

APPROVED

NAME: *David L. ...*
DATE 1/3/18

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513068

API: 47 - 017 - 06759

Submission: Initial Amended

Notes: Initial Report w/ Flowback

RECEIVED
Office of Oil and Gas

DEC 14 2017

WV Department of
Environmental Protection

01/05/2018

APPROVED

NAME:

DATE:

RECEIVED
Office of Oil and Gas

FEB 14 2018

NY Department of
Environmental Protection

01/05/2018

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

API 47-017-06759 County Doddridge District South West
Quad Oxford Pad Name OXF155 Field/Pool Name N/A
Farm name Haessly Land & Timber LLC Well Number 513068
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. 4,340,501.22 Easting 516,424.06
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

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 03/23/2017 Date drilling ceased 06/15/2017
Date completion activities began 8/31/2017 Date completion activities ceased 9/18/2017
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 1422 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:

01/05/2018

API 47-017-06759 Farm name Haessly Land & Timber LLC Well number 513068

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/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'	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	3466'	NEW	A-500	1400'	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	10,180'	NEW	P-110	N/A	N
Tubing							
Packer type and depth set							

Comment Details N/A

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	48.9	15.6	1.18	57.7	0	8
Surface	CLASS A	640	15.6	1.20	768	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	175 / 1092	15.6 / 15.6	1.18 / 1.2	1516.9	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	425/399	15.2/15.6	1.25/2.03	1341	5000	72
Tubing							

Drillers TD (ft) 10,183' Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 4943

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 12

INTERMEDIATE: 8 CENTRALIZERS PLACED EVERY 500'

PRODUCTION: 118 Spiral body composite centralizers placed every joint from bottom to 2,500 ftMD

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 _____

API 47- 017 - 06759 Farm name Haessly Land & Timber LLC Well number 513068

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.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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 (bbls)	Amount of Nitrogen/other (units)
								See Attached

Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6623'</u> TVD	<u>7085'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 806 psi Bottom Hole N/A psi DURATION OF TEST 82.5 hrs

OPEN FLOW Gas 5,862 mcfpd Oil N/A bpd NGL 67.9 bpd Water 660.5 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
<u>SW & Oil Show</u>	<u>1422</u>	<u>1422</u>	<u>1422</u>	<u>1422</u>	<u>SW & Oil Show</u>

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 Gyrodata 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 Universal Well Services
Address 730 Braddock View Drive City Lemont Furnace State PA Zip 15456

Please insert additional pages as applicable.

Completed by Michael Rehl Telephone (412) 553-5815
Signature  Title Dir Completions Date 12/12/2017

API 47- 017 - 06759 Farm name Haessly Land & Timber LLC Well number 513068

Drilling Contractor Savanna Drilling (Rig 655)
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

Pad Well #: OXF155H5	API: 47-017-06759	Permit #: 47-01706759			
Lat/Long Data Source:	Latitude (°): 39° 12' 50.328" N	Longitude (°): 80° 48' 34.668" 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	135	135	
WASHINGTON COAL	135	135	137	137	
SAND / SHALE	137	137	255	255	
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	
SPEECHLEY	3327	3327	3419	3419	
SAND / SHALE	3419	3419	3845	3845	
BALLTOWN A	3845	3845	4003	4003	
SAND / SHALE	4003	4003	4459	4459	
RILEY	4459	4459	4515	4515	
SAND / SHALE	4515	4515	4892	4892	
BENSON	4892	4892	5007	5006	
SAND / SHALE	5007	5006	5149	5143	
ALEXANDER	5149	5143	5238	5227	
ELK	5238	5227	6519	6254	5915, 6051, 6123, 6231
SONYEA	6519	6254	6711	6411	
MIDDLESEX	6711	6411	6797	6472	6415, 6458
GENESEE	6797	6472	6900	6537	
GENESEO	6900	6537	6987	6584	6543
TULLY	6987	6584	7052	6611	6571
HAMILTON	7052	6611	7085	6623	
MARCELLUS	7085	6623	10183	6639	6609

01/05/2018

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/31/2017
Job End Date:	9/18/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06759-00-00
Operator Name:	EQT Production
Well Name and Number:	513068
Latitude:	39.21354800
Longitude:	-80.80992700
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,623
Total Base Water Volume (gal):	4,832,478
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	Universal	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	85.14195	None
Unislick ST-50	Universal	Friction Reducer					
				Listed Below			

Hydrochloric Acid (15%)	Universal	Acidizing					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			
SFR-451	Clariant	Friction Reducer					
				Listed Below			
Scale Hib-A21	Universal	Scale Inhibitor					
				Listed Below			
Unihib-G	Universal	Acid Corrosion Inhibitor					
				Listed Below			
WGA-7 SLR	Universal	Gel					
				Listed Below			
Sand (Proppant)	Universal	Proppant					
				Listed Below			
AP Breaker	Universal	Gel/Breaker					
				Listed Below			
MX-8-2544	Multi-Chem	Bacteria Treatment					

				Listed Below			
MX-5-3886	Multi-Chem	Bacteria Treatment					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica Substrate	14808-60-7	100.00000	14.37513	None
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.10448	None
			Hydrochloric Acid	7647-01-0	15.00000	0.04010	None
			Petroleum Distillates, Hydrotreated Light	64742-47-8	30.00000	0.02313	None
			Sodium Chloride	7647-14-5	100.00000	0.00922	None
			Ammonium Acetate	631-61-8	10.00000	0.00771	None
			Amine Triphosphate	Proprietary	30.00000	0.00697	None
			Alcohols, C12-16, Ethoxylated	68551-12-2	5.00000	0.00386	None
			Alcohols, C12-14, Ethoxylated	68439-50-9	5.00000	0.00386	
			Alcohols, C12-16, Ethoxylated	68551-12-2	5.00000	0.00386	
			Alcohols, C12-14, Ethoxylated	68439-50-9	5.00000	0.00386	None
			Alcohols, C10-16, Ethoxylated	68002-97-1	5.00000	0.00386	
			Alcohols, C10-16, Ethoxylated	68002-97-1	5.00000	0.00386	None
			Ethylene Glycol	107-21-1	5.00000	0.00116	None
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00116	None
			Sodium Nitrate	7631-99-4	5.00000	0.00046	None
			Petroleum Distillates, Hydrotreated Light	64742-47-8	30.00000	0.00036	None
			Petroleum Distillates, Hydrotreated Light	64742-47-8	30.00000	0.00036	
			Butyl Diglycol	0000112-34-5	75.00000	0.00017	None
			Butyl Diglycol	0000112-34-5	75.00000	0.00017	

			Ammonium Acetate	631-61-8	13.00000	0.00016	None
			Ammonium Acetate	631-61-8	13.00000	0.00016	
			Alcohols, C10-16, Ethoxylated	0068002-97-1	50.00000	0.00011	
			Alcohols, C10-16, Ethoxylated	0068002-97-1	50.00000	0.00011	None
			Alcohols, ethoxylated	68439-50-9	5.00000	0.00006	None
			Alcohols, ethoxylated	68439-50-9	5.00000	0.00006	
			Alcohols, ethoxylated	68551-12-2	5.00000	0.00006	None
			Alcohols, ethoxylated	68551-12-2	5.00000	0.00006	
			Alcohols, ethoxylated	68002-97-1	5.00000	0.00006	None
			Alcohols, ethoxylated	68002-97-1	5.00000	0.00006	
			Petroleum Distillates, Hydrotreated Light	64742-47-8	55.00000	0.00005	None
			Guar gum	9000-30-0	55.00000	0.00005	
			Petroleum Distillates, Hydrotreated Light	64742-47-8	55.00000	0.00005	
			Guar gum	9000-30-0	55.00000	0.00005	None
			Ammonium Persulfate	7727-54-0	100.00000	0.00002	
			Ammonium Persulfate	7727-54-0	100.00000	0.00002	None
			Methanol	0000067-56-1	5.00000	0.00001	None
			Methanol	0000067-56-1	5.00000	0.00001	
			Thiourea	0000062-56-6	1.00000	0.00000	
			Formaldehyde	0000050-00-0	1.00000	0.00000	None
			Formaldehyde	0000050-00-0	1.00000	0.00000	
			Thiourea	0000062-56-6	1.00000	0.00000	None

* 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 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

WV 513068
EQT Production Company
Oxford 155

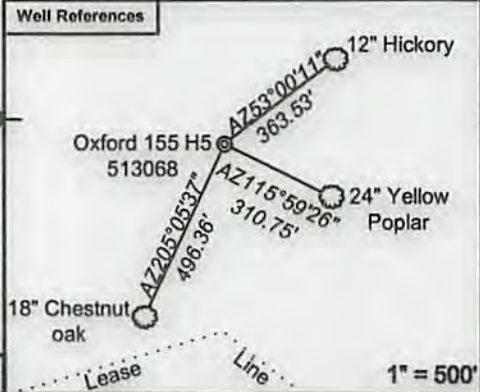
Proposed Gas Well
 Located Corner, as noted
 Surface Tract Lines
 ——— Reference Line
 ——— Lease Boundary
 ——— Creek or Drain
 WV County Route
 WV State Route

LATITUDE 39 - 15 - 00
 LONGITUDE 80 - 47 - 30

- Oxford 155**
- H7, 516438
 - H6, 513069
 - H5, 513068
 - H4, 513067
 - H3, 513066
 - H2, 513065
 - H1, 513064



As-Drilled Well Information:
 WV 513068 coordinates:
 NAD 27 N: 262,594.53 E: 1,628,847.54
 NAD 83 UTM N: 4,340,501.23 E: 516,424.06
 WV 513068 Landing Point coordinates:
 NAD 27 N: 262,235.24 E: 1,628,092.09
 NAD 83 UTM N: 4,340,387.92 E: 516,195.74
 WV 513068 Bottom Hole coordinates:
 NAD 27 N: 264,805.90 E: 1,626,780.63
 NAD 83 UTM N: 4,341,164.39 E: 515,783.14
 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.



(-o-) 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.

[Signature]
 P.S. 2092



FILE NO: 239-13
 DRAWING NO: Oxford 155 H5
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1:2500
 PROVEN SOURCE OF ELEVATION: NGS CORS Station

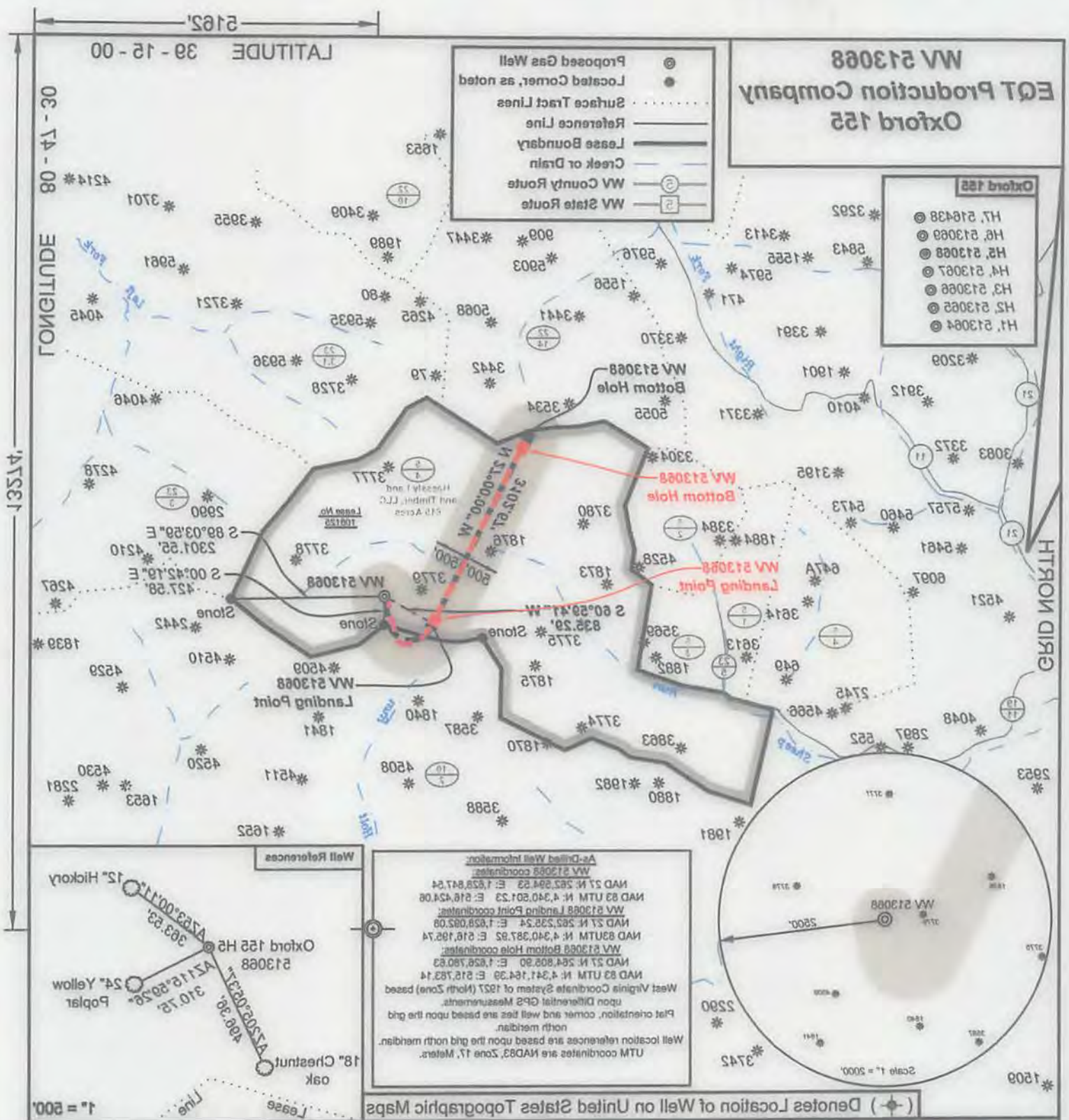
STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: September 15 20 17
 OPERATOR'S WELL NO. 513068
 API WELL NO
 47 - 017 - 06759
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Original 1212.5 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

01/05/2018

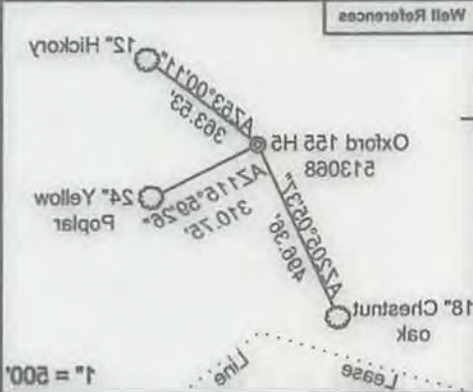


WV 513068
EQT Production Company
Oxford 155

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

Oxford 155
 H1. 513064
 H2. 513065
 H3. 513066
 H4. 513067
 H5. 513068
 H6. 513069
 H7. 51438

As-Drilled Well Information:
WV 513068 coordinates:
 NAD 27 N. 282,294.83 E. 1,782,847.54
 NAD 83 UTM N. 4,340,201.23 E. 516,424.08
WV 513068 Landing Point coordinates:
 NAD 27 N. 282,292.24 E. 1,782,882.08
 NAD 83 UTM N. 4,340,201.23 E. 516,424.08
WV 513068 Bottom Hole coordinates:
 NAD 27 N. 284,802.90 E. 1,826,780.83
 NAD 83 UTM N. 4,341,164.39 E. 512,783.14
 West Virginia Coordinate System of 1987 (North Zone) based upon Differential GPS Measurements.
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 P.S. 2092



STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION		FILE NO.: 238-13 DRAWING NO.: Oxford 155 H5 SCALE: 1" = 200' MINIMUM DEGREE OF ACCURACY: 1:2500 PROVEN SOURCE OF ELEVATION: NGS CORS Station
WELL TYPE: <input type="checkbox"/> OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL (IF GAS PRODUCTION: <input type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input checked="" type="checkbox"/> SHALLOW		DISTRICT: South West COUNTY: Doddridge QUADRANGLE: Oxford LOCATION: ELEVATION: PROPOSED 1199 Original 1212.5 WATERSHED: Strip Run of South Fork of Hughes River
PROPOSED WORK: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> CONVERT <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/> OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____ <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: 2068 ft		WELL OPERATOR: EQT Production Company ADDRESS: 115 Professional Place PO Box 280 Bridgport, WV 26330 DESIGNATED AGENT: Rex C. Ray
STATE: 47 COUNTY: 017 PERMIT: 06759 API WELL NO: _____ OPERATORS WELL NO: 513068 DATE: September 15, 2017		ROYALTY OWNER: Eli Nutter Heirs LEASE NO.: 108125 ACRES: 615 OPERATOR: Hassely Land & Timber, LLC DISTRICT: South West COUNTY: Doddridge QUADRANGLE: Oxford