



west virginia department of environmental protection

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

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 514460  
47-095-02257-00-00

Extend Lateral

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: 514460  
Farm Name: WELLS, VIVIAN J.  
U.S. WELL NUMBER: 47-095-02257-00-00  
Horizontal 6A / Horizontal 6A Well - 1  
Date Issued: 1/10/2017

Promoting a healthy environment.

01/20/2017



November 15, 2016

James Martin  
WV Dept. of Environmental Protection  
Division of Oil and Gas  
601 57<sup>th</sup> St East  
Charleston, WV 25304

RE: Permit Modifications – API#s: 47-095-02257; 47-095-02264; 47-095-02256

Dear Mr. Martin

Please find attached modified WW-6Bs, WW-6A1s and plats for the above listed APIs due to lengthening of the wellbores.

If you have any questions, please contact me at 304.848.0076

Sincerely,

A handwritten signature in blue ink that reads "Vicki Roark" followed by a circled "RS" in the upper right corner.

Vicki Roark  
Permitting Supervisor - WV

Enc.

Received  
Office of Oil & Gas  
NOV 17 2016

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

1) Well Operator: EQT Production Company 306686 Tyler Weston Shirley  
Operator ID County District Quadrangle

2) Operator's Well Number: 514460 Well Pad Name: SHR60

3) Farm Name/Surface Owner: Vivian J Wells et al Public Road Access: 60/2

4) Elevation, current ground: 1011 Elevation, proposed post-construction: 1011

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, 6596', 52', 2747 PSI

8) Proposed Total Vertical Depth: 6596

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 18803

11) Proposed Horizontal Leg Length: 11766

12) Approximate Fresh Water Strata Depths: 83,133,570,906

13) Method to Determine Fresh Water Depths: From offset wells

14) Approximate Saltwater Depths: 1198,1865

15) Approximate Coal Seam Depths: 19,420,686,875,1315

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: \_\_\_\_\_

**Received**  
**Office of Oil & Gas**  
**NOV 17 2016**

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	20	New	A-500	78.6	60	60	90 ft <sup>3</sup> / CTS
Fresh Water	13 3/8	New	J-55	54.5	997	997	1048 ft <sup>3</sup> / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	2778	2778	1524 ft <sup>3</sup> / CTS
Production	5 1/2	New	P-110	20	18803	18803	500' above top producing zone
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	20	26	.375	1378	1102	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance	1.2
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance	1.25 / 1.18
Production	5 1/2	8 1/2	.361	12640	10112	Class H	1.123/2.098
Tubing	2 3/8	NA	.19	7700			
Liners							

**PACKERS**

Kind:					<b>Received Office of Oil &amp; Gas NOV 17 2016</b>
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 5135'. 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:

Conductor: Class A no additives  
 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 slurries.  
 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 % Calcium Carbonate. Acid solubility.

Received  
Office of Oil & Gas  
NOV 17 2016

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 or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

\*Note: Attach additional sheets as needed.

Well 514460 (SHR60H1)

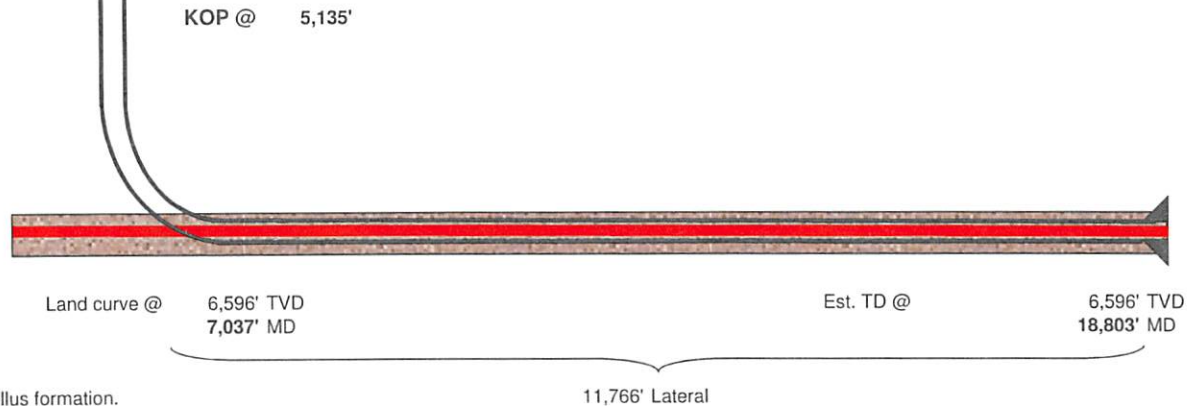
EQT Production  
Shirley Quad  
Tyler County, WV

Azimuth 157  
Vertical Section 11966

Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	60	
Base Fresh Water	906	
Surface Casing	997	
Maxton	1534 - 1587	
Big Lime	1829 - 2111	
Base Red Rock	1876	
Weir	2251 - 2317	
Gantz	2368 - 2415	
Fifty foot	2461 - 1496	
Thirty foot	2595 - 2636	
Gordon	2686 - 2700	
Intermediate Casing	2778	
Bayard	3007 - 3067	
Warren	3339 - 3413	
Speechley	3433 - 3551	
Balltown A	3855 - 3925	
Riley	4548 - 4585	
Benson	4965 - 5002	
Alexander	5222 - 5294	
Sonyea	6212 - 6381	
Middlesex	6381 - 6425	
Genesee	6425 - 6501	
Genesee	6501 - 6530	
Tully	6530 - 6554	
Hamilton	6554 - 6571	
Marcellus	6571 - 6623	
Production Casing	18803	MD
Onondaga	6623	

Casing and Cementing				Deepest Fresh Water: 906'
Type	Conductor	Surface	Intermediate	Production
Hole Size, In.	26	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	60'	997'	2,778'	18,803'
Weight	78.6#	54.5#	40#	20#
Grade	A-500	J-55	A-500	P-110
New or Used	New	New	New	New
Burst (psi)	1378	2,700	3,950	12,640
Cement Class	A	A	A	H
Cement Yield	1.18	1.20	1.25 / 1.18	1.123 / 2.098
Top of Cement (Planned)	Surface	Surface	Surface	500' above top Producing Zone
Method	Displacement	Displacement	Displacement	Displacement
Est. Volume (cu ft)	106	1,048	1,524	3,670
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent



Proposed Well Work:  
Drill and complete a new horizontal well in the Marcellus formation.  
Drill the vertical to an approximate depth of 5135'.  
Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

Received  
Office of Oil & Gas  
NOV 17 2016

4709502257

**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 & Gas  
NOV 17 2016**

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: Victoria J. Roark *Victoria Roark (PS)*  
 Its: Permitting Supervisor

4709502257

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page		
/ 126101	<b>George Birkelein, et al (current royalty owner)</b>		-			
	WM. Blaine Underwood Et ux et al (original lessor)	Equitable Gas Co.			DB186/86	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company			DB396/640	
5-18-7	Ok Nan Keys	EQT Production Company	508/179	Subsurface		
5-18-7.1	Brenda J. Ashley, et al	EQT Production Company	508/181	Subsurface		
5-18-7.1	Patricia A. Keys	EQT Production Company	514/375	Subsurface		
5-18-9	Billy Joe Rayburn a/k/a William Joe Rayburn, et al	EQT Production Company	508/175	Subsurface		
5-18-9	Lawrence Rayburn, et al	EQT Production Company	508/177	Subsurface		
/ 126167	<b>Berdina Rose, et al (current royalty owner)</b>		**			
	Savannah Pratt, et al (original lessor)	Equitable Gas Co.			DB192/425	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company	DB396/640			
/ 126161	<b>John A. Dillon, et al (current royalty owner)</b>		**			
	John M. Pierpoint, et al (original lessor)	Equitable Gas Co.			DB192/368	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company	DB396/640			
/ 126211	<b>Below the Fifth Sand</b>		**			
	<b>John A. Dillon, et al (current royalty owner)</b>					
	Mary E. Underwood, et vir (original lessor)	Hope Natural Gas Co.			DB70/477	
	Hope Natural Gas Co.	Consolidated Gas Supply Corp.			DB169/26	
	Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.			DB249/287	
	Consolidated Gas Transmission Corp.	CNG Development Co.			DB253/57	
	CNG Development Co.	Dominion Appalachian Development, Inc.			DB337/340	
	Dominion Appalachian Development, Inc.	Consol Gas Appalachian Development, LLC			CB9/131	name change
	Consol Gas Appalachian Development, LLC	CNX Gas Co., LLC			CB9/206	name change
	CNX Gas Co., LLC	EQT Production Co.			DB479/55	
CNX Gas Co., LLC/Noble Energy, Inc	EQT Production Co.	AB505/222				
/ 190034	<b>Paul Weekley (current royalty owner)</b>		**			
	Paul Weekle, et al (original lessor)	EQT Production Co.			DB548/119	
/ 126166	<b>Bruce L. Stoneking, et al (current royalty owner)</b>		**			
	Addie Keys & Paul Weekley (original lessor)	Equitable Gas Company			DB195/372	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company	DB396/640			
. 126137	<b>S.A. Smith and C. Burke Morris Trust, et al (current royalty owner)</b>		**			
	Carl C. Weekley, et al (original lessor)	Equitable Gas Co.			DB191/536	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	Equitable Production Company	DB396/640			
/ 126152	<b>Linda Sue Lamb, et al (current royalty owner)</b>		**			
	Carl C. Weekley, et al (original lessor)	Equitable Gas Co.			DB191/489	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company	DB396/640			
/ 126133	<b>Dorothy H. Bode (current royalty owner)</b>		**			
	Molke Scott (original lessor)	Equitable Gas Company			DB191/417	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company	DB396/640			
/ 105456	<b>Kimberly Wilcox (current royalty owner)</b>		**			
	Olive I. Stewart, et vir (original lessor)	J L Newman			LB69/42	
	J. L. Newman	The Philadelphia Company of West Virginia			OG455/390	
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company			DB101/36	
	Pittsburgh and West Virginia Gas Company	Equitable Gas Co.			132/414	
	Equitable Gas Co.	Equitrans, Inc.			DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resou	Equitrans, L.P.			DB433/777	
	Equitrans, L.P.	EQT Production Company			DB396/640	
/ 126177	<b>Regina M. Buck, et al (current royalty owner)</b>		**			
	J.S. Buck, et ux (original lessor)	Equitable Gas Company			DB97/533	
	Equitable Gas Company	Equitrans, Inc.			154/475	
	Equitrans, Inc	Equitrans, L.P.			329/645	
	Equitrans, L.P.	EQT Production Company	DB396/640			

\*\*We certify that we will pay a minimum 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, produced or marketed before deducting the amount to be paid to or set aside for the owner of the oil or gas in place, on all such oil or gas to be extracted, produced or marketed from the well.

Received  
Office of Oil & Gas  
NOV 17 2016

01/20/2017





4709502257

November 7, 2016

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

Re: SHR60, 47-095-02257, 02256, 02264  
McElroy District, Tyler County

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

Received  
Office of Oil & Gas  
NOV 17 2016

4709502257

514460

**WEST VIRGINIA GEOLOGICAL PROGNOSIS**  
Horizontal Well  
514460 (SHR60H1)

**Drilling Objectives:** Marcellus  
**County:** Tyler  
**Quad:** Shirley  
**Elevation:** 1024 KB 1011 GL, as built  
**Surface location** Northing: 328581.90 Easting: 1629438.75  
**Landing Point** Northing: 328314.50 Easting: 1629313.18  
**Toe location** Northing: 317483.74 Easting: 1633910.70  
**Recommended Azimuth** 157 Degrees

TVD: 6596  
 Recommended LP to TD: 11,766'

**Proposed Logging Suite:** Formation tops based on pilot hole logs from SHR60 well 514460 (deep) and 514463 (intermediate).  
 An elog should be run for the first well on every horizontal well pad.  
 Geologist to recommend when Mudloggers need to be on location 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.

**ESTIMATED FORMATION TOPS**

Formation	Top (TVD)	Base (TVD)	Lithology	Comments	Top RR	Base RR
Fresh Water Zone	1	906		FW @ 83,133,570,906, .	23	559
Coal	19	23	Coal	No past, present, or planned mining	57	67
Coal	420	424	Coal		326	345
Coal	686	690	Coal		391	402
Coal	875	879	Coal		425	665
Coal	1315	1319	Coal		533	990
Maxton	1534	1587	Sandstone	SW @ 1198,1865, .	686	701
Big Lime	1829	2111	Limestone		741	752
Weir	2251	2317	Sandstone		780	833
Top Devonian	2368			Storage is NOT of concern. Pad is located 350' outside of the Shirley storage field protective boundary	836	845
Gantz	2368	2415	Silty Sand		907	937
Fifty foot	2461	1496	Silty Sand		968	972
Thirty foot	2595	2636	Silty Sand		1285	1315
Gordon	2686	2700	Silty Sand		1833	1876 Base of Red
Int. csg pt	2778					
Fifth Sand	2891	2920	Silty Sand			
Bayard	3007	3067	Silty Sand			
Warren	3339	3413	Silty Sand			
Speechley	3433	3551	Silty Sand			
Balltown A	3855	3925	Silty Sand			
Riley	4548	4585	Silty Sand			
Benson	4965	5002	Silty Sand	Base of Offset Well Perforations at 5027' TVD		
Alexander	5222	5294	Silty Sand			
Elks	5294	6212	Gray Shales and Silts			
Sonyea	6212	6381	Gray shale			
Middlesex	6381	6425	Shale			
Genesee	6425	6501	with black shale			
Genesee	6501	6530	Black Shale			
Tully	6530	6554	Limestone			
Hamilton	6554	6571	calcareous shales			
Marcellus	6571	6623	Black Shale			
Purcell	6580	6589	Limestone			
-Lateral Zone	6596			Start Lateral at 6596'		
Cherry Valley	6606	6614	Limestone			
Onondaga	6623		Limestone			

Target Thickness	52 feet
Max Anticipated Rock Pressure	2747 PSI

**Comments:**  
 Note that this is a TVD prog for a horizontal well (azimuth of 157 degrees; target formation = Marcellus). All measurements taken from estimated KB elevation. Water and coal information estimated from surrounding well data.  
 Intermediate casing point is recommended 50' beneath the Gordon 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 landing point TVD is 6596', rig geologist may adjust landing point. After the well is landed, drill to reported bed dips/ geologists' recommendation. The geologic structure is unknown at this time.

**LATERAL DRILLING TOLERANCES**

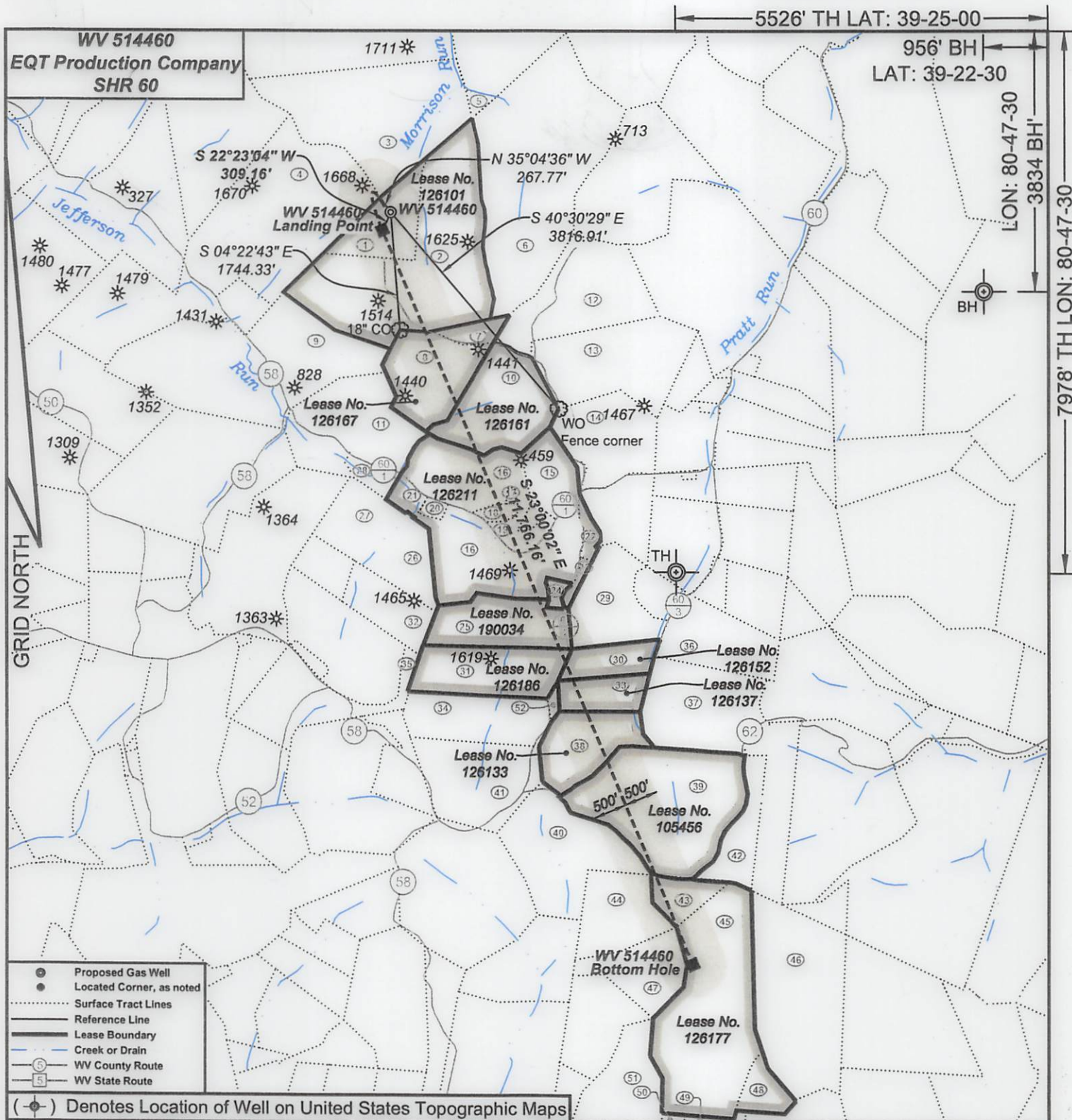
**Mapview - Lateral:** Deviate as little as possible to the left or right of the planned wellbore.  
**Mapview - TD:** DO NOT EXTEND beyond recommended wellbore to avoid lease line.

**RECOMMENDED CASING POINTS**

<b>Fresh Water/Coal</b>	CSG OD	13 3/8	CSG DEPTH:	997	86' below the freshwater
<b>Intermediate 1:</b>	CSG OD	9 5/8	CSG DEPTH:	2778	below the Gordon
<b>Production:</b>	CSG OD	5 1/2	CSG DEPTH:	@ TD	

Received  
 Office of Oil & Gas  
 NOV 17 2016  
 01/20/2017





5526' TH LAT: 39-25-00

956' BH  
LAT: 39-22-30

LON: 80-47-30

3834' BH  
7978' TH LON: 80-47-30

GRID NORTH

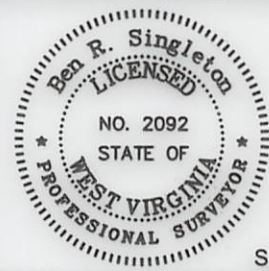
- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- Ⓢ WV County Route
- Ⓢ WV State Route

(+) 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 the regulations issued and prescribed by the Department of Environmental Protection.

*Ben R. Singleton*  
P.S. 2092



SEAL

FILE NO: 208-13  
DRAWING NO: 208-13 SHR 60 H1  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1:2500  
PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

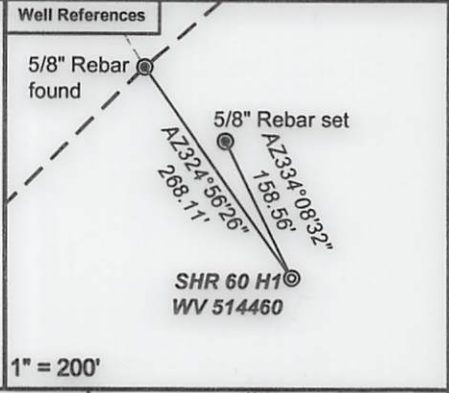
DATE: October 7 20 16  
OPERATOR'S WELL NO.: WV 514460  
API WELL NO  
47 - 95 - 02257  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley  
DISTRICT: McElroy COUNTY: Tyler  
SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38  
ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240  
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: 6596

01/20/2017

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280  
Bridgeport, WV 26330 Bridgeport, WV 26330

**WV 514460**  
**EQT Production Company**  
**SHR 60**

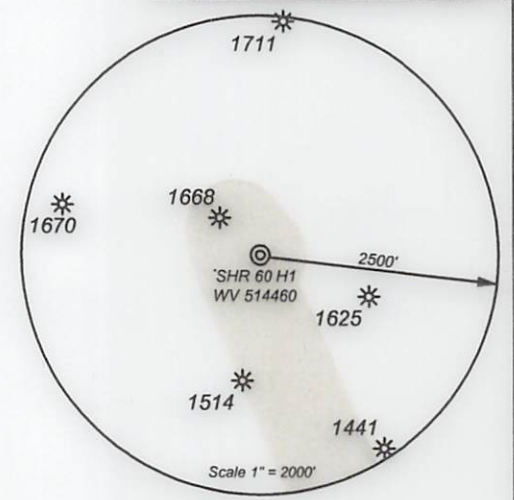


Tract I.D.	Tax Map No.	Parcel No.	County	District	Surface Tract Owner	Acres
1	18	12	Tyler	McElroy	Hanna A. Underwood Estate	35.00
2	18	13	Tyler	McElroy	Blaine Underwood Estate, et al.	104.73
3	18	9	Tyler	McElroy	Lawrence Rayburn, et al.	100.00
4	18	7.1	Tyler	McElroy	Patricia A. Keys, et al.	102.31
5	18	10	Tyler	McElroy	Susan Spencer	2.92
6	18	11	Tyler	McElroy	Susan Spencer	132.00
7	18	15	Tyler	McElroy	Susan Spencer	8.00
8	18	16	Tyler	McElroy	Donald E. Bible Sr.	35.50
9	18	23	Tyler	McElroy	Clyde Seckman Estate	111.75
10	18	17	Tyler	McElroy	Allen Dale Fornash, et al.	43.00
11	18	22	Tyler	McElroy	Donald E. Bible Sr.	39.26
12	18	14	Tyler	McElroy	Terry J. Cumberledge, et al.	54.81
13	18	18	Tyler	McElroy	Terry J. Cumberledge, et al.	49.87
14	18	19	Tyler	McElroy	John Paul Davis	35.00
15	18	20.2	Tyler	McElroy	Richard E. Hansen	19.96
16	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
17	18	20.6	Tyler	McElroy	Clarence G. Dillon Jr.	0.71
18	18	20.5	Tyler	McElroy	Clarence G. Dillon Jr.	2.94
19	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
20	18	20.4	Tyler	McElroy	John A. Dillon	2.04
21	18	20.3	Tyler	McElroy	Peter H. Mueller	4.69
22	18	20.1	Tyler	McElroy	William R. Doll Jr, et al.	3.06
23	21	44	Tyler	McElroy	William R. Doll Jr, et al.	2.43
24	21	45	Tyler	McElroy	Clarence G. Dillon, et al.	2.43
25	21	15	Tyler	McElroy	Paul Weekley	36.00
26	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
27	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
28	18	21	Tyler	McElroy	Barbara Willier	5.90
29	22	20	Tyler	McElroy	James B. Scott	30.00
30	21	18	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
31	21	16	Tyler	McElroy	Paul Weekley	36.00
32	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
33	21	19	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
34	21	17	Tyler	McElroy	Paul Weekley	32.95
35	21	27	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	7.50
36	21	21	Tyler	McElroy	James B. Scott	30.00
37	22	19	Tyler	McElroy	Berdina Rose, et al.	55.00
38	21	21	Tyler	McElroy	James B. Scott	30.00
39	22	18	Tyler	McElroy	Bruce W. Boland	86.75
40	21	33	Tyler	McElroy	Bruce W. Boland	52.46
41	21	23	Tyler	McElroy	Peggy A. White	45.88
42	22	18.1	Tyler	McElroy	Bruce W. Boland	18.91
43	22	17	Tyler	McElroy	David R. & Elizabeth A. Beveridge	12.00
44	22	16	Tyler	McElroy	Leah Weekley	29.00
45	2	18	Doddridge	West Union	David R. & Elizabeth A. Beveridge	125.00
46	2	1	Doddridge	West Union	James M. Petrovich, et al.	70.00
47	22	15	Tyler	McElroy	Isaiah Weekley	25.00
48	2	5.4	Doddridge	West Union	David R. & Elizabeth A. Beveridge	11.90
49	2	5.1	Doddridge	West Union	David R. & Elizabeth A. Beveridge	20.88
50	2	4.1	Doddridge	West Union	Robert B. & Marry E. Simpson	20.00
51	2	4	Doddridge	West Union	Robert B. & Marry E. Simpson	38.50
52	22	20	Tyler	McElroy	James B. Scott	30.00

- SHR 60**
- H1, 514460
  - H2, 514461
  - H3, 514462
  - H4, 514463
  - H5, 514464
  - H6, 514465
  - H7, 514466
  - H8, 515434
  - H9, 515435
  - H10, 515436
  - H11, 515437
  - H12, 515438

**Notes:**  
 WV 514460 coordinates are  
 NAD 27 N: 328,581.90 E: 1,629,438.75  
 NAD 27 Lat: 39.394727 Long: -80.811240  
 NAD 83 UTM N: 4,360,607.33 E: 516,268.74  
 WV 514460 Landing Point coordinates are  
 NAD 27 N: 328,314.5 E: 1,629,313.18  
 NAD 27 Lat: 39.393988 Long: -80.811670  
 NAD 83 UTM N: 4,360,525.23 E: 516,231.84  
 WV 514460 Bottom Hole coordinates are  
 NAD 27 N: 317,483.74 E: 1,633,910.70  
 NAD 27 Lat: 39.364437 Long: -80.794852  
 NAD 83 UTM N: 4,357,249.01 E: 517,687.54

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.



- Proposed Gas Well
- Located Corner, as noted
- ..... Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- ⊙ WV County Route
- ⊠ WV State Route

**Sub Surface Easements**

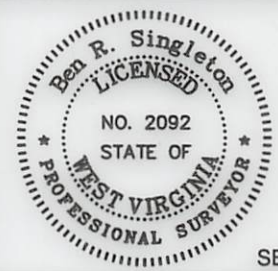
Parcel No.	Acres	Owner
05-18-9	100	Billy Joe Rayburn, et ux.
05-18-9	100	Lawrence Rayburn, et ux.
05-18-7.1	102.31	Brenda J. Ashley, et vir.
05-18-7.1	102.31	Patricia A. Keys

Lease No.	Acres	Owner
126167	43	Berdina Rose, et al.
126161	43	John A. Dillon, et al.
126211	145	John A. Dillon, et al.
190034	36	Paul Weekley
126186	36	Bruce L. Stoneking, et al.
126137	20	S.A. Smith & C. Burke Morris Trust, et al.
126152	20	Linda Sue Lamb, et al.
126133	40	Dorothy H. Bode
105456	96	Kimberly Wilcox
126177	138	Regina M. Buck, et al.

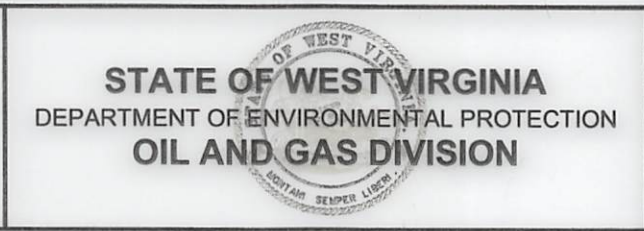


*I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.*

*Ben R. Singleton*  
 P.S. 2092



FILE NO: 208-13  
 DRAWING NO: 208-13 SHR 60 H1  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1:2500  
 PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: October 7 20 16  
 OPERATOR'S WELL NO.: WV 514460  
 API WELL NO  
 47 - 95 - 02257  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley  
 DISTRICT: McElroy COUNTY: Tyler  
 SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38  
 ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240  
 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: 6596

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
 ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280  
 Bridgeport, WV 26330 Bridgeport, WV 26330

01/20/2017