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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, June 15, 2020  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

EQT PRODUCTION COMPANY  
625 LIBERTY AVE., SUITE 1700

PITTSBURGH, PA 15222

Re: Permit Modification Approval for OXF43H35  
47-017-06886-00-00

EQT PRODUCTION COMPANY

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

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

James A. Martin  
Chief

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

Operator's Well Number: OXF43H35  
Farm Name: CATHY JEAN WETZEL, ET AL  
U.S. WELL NUMBER: 47-017-06886-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 6/15/2020

Promoting a healthy environment.

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

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

2) Operator's Well Number: OXF43H35 Well Pad Name: OXF43

3) Farm Name/Surface Owner: Cathy Jean Wetzal, et. al. Public Road Access: Rt. 20

4) Elevation, current ground: 1,229' (As-built) Elevation, proposed post-construction: 1,229' (as-built)

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow  Deep \_\_\_\_\_  
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus, 6,647', 57', 2951 psi

8) Proposed Total Vertical Depth: 6,647'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,471'

11) Proposed Horizontal Leg Length: 12,911'

12) Approximate Fresh Water Strata Depths: 70', 221', 307', 382'

13) Method to Determine Fresh Water Depths: Offset wells: 017-01623, 017-03817, 017-03831, 017-03828, 017-03832

14) Approximate Saltwater Depths: None expected - if encountered will be below 945'

15) Approximate Coal Seam Depths: 321'-322'

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

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

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

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Environmental Protection

Daniel A. Flack Digitally signed by Daniel A. Flack  
Date: 2020.05.06 16:25:37 -04'00'

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	26	New	A-500	85.6	40	40	58 ft^3 / CTS
Fresh Water	13 3/8	New	J-55	54.5	532	532	624 ft^3 / CTS
Coal							
Intermediate	9 5/8	New	P-110	40	5272	5272	2087 ft^3 / CTS
Production	5 1/2	New	P-110	20	20471	20471	500' above intermediate casing
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40' above top perf or 80° inclination.	
Liners							

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	26	30	.312	1050	18	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2730	2184	Class A / Type 1	1.13 - 1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	7900	3160	Class A / Type 1	1.13 - 1.19
Production	5 1/2	8 1/2	.361	14360	10112	Class A/H	1.04 - 2.098
Tubing	2 3/8	NA	.19	7700			
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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Daniel A. Flack Digitally signed by Daniel A. Flack  
 Date: 2020.05.06 16:26:26 -04'00'

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 1000'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

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 0.1%) 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 10,000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 350,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000-600,000 pounds of proppant per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): N/A - Site Built

22) Area to be disturbed for well pad only, less access road (acres): N/A - Site Built

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: Calcium Chloride. Used to speed the setting of cement slurries  
Intermediate: Calcium Chloride. Used to speed the setting of cement slurries.  
Production: Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

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25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.  
Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.  
Production: Perform a cleanup cycle by pumping 3-8 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

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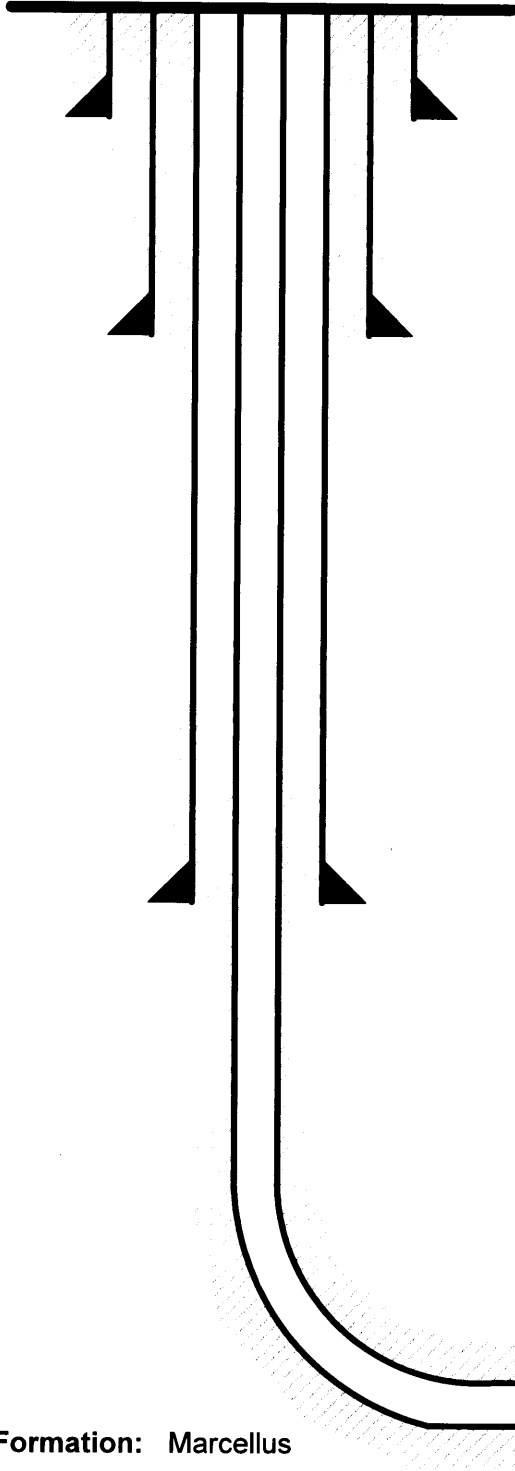
\*Note: Attach additional sheets as needed.

**EQT Production**

**Wellbore Diagram**

Well: OXF43 35H  
Pad: OXF43  
Elevation: 1229' GL 1242' KB

County: Doddridge  
State: West Virginia



**Conductor @ 40'**  
26", 85.6#, A-500, cement to surface w/ Class A

**Surface @ 532'**  
13-3/8", 54.5#, J-55, cement to surface w/ Class A/Type I

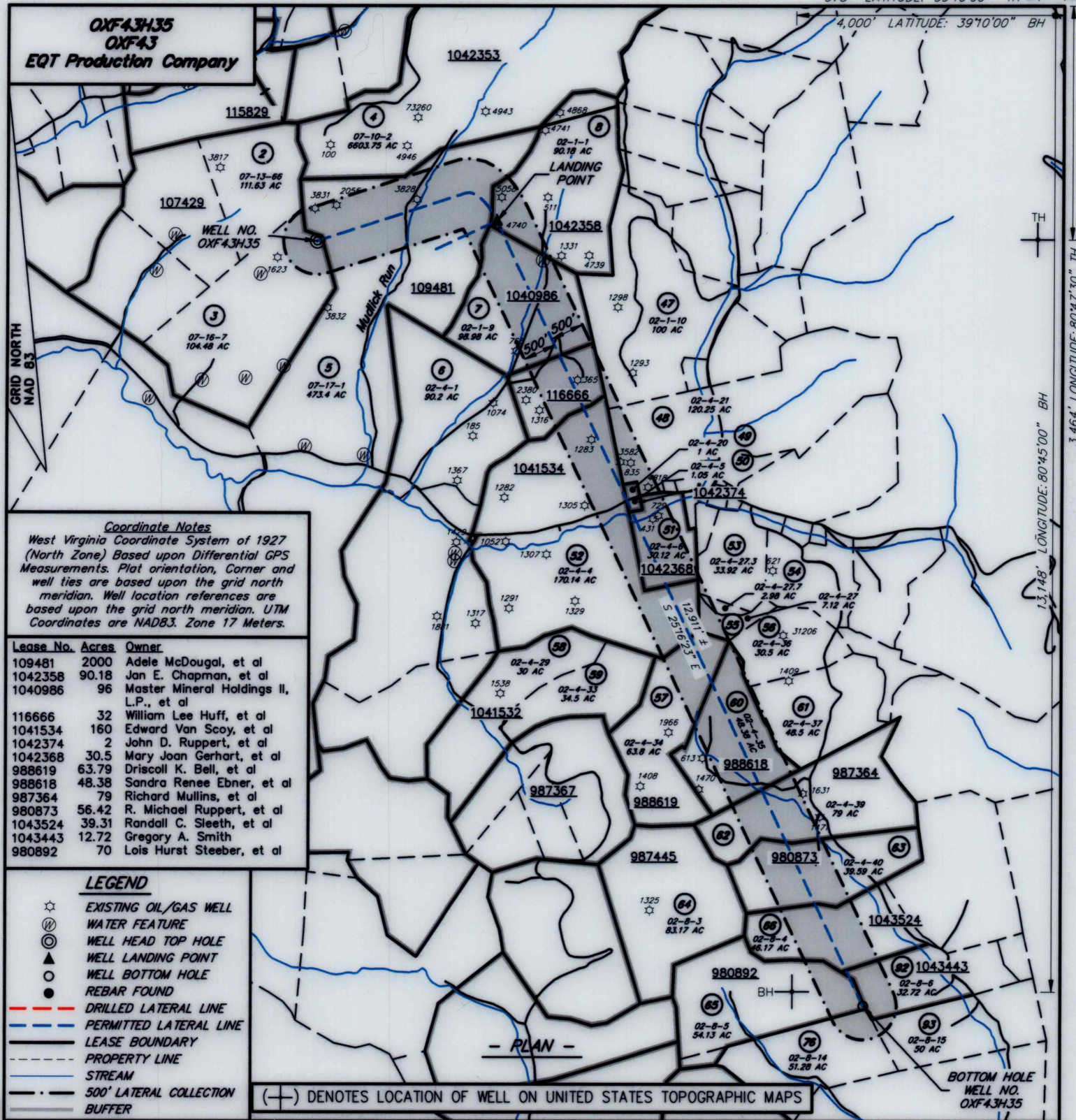
**Intermediate @ 5,272'**  
9-5/8", 40#, P-110, cement to surface w/ Class A/Type I

**Production @ 20,471' MD / 6,647' TVD**  
5-1/2", 20#, P-110, cement to 500' inside 9-5/8" w/ Class A/H

**Formation: Marcellus**

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NOT TO SCALE



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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



FILE NO.: EES-60635  
 DRAWING NO.: OXF43\_Well Plat  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: ±3'  
 PROVEN SOURCE OF ELEVATION: GPS

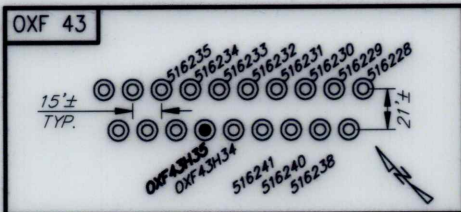
**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**OFFICE OF OIL AND GAS**

DATE MAY 1, 20 20  
 OPERATORS WELL NO. OXF43H35  
 API WELL NO. MOD  
47 017 06886  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION, ELEVATION: 1229' (As-Built Pad) WATERSHED: Middle Fork Hughes River QUADRANGLE: OXFORD  
 DISTRICT: SOUTH WEST / COVE COUNTY: DODDRIDGE  
 SURFACE OWNER: Cathy Jean Wetzel, ET AL ACREAGE: 104.48± AC  
 ROYALTY OWNER: Franklin Maxwell Heirs L. P. LEASE NO.: 107429 ACREAGE: 255± AC  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,647'

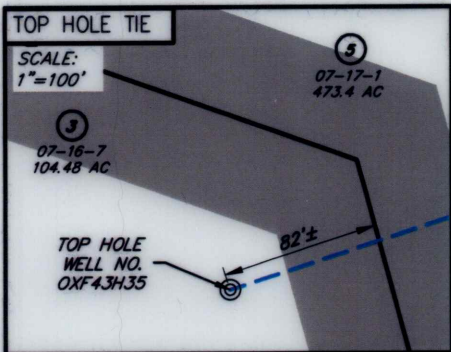
WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Joseph C. Mallow  
 ADDRESS: 400 Woodcliff Drive ADDRESS: 115 Professional Pl. P.O. Box 280  
Canonsburg, PA 15317 Bridgeport, WV 26330

**OXF43H35**  
**OXF43**  
**EQT Production Company**



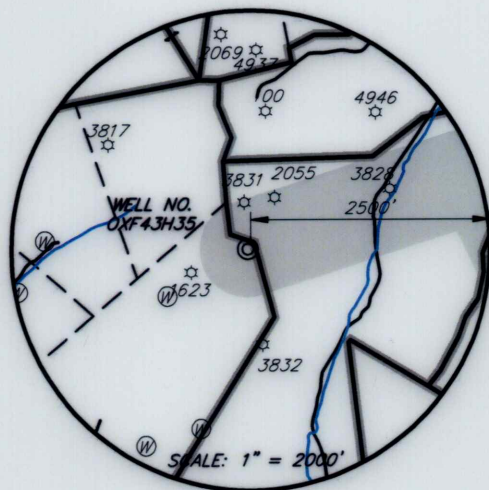
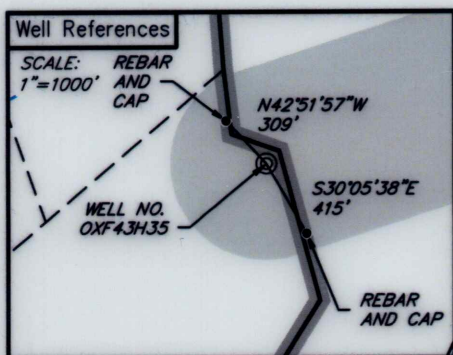
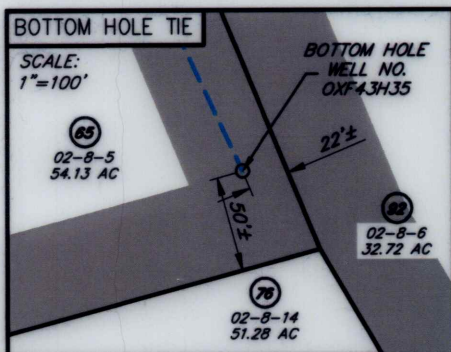
**OXF43H35 Well Point Coordinates**

Top Hole Coordinates		
NAD 27 S.P.C. (Ft.)	N: 241,952.511	E: 1,633,346.350
NAD 27 GEO	LAT: 39.157057	LONG: 80.793003
NAD 83 UTM 17N (M)	N 4,334,235.6	E: 517,899.6
NAD 83 S.P.C. (Ft.)	N 241,987.8	E: 1,601,905.5
Landing Point Coordinates		
NAD 27 S.P.C. (Ft.)	N: 242,259.011	E: 1,636,026.302
NAD 27 GEO	LAT: 39.158004	LONG: 80.783569
NAD 83 UTM 17N (M)	N 4,334,342.6	E: 518,714.4
NAD 83 S.P.C. (Ft.)	N 242,294.4	E: 1,604,585.5
Bottom Hole Coordinates		
NAD 27 S.P.C. (Ft.)	N: 230,583.893	E: 1,641,538.178
NAD 27 GEO	LAT: 39.126167	LONG: 80.763554
NAD 83 UTM 17N (M)	N 4,330,813.9	E: 520,452.9
NAD 83 S.P.C. (Ft.)	N 230,619.5	E: 1,610,097.5



NO.	SURFACE OWNER
3	CATHY JEAN WETZEL, ET AL
5	RANDY E. & WILLIAM LEE HUFF
7	WM & RANDY HUFF DECEDEENTS
8	ARNOLD DALE ALAN & BRYAN ALAN & DAVID LYNNGEE
49	JENNINGS T. STARCHER
50	JENNINGS T. STARCHER
51	JOHN E. & DEBRA L. RUPPERT
52	JAMES H. & JENNIE FOSTER
57	JANNETTE CONLEY
60	JANNETTE CONLEY
62	WILLIAM A. & SANDRA (MATHENY) ARMENTROUT
63	ROSS LEVINE
65	DAVID E. BOWYER
66	RONALD G. & VERONICA N. CLAYPOOL
92	JOSEPH J. LANDICINI, III AND LORRAINE L. LANDICINI

NO.	ADJACENT OWNER
47	LUCIUS M. TALLMAN, ET UX
48	MICHAEL & MARY ANN RUPPERT
53	JOHN E. & DEBRA L. RUPPERT
54	JOHN E. & DEBRA L. RUPPERT
55	MICHAEL R. RUPPERT JR. TRUST & VANESSA GAE MORGAN
56	MICHAEL & MARY ANN RUPPERT
61	MICHAEL & MARY ANN RUPPERT
76	DAVID E. BOWYER
93	DAVID E. BOWYER



**LEGEND**

- ☆ EXISTING OIL/GAS WELL
- ⊙ WATER FEATURE
- ⊙ WELL HEAD TOP HOLE
- ▲ WELL LANDING POINT
- WELL BOTTOM HOLE
- REBAR FOUND
- DRILLED LATERAL LINE
- - - PERMITTED LATERAL LINE
- LEASE BOUNDARY
- - - PROPERTY LINE
- STREAM
- · - · 500' LATERAL COLLECTION
- BUFFER



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*[Signature]*



SEAL

FILE NO.: EES-60635  
DRAWING NO.: OXF43\_Well Plat  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: ±3'  
PROVEN SOURCE OF ELEVATION: GPS

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

DATE MAY 1, 20 20  
OPERATORS WELL NO. OXF43H35  
API WELL NO. MOD 47 017 06886  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
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DISTRICT: SOUTH WEST / COVE COUNTY: DODDRIDGE  
SURFACE OWNER: Cathy Jean Wetzel, ET AL ACREAGE: 104.48± AC  
ROYALTY OWNER: Franklin Maxwell Heirs L. P. LEASE NO.: 107429 ACREAGE: 255± AC  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,647'

WELL OPERATOR: EQT Production Company  
ADDRESS: 400 Woodcliff Drive  
Canonsburg, PA 15317

DESIGNATED AGENT: Joseph C. Mallow  
ADDRESS: 115 Professional Pl. P.O. Box 280  
Bridgeport, WV 26330

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

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

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

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

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

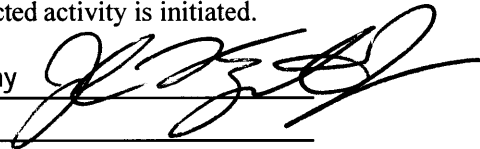
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

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

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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: John Zavatchan 

Its: Project Specialist - Permitting



6A1 attachment

Operator's Well No.

OXF43H35

**Lease No. Grantor, Lessor, etc.**

**Grantee, Lessee, etc.**

**Royalty Book/Page**

107429

**Franklin Maxwell Heirs L.P. (current royalty owner)**

\*\*

W. Brent Maxwell, et al (original lessor)

Fisher Oil Co.

LB23/337

Fisher Oil Co.

The Philadelphia Company of West Virginia

LB32/120

The Philadelphia Company of West Virginia

Pittsburgh & West Virginia Gas Company

DB87/90

Pittsburgh & West Virginia Gas Co.

Equitable Gas Company

DB121/303

Equitable Gas Company

Equitrans, Inc.

LB154/475

Equitrans, Inc.

Equitrans, L.P.

DB329/645

Equitrans, L.P.

Equitable Production-Eastern States, Inc.

LB 192/19

Equitable Production-Eastern States, Inc.

Equitable Production Company

CB281/346

Equitable Production Company

EQT Production Company

CB281/346

109481

**Adele McDougal, et al (current royalty owner)**

\*\*

Jackson Leeson, et al (original lessor)

The Philadelphia Co. of West Virginia

LB21/76

The Philadelphia Co. of West Virginia

Pittsburgh & West Virginia Gas Co.

DB87/90

Pittsburgh & West Virginia Gas Co.

Equitable Gas Company

DB121/303

Equitable Gas Company

Equitrans, Inc.

LB154/475

Equitrans, Inc.

Equitrans, L.P.

DB329/645

Equitrans, L.P.

Equitable Production-Eastern States, Inc.

LB 192/19

Equitable Production-Eastern States, Inc.

Equitable Production Company

CB281/346

Equitable Production Company

EQT Production Company

CB281/346

1042358

**Jan E. Chapman, et al (current royalty owner)**

\*\*

Edwin H. Chapman

Union Oil and Gas Co.

LB 69/72

Union Oil and Gas Co.

Wm. W. Gruber

LB70/482

Wm. W. Gruber

J.D. Brawner, et al

LB 72/259

J. D. Brawner , et al

Pennzoil Company

LB 88/264

Pennzoil Company

Edwin H. Chapman

LB 91/563

Edwin H. Chapman

J&S Gas Company

LB 94/225

J&S Gas Company

Hugh Spencer

LB 95/137

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Hugh Spencer	Spencer Enterprises, LLC	WB 33/68
Spencer Enterprises, LLC	Antero Resources Appalachian Corp	LB 396/611
Antero Resources Appalachian Corp	CNX Gas Company LLC and Noble Energy, Inc.	LB 411/478
Noble Energy, Inc	CNX Gas Company, LLC	LB 377/304
CNX Gas Company, LLC	Antero Resources Corporation	DB 387/216
Antero Resources Corporation	EQT Production Company	DB 429/585

**1040986** **Master Mineral Holdings II, L.P., et al (current royalty owner)** \*\*  
 Master Mineral Holdings II, L.P. EQT Production Company LB 488/594

**116666** **William Lee Huff, et al (current royalty owner)** \*\*  
 W. J. Hickman and Docie E. Hickman (original lessor) Pittsburgh & West Virginia Gas Company Equitable Gas Company, a Pennsylvania corporation LB 35/429  
 Pittsburgh and West Virginia Gas Company Equitable Gas Company, a division of Equitable Resources DB 121/303  
 Equitrans LP Equitrans, Inc. LB 154/475  
 Equitable Production-Eastern States Inc. Equitable Production Company LB 155/160  
 Equitable Production Company EQT Production Company DB 281/346  
 EQT Production Company EQT Production Company DB 281/346

**1041534** **Edward Van Scoy, et al (current royalty owner)** \*\*  
 Thurman Spurgeon and Nannie Spurgeon (original lessor) Hope Natural Gas Company LB 35/375  
 Hope Natural Gas Company Consolidated Gas Supply Corporation DB 143/345  
 Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation LB 135/583  
 Consolidated Gas Supply Corporation CNG Development Company aka CNG Producing Company LB 139/41  
 CNG Producing Company Dominion Exploration & Production Inc. INC 234/1203  
 Dominion Exploration & Production Inc. Dominion Transmission, Inc. LB 244/528  
 Dominion Transmission, Inc. CONSOL Energy Holdings LLC XVI LB 245/1  
 CONSOL Energy Holdings LLC XVI CONSOL Gas Company LLC DB 292/469

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<u>1042374</u>	<u>John D. Ruppert, et al. (current royalty owner)</u> Starcher T. Jennings (original lessor) Antero Resources Corporation	Noble Energy, Inc. Antero Resources Corporation EQT Production Company	LB 260/39 LB 400/565 LB 486/476
<u>1042368</u>	<u>Mary Joan Gerhart, et al (current royalty owner)</u> Mary Joan Gerhart Antero Resources Corporation	Antero Resources Corporation EQT Production Company	LB 408/603 LB 488/13
<u>988619</u>	<u>Driscoll K. Bell, et al (current royalty owner)</u> Driscoll K. Bell	Antero Resources Corporation EQT Production Company	LB 394/715 LB 488/13
<u>998618</u>	<u>Sandra Renee Ebner, et al (current royaty owner)</u> Sandra Renee Ebner	EQT Production Company	LB 264/140
<u>987364</u>	<u>Richard Mullins, et al (current royalty owner)</u> Richard Mullins	EQT Production Company	LB 270/380
<u>980873</u>	<u>R. Michael Ruppert, et al (current royalty owner)</u> R. Michael Ruppert	EQT Production Company	LB 411/592
<u>1043524</u>	<u>Randall Sleeth et al. (current royalty owner)</u> Marie Lowther, widow Interstate Drilling, Inc. Energvest LP CGas Properties LP Winter Moon Energy Company LLC	Interstate Drilling, Inc. Energvest LP CGas Properties LP Winter Moon Energy Company LLC SWN Production Company LLC	LB 166/296 LB194/138 DB 269/134 LB 258/188 LB 383/1

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SWN Production Company LLC	Antero Exchange Properties LLC	LB 432/581
Antero Exchange Properties LLC	Antero Resources Corporation	DB 378/134
Antero Resources Corporation	EQT Production Company	LB 488/13

**1043443** **Gregory A. Smith and Judith A. Smith et al.** **(current royalty owner)** \*\*

Minnie Burton	Hugh Hurst and Olin B. Wetzel	LB 69/462
Hugh Hurst	Olin B. Wetzel	LB 90/434
Heirs and Estate of Olin B. Wetzel	Tri-County Oil and Gas Co. Inc.	LB 147/85
	Thomas Moody, Rich Heffelfinger, Eugene L. Moody	
Tri-County Oil and Gas	Jerry McPherson	LB 150/661
Rich Heffelfinger dba Vegas Company	Thomas Moody	LB 151/123
Jerry McPherson	Interstate Drilling Co. Inc.	LB 160/134
Thomas E. Moody db/a ATCO and Eugene L. Moody	Enervest LP	LB 160/239 & LB 162/124
Interstate Drilling, Inc.	CGas Properties LP	LB194/138
Enervest LP	Winter Moon Energy Company LLC	DB 269/134
CGas Properties LP	SWN Production Company LLC	LB 258/188
Winter Moon Energy Company LLC	Antero Exchange Properties LLC	LB 383/1
SWN Production Company LLC	Antero Resources Corporation	LB 432/581
Antero Exchange Properties LLC	EQT Production Company	DB 378/134
Antero Resources Corporation		LB 488/13

**980982** **Patricia Sue Hurst Wright, et al (current royalty owner)** \*\*

Patricia Sue Hurst Wright	EQT Production Company	LB 393/634
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\*\* Per West Virginia Code Section 22-6-8.

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EQT Production  
Hydraulic Fracturing Monitoring Plan  
Pad ID: OXF43  
County: Doddridge

May 7, 2020

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## 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 OXF43 pad: 516228, 516229, 516230, 516232, 516238, 516240, OXF43H32, OXF43H34 and OXF43H35.

Due to the requirements under 35CSR8 5.11, the permittee is required to review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation.

A report is required to be submitted along with a well work permit application.

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 coordination with well operators of the timing and location of the hydraulic fracturing, establishment of measures 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 Well Operators

EQT, using available data (WV Geological Survey, WVDEP website, and IHS data service), has identified all known wells and well operators within 500 feet of this pad and the lateral sections that are known or could reasonably be expected to be within range of the fracture propagation. A map showing these wells along with a list of the wells and operators is included in **Attachment A**.

EQT will notify these operators of the hydraulic fracturing schedule for these wells, and coordinate with them throughout the fracturing process.

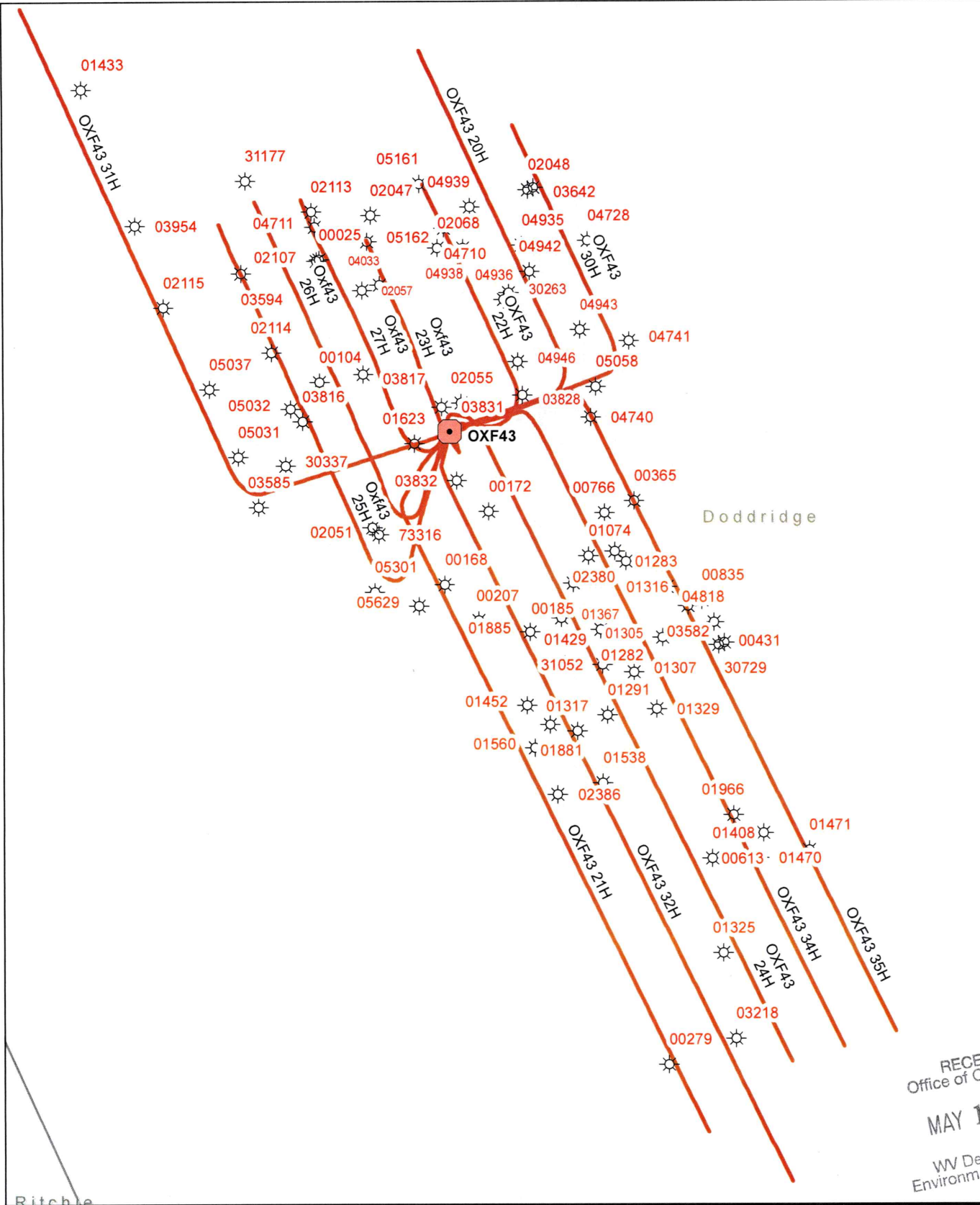
EQT will recommend to these operators at a minimum to:

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 or other necessary equipment for wellhead integrity capable of a pressure recommended by EQT
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 other operators, and ongoing monitoring of the work upon request of OOG or immediately in the event of any noted abnormalities.

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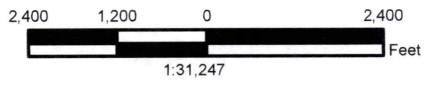
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**EQT**  
EQT Corporation  
625 Liberty Avenue  
Pittsburgh, PA 15222

**OXF43**  
  
Vertical Offsets and  
Foreign Laterals  
within 500'

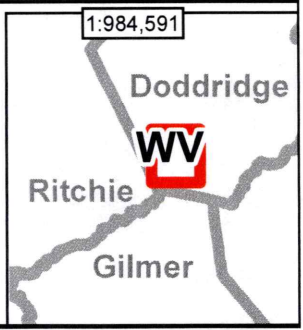
**Legend**

- Foreign Well Offset
- Well Pad Sites
- Well Lateral\_FM Formation**
  - Genesee
  - Marcellus
  - Utica



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.



WellID	WellStatus	date	FmatTD	Permit	RemarksPRO	Operator	Longitude	Latitude	TargetFm	DatumEleva	TotalDepth-SS	Total Depth
4701700025	UNK	8/13/1930		00025	BNJ	PGH & WV GAS	-80.8015	39.1659		1012.0000	-1490.0000	2502.0000
4701700104	GAS	9/21/1939		00104	BNJ	EPC	-80.8015	39.1596		1095.0000	-1397.0000	2492.0000
4701700168	GAS	10/15/1946		00168	GDN	P & M OIL	-80.7932	39.1491		905.0000	-1416.0000	2321.0000
4701700172	GAS	12/7/1946		00172	SL1BNJGDN	P & M OIL	-80.7903	39.1529		955.0000	-1262.0000	2217.0000
4701700185	GAS	2/11/1919		00185	BNJSL2	EPC	-80.7847	39.1492		1103.0000	-905.0000	2008.0000
4701700207	GAS	10/5/1954		00207	BNJ	P & M OIL	-80.7910	39.1473		883.0000	-853.0000	1736.0000
4701700279	GAS	9/9/1959		00279	BLMBNJ	DORIS G FUEL	-80.7785	39.1244		1197.0000	-945.0000	2142.0000
4701700365	O&G	9/2/1960		00365	BNJ	BEECHLUCK OIL	-80.7807	39.1534		1152.0000	-881.0000	2033.0000
4701700431	O&G	11/26/1960		00431	BNJSQW	ASH & CHAPMAN	-80.7751	39.1460		937.0000	-967.0000	1904.0000
4701700613	GAS-P	10/14/1961		00613	BNJ	PENNZOIL	-80.7722	39.1363		954.0000	-1140.0000	2094.0000
4701700766	O&G	8/2/1962		00766	MXBNJ	WILLIAMS OIL & GAS	-80.7826	39.1528		935.0000	-912.0000	1847.0000
4701700835	O&G-P	7/23/1962		00835	BNJ	EDWARD DOLLY	-80.7762	39.1483		1068.0000	-1016.0000	2084.0000
4701701074	GAS	2/21/1964		01074	GDN	WILLIAMS OIL & GAS	-80.7837	39.1506		949.0000	-1510.0000	2459.0000
4701701282	O&G	8/31/1965		01282	BNJ	PENNZOIL	-80.7829	39.1468		1061.0000	-971.0000	2032.0000
4701701283	O&G	8/17/1965		01283	BNJ	PENNZOIL	-80.7785	39.1490		1041.0000	-977.0000	2018.0000
4701701291	O&G	9/3/1965		01291	BNJ	PENNZOIL	-80.7825	39.1424		1027.0000	-994.0000	2021.0000
4701701305	DRY	10/18/1965		01305		PENNZOIL	-80.7788	39.1464		893.0000	-1007.0000	1900.0000
4701701307	O&G	9/18/1965		01307		PENNZOIL	-80.7807	39.1446		927.0000	-993.0000	1920.0000
4701701316	O&G	1/5/1966		01316	BNJ	EPC	-80.7812	39.1503		1131.0000	-894.0000	2025.0000
4701701317	OIL	2/27/1919		01317	BNJ	EPC	-80.7845	39.1416		1067.0000	-934.0000	2001.0000
4701701325	DRY	10/27/1965		01325		QUAKER STATE	-80.7749	39.1301		1008.0000	-1072.0000	2080.0000
4701701329	O&G	10/28/1965		01329	BNJ	PENNZOIL	-80.7792	39.1427		1180.0000	-990.0000	2170.0000
4701701367	O&G	10/19/1966		01367	BNJ	EPC	-80.7855	39.1474		1071.0000	-959.0000	2030.0000
4701701408	O&G	10/23/1966		01408	BNJ	EPC	-80.7756	39.1350		1241.0000	-1059.0000	2300.0000
4701701429	O&G	3/31/1967		01429	SLBNJ	MID AMERICAN EXPLORATION	-80.7853	39.1450		883.0000	-933.0000	1816.0000
4701701433	GAS-P	2/9/1967		01433	BNJ	FRANCIS FRIESTAD	-80.8172	39.1747		913.0000	-871.0000	1784.0000
4701701452	O&G	6/29/1967		01452	BNJ	EPC	-80.7878	39.1429		1091.0000	-936.0000	2027.0000
4701701470	GAS	7/11/1968		01470	BNJGDN	MID AMERICAN EXPL	-80.7725	39.1350		1244.0000	-1635.0000	2879.0000
4701701471	O&G	9/6/1967		01471	BNJWERGDN	MID AMERICAN EXPLORATION	-80.7692	39.1354		1046.0000	-1607.0000	2653.0000
4701701538	O&G	3/1/1969		01538	BLMBNJ	PENNZOIL	-80.7828	39.1389		1045.0000	-965.0000	2010.0000
4701701560	O&G	10/8/1969		01560	BNJ	EPC	-80.7873	39.1407		1022.0000	-921.0000	1943.0000
4701701623	O&G-P	8/8/1971		01623	GDS	WARREN DRILLING	-80.7952	39.1564		1226.0000	-1474.0000	2700.0000
4701701881	O&G	5/27/1978		01881	BNJ	EPC	-80.7863	39.1419		918.0000	-975.0000	1893.0000
4701701885	OIL	5/23/1978		01885	BNJ	EPC	-80.7876	39.1467		863.0000	-1030.0000	1893.0000
4701701966	GAS	12/2/1924		01966	GDN30F	CONSOLIDATED GAS	-80.7742	39.1372		940.0000	-1580.0000	2520.0000
4701702047	GAS	5/23/1918		02047	NCR	EPC	-80.7981	39.1682		0.0000	-1907.0000	1907.0000
4701702048	GAS	5/18/1918		02048	NCR	EPC	-80.7876	39.1695		0.0000	-1944.0000	1944.0000
4701702051	GAS	7/5/1918		02051	SL1BNJ	EPC	-80.7980	39.1521		0.0000	-1801.0000	1801.0000
4701702055	GAS-P	1/1/1918		02055	SL2	EPC	-80.7921	39.1585		1097.0000	-542.0000	1639.0000
4701702057	P&A	12/13/1918		02057		EQUITRANS	-80.7986	39.1643		985.0000	-530.0000	1515.0000
4701702068	GAS	2/2/1920		02068	SL2MXBNJ	EPC	-80.7936	39.1665		0.0000	-1833.0000	1833.0000
4701702107	GAS	7/14/1930		02107	SL1BNJ	EPC	-80.8017	39.1658		1012.0000	-814.0000	1826.0000
4701702113	P&A	5/5/1920		02113	NCR	EPC	-80.8020	39.1684		0.0000	-2485.0000	2485.0000
4701702114	P&A	10/15/1920		02114	BNJGDN	EPC	-80.8047	39.1611		0.0000	-2400.0000	2400.0000
4701702115	GAS-P	10/14/1924		02115	SLBNJ	EPC	-80.8118	39.1634		1180.0000	-722.0000	1902.0000
4701702380	GAS	5/7/1919		02380	SL3MXBNJ	EPC	-80.7819	39.1508		1068.0000	-1025.0000	2093.0000
4701702386	GAS	2/19/1914		02386	MXBNJGDN	EPC	-80.7858	39.1383		1000.0000	-1604.0000	2604.0000
4701703218	GAS	11/13/1983		03218	WRNSPCALX	TRIDON	-80.7741	39.1257		1250.0000	-4054.0000	5304.0000

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4701703582	GAS	10/15/1987	03582	SPUBTRD	CNG	-80.7771	39.1480	1010.0000	-4332.0000	5342.0000
4701703585	O&G	10/23/1987	03585	BNJWRNNSPCBRDBSNALXELK	MERT DEVELOPMENT	-80.8056	39.1531	920.0000	-4338.0000	5258.0000
4701703594	GAS	10/10/1987	03594	WERBTRLYBSNALX	TERM ENERGY	-80.8067	39.1652	958.0000	-4073.0000	5031.0000
4701703642	GAS	6/27/1988	03642	WERBTRDBSNLEOALX	TERM ENERGY	-80.7872	39.1696	1228.0000	-4204.0000	5432.0000
4701703816	GAS	9/20/1990	03816	RLVBSNALX	ECA	-80.8027	39.1576	1065.0000	-4170.0000	5235.0000
4701703817	GAS	6/21/1990	03817	RLVBSNALX	ECA	-80.7986	39.1600	1210.0000	-4110.0000	5320.0000
4701703828	GAS	9/28/1990	03828	RLVBSNALX	ECA	-80.7880	39.1589	920.0000	-4187.0000	5107.0000
4701703831	GAS	9/18/1990	03831	RLVBSNALX	ECA	-80.7934	39.1583	1250.0000	-4172.0000	5422.0000
4701703832	GAS	9/20/1990	03832	RLVBSNALX	ECA	-80.7924	39.1545	1092.0000	-4191.0000	5283.0000
4701703954	GAS	6/30/1992	03954	BNJGDNBSNALX	TERM ENERGY	-80.8137	39.1677	895.0000	-4065.0000	4960.0000
4701704033	GAS	9/15/1993	04033	WERBERGDNBTRDBSN	TERM ENERGY	-80.7975	39.1646	970.0000	-4030.0000	5000.0000
4701704710	GAS	1/22/2003	04710	WRNNSPCBTRLYBSNELKALX	KEY OIL	-80.7932	39.1675	1206.0000	-4137.0000	5343.0000
4701704711	GAS	1/20/2003	04711	WRNNSPCBTRLYBSNELKALX	KEY OIL	-80.8018	39.1676	1215.0000	-4126.0000	5341.0000
4701704728	GAS	4/30/2004	04728	MX/BNJ/GDN	DOMINION	-80.7836	39.1668	1135.0000	-1585.0000	2720.0000
4701704740	GAS	10/15/2003	04740	WRN/SPC/BT/RLY/RLY3/BSN/ALX/ELI	KEY OIL	-80.7835	39.1578	1215.0000	-4132.0000	5347.0000
4701704741	GAS	10/4/2003	04741	WRN/SPC/BT/RLY/RLY3/BSN/ALX	KEY OIL	-80.7809	39.1617	1202.0000	-4145.0000	5347.0000
4701704818	GAS	2/20/2005	04818	BNJGDN	KEY OIL	-80.7754	39.1472	959.0000	-1721.0000	2680.0000
4701704935	GAS	2/25/2005	04935	KNRBNJGDN	KEY OIL	-80.7880	39.1666	1203.0000	-1559.0000	2762.0000
4701704936	GAS	5/13/2005	04936	KNRBNJGDN	KEY OIL	-80.7892	39.1638	1257.0000	-1550.0000	2807.0000
4701704938	GAS	5/25/2005	04938	KNRBNJGDN	KEY OIL	-80.7919	39.1665	1028.0000	-1555.0000	2583.0000
4701704939	GAS	6/2/2005	04939	KNRBNJGDN	KEY OIL	-80.7914	39.1686	1204.0000	-1567.0000	2771.0000
4701704942	GAS	10/14/2005	04942	MX/BMN/BNJ/WER/GDN	DOMINION	-80.7875	39.1653	1171.0000	-1591.0000	2762.0000
4701704943	GAS	12/5/2005	04943	SL/MX/BMN/GDN	DOMINION	-80.7842	39.1623	984.0000	-1526.0000	2510.0000
4701704946	GAS	11/29/2005	04946	SL/MX/BMN/BNJ/GDN	DOMINION	-80.7883	39.1606	1123.0000	-1597.0000	2720.0000
4701705031	GAS	6/24/2004	05031	SL/BNJ	SPENCER ENTERPRISES	-80.8070	39.1557	0.0000	-2070.0000	2070.0000
4701705032	GAS	6/22/2004	05032	SL/BNJ	SPENCER ENTERPRISES	-80.8035	39.1582	0.0000	-2730.0000	2730.0000
4701705037	GAS	6/30/2004	05037	SL/BNJ	SPENCER ENTERPRISES	-80.8088	39.1592	0.0000	-1950.0000	1950.0000
4701705058	GAS	8/31/2005	05058	BNJ	SPENCER ENTERPRISES	-80.7831	39.1593	0.0000	-2285.0000	2285.0000
4701705161	GAS	6/28/2006	05161	KNR/BNJ/GDN	KEY OIL	-80.7948	39.1698	1100.0000	-1531.0000	2631.0000
4701705162	GAS	6/28/2006	05162	KNR/BNJ/GDN	KEY OIL	-80.7983	39.1668	1201.0000	-1554.0000	2755.0000
4701705301	GAS	2/2/2007	05301	WERGDNPCBTSNALX	EPC	-80.7979	39.1488	986.0000	-4416.0000	5402.0000
4701705629	GAS	9/4/2008	05629	MRC	EPC	-80.7950	39.1480	866.0000	-5466.0000	6332.0000
4701730263	GAS	10/24/1918	30263	BMNBNU	I H BEREN	-80.7889	39.1642	1159.0000	-895.0000	2054.0000
4701730337	GAS	6/24/1917	30337	SL1BNU	PGH & WV GAS	-80.8038	39.1553	1084.0000	-874.0000	1958.0000
4701730729	GAS	5/17/1919	30729	BNJGDN	HOPE NAT GAS	-80.7747	39.1461	979.0000	-1547.0000	2526.0000
4701731052	GAS	1/8/1919	31052	SL2G8R8NU	HOPE NAT GAS	-80.7828	39.1450	885.0000	-872.0000	1757.0000
4701731177	GAS	5/17/1919	31177	BNJ	EPC	-80.8064	39.1700	1064.0000	-933.0000	1997.0000
4701773316	UNK		73316		UNKNOWN	-80.7976	39.1517	0.0000	-99999.0000	99999.0000

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