topography, roadways, or waterways. The items shown on the map may not have been placed on the map using survey lines or GPS coordinates. The specific location of any of the map items should be determined by a field survey performed by a licensed surveyor upon consultation with EQT.



Attachment A(c)

4701706788

WellID	WellStatus	Comp Date	FmatTD	Permit	Operator	Longitude	Latitude	TargetFm	DatumEleva	TotalDepth
47017020480000	GAS	5/18/1918		02048	EPC	-80.7876	39.1695		0	-1944
47017024610000	GAS	9/6/1979	DEVONIAN /SD/	02461	MURVIN & MEIER OIL COMPANY	-80.7966	39.1802	BÉREA	1230	2636
47017026330000	GAS	6/25/1980	DEVONIAN /SD/	02633	LUCAS WELL SERVICE INCORPORATED	-80.7910	39.1754	GORDON /SD/	1320	2795
47017036410000	GAS	6/18/1988	DEVONIAN /SD/	03641	TERM ENERGY	-80.7970	39.1795	ALEXANDER	1220	5279
47017036410001	GAS-WO	10/3/2002	BRADFORD	03641	TERM ENERGY	-80.7970	39.1795	BRADFORD	1220	5279
47017036510000	GAS	7/28/1988	DEVONIAN /SD/	03651	TERM ENERGY	-80.7925	39.1772	ALEXANDER	1195	5247
47017037220000	GAS	6/24/1989	DEVONIAN /SD/	03722	TERM ENERGY	-80.7953	39.1720	ALEXANDER	1031	5094
47017051610000	GAS	6/28/2006	GORDON /SD/	05161	KEY OIL COMPANY	-80.7949	39.1696	GORDON	1100	2631
47017049350000	GAS	3/5/2005	GORDON	04935	KEY OIL COMPANY	-80.7885	39.1667	GORDON	1203	2770
47017047100000	GAS	1/27/2003	DEVONIAN UPPER /SERIES/	04710	KEY OIL COMPANY	-80.7935	39.1677	ALEXANDER	1206	5343
47017732640000	UNKWN			73264	UNKNOWN	-80.7917	39.1741		0	0
47017732720000	UNKWN			73272	UNKNOWN	-80.7963	39.1786		0	0
47017732730000	UNKWN			73273	UNKNOWN	-80.7971	39.1748		0	0
47017732740000	UNKWN			73274	EQUITABLE RESOURCES EXPLORATION INC	-80.7960	39.1719		0	0
47017732620000	UNKWN			73262	UNKNOWN	-80.7884	39.1694		0	0
47017020540000	ABD-GW	6/1/1996	WEIR /SD/	02054	UNKNOWN	-80.7923	39.1739	WEIR /SD/	1247	2795
47017020390000	ABD-GW	4/29/1917	BIG INJUN	02039	EQUITABLE GAS COMPANY	-80.7963	39.1719	BIG INJUN	1037	1795
47017020390001	ABD-GW	10/17/1926	GORDON	02039	EQUITABLE PRODUCTION COMPANY	-80.7963	39.1719	GORDON	1037	2453
47017020500000	ABD-GW	6/18/1918	BIG INJUN	02050	EQUITABLE GAS COMPANY	-80.7895	39.1695	BIG INJUN	1066	1823
47017020500001	ABD-GW	10/24/1926	BIG INJUN	02050	EQT PRODUCTION COMPANY	-80.7895	39.1695	BIG INJUN	1066	1944
47017020680000	GAS	3/2/1920	BIG INJUN	02068	EQT PRODUCTION COMPANY	-80.7942	39.1668	BIG INJUN	1035	1833

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Attachment A(2)

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UWI	Name	Depth Top	Base Depth
47017024610000	BIG INJUN /SD/	1940	2008
47017024610000	WEIR /SD/	2160	2280
47017024610000	BEREA	2356	2368
47017024610000	GORDON /SD/	2582	2600
47017026330000	BIG INJUN /SD/	2020	2190
47017026330000	WEIR /SD/	2290	2410
47017026330000	BEREA	2490	2504
47017026330000	FIFTY FOOT SD	2720	2730
47017036410000	BIG LIME	1857	1932
47017036410000	BIG INJUN /SD/	1932	2007
47017036410000	WEIR /SD/	2154	2273
47017036410000	GORDON /SD/	2585	2590
47017036410000	WARREN /SD/	3228	3364
47017036410000	BALLTOWN /SD/	3969	4056
47017036410000	RILEY /SD/	4400	4444
47017036410000	BENSON /SD/	4745	4836
47017036410000	LEOPOLD	4952	4986
47017036410000	ALEXANDER	5077	
47017036510000	BIG LIME	1845	1917
47017036510000	BIG INJUN /SD/	1917	1997
47017036510000	BEREA	2344	
47017036510000	GORDON /SD/	2574	2578
47017036510000	WARREN /SD/	3214	3349
47017036510000	BALLTOWN /SD/	3956	4045
47017036510000	RILEY /SD/	4388	4436
47017036510000	BENSON /SD/	4731	
47017036510000	ALEXANDER	5066	5169
47017037220000	BIG LIME	1702	1768
47017037220000	BIG INJUN /SD/	1768	1858
47017037220000	WEIR /SD/	2001	2118
47017037220000	BEREA	2201	2205
47017037220000	GORDON /SD/	2429	2432
47017037220000	WARREN /SD/	3075	3207
47017037220000	RILEY /SD/	4245	4297
47017037220000	BENSON /SD/	4677	
47017037220000	ALEXANDER	4927	5024
47017047100000	LITTLE LIME	1825	1883
47017047100000	BIG LIME	1883	1926

Perforated Formations

UWI	Depth Top	Depth Base
47017020390000	1453	1453
47017020390000	1782	1793
47017020390001	2423	2426
47017020390001	2423	2426
47017020500000	1610	1610
47017020500000	1753	1754
47017020500000	1808	1821
47017020500001	1845	1850
47017020540000		
47017020680000	1395	1397
47017020680000	1500	1502
47017020680000	1740	1758

\* Data above is data that was in the perforated section of IHS but did not have cooresponding data in the current Formation sheet.

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4701706788

47017047100000 KEENER /SD/	1926	1965
47017047100000 BIG INJUN	1965	2151
47017047100000 WEIR /SD/	2151	2354
47017047100000 BERA	2354	2534
47017047100000 GORDON	2534	3228
47017047100000 WARREN /SD/	3228	3273
47017047100000 SPEECHLEY	3273	3950
47017047100000 BALLTOWN /SD/	3950	4378
47017047100000 RILEY /SD/	4378	4691
47017047100000 RILEY 3	4691	4831
47017047100000 BENSON /SD/	4831	4952
47017047100000 ELK /SD/	4952	5074
47017047100000 ALEXANDER	5074	
47017049350000 LITTLE LIME	1800	1905
47017049350000 BIG LIME	1905	1950
47017049350000 KEENER /SD/	1950	1986
47017049350000 BIG INJUN	1986	2165
47017049350000 WEIR /SD/	2165	2369
47017049350000 BERA	2369	2568
47017049350000 GORDON	2568	
47017051610000 LITTLE LIME	1726	
47017051610000 BIG LIME	1768	
47017051610000 KEENER /SD/	1818	
47017051610000 BIG INJUN /SD/	1858	
47017051610000 WEIR /SD/	2048	
47017051610000 BERA	2249	
47017051610000 GORDON /SD/	2427	

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WV Department of  
Environmental Protection

Attachment A(3)

4701706788

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: Doddridge County Hydraulic Fracturing Notice**

Dear Sir/Madam,

EQT has developed a Marcellus pad (Oxford 160 pad) located in Doddridge 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 6,600' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability, Alexander formation (approximately 5,100' TVD).

EQT anticipates conducting hydraulic fracturing at the Oxford 160 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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Office of Oil and Gas

FEB 20 2016

WV Department of  
Environmental Protection

03/24/2017

Attachment B



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> 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

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  
SEP 30 2016  
WV Department of  
Environmental Protection

03/24/2017



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> 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**

4701706789

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.

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SEP 30 2016  
WV Department of  
Environmental Protection

03/24/2017



### 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

03/24/2017



September 27, 2016

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

4703706708

Re: Casing plan on Wells (OXF160)

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 678' KB, 100' below the deepest fresh water. We will set the 9-5/8" intermediate string at 3072' KB, 50' below the base of the Bayard formation.

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

Sincerely,

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

Vicki Roark  
Permitting Supervisor

Enc.

RECEIVED  
Office of Oil and Gas  
SEP 30 2016  
WV Department of  
Environmental Protection

WW-9  
(2/15)

API Number 47 - 017 - \_\_\_\_\_  
Operator's Well No. 513172 \_\_\_\_\_

**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 of Middle Fork of South Fork Hughes River Quadrangle Oxford

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: \_\_\_\_\_

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? \_\_\_\_\_

Proposed Disposal Method For Treated Pit Wastes:

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

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 \_\_\_\_\_

Company Official (Typed Name) Victoria J. Roark

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 28 day of September, 2016

Rebecca L. Wanstreet Notary Public

My commission expires 4-7-2020



## 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.

EQT Production Company

Proposed Revegetation Treatment: Acres Disturbed 16.9 Prevegetation pH 6.3

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
KY-31	40
Alsike Clover	5
Annual Rye	15

Seed Type	lbs/acre
Orchard Grass	15
Alsike Clover	5

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:

*[Handwritten signature]*

Comments:

*Preseed and mulch any disturbed areas per WUDEP regs before moving rig onto location. Maintain and upgrade E & S controls as necessary*

Title: \_\_\_\_\_

Date: \_\_\_\_\_

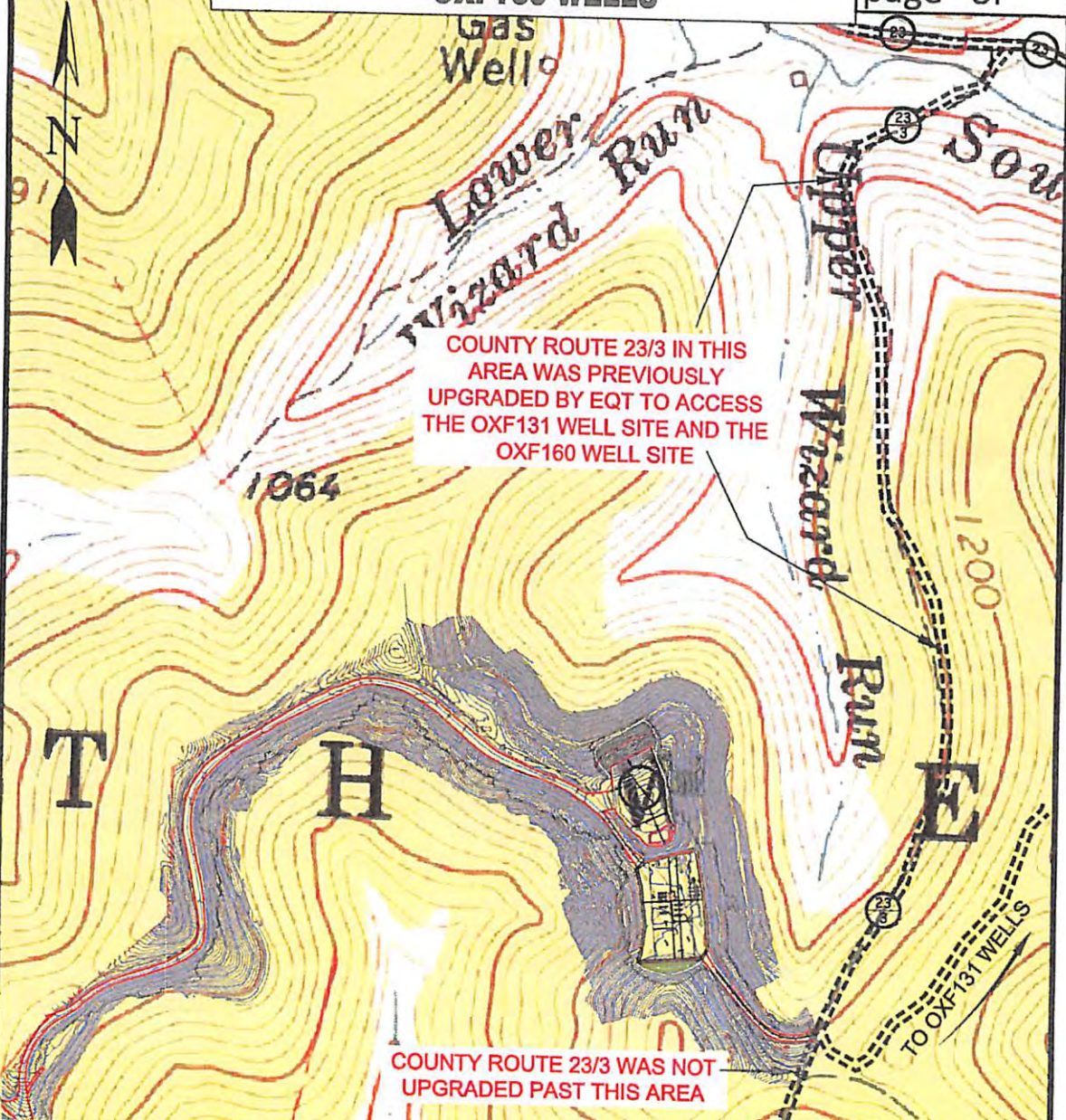
Field Reviewed? ( ) Yes

( ) No

Office of Oil & Gas

OCT 27 2016

017-06788

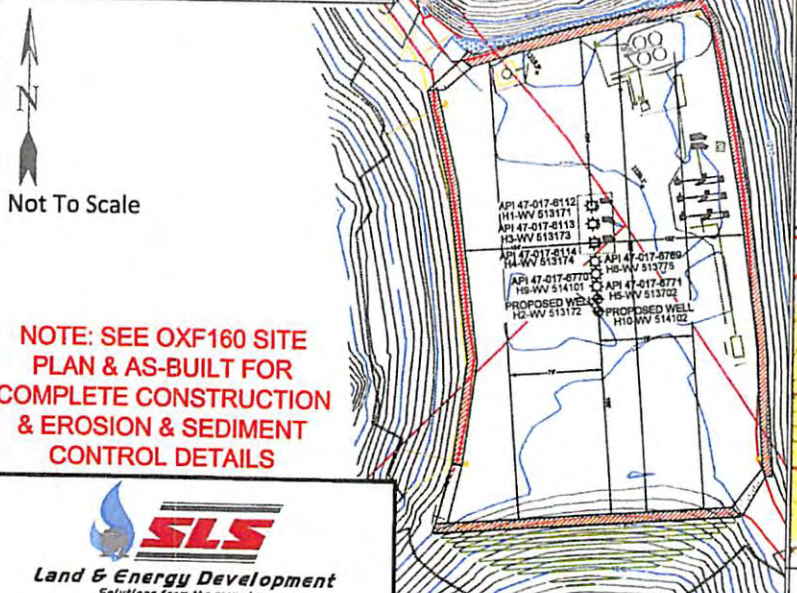


COUNTY ROUTE 23/3 IN THIS AREA WAS PREVIOUSLY UPGRADED BY EQT TO ACCESS THE OXF131 WELL SITE AND THE OXF160 WELL SITE

COUNTY ROUTE 23/3 WAS NOT UPGRADED PAST THIS AREA

OXF 3/13/17

Detail Sketch for Proposed OXF160 Wells



Not To Scale

NOTE: SEE OXF160 SITE PLAN & AS-BUILT FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

NOTE: SEE OXF160 SITE PLAN & AS-BUILT FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS



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DRAWN BY	FILE NO.	DATE	CADD FILE:
K.D.W.	7310	09-16-16	OXF160RECPLAN.dwg

TOPO SECTIONS OF OXFORD 7.5' TOPO QUADRANGLE

SCALE: 1"=500'



03/24/2017

# 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

### **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**

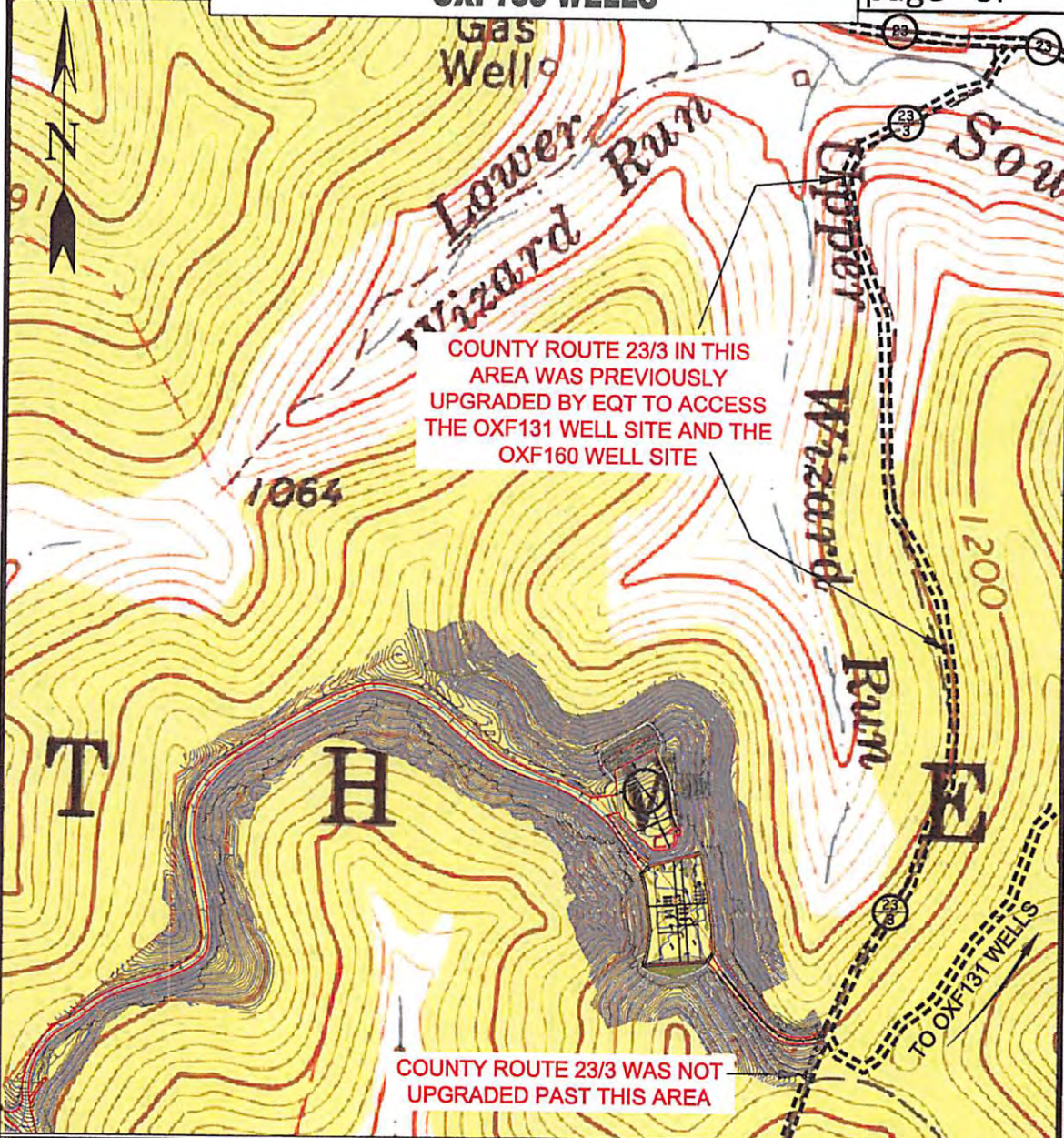
512 E. Dry Road  
Parkersburg, WV 26104  
304-428-0602  
Permit #SWF-1025 WV-0109400  
Approval #100833WV

Received  
Office of Oil and Gas

SEP 30 2016

W.V. Department of  
Environmental Protection

03/24/2017

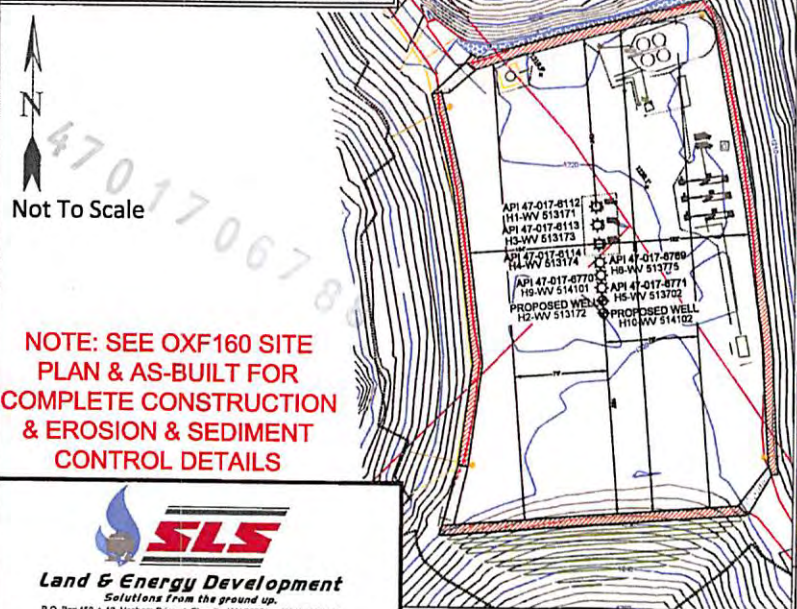


COUNTY ROUTE 23/3 IN THIS AREA WAS PREVIOUSLY UPGRADED BY EQT TO ACCESS THE OXF131 WELL SITE AND THE OXF160 WELL SITE

COUNTY ROUTE 23/3 WAS NOT UPGRADED PAST THIS AREA

NOTE: SEE OXF160 SITE PLAN & AS-BUILT FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

Detail Sketch for Proposed OXF160 Wells



NOTE: SEE OXF160 SITE PLAN & AS-BUILT FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS

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 www.slsurveys.com

TOPO SECTIONS OF OXFORD 7.5' TOPO QUADRANGLE

SCALE: 1"=500'



DRAWN BY K.D.W.	FILE NO. 7310	DATE 09-16-16	CADD FILE: OXF160ECPPLAN.dwg
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03/24/2017





Where energy meets innovation.™

# Site Specific Safety Plan

EQT OXF160 Pad

Oxford Quadrant

Doddridge County, WV

513172

For Wells:

470 170 6788

Date Prepared:

March 22, 2016

EQT Production

WV Oil and Gas Inspector

Title

Title

Date

Date



**OXF160**  
**WV 513172**  
**EQT PRODUCTION COMPANY**

2,134'

292'

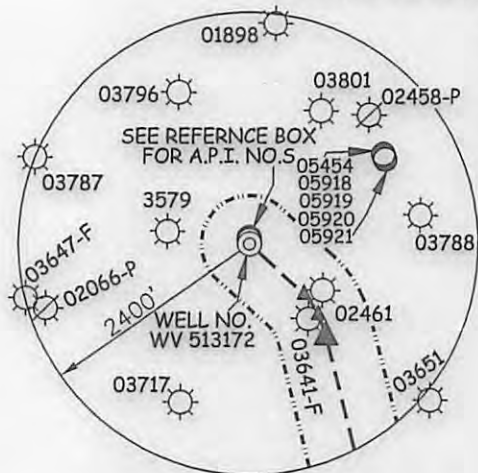
LATITUDE 39°12'30"

LONGITUDE 80°47'30"

9,802'

14,637'

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD27 S.P.C.(FT) N. 250,850.82 E. 1,631,719.14  
 NAD27 GEO. LAT-(N) 39.181422 LONG-(W) 80.799194  
 NAD83 UTM (M) N. 4,336,938.17 E. 517,358.60  
**LANDING POINT**  
 NAD27 S.P.C.(FT) N. 249,892.59 E. 1,632,518.46  
 NAD27 GEO. LAT-(N) 39.178823 LONG-(W) 80.796326  
 NAD83 UTM (M) N. 4,336,650.32 E. 517,606.98  
**BOTTOM HOLE**  
 NAD27 S.P.C.(FT) N. 245,989.00 E. 1,633,491.73  
 NAD27 GEO. LAT-(N) 39.168145 LONG-(W) 80.792695  
 NAD83 UTM (M) N. 4,335,466.06 E. 517,923.33



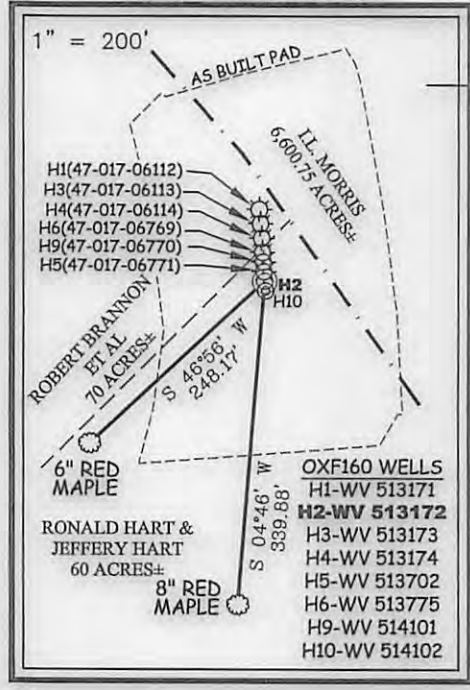
**NOTES ON SURVEY**

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.

ROYALTY OWNERS		
WBM HEIRS PROPERTIES, LLC ET AL	1891.25 AC.±	LEASE NO. 117513
CAROLYN FARR TRUST	57.5 AC.±	LEASE NO. 1.2047863963
GLENN H. SHIVE ET AL	53 AC.±	LEASE NO. 114449
CARLTON MATHENY ET AL	44 AC.±	LEASE NO. 988985

SW TM-09-19	ROBERT BRANNON ET AL	70 ACRES±
SW TM-09-20	RONALD HART & JEFFERY HART	60 ACRES±
SW TM-09-21	RONALD HART & JEFFERY HART	45 ACRES±
SW TM-10-01	MATTHEW COPELAND	57.5 ACRES±
SW TM-10-02	LL MORRIS	6,600.75 ACRES±
SW TM-13-12	RONALD HART & JEFFERY HART	46 ACRES±
SW TM-13-18	ROBERT BRANNON ET AL	25.1 ACRES±
SW TM-13-39	EDWARD & GINA BASSETT	41 ACRES±
SW TM-13-40	MARIAN ZORN	34.78 ACRES±
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SW TM-14-1.1	MICHAEL & SUSAN ZORN	47.5 ACRES±
SW TM-14-02	WILLIAM ARMENTROUT ET AL	44.35 ACRES±
SW TM-14-03	JANICE McCORMACK	76 ACRES±
SW TM-14-04	WILLIAM ARMENTROUT ET AL	16.8 ACRES±

**REFERENCES**



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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. C. Victor Moyers  
 849

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE MARCH 09, 20 12  
 REVISED 04/03/12, 04/11/12, 09/16/16, 09/29/16 & 01/19/17  
 OPERATORS WELL NO. WV 513172  
 API WELL NO. 47-017-0678816A  
 STATE WV COUNTY DOUGLASS PERMIT 03/24/2017

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7310P513172R5  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

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

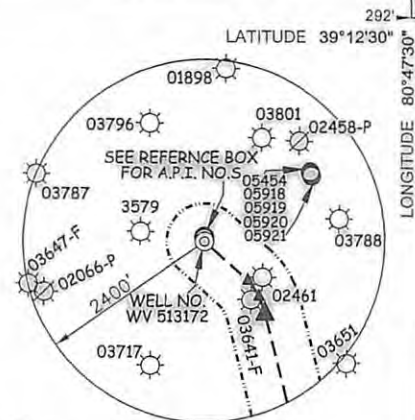
WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW   
 LOCATION:  
 PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK SOUTH FORK HUGHES RIVER  
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'  
 SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±  
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 206±  
 PROPOSED WORK:  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
 PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
 ESTIMATED DEPTH 6,638'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY  
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

**OXF160**  
**WV 513172**  
**EQT PRODUCTION COMPANY**

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**NOTES ON SURVEY**

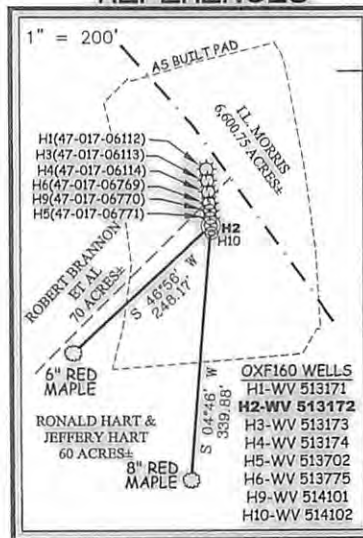
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SW TM-14-04	WILLIAM ARMENTROUT ET AL	16.8 ACRES±

**REFERENCES**



*Ref*  
 3/13/17



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 DIVISION OF ENVIRONMENTAL PROTECTION.



P.S. *C. Victor Moyers*  
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 API WELL NO. 47-017-06788  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7310P513172R5  
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STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

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

LOCATION: PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER  
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±  
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 206±  
 PROPOSED WORK: LEASE NO. 107453  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
 PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
 ESTIMATED DEPTH 6,638'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY  
 ADDRESS 115 PROFESSIONAL PLAGE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLAGE P.O. BOX 280 BRIDGEPORT, WV 26330

**03/24/2017**

COUNTY NAME PERMIT



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

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

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

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

4701700709

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

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

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

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

Well Operator: EQT Production Company  
 By: Victoria Roark  
 Its: Permitting Supervisor

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SEP 30 2016  
Department of Environmental Protection

017-06788

WW-6A1 attachment

Operator's Well No.

513172

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<b>107453</b>	<b><u>Mona R. Cumberledge, et al (current royalty owner)</u></b>		**	
	S. E. Gaston, et al (original lessor)	A. D. Wells		LB 22/420
	A. D. Wells	Fisher Oil Company/O.D. Harrington		LB 24/16
	Fisher Oil Company/O.D. Harrington	The Philadelphia Company of WV		LB 24/64
	The Philadelphia Company of WV	Pittsburgh & West Virginia Gas Company		LB 45/102
	The Philadelphia Company of WV	Pittsburgh & West Virginia Gas Company		LB 32/253
	Pittsburgh & West Virginia Gas Company	Equitable Gas Company		DB 121/257
	Equitable Gas Company	Equitrans, Inc		LB 154/475
	Equitrans, Inc	Equitrans, L.P.		329/645
	Equitrans, L.P.	Equitable Production-Eastern States, Inc		LB 192/19
	Equitable Production-Eastern States, Inc	EQT Production Company		DB 281/346
<b>117513</b>	<b><u>WBM Heirs Properties LLC, et al (current royalty owner)</u></b>		**	
	William Brent Maxwell, et al	Pittsburgh & West Virginia Gas Co.		LB37/48
	Pittsburgh & West Virginia Gas Co.	Equitable Gas Co.		DB121/257
	Equitable Gas Company	Equitrans, Inc.		DB154/475
	Equitrans, Inc	Equitrans, L.P.		329/645
	Equitrans, L.P.	Equitable Production-Eastern States, Inc		LB 192/19
	Equitable Production-Eastern States, Inc	EQT Production Company		DB 281/346
<b>1.2047863963</b>	<b><u>Carolyn Farr Trust (current royalty owner)</u></b>			
	Antero Resources Corporation	EQT Production Company		371/584
<b>114449</b>	<b><u>Glenn H. Shive, et al (current royalty owner)</u></b>		**	
	F.E. Gaston, et ux (original lessor)	The Philadelphia Company of WV		LB 32/463
	The Philadelphia Company of WV	Pittsburgh & WV Gas Company		LB 32/253
	Pittsburgh & WV Gas Company	Equitable Gas Company		DB 121/257
	Equitable Gas Company	Equitrans, Inc		LB 154/475
	Equitrans, Inc	Equitrans, L.P.		329/645
	Equitrans, L.P.	Equitable Production-Eastern States, Inc		LB 192/19
	Equitable Production-Eastern States, Inc	EQT Production Company		DB 281/346
<b>988985</b>	<b><u>Carlton Matheny, et al (current royalty owner)</u></b>			
	Carlton Matheny, et ux (original lessor)	EQT Production Company		239/185

\*\* 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.

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Office of Oil and Gas

FEB 21 2017

WV Department of  
Environmental Protection  
03/24/2017



September 27, 2016

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

Re: OXF160 well pad, well number 513172  
Southwest District, Doddridge 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,

Vicki Roark  
Permitting Supervisor-WV

03/24/2017

470131  
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**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION**

Date of Notice Certification: 9/29/2010

API No. 47- 017 \_\_\_\_\_  
Operator's Well No. 513172  
Well Pad Name: OXF160

**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>517358.60</u>
County: <u>Doddridge</u>		Northing: <u>4336938.17</u>
District: <u>Southwest</u>	Public Road Access: <u>WV-18</u>	
Quadrangle: <u>Oxford</u>	Generally used farm name: <u>Ronald Hart and Jeffery Hart</u>	
Watershed: <u>Upper Run of Middle Fork of South Fork Hughes River</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.

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:	
*PLEASE CHECK ALL THAT APPLY	
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	<b>OOG OFFICE USE ONLY</b>  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input checked="" type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED/ NOT REQUIRED   <input checked="" type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED
<input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED	
<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  <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)	
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION	
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE	
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION	

**Required Attachments:**

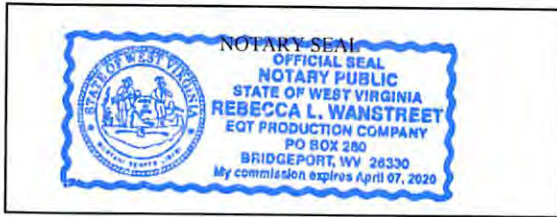
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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 *Victoria Roark*, 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 28 day of September 2016.  
Rebecca L Wanstreet Notary Public  
My Commission Expires 4-7-2020

**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](mailto:depprivacyofficer@wv.gov).

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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: 9/29/16 Date Permit Application Filed: 9/29/16

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: \_\_\_\_\_  
Address: \_\_\_\_\_

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

Name: See Attached  
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  
SEP 30 2016  
Environmental Protection

**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 or 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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://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:**

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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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.**

SEP 23 2016  
Office of Oil and Gas  
Department of Environmental Protection

**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.

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.

On 03/24/2017  
12:40:00 PM  
WV Department of  
Environmental Protection

WW-6A  
(8-13)

API NO. 47- 017 -  
OPERATOR WELL NO. 513172  
Well Pad Name: OXF160

**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

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*[Handwritten Signature]*

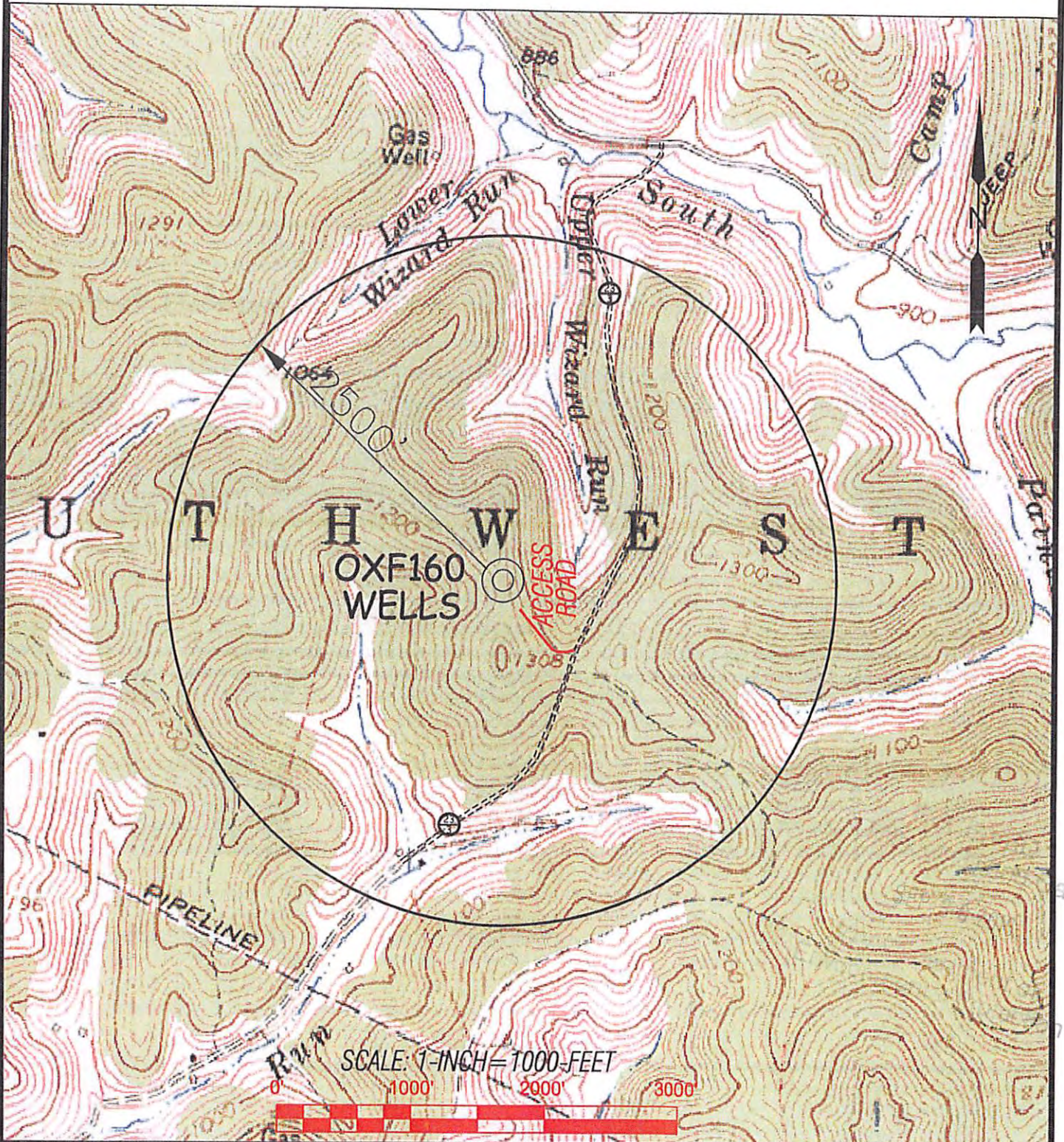
Subscribed and sworn before me this 28 day of September, 2016.

Rebecca L. Wanstreet Notary Public

My Commission Expires 4-7-2020

4701706708

# S.E. GASTON LEASE OXF 160 WELL PAD



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Solutions from the ground up.  
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DRAWN BY: K.D.W. FILE NO.: 7310 DATE: 04/07/16 CADD FILE: 7310WSWV513171.dwg

TOPO SECTION OF:  
OXFORD, WV 7.5' QUAD.

COUNTY	DISTRICT	TAX MAP-PARCEL NO.
DODDRIDGE	SOUTHWEST	9 - 19

OPERATOR:  
EQT PRODUCTION COMPANY  
115 PROFESSIONAL PLACE  
P.O. BOX 280  
BRIDGEPORT, WV 26330

03/24/2017



**Coal Owners:**

WBM Heirs Properties LLC  
PO Box 659  
Wichita Falls TX 76307

I.L. Morris  
PO Box 397  
Glenville WV 26351

H3 LLC  
1483 Johns Creek Road  
Milton WV 25541

E.T. Blue Grass LLC  
625 Liberty Ave  
Suite 1700  
Pittsburgh PA 15222

Ed Broome, Inc.  
4622 WV 5E  
Glenville WV 26351

Deborah Ann Cox  
22 Bates Rd. PMB133  
Mashpee MA 02649

Eleanor F. Delawder  
2153 Iveywood St.  
The Villages FL 32163

Patrick Michael Wright  
624 South 7<sup>th</sup> Street  
Clarksburg WV 26301

S.J.J. Leggett  
1010 N. North Street  
Washington CH OH 43160

Elizabeth Ann Guido  
1364 Locust Ave.  
Fairmont WV 26554

Brenda Jo Fulton  
409 Dodge Ave  
Williamstown WV 26187

Carolyn Sue Gaston  
1231 Bellaire St.  
Fairmont WV 26554

Beverlee Ann Grose  
194 Welton Way  
Mooresville NC 28117

Jennifer L. Powers  
71 Lincoln St.  
Buckhannon WV 26201

Jeffrey Scott Anderson  
1359 Old River Rd.  
Williamstown WV 26187

Timothy C Phillips  
PO Box 12  
West Union WV 26456

Kimberly Kay Davis  
700 Caroline Ave  
Williamstown WV 26187

Patrick Dean Leggett  
1625 Stonehenge Rd.  
Charleston WV 25314

Melanie K. Dienhart  
7275 Iverson Place  
Paso Robles CA 93446

Eric Thomas Anderson  
Rt. 2 Box 192-V  
Jane Lew WV 26378

Patricia Susan Wright  
842 Verdun St.  
Clarksburg WV 26301

Margaret E. Gress  
1108 Wylie Ridge Rd  
New Cumberland WV 26047

Mona R Cumberledge  
125 Ash Lane  
Sistersville WV 26175

Libby K Straw  
245 S Prospect St. Apt 205  
Ravenna OH 44266

Bernard Keith Leggett  
19 Beverly Circle  
Fairmont WV 26554

Randall Leggett  
419 20<sup>th</sup> Street  
Niceville FL 32578

Janice K Snider  
PO Box 551  
Kingwood WV 26357

201708708

received  
Division of Oil and Gas  
SEP 30 2016  
West Virginia Department of  
Environmental Protection

**Coal Owners:**

Freda B Jones  
611 31<sup>st</sup> Street  
Vienna WV 26105

Kelleigh D Leggett  
310 Wynwood Dr.  
Willow Street PA 17584

Zadock Leggett  
310 Wynwood Dr.  
Willow Street PA 17584

Lorelei F Phillips  
PO Box 12  
West Union WV 26456

RECEIVED  
Office of Oil and Gas  
SEP 30 2016  
WV Department of  
Environmental Protection

03/24/2017

**Surface Owner(s)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170

I.L. Morris  
P.O. Box 397  
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City, State

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456  
OXF160 Permit App and Planned Operation

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Street and  
City, State

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335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301  
OXF160 Permit App and Planned Operation

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Postage  
\$

Total Paid  
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Street and  
City, State

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170  
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Adult Signature Restricted Delivery \$

Postage  
\$

Total Paid  
\$

Sent To  
\$

Street and  
City, State

I.L. Morris  
P.O. Box 397  
Glenville WV 26351  
OXF160 Permit App and Planned Operation

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

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RW

03/24/2017

**Surface Owners (Road or other Disturbance)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$
<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$

Postage  
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Total Postage  
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Sent To  
\$  
Street and  
City, State

SEP 29 2016

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$

Postage  
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Total Postage  
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Sent To  
\$  
Street and  
City, State

SEP 29 2016

Ronald Hart  
335 South 22<sup>nd</sup> Street  
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<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$

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Total Postage  
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Street and  
City, State

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Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170

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<input type="checkbox"/> Adult Signature Required	\$
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Sent To  
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Street and  
City, State

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I.L. Morris  
P.O. Box 397  
Glenville WV 26351

OXF160 Permit App and Planned Operation

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

03/24/2017

**Surface Owners of Tank Site**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22nd Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
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Total Postage \$

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Robert Brannon et al  
881 Haystack Ln.  
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03/24/2017





**Surface Owner(s)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
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Robert Brannon et al  
881 Haystack Ln.  
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03/24/2017



**Surface Owners (Road or other Disturbance)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456 ✓

Ronald Hart  
335 South 22<sup>nd</sup> Street ✓  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square ✓  
#220  
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<input type="checkbox"/>	Return Receipt (electronic)	\$	
<input type="checkbox"/>	Certified Mail Restricted Delivery	\$	
<input type="checkbox"/>	Adult Signature Required	\$	
<input type="checkbox"/>	Adult Signature Restricted Delivery	\$	

Postage \$

Total \$

Sent \$

Street \$

City \$

PS F

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AUG 26 2016  
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<input type="checkbox"/>	Certified Mail Restricted Delivery	\$	
<input type="checkbox"/>	Adult Signature Required	\$	
<input type="checkbox"/>	Adult Signature Restricted Delivery	\$	

Postage \$

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Street \$

City \$

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BRIDGEPORT, MD  
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<input type="checkbox"/>	Return Receipt (electronic)	\$	
<input type="checkbox"/>	Certified Mail Restricted Delivery	\$	
<input type="checkbox"/>	Adult Signature Required	\$	
<input type="checkbox"/>	Adult Signature Restricted Delivery	\$	

Postage \$

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Street \$

City \$

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<input type="checkbox"/>	Adult Signature Restricted Delivery	\$	

Postage \$

Total \$

Sent \$

Street \$

City \$

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AUG 26 2016  
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26330-USPS

I.L. Morris  
P.O. Box 397  
Glenville WV 26351  
OXF160 Notice of Intent

Instructions

03/24/2017

Surface Owners of Tank Site  
Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
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Herndon VA 20170

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 Adult Signature Required \$  
 Adult Signature Restricted Delivery \$

Postage \$

Total \$

Sent \$  
Street \$  
City \$

PS F

BRIDGEPORT, WV  
AUG 26 2016  
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Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456  
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PS F

BRIDGEPORT, WV  
AUG 26 2016  
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26330-USPS

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301  
OXF160 Notice of Intent

Office of Civil and Gas  
SEP 30 2016  
Instructions

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

Postage \$

Total \$

Sent \$  
Street \$  
City \$

PS F

BRIDGEPORT, WV  
AUG 26 2016  
Postmark Here  
26330-USPS

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170  
OXF160 Notice of Intent

Instructions

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Street \$  
City \$

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BRIDGEPORT, WV  
AUG 26 2016  
Postmark Here  
26330-USPS

I.L. Morris  
P.O. Box 397  
Glenville WV 26351  
OXF160 Notice of Intent

03/24/2017



**Surface Owner(s)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170

I.L. Morris  
P.O. Box 397  
Glennville WV 26351

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Adult Signature Restricted Delivery \$

Postage  
\$

Total Postage  
\$

Sent To  
Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Street and  
City, State  
OXF160 Permit App and Planned Operation

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

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Postage  
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Total Postage  
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Sent To  
Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Street and  
City, State  
OXF160 Permit App and Planned Operation

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Adult Signature Restricted Delivery \$

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12913 Alton Square  
#220  
Herndon VA 20170

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City, State  
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Glennville WV 26351

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City, State  
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03/24/2017

**Surface Owners (Road or other Disturbance)**

Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170

I.L. Morris  
P.O. Box 397  
Glenville WV 26351

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Robert Brannon et al  
881 Haystack Ln.  
West Union WV 26456  
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Street and  
City, State

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SEP 29 2016  
BRIDGEPORT MPO

Ronald Hart  
335 South 22<sup>nd</sup> Street  
Clarksburg WV 26301  
OXF160 Permit App and Planned Operation

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

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Sent To  
Street and  
City, State

Postmark Here  
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BRIDGEPORT MPO

Jeffery Hart  
12913 Alton Square  
#220  
Herndon VA 20170  
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City, State

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P.O. Box 397  
Glenville WV 26351  
OXF160 Permit App and Planned Operation

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

03/24/2017

**Surface Owners of Tank Site**  
 Robert Brannon et al  
 881 Haystack Ln.  
 West Union WV 26456

Ronald Hart  
 335 South 22<sup>nd</sup> Street  
 Clarksburg WV 26301

Jeffery Hart  
 12913 Alton Square  
 #220  
 Herndon VA 20170

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 P.O. Box 397  
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Sent To  
 Street and  
 City, State

Robert Brannon et al  
 881 Haystack Ln.  
 West Union WV 26456

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 Street and  
 City, State

Ronald Hart  
 335 South 22<sup>nd</sup> Street  
 Clarksburg WV 26301

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 Street and  
 City, State

Jeffery Hart  
 12913 Alton Square  
 #220  
 Herndon VA 20170

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Postage  
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Total Postage  
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 P.O. Box 397  
 Glenville WV 26351

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

03/24/2017



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

Revised August 24, 2016

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

Subject: DOH Permit for the OXF160 Well Site, Doddridge County

OXF 160H2 #513172  
OXF 160H9 #514101

OXF 160H5 #513702  
OXF 160H6 #513755

OXF 160H10 #514102

Dear Mr. Martin,

This well site will be accessed from Permit # 04-2012-0308 applied for by EQT Production Company for access to the State Road for a well pad located off of Doddridge County Route 23/3 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  
Regional Maintenance Engineer

Cc: Nick Bumgardner  
EQT Production Company  
CH, OM, D-4  
File

**Anticipated Frac Additives**  
**Chemical Names and CAS numbers**

03/24/2017

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

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Office of Oil and Gas

SEP 30 2016

NY Department of  
Environmental Protection

03/24/2017



4701706788

WVDEP OOG  
ACCEPTED AS-BUILT

*WJ* 4/28/2016

# OXF-160 SITE PLAN MODIFICATION EQT PRODUCTION COMPANY

EXISTING WELL #s API NO. 47-017-6112, 47-017-6113 & 47-017-6114

**PROPOSED WELL #s** H2 WV-513172, H5 WV-513702, H6 WV-513775, & H9 WV-514101

SITUATE ON THE WATERS OF UPPER RUN OF MIDDLE FORK OF SOUTH FORK OF  
HUGHES RIVER WATERSHED IN SOUTHWEST DISTRICT, DODDRIDGE COUNTY, WEST  
VIRGINIA.

**PROJECT INFORMATION**

PROJECT NAME OXF-160 SITE PLAN MODIFICATION  
TAX PARCELS 19, 20 & 02  
SOUTHWEST DISTRICT  
MAP 9 & 10

**SURFACE OWNER:**  
ROBERT BRANNON ET AL  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV  
PROPERTY AREA 704 ACRES

**JEFFERY HART & RONALD L. HART**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV  
PROPERTY AREA 604 ACRES

**IKE MORRIS**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV  
PROPERTY AREA 5600.751 ACRES

**ROYALTY OWNERS**  
MONA R. CUMBERLEDGE ET AL  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV  
PROPERTY AREA 2064 ACRES

**WEM HERS PROPERTIES LLC**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV  
PROPERTY AREA 1891.254 ACRES

**SITE LOCATION**  
THE OXF-160 SITE IS LOCATED ON A POINT SOUTHWEST OF CO RT 23/3 APPROXIMATELY 0.80 MILES SOUTHWEST OF CO RT 23/3 AND CO RT. 19/11 INTERSECTION

**OXF-160 LOCATION COORDINATES**

**ENTRANCE**  
LATITUDE 39180316 LONGITUDE -80787003 (NAD 83)  
LATITUDE 43368064 LONGITUDE 5175332 (UTM NAD 83)

**WELL PAD**  
LATITUDE 39181577 LONGITUDE -80799006 (NAD 83)  
LATITUDE 43369459 LONGITUDE 5173599 (UTM NAD 83)

**40K TANK PAD**  
LATITUDE 39182793 LONGITUDE -80799490 (NAD 83)  
LATITUDE 43370787 LONGITUDE 5173178 (UTM NAD 83)

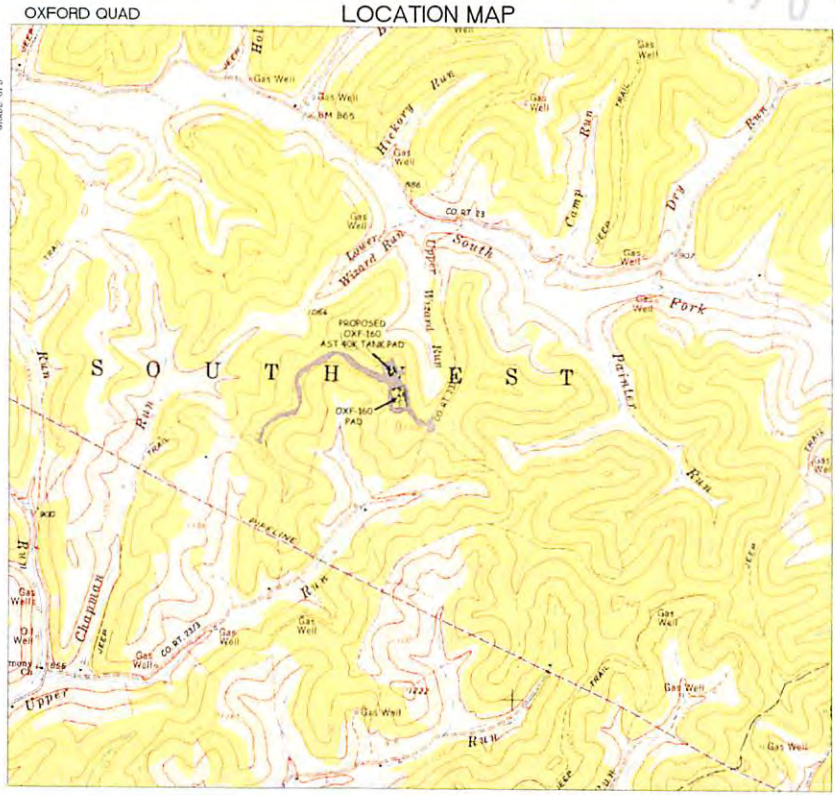
**SITE DISTURBANCE COMPUTATIONS**

ORIGINAL LOD ACREAGE- 16.9+ ACRES

**GENERAL DESCRIPTION**

THE OXF-160 WELL PAD AND ASSOCIATED IMPONEMENT ARE CONSTRUCTED THE ASSOCIATED PIT WILL BE CONSTRUCTED ALL THREE STRUCTURES WILL AID IN THE DEVELOPMENT OF ADDITIONAL MARCELLUS SHALE GAS WELLS

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!!**



SHEET INDEX	
1 - COVER SHEET	
2 - CONSTRUCTION NOTES	
3 - INDEX SHEET	
4 - ACCESS ROAD AND PAD	
5 - ACCESS ROAD AND PIT	
6 - ACCESS ROAD	
7 - TANK PAD & WELL PAD	
8 - WELL PAD & ACCESS ROAD	
9 - ACCESS ROAD PROFILE	
10- TANK PAD PROFILE	
11- CONSTRUCTION DETAILS	
12- CONSTRUCTION DETAILS	
13- CONSTRUCTION DETAILS	

LEGEND	
PROPOSED CONCRETE FILTER SOCK	[Symbol]
EX ROAD EDGE OF GRAVEL DIRT	[Symbol]
EX ROAD EDGE OF PAVEMENT	[Symbol]
EX ROAD CENTERLINE	[Symbol]
EX DITCHLINE	[Symbol]
EX CULVERT	[Symbol]
EX SAFETY FENCE	[Symbol]
EX GATE	[Symbol]
EX OVERHEAD UTILITY	[Symbol]
EX OVERHEAD UTILITY R/W	[Symbol]
EX POWER POLE	[Symbol]
EX TELEPHONE LINE	[Symbol]
EX GASLINE	[Symbol]
EX GASLINE R/W	[Symbol]
PROPOSED RIP RAP	[Symbol]
EX RIP RAP	[Symbol]
EX BRUSH PILE	[Symbol]
EX DELINEATED STREAM	[Symbol]
EX STRUCTURE	[Symbol]
EX PIPELINE MARKER	[Symbol]
EX FOOTPRINT	[Symbol]
EDGE OF GRAVEL PAD	[Symbol]
EDGE OF BERM	[Symbol]
EX SUPER SILT FENCE	[Symbol]
EX REINFORCED SILT FENCE	[Symbol]
BERM	[Symbol]
GRAVEL	[Symbol]
ORIGINAL GROUND 2' CONTOURS	[Symbol]
AS BUILT 2' CONTOURS	[Symbol]
EXISTING WELL LOCATIONS	[Symbol]
PROPOSED WELL LOCATIONS	[Symbol]
SPOT ELEVATIONS	[Symbol]
BOUNDARIES	[Symbol]

**SURVEY NOTE**  
1. THE CERTIFICATION OF THIS DRAWING APPLIES ONLY TO THE TOPOGRAPHIC MAPPING AS GENERATED FROM THE FIELD DATA OBTAINED AT THE TIME OF THE FIELD SURVEY ON 08/20/14, 08/21/14, 08/26/14, 08/28/14, 09/04/14, 09/04/14, 10/13/14, 05/08/16 & 05/15/16

Received  
 Office of Oil & Gas  
 4701706788  
 OCT 27 2016

BY	DESCRIPTION	DATE	REVISION	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104
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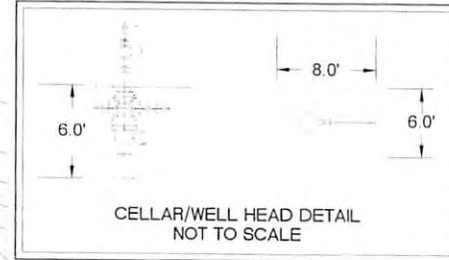
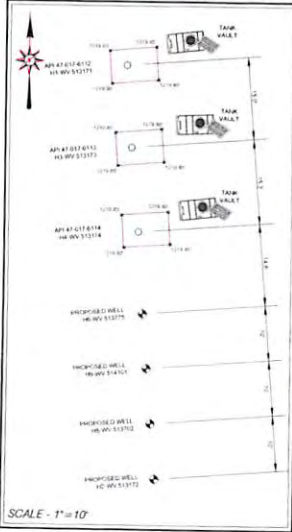
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**WVDEP OOG  
ACCEPTED AS-BUILT**  
W.A.W. 4/28/2016

# OXF-160 SITE PLAN MODIFICATION EQT PRODUCTION COMPANY

GRID NORTH AND SURVEYED ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY DGPS SURVEY GRADE

## WELL ELEVATION DETAIL



*W.A.W. 10/13/16*

LIMITS OF DISTURBANCE (ACRES)  
16.9

EQT OXF 160 CONCEPTUAL WELL SITE EARTH WORK SUMMARY							
DESCRIPTION	CUT (CY)	FILL (CY)	TOPSOIL REMOVAL (CY)	SPOIL (CY)	BORROW (CY)	MAX SLOPE (%)	LENGTH OF SLOPE (FT)
40K TANK PAD AND ACCESS	6,976	7,908			932	10%	40
ADJUSTED 2:1 SLOPE	1,149			1,149		N/A	N/A
TOTAL STRIPPED TOPSOIL (1')				1,149	932		
TOTAL REQUIRED TOPSOIL STOCKPILE VOLUME (1.2:1 SWELL)							
TOTAL AVAILABLE TOPSOIL STOCKPILE VOLUME							
TOTAL REQUIRED EXCESS STOCKPILE VOLUME (1.2:1 SWELL)		217					
TOTAL AVAILABLE EXCESS STOCKPILE VOLUME							
BORROW MATERIAL							



DATE: 03/30/2016  
SCALE: 1" = 40'  
DESIGNED BY: W.A.W.  
FILE NO: B210  
SHEET 7 OF 13

REVISION: 03/27/16  
DATE: 4/28/16

DESCRIPTION: PROPERTY OWNER LABELS  
ROAD PROFILE AND SAMPS ADDED

**EQT**  
Where energy meets innovation

**SLS**  
Land & Energy Development

THIS DOCUMENT WAS PREPARED BY SMITH LAND SURVEYING, INC. FOR EQT

OXF-160 SITE PLAN MODIFICATION  
THIS DOCUMENT WAS PREPARED BY SMITH LAND SURVEYING, INC.