

west virginia department of environmental protection

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

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

PERMIT MODIFICATION APPROVAL Horizontal 6A / Horizontal 6A Well - 1

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

Re: Permit Modification Approval for WV 512427

47-085-10087-00-00

Adding 2 Additional Leases

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.

James A. Martin

Chief

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

Operator's Well Number: WV 512427

Farm Name: RAY, RICHARD L. & SHERYL A. U.S. WELL NUMBER: 47-085-10087-00-00

Horizontal 6A / Horizontal 6A Well - 1

Date Issued: 1/10/2017

Promoting a healthy environment.



June 8, 2016

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

Re: Modification of 47-085-10087

Dear Mr. Smith,

Please accept the attached updates for the above referenced permit. Upon inspection of our as-drilled plat, we noted the curve geometry crossed into 2 additional leases, #106136 & 109481. Enclosed is an updated WW-6A1, WW-6B, mylar plat and rec plan reflecting corrections to update the permit file to be consistent with the as-drilled well bore.

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

Sincerely,

Vicki Roark

Permitting Supervisor-WV

Enc.

Office of Oil and Gas

JUN 1 0 2016

WV Department of Environmental Protection

API NO. 47-085 -	10087
OPERATOR WEL	L NO. 512427
Well Pad Name	OXF122

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

1) Well Operat	tor: EQT Pro	duction Company	306686	Ritchie	Union	Oxford
			Operator ID	County	District	Quadrangle
2) Operator's \	Well Number:	512427	Well Pa	ad Name: OXI	F122	
3) Farm Name	/Surface Owne	Richard L & Sheryl	A. Ray Public Ro	ad Access: Co	o. Rt. 22/3	
4) Elevation, co	urrent ground:	1111.0 E	levation, proposed	l post-construc	tion: 1111.	0
5) Well Type	(a) Gas X			lerground Stor		
	Other					
		Shallow X	Deep			
OF: C P		lorizontal X				
6) Existing Pad	_			_		
Marcellus, 64	rget Formation 175', 54', 2951 I	n(s), Depth(s), Antic	ipated Thickness	and Expected 1	Pressure(s):	
8) Proposed To	tal Vertical De	pth: 6475				
9) Formation at	Total Vertical	Depth: Marcellus	3			
10) Proposed To	otal Measured	Depth: 17469				
11) Proposed H	orizontal Leg l	Length: 10005				
12) Approximat	te Fresh Water	Strata Depths:	246			
13) Method to [Determine Fres	h Water Depths: F	rom offset wells			
		pths: None report	ed			
15) Approximat	e Coal Seam D	Depths: 939				
16) Approximat	e Depth to Pos	sible Void (coal mi	ne, karst, other):	None reported	d	
17) Does Propos directly overlyin	sed well location	on contain coal sean o an active mine?	ns Yes	No	, <u>x</u>	
(a) If Yes, prov	vide Mine Info	: Name:				
		Depth:				
		Seam:			PEDE Office of Co.	IVED
		Owner:			O Oi	and Gas
					JUN 10	2016

WV Department of Environmental Protection Page 1 01/20/2017

WW-6B	
(04/15)	

API NO. 47- <u>085</u>	_ 10087
OPERATOR WE	LL NO. 512427
Well Pad Name	e: OXF122

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	40	40	44.84 ft^3 / CTS
Fresh Water	13 3/8	New	J-55	54.5	1053	1053	990.08 ft^3 / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	2993	2993	1280.3 ft^3 / CTS
Production	5 1/2	New	P-110	20	17466	17466	500' above top producing zone
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40'	
Liners						above top perf or 80° inclination.	

ТҮРЕ	Size (in)	Wellbore	<u>Wall</u> Thickness	Burst Pressure	Anticipated	Cement	Cement
		Diameter (in)	(in)	(psi)	Max. Internal Pressure (psi)	Type	<u>Yield</u> (cu. ft./k)
Conductor	20	24	.375	1378	1102	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	Class A	1.20
Coal						3.0.007.	1.20
Intermediate	9 5/8	12 3/8	.395	3950	3160	Class A	1.18
Production	5 1/2	8 1/2	.361	12640	10112	Class H/H	1.72/1.84
Tubing	2 3/8	NA	.19	7700			1.7 27 1.04
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				
		RE	CEIVED	

Office of Oil and Gas

JUN 1 0 2016

WV Department of Environmental Propage 2 of 320/2017

WW-6B
(10/14)

API NO. 47- 085 - 10087

OPERATOR WELL NO. 512427

Well Pad Name: OXF122

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 5078'. 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 0.3%) of chemicals (including 15% Hydrochloric acid, gelling agent, gel breaker, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): no additional disturbance
- 22) Area to be disturbed for well pad only, less access road (acres): no additional disturbance
- 23) Describe centralizer placement for each casing string:
- Surface: Bow spring centralizers One centralizer at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers- One centralizer at the shoe and one spaced every 500'.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Surface (Class A Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries Intermediate (Class A Cement): 0-3% Calcium Chloride. Used to speed the setting of cement sturries.

Production:

Lead (Class H 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 % Calcuim 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 of matilithe shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

JUN 1 0 2016

*Note: Attach additional sheets as needed.

WV Department of Environmental Protest of 1/20/2017

WW-6A1 (5/13)

085-10087

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 attachment

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:

By:

Uictoria J. Roark

Permitting Supervisor

Victoria Gas

Page 1 of 2

nvironmental Prets of 01/20/201

se No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Bock/Page
105953	Haught Family Trust, et al (current royalty owner)		***	
,	William Adams, et ux (original lessor)	The Philadelphia Company of West Virginia		LB29/244
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		LB55/362
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		LB126/473
	Equitable Gas Company	Equitrans, Inc.		LB201/253
	Equitrans, Inc.	Equitable Production-Eastern States, Inc.		LB234/830
	Equitable Production-Eastern States, Inc.	Equitable Production Company		DB281/346 Doddridge
	Equitable Production Company	EQT Production Company		DB281/346 Doddridge
1005925	llene Beckett, et al (current royalty owner)		•••	
<i>(</i> —	Delphia G. Taylor and George H. Taylor (original lessor)	Hope Natural Gas Company		LB81/263
	Hope Natural Gas Company	Consolidated Gas Supply Corp.		LB151/436

	Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.		LB169/756
	Consolidated Gas Transmission Corp.	CNG Development Co.		LB176/601
	CNG Development Co.	CNG Producing Co.		CB1096/124 Delaware
	CNG Producing Co.	Dominion Exploration & Production, Inc.		CB82/07 Delaware
	Dominion Exploration & Production, Inc.	Dominion Transmission, Inc.		LB251/621
	Dominion Transmission, Inc.	CONSOL Energy Holdings, LLC		LB251/648
	CONSOL Energy Holdings, LLC	CONSOL Gas Co.		CB6/576
	CONSOL Gas Co.	CNX Gas Co., LLC		CB6/634
	CNX Gas Co., LLC	EQT Production Co.		LB279/333
1005950	Mary J. Smith, et al (current royalty owner)		•••	
	James E. Spurgeon, et al (original lessor)	Claron Dawson and C. Crane		LB127/239
	Claron Dawson and C. Crane	Sancho Oil and Gas Corp.		LB232/172
	Sancho Oil and Gas Corp.	Stephen D. Ward		LB232/174
	Stephen D. Ward	Antero Resources Appalachian Corp.		LB256/22
	Antero Resources Appalachian Corp.	EQT Production Company		DB282/379
1.189353337	Debart E. Hammatt, et al fourment accepts, accept		•••	
1.103333331	Robert E. Hammett, et al (current royalty owner) W. M. Lipscomb, et ux (original lessor)	Carpagia Natural Gas Campany		1.040/407
		Carnegie Natural Gas Company		LB46/187
	Carnegie Natural Gas Company Carnegie Production Company/USX	Carnegie Production Company		LB228/859
	Equitable Resources Inc.	Equitable Resources Inc.		See attached
	Equitable Production Co.	Equitable Production Co. EQT Production Company		DB274/471 DB281/346 Doddridge
/	•			
/ <u>708166</u>	John W. Kerns Heirs Turst (current royalty owner)		***	
	O. S. Garner (original lessor)	A. B. Burrows, et ux		LB41/95
	A. B. Burrows, et ux	Carnegie Natural Gas Company		LB46/185
	Carnegie Natural Gas Company	Carnegie Production Company		LB228/859
	Carnegie Production Company/USX	Equitable Resources Inc.		See attached
	Equitable Resources Inc. Equitable Production Co.	Equitable Production Co.		DB274/471
× .	Equizable Froduction Co.	EQT Production Company		DB281/346 Doddridge
<u> 710486</u>	Jane L. Garrison, et al (current royalty owner)		***	
	Lewis Garrison, et ux (original lessor)	Carnegie Natural Gas Company		LB42/4
	Carnegie Natural Gas Company	Carnegie Production Company		LB228/859
	Carnegie Production Company/USX	Equitable Resources Inc.		See attached
	Equitable Resources Inc.	Equitable Production Co.		DB274/471
,	Equitable Production Co.	EQT Production Company		DB281/346 Doddridge
106136	Adele McDougal, et al (current royalty owner)		•••	
. —	Thomas Watson, R. A. Watson and M. G. Zinn (original lessor)	The Philadelphia Co. of West Virginia		LB30/161
	The Philadelphia Co. of West Virginia	Pittsburgh & West Virginia Gas Co.		LB55/362
	Pittsburgh & West Virginia Gas Co.	Equitable Gas Company		DB126/473
	Equitable Gas Company	Equitrans, Inc.		LB201/253
	Equitrans, Inc.	Equitable Production-Eastern States, Inc.		LB192/19
	Equitable Production-Eastern States, Inc.	Equitable Production Company		CB6/443
	Equitable Production Company	EQT Production Company		CB6/443
1 109481	Adola Markanal et al. faccorat according		•••	
109481	Adele McDougal et al (current royalty owner) Jackson Leeson, et al (original lessor)	The Philadelphia Co. of West Vissinis		LB21/76
	· · ·	The Philadelphia Co. of West Virginia		
	The Philadelphia Co. of West Virginia Pittehurah & West Virginia Gas Co.	Pittsburgh & West Virginia Gas Co.		DB87/90
	Pittsburgh & West Virginia Gas Co.	Equitable Gas Company		DB121/303
	Equitable Gas Company	Equitanto Production Eastern States Inc.		DB154/475
	Equitrans, Inc.	Equitable Production-Eastern States, Inc.	O 4=	CB281/34FIVED CB281/34FIVED CB281/34FII and G
	Equitable Production-Eastern States, Inc.	Equitable Production Company	/ \ff: -	UB281/346 ' LU
	Equitable Production Company	EQT Production Company	UIIICA	2-05-0:u

^{***} We will pay 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 for the owner of the owner of the old or gas in place, on all such oil or gas to be extracted, produced, or marketed from the well.

WV Department of Environmental Protoc<mark>0</mark>1 / 20/2017

PURCHASE AND SALE AGREEMENT, dated as of May 27, 1999 (this "Agreement"), by and between USX CORPORATION, a Delaware corporation, ("USX") and EQUITABLE RESOURCES, INC., a Pennsylvania corporation (hereinafter referred to as "Buyer").

WHEREAS, USX owns directly or indirectly all of the outstanding capital stock or other evidence of an equity interest of the following companies (each a "Carnegie Company" and collectively the "Carnegie Companies"), which are involved in one or more of the production, gathering, transportation, treatment, distribution and sale of natural gas: (i) Carnegie Natural Gas Company, a Pennsylvania corporation, ("Carnegie"), (ii) Carnegie Interstate Pipeline Company, a Delaware corporation, ("CIPCO"), (iii) Carnegie Production Company, a Pennsylvania corporation, ("CPC"), (iv) Carnegie Natural Gas Sales, Inc., a Delaware corporation, ("CNGS") and (v) Carnegie Gas Storage, LLC, a Delaware limited liability company, ("CGS"); and

WHEREAS, USX desires to sell to Buyer and Buyer desires either for itself and/or one or more designated subsidiaries to purchase from USX one hundred percent (100%) of the capital stock and other evidence of equity interest in the Carnegie

NOW, THEREFORE, for and in consideration of the premises and the representations, warranties, covenants and agreements herein set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto, intending to be legally bound, agree as follows:

ARTICLE I DEFINITIONS

Unless otherwise specifically stated in the text of this Agreement, the following terms shall have the following meanings:

Section 1.1 The "1935 Act" shall mean the Public Utility Holding Company Act of 1935, as amended.

> RECEIVED Office of Oil and Gas JUN 1 0 2016

5.13 No Third-Party Rights. Nothing in this Agreement, expressed or implied, shall or is intended to confer upon any Person other than the parties hereto or their respective successors or assigns.

IN WITNESS WHEREOF, the parties have executed, delivered and entered into this agreement as of the day and year first above written.

USX Corporation

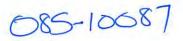
Typed Name: V. G. Beghini Title: Vice Chairman - Marathon Group

Equitable Resources, Inc.

Typed Name: David L.

Title: Senior Vice President and Chief Financial Officer





May 20, 2016

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

Re: OXF122, 512427, 47-08510087

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

Office of Oil and Gas

JUN 1 0 2016

