

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-017-06757 County Doddridge District South West  
Quad Oxford Pad Name OXF155 Field/Pool Name N/A  
Farm name Haessly Land & Timber LLC Well Number 513066  
Operator (as registered with the OOG) EQT Production Company  
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing N. 4,340,492.18 Easting 516,422.78  
Landing Point of Curve Northing N. 4,340,002.91 Easting 515,848.68  
Bottom Hole Northing N. 4,341,143.54 Easting 515,243.31

Elevation (ft) 1199' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
Water base Mud 11.5 ppg, Synthetic Base Mud 11.5 ppg, barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 02/09/2016 Date drilling commenced 03/14/2017 Date drilling ceased 07/14/2017  
Date completion activities began 3/14/2018 Date completion activities ceased 3/19/2018  
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 59,183,204,262,419 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1436 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 132,252,292,532 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
07/20/2018

API 47-017 - 06757 Farm name Haessly Land & Timber LLC Well number 513066

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	26"	40'	NEW	A-500	N/A	Y
Surface	17 1/2"	13 3/8"	569'	NEW	J-55	398'	N
Coal							
Intermediate 1	12 3/8"	9 5/8"	3466'	NEW	A-500	1409	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	14,630'	NEW	P-110	N/A	N
Tubing							
Packer type and depth set							

Comment Details Grouted with 1" tubing from 66' to surface with 18 bbls of cement.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	48.9	15.6	1.18	57.7	0	8
Surface	CLASS A	815 / Grout 85.7	15.6	1.20	1080.84	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	175 / 1050	15.6 / 15.6	1.18 / 1.2	1466.5	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	587/561	15.2 / 15.6	1.25 / 2.06	1889	4705	72
Tubing							

Drillers TD (ft) 12,292 Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

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Kick off depth (ft) 3536

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No  Conventional  Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

CONDUCTOR: NONE  
 SURFACE: 2 CENTRALIZERS AT JOINTS 1 and 10  
 INTERMEDIATE: 8 CENTRALIZERS PLACED EVERY 500'  
 PRODUCTION: 168 Spiral body composite centralizers placed every joint from bottom to 5683 RMD.

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbbls)	Amount of Nitrogen/other (units)
								Please See Attached

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6,649'</u> TVD	<u>7,848'</u> MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 820 psi Bottom Hole N/A psi DURATION OF TEST 181.5 hrs

OPEN FLOW Gas 10,542 mcfpd Oil N/A bpd NGL 8.1 bpd Water 1,259 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION TOP DEPTH IN FT BOTTOM DEPTH IN FT TOP DEPTH IN FT BOTTOM DEPTH IN FT DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, ETC)

FORMATION	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	<u>0</u>		<u>0</u>		
<u>SW &amp; Oil Show</u>	<u>1436</u>	<u>1436</u>	<u>1436</u>	<u>1436</u>	<u>SW &amp; Oil Show</u>

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Please insert additional pages as applicable.

Drilling Contractor Decker Drilling Rig 11  
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Gyrodta Incorporated  
Address 73 Noblestown Road City Carnegie State PA Zip 15106

Cementing Company BJ Cementing Services  
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company FTS International  
Address 1432 Route 519 City Eighty-Four State PA Zip 15330

Please insert additional pages as applicable.

Completed by Brad Maddox Telephone (412) 395-7053  
Signature [Signature] Title Completions Director Date 06/14/2018

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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Drilling Contractor Savanna Drilling (Rig 803)  
Address 125 Industry Road City Waynesburg State PA Zip 15370

Logging Company Scientific Drilling  
Address 124 Vista Drive City Charleroi State PA Zip 15022

Logging Company Baker Hughes  
Address 400 Technology Dr #120 City Canonsburg State PA Zip 15317

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Pad Well #: OXF155 513066		Permit: 47-017-06757			
Coordinates	Latitude (°): 39° 12' 48.478" N	Longitude (°): 80° 48' 35.791" W			
Formation Name	Drill Top MD (ftKB)	Drill Top (TVD) (ftKB)	Drill Btm MD (ftKB)	Drill Btm (TVD) (ftKB)	Gas At (TVD GL)
Fresh Water Zone	1	1	422	422	
SAND / SHALE	1	1	137	137	
WASHINGTON COAL	135	135	137	137	
SAND / SHALE	134	134	252	252	
WAYNESBURG-A COAL	255	255	257	257	
SAND / SHALE	257	257	295	295	
UNIONTOWN COAL	295	295	297	297	
SAND / SHALE	297	297	535	535	
SWEICKLEY COAL	535	535	538	538	
SAND / SHALE	538	538	1573	1573	
MAXTON	1573	1573	1662	1662	
SAND / SHALE	1662	1662	1918	1918	
BIG LIME	1918	1918	2051	2051	
SAND / SHALE	2051	2051	2208	2208	
WEIR	2208	2208	2323	2323	
SAND / SHALE	2323	2323	2419	2419	
GANTZ	2419	2419	2503	2503	
FIFTY FOOT	2503	2503	2566	2566	
SAND / SHALE	2566	2566	2611	2611	
THIRTY FOOT	2611	2611	2651	2651	
GORDON	2651	2651	2695	2695	
SAND / SHALE	2695	2695	2757	2757	
FOURTH SAND	2757	2757	2792	2792	
SAND / SHALE	2792	2792	2933	2933	
BAYARD	2933	2933	3158	3158	
SAND / SHALE	3158	3158	3256	3256	
WARREN	3256	3256	3311	3311	
SAND / SHALE	3311	3311	3327	3327	
SPEECHLEY	3327	3327	3419	3419	
SAND / SHALE	3419	3419	3845	3832	
BALLTOWN A	3845	3832	4003	3964	
SAND / SHALE	4003	3964	4459	4297	
RILEY	4459	4297	4515	4337	
SAND / SHALE	4515	4337	4892	4608	
BENSON	4892	4608	5007	4691	
SAND / SHALE	5007	4691	5149	4794	
ALEXANDER	5149	4794	5238	4859	
ELK	5238	4859	7182	6269	5726, 6028, 6077
SONYEA	7182	6269	7395	6424	
MIDDLESEX	7395	6424	7460	6469	6420, 6444
GENESEE	7460	6469	7566	6533	
GENESEO	7566	6533	7630	6567	
TULLY	7630	6567	7665	6584	
HAMILTON	7665	6584	7848	6649	
MARCELLUS	7848	6649	12292	6601	6636

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/14/2018
Job End Date:	3/19/2018
State:	West Virginia
County:	Doddridge
API Number:	47-017-06757-00-00
Operator Name:	EQT Production
Well Name and Number:	513066
Latitude:	39.21346600
Longitude:	-80.80994200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,649
Total Base Water Volume (gal):	6,794,592
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	FTS International	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	84.86530	None
CI-150	FTS International	Acid Corrosion Inhibitor					
				Listed Below			

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Hydrochloric Acid (15%)	FTS International	Acid					
				Listed Below			
FRW-1450	FTS International	Processing Agent For Industrial Applications					
				Listed Below			
MC MX 8-4543	Multi-Chem	Biotechnology					
				Listed Below			
CS-1000 SI	FTS International	Scale Inhibitor					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			
MC MX 5-3886	Multi-Chem	Specialty Brine					
				Listed Below			
Sand (Proppant)	FTS International	Proppant					
				Listed Below			

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Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica Substrate	14808-60-7	100.00000	14.82949	None
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.03793	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02542	None
			Distillates (Petroleum), Hydrotreated Light	64742-47-8	30.00000	0.02125	None

			Phosphonic Acid {Nitrilotris (Methylene)} Tris	6419-19-8	35.00000	0.00847	None
			Phosphonic Acid {Nitrilotris (Methylene)} Tris	6419-19-8	35.00000	0.00847	
			Alcohols, C11-14-iso-, C13-Rich, Ethoxylated	78330-21-9	5.00000	0.00354	None
			Proprietary	Proprietary	100.00000	0.00247	None
			Phosphonic Acid {(Dimethylamino) Methylene} BIS	29712-30-9	5.00000	0.00121	None
			Phosphonic Acid {(Dimethylamino) Methylene} BIS	29712-30-9	5.00000	0.00121	
			Phosphorous Acid	10294-56-1	2.00000	0.00048	
			Phosphorous Acid	10294-56-1	2.00000	0.00048	None
			Organic Amine Resin Salt	Proprietary	30.00000	0.00009	
			Ethylene Glycol	107-21-1	30.00000	0.00009	None
			Organic Amine Resin Salt	Proprietary	30.00000	0.00009	None
			Isopropanol	67-63-0	30.00000	0.00009	None
			Ethylene Glycol	107-21-1	30.00000	0.00009	
			Quaternary Ammonium Compound	Proprietary	10.00000	0.00003	
			Dimethylformamide	68-12-2	10.00000	0.00003	None
			Quaternary Ammonium Compound	Proprietary	10.00000	0.00003	None
			Aromatic Aldehyde	Proprietary	10.00000	0.00003	
			Aromatic Aldehyde	Proprietary	10.00000	0.00003	None
			Dimethylformamide	68-12-2	10.00000	0.00003	

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 49 CFR 1910.100(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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Reviewed

*John am 7/9/18*

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513066

API: 47 - 017 - 06757

Submission:  Initial  Amended

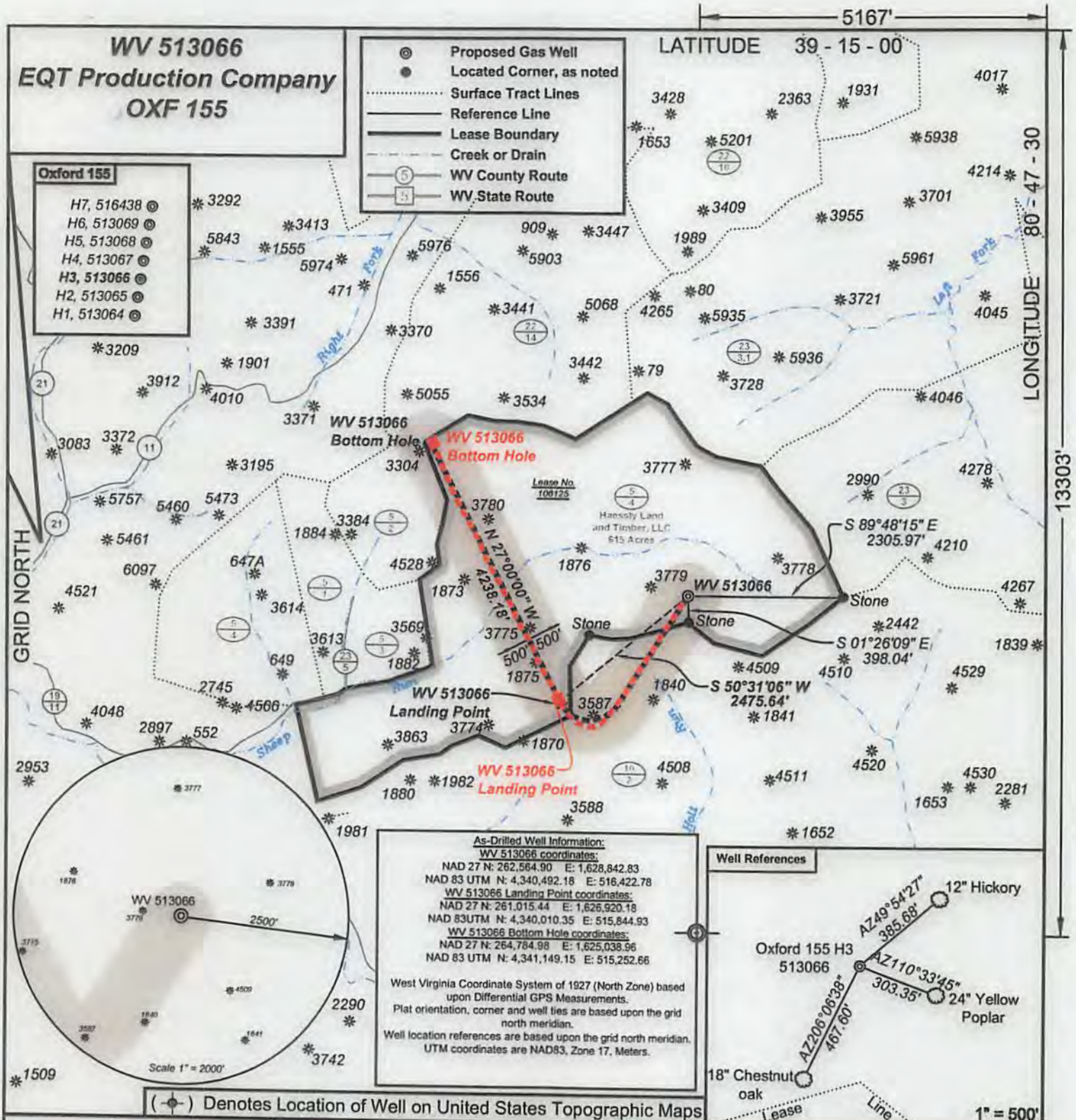
Notes:

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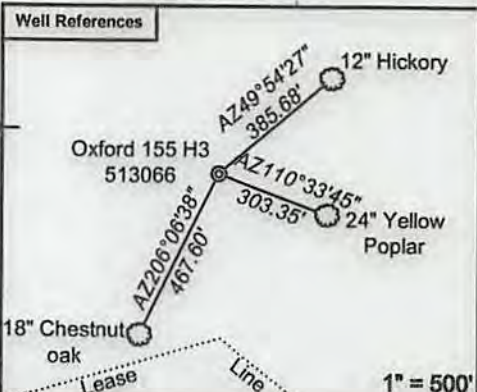
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**As-Drilled Well Information:**  
**WV 513066 coordinates:**  
 NAD 27 N: 262,564.90 E: 1,628,842.83  
 NAD 83 UTM N: 4,340,492.18 E: 516,422.78  
**WV 513066 Landing Point coordinates:**  
 NAD 27 N: 261,015.44 E: 1,626,920.18  
 NAD 83 UTM N: 4,340,010.35 E: 515,844.93  
**WV 513066 Bottom Hole coordinates:**  
 NAD 27 N: 264,784.98 E: 1,625,038.96  
 NAD 83 UTM N: 4,341,149.15 E: 515,252.66

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.

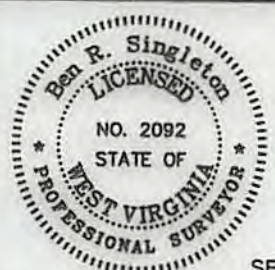


(⊙) Denotes Location of Well on United States Topographic Maps



*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 B. Singleton*  
 P.S. 2092



FILE NO: 239-13  
 DRAWING NO: Oxford 155 H3  
 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 11 20 17  
 OPERATOR'S WELL NO. 513066  
 API WELL NO  
 47 - 017 - 06757  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Original 1211.5 Proposed 1199 WATERSHED Sheep Run of South Fork of Hughes River QUADRANGLE: Oxford  
 DISTRICT: South West COUNTY: Doddridge  
 SURFACE OWNER: Haessly Land & Timber, LLC ACREAGE: 615  
 ROYALTY OWNER: Eli Nutter Heirs LEASE NO: 106125 ACREAGE: 615  
 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: TVD 6,611

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

07/20/2018