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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

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

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

EQT PRODUCTION COMPANY  
120 PROFESSIONAL PLACE

BRIDGEPORT, WV 26330

Re: Permit Modification Approval for 513756  
47-085-10132-00-00

Modified Lateral and Added Subsurface

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

Operator's Well Number: 513756  
Farm Name: PIERCE, HAROLD K.  
U.S. WELL NUMBER: 47-085-10132-00-00  
Horizontal 6A / Horizontal 6A Well - 1  
Date Issued: 08/09/2016

Promoting a healthy environment.



4708510132

July 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 47-085-10132

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 tracts, for which EQT had acquired subsurface agreements. 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,

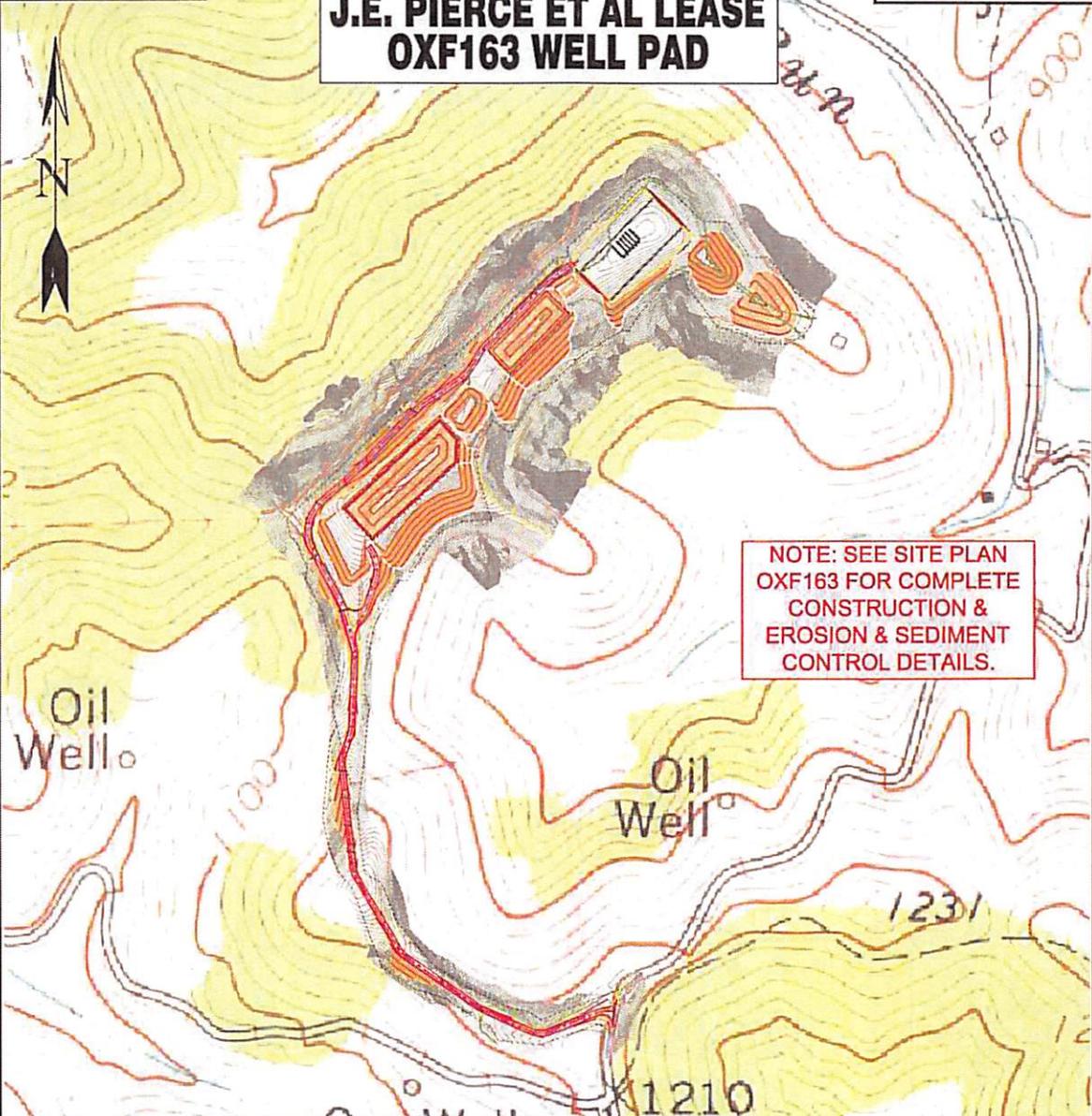
A handwritten signature in blue ink, appearing to read 'Vicki L'.

Vicki Roark  
Permitting Supervisor-WV

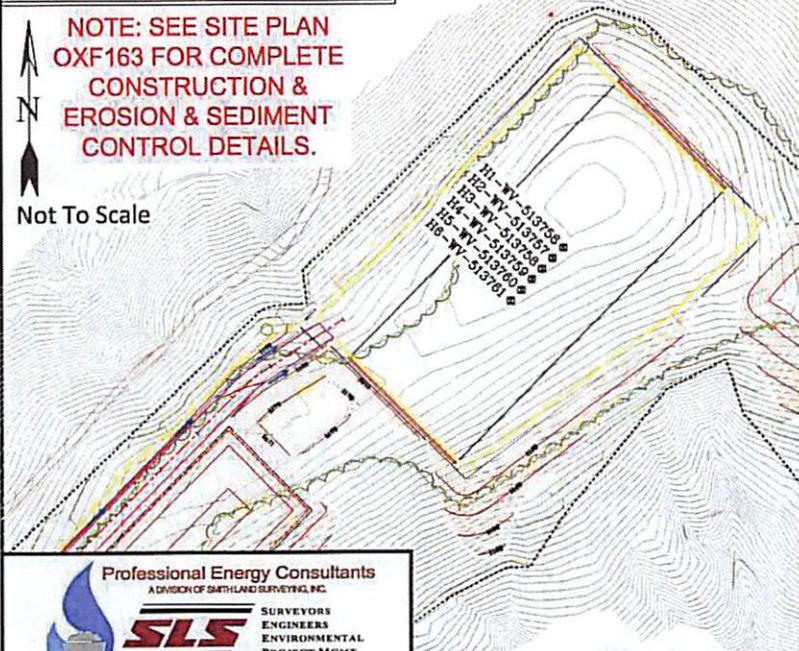
Enc.

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Office of Oil and Gas  
JUL 12 2016  
WV Department of  
Environmental Protection

# J.E. PIERCE ET AL LEASE OXF163 WELL PAD



Detail Sketch for Proposed OXF163 Wells



**Professional Energy Consultants**  
A DIVISION OF SMITHLAND SURVEYING, INC.



**SLS**  
SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.  
(204) 452-5634  
WWW.SLSURVEYS.COM

DRAWN BY: K.G.M.	FILE NO. 7698	DATE 05-23-14	CADD FILE: 7698REC163.dwg
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TOPO SECTION OF OXFORD 7.5' AND AUBURN 7.5' USGS TOPO QUADRANGLE



4708510132

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Office of Oil and Gas  
12 2016

WV Department of  
Environmental Protection



85-10132

August 14, 2014

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

Re: Casing Plan on Wells (OXF163) 47-085-10132, 10133, 10134, 10135, 10136, 10137

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 1055' KB, 50' below the red rock formation at 1005' without setting below elevation. This will cover up red rock formations that have given EQT drilling issues in the past. We will set the 9-5/8" intermediate string at 2955' KB, 50' below the base of the Bayard formation.

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

Sincerely,

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

Vicki Roark  
Permitting Supervisor

Enc.

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Office of Oil and Gas  
AUG 26 2014  
WV Department of  
Environmental Protection

ROYALTY OWNERS		
B.M. PIERCE ET UX	84.50 AC.±	LEASE NO. 118210
SHIRLEY & RUTH RIDDLE HEIRS AND/OR ASSIGNS	272 AC.±	LEASE NO. 988161

**NOTES ON SURVEY**

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.
3. NONPRODUCTIVE SUBSURFACE RIGHT OF WAY.

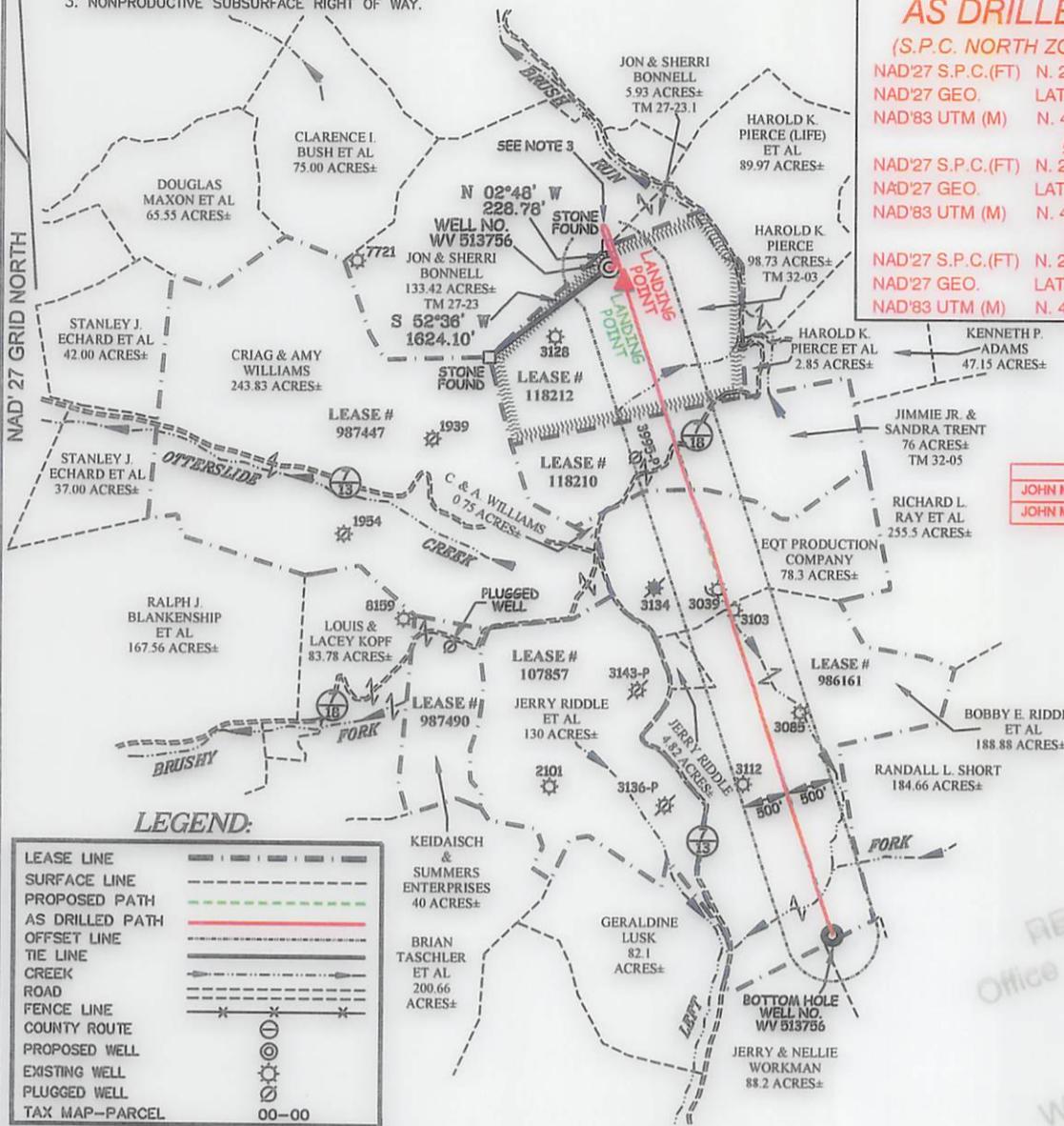
**EQT PRODUCTION COMPANY  
J.E. PIERCE ET AL LEASE  
108(98.73±) ACRES±  
WELL NO. WV 513756  
(OXF163 H1)  
AS DRILLED COORDINATES**

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

NAD'27 S.P.C.(FT)	N. 234,498.6	E. 1,619,128.2
NAD'27 GEO.	LAT-(N) 39.136021	LONG-(W) 80.842743
NAD'83 UTM (M)	N. 4,331,892.5	E. 513,606.0
<b>LANDING POINT</b>		
NAD'27 S.P.C.(FT)	N. 234,348.0	E. 1,619,291.9
NAD'27 GEO.	LAT-(N) 39.135615	LONG-(W) 80.842158
NAD'83 UTM (M)	N. 4,331,847.4	E. 513,656.6
<b>BOTTOM HOLE</b>		
NAD'27 S.P.C.(FT)	N. 227,252.2	E. 1,621,608.6
NAD'27 GEO.	LAT-(N) 39.116229	LONG-(W) 80.833621
NAD'83 UTM (M)	N. 4,329,697.5	E. 514,398.4

**SUBSURFACE AGREEMENT**

JOHN M. & SHERRI L. BONNELL	133.42 AC.±	TM 27-23
JOHN M. & SHERRI L. BONNELL	5.93 AC.±	TM 27-23.1



**LEGEND:**

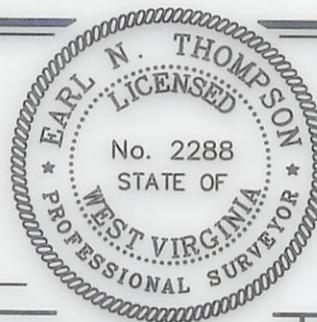
LEASE LINE	---
SURFACE LINE	----
PROPOSED PATH	----
AS DRILLED PATH	----
OFFSET LINE	----
TIE LINE	----
CREEK	----
ROAD	----
FENCE LINE	----
COUNTY ROUTE	----
PROPOSED WELL	⊙
EXISTING WELL	⊙
PLUGGED WELL	⊙
TAX MAP--PARCEL	00--00

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Office of Oil and Gas  
JUL 12 2016  
WV Department of  
Environmental Protection

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A DIVISION OF SMITH LAND SURVEYING, INC.  
**SLS**  
SURVEYORS  
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PROJECT MGMT.  
(204) 482-5634 WWW.SLSURVEYS.COM

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. 2288 *Earl N. Thompson*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE MAY 27, 20 14  
REVISED 07/30/14, 10/27/14, 12/03/15, 05/16/16 & 06/06/16  
OPERATORS WELL NO. WV 513756  
API WELL NO. 47-085-10132H  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7698AD513756R2  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

WELL TYPE:	OIL <input type="checkbox"/>	GAS <input checked="" type="checkbox"/>	LIQUID INJECTION <input type="checkbox"/>	WASTE DISPOSAL <input type="checkbox"/>	IF "GAS" PRODUCTION <input checked="" type="checkbox"/>	STORAGE <input type="checkbox"/>	DEEP <input type="checkbox"/>	SHALLOW <input checked="" type="checkbox"/>
LOCATION:	PAD ELEVATION <u>1,168.4'</u>	WATERSHED <u>BRUSH RUN OF MIDDLE FORK</u>	DISTRICT <u>UNION</u>	COUNTY <u>RITCHIE</u>	QUADRANGLE <u>OXFORD 7.5'</u>			
SURFACE OWNER	<u>HAROLD K. PIERCE</u>				ACREAGE	<u>98.73±</u>		
ROYALTY OWNER	<u>J.E. PIERCE ET AL</u>				ACREAGE	<u>108± (98.73±)</u>		
PROPOSED WORK:	DRILL <input checked="" type="checkbox"/>	CONVERT <input type="checkbox"/>	DRILL DEEPER <input type="checkbox"/>	REDRILL <input type="checkbox"/>	FRACTURE OR STIMULATE <input checked="" type="checkbox"/>	PLUG OFF OLD FORMATION <input type="checkbox"/>	PERFORATE NEW FORMATION <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>
PHYSICAL CHANGE IN WELL (SPECIFY)					TARGET FORMATION	<u>MARCELLUS</u>		
					ESTIMATED DEPTH	<u>6495'</u>		

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

COUNTY NAME PERMIT

6/16

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	2,955	2,955	1,152 C.T.S.
Production	5 1/2	New	P-110	20	9,261	9,261	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							

letter attached  
LKC

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

and:	N/A			
zes:	N/A			
plhs 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.

*JWC*  
6-16-14

**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
	Equitrans, Inc.	Equitable Production Company		LB 192/19
	Equitable Production Company	EQT Production (Merger-Name Change)		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
	Equitrans, Inc.	Equitable Production Company		LB 192/19
	Equitable Production Company	EQT Production (Merger-Name Change)		DB 281/346

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.



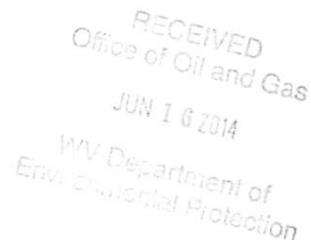
**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

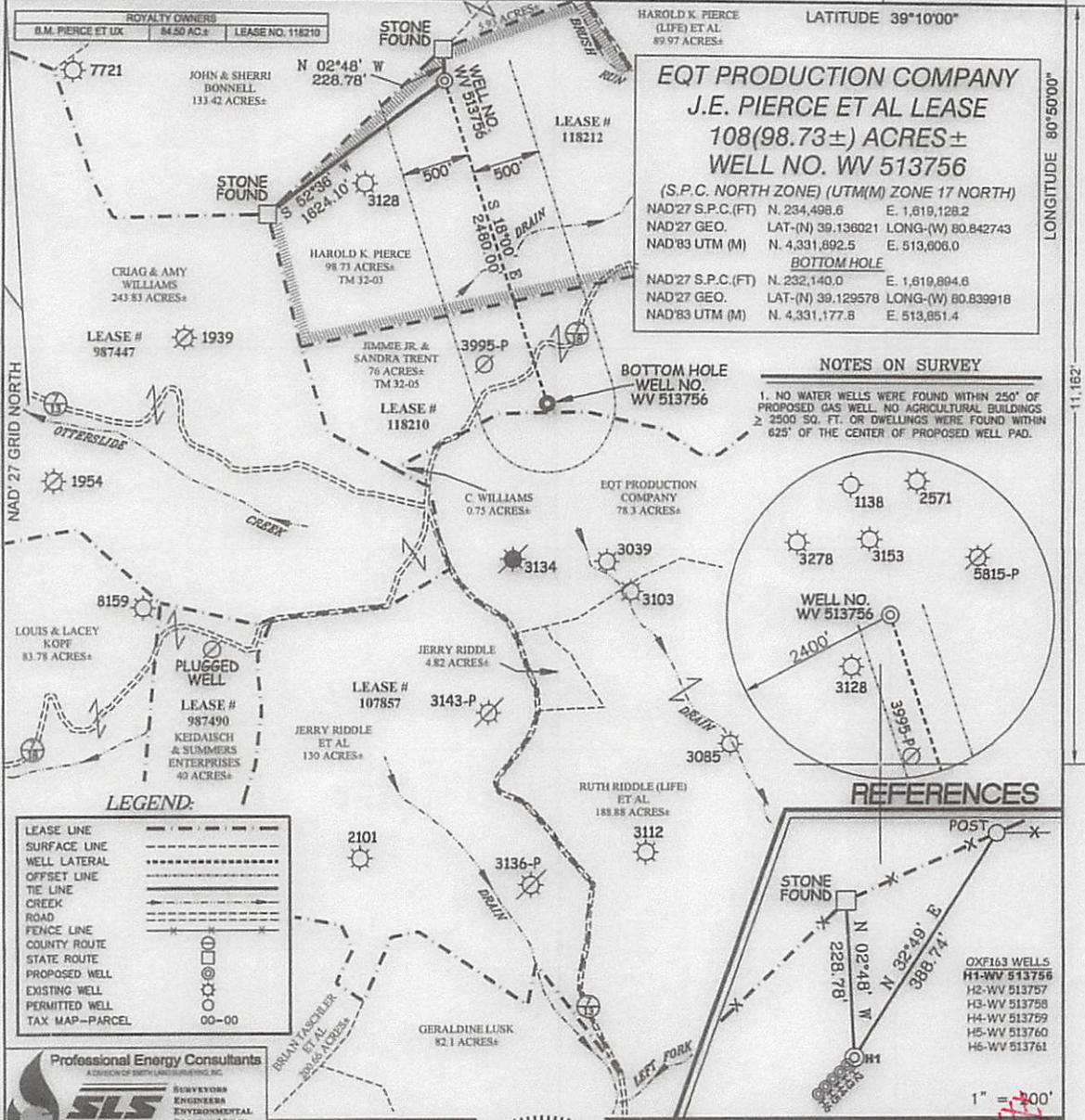
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- 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: [Signature]  
 Its: Permitting Supervisor



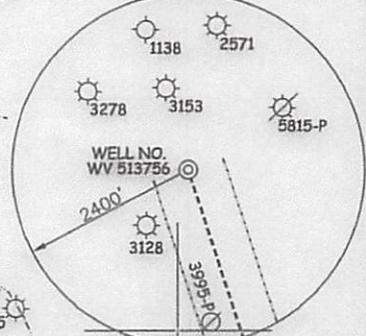


**EQT PRODUCTION COMPANY  
J.E. PIERCE ET AL LEASE  
108(98.73±) ACRES±  
WELL NO. WV 513756**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'27 S.P.C.(FT) N. 234,498.6 E. 1,619,128.2  
 NAD'27 GEO. LAT-(N) 39.136021 LONG-(W) 80.842743  
 NAD'83 UTM (M) N. 4,331,892.5 E. 513,606.0  
**BOTTOM HOLE**  
 NAD'27 S.P.C.(FT) N. 232,140.0 E. 1,619,894.6  
 NAD'27 GEO. LAT-(N) 39.129578 LONG-(W) 80.839918  
 NAD'83 UTM (M) N. 4,331,177.8 E. 513,851.4

**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.



**REFERENCES**

- OXF163 WELL-5
- H1-WV 513756
- H2-WV 513757
- H3-WV 513758
- H4-WV 513759
- H5-WV 513760
- H6-WV 513761

**LEGEND:**

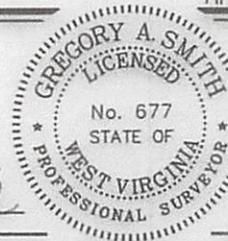
LEASE LINE	---
SURFACE LINE	----
WELL LATERAL	-----
OFFSET LINE	- - - - -
TIE LINE	=====
CREEK	~~~~~
ROAD	=====
FENCE LINE	-----
COUNTY ROUTE	-----
STATE ROUTE	-----
PROPOSED WELL	☉
EXISTING WELL	⊙
PERMITTED WELL	⊙
TAX MAP-PARCEL	00-00

**Professional Energy Consultants**  
 4300 West Virginia Ave., Suite 200, Charleston, WV 25309  
 (304) 462-8834 www.slsurveyors.com

**SLS**  
 SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.

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. *Gregory A. Smith*  
 677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE MAY 27 2014  
 REVISED \_\_\_\_\_  
 OPERATORS WELL NO. WV 513756  
 API WELL NO. 47  
 STATE WV COUNTY PUTNAM PERMIT D132-16A

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7698P513756  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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 1,176(GROUND) 1,158.5(PROPOSED) WATERSHED BRUSH RUN OF MIDDLE FORK  
 DISTRICT UNION COUNTY PUTNAM 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'

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

COUNTY NAME  
 PERMIT