



west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary
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 OXF43H34
47-017-06885-00-00

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: OXF43H34
Farm Name: CATHY JEAN WETZEL, ET AL
U.S. WELL NUMBER: 47-017-06885-00-00
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: OXF43H34 Well Pad Name: OXF43

3) Farm Name/Surface Owner: Cathy Jean Wetzel, 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 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, 6,647', 57', 2951 psi

*Call
for D. Black
5/22/2020*

8) Proposed Total Vertical Depth: 6,647'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,029'

11) Proposed Horizontal Leg Length: 12,739'

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 X

RECEIVED
Office of Oil and Gas

MAY 13 2020

(a) If Yes, provide Mine Info: Name: _____

Depth: _____

Seam: _____

Owner: _____

WV Department of
Environmental Protection

WW-6B
(04/15)

API NO. 47- 017 - 06885
 OPERATOR WELL NO. OXF43H34
 Well Pad Name: OXF43

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
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	20029	20029	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							

OK for D. Flack 5/22/2020

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
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:				RECEIVED Office of Oil and Gas MAY 13 2020 WV Department of Environmental Protection
Sizes:				
Depths Set:				

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

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical to an approximate depth of 2500'. 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

RECEIVED
Office of Oil and Gas

MAY 13 2020

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

WV Department of
Environmental Protection

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.

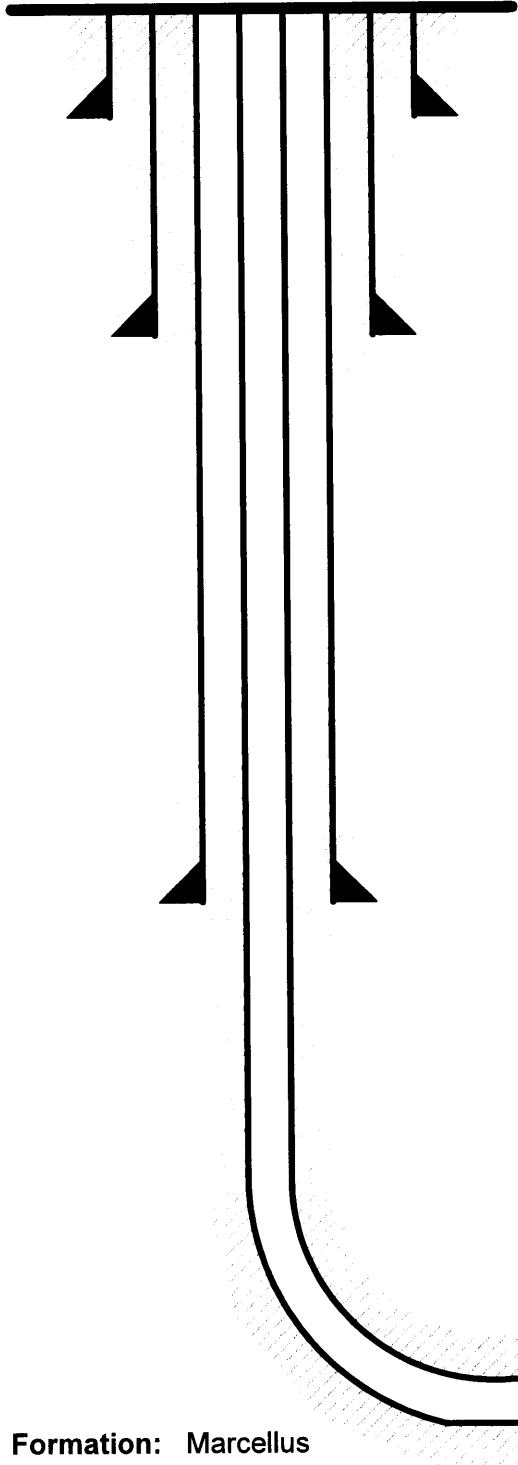
*Note: Attach additional sheets as needed.

EQT Production

Wellbore Diagram

Well: OXF43 34H
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

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

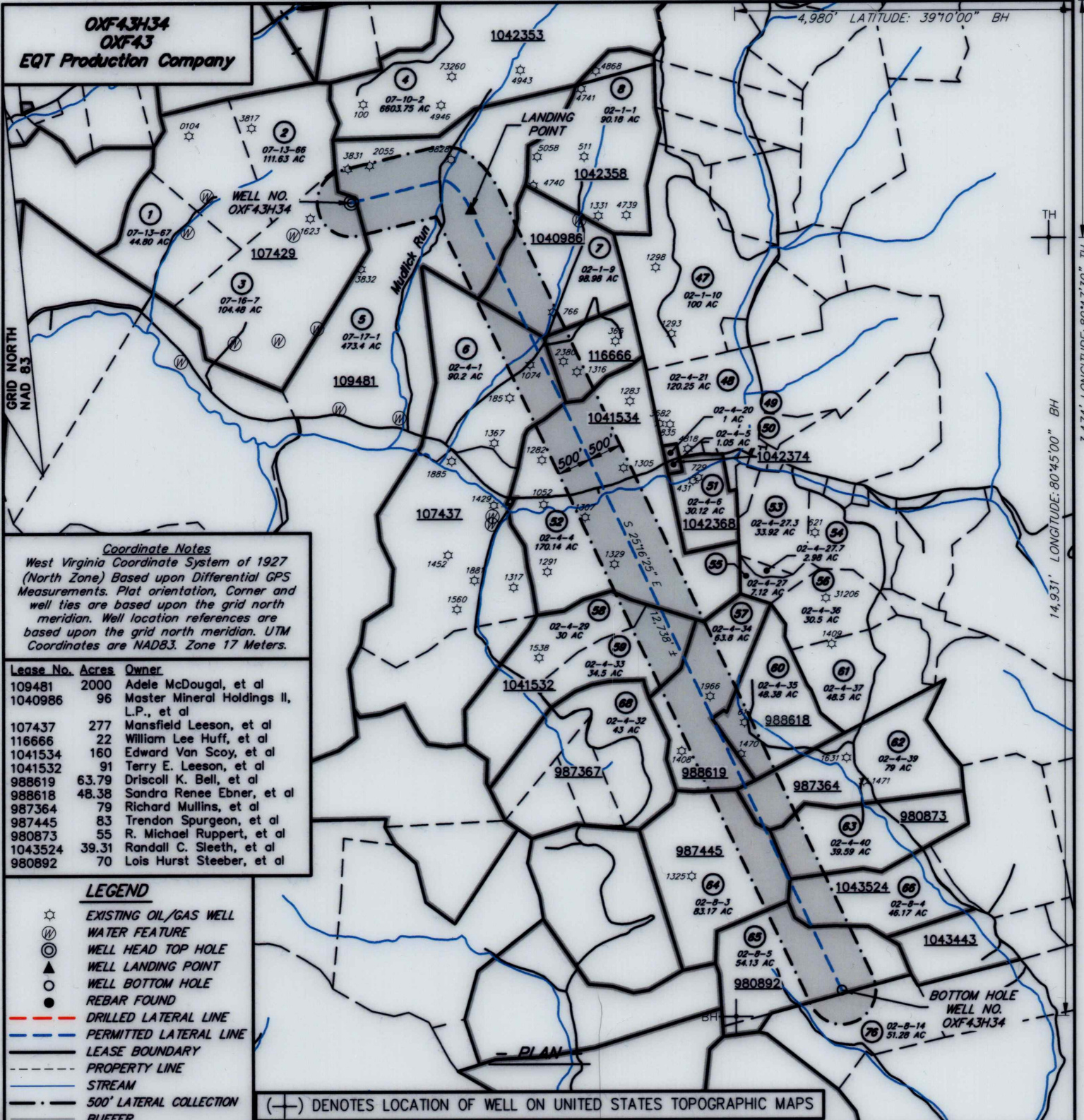
Production @ 20,029' MD / 6,647' TVD
5-1/2", 20#, P-110, cement to 500' inside 9-5/8" w/ Class A/H

Formation: Marcellus

Daniel A. Flack
Digitally signed by Daniel A. Flack
Date: 2020.05.06 16:29:32 -04'00'

NOT TO SCALE

OXF43H34
OXF43
EQT Production Company



Coordinate Notes

West Virginia Coordinate System of 1927 (North Zone) Based upon Differential GPS Measurements. Plat orientation, Corner and well ties are based upon the grid north meridian. Well location references are based upon the grid north meridian. UTM Coordinates are NAD83, Zone 17 Meters.

Lease No.	Acres	Owner
109481	2000	Adele McDougal, et al
1040986	96	Master Mineral Holdings II, L.P., et al
107437	277	Mansfield Leeson, et al
116666	22	William Lee Huff, et al
1041534	160	Edward Van Scoy, et al
1041532	91	Terry E. Leeson, et al
988619	63.79	Driscoll K. Bell, et al
988618	48.38	Sandra Renee Ebner, et al
987364	79	Richard Mullins, et al
987445	83	Trendon Spurgeon, et al
980873	55	R. Michael Ruppert, et al
1043524	39.31	Randall C. Sleeth, et al
980892	70	Lois Hurst Steeber, et al

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

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND 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

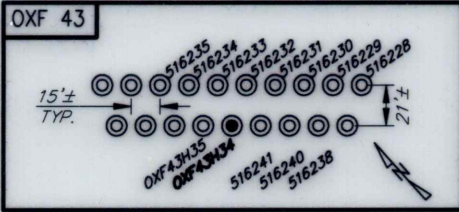
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

DATE MAY 1, 20 20
 OPERATORS WELL NO. OXF43H34
 API WELL NO. 47 017 06885
 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'

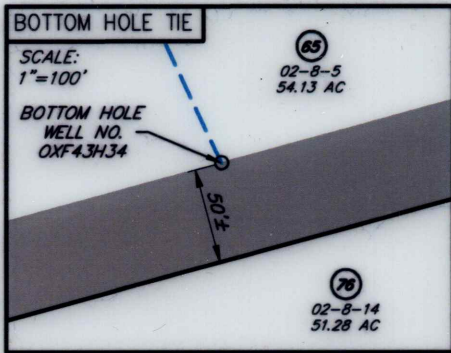
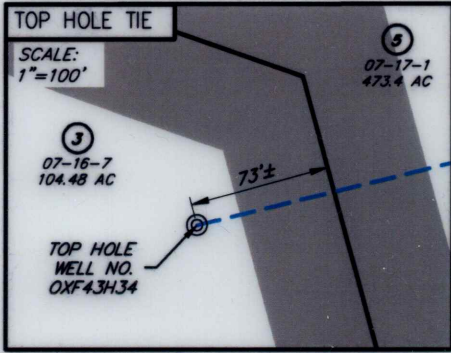
WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Joseph C. Mallow
 ADDRESS: 400 Woodcliff Drive ADDRESS: 115 Professional Pl. P.O. Box 280
Canonsburg, PA 15317 Bridgeport, WV 26330

OXF43H34
OXF43
EQT Production Company



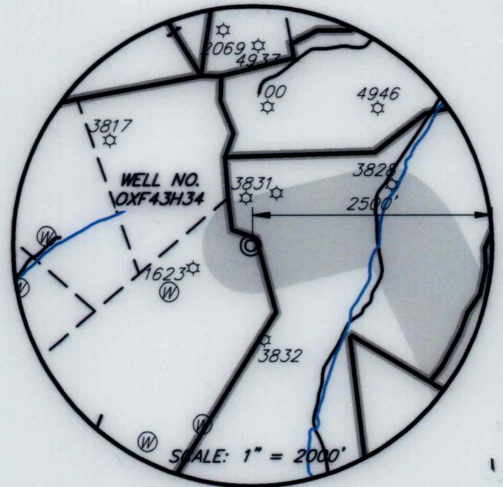
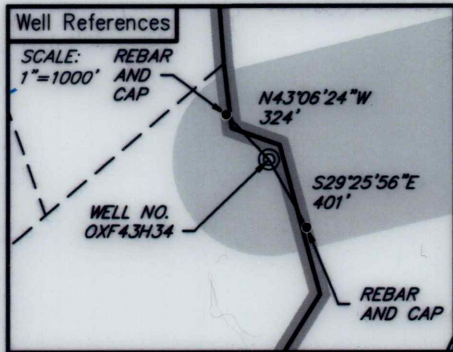
OXF43H34 Well Point Coordinates

Top Hole Coordinates		
NAD 27 S.P.C. (Ft.)	N: 241,942.485	E: 1,633,357.512
NAD 27 GEO	LAT: 39.157030	LONG: 80.792963
NAD 83 UTM 17N (M)	N 4,334,232.6	E: 517,903.0
NAD 83 S.P.C. (Ft.)	N 241,977.8	E: 1,601,916.7
Landing Point Coordinates		
NAD 27 S.P.C. (Ft.)	N: 241,836.607	E: 1,635,119.885
NAD 27 GEO	LAT: 39.156809	LONG: 80.786743
NAD 83 UTM 17N (M)	N 4,334,209.3	E: 518,440.4
NAD 83 S.P.C. (Ft.)	N 241,872.0	E: 1,603,679.1
Bottom Hole Coordinates		
NAD 27 S.P.C. (Ft.)	N: 230,317.319	E: 1,640,558.276
NAD 27 GEO	LAT: 39.125397	LONG: 80.766995
NAD 83 UTM 17N (M)	N 4,330,727.7	E: 520,155.8
NAD 83 S.P.C. (Ft.)	N 230,352.9	E: 1,609,117.6



NO.	SURFACE OWNER
3	CATHY JEAN WETZEL, ET AL
5	RANDY E. & WILLIAM LEE HUFF
6	WILMA LEE LEESON
7	WM & RANDY HUFF DECEDENTS
52	JAMES H. & JENNIE FOSTER
57	JANNETTE CONLEY
59	JANNETTE CONLEY
60	JANNETTE CONLEY
62	WILLIAM A. & SANDRA (MATHENY) ARMENTROUT
64	DONNA C. MATTHEWS
65	DAVID E. BOWYER
66	RONALD G. & VERONICA N. CLAYPOOL

NO.	ADJACENT OWNER
58	TERRY E. LEESON
63	ROSS LEVINE
76	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



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.

[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. OXF43H34
API WELL NO. 47 017 06885
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

WWW.ENCOMPASSSERVICES.COM PLOT DATE: 5/7/2020 CAD FILE: OXF_43_WELL_PLAT-2020-05-01.DWG

**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

RECEIVED
Office of Oil and Gas
MAY 13 2011

WV Department of Environmental Protection

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

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
107429	<u>Franklin Maxwell Heirs L.P. (current royalty owner)</u>		**	
	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	<u>Adele McDougal et al (current royalty owner)</u>		**	
	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
1040986	<u>Master Mineral Holdings II, L.P., et al (current royalty owner)</u>		**	
	Master Mineral Holdings II, L.P.	EQT Production Company		LB 488/594
107437	<u>Mansfield Leeson, et al (current royalty owner)</u>		**	
	F. L. Lodge (original lessor)	Fisher Oil Co.		LB22/277
	Fisher Oil Co.	The Philadelphia Oil Co.		LB24/64
	The Philadelphia Oil Co.	Pittsburgh and West Virginia Gas Company		DB87/90
	Pittsburgh and West Virginia Gas Company	Equitable Gas Co.		DB121/303
	Equitable Gas Co.	Equitrans, Inc.		LB154/475
	Equitrans, Inc.	Equitable Production-Eastern States, Inc.		LB192/19
	Equitable Production-Eastern States, Inc.	Equitable Production Company		CB281/346
	Equitable Production Company	EQT Production Co.		CB281/346
116666	<u>William Lee Huff, et al (current royalty owner)</u>			
	W. J. Hickman and Docie E. Hickman (original lessor)	Pittsburgh & West Virginia Gas Company		LB 35/429
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company, a Pennsylvania corporation		DB 121/303
	Equitable Gas Company, a division of Equitable Resources	Equitrans, Inc.		LB 154/475
	Equitrans LP	Equitable Production-Eastern States Inc.		LB 155/160
	Equitable Production-Eastern States Inc.	Equitable Production Company		DB 281/346
	Equitable Production Company	EQT Production Company		DB 281/346

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

<u>1041534</u>	<u>Edward Van Scoy, et al (current royalty owner)</u>		**
	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
	Condolidated Gas Transmission 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	CNX Gas Company LLC	DB 292/469
	CNX Gas Company LLC	Noble Energy, Inc.	LB 260/39
	CNX Gas Company LLC & Noble Energy, Inc.	Antero Resources Corporation	LB 400/565
	Antero Resources Corporation	EQT Production Company	LB 486/476
<u>1041532</u>	<u>Terry E. Leeson, et al (current royalty owner)</u>		**
	Joshua Adams and Satah E. Adams (original lessor)	J. W. Stuck	LB 28/172
	J. W. Stuck	Hope Natural Gas Company	LB 26/186
	Hope Natural Gas Company	Consolidated Gas Supply Corporation	DB 143/345
	Consolidated Gas Supply Corporation et al.	Conolidated Gas Transmission Corporation	LB 135/583
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation	DB 332/563
	CNG Transmission Corporation	Dominion Transmission, Inc.	DB 332/570
	Dominion Transmission, Inc.	CONSOL Energy Holidngs LLC XVI	LB 245/1
	CONSOL Energy Holidngs LLC XVI/CONSOL Gas Co.	CNX Gas Company LLC	DB 292/469
	CNX Gas Company LLC	Noble Energy Inc.	LB 260/39
	CNX Gas Company and Noble Energy, Inc.	Antero Resource Corporation	LB 400/565
	Antero Resources Corporation	EQT Production Company	LB 486/476
<u>988619</u>	<u>Driscoll K. Bell, et al (current royalty owner)</u>		**
	Driscoll K. Bell	EQT Production Company	LB 264/140
<u>998618</u>	<u>Sandra Renee Ebner, et al (current royaty owner)</u>		**
	Sandra Renee Ebner	EQT Production Company	LB 270/380
<u>987364</u>	<u>Richard Mullins, et al (current royalty owner)</u>		**
	Richard Mullins	EQT Production Company	LB 411/592
<u>987445</u>	<u>Trendon Spurgeon, et al (current royalty owners)</u>		**
	Trendon Spurgeon	Antero Resources Corporation	LB 417/91
	Antero Resources Corporation	EQT Production Copmpany	LB 486/476
<u>980873</u>	<u>R. Michael Ruppert, et al (current royalty owner)</u>		**
	R. Michael Ruppert	EQT Production Company	LB 278/113

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

1043524 Randall Sleeth et al. (current royalty owner)

**

Marie Lowther, widow	Interstate Drilling, Inc.	LB 166/296
Interstate Drilling, Inc.	Enervest LP	LB194/138
Enervest LP	CGas Properties LP	DB 269/134
CGas Properties LP	Winter Moon Energy Company LLC	LB 258/188
Winter Moon Energy Company LLC	SWN Production Company LLC	LB 383/1
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

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

**

Patricia Sue Hurst Wright	EQT Production Company	** LB 393/634
---------------------------	------------------------	---------------

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

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

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

May 7, 2020

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in 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.

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of
Environmental Protection

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	SLBNJGDN	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	MID AMERICAN EXPLORATION	-80.7756	39.1350		1241.0000	-1059.0000	2300.0000
4701701429	O&G	3/31/1967		01429	SLBNJ	EPC	-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	BNJWEGDN	MID AMERICAN EXPLORATION	-80.7692	39.1354		1045.0000	-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	SLBNJ	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	SLBNJ	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	TRI DON	-80.7741	39.1257		1250.0000	-4054.0000	5304.0000

RECEIVED
Office of Oil and Gas
MAY 13 2020
WV Department of Environmental Protection

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	BNJWRNSPCBRDBSNALXELK	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	RLYBSNALX	ECA	-80.8027	39.1576	1065.0000	-4170.0000	5235.0000
4701703817	GAS	6/21/1990	03817	RLYBSNALX	ECA	-80.7986	39.1600	1210.0000	-4110.0000	5320.0000
4701703828	GAS	9/28/1990	03828	RLYBSNALX	ECA	-80.7880	39.1589	920.0000	-4187.0000	5107.0000
4701703831	GAS	9/18/1990	03831	RLYBSNALX	ECA	-80.7934	39.1583	1250.0000	-4172.0000	5422.0000
4701703832	GAS	9/20/1990	03832	RLYBSNALX	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	WRNSPCBTRLYBSNELKALX	KEY OIL	-80.7932	39.1675	1206.0000	-4137.0000	5343.0000
4701704711	GAS	1/20/2003	04711	WRNSPCBTRLYBSNELKALX	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	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	BMNBNJ	I H BEREN	-80.7889	39.1642	1159.0000	-895.0000	2054.0000
4701730337	GAS	6/24/1917	30337	SLIBNJ	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	SLZGBRBNJ	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

RECEIVED
Office of Conservation
MAY 13 2017
WV Department of
Environmental Protection