west virginia department of environmental protection

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

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

PERMIT MODIFICATION APPROVAL

April 09, 2015

EQT PRODUCTION COMPANY
120 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330

Re: Permit Modification Approval for API Number 8510136 , Well #: 513760
Extend Lateral

Oil and Gas Operator:
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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

For Gene Smith

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

March 4, 2015

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

Re: Modification to API# 47-08510136

Dear Mr. Smith,

Enclosed is a new WW-6B, schematics, and mylar plat for the above API number. EQT would like to extend the lateral length of this well.

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

Sincerely,

Vicki Roark
Permitting Supervisor-WV

Enc.

Cc: David Cowan
1597 Devil Hole Road
Harrisville, WV 26362-7543

Received
Office of Oil & Gas
MAR 12 2015

WW - 6B
(9/13)

47-085-10136 MOD

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company

Operator ID	County	District	Quadrangle
	085	4	526

2) Operator's Well Number: 513760 Well Pad Name: OXF163

3) Farm Name/Surface Owner : Pierce Public Road Access: CR 7/18

4) Elevation, current ground: 1,175.0 Elevation, proposed post-construction: 1,158.5

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 Thicknesses and Associated Pressure(s):

Target formation is Marcellus at a depth of 6560' with the anticipated thickness to be 53 feet and anticipated target pressure of 2190 PSI

8) Proposed Total Vertical Depth: 6,560
9) Formation at Total Vertical Depth: Marcellus
10) Proposed Total Measured Depth 15,939
11) Proposed Horizontal Leg Length 8,160
12) Approximate Fresh Water Strata Depths: 176, 453, & 517
13) Method to Determine Fresh Water Depth: By offset wells
14) Approximate Saltwater Depths: 1,156
15) Approximate Coal Seam Depths: No Coal Seams Present
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?
(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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DLW
3-9-15

4708510136 MOD

WW - 6B
(3/13)

CASING AND TUBING PROGRAM

18)

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill- up (Cu.Ft.)
Conductor	20	New	MC-50	81	40	40	38 C.T.S.
Fresh Water	13 3/8	New	MC-50	54	1,055	1,055	914 C.T.S.
Coal	-	-	-	-	-	-	-
Intermediate	9 5/8	New	MC-50	40	3,036	3,036	1,184 C.T.S.
Production	5 1/2	New	P-110	20	15,939	15,939	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100' less than TD
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	24	0.375	-	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,480	* See Note 2	1.21
Coal	-	-	-	-	-	-
Intermediate	9 5/8	12 3/8	0.395	3,590	* See Note 2	1.21
Production	5 1/2	8 1/2	0.361	12,640	-	1.27/1.86
Tubing						
Liners						

Packers

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

Note 1: EQT plans to bring the TOC on the production casing cement job 1,000' above kick off point, which is at least 500' above the shallowest production zone, to avoid communication.
Note 2: Reference Variance 2014-17.

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DW
3-7-15

4708510136 MOD

WW - 68

(3/13)

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. The vertical drill to go down to an approximate depth of 4751'. Then kick off the horizontal leg into the Marcellus formation using a slick water frac.

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 treating pressures are expected to average approximately 8500 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): 24.6

22) Area to be disturbed for well pad only, less access road (acres): 14.6

23) Describe centralizer placement for each casing string.

- Surface: Bow spring centralizers – One at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One cent at the shoe and one spaced every 500'.
- Production: One spaced every 1000' from KOP to Int csg shoe

24) Describe all cement additives associated with each cement type. **Surface (Type 1 Cement):** 0-3% Calcium Chloride Used to speed the setting of cement slurries.

0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone.

Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.

Production:

Lead (Type 1 Cement): 0.2-0.7% Lignosulfonate (Retarder). Lengthens thickening time.

0.3% CFR (dispersant). Makes cement easier to mix.

Tail (Type H Cement): 0.25-0.40% Lignosulfonate (Retarder). Lengthens thickening time.

0.2-0.3% CFR (dispersant). This is to make the cement easier to mix.

60 % Calcuim Carbonate. Acid solubility.

0.4-0.6% Halad (fluid loss). Reduces amount of water lost to formation.

25) Proposed borehole conditioning procedures. **Surface:** Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors back on and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam drilling, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.

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.

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*Note: Attach additional sheets as needed.

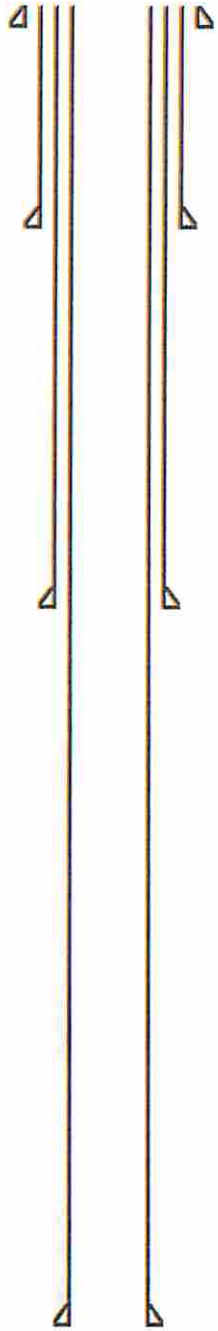
DW

47-085-10136 MOD

Well Schematic
EQT Production

Well Name	513760 (OXF163H5)
County	Ritchie
State	West Virgina

Elevation KB:	1172
Target	Marcellus
Prospect	
Azimuth	162
Vertical Section	8165



0'

Hole Size 24" - 20" Conductor at 40'
Bit Size 17.5"

500'

517' Fresh Water Base

1,000'

TOC @ Surface
13 3/8", MC-50, 54.5# @ 1,055' ft MD
Bit Size 12.375"

1,500'

1,771' Maxton

1,951' Big Lime
1,919' Base Red Rock

2,000'

2,241' Weir

2,469' -Gantz
2,563' -Fifty foot
2,649' -Thirty foot
2,711' -Gordon
2,799' -Forth Sand
2,956' -Bayard

2,500'

TOC @ Surface
9 5/8", MC-50, 40# @ 3,036' ft MD
Bit Size 8.5"

3,036' Int. csg pt

3,000'

3,295' -Warren
3,348' -Speechley

3,500'

3,843' -Balltown A

4,000'

4,427' -Riley

4,500'

KOP = 4,751' ft MD
10 Deg DLS

4,763' -Benson

5,000'

5,096' -Alexander

5,500'

6,203' -Sonyea
6,347' -Middlesex
6,398' -Genesee
6,474' -Geneseo
6,509' -Tully
6,522' -Hamilton
6,532' -Marcellus
6,585' Onondaga

6,000'

Land @ 7,279' ft MD
6,560' ft TVD

5 1/2", P-110, 20# 15,439' ft MD
6,560' ft TVD

6,500'

7,000'

7,500'

8,000'

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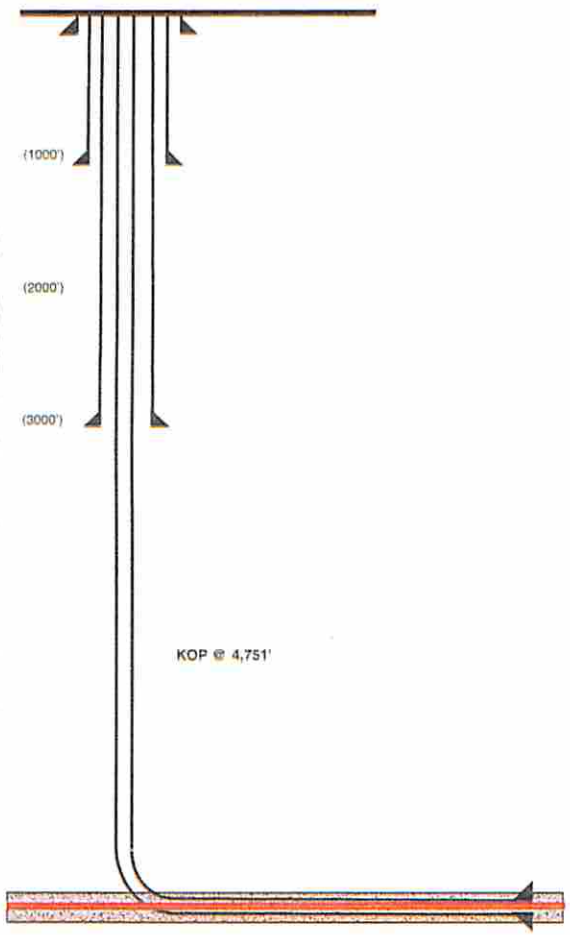
3-7-15

47-085-10136 MOD

Well 513760 (OXF163H5)
EQT Production
Oxford
Ritchie **West Virgina**

Azimuth 162
Vertical Section 8165

TVD Depth (feet)	Formation Tops (TVD)		
0'			
250'			
500'	Base Fresh Water	517	
750'			
1,000'			
1,250'			
1,500'			
1,750'	Maxton	1771	1795
	Big Lime	1851	2090
	Base Red Rock	1819	
2,000'			
	Weir	2241 -	2363
2,250'	-Gantz	2469	2489
	-Fifty foot	2563	2603
2,500'	-Thirty foot	2649 -	2683
	-Gordon	2711 -	2773
2,750'	-Forth Sand	2799	2811
	Bayard	2866 -	2906
3,000'	Int. csg pt	3056	
	-Warren	3296 -	3340
3,250'	-Speechley	3346 -	3359
3,500'			
3,750'	-Balltown A	3649 -	3666
4,000'			
4,250'			
	-Riley	4427 -	4475
4,500'			
4,750'	-Benson	4753	4793
5,000'			
	-Alexander	5098 -	5170
5,250'			
5,500'			
5,750'	-Sonyea	6295 -	6347
	-Middlesex	6347 -	6399
6,000'	-Genesee	6399 -	6474
	-Geneseo	6474 -	6509
6,250'	-Tully	6509 -	6522
	-Hamilton	6522 -	6532
6,500'	Marcellus top	6532	
	Target Inside Marcellus	**6560**	
6,750'	Marcellus Bottom	6605	
7,000'			



Land curve @ 6,560' ft TVD
7,279' ft MD

Est. TD @ 6,560' ft TVD
15,439' ft MD

8,160' ft Lateral

Hole Size (inches)	Casing Type	Casing Size (inches)	Wt (ppf)/Grade
24	Conductor	20	81#/MC-50
17 1/2	Surface	13 3/8	54#/MC-50
12 3/8	Intermediate	9 5/8	40#/MC-50
8 1/2	Production Casing	5 1/2	20#/P-110

Proposed Well Work:
Drill and complete a new horizontal well in the Marcellus formation.
The vertical drill to go down to an approximate depth of 4751'.
Then kick off the horizontal leg into the Marcellus formation using a slick water frac.

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3-7-15

47-085-10136 MOD

Well Number: 513760 (OXF163H5)

Casing and Cementing					Deepest Fresh Water: 517'
Type	**Conductor**	**Mine Protection**	**Surface**	**Intermediate**	**Production**
Hole Size, In.	24		17 1/2	12 3/8	8 1/2
Casing Size, OD In.	20	-	13 3/8	9 5/8	5 1/2
Casing Wall Thickness, In.	0.375	-	0.380	0.395	0.361
Depth, MD	**40'**	**-**	**1,055'**	**3,036'**	**15,939'**
Depth, TVD	**40'**	**-**	**1,055'**	**3,036'**	**6,560'**
Centralizers Used	Yes	-	Yes	Yes	Yes
Weight/Grade	81#/MC-50	-	54#/MC-50	40#/MC-50	20#/P-110
New or Used	New	-	New	New	New
Pressure Testing	-	-	20% Greater than exp. Pressure	20% Greater than exp. Pressure	20% greater than exp. fracture pressure
After Fracture Pressure Testing	-	-	-	-	20% greater than exp. shut pressure
ID, in	19.25	-	12.615	8.835	4.778
Burst (psi)	-	-	2,480	3,590	12,640
Collapse (psi)	-	-	1,110	2,470	11,100
Tension (mlbs)	-	-	455	456	587
Cement Class	-	-	-	-	H
Cement Type	Construction	-	1	1	-
Cement Yield	1.18	-	1.21	1.21	1.27/1.86
Meets API Standards	-	-	Yes	Yes	Yes
WOC Time	-	-	Min. 8 hrs	Min. 8 hrs	Min. 8 hrs
Top of Cement (Planned)	Surface	-	Surface	Surface	3,751'
Fill (ft.)	40'	-	1,055'	3,036'	11,688'
Percent Excess	-	-	20	20	10
Est. Volume (cu ft)	38	-	914	1,184	2,971
Est. Volume (BBLS)	7	-	163	211	529

3-7-15

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SSP
P92SA

47-085-10136 MOD

WEST VIRGINIA GEOLOGICAL PROGNOSIS

Horizontal Well
513760 (OXF163H5)

Drilling Objectives:	Marcellus					
County:	Ritchie					
Quad:	Oxford					
Elevation:	1172 KB			1159 GL		proposed
Surface location	**Northing:**	234456	**Easting:**	1619086		
Landing Point	**Northing:**	234806.8	**Easting:**	1619959.1	**TVD:**	6560
Toe location	**Northing:**	227085.9	**Easting:**	1622600	**TVD:**	6560
Recommended Azimuth	162 Degrees			**Recommended LP to TD:**		8,160'

Proposed Logging Suite: Formation tops based off logging on pilot hole well 513756
Mudloggers to be on location at kickoff point to run samples and measure gas thru both the curve and lateral sections.

Recommended Gas Tests: 1800, 2050, 2600, Intm Csg. Pt., 3400, 4900, 5250, KOP, (Gas test at any mine void)
Gas test during any trip or significant downtime while drilling the lateral section.

Possible red rock bases at 46,86,182,235,290,396,462,513,580, 643,704,802,864,916,967,1008,1919

ESTIMATED FORMATION TOPS

Formation	Top (TVD)	Base (TVD)	Lithology	Comments	
Fresh Water Zone	1	517		FW @ 176,453,517,.....	
Maxton	1771	1798	Sandstone	No Coal Seams Identified to Exist	
Big Lime	1951	2090	Limestone	SW @ 1156, ,	
Weir	2241	2363	Sandstone	Red Rock Bases Possible @ 46,86,182,235,290,396,462,513,580, 643,704,802,864,916,967,1008,1919	Base RR 1919
Top Devonian	2469				
-Gantz	2469	2489	Silty Sand		
-Fifty foot	2563	2633	Silty Sand		
-Thirty foot	2649	2683	Silty Sand		
-Gordon	2711	2773	Silty Sand		
-Forth Sand	2799	2811	Silty Sand		
-Bayard	2956	2986	Silty Sand		
Int. csg pt	3036				
-Warren	3295	3340	Silty Sand		
-Speechley	3348	3399	Silty Sand		
-Balltown A	3843	3866	Silty Sand		
-Riley	4427	4475	Silty Sand		
-Benson	4763	4794	Silty Sand		
-Alexander	5096	5170	Silty Sand		
-Elks	5170	6203	Gray Shales and Silts		
-Sonyea	6203	6347	Gray shale		
-Middlesex	6347	6398	Shale		
-Genesee	6398	6474	with black shale		
-Geneseo	6474	6509	Black Shale		
-Tully	6509	6522	Limestone		
-Hamilton	6522	6532	calcareous shales		
-Marcellus	6532	6585	Black Shale		
-Purcell	6545	6550	Limestone		
-Lateral Zone	**6560**	**6560**		**Start Lateral at 6560 ft, drill to 6560 ft**	
-Cherry Valley	6567	6570	Limestone		
Onondaga	6585		Limestone		

Target Thickness	53 feet
Anticipated Target Pressure	2190 PSI

Comments: Note that this is a TVD prog for a horizontal well. **All measurements taken from estimated KB elevation.** Water and coal information estimated from surrounding well data. Intermediate casing point is recommended 50' beneath the Bayard to shut off any water production from the upper Devonian sands. Intermediate casing should be cemented into the surface string, per WV regulations. The estimated TD is the TVD landing point for the horizontal section of well, with the plan to then drill to a final TVD of 6560' at the toe of the lateral. The geologic structure is unknown at this time.

LATERAL DRILLING TOLERANCES

Mapview - Left of borehole: Deviate as little as possible left to avoid planned lateral 513757
Mapview - Right of borehole: Deviate as little as possible right to avoid planned lateral 513758
Mapview - TD: DO NOT EXTEND beyond recommended wellbore to avoid leaseline

RECOMMENDED CASING POINTS

Fresh Water/Coal	CSG OD	13 3/8	CSG DEPTH:	1055
Intermediate 1:	CSG OD	9 5/8	CSG DEPTH:	3036
Production:	CSG OD	5 1/2	CSG DEPTH:	@ TD

	Author	Date Created	Plat Date
J. Dereume/ E. Glick			
Prog created:	EVG	6/2/2014	5/27/2014
length revised	EVG	9/2/2014	8/22/2014
Prog checked	JMD	10/30/2014	10/27/2014
Tophole Final	EVG	12/30/2014	

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Office of Oil & Gas
MAR 12 2015

Due 3-7-15

SSP Page 26A

FORM WW 6

ROYALTY OWNERS		
B.M. PIERCE ET UX	84.50 AC.±	LEASE NO. 118210
SHIRLEY & RUTH RIDDLE HEIRS AND/OR ASSIGNS	272 AC.±	LEASE NO. 986161
ILENE BECKETT & VIOLET MOSSER ET AL	183.16 AC.±	LEASE NO. 1005925

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.

LATITUDE 39°10'00"

EQT PRODUCTION COMPANY
J.E. PIERCE ET AL LEASE
108 (98.73±) ACRES±
WELL NO. WV 513760

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

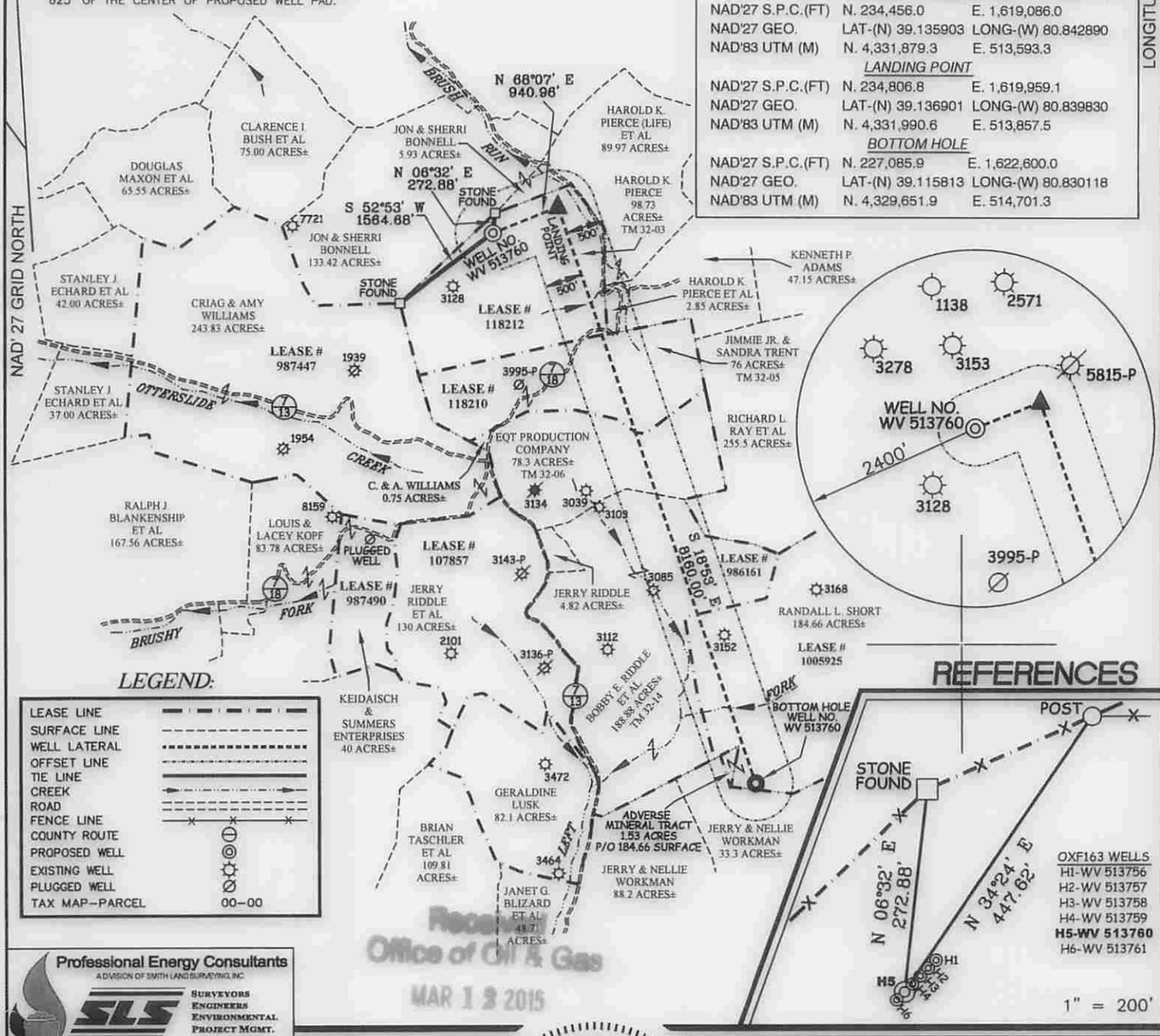
NAD'27 S.P.C.(FT)	N. 234,456.0	E. 1,619,086.0
NAD'27 GEO.	LAT-(N) 39.135903	LONG-(W) 80.842890
NAD'83 UTM (M)	N. 4,331,879.3	E. 513,593.3
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 234,806.8	E. 1,619,959.1
NAD'27 GEO.	LAT-(N) 39.136901	LONG-(W) 80.839830
NAD'83 UTM (M)	N. 4,331,990.6	E. 513,857.5
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 227,085.9	E. 1,622,600.0
NAD'27 GEO.	LAT-(N) 39.115813	LONG-(W) 80.830118
NAD'83 UTM (M)	N. 4,329,651.9	E. 514,701.3

2,711'

LONGITUDE 80°50'00"

11,205'

NAD '27 GRID NORTH



LEGEND:

LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
FENCE LINE	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PLUGGED WELL	
TAX MAP–PARCEL	00–00

REFERENCES

OXF163 WELLS
H1-WV 513756
H2-WV 513757
H3-WV 513758
H4-WV 513759
H5-WV 513760
H6-WV 513761

1" = 200'

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING INC.
SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

Received
Office of Oil & Gas
MAR 1 2 2015

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. 849 C. Victor Moyers

C. VICTOR MOYERS LICENSED No. 849 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE JUNE 3 , 20 14

REVISED 08/22/14, 10/27/14, 10/31/14 & 02/04/15

OPERATORS WELL NO. WV 513760

API WELL NO. 47 — 085 — 10136 MOD 2
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7698P513760R5

SCALE 1" = 2000'

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

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

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

LOCATION :

ELEVATION 1,174(GROUND)1,158.5'(PROPOSED) WATERSHED BRUSH RUN OF MIDDLE FORK

DISTRICT UNION COUNTY RITCHIE QUADRANGLE OXFORD 7.5'

SURFACE OWNER HAROLD K. PIERCE ACREAGE 98.73±

ROYALTY OWNER J.E. PIERCE ET AL ACREAGE 108± (98.73±)

PROPOSED WORK : LEASE NO. 118212

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X 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 TVD 6495'

COUNTY NAME

PERMIT

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

SIG

124688

47-085-10136
MOD

WW-6A1
(5/13)

Operator's Well No. 513760

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
Lease 118212			min pd 1/8th	
	J. E. Pierce, L. L. Pierce & Felsie Pierce	Pittsburgh & WV Gas. Co.		LB 45/257
	Pittsburg & WV Gas Co.	Equitable Gas Company		DB 126/473
	Equitable Gas Company	Equitrans, Inc.		LB 201/253
	Equittrans, Inc.	Equitable Production Company		LB 192/19
	Equitable Production Company	EQT Production		DB 281/346
Lease 118210			min pd 1/8th	
	B. M. Pierce & G. M. Pierce	Pittsburgh & WV Gas. Co.		LB 45/253
	Pittsburg & WV Gas Co.	Equitable Gas Company		DB 126/473
	Equitable Gas Company	Equitrans, Inc.		LB 201/253
	Equittrans, Inc.	Equitable Production Company		LB 192/19
	Equitable Production Company	EQT Production Co		
			min pd 1/8th	
Lease 986161	Shirley S. Riddle, et al	E. W. Bowers		LB105/146
	E. W. Bowers	A. W. Bowers & George Bowers		WB65/66
	A. W. Bowers & George Bowers	Rick J. Garret & Desari Garrett		DB251/211
	Rick J. Garret & Desari Garrett	EQT Production Co.		DB251/865
Lease 1005925			min pd 1/8th	
	George H. Taylor, et al	Hope Natural Gas Co.		LB81/263
	Hope Natural Gas Co.	Consolidated Gas Supply Corp.		LB151/436
	Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.		LB169/756
	Consolidated Gas Transmission Corp.	CNG Development Co.		LB217/194
	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

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.

47-085-10136
MOD

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: _____
Its: Permitting Supervisor