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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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, July 6, 2021  
WELL WORK PERMIT  
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC  
380 SOUTHPOINTE BOULEVARD, PLAZA II  
SUITE 200  
CANONSBURG, PA 15317

Re: Permit approval for FITZGERAL S-6HM  
47-051-02384-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless 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: FITZGERAL S-6HM  
Farm Name: DANNY AND FRANCES KER  
U.S. WELL NUMBER: 47-051-02384-00-00  
Horizontal 6A New Drill  
Date Issued: 7/6/2021

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: \_\_\_\_\_

## PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

07/09/2021

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

1) Well Operator: Tug Hill Operating, LLC      494510851      Marshall      Liberty      Glen Easton 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Fitzgerald S-6HM      Well Pad Name: Fitzgerald

3) Farm Name/Surface Owner: Danny and Frances Kern Estate      Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1,293'      Elevation, proposed post-construction: 1,293'

5) Well Type    (a) Gas    X      Oil      \_\_\_\_\_      Underground Storage      \_\_\_\_\_

Other      \_\_\_\_\_

(b) If Gas    Shallow    X      Deep      \_\_\_\_\_

Horizontal    X      \_\_\_\_\_

6) Existing Pad: Yes or No Yes      *Boyz Stillps 5-27-21*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus is the target formation at a depth of 6,875' - 6,925', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 7,025'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,318'

11) Proposed Horizontal Leg Length: 7,772.21'

12) Approximate Fresh Water Strata Depths: 70; 1,029'

13) Method to Determine Fresh Water Depths: Offset well reports or noticeable flow at the flowline or when need to start soaping

14) Approximate Saltwater Depths: 1,468'

15) Approximate Coal Seam Depths: Sewickley Coal - 925' and Pittsburgh Coal - 1,023'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?      Yes    X      No      \_\_\_\_\_

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co./Marshall County Mine

Depth: Pittsburgh coal 1,023' and 270' subsea level

Seam: Pittsburgh #8

Owner: Murray Energy / Consolidated Coal

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18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	30"	NEW	BW	BW	120'	120' ✓	259FT ^3(CTS)
Fresh Water/Coal	13 3/8"	NEW	J55	54.5#	1,150'	1,150' ✓	1,149FT^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	3,060'	3,060' ✓	1,016FT^3(CTS)
Intermediate 2	9 5/8"	NEW	J55	36#			
Production	5 1/2"	NEW	P110	20#	16,318'	16,318' ✓	4,172FT^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,561'	
Liners							

*B.S. 5-27-21*

<b>TYPE</b>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

**PACKERS**

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

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well to be completed with approximately 19,500,000 lb. proppant and 14,700,000 gallons of water. Max rate = 80 bpm; max psi = 9,000#.

*B.S. 5-27-21*

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 21.21 acres

22) Area to be disturbed for well pad only, less access road (acres): 7.44 acres

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate will have 1 centralizer every other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

24) Describe all cement additives associated with each cement type:

Sfc - Premium NE-1 + 2% CaCl; Int1 - Premium NE-1 + 1.5% CaCL + Flake; Int2 - Lead: Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170 Tail: Premium NE-1 + .1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 + .2% ASA-301 + .6% Sodium Metasilicate; Kick Plug - Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L; Prod - Lead: 50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L

25) Proposed borehole conditioning procedures:

Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

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\*Note: Attach additional sheets as needed.



**Tug Hill Operating, LLC Casing and Cement Program**

**Fitzgerald S-6HM**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	1,150'	CTS
Intermediate	9 5/8"	J55	12 1/4"	3,060'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	16,318'	CTS

**Cement**

- Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
- Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
- Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
- Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
- Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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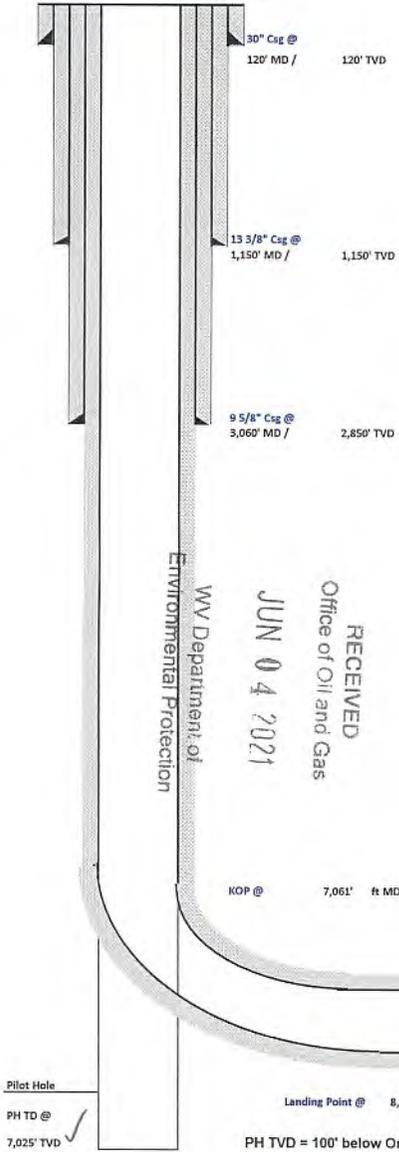


**WELL NAME:** Fitzgerald S-6HM  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Liberty  
**DF Elev:** 1,293' **GL Elev:** 1,293'  
**TD:** 16,318'  
**TH Latitude:** 39.80130849  
**TH Longitude:** -80.64132625  
**BH Latitude:** 39.78712887  
**BH Longitude:** -80.63648287

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1029
Sewickley Coal	925
Pittsburgh Coal	1023
Big Lime	2081
Weir	2499
Berea	2715
Gordon	2968
Rhinestreet	6172
Genesee/Burkett	6731
Tully	6759
Hamilton	6785
Marcellus	6875
Landing Depth	6929
Onondaga	6925
Pilot Hole Depth	7025

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	BW	Surface
Surface	17.5	13 3/8	1,150'	1,150'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	3,060'	2,850'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,318'	7,065'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,165	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,018	A	15	Air	1 Centralizer every other jt
Production	3,823	A	14.5	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc

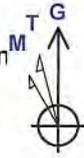


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Pilot Hole  
 PH TD @ 7,025' TVD ✓  
 Landing Point @ 8,548' MD / 6,929' TVD  
 PH TVD = 100' below Onondaga Top

Lateral TD @ 16,318' ft MD ✓  
 7,065' ft TVD ✓

R.S. 5-27-21



Azimuths to Grid North  
 True North: -0.23°  
 Magnetic North: -8.93°  
 Magnetic Field  
 Strength: 51812.0nT  
 Dip Angle: 65.60°  
 Date: 11/1/2020  
 Model: IGRF2020

Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD83 West Virginia - HARN  
 Ellipsoid: GRS 1980  
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level  
 Depth Reference: GL @ 1292.91ft

SECTION DETAILS

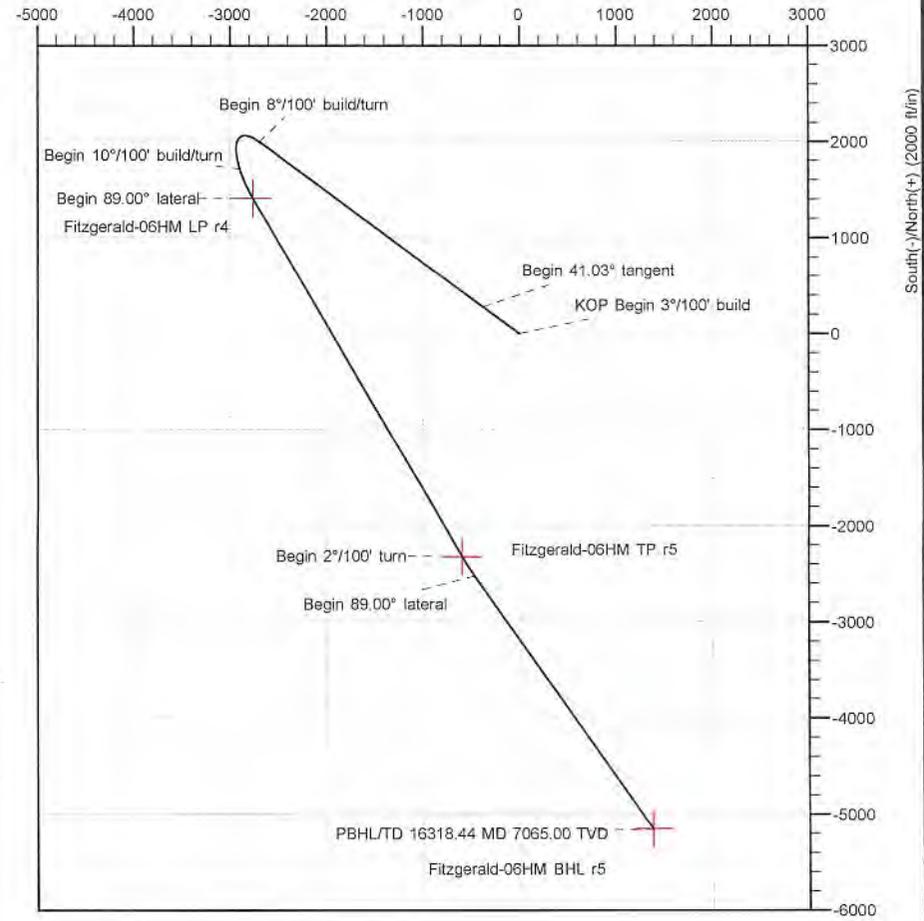
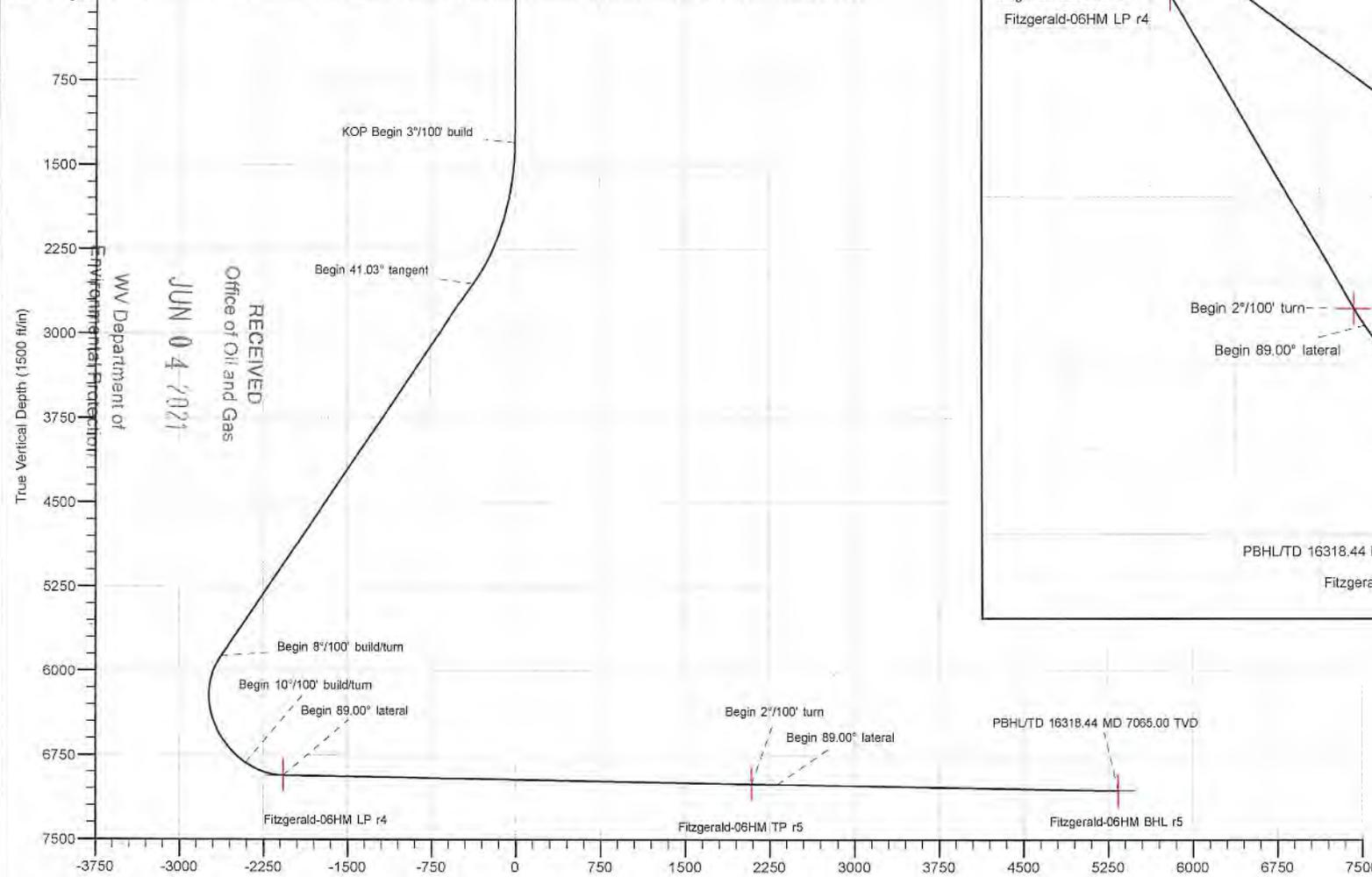
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 3°/100' build
3	2667.79	41.03	306.55	2553.83	279.43	-376.93	3.00	306.551	-367.43	Begin 41.03° tangent
4	7061.09	41.03	306.55	5867.79	1997.09	-2693.89	0.00	0.000	-2626.00	Begin 8°/100' build/turn
5	8185.72	55.00	163.08	6818.35	1715.98	-2900.72	8.00	-150.821	-2407.97	Begin 10°/100' build/turn
6	8547.60	89.00	149.78	6929.00	1407.54	-2761.87	10.00	-22.925	-2074.11	Begin 89.00° lateral
7	12866.15	89.00	149.78	7004.49	-2323.44	-588.41	0.00	0.000	2092.13	Begin 2°/100' turn
8	13102.98	89.00	145.04	7008.64	-2522.89	-460.90	2.00	-90.074	2317.78	Begin 89.00° lateral
9	16318.44	89.00	145.04	7065.00	-5157.73	1381.29	0.00	0.000	5339.49	PBHL/TD 16318.44 MD 7065.00 TVD

Northing: 14454584.95, Easting: 1741154.24, Latitude: 39.80130849, Longitude: -80.64132625

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.93°

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Fitzgerald-06HM LP r4	6929.00	1407.58	-2761.84	14455992.53	1738392.40	39.80520400	-80.65114000
Fitzgerald-06HM TP r5	7004.49	-2323.44	-588.41	14452261.51	1740565.83	39.79493424	-80.64345418
Fitzgerald-06HM BHL r5	7065.00	-5157.73	1381.29	14449427.23	1742535.53	39.78712866	-80.63648286



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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Fitzgerald 06 HM (slot E)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1292.91ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1292.91ft
<b>Site:</b>	Fitzgerald	<b>North Reference:</b>	Grid
<b>Well:</b>	Fitzgerald 06 HM (slot E)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev5		

<b>Project</b>	Marshall County, West Virginia		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 West Virginia - HARN		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Fitzgerald				
<b>Site Position:</b>		<b>Northing:</b>	14,454,567.73 usft	<b>Latitude:</b>	39.80126184
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,741,096.26 usft	<b>Longitude:</b>	-80.64153292
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "		

<b>Well</b>	Fitzgerald 06 HM (slot E)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,454,584.95 usft	<b>Latitude:</b>	39.80130849
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,741,154.24 usft	<b>Longitude:</b>	-80.64132625
<b>Position Uncertainty</b>	0.00 ft		<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,292.91 ft
<b>Grid Convergence:</b>	0.230 °					

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	11/1/2020	-8.705	66.602	51,812.00878828

<b>Design</b>	rev5			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	165.01

<b>Plan Survey Tool Program</b>	<b>Date</b>	4/16/2021		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	16,318.45 rev5 (Original Hole)	MWD	MWD - Standard

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Planning Report - Geographic

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Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1292.91ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1292.91ft
Site:	Fitzgerald	North Reference:	Grid
Well:	Fitzgerald 06 HM (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,667.79	41.03	306.55	2,553.83	279.43	-376.93	3.00	3.00	0.00	306.551	
7,061.09	41.03	306.55	5,867.79	1,997.09	-2,693.89	0.00	0.00	0.00	0.000	
8,185.72	55.00	163.08	6,818.35	1,715.98	-2,900.72	8.00	1.24	-12.76	-150.821	
8,547.60	89.00	149.78	6,929.00	1,407.54	-2,761.87	10.00	9.40	-3.67	-22.925	
12,866.15	89.00	149.78	7,004.49	-2,323.44	-588.41	0.00	0.00	0.00	0.000	Fitzgerald-06HM TP r
13,102.98	89.00	145.04	7,008.64	-2,522.89	-460.90	2.00	0.00	-2.00	-90.074	
16,318.45	89.00	145.04	7,065.00	-5,157.73	1,381.29	0.00	0.00	0.00	0.000	Fitzgerald-06HM BHL

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Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1292.91ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1292.91ft
Site:	Fitzgerald	North Reference:	Grid
Well:	Fitzgerald 06 HM (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
100.00	0.00	0.00	100.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
200.00	0.00	0.00	200.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
300.00	0.00	0.00	300.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
400.00	0.00	0.00	400.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
500.00	0.00	0.00	500.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
600.00	0.00	0.00	600.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
700.00	0.00	0.00	700.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
800.00	0.00	0.00	800.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
900.00	0.00	0.00	900.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,454,584.95	1,741,154.24	39.80130849	-80.64132625	
<b>KOP Begin 3°/100' build</b>										
1,400.00	3.00	306.55	1,399.96	1.56	-2.10	14,454,586.51	1,741,152.13	39.80131280	-80.64133371	
1,500.00	6.00	306.55	1,499.64	6.23	-8.40	14,454,591.18	1,741,145.83	39.80132570	-80.64135609	
1,600.00	9.00	306.55	1,598.77	14.00	-18.89	14,454,598.96	1,741,135.35	39.80134716	-80.64139330	
1,700.00	12.00	306.55	1,697.09	24.86	-33.53	14,454,609.81	1,741,120.71	39.80137712	-80.64144527	
1,800.00	15.00	306.55	1,794.31	38.76	-52.28	14,454,623.71	1,741,101.96	39.80140450	-80.64151183	
1,900.00	18.00	306.55	1,890.18	55.67	-75.09	14,454,640.62	1,741,079.14	39.80146220	-80.64159281	
2,000.00	21.00	306.55	1,984.44	75.55	-101.90	14,454,660.50	1,741,052.33	39.80151708	-80.64168800	
2,100.00	24.00	306.55	2,076.81	98.33	-132.64	14,454,683.29	1,741,021.59	39.80158000	-80.64179711	
2,200.00	27.00	306.55	2,167.06	123.97	-167.22	14,454,708.92	1,740,987.01	39.80165078	-80.64191987	
2,300.00	30.00	306.55	2,254.93	152.38	-205.55	14,454,737.34	1,740,948.69	39.80172923	-80.64205593	
2,400.00	33.00	306.55	2,340.19	183.50	-247.52	14,454,768.45	1,740,906.72	39.80181514	-80.64220491	
2,500.01	36.00	306.55	2,422.59	217.22	-293.02	14,454,802.18	1,740,861.22	39.80190826	-80.64236642	
2,600.01	39.00	306.55	2,501.92	253.47	-341.91	14,454,838.43	1,740,812.32	39.80200835	-80.64254000	
2,667.79	41.03	306.55	2,553.83	279.43	-376.93	14,454,864.38	1,740,777.31	39.80208001	-80.64266429	
<b>Begin 41.03° tangent</b>										
2,700.01	41.03	306.55	2,578.13	292.03	-393.92	14,454,876.98	1,740,760.32	39.80211479	-80.64272460	
2,800.01	41.03	306.55	2,653.56	331.12	-446.66	14,454,916.08	1,740,707.58	39.80222274	-80.64291182	
2,900.01	41.03	306.55	2,728.99	370.22	-499.39	14,454,955.17	1,740,654.84	39.80233069	-80.64309904	
3,000.01	41.03	306.55	2,804.43	409.32	-552.13	14,454,994.27	1,740,602.10	39.80243863	-80.64328626	
3,100.01	41.03	306.55	2,879.86	448.42	-604.87	14,455,033.37	1,740,549.36	39.80254658	-80.64347348	
3,200.01	41.03	306.55	2,955.29	487.51	-657.61	14,455,072.47	1,740,496.63	39.80265453	-80.64366070	
3,300.01	41.03	306.55	3,030.72	526.61	-710.35	14,455,111.56	1,740,443.89	39.80276247	-80.64384792	
3,400.01	41.03	306.55	3,106.16	565.71	-763.09	14,455,150.66	1,740,391.15	39.80287042	-80.64403514	
3,500.01	41.03	306.55	3,181.59	604.81	-815.83	14,455,189.76	1,740,338.41	39.80297837	-80.64422237	
3,600.01	41.03	306.55	3,257.02	643.90	-868.57	14,455,228.86	1,740,285.67	39.80308631	-80.64440959	
3,700.01	41.03	306.55	3,332.45	683.00	-921.30	14,455,267.95	1,740,232.93	39.80319426	-80.64459681	
3,800.01	41.03	306.55	3,407.89	722.10	-974.04	14,455,307.05	1,740,180.19	39.80330220	-80.64478404	
3,900.01	41.03	306.55	3,483.32	761.19	-1,026.78	14,455,346.15	1,740,127.46	39.80341015	-80.64497126	
4,000.01	41.03	306.55	3,558.75	800.29	-1,079.52	14,455,385.24	1,740,074.72	39.80351809	-80.64515849	
4,100.01	41.03	306.55	3,634.18	839.39	-1,132.26	14,455,424.34	1,740,021.98	39.80362604	-80.64534571	
4,200.01	41.03	306.55	3,709.62	878.49	-1,185.00	14,455,463.44	1,739,969.24	39.80373398	-80.64553294	
4,300.01	41.03	306.55	3,785.05	917.58	-1,237.74	14,455,502.54	1,739,916.50	39.80384193	-80.64572017	
4,400.01	41.03	306.55	3,860.48	956.68	-1,290.48	14,455,541.63	1,739,863.76	39.80394987	-80.64590739	
4,500.01	41.03	306.55	3,935.91	995.78	-1,343.22	14,455,580.73	1,739,811.02	39.80405781	-80.64609462	
4,600.01	41.03	306.55	4,011.35	1,034.88	-1,395.95	14,455,619.83	1,739,758.28	39.80416575	-80.64628185	
4,700.01	41.03	306.55	4,086.78	1,073.97	-1,448.69	14,455,658.93	1,739,705.55	39.80427370	-80.64646908	
4,800.01	41.03	306.55	4,162.21	1,113.07	-1,501.43	14,455,698.02	1,739,652.81	39.80438164	-80.64665631	
4,900.01	41.03	306.55	4,237.64	1,152.17	-1,554.17	14,455,737.12	1,739,600.07	39.80448958	-80.64684354	
5,000.01	41.03	306.55	4,313.08	1,191.27	-1,606.91	14,455,776.22	1,739,547.33	39.80459752	-80.64703077	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Fitzgerald 06 HM (slot E)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1292.91ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1292.91ft
Site:	Fitzgerald	North Reference:	Grid
Well:	Fitzgerald 06 HM (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,100.01	41.03	306.55	4,388.51	1,230.36	-1,659.65	14,455,815.31	1,739,494.59	39.80470546	-80.64721800	
5,200.01	41.03	306.55	4,463.94	1,269.46	-1,712.39	14,455,854.41	1,739,441.85	39.80481341	-80.64740524	
5,300.01	41.03	306.55	4,539.37	1,308.56	-1,765.13	14,455,893.51	1,739,389.11	39.80492135	-80.64759247	
5,400.01	41.03	306.55	4,614.81	1,347.65	-1,817.86	14,455,932.61	1,739,336.37	39.80502929	-80.64777970	
5,500.01	41.03	306.55	4,690.24	1,386.75	-1,870.60	14,455,971.70	1,739,283.64	39.80513723	-80.64796694	
5,600.01	41.03	306.55	4,765.67	1,425.85	-1,923.34	14,456,010.80	1,739,230.90	39.80524517	-80.64815417	
5,700.01	41.03	306.55	4,841.10	1,464.95	-1,976.08	14,456,049.90	1,739,178.16	39.80535311	-80.64834141	
5,800.01	41.03	306.55	4,916.54	1,504.04	-2,028.82	14,456,089.00	1,739,125.42	39.80546104	-80.64852864	
5,900.01	41.03	306.55	4,991.97	1,543.14	-2,081.56	14,456,128.09	1,739,072.68	39.80556898	-80.64871588	
6,000.01	41.03	306.55	5,067.40	1,582.24	-2,134.30	14,456,167.19	1,739,019.94	39.80567692	-80.64890312	
6,100.01	41.03	306.55	5,142.83	1,621.34	-2,187.04	14,456,206.29	1,738,967.20	39.80578486	-80.64909035	
6,200.01	41.03	306.55	5,218.27	1,660.43	-2,239.77	14,456,245.38	1,738,914.47	39.80589280	-80.64927759	
6,300.01	41.03	306.55	5,293.70	1,699.53	-2,292.51	14,456,284.48	1,738,861.73	39.80600074	-80.64946483	
6,400.01	41.03	306.55	5,369.13	1,738.63	-2,345.25	14,456,323.58	1,738,808.99	39.80610867	-80.64965207	
6,500.01	41.03	306.55	5,444.56	1,777.73	-2,397.99	14,456,362.68	1,738,756.25	39.80621661	-80.64983931	
6,600.01	41.03	306.55	5,519.99	1,816.82	-2,450.73	14,456,401.77	1,738,703.51	39.80632455	-80.65002655	
6,700.01	41.03	306.55	5,595.43	1,855.92	-2,503.47	14,456,440.87	1,738,650.77	39.80643248	-80.65021379	
6,800.01	41.03	306.55	5,670.86	1,895.02	-2,556.21	14,456,479.97	1,738,598.03	39.80654042	-80.65040103	
6,900.01	41.03	306.55	5,746.29	1,934.12	-2,608.95	14,456,519.07	1,738,545.29	39.80664836	-80.65058828	
7,000.01	41.03	306.55	5,821.72	1,973.21	-2,661.69	14,456,558.16	1,738,492.56	39.80675629	-80.65077552	
7,061.09	41.03	306.55	5,867.79	1,997.09	-2,693.89	14,456,582.04	1,738,460.35	39.80682221	-80.65088987	
<b>Begin 8°/100' build/turn</b>										
7,100.01	38.34	304.10	5,897.75	2,011.47	-2,714.16	14,456,596.42	1,738,440.08	39.806886193	-80.65096184	
7,200.01	31.72	296.25	5,979.63	2,040.54	-2,763.50	14,456,625.49	1,738,390.74	39.80694227	-80.65113711	
7,300.01	25.79	285.02	6,067.33	2,057.83	-2,808.15	14,456,642.78	1,738,346.09	39.80699024	-80.65129586	
7,400.01	21.15	268.53	6,159.13	2,063.01	-2,847.25	14,456,647.96	1,738,306.99	39.80700489	-80.65143502	
7,500.02	18.78	245.98	6,253.26	2,055.98	-2,880.04	14,456,640.93	1,738,274.20	39.80698594	-80.65155187	
7,600.02	19.54	221.55	6,347.87	2,036.88	-2,905.88	14,456,621.83	1,738,248.36	39.80693376	-80.65164414	
7,700.02	23.11	201.72	6,441.13	2,006.08	-2,924.26	14,456,591.03	1,738,229.98	39.80684936	-80.65171002	
7,800.02	28.46	187.94	6,531.22	1,964.17	-2,934.84	14,456,549.12	1,738,219.40	39.80673439	-80.65174825	
7,900.02	34.77	178.51	6,616.38	1,911.98	-2,937.39	14,456,496.93	1,738,216.85	39.80659109	-80.65175807	
8,000.02	41.60	171.75	6,694.97	1,850.52	-2,931.88	14,456,435.47	1,738,222.36	39.80642224	-80.65173930	
8,100.02	48.74	166.63	6,765.44	1,780.98	-2,918.41	14,456,365.93	1,738,235.83	39.80623113	-80.65169229	
8,185.72	55.00	183.08	6,818.35	1,715.98	-2,900.72	14,456,300.93	1,738,253.52	39.80605243	-80.65163021	
<b>Begin 10°/100' build/turn</b>										
8,200.02	56.32	162.41	6,826.41	1,704.71	-2,897.22	14,456,289.66	1,738,257.02	39.80602145	-80.65161790	
8,300.02	65.62	158.22	6,874.90	1,622.55	-2,867.67	14,456,207.50	1,738,286.58	39.80579550	-80.65151381	
8,400.02	75.03	154.61	6,908.53	1,536.41	-2,829.95	14,456,121.36	1,738,324.29	39.80555852	-80.65138072	
8,500.02	84.49	151.30	6,926.30	1,448.89	-2,785.22	14,456,033.84	1,738,369.02	39.80531771	-80.65122267	
8,547.60	89.00	149.78	6,929.00	1,407.54	-2,761.86	14,455,992.49	1,738,392.38	39.80520390	-80.65114007	
<b>Begin 89.00° lateral</b>										
8,600.02	89.00	149.78	6,929.91	1,362.26	-2,735.48	14,455,947.21	1,738,418.76	39.80507926	-80.65104677	
8,700.02	89.00	149.78	6,931.66	1,275.86	-2,685.15	14,455,860.81	1,738,469.09	39.80484146	-80.65086877	
8,800.02	89.00	149.78	6,933.41	1,189.47	-2,634.83	14,455,774.42	1,738,519.41	39.80460366	-80.65069077	
8,900.02	89.00	149.78	6,935.16	1,103.07	-2,584.50	14,455,688.02	1,738,569.74	39.80436586	-80.65051278	
9,000.02	89.00	149.78	6,936.91	1,016.68	-2,534.17	14,455,601.63	1,738,620.07	39.80412806	-80.65033478	
9,100.02	89.00	149.78	6,938.65	930.28	-2,483.84	14,455,515.23	1,738,670.40	39.80389026	-80.65015679	
9,200.02	89.00	149.78	6,940.40	843.89	-2,433.51	14,455,428.84	1,738,720.73	39.80365246	-80.64997879	
9,300.02	89.00	149.78	6,942.15	757.49	-2,383.18	14,455,342.45	1,738,771.06	39.80341466	-80.64980080	
9,400.02	89.00	149.78	6,943.90	671.10	-2,332.86	14,455,256.05	1,738,821.39	39.80317686	-80.64962281	
9,500.02	89.00	149.78	6,945.65	584.70	-2,282.53	14,455,169.66	1,738,871.71	39.80293906	-80.64944482	
9,600.02	89.00	149.78	6,947.39	498.31	-2,232.20	14,455,083.26	1,738,922.04	39.80270126	-80.64926683	
9,700.02	89.00	149.78	6,949.14	411.92	-2,181.87	14,454,996.87	1,738,972.37	39.80246346	-80.64908884	
9,800.02	89.00	149.78	6,950.89	325.52	-2,131.54	14,454,910.47	1,739,022.70	39.80222566	-80.64891086	



Planning Report - Geographic

Database: DB\_Dec2220\_v16  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Fitzgerald  
 Well: Fitzgerald 06 HM (slot E)  
 Wellbore: Original Hole  
 Design: rev5

Local Co-ordinate Reference:  
 TVD Reference:  
 MD Reference:  
 North Reference:  
 Survey Calculation Method:

Well Fitzgerald 06 HM (slot E)  
 Office of Oil and Gas  
 GL @ 1292.91ft  
 GL @ 1292.91ft  
 Grid  
 Minimum Curvature

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 JUN 04 2021  
 WV Department of  
 Environmental Protection

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,900.02	89.00	149.78	6,952.64	239.13	-2,081.21	14,454,824.08	1,739,073.03	39.80198785	-80.64873287	
10,000.02	89.00	149.78	6,954.39	152.73	-2,030.88	14,454,737.68	1,739,123.36	39.80175005	-80.64855489	
10,100.02	89.00	149.78	6,956.14	66.34	-1,980.56	14,454,651.29	1,739,173.68	39.80151225	-80.64837691	
10,200.02	89.00	149.78	6,957.88	-20.06	-1,930.23	14,454,564.90	1,739,224.01	39.80127445	-80.64819892	
10,300.02	89.00	149.78	6,959.63	-106.45	-1,879.90	14,454,478.50	1,739,274.34	39.80103664	-80.64802094	
10,400.02	89.00	149.78	6,961.38	-192.85	-1,829.57	14,454,392.11	1,739,324.67	39.80079884	-80.64784297	
10,500.02	89.00	149.78	6,963.13	-279.24	-1,779.24	14,454,305.71	1,739,375.00	39.80056104	-80.64766499	
10,600.02	89.00	149.78	6,964.88	-365.64	-1,728.91	14,454,219.32	1,739,425.33	39.80032323	-80.64748701	
10,700.02	89.00	149.78	6,966.62	-452.03	-1,678.59	14,454,132.92	1,739,475.65	39.80008543	-80.64730904	
10,800.02	89.00	149.78	6,968.37	-538.43	-1,628.26	14,454,046.53	1,739,525.98	39.79984762	-80.64713106	
10,900.02	89.00	149.78	6,970.12	-624.82	-1,577.93	14,453,960.13	1,739,576.31	39.79960982	-80.64695309	
11,000.02	89.00	149.78	6,971.87	-711.21	-1,527.60	14,453,873.74	1,739,626.64	39.79937202	-80.64677512	
11,100.02	89.00	149.78	6,973.62	-797.61	-1,477.27	14,453,787.35	1,739,676.97	39.79913421	-80.64659715	
11,200.02	89.00	149.78	6,975.36	-884.00	-1,426.94	14,453,700.95	1,739,727.30	39.79889640	-80.64641918	
11,300.02	89.00	149.78	6,977.11	-970.40	-1,376.61	14,453,614.56	1,739,777.62	39.79865860	-80.64624121	
11,400.02	89.00	149.78	6,978.86	-1,056.79	-1,326.29	14,453,528.16	1,739,827.95	39.79842079	-80.64606324	
11,500.02	89.00	149.78	6,980.61	-1,143.19	-1,275.96	14,453,441.77	1,739,878.28	39.79818299	-80.64588528	
11,600.02	89.00	149.78	6,982.36	-1,229.58	-1,225.63	14,453,355.37	1,739,928.61	39.79794516	-80.64570731	
11,700.02	89.00	149.78	6,984.10	-1,315.98	-1,175.30	14,453,268.98	1,739,978.94	39.79770737	-80.64552935	
11,800.02	89.00	149.78	6,985.85	-1,402.37	-1,124.97	14,453,182.58	1,740,029.27	39.79746957	-80.64535139	
11,900.02	89.00	149.78	6,987.60	-1,488.77	-1,074.64	14,453,096.19	1,740,079.59	39.79723176	-80.64517343	
12,000.02	89.00	149.78	6,989.35	-1,575.16	-1,024.32	14,453,009.80	1,740,129.92	39.79699395	-80.64499547	
12,100.02	89.00	149.78	6,991.10	-1,661.56	-973.99	14,452,923.40	1,740,180.25	39.79675614	-80.64481751	
12,200.02	89.00	149.78	6,992.85	-1,747.95	-923.66	14,452,837.01	1,740,230.58	39.79651834	-80.64463955	
12,300.02	89.00	149.78	6,994.59	-1,834.34	-873.33	14,452,750.61	1,740,280.91	39.79628053	-80.64446160	
12,400.03	89.00	149.78	6,996.34	-1,920.74	-823.00	14,452,664.22	1,740,331.24	39.79604272	-80.64428364	
12,500.03	89.00	149.78	6,998.09	-2,007.13	-772.67	14,452,577.82	1,740,381.56	39.79580491	-80.64410569	
12,600.03	89.00	149.78	6,999.84	-2,093.53	-722.34	14,452,491.43	1,740,431.89	39.79556710	-80.64392774	
12,700.03	89.00	149.78	7,001.59	-2,179.92	-672.02	14,452,405.03	1,740,482.22	39.79532929	-80.64374979	
12,800.03	89.00	149.78	7,003.33	-2,266.32	-621.69	14,452,318.64	1,740,532.55	39.79509148	-80.64357184	
12,866.15	89.00	149.78	7,004.49	-2,323.45	-588.41	14,452,261.51	1,740,565.83	39.79493423	-80.64345417	
<b>Begin 2°/100' turn</b>										
12,900.03	89.00	149.10	7,005.08	-2,352.61	-571.19	14,452,232.35	1,740,583.05	39.79485395	-80.64339327	
13,000.03	89.00	147.10	7,006.83	-2,437.49	-518.35	14,452,147.47	1,740,635.88	39.79462027	-80.64320639	
13,100.03	89.00	145.10	7,008.59	-2,520.47	-462.59	14,452,064.48	1,740,691.65	39.79439177	-80.64300904	
13,102.98	89.00	145.04	7,008.64	-2,522.90	-460.90	14,452,062.06	1,740,693.34	39.79438510	-80.64300305	
<b>Begin 89.00° lateral</b>										
13,200.03	89.00	145.04	7,010.34	-2,602.42	-405.30	14,451,982.54	1,740,748.94	39.79416610	-80.64280625	
13,300.03	89.00	145.04	7,012.09	-2,684.36	-348.01	14,451,900.60	1,740,806.23	39.79394044	-80.64260345	
13,400.03	89.00	145.04	7,013.85	-2,766.30	-290.71	14,451,818.66	1,740,863.52	39.79371478	-80.64240066	
13,500.03	89.00	145.04	7,015.60	-2,848.25	-233.42	14,451,736.71	1,740,920.81	39.79348912	-80.64219786	
13,600.03	89.00	145.04	7,017.35	-2,930.19	-176.13	14,451,654.77	1,740,978.11	39.79326345	-80.64199507	
13,700.03	89.00	145.04	7,019.10	-3,012.13	-118.84	14,451,572.83	1,741,035.40	39.79303779	-80.64179228	
13,800.03	89.00	145.04	7,020.86	-3,094.08	-61.55	14,451,490.88	1,741,092.69	39.79281213	-80.64158949	
13,900.03	89.00	145.04	7,022.61	-3,176.02	-4.26	14,451,408.94	1,741,149.98	39.79258646	-80.64138670	
14,000.03	89.00	145.04	7,024.36	-3,257.96	53.04	14,451,327.00	1,741,207.27	39.79236080	-80.64118392	
14,100.03	89.00	145.04	7,026.11	-3,339.90	110.33	14,451,245.06	1,741,264.56	39.79213513	-80.64098113	
14,200.03	89.00	145.04	7,027.87	-3,421.85	167.62	14,451,163.11	1,741,321.85	39.79190947	-80.64077835	
14,300.03	89.00	145.04	7,029.62	-3,503.79	224.91	14,451,081.17	1,741,379.15	39.79168380	-80.64057557	
14,400.03	89.00	145.04	7,031.37	-3,585.73	282.20	14,450,999.23	1,741,436.44	39.79145814	-80.64037278	
14,500.03	89.00	145.04	7,033.13	-3,667.68	339.49	14,450,917.29	1,741,493.73	39.79123247	-80.64017001	
14,600.03	89.00	145.04	7,034.88	-3,749.62	396.79	14,450,835.34	1,741,551.02	39.79100680	-80.63996723	
14,700.03	89.00	145.04	7,036.63	-3,831.56	454.08	14,450,753.40	1,741,608.31	39.79078113	-80.63976445	
14,800.03	89.00	145.04	7,038.38	-3,913.50	511.37	14,450,671.46	1,741,665.60	39.79055547	-80.63956167	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Fitzgerald 06 HM (slot E)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1292.91ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1292.91ft
Site:	Fitzgerald	North Reference:	Grid
Well:	Fitzgerald 06 HM (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,900.03	89.00	145.04	7,040.14	-3,995.45	568.66	14,450,589.52	1,741,722.90	39.79032980	-80.63935890
15,000.03	89.00	145.04	7,041.89	-4,077.39	625.95	14,450,507.57	1,741,780.19	39.79010413	-80.63915613
15,100.03	89.00	145.04	7,043.64	-4,159.33	683.24	14,450,425.63	1,741,837.48	39.78987846	-80.63895335
15,200.03	89.00	145.04	7,045.40	-4,241.28	740.54	14,450,343.69	1,741,894.77	39.78965279	-80.63875058
15,300.03	89.00	145.04	7,047.15	-4,323.22	797.83	14,450,261.74	1,741,952.06	39.78942713	-80.63854781
15,400.03	89.00	145.04	7,048.90	-4,405.16	855.12	14,450,179.80	1,742,009.35	39.78920146	-80.63834505
15,500.03	89.00	145.04	7,050.65	-4,487.10	912.41	14,450,097.86	1,742,066.65	39.78897579	-80.63814228
15,600.03	89.00	145.04	7,052.41	-4,569.05	969.70	14,450,015.92	1,742,123.94	39.78875012	-80.63793951
15,700.03	89.00	145.04	7,054.16	-4,650.99	1,026.99	14,449,933.97	1,742,181.23	39.78852444	-80.63773675
15,800.03	89.00	145.04	7,055.91	-4,732.93	1,084.29	14,449,852.03	1,742,238.52	39.78829877	-80.63753399
15,900.03	89.00	145.04	7,057.67	-4,814.87	1,141.58	14,449,770.09	1,742,295.81	39.78807310	-80.63733122
16,000.03	89.00	145.04	7,059.42	-4,896.82	1,198.87	14,449,688.15	1,742,353.10	39.78784743	-80.63712846
16,100.03	89.00	145.04	7,061.17	-4,978.76	1,256.16	14,449,606.20	1,742,410.39	39.78762176	-80.63692571
16,200.03	89.00	145.04	7,062.92	-5,060.70	1,313.45	14,449,524.26	1,742,467.69	39.78739609	-80.63672295
16,300.03	89.00	145.04	7,064.68	-5,142.65	1,370.74	14,449,442.32	1,742,524.98	39.78717041	-80.63652019
16,318.44	89.00	145.04	7,065.00	-5,157.73	1,381.29	14,449,427.23	1,742,535.52	39.78712887	-80.63648287

PBHL/TD 16318.44 MD 7065.00 TVD

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Fitzgerald-06HM LP r4 - hit/miss target - Shape - Point	0.00	0.00	6,929.00	1,407.58	-2,761.84	14,455,992.53	1,738,392.40	39.80520400	-80.65114000
- plan misses target center by 0.04ft at 8547.58ft MD (6929.00 TVD, 1407.56 N, -2761.87 E)									
Fitzgerald-06HM TP r5 - plan hits target center - Point	0.00	0.00	7,004.49	-2,323.44	-588.41	14,452,261.52	1,740,565.83	39.79493424	-80.64345418
Fitzgerald-06HM BHL r5 - plan hits target center - Point	0.00	0.00	7,065.00	-5,157.73	1,381.29	14,449,427.23	1,742,535.53	39.78712886	-80.63648286

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,300.00	1,300.00	0.00	0.00	KOP Begin 3°/100' build	
2,667.79	2,553.83	279.43	-376.93	Begin 41.03° tangent	
7,061.09	5,867.79	1,997.09	-2,693.89	Begin 8°/100' build/turn	
8,185.72	6,818.35	1,715.98	-2,900.72	Begin 10°/100' build/turn	
8,547.60	6,929.00	1,407.54	-2,761.86	Begin 89.00° lateral	
12,866.15	7,004.49	-2,323.45	-588.41	Begin 2°/100' turn	
13,102.98	7,008.64	-2,522.90	-460.90	Begin 89.00° lateral	
16,318.44	7,065.00	-5,157.73	1,381.29	PBHL/TD 16318.44 MD 7065.00 TVD	

Office of Oil and Gas

JUN 04 2021

WV Department of Environmental Protection

Operator's Well No. Fitzgerald S-6HM**Area of Review****Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.**

Description of process to identify potential pathways for well communication during hydraulic fracturing activities.

## Data Sources Reviewed:

1. Enverus and RS Energy Group Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Adam Picard 724-485-9331, [apicard@dpslandservices.com](mailto:apicard@dpslandservices.com), DPS GIS (4/23/2021) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

## Request maps for:

1. Wellbore with IHS All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

## Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits

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07/09/2021

**Wells within 500' Buffer**

Note: Well spots depicted on Area of Review map are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots.

APN Number Environmental Protection Department of JUN 04 2021 RECEIVED Office of Oil and Gas	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705102232	Tug Hill Operating, LLC	7070' TVD (proposed)	None	None	No, this well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit by Tug Hill Operating, LLC.
4705102324	Tug Hill Operating, LLC	12064' TVD	Point Pleasant	None	No, this is a Point Pleasant well. Once completed this well will be too deep to be within the expected fracture propagation from a Marcellus stimulation.	A Point Pleasant well drilled by Tug Hill Operating, LLC on the Fitzgerald pad. Well is currently drilled but uncompleted.
4705102325	Tug Hill Operating, LLC	12080' TVD	Point Pleasant	None	No, this is a Point Pleasant well. Once completed this well will be too deep to be within the expected fracture propagation from a Marcellus stimulation.	A Point Pleasant well drilled by Tug Hill Operating, LLC on the Fitzgerald pad. Well is currently drilled but uncompleted.
4705102326	Tug Hill Operating, LLC	12076' TVD	Point Pleasant	None	No, this is a Point Pleasant well. Once completed this well will be too deep to be within the expected fracture propagation from a Marcellus stimulation.	A Point Pleasant well drilled by Tug Hill Operating, LLC on the Fitzgerald pad. Well is currently drilled but uncompleted.

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
WV Department of Environmental Protection RECEIVED JUN 4 2021 Office of Oil and Gas	CNX Gas Co. LLC (North)	3027' TVD	Gordon	Unknown	No, this well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. Well is plugged.	Well was plugged 11/17/2004.
4705170208	South Penn Oil (S. Penn Nat. Gas)	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705170613	unknown	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705100599	CNX Gas Co. LLC (North)	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well. Well is plugged.	Well was plugged 1/7/2004.
4705100956	Consolidation Coal Co.	3121' TVD	Gordon, Big Injun	unknown	No, this well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. Well is plugged.	Well was plugged 8/19/1949.

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705170605	unknown	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705170606	unknown	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705170607	unknown	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705100963	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well. Well is plugged.	Well was plugged 10/12/2005.
4705100965	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well. Well is plugged.	Well was plugged 9/2/2005.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705170053	South Penn Oil (S. Penn Nat. Gas)	3411' TVD	Gordon, Speechley	unknown	No, this well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation.	
4705170604	unknown	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705100964	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. This well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well. Well is plugged.	Well was plugged 12/3/2004.

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WV Geological & Economic Survey

Well: County = 51 Permit = 02232

Report Time: Wednesday, April 28, 2021 9:00:17 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102232	Marshall	2232	Liberty	Glen Easton	Cameron	39.801291	-80.641437	530695.4	4405764.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102232	1 As Proposed	531240.4	4404738.7	-80.63512	39.79203

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102232	--	Dvld Orgnl Loc	Cancelled	Danny R Kerns		S-8HM	Fitzgerald		Danny S Kerns et al	Tug Hill Operating, LLC	7070	Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102232	--	--	1317	Ground Level																		

WV Geological & Economic Survey

Well: County = 51 Permit = 02324

Report Time: Wednesday, April 28, 2021 9:02:15 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102324	Marshall	2324	Liberty	Glen Easton	Cameron	39.801145	-80.641103	530724.1	4405748.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102324	1 As Proposed	530498.3	4403163.5	-80.64386	39.777865

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102324	--	Dvld Orgnl Loc	Permitted	Danny and Frances Kerns Estate		S-17HU	Fitzgerald		Danny S Kerns et al	Tug Hill Operating, LLC	12064	Pt Pleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102324	--	--	1318	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02325

Report Time: Wednesday, April 28, 2021 9:02:33 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102325	Marshall	2325	Liberty	Glen Easton	Cameron	39.801161	-80.64114	530720.9	4405750

Bottom Hole Location Information:

API	EP	FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102325	1	As Proposed	530776.1	4403445	-80.640603	39.780391

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102325	--	Dvtd Orgnl Loc	Permitted	Danny and Frances Kerns Estate	S-18HU		Fitzgerald		Danny S Kerns et al	Tug Hill Operating, LLC	12080	Pt Pleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102325	--	--	1319	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02326

Report Time: Wednesday, April 28, 2021 9:02:52 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102326	Marshall	2326	Liberty	Glen Easton	Cameron	39.801177	-80.641177	530717.7	4405751.8

Bottom Hole Location Information:

API	EP	FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102326	1	As Proposed	531087.9	4403702.4	-80.637183	39.7827

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102326	--	Dvtd Orgnl Loc	Permitted	Danny and Frances Kerns Estate	S-19HU		Fitzgerald		Danny S Kerns et al	Tug Hill Operating, LLC	12076	Pt Pleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102326	--	--	1320	Ground Level																		

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Well: County = 51 Permit = 00612

Report Time: Wednesday, April 28, 2021 9:30:51 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705100612	Marshall	612	Meade	Glen Easton	Cameron	39.795711	-80.643978	530480.3	4405144.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100612	11/17/2004	Plugging	Completed	David L & Garole J Whipkey	M-312					not available			
4705100612	-/-	Original Loc	Completed	F E Wray	1	M-75				South Penn Oil (S. Penn Nat. Gas)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_A
4705100612	11/17/2004	10/13/2004	1306	Ground Level	Unnamed	Gordon	Gordon	unclassified	unclassified	not available	unknown	unknown						
4705100612	-/-	-/-	1310	Ground Level	Unnamed	Gordon	Gordon	Development Well	Development Well	Oil w/ Gas Show	unknown	unknown	3027		3027			0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100612	-/-	Pay	Gas	Vertical			3023	Gordon	0	0	0	0	

Production Gas Information: (Volumes in Mcf) \* 2020 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100612	Pennzoil Company	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1983	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil \* 2020 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100612	Pennzoil Company	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1983	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Company	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	East Resources Inc	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100612	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100612	Original Loc	Pittsburgh coal	Well Record	1020	Reasonable	4	Reasonable	1310	Ground Level
4705100612	Original Loc	Salt Sands (undiff)	Well Record	1620	Reasonable	320	Reasonable	1310	Ground Level
4705100612	Original Loc	Greenbrier Group	Well Record	2110	Reasonable	0	Reasonable	1310	Ground Level
4705100612	Original Loc	Big Lime	Well Record	2110	Reasonable	40	Reasonable	1310	Ground Level
4705100612	Original Loc	Big Injun (undiff)	Well Record	2150	Reasonable	265	Reasonable	1310	Ground Level
4705100612	Original Loc	Gordon Stray	Well Record	2960	Reasonable	5	Reasonable	1310	Ground Level
4705100612	Original Loc	Gordon	Well Record	3002	Reasonable	21	Reasonable	1310	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100612	11/17/2004	0

There is no Sample data for this well

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Well: County = 51 Permit = 70208

Report Time: Wednesday, April 28, 2021 9:31:51 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170208	Marshall	70208	Liberty	Glen Easton	Cameron	39.795131	-80.64379	530496.7	4405079.8

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170208	--		Original Loc	Completed	F E Wayt	1				South Penn Oil (S Penn Nat. Gas)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4705170208	--	--						unclassified	unclassified	not available	unknown	unknown									

WV Geological & Economic Survey

Well: County = 51 Permit = 70613

Report Time: Wednesday, April 28, 2021 9:32:40 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170613	Marshall	70613	Liberty	Glen Easton	Cameron	39.79495	-80.641538	530689.6	4405060.5

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170613	--		unknown	Prpty Map	J F Dobbs	3				----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4705170613	--	--						unclassified	unclassified	not available	unknown	unknown									

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WV Geological & Economic Survey

Well: County = 51 Permit = 00599

Report Time: Wednesday, April 28, 2021 9:32:59 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705100599	Marshall	599	Meade	Glen Easton	Cameron	39.792376	-80.642474	530610.6	4404774.5

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100599	1/7/2004	Plugging	Completed	Virginia McIvain			M-268		Consolidation Coal Co	Consolidation Coal Co			
4705100599	-/-	Original Loc	Completed	J C McIvain	5					Pennzoil Company			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705100599	1/7/2004	12/16/2003	1400	Ground Level						not available	unknown	unknown								
4705100599	-/-	-/-			Unnamed			unclassified	unclassified	not available	unknown	unknown			0		0	0	0	0

There is no Pay data for this well

Production Gas Information: (Volumes in Mcf) \* 2020 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100599	Pennzoil Company	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1982	12	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1983	18	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1984	183	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1988	31	8	17	0	6	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1990	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1991	197	0	13	0	9	0	0	0	0	0	5	86	84
4705100599	Pennzoil Products Company	1992	736	88	66	124	93	111	25	30	35	32	34	42	36
4705100599	Pennzoil Products Company	1993	465	44	30	31	29	37	21	37	51	56	49	53	47
4705100599	Pennzoil Products Company	1994	905	35	45	89	36	18	134	89	105	116	97	112	109
4705100599	Pennzoil Products Company	1995	1,257	84	110	87	95	113	125	131	125	134	114	105	34
4705100599	Pennzoil Products Company	1996	93	0	0	0	40	28	16	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1997	1	0	0	0	1	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1998	51	4	0	0	47	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1999	19	0	0	0	11	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	2000	108	0	0	0	0	0	0	0	0	49	59	0	0
4705100599	East Resources, Inc.	2001	610	32	58	25	87	68	99	88	0	74	135	144	0
4705100599	East Resources, Inc.	2002	662	0	0	0	0	0	0	0	0	174	182	166	140
4705100599	CNX Gas Co. LLC (North)	2002	942	31	80	58	105	109	176	96	120	0	0	0	66
4705100599	CNX Gas Co. LLC (North)	2003	1,467	223	116	109	129	128	134	133	142	109	141	103	0
4705100599	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil \* 2020 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100599	Pennzoil Company	1981	390	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1982	307	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1983	384	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Company	1984	409	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1989	54	32	22	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1990	331	0	0	4	59	51	34	23	41	28	31	32	28
4705100599	Pennzoil Products Company	1991	357	35	28	28	28	35	21	31	32	28	35	28	28
4705100599	Pennzoil Products Company	1992	362	35	28	31	32	27	38	35	28	32	31	40	35
4705100599	Pennzoil Products Company	1993	440	28	28	35	28	28	38	70	32	45	38	29	40
4705100599	Pennzoil Products Company	1994	378	25	25	40	31	30	36	32	32	34	29	32	29
4705100599	Pennzoil Products Company	1995	243	28	22	35	28	31	31	29	15	24	0	0	0
4705100599	Pennzoil Products Company	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	East Resources, Inc.	2000	215	0	0	0	0	0	0	0	36	40	46	59	34
4705100599	East Resources, Inc.	2001	470	38	27	37	36	39	35	57	39	39	43	39	41
4705100599	CNX Gas Co. LLC (North)	2002	154	0	0	0	0	0	0	0	44	40	31	39	0
4705100599	East Resources, Inc.	2002	318	35	36	37	41	42	43	42	42	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2003	396	34	32	37	36	39	40	39	33	13	62	31	0
4705100599	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100599	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100599	1/7/2004	0

There is no Sample data for this well

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Operator's Well No. Fitzgerald S-6HM

Well: County = 51 Permit = 00956

Report Time: Wednesday, April 28, 2021 9:33:56 AM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	30297	51	956

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100956	Marshall	956	Meade	Glen Easton	Cameron	39.792521	-80.642474	530610.5	4404790.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST
4705100956	6/8/1903	Original Loc	Completed	J F Dobbs Heirs/Rosella Dobbs		2	Jacob Standiford		Grave Creek Fuel Co	Raad Supply Company			
4705100956	6/8/2005	Plugging	Completed	John A & Leora J Dobbs			M-316			Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FTM	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705100956	6/8/1903	-/-	1397	Ground Level	Cameron-Garner	Gordon	Gordon	Development Well	Development Well	Oil	Cable Tool	unknown	3121		3121		0	0
4705100956	6/8/2005	5/11/2005	1388	Ground Level				unclassified	unclassified	not available	unknown	unknown						

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100956	6/8/1903	Pay	Gas	Vertical	2214	Big Injun (undiff)	2218	Big Injun (undiff)	0	0			
4705100956	6/8/1903	Pay	Oil	Vertical	3103	Gordon	3110	Gordon	0	0			

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100956	Original Loc	Sewickley coal	Well Record	1010	Reasonable	4	Reasonable	1388	Ground Level
4705100956	Original Loc	Pittsburgh coal	Well Record	1118	Reasonable	6	Reasonable	1388	Ground Level
4705100956	Original Loc	Salt Sands (undiff)	Well Record	2212	Reasonable	338	Reasonable	1388	Ground Level
4705100956	Original Loc	Gordon Stray	Well Record	3050	Reasonable	8	Reasonable	1388	Ground Level
4705100956	Original Loc	Gordon	Well Record	3091	Reasonable	30	Reasonable	1388	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100956	8/19/1949	0

There is no Sample data for this well

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 Office of Oil and Gas  
 JUN 04 2022  
 WV Department of Environmental Protection

Operator's Well No. Fitzgerald S-6HM

WV Geological & Economic Survey:

Well: County = 51 Permit = 70605

Report Time: Wednesday, April 28, 2021 9:34:17 AM

Well Reassignment Information: Reassigned To

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70605	51	911

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170605	Marshall	70605	Liberty	Glen Easton	Cameron	39.790151	-80.640218	530804.8	4404528.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170605	-/-	-/-	unknown	Reassign						unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL
4705170605	-/-	-/-																				

WV Geological & Economic Survey:

Well: County = 51 Permit = 70606

Report Time: Wednesday, April 28, 2021 9:34:33 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170606	Marshall	70606	Liberty	Glen Easton	Cameron	39.79102	-80.640223	530803.9	4404624.8

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170606	-/-	-/-	unknown	Prpty Map J F Dobbs				3		unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL	
4705170606	-/-	-/-						unclassified	unclassified	not available	unknown	unknown										

WV Geological & Economic Survey:

Well: County = 51 Permit = 70607

Report Time: Wednesday, April 28, 2021 9:34:49 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170607	Marshall	70607	Liberty	Glen Easton	Cameron	39.792048	-80.639658	530851.9	4404739.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170607	-/-	-/-	unknown	Prpty Map J F Dobbs						unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL	
4705170607	-/-	-/-						unclassified	unclassified	not available	unknown	unknown										

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 Office of Oil and Gas  
 JUN 04 2021  
 NY Department of  
 Environmental Conservation

Geological & Economic Survey

Operator's Well No. Fitzgerald S-6HM

Well: County = 51 Permit = 00963

Report Time: Wednesday, April 28, 2021 9:35:04 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100963	Marshall	963	Liberly	Glen Easton	Cameron	39.788701	-80.638526	530950.3	4404368

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100963	10/12/2005	Plugging	Completed	John A & Leora J Dobbs			M-272			Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEf	G_AFT	O_B
4705100963	10/12/2005	9/27/2005	1133	Ground Level	Cameron-Garner			unclassified	unclassified	not available	unknown	unknown							

Comment: 10/12/2005 elevation estimated from topo

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100963	Original Loc	Pittsburgh coal	Well Record	891	Qstnble Pick	7	Reasonable	1040	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100963	10/12/2005	0

There is no Sample data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 00963

Report Time: Wednesday, April 28, 2021 9:35:04 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100963	Marshall	963	Liberty	Glen Easton	Cameron	39.788701	-80.638526	530950.3	4404368

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100963	10/12/2005	Plugging	Completed	John A & Leora J Dobbs			M-272			Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEf	G_AFT	O_B
4705100963	10/12/2005	9/27/2005	1133	Ground Level	Cameron-Garner			unclassified	unclassified	not available	unknown	unknown							

Comment: 10/12/2005 elevation estimated from topo

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100963	Original Loc	Pittsburgh coal	Well Record	891	Qstnble Pick	7	Reasonable	1040	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100963	10/12/2005	0

There is no Sample data for this well

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Office of Oil and  
Environmental Protection  
WV Department of  
Geological & Economic Survey  
JUN 04  
Location Information: [View Map](#)

Well: County = 51 Permit = 70053

Report Time: Wednesday, April 28, 2021 9:36:26 AM

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170053	Marshall	70093	Liberty	Glen Easton	Cameron	39.788411	-80.636646	531111.3	4404336.4

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170053	7/29/1901	Original Loc	Completed	J F Dobbs	1	M-81				South Penn Oil (S. Penn Nat. Gas)			
4705170053	8/25/1908	Drilled Deeper	Completed	J F Dobbs	1	M-31				South Penn Oil (S. Penn Nat. Gas)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705170053	7/29/1901	4/17/1901	980	Barometer	Cameron-Garner	Hampshire Grp	Gordon	Development Well	Development Well	Oil	unknown	unknown	2703		2703		0	
4705170053	8/25/1908	-/-	980	Barometer	Cameron-Garner	Greenland Gap Fm	Speechley	Development Well	Unsuccessful	Dry w/ Oil Show	unknown	Shot	3411		708		0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705170053	7/29/1901	Pay	Oil	Vertical			2673	Gordon	0	0			
4705170053	8/25/1908	Show	Oil	Vertical	3344	Speechley	3373	Speechley	0	0			

WV Geological & Economic Survey

Well: County = 51 Permit = 70604

Report Time: Wednesday, April 28, 2021 9:36:55 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170604	Marshall	70604	Liberty	Glen Easton	Cameron	39.789424	-80.63759	531030.1	4404448.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170604	-/-	unknown	Prpty Map	R F Dobbs	4					----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4705170604	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

WV Geological & Economic Survey

Well: County = 51 Permit = 00964

Report Time: Wednesday, April 28, 2021 9:37:17 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100964	Marshall	964	Liberty	Glen Easton	Cameron	39.786671	-80.634954	531257	4404143.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100964	12/3/2004	Plugging	Completed	John A & Leora J Dobbs		M-276				Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AF
4705100964	12/3/2004	11/10/2004	900	Ground Level				unclassified	unclassified	not available	unknown	unknown								

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

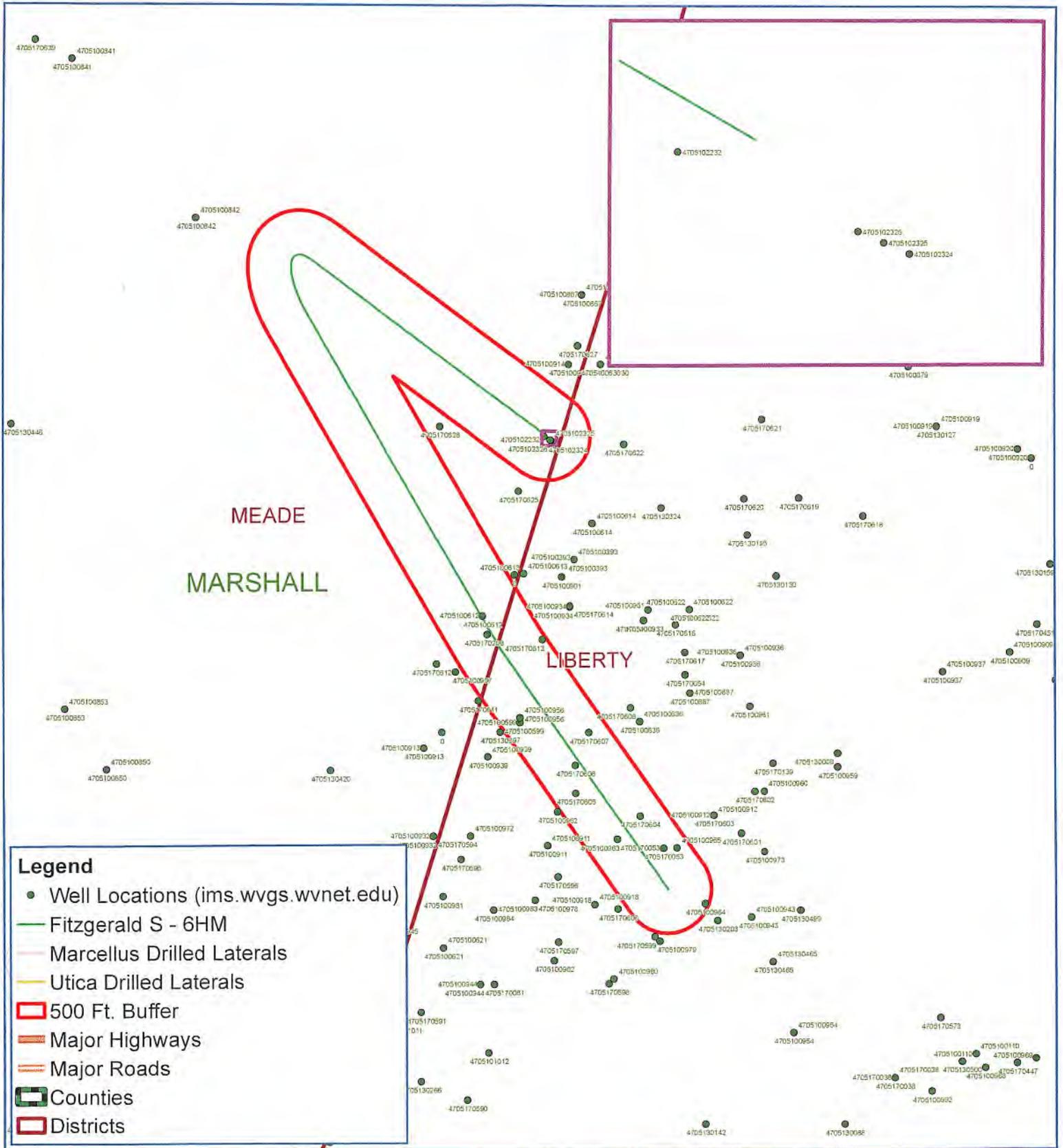
There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100964	12/3/2004	0

There is no Sample data for this well

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 JUN 04 2021  
 WV Department of Environmental Protection



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 JUN 04 2021  
 WV Department of Environmental Protection

# Fitzgerald S - 6HM

## Meade District

## Marshall County, WV



Notes:  
 All locations are approximate and are for visualization purposes only.



Map Prepared by:  
**PS**  
 LAND SERVICES  
 07/09/2021

Map Created: April 23, 2021  
 Map Current As Of: April 23, 2021

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Upper Fish Creek Quadrangle Glen Easton 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: AST Tanks with proper containment will be used for staging fresh water for frac and flow back water

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? AST Tanks will be used with proper contain

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC 2459, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

Will closed loop system be used? If so, describe: Yes - For Vertical and Horizontal Drilling

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air for vertical / Oil for Horizontal

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Oil Base

Additives to be used in drilling medium? Barite for weight

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings to be disposed of in a Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature James A. Pancake Office of Oil and Gas

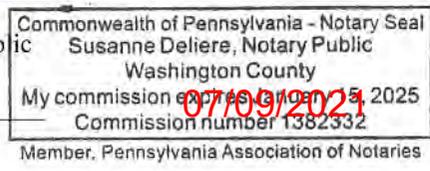
Company Official (Typed Name) Jim Pancake JUN 04 2021

Company Official Title Vice President - Geosciences WV Department of Environmental Protection

Subscribed and sworn before me this 25<sup>th</sup> day of May, 2021

Suzanne Deliere Notary Public

My commission expires 1/15/2025



**Tug Hill Operating, LLC**

Proposed Revegetation Treatment: Acres Disturbed 7.44 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

**Seed Mixtures**

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

**Attach:**

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Bang Stelp

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

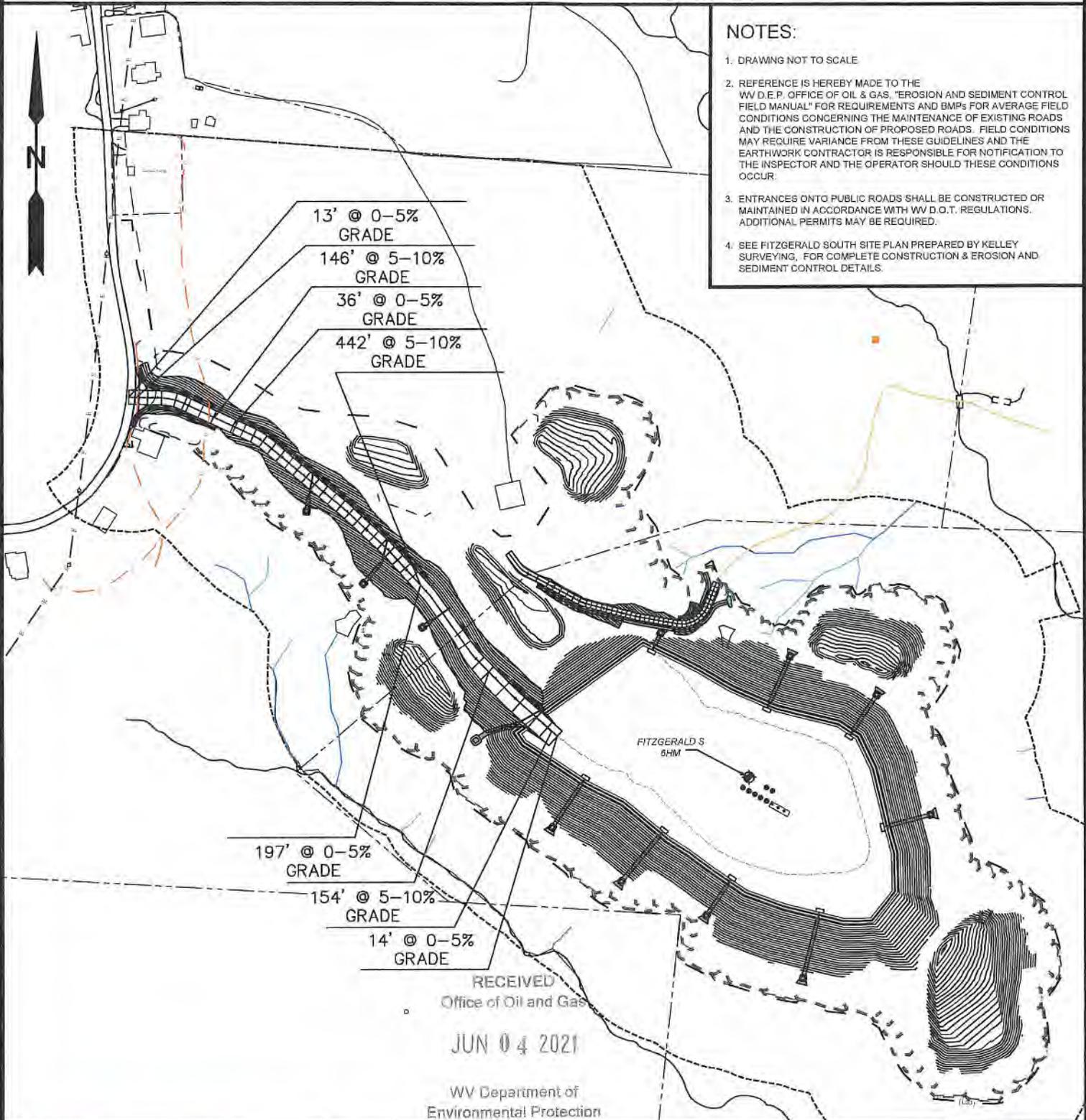
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Office of Oil and Gas  
JUN 04 2021

WV Department of  
Environmental Protection

Title: Oil and Gas Inspector Date: 5-27-21

Field Reviewed?  Yes  No

# PROPOSED FITZGERALD S - 6HM



12 Hancock Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
sjsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	LIBERTY		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8910	05/05/21	NONE

**TUG HILL  
OPERATING**

07/09/2021



# Well Site Safety Plan

## Tug Hill Operating, LLC

*B.S. 5-27-21*

Well Name: Fitzgerald S-6HM

Pad Location: Fitzgerald Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,405,766.30

Easting: 530,704.87

May 2021

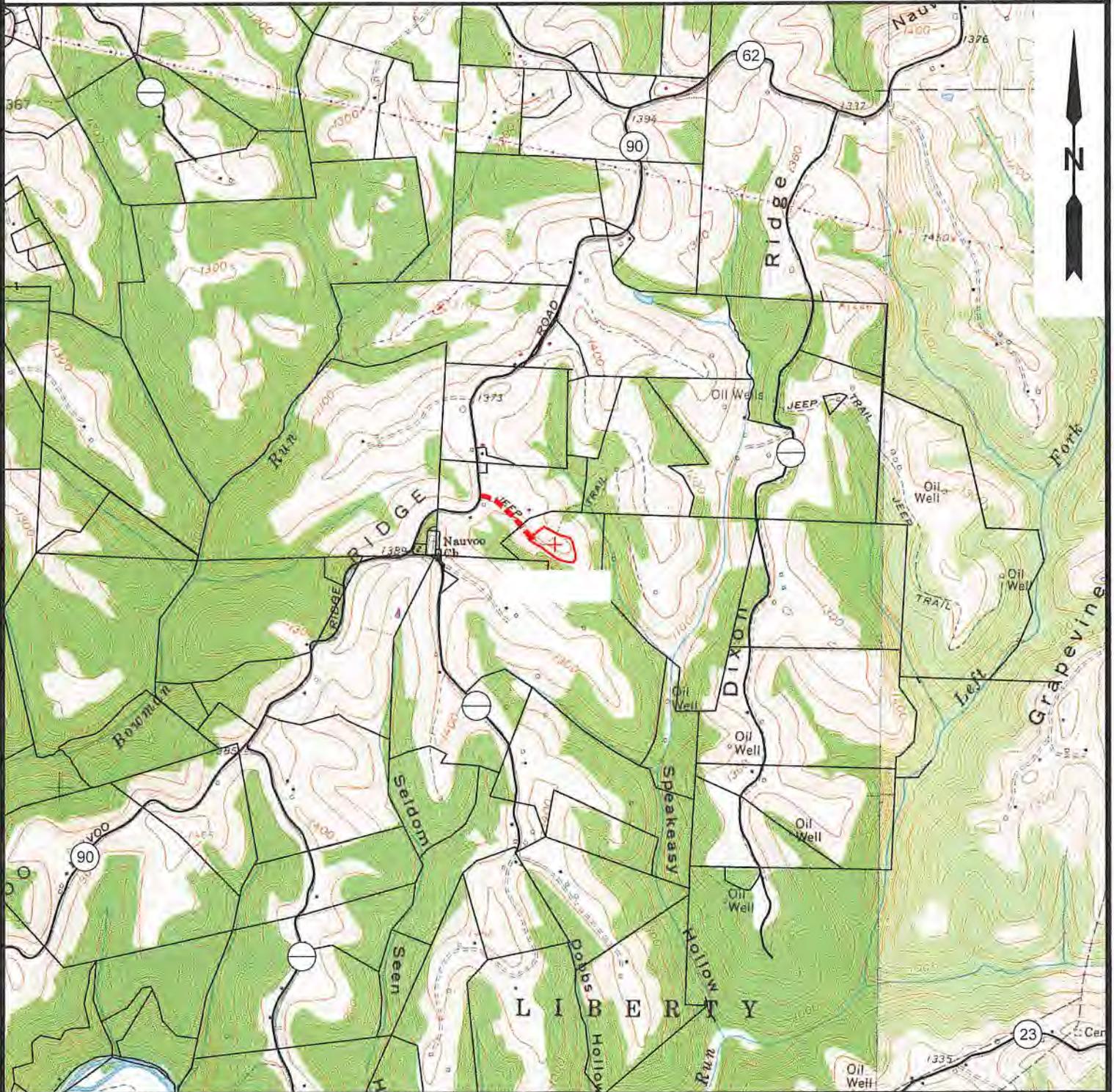
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Office of Oil and Gas

JUN 04 2021

WV Department of  
Environmental Protection

07/09/2021

# PROPOSED FITZGERALD S - 6HM



NOTE: CLOSEST WATER PURVEYOR  
CITY OF CAMERON - FRANK WALKER RESERVOIR  
CAMDEN, WV

LAT: 39.829865  
LON: -80.573724  
LOCATED: N 62°00'46" E AT 21,684.26' FROM THE CENTER OF FITZGERALD S WELL PAD LOCATION.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5' & CAMERON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	LIBERTY & MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8910	03/03/2020	1" = 2000'



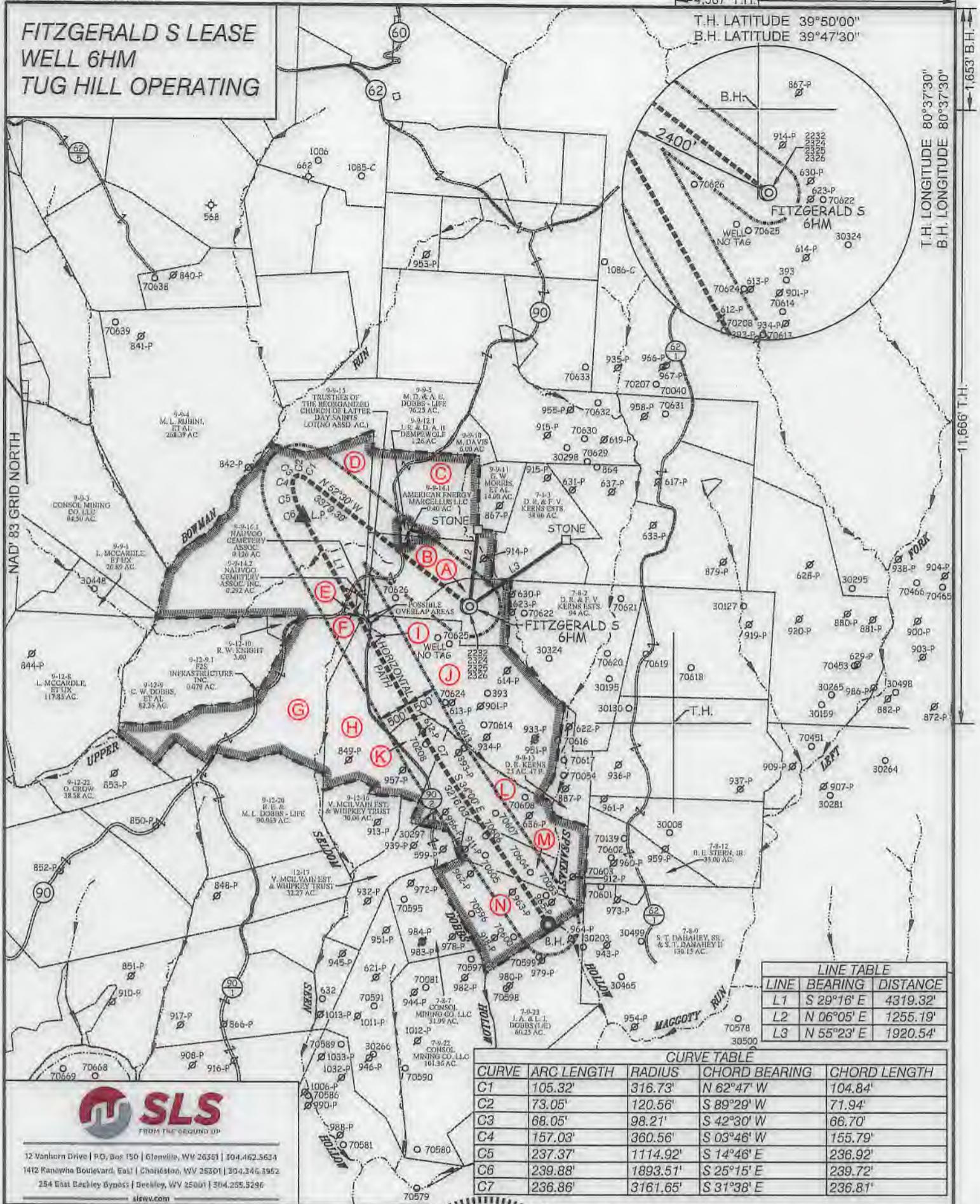
**TUG HILL  
OPERATING**  
07/09/2021

4,587' T.H. 3,227' B.H.

**FITZGERALD S LEASE  
WELL 6HM  
TUG HILL OPERATING**

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"

T.H. LONGITUDE 80°37'30"  
B.H. LONGITUDE 80°37'30"



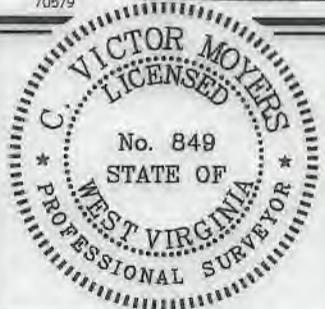
LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 29°16' E	4319.32'
L2	N 06°05' E	1255.19'
L3	N 55°23' E	1920.54'

CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	105.32'	316.73'	N 62°47' W	104.84'
C2	73.05'	120.56'	S 89°29' W	71.94'
C3	68.05'	98.21'	S 42°30' W	66.70'
C4	157.03'	360.56'	S 03°46' W	155.79'
C5	237.37'	1114.92'	S 14°46' E	236.92'
C6	239.88'	1893.51'	S 26°15' E	239.72'
C7	236.86'	3161.65'	S 31°38' E	236.81'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Ranowha Boulevard, East | Charleston, WV 25301 | 304.246.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'83 S.P.C.(FT) N. 476,014.27 E. 1,647,843.89  
 NAD'83 GEO. LAT-(N) 39.801308 LONG-(W) 80.641326  
 NAD'83 UTM (M) N. 4,405,786.30 E. 530,704.87  
**LANDING POINT**  
 NAD'83 S.P.C.(FT) N. 477,468.3 E. 1,645,105.0  
 NAD'83 GEO. LAT-(N) 39.805204 LONG-(W) 80.651140  
 NAD'83 UTM (M) N. 4,406,195.3 E. 529,863.1  
**BOTTOM HOLE**  
 NAD'83 S.P.C.(FT) N. 470,832.5 E. 1,649,139.2  
 NAD'83 GEO. LAT-(N) 39.787129 LONG-(W) 80.636483  
 NAD'83 UTM (M) N. 4,404,194.2 E. 531,125.9



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

P.S. *C. Victor Moyers*  
849

LEGEND	
LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	
SURFACE OWNER (SEE TABLE)	
LEASE # (SEE WW-6A1)	

SCALE 1" = 2000' FILE NO. 8910P6HMR.dwg  
 FITZGERALD S 6HM REV5  
 DATE FEBRUARY 20, 2020  
 REVISED MAY 12, 2021  
 OPERATORS WELL NO. FITZGERALD S 6HM  
 API WELL NO. 47-051-02384 H4A  
 NO. STATE COUNTY PERMIT

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

WELL OPERATOR TUG HILL OPERATING, LLC ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107  
 DESIGNATED AGENT DIANNA STAMPER CT CORPORATION SYSTEM ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

07/09/2021

COUNTY NAME PERMIT

**FITZGERALD S LEASE  
WELL 6HM  
TUG HILL OPERATING**

4,587' T.H. 3,227' B.H.

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)	
NAD'83 S.P.C.(FT)	N. 476,014.27 E. 1,647,843.89
NAD'83 GEO.	LAT-(N) 39.801308 LONG-(W) 80.641326
NAD'83 UTM (M)	N. 4,405,766.30 E. 530,704.87
<b>LANDING POINT</b>	
NAD'83 S.P.C.(FT)	N. 477,468.3 E. 1,645,105.0
NAD'83 GEO.	LAT-(N) 39.805204 LONG-(W) 80.651140
NAD'83 UTM (M)	N. 4,406,195.3 E. 529,863.1
<b>BOTTOM HOLE</b>	
NAD'83 S.P.C.(FT)	N. 470,832.5 E. 1,649,139.2
NAD'83 GEO.	LAT-(N) 39.787129 LONG-(W) 80.636483
NAD'83 UTM (M)	N. 4,404,194.2 E. 531,125.9

T.H. LONGITUDE 80°37'30"  
B.H. LONGITUDE 80°37'30"  
1,666' T.H.  
1,663' B.H.

TAG	SURFACE OWNER	PARCEL	ACRES
A	DANNY R. & FRANCES V. KERNS ESTATE	7-8-1	27.00
B	DANNY R. & FRANCES V. KERNS ESTATE	9-9-14	48.308
C	GARY W. MORRIS & CYNTHIA PATRELLO	9-9-12	54.69
D	TODD L. SCHERICH, ET AL	9-9-16	168.204
E	GARY W. MORRIS	9-9-22	0.15
F	NAUVOO CEMETERY ASSOCIATION, INC.	9-9-17	1.00
G	MARK D. & SHERYL CHAMBERS	9-12-11	91.00
H	DAVID L. WHIPKEY & DAVID MATTHEW	9-12-12	61.00
I	DAVID & CAROL WHIPKEY TRUST, ET AL	9-9-18	LOT
J	CONSOL MINING CO., LLC	9-12-14	127.61
K	DAVID L. WHIPKEY & DAVID MATTHEW	9-12-15	12.00
L	JOHN ALFRED & LEORA JEAN DOBBS (L/E)	7-8-4	65.65
M	JOHN ALFRED & LEORA JEAN DOBBS (L/E)	7-8-5	24.00
N	JOHN ALFRED & LEORA JEAN DOBBS (L/E)	7-8-8	51.97

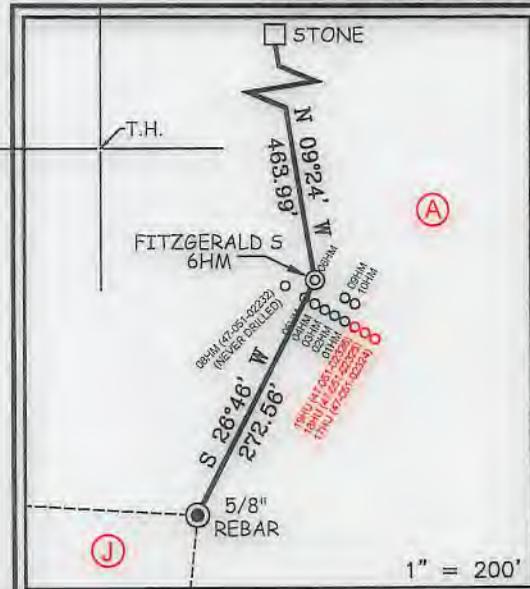
**NOTES ON SURVEY**

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS OR DWELLINGS > 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

**REFERENCES**



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*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE FEBRUARY 20, 2020  
REVISED MAY 12, 2021  
OPERATORS WELL NO. FITZGERALD S 6HM  
API WELL NO. 47-051-02384 HGA  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8910P6HMR.dwg  
FITZGERALD S 6HM REV5  
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 \_\_\_ GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW   
LOCATION: ELEVATION 1,293.00' WATERSHED SPEAKEASY HOLLOW OF MAGGOTY RUN  
DISTRICT LIBERTY COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'  
SURFACE OWNER DANNY AND FRANCES KERNS ESTATE ACREAGE 27.00±  
ROYALTY OWNER DANNY S. KERNS, ET AL ACREAGE 27.00±  
PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  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: 7,025' / TMD: 16,318'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD  
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME PERMIT

07/09/2021

**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
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\*See attached pages

**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

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Environmental Protection

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: Tug Hill Operating, LLC  
 By: Amy L. Morris *Amy L. Morris*  
 Its: Permitting Specialist - Appalachia Region

WW-6A1 Supplement

Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment
10*25518	7-8-1	A	DANNY S KERNS	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	532	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25520	7-8-1	A	DEENA J PALOMO	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1009	357	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25522	7-8-1	A	REGINA D FIGUEROA	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	535	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*28697	9-9-14	B	DANNY S KERNS	TH EXPLORATION LLC	1/8+	1075	134	N/A	N/A
10*28698	9-9-14	B	DEENA JANINE PALOMO	TH EXPLORATION LLC	1/8+	1075	140	N/A	N/A
10*28699	9-9-14	B	REGINA D FIGUEROA	TH EXPLORATION LLC	1/8+	1075	137	N/A	N/A
10*21859	9-9-12	C	GARY WAYNE MORRIS	TH EXPLORATION LLC	1/8+	960	192	N/A	N/A
10*19987	9-9-16	D	LESLEY D BALLA	TH EXPLORATION LLC	1/8+	955	103	N/A	N/A
10*19993	9-9-16	D	DIANA D COSLICK	TH EXPLORATION LLC	1/8+	955	105	N/A	N/A
10*19994	9-9-16	D	ELAINE A FONTES	TH EXPLORATION LLC	1/8+	960	36	N/A	N/A
10*21117	9-9-16	D	JOELLYN JOHNSON	TH EXPLORATION LLC	1/8+	952	392	N/A	N/A
10*21322	9-9-16	D	PHILLIP H WAYT AND BILLIE A WAYT	TH EXPLORATION LLC	1/8+	953	293	N/A	N/A
10*22199	9-9-16	D	DONALD BROOKS WESLEY	BLUE ROAN RESOURCES LLC	1/8+	926	424	N/A	Blue Roan Resources LLC to TH Exploration LLC: 41/405
10*22201	9-9-16	D	FREDERICK MAXWELL YEATER	BLUE ROAN RESOURCES LLC	1/8+	926	422	N/A	Blue Roan Resources LLC to TH Exploration LLC: 41/405
10*22202	9-9-16	D	MARK DAVID HUNT	BLUE ROAN RESOURCES LLC	1/8+	935	109	N/A	Blue Roan Resources LLC to TH Exploration LLC: 41/405
10*22203	9-9-16	D	MELISSA ELAINE SCHROTH	BLUE ROAN RESOURCES LLC	1/8+	934	471	N/A	Blue Roan Resources LLC to TH Exploration LLC: 41/405
10*22526	9-9-16	D	BARBARA FURFARI	TH EXPLORATION LLC	1/8+	964	528	N/A	N/A
10*22528	9-9-16	D	RONALD DAKAN	TH EXPLORATION LLC	1/8+	964	530	N/A	N/A
10*22553	9-9-16	D	DAVID H DAKAN	TH EXPLORATION LLC	1/8+	966	130	N/A	N/A
10*22783	9-9-16	D	SUZANNE SWIFT	TH EXPLORATION LLC	1/8+	972	85	N/A	N/A
10*23315	9-9-16	D	TIM A WILLIS AND DIANE CLARE WILLIS	TH EXPLORATION LLC	1/8+	988	138	N/A	N/A
10*24047	9-9-16	D	BESSIE CARMICHAEL ET AL SHANE M MALLET, SPECIAL COMMISSIONER	TH EXPLORATION LLC	1/8+	1021	117	N/A	N/A
10*24397	9-9-16	D	MARK D CHAMBERS AND SHERYL CHAMBERS	TH EXPLORATION LLC	1/8+	1023	163	N/A	N/A
10*24398	9-9-16	D	TODD SCHERICH AND WANDA D SCHERICH	TH EXPLORATION LLC	1/8+	1023	160	N/A	N/A
10*24413	9-9-16	D	BRADLEY S SCHERICH AND LEIGH SCHERICH	TH EXPLORATION LLC	1/8+	1023	157	N/A	N/A
10*24535	9-9-22	E	BOARD OF EDUCATION OF MARSHALL COUNTY	TH EXPLORATION LLC	1/8+	1026	64	N/A	N/A
10*27299	9-9-17	F	NAUVOO CEMETERY ASSOCIATION	TH EXPLORATION LLC	1/8+	1057	357	N/A	N/A
10*15494	9-12-11	G	CHRISTOPHER SINGER AND SHEREA SINGER	TH EXPLORATION LLC	1/8+	898	433	N/A	N/A
10*16484	9-12-11	G	PEGGY MARIE SIEBOLD	TH EXPLORATION LLC	1/8+	942	445	N/A	N/A
10*16485	9-12-11	G	MICHELLE ANN KNAUFF	TH EXPLORATION LLC	1/8+	942	447	N/A	N/A
10*24396	9-12-11	G	ELEANOR CHAMBERS	TH EXPLORATION LLC	1/8+	1023	166	N/A	N/A

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment
10*19567	9-12-12	H	JOHN PURDY AND BRENDA S PURDY	TH EXPLORATION LLC	1/8+	944	637	N/A	N/A
10*19569	9-12-12	H	CAROLE J WOOD	TH EXPLORATION LLC	1/8+	944	642	N/A	N/A
10*19570	9-12-12	H	ALICE BUZZARD	TH EXPLORATION LLC	1/8+	947	561	N/A	N/A
10*19571	9-12-12	H	MARLENE GARIN	TH EXPLORATION LLC	1/8+	945	4	N/A	N/A
10*19631	9-12-12	H	BRADLEY S SCHERICH AND LEIGH SCHERICH	TH EXPLORATION LLC	1/8+	946	302	N/A	N/A
10*19632	9-12-12	H	CHARLES W DOBBS AND JUDITH M DOBBS	TH EXPLORATION LLC	1/8+	944	644	N/A	N/A
10*19633	9-12-12	H	TODD SCHERICH AND WANDA D SCHERICH	TH EXPLORATION LLC	1/8+	945	1	N/A	N/A
10*19696	9-12-12	H	GARY F BLAKE AND DORIS E BLAKE	TH EXPLORATION LLC	1/8+	946	395	N/A	N/A
10*21781	9-12-12	H	LINDA SUE BENNETT AND THOMAS BENNETT	TH EXPLORATION LLC	1/8+	958	426	N/A	N/A
10*21882	9-12-12	H	PEGGY ANNETTE GARDNER & ROBERT W GARDNER	TH EXPLORATION LLC	1/8+	960	121	N/A	N/A
10*21890	9-12-12	H	DARLA J KLUKAS	TH EXPLORATION LLC	1/8+	960	111	N/A	N/A
10*21896	9-12-12	H	REBECCA LYNN RITZ AND THOMAS A RITZ	TH EXPLORATION LLC	1/8+	960	44	N/A	N/A
10*22396	9-12-12	H	NANCY JO FENN	TH EXPLORATION LLC	1/8+	963	89	N/A	N/A
10*23227	9-12-12	H	ROGER F CROSS	TH EXPLORATION LLC	1/8+	984	478	N/A	N/A
10*24396	9-12-12	H	ELEANOR CHAMBERS	TH EXPLORATION LLC	1/8+	1023	166	N/A	N/A
10*27709	9-12-12	H	ITHA SOMERVILLE UNKNOWN HEIRS	TH EXPLORATION LLC	1/8+	1058	514	N/A	N/A
10*27774	9-9-18	I	RESOURCE MINERALS HEADWATER I LP	TH EXPLORATION LLC	1/8+	1063	258	N/A	N/A
10*18339	9-12-14	J	RESOURCE MINERALS HEADWATER I LP	TH EXPLORATION LLC	1/8+	940	448	N/A	N/A
10*22524	9-12-14	J	ALYCE LYNNE MCGUFFIE	TH EXPLORATION LLC	1/8+	964	446	N/A	N/A
10*21512	9-12-15	K	THE WHIPKEY TRUST	TH EXPLORATION LLC	1/8+	949	266	N/A	N/A
10*24468	9-12-15	K	MARIE D HILL	TH EXPLORATION LLC	1/8+	1026	209	N/A	N/A
10*18988	7-8-4	L	MICHAEL R DOBBS AND LEANNE DOBBS	TH EXPLORATION LLC	1/8+	940	238	N/A	N/A
10*18989	7-8-4	L	GREGG ALAN MILLER AND BETH ANN MILLER	TH EXPLORATION LLC	1/8+	940	236	N/A	N/A
10*19499	7-8-4	L	CARLTON DOBBS JR AND MIKHAIL PROKOPENKO	TH EXPLORATION LLC	1/8+	943	21	N/A	N/A
10*21875	7-8-4	L	MELVIN J FRANCIS	TH EXPLORATION LLC	1/8+	960	113	N/A	N/A
10*21876	7-8-4	L	JAMES L STOUT	TH EXPLORATION LLC	1/8+	960	117	N/A	N/A
10*21877	7-8-4	L	THOMAS BRIAN WARRICK	TH EXPLORATION LLC	1/8+	960	115	N/A	N/A
10*22061	7-8-4	L	WILLIAM A WESTEN AND VICKIE D WESTEN	TH EXPLORATION LLC	1/8+	960	54	N/A	N/A
10*22062	7-8-4	L	TIMMY LEE STOUT AND DOROTHY MARIE STOUT	TH EXPLORATION LLC	1/8+	960	50	N/A	N/A
10*22063	7-8-4	L	CHARLOTTE E MARRINER	TH EXPLORATION LLC	1/8+	960	56	N/A	N/A
10*22087	7-8-4	L	CHESTNUT HOLDINGS INC	TH EXPLORATION LLC	1/8+	963	483	N/A	N/A
10*22145	7-8-4	L	WAYLON L MURPHREE AND ANGELA J MURPHREE	TH EXPLORATION LLC	1/8+	961	520	N/A	N/A
10*22146	7-8-4	L	GLADYS E DOBBS	TH EXPLORATION LLC	1/8+	961	522	N/A	N/A
10*22148	7-8-4	L	ROBERT E ROUSH AND SARAH M ROUSH	TH EXPLORATION LLC	1/8+	961	528	N/A	N/A
10*22197	7-8-4	L	GARY DOBBS AND PEGGY LEE DOBBS	TH EXPLORATION LLC	1/8+	953	545	N/A	N/A
10*22251	7-8-4	L	BRIAN WILLIAM DOBBS AND LISA DOBBS	TH EXPLORATION LLC	1/8+	961	530	N/A	N/A
10*22262	7-8-4	L	EDWARD S ROSENTHAL AND NANCY ANN GOLDBERG ROSENTHAL	TH EXPLORATION LLC	1/8+	961	524	N/A	N/A
10*22298	7-8-4	L	JAMES C DORIA AND DEIRDE G DORIA	TH EXPLORATION LLC	1/8+	961	526	N/A	N/A
10*22299	7-8-4	L	PAUL RUSSELL AND MARY LOU RUSSELL	TH EXPLORATION LLC	1/8+	962	219	N/A	N/A
10*22306	7-8-4	L	KAREN SUE BLAKE	TH EXPLORATION LLC	1/8+	963	416	N/A	N/A
10*22383	7-8-4	L	CHARLES S CUNNINGHAM AND CORA CUNNINGHAM	TH EXPLORATION LLC	1/8+	962	582	N/A	N/A

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment
10*22390	7-8-4	L	JANA K PARRY	TH EXPLORATION LLC	1/8+	962	580	N/A	N/A
10*22391	7-8-4	L	PAUL CRAIG CUNNINGHAM	TH EXPLORATION LLC	1/8+	964	481	N/A	N/A
10*22392	7-8-4	L	KEVIN W RANDOLPH AND BONNIE J RANDOLPH	TH EXPLORATION LLC	1/8+	963	94	N/A	N/A
10*22393	7-8-4	L	CAREY J KENDALL AND HAZEL M KENDALL	TH EXPLORATION LLC	1/8+	962	584	N/A	N/A
10*22398	7-8-4	L	JERRY L AND DONNA J GOLDBERG	TH EXPLORATION LLC	1/8+	963	101	N/A	N/A
10*22421	7-8-4	L	DAVID LEE SCOTT & MARGARET TANISE SCOTT	TH EXPLORATION LLC	1/8+	963	103	N/A	N/A
10*22423	7-8-4	L	KATHARYN ANNETTE LILLY LAING AND FREDDIE JOE LAING	TH EXPLORATION LLC	1/8+	963	426	N/A	N/A
10*22428	7-8-4	L	WILLIAM C WEST AND DEBRA WEST	TH EXPLORATION LLC	1/8+	965	532	N/A	N/A
10*22475	7-8-4	L	JAMES D KIMBREL AND PORTIA CONWAY KIMBREL	TH EXPLORATION LLC	1/8+	965	515	N/A	N/A
10*22476	7-8-4	L	ROBERT E WEST	TH EXPLORATION LLC	1/8+	965	517	N/A	N/A
10*22483	7-8-4	L	BEVERLY A LEDBETTER	TH EXPLORATION LLC	1/8+	965	530	N/A	N/A
10*22486	7-8-4	L	RUDOLPH H PARSONS	TH EXPLORATION LLC	1/8+	965	534	N/A	N/A
10*22529	7-8-4	L	MARY V DOBBS	TH EXPLORATION LLC	1/8+	964	479	N/A	N/A
10*22530	7-8-4	L	MARK A CUNNINGHAM AND JOAN CUNNINGHAM	TH EXPLORATION LLC	1/8+	964	483	N/A	N/A
10*22532	7-8-4	L	CHRISTOPHER L WRIGHT	TH EXPLORATION LLC	1/8+	966	179	N/A	N/A
10*22552	7-8-4	L	DENNIS LEE WRIGHT AND MELINDA ANN WRIGHT	TH EXPLORATION LLC	1/8+	966	181	N/A	N/A
10*22554	7-8-4	L	HARRY R WRIGHT JR	TH EXPLORATION LLC	1/8+	966	184	N/A	N/A
10*22555	7-8-4	L	ANNA M WRIGHT	TH EXPLORATION LLC	1/8+	966	186	N/A	N/A
10*22621	7-8-4	L	WILLIAM K MERRITT AND LINDA J MERRITT	TH EXPLORATION LLC	1/8+	965	507	N/A	N/A
10*22622	7-8-4	L	RONALD L CROW AND GLENDA F CROW	TH EXPLORATION LLC	1/8+	965	505	N/A	N/A
10*22623	7-8-4	L	ROGER L GARRISON AND MARILYN L GARRISON	TH EXPLORATION LLC	1/8+	965	503	N/A	N/A
10*22624	7-8-4	L	CHARLES WARRICK AND LISA WARRICK	TH EXPLORATION LLC	1/8+	965	512	N/A	N/A
10*22625	7-8-4	L	MARVIN JERRY BLAKE AND LINDA D BLAKE	TH EXPLORATION LLC	1/8+	965	509	N/A	N/A
10*22626	7-8-4	L	BRIAN K MASTERS AND MELINDA D MASTERS	TH EXPLORATION LLC	1/8+	965	501	N/A	N/A
10*22722	7-8-4	L	DOROTHY L CUNNINGHAM	TH EXPLORATION LLC	1/8+	968	266	N/A	N/A
10*22798	7-8-4	L	TREVOR HOOKS	TH EXPLORATION LLC	1/8+	970	80	N/A	N/A
10*22799	7-8-4	L	ELIZABETH HALEY LEEK	TH EXPLORATION LLC	1/8+	972	100	N/A	N/A
10*22805	7-8-4	L	DILLEN HENRY	TH EXPLORATION LLC	1/8+	972	91	N/A	N/A
10*22806	7-8-4	L	KIMBERLY HENRY	TH EXPLORATION LLC	1/8+	972	94	N/A	N/A
10*22807	7-8-4	L	DUSTIN HENRY	TH EXPLORATION LLC	1/8+	972	97	N/A	N/A
10*22823	7-8-4	L	RONALD A WYCINSKI	TH EXPLORATION LLC	1/8+	974	192	N/A	N/A
10*22838	7-8-4	L	JOHN THOMAS ERAZMUS AND JEAN R ERAZMUS	TH EXPLORATION LLC	1/8+	974	194	N/A	N/A
10*22985	7-8-4	L	KURT J WENNEMAN & DEBRA A WENNEMAN	TH EXPLORATION LLC	1/8+	977	344	N/A	N/A
10*23095	7-8-4	L	CHARLES B MASTER AND KIMBERLY MASTERS	TH EXPLORATION LLC	1/8+	983	564	N/A	N/A
10*23104	7-8-4	L	STEVEN D MASTERS AND MONICA M MASTERS	TH EXPLORATION LLC	1/8+	983	567	N/A	N/A
10*23147	7-8-4	L	FRANCES V CARPENTER	TH EXPLORATION LLC	1/8+	983	643	N/A	N/A
10*23151	7-8-4	L	BRADY J MCCORT	TH EXPLORATION LLC	1/8+	983	645	N/A	N/A
10*23153	7-8-4	L	BENJAMIN MATHER AND REBECCA MATHER	TH EXPLORATION LLC	1/8+	983	647	N/A	N/A
10*23177	7-8-4	L	JOSEPH F CHMIELEWSKI AND SANDRA CHMIELEWSKI	TH EXPLORATION LLC	1/8+	984	1	N/A	N/A
10*23182	7-8-4	L	SHIRLEY ANN DOBBS	TH EXPLORATION LLC	1/8+	984	545	N/A	N/A
10*23267	7-8-4	L	KATHARYN DAY LILLY	TH EXPLORATION LLC	1/8+	984	534	N/A	N/A

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment
10*23281	7-8-4	L	ALLEN R L DAVIS AND DIANA LEE PATTERSON DAVIS	TH EXPLORATION LLC	1/8+	984	543	N/A	N/A
10*23282	7-8-4	L	CARL J CHMIELEWSKI AND KATHLEEN A CHMIELEWSKI	TH EXPLORATION LLC	1/8+	984	3	N/A	N/A
10*23283	7-8-4	L	DEAN E GARRISON	TH EXPLORATION LLC	1/8+	984	539	N/A	N/A
10*23351	7-8-4	L	BONNIE SUE PATTERSON SWISHER	TH EXPLORATION LLC	1/8+	988	109	N/A	N/A
10*23352	7-8-4	L	KENNETH R DOBBS	TH EXPLORATION LLC	1/8+	988	111	N/A	N/A
10*23354	7-8-4	L	LAWRENCE W CROW JR AND WANDA F CROW	TH EXPLORATION LLC	1/8+	984	541	N/A	N/A
10*23417	7-8-4	L	JOHN RUSSELL BECKER	TH EXPLORATION LLC	1/8+	1008	26	N/A	N/A
10*23418	7-8-4	L	PAULA BANKS AND PAUL BANKS	TH EXPLORATION LLC	1/8+	1008	28	N/A	N/A
10*23636	7-8-4	L	JAMES MATHER	TH EXPLORATION LLC	1/8+	1009	116	N/A	N/A
10*23641	7-8-4	L	BARBARA L ANDERSON	TH EXPLORATION LLC	1/8+	1009	114	N/A	N/A
10*23689	7-8-4	L	STEPHEN B LEEK AND CYNTHIA S LEEK	TH EXPLORATION LLC	1/8+	1010	334	N/A	N/A
10*23758	7-8-4	L	LUCY P SULLIVAN	TH EXPLORATION LLC	1/8+	1012	199	N/A	N/A
10*23898	7-8-4	L	JAMES W CUNNINGHAM JR	TH EXPLORATION LLC	1/8+	1017	590	N/A	N/A
10*23899	7-8-4	L	JORDAN LEE CUNNINGHAM	TH EXPLORATION LLC	1/8+	1017	588	N/A	N/A
10*23919	7-8-4	L	EDDA JO DOBBS	TH EXPLORATION LLC	1/8+	1019	479	N/A	N/A
10*23950	7-8-4	L	JUSTIN VAN METER	TH EXPLORATION LLC	1/8+	1020	362	N/A	N/A
10*23951	7-8-4	L	CHRISTOPHER VAN METER	TH EXPLORATION LLC	1/8+	1020	201	N/A	N/A
10*24015	7-8-4	L	SCOTT D GOLDMAN	TH EXPLORATION LLC	1/8+	1019	477	N/A	N/A
10*24036	7-8-4	L	PAULA JO WRIGHT	TH EXPLORATION LLC	1/8+	1020	203	N/A	N/A
10*24037	7-8-4	L	CHRISTOPHER A KELLY & MICHELLE A WRIGHT	TH EXPLORATION LLC	1/8+	1020	205	N/A	N/A
10*24038	7-8-4	L	CHARLES GREGORY WRIGHT	TH EXPLORATION LLC	1/8+	1020	207	N/A	N/A
10*24084	7-8-4	L	EDWIN M MICHEL AND KIMBERLY B MICHEL	TH EXPLORATION LLC	1/8+	1020	364	N/A	N/A
10*24201	7-8-4	L	PATRICIA RUTTER	TH EXPLORATION LLC	1/8+	1023	510	N/A	N/A
10*24348	7-8-4	L	BARBARA H SIMMONS	TH EXPLORATION LLC	1/8+	1024	307	N/A	N/A
10*24649	7-8-4	L	WILLIAM L LEEK	TH EXPLORATION LLC	1/8+	1026	215	N/A	N/A
10*24660	7-8-4	L	LARRY D FROST AND LORAIN L FROST	TH EXPLORATION LLC	1/8+	1026	217	N/A	N/A
10*24662	7-8-4	L	RAMONA K SPRINGER AND RICHARD D SPRINGER	TH EXPLORATION LLC	1/8+	1026	220	N/A	N/A
10*24664	7-8-4	L	LISA L SHEAKS AND JAMES C SHEAKS	TH EXPLORATION LLC	1/8+	1026	226	N/A	N/A
10*24670	7-8-4	L	SUZANNE FROST	TH EXPLORATION LLC	1/8+	1026	223	N/A	N/A
10*24692	7-8-4	L	DAVID ROSARIO JR AND JULIE A ROSARIO	TH EXPLORATION LLC	1/8+	1027	130	N/A	N/A
10*24915	7-8-4	L	BETTY G TREMELLING	TH EXPLORATION LLC	1/8+	1028	594	N/A	N/A
10*24916	7-8-4	L	BRENDA L NEUHART	TH EXPLORATION LLC	1/8+	1028	591	N/A	N/A
10*25003	7-8-4	L	LINDA L POTTS AND DONALD D POTTS	TH EXPLORATION LLC	1/8+	1028	621	N/A	N/A
10*25572	7-8-4	L	ERICA S OWEN AND MATTHEW J OWEN	TH EXPLORATION LLC	1/8+	1033	121	N/A	N/A
10*25653	7-8-4	L	GLADYS FRAZIER KING	TH EXPLORATION LLC	1/8+	1033	308	N/A	N/A
10*25717	7-8-4	L	DONALD A FRAZIER	TH EXPLORATION LLC	1/8+	1034	581	N/A	N/A
10*26501	7-8-4	L	DAVID GIBSON AND REBECCA FRAZIER GIBSON	TH EXPLORATION LLC	1/8+	1037	444	N/A	N/A
10*26561	7-8-4	L	GARI JO STACKHOUSE	TH EXPLORATION LLC	1/8+	1038	508	N/A	N/A
10*26894	7-8-4	L	PATRICK T HOWELL	TH EXPLORATION LLC	1/8+	1045	446	N/A	N/A
10*27139	7-8-4	L	BRENDA LOU BOYD	TH EXPLORATION LLC	1/8+	1052	500	N/A	N/A
10*27246	7-8-4	L	CARROLL W FRAZIER	TH EXPLORATION LLC	1/8+	1053	7	N/A	N/A

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10*27351	7-8-4	L	ELBERT ROBERT FRAZIER	TH EXPLORATION LLC	1/8+	1058	393	N/A	N/A
10*27619	7-8-4	L	ANNABELL B CROW UNKNOWN HEIRS	TH EXPLORATION LLC	1/8+	1058	526	N/A	N/A
10*27942	7-8-4	L	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	559	N/A	N/A
10*28114	7-8-4	L	BETTY LOU NOBLE	TH EXPLORATION LLC	1/8+	1067	414	N/A	N/A
10*28115	7-8-4	L	JANICE L KUHN	TH EXPLORATION LLC	1/8+	1067	412	N/A	N/A
10*28116	7-8-4	L	BARBARA DOBBS GORBY	TH EXPLORATION LLC	1/8+	1067	410	N/A	N/A
10*28117	7-8-4	L	SHERRILL R DOBBS AND ELLA V DOBBS	TH EXPLORATION LLC	1/8+	1067	408	N/A	N/A
10*28118	7-8-4	L	CHARLES R PETERS AND SHARON DOBBS PETERS	TH EXPLORATION LLC	1/8+	1067	406	N/A	N/A
10*28184	7-8-4	L	DORIS DOBBS	TH EXPLORATION LLC	1/8+	1067	397	N/A	N/A
10*28360	7-8-4	L	GLENDA COFFIELD AKA GLENDA G DOBBS	SWN PRODUCTION COMPANY LLC	1/8+	956	126	SWN Production Company to TH Exploration LLC: 44/620	Equinor USA Onshore Properties Inc to TH Exploration LLC: 44/626
10*28374	7-8-4	L	DAVID DOBBS	SWN PRODUCTION COMPANY LLC	1/8+	956	122	SWN Production Company to TH Exploration LLC: 44/620	Equinor USA Onshore Properties Inc to TH Exploration LLC: 44/626
10*28375	7-8-4	L	RONALD D DOBBS SOLE & SEPARATE PROPERTY	SWN PRODUCTION COMPANY LLC	1/8+	956	118	SWN Production Company to TH Exploration LLC: 44/620	Equinor USA Onshore Properties Inc to TH Exploration LLC: 44/626
10*28530	7-8-4	L	GREGG S GOLDMAN	TH EXPLORATION LLC	1/8+	1071	583	N/A	N/A
10*28574	7-8-4	L	DIANE LACKEY	TH EXPLORATION LLC	1/8+	1071	577	N/A	N/A
10*28576	7-8-4	L	RUSSELL S CONNER AND CATHY SUE CONNER	TH EXPLORATION LLC	1/8+	1071	565	N/A	N/A
10*28578	7-8-4	L	THE BETTY J DOBBS TRUST SUE ELLEN GOLDSTEIN	TH EXPLORATION LLC	1/8+	1071	559	N/A	N/A
10*28580	7-8-4	L	AUGUSTA L SPIHER	TH EXPLORATION LLC	1/8+	1071	553	N/A	N/A
10*28583	7-8-4	L	THE VIRGINIA L RAPOZA LIVING TRUST DOUGLAS J HOLLOBAUGH	TH EXPLORATION LLC	1/8+	1071	589	N/A	N/A
10*28585	7-8-4	L	DAVID J MINOR	TH EXPLORATION LLC	1/8+	1071	571	N/A	N/A
10*21112	7-8-5	M	CLARENCE C STOVER JR AND LOU E STOVER	TH EXPLORATION LLC	1/8+	952	382	N/A	N/A
10*21113	7-8-5	M	JAMES H STOVER AND LORETTA J STOVER	TH EXPLORATION LLC	1/8+	952	380	N/A	N/A
10*21114	7-8-5	M	JACK G ALEXANDER AND MARVIE S ALEXANDER	TH EXPLORATION LLC	1/8+	952	376	N/A	N/A
10*21116	7-8-5	M	CHARLES E RICHARDSON AND SHIRLEY S RICHARDSON	TH EXPLORATION LLC	1/8+	952	378	N/A	N/A
10*25555	7-8-5	M	MARGIE M DAVENPORT	TH EXPLORATION LLC	1/8+	1033	124	N/A	N/A
10*26510	7-8-5	M	JOHN ALFRED DOBBS AND LEORA JEAN DOBBS	TH EXPLORATION LLC	1/8+	1037	440	N/A	N/A
10*27387	7-8-5	M	JULIA ANN WALTON AIF NANCY MARIKAR	TH EXPLORATION LLC	1/8+	1058	395	N/A	N/A
10*21112	7-8-8	N	CLARENCE C STOVER JR AND LOU E STOVER	TH EXPLORATION LLC	1/8+	952	382	N/A	N/A
10*21113	7-8-8	N	JAMES H STOVER AND LORETTA J STOVER	TH EXPLORATION LLC	1/8+	952	380	N/A	N/A
10*21114	7-8-8	N	JACK G ALEXANDER AND MARVIE S ALEXANDER	TH EXPLORATION LLC	1/8+	952	376	N/A	N/A
10*21116	7-8-8	N	CHARLES E RICHARDSON AND SHIRLEY S RICHARDSON	TH EXPLORATION LLC	1/8+	952	378	N/A	N/A
10*22250	7-8-8	N	CATHERINE V GARRISON & VICTOR C GARRISON	TH EXPLORATION LLC	1/8+	961	518	N/A	N/A
10*22837	7-8-8	N	ILA MAE MCCONAUGHEY	TH EXPLORATION LLC	1/8+	974	196	N/A	N/A
10*23746	7-8-8	N	JAN K GRIMES SIMNACHER	TH EXPLORATION LLC	1/8+	1011	547	N/A	N/A
10*25555	7-8-8	N	MARGIE M DAVENPORT	TH EXPLORATION LLC	1/8+	1033	124	N/A	N/A
10*26510	7-8-8	N	JOHN ALFRED DOBBS AND LEORA JEAN DOBBS	TH EXPLORATION LLC	1/8+	1037	440	N/A	N/A

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment
10*27387	7-8-8	N	JULIA ANN WALTON AIF NANCY MARIKAR	TH EXPLORATION LLC	1/8+	1058 395	N/A	N/A

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**ASSIGNMENT AND CONVEYANCE**

**THIS ASSIGNMENT AND CONVEYANCE** (the "**Assignment**") is made and entered into this 23<sup>rd</sup> day of April, 2019 (the "**Effective Date**"), by and between **AMERICAN PETROLEUM PARTNERS OPERATING, LLC**, (hereinafter "**Assignor**") and **TH EXPLORATION, LLC** (hereinafter "**Assignee**") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated November 15, 2018 (the "**Acreage Trade Agreement**"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

**WITNESSETH:**

**WHEREAS**, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in **Exhibit A-2**, attached hereto and made a part hereof (hereinafter the "**Leases**"); and

**WHEREAS**, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

**NOW, THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

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1. **Assignment**. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon.

**TO HAVE AND TO HOLD** such right, title and interest in and to the Leases unto Assignee or its designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. **Special Warranty**. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the Leases since the time that Assignor obtained its interests in the Leases. Assignor does covenant, promise and agree, to and with the Assignee, its respective successors and assigns, to forever specially warrant and defend the title to the Leases or portions thereof included under this Assignment, unto the Assignee and its respective successors and assigns, against the lawful claims of Assignor, and all persons claiming, or to claim, the same or any part thereof, by, through or under Assignor.

Assignor represents and warrants that Assignor has paid any and all bonuses, rentals, royalties, overriding royalties, and other payments required by the Leases which were due for the period in which Assignor held its interests in the Leases, and that Assignor has fully performed all conditions necessary to maintain the Leases in full force and effect during such period, free and clear of all Encumbrances, except for and subject only to Permitted Encumbrances.

3. **Successors and Assigns**. The terms of this Assignment shall be binding upon and inure to the benefit of the Assignor, its successors and assigns, and the Assignee, its successors and assigns.

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**ASSIGNMENT OF OIL AND GAS LEASES**

This ASSIGNMENT OF OIL AND GAS LEASES (the "Assignment") is made and entered into this 8th day of March, 2018 (the "Effective Date"), from **Blue Roan Resources, LLC**, a West Virginia limited liability company, having an address at 3437 University Avenue, Morgantown, WV, 26505 (hereinafter "Assignor"), and **TH Exploration, LLC**, a Texas limited liability company, having an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "Assignee").

**WITNESSETH:**

**WHEREAS**, Assignor is the owner of the right, title, and interest in those certain Oil and Gas Leases situated in Marshall County, West Virginia, which are described in Exhibit "A" attached hereto and made a part hereof (hereinafter the "Leases"); and

**WHEREAS**, subject to the exceptions and reservations herein contained, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases.

**NOW, THEREFORE**, for and in consideration of the sum of Ten Dollars (\$10.00), cash in hand paid, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

1. Assignment. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, subject to the terms, reservations, waivers and provisions as hereinafter set forth, an undivided interest of all of Assignor's right, title and interest in and to the Leases and all oil, natural gas, natural gas liquids, condensate, casinghead gas and other liquefied or gaseous hydrocarbons or products ("Hydrocarbons") thereby held, in any and all depths and formations ("Assigned Formations"), together with any and all other rights that are reasonably necessary or convenient to explore for and produce Hydrocarbons from the Assigned Formations, including, but not limited to, the right of surface access, use and occupancy, the right of ingress and egress, the right to conduct geophysical and other exploratory activities, the right to lay pipeline, the right to drill through, but not perforate or stimulate, all other depths and formations necessary for the purpose of reaching the Assigned Formations and to conduct operations therein.

**TO HAVE AND TO HOLD** such right, title and interest in and to the Leases unto Assignees or their designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. Representations and Warranties. Assignor represents and warrants that such Assignor has not conveyed or otherwise encumbered its interest in the Leases since the time that Assignor obtained its interests in the Leases.

Assignor represents and warrants that, as to its interests in the Leases, Assignor has paid all royalties, overriding royalties, and other payments required by the Leases which were due for the period in which Assignor held its interests in the Leases, including, but not limited to, the interests assigned hereunder, and that Assignor has fully performed all conditions necessary to maintain the Leases in full force and effect during such period.

3. Successors and Assigns. The terms of this Assignment shall be binding upon and inure to the benefit of the parties hereto and each of their respective successors and assigns, and such terms shall be covenants running with the land, and with each subsequent transfer or assignment thereof.

4. Further Assurances. Assignor and Assignee hereby agree to take all actions and execute, acknowledge, and deliver all such instruments as are necessary or advisable to effectuate the purposes of this Assignment.

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**ASSIGNMENT AND CONVEYANCE**

This Assignment and Conveyance (this "**Assignment**") is from EQUINOR USA ONSHORE PROPERTIES INC., a Delaware corporation ("**Assignor**"), to TH Exploration, LLC, a Texas limited liability company ("**Assignee**"), and is executed on December 9, 2019 (the "**Effective Date**"). Assignor and Assignee may be referred to herein collectively as the "**Parties**," or individually as a "**Party**." Capitalized terms used herein but not otherwise defined hereinto (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated November 1, 2019 (the "**Acreage Trade Agreement**").

**ARTICLE 1  
ASSIGNMENT OF ASSETS**

**Section 1.1 Assignment.** For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "**Leases**") IN SO FAR AND ONLY IN SO FAR as they cover those lands described on Exhibit A (the "**Leasehold Rights**") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "**Conveyed Assets**").

**TO HAVE AND TO HOLD** the Conveyed Assets, together with all and singular the rights, privileges, contracts and appurtenances, in any way appertaining or belonging thereto, unto Assignee, its successors and assigns, forever, subject, to the terms and conditions of this Assignment.

**Section 1.2 Assignment Subject to Acreage Trade Agreement.** This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

**ARTICLE 2  
SPECIAL WARRANTY OF TITLE AND DISCLAIMERS**

**Section 2.1 Special Warranty of Title.** Assignor hereby agrees to warrant and defend Defensible Title to the Leases unto Assignee, its successors and assigns, against every Person whomsoever lawfully claiming or to claim the same or any part thereof by, through or under Assignor or any of its Affiliates, but not otherwise.

**Section 2.2 Disclaimers of Warranties and Representations.**

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR WARRANTY, EXPRESS, IMPLIED OR STATUTORY, INCLUDING AS TO (I) TITLE TO THE LEASEHOLD RIGHTS, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY DESCRIPTIVE MEMORANDUM, OR ANY REPORT OF ANY OF ITS PETROLEUM ENGINEERING CONSULTANTS, OR ANY GEOLOGICAL OR SEISMIC DATA OR INTERPRETATION, RELATING TO THE LEASEHOLD RIGHTS, (III) THE QUANTITY, QUALITY OR RECOVERABILITY OF PETROLEUM SUBSTANCES IN OR FROM THE LEASEHOLD RIGHTS, (IV) THE EXISTENCE OF ANY PROSPECT, OR ANY RECOMPLETION, INFILL OR STEP-OUT DRILLING OPPORTUNITIES, (V) ANY ESTIMATES OF THE VALUE OF THE LEASEHOLD RIGHTS, (VI) THE PRODUCTION OF PETROLEUM SUBSTANCES FROM THE LEASEHOLD RIGHTS, OR ANY PRODUCTION OR DECLINE RATES, (VII) THE MAINTENANCE, REPAIR, CONDITION, QUALITY, SUITABILITY, DESIGN OR MARKETABILITY OF THE LEASEHOLD RIGHTS, (VIII) INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT, AND (IX) ANY OTHER MATERIALS OR INFORMATION THAT MAY HAVE BEEN MADE AVAILABLE OR COMMUNICATED TO ASSIGNEE OR ITS AFFILIATES, OR ITS OR THEIR RESPECTIVE

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May 28, 2021

WV Department of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
Attention: Charles Brewer

RE: Fitzgerald S-6HM

Subject: Marshall County Route 90 Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 90 I and CR 90/2 in the area reflected on the Fitzgerald S-6HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 304-376-0111, or by email at [amorris@tug-hilop.com](mailto:amorris@tug-hilop.com).

Sincerely,

A handwritten signature in blue ink that reads "Amy L. Morris".

Amy L. Morris  
Permitting Specialist  
Appalachia Region

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**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION**

Date of Notice Certification: 05/28/2021

API No. 47- 051 - \_\_\_\_\_

Operator's Well No. Fitzgerald S-6HM

Well Pad Name: Fitzgerald

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>530,704.87</u>
County: <u>Marshall</u>	Northing: <u>4,405,766.30</u>
District: <u>Liberty</u>	Public Road Access: <u>Rines Ridge Road (County Route 76)</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Danny S. Kerns, et al</u>
Watershed: <u>Upper Fish Creek</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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**Required Attachments:**

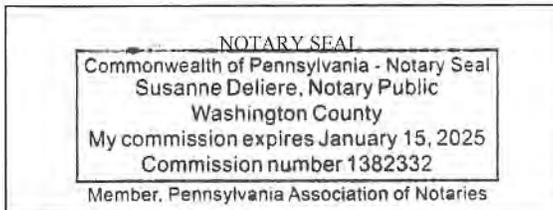
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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**Certification of Notice is hereby given:**

THEREFORE, I Amy L. Morris, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	<u>Amy L. Morris <i>Amy L. Morris</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia Region</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amorris@tug-hilop.com</u>



Subscribed and sworn before me this 28<sup>th</sup> day of May, 2021.

*Susanne Deliere* Notary Public

My Commission Expires 1/15/2025

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

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WV Department of  
Environmental Protection

07/09/2021

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 5/28/2021 Date Permit Application Filed: 5/28/2021

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s)  
Name: Regina D. Figueroa  
Address: 94 E. 700 N  
Valparaiso, IN 46383

Name: Danny S. Kerns \*See attached list  
Address: 3500 West 80th Place  
Merrillville, IN 46410

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: Regina D. Figueroa  
Address: 94 E. 700 N  
Valparaiso, IN 46383

Name: Danny S. Kerns \*See attached list  
Address: 3500 West 80th Place  
Merrillville, IN 46410

SURFACE OWNER(s) (Impoundments or Pits)  
Name:  
Address:

COAL OWNER OR LESSEE  
Name: Consol Energy  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

COAL OPERATOR  
Name: Marshall County Coal Resources, Inc. attn: Steve Blair  
Address: 46226 National Road  
St. Clairsville, OH 43905

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
Name: Danny R. Kerns \*See attached list  
Address: 3500 West 80th Place  
Merrillville, IN 64610

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name:  
Address:

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\*Please attach additional forms if necessary

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

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**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

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Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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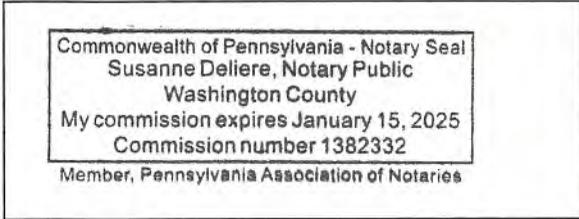
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amorris@tug-hillop.com *amy morris*

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 27th day of May, 2021.  
Susanne Deliere Notary Public  
My Commission Expires 1/15/2025

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## Exhibit WW-6A

## Supplement Pg. 1A

Tug Hill Operating, LLC  
380 Southpointe Blvd, Suite 200  
Cannonsburg, PA 15137

**Residences within Two-Thousand Feet (2,000')**

Well: Fitzgerald S – 6HM  
District: Liberty  
State: WV

There are four (4) residences, one (1) business or commercial site, one (1) church, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p><b>Residence (#1)</b> TM 9 Pcl. 14 Danny R. Kerns, Et Al Phone: 219-887-6761 (Reverse Address – David A. &amp; Regina D. Figueroa) <b>Physical Address:</b> 1352 Nauvoo Ridge Rd. Cameron, WV 26033 <b>Tax Address:</b> 3500 West 80<sup>th</sup> Place Merrillville, IN 46410</p>	<p><b>Residence (#2)</b> TM 9 Pcl. 12.1 Jessica R. &amp; David A. II Dempewolf Phone: 304-810-0500 (Reverse Address – Jolene Morris) <b>Physical Address:</b> 1180 Nauvoo Ridge Rd. Cameron, WV 26033 <b>Tax Address:</b> Same</p>	<p><b>Residence (#3)</b> TM 9 Pcl. 12 Gary W. Morris c/o Gary Morris &amp; Cynthia Patrello Phone: None Found <b>Physical Address:</b> 1156 Nauvoo Ridge Rd. Cameron, WV 26033 <b>Tax Address:</b> Same</p>
<p><b>Business/Commercial Site (#4)</b> TM 12 Pcl. 14 Consol Mining Co. LLC Consolidation Coal Company c/o Marshall County Coal Resources, Inc. attn: Steve Blair <b>Physical Address:</b> 90 The Corner Ln. Glen Easton, WV 26039 (Appears to be an underground mine vent or fan site or other related infrastructure) <b>Tax Address:</b> 46226 National Rd. Saint Clairsville, OH 43950</p>	<p><b>Church (#5)</b> TM 9 Pcl. 15 Trustees of the Reorganized Church of Latter Day Saints Phone: None <b>Physical Address:</b> 88 The Corner Ln. Glen Easton, WV 26039 <b>Tax Address:</b> Exempt/None</p>	<p><b>Residence (#6)</b> TM 9 Pcl. 22 Gary W. Morris Phone: None Found <b>Physical Address:</b> 1556 Nauvoo Ridge Rd. Cameron, WV 26033 <b>Tax Address:</b> 1156 Nauvoo RDG Glen Easton, WV 26039</p>

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**WW-6A NOTICE OF APPLICATION**

**FITZGERALD S-6HM**

ADDITIONAL PARTIES TO NOTICE

Surface Owner (Pad and Access Road)

Deena J. Palomo ✓  
20 Maxwell St.  
Apt. 4  
Hebron, IN 46341

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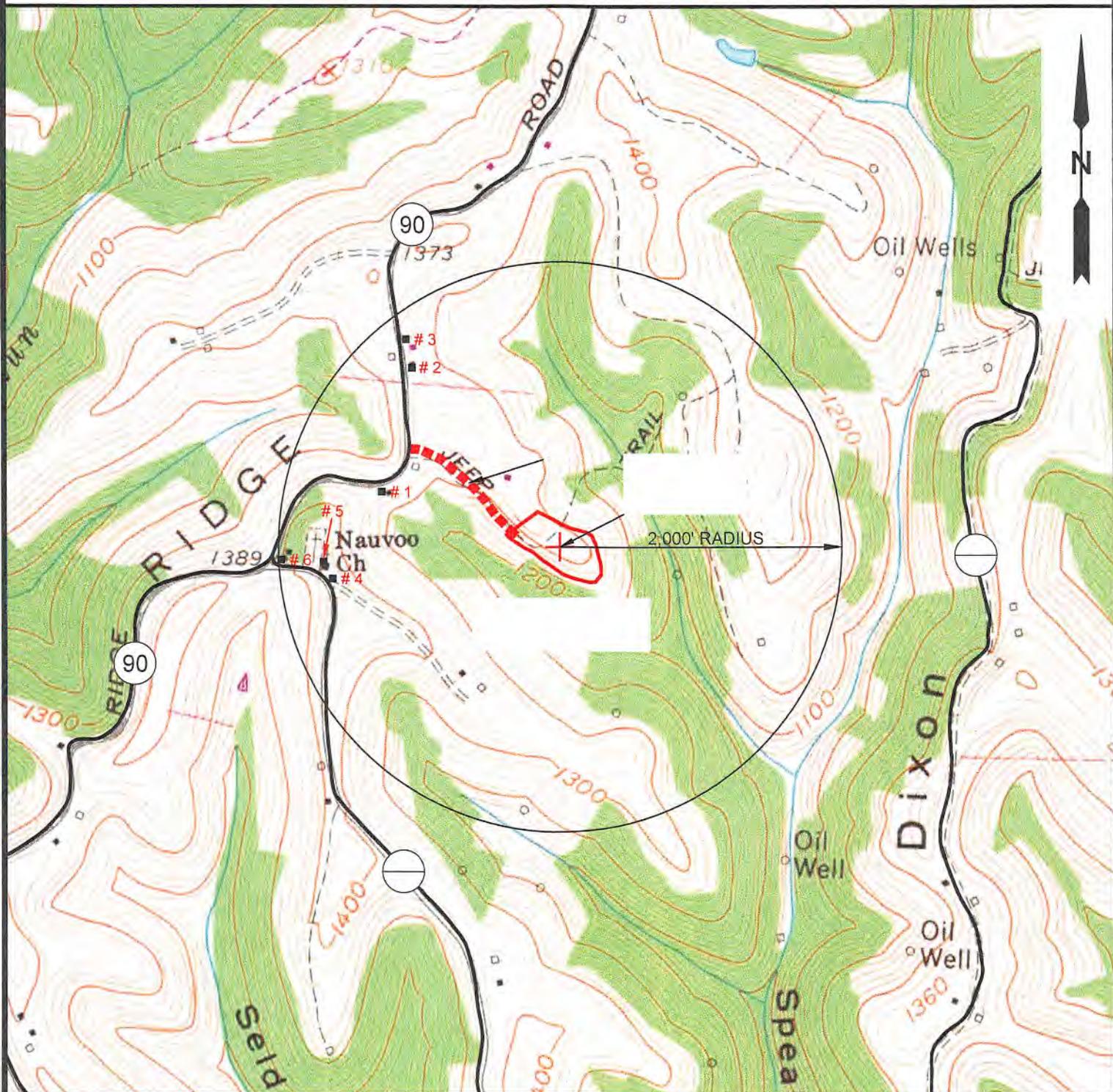
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# PROPOSED FITZGERALD S - 6HM

WV Department of  
Environmental Protection



NOTE: THERE APPEARS TO BE FIVE (5) POSSIBLE WATER SOURCES WITHIN 2,000'.

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5' & CAMERON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	LIBERTY & MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8910	03/03/2020	1" = 1000'

07/09/2021

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF ENTRY FOR PLAT SURVEY

**Notice Time Requirement:** Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry

**Date of Notice:** 4/24/2019 **Date of Planned Entry:** 5/3/2019

**Delivery method pursuant to West Virginia Code § 22-6A-10a**

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

**Notice is hereby provided to:**

SURFACE OWNER(s)

Name: Regina D. Figueroa ✓  
Address: 94 E 700 N  
Valparaiso, IN 46383

Name: Danny S. Kerns ✓  
Address: 3500 West 80th Pl.  
Merrillville, IN 46410

Name: Deena J. Palomo ✓  
Address: 20 Maxwell St., Apt. 4  
Hebron, IN 46341

COAL OWNER OR LESSEE

Name: Consol Energy Attn: Casey Saunders ✓  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Regina D. Figueroa ✓  
Address: 94 E 700 N ✓  
Valparaiso, IN 46383 \*See attached list  
\*please attach additional forms if necessary

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia	Approx. Latitude & Longitude: 39.80128284; -80.64143991
County: Marshall	Public Road Access: County Route 90
District: Liberty	Watershed: Upper Fish Creek
Quadrangle: Glen Easton 7.5'	Generally used farm name: Danny & Frances Kerns Estate

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amiller@tug-hillop.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

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**Oil and Gas Privacy Notice:** WV Department of Environmental Protection

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 05/28/2021      **Date Permit Application Filed:** 05/28/2021

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**  
(at the address listed in the records of the sheriff at the time of notice):

Name: Regina D. Figueroa  
Address: 94 E 700 N  
Valparaiso, IN 46383

Name: Danny S. Kerns  
Address: 3500 West 80th Pl  
Merrillville, IN 46410

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>530,704.87</u>
County:	<u>Marshall</u>		Northing:	<u>4,405,766.30</u>
District:	<u>Liberty</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Danny R. Kerns, et al</u>	
Watershed:	<u>Upper Fish Creek (HUC 10)</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amorris@tug-hillop.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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Environmental Protection

07/09/2021



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III  
Secretary of Transportation/  
Commissioner of Highways

Jimmy Wriston, P. E.  
Deputy Secretary/  
Deputy Commissioner

June 2, 2021

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

Subject: DOH Permit for the Fitzgerald Pad, Marshall County  
Fitzgerald S-6HM Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2019-0351 which has been issued to Tug Hill Operating, LLC for access to the State Road for a well site located off Marshall County Route 90 SLS at MP 4.42.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

Gary K. Clayton, P.E.  
Regional Maintenance Engineer  
Central Office O&G Coordinator

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WV Department of  
Environmental Protection

Cc: Amy Morris  
Tug Hill Operating  
CH, OM, D-6  
File



TUG HILL

4705102884

**PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION**

**Fitzgerald Wells**

<b>PRODUCT NAME:</b>	<b>CHEMICAL DESCRIPTION:</b>	<b>PRODUCT USE:</b>	<b>HAZARDOUS COMPONENT:</b>
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS# 000064-17-5 Water – CAS# 007732-18-5
FRAC SAND	Silica Sand (various Mesh sizes)	Proppant	Crystalline silica (quartz) CAS# 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS# 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS# 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS# 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS# 000107-21-1 Diethylene glycol – CAS# 000111-46-6

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