



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Thursday, August 26, 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 Fitzgerald S-2HM
47-051-02392-00-00

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: Fitzgerald S-2HM
Farm Name: Danny and Frances Kerns Estate
U.S. WELL NUMBER: 47-051-02392-00-00
Horizontal 6A New Drill
Date Issued: 8/26/2021

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

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.

08/27/2021

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-2HM 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 Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

Bang Stalpa
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 6,868' - 6,918', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 7,018'

9) Formation at Total Vertical Depth: Onondaga

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10) Proposed Total Measured Depth: 18,906'

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11) Proposed Horizontal Leg Length: 9,331.23'

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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 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

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
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	9 5/8"	NEW	J55	36#	2,962'	2,962' ✓	985FT^3(CTS)
Production	5 1/2"	NEW	P110	20#	18,906'	18,906' ✓	4,842FT^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		8,928'	
Liners							

Barry Stebbins 7-22-21

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
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							

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PACKERS

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

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.

B.S. 5-27-21

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

Well to be completed with approximately 23,400,000 lb. proppant and 420,000 bbls of water.
Max rate = 80 bpm; max psi = 9,000#.

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-2HM

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"	2,962'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	18,906'	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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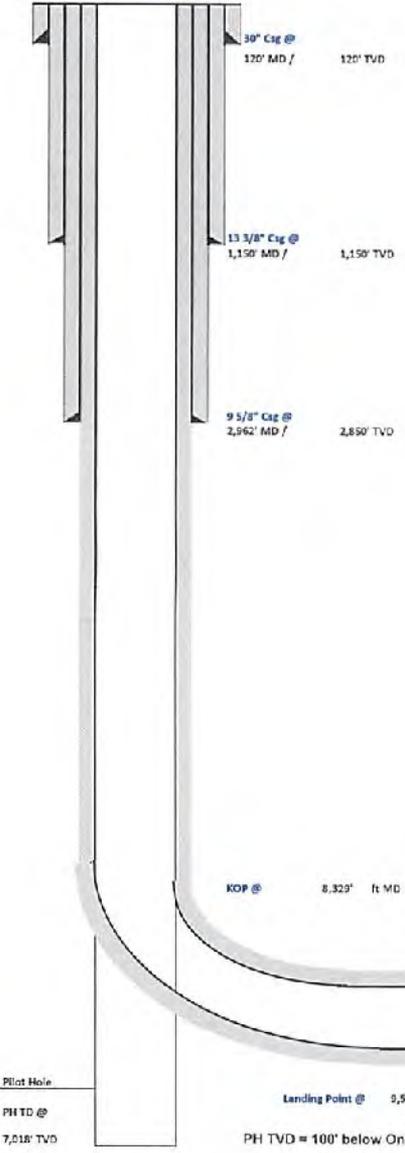


WELL NAME: Fitzgerald S-2HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Liberty
DI Elev: 1,293' **GI Elev:** 1,293'
TD: 18,906'
TH Longitude: 39.80120963
TH Latitude: -80.64125156
BH Longitude: 39.776586
BH Latitude: -80.642069

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1029
Sewickley Coal	925
Pittsburgh Coal	1023
Big Lime	2075
Wair	2492
Berea	2708
Gordon	2962
Rhinestreet	6166
Genesee/Barkett	6724
Tully	6753
Hamilton	6779
Marcellus	6868
Landing Depth	6913
Onondaga	6918
Pilot Hole Depth	7018

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'	BW	BW	Surface
Surface	27.5	13 3/8	1,150'	1,150'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,962'	2,850'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	18,906'	7,076'	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	965	A	15	Air	1 Centralizer every other jt
Production	4,450	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to stc



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B.S. 5-27-21

4705102392

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#1386428)

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
Company Official (Typed Name) Jim Pancake
Company Official Title Vice President - Geosciences

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Subscribed and sworn before me this 25th day of May, 2021

Susanne Deliere

Notary Public

Commonwealth of Pennsylvania - Notary Seal
Susanne Deliere, Notary Public
Washington County
My commission expires 08/27/2021 July 15, 2025
Commission number 1382332
Member, Pennsylvania Association of Notaries

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 Shihp

Comments: _____

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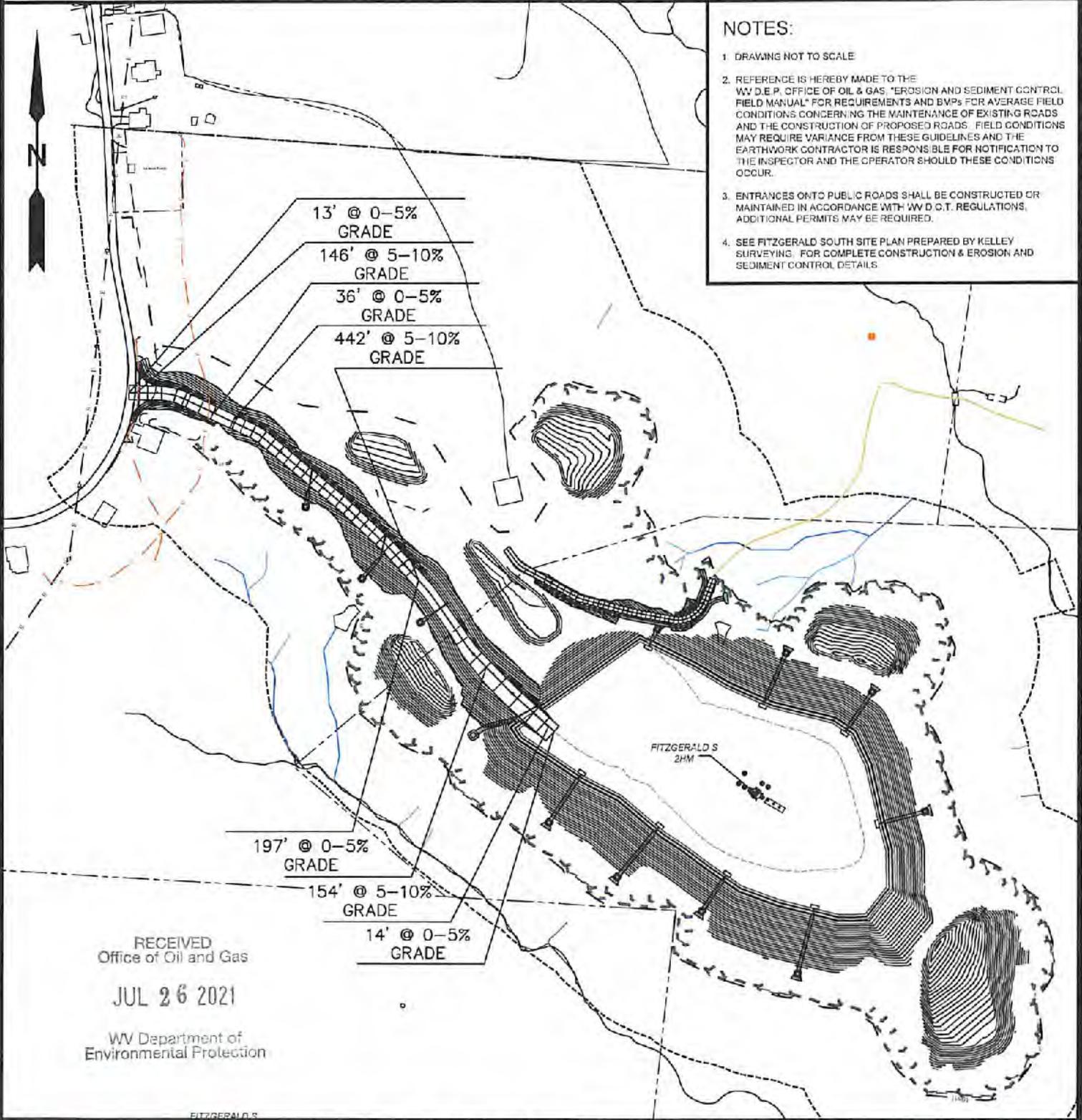
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Title: Oil and Gas Inspector Date: 5-27-21

Field Reviewed? Yes No

PROPOSED FITZGERALD S - 2HM



- NOTES:**
1. DRAWING NOT TO SCALE
 2. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
 3. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
 4. SEE FITZGERALD SOUTH SITE PLAN PREPARED BY KELLEY SURVEYING FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.

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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 | 304.255.5295
sllwv.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	05/18/21	NONE

**TUG HILL
OPERATING**

08/27/2021



Well: Fitzgerald 02 HM (slot Q)
 Site: Fitzgerald
 Project: Marshall County, West Virginia
 Design: rev5
 Rig:



Azimuths to Grid North
 True North: -0.23°
 Magnetic North: -8.94°

Magnetic Field
 Strength: 51759.0nT
 Dip Angle: 66.55°
 Date: 5/6/2021
 Model: IGRF2020

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1990
 Zone: Zone 17N (84 W to 78 W)

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

Northing: 14454549.04 Easting: 1741175.35 Latitude: 39.60120963 Longitude: -80.64125156

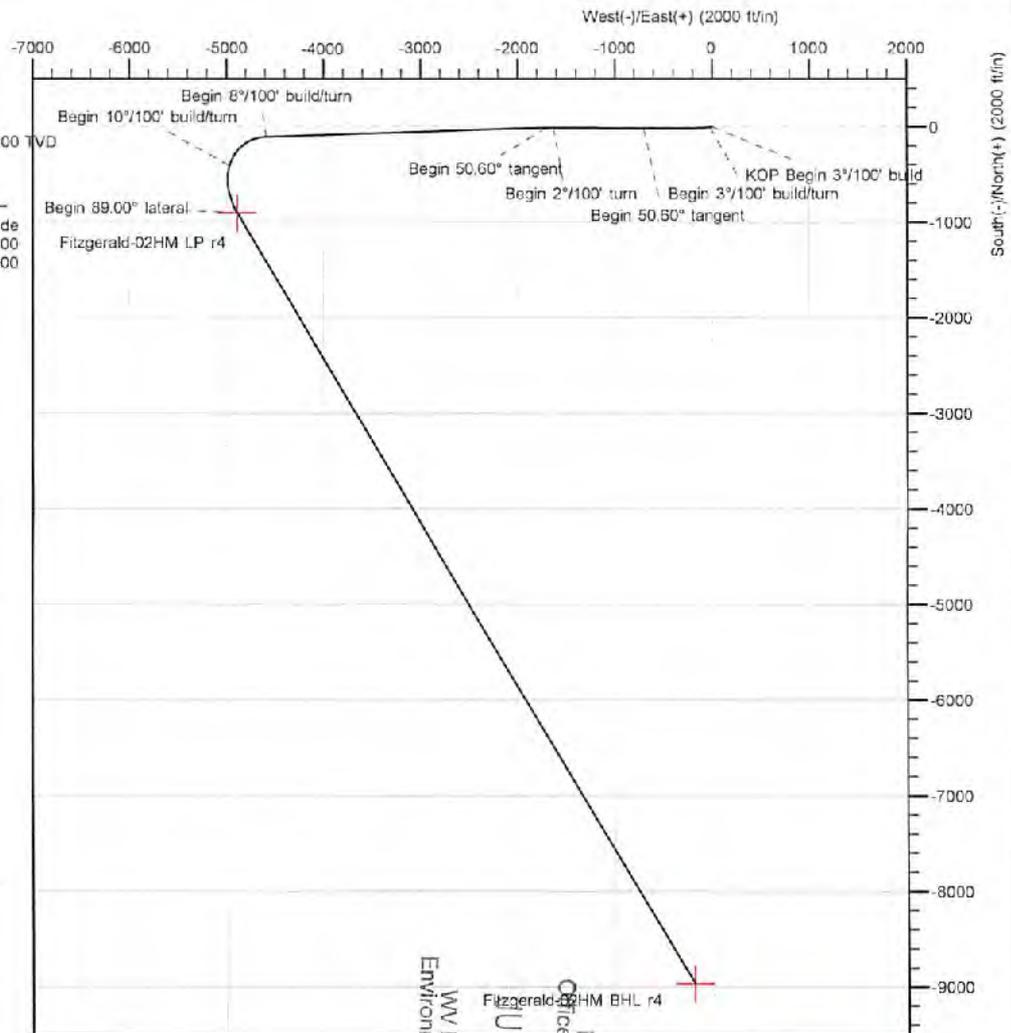
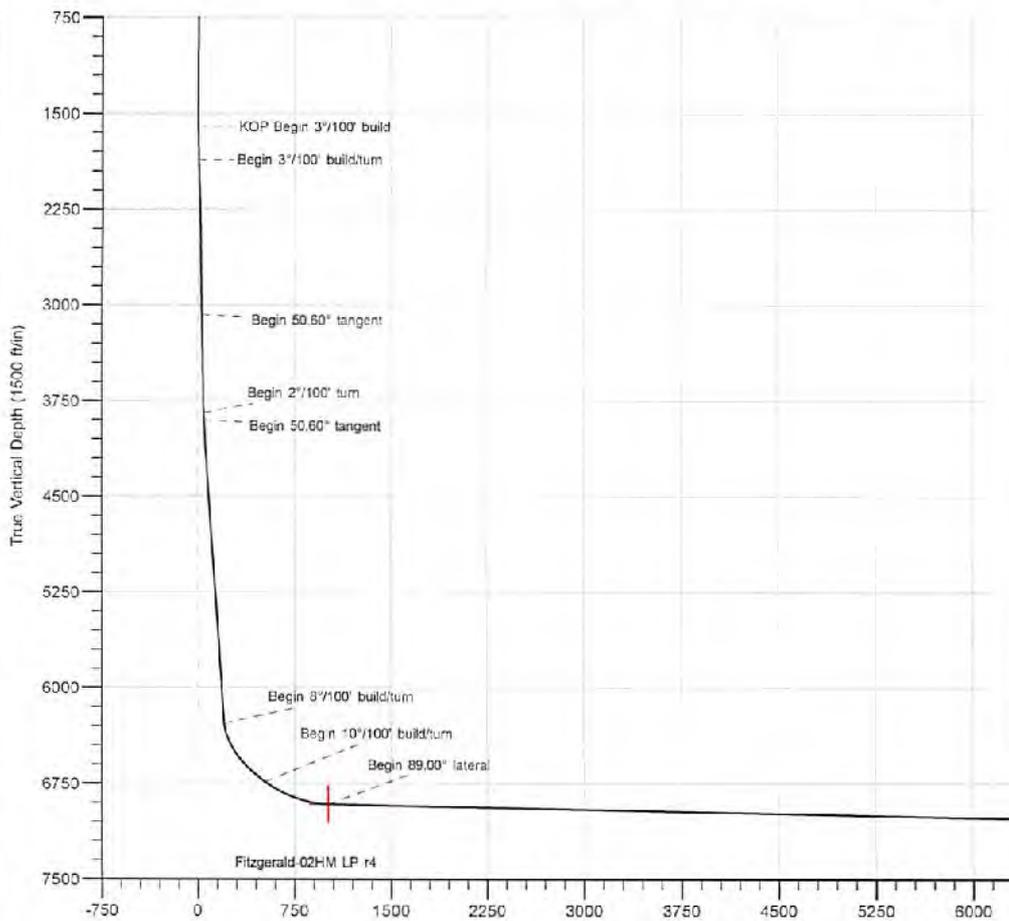
Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.94°

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	1500.00	0.00	0.00	1600.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 3°/100' build
3	1956.67	0.00	260.00	1655.80	-3.23	-18.30	3.00	260.000	3.62	Begin 3°/100' build/turn
4	3291.74	50.60	270.50	3080.56	-16.25	-698.39	3.00	11.973	31.31	Begin 50.60° tangent
5	4498.01	50.60	270.50	3846.22	-8.12	-1630.48	0.00	0.000	43.29	Begin 2°/100' turn
6	4591.40	50.60	256.08	3905.50	-9.01	-1702.63	2.00	-90.897	45.74	Begin 50.60° tangent
7	8328.74	50.60	256.08	6277.92	-105.62	-4568.81	0.00	0.000	204.59	Begin 8°/100' build/turn
8	9027.40	55.00	136.18	6737.04	-414.35	-4568.97	6.00	-109.866	521.44	Begin 10°/100' build/turn
9	9576.45	89.00	149.79	6912.97	-905.72	-4887.16	10.00	-52.229	1010.93	Begin 89.00° lateral
10	18906.02	89.00	149.79	7076.00	-8957.10	-193.74	0.00	0.000	8969.19	PDH/LTD 18906.02 MD 7076.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Fitzgerald-02HM LP r4	6913.00	-905.65	-4887.13	14453643.39	1736288.24	39.79877500	-80.65856400
Fitzgerald-02HM BHL r4	7076.00	-8957.10	-193.74	14445581.95	1740981.62	39.77658600	-80.64206900



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Planning Report - Geographic

4705102392

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Fitzgerald 02 HM (slot Q)
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 02 HM (slot Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

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

Site	Fitzgerald				
Site Position:		Northing:	14,454.567.73 usft	Latitude:	39.80128184
From:	Lat/Long	Easting:	1,741,096.26 usft	Longitude:	-80.64153292
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Fitzgerald 02 HM (slot Q)					
Well Position	+N/-S	0.00 ft	Northing:	14,454,549.04 usft	Latitude:	39.80120953
	+E/-W	0.00 ft	Easting:	1,741,175.36 usft	Longitude:	-80.64125156
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,292.91 ft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	5/6/2021	-8.706	66.551	51,758.97938677

Design	rev5			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	181.24

Plan Survey Tool Program		Date		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,905.65 rev5 (Original Hole)		

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Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1292.91ft
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Site:	Fitzgerald	North Reference:	Grid
Well:	Fitzgerald 02 HM (slot Q)	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	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,866.67	8.00	260.00	1,865.80	-3.23	-18.30	3.00	3.00	0.00	260.000	
3,291.74	50.60	270.50	3,080.58	-16.25	-698.39	3.00	2.99	0.74	11.973	
4,498.01	50.60	270.50	3,846.22	-8.12	-1,630.48	0.00	0.00	0.00	0.000	
4,591.40	50.60	268.08	3,905.50	-9.01	-1,702.63	2.00	0.00	-2.59	-90.897	
8,328.74	50.60	268.08	6,277.92	-105.62	-4,588.81	0.00	0.00	0.00	0.000	
9,027.40	55.00	196.18	6,737.04	-414.35	-4,968.97	8.00	0.63	-10.29	-109.886	
9,576.45	89.00	149.79	6,912.97	-905.72	-4,887.18	10.00	6.19	-3.45	-62.229	
18,906.02	89.00	149.79	7,076.00	-8,967.10	-193.74	0.00	0.00	0.00	0.000	Fitzgerald-02HM BHL

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JUL 26 2021

WV Department of
Environmental Protection



Planning Report - Geographic

Database: DB_Dec2220_v16
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Fitzgerald
 Well: Fitzgerald 02 HM (slot Q)
 Wellbore: Original Hole
 Design: rev5

Local Co-ordinate Reference: Well Fitzgerald 02 HM (slot Q)
 TVD Reference: GL @ 1292.91ft
 MD Reference: GL @ 1292.91ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

WV Department of Environmental Protection

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	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
100.00	0.00	0.00	100.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
200.00	0.00	0.00	200.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
300.00	0.00	0.00	300.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
400.00	0.00	0.00	400.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
500.00	0.00	0.00	500.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
600.00	0.00	0.00	600.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
700.00	0.00	0.00	700.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
800.00	0.00	0.00	800.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
900.00	0.00	0.00	900.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,454,549.04	1,741,175.36	39.80120963	-80.64125156
KOP Begin 3°/100' build									
1,700.00	3.00	260.00	1,699.95	-0.45	-2.58	14,454,548.59	1,741,172.78	39.80120841	-80.64126074
1,800.00	6.00	260.00	1,799.63	-1.82	-10.30	14,454,547.22	1,741,165.05	39.80120476	-80.64128827
1,866.67	8.00	260.00	1,865.80	-3.23	-18.30	14,454,545.81	1,741,157.05	39.80120097	-80.64131676
Begin 3°/100' build/turn									
1,900.00	8.98	261.33	1,898.77	-4.02	-23.18	14,454,545.02	1,741,152.20	39.80119884	-80.64133408
2,000.00	11.94	264.01	1,997.10	-6.28	-41.17	14,454,542.76	1,741,134.19	39.80119284	-80.64139823
2,100.00	14.92	265.64	2,094.35	-8.34	-64.30	14,454,540.70	1,741,111.06	39.80118744	-80.64148061
2,200.00	17.90	266.73	2,190.27	-10.20	-92.48	14,454,538.84	1,741,082.87	39.80118265	-80.64158099
2,300.00	20.89	267.52	2,284.58	-11.84	-125.65	14,454,537.20	1,741,049.71	39.80117849	-80.64169909
2,400.00	23.88	268.12	2,377.03	-13.28	-163.70	14,454,535.76	1,741,011.65	39.80117496	-80.64183460
2,500.00	26.88	268.59	2,467.37	-14.50	-206.54	14,454,534.54	1,740,968.82	39.80117208	-80.64198713
2,600.00	29.87	268.98	2,555.35	-15.50	-254.04	14,454,533.54	1,740,921.31	39.80116936	-80.64215628
2,700.00	32.87	269.30	2,640.73	-16.28	-306.09	14,454,532.76	1,740,869.27	39.80116829	-80.64234158
2,800.00	35.86	269.57	2,723.26	-16.83	-362.52	14,454,532.21	1,740,812.84	39.80116739	-80.64254251
2,900.00	38.86	269.81	2,802.74	-17.16	-423.19	14,454,531.88	1,740,752.17	39.80116716	-80.64275854
3,000.00	41.85	270.01	2,878.93	-17.26	-487.94	14,454,531.78	1,740,687.42	39.80116759	-80.64298907
3,100.00	44.85	270.20	2,951.64	-17.13	-556.58	14,454,531.91	1,740,618.78	39.80116870	-80.64323346
3,200.00	47.85	270.36	3,020.65	-16.78	-628.93	14,454,532.26	1,740,546.43	39.80117046	-80.64349104
3,291.74	50.80	270.50	3,080.56	-16.25	-698.39	14,454,532.79	1,740,476.96	39.80117266	-80.64373835
Begin 50.60° tangent									
3,300.00	50.60	270.50	3,085.81	-16.20	-704.78	14,454,532.84	1,740,470.58	39.80117288	-80.64376108
3,400.00	50.60	270.50	3,149.28	-15.52	-782.05	14,454,533.52	1,740,393.31	39.80117558	-80.64403618
3,500.00	50.60	270.50	3,212.75	-14.85	-859.32	14,454,534.19	1,740,316.04	39.80117827	-80.64431128
3,600.00	50.60	270.50	3,276.23	-14.17	-936.59	14,454,534.87	1,740,238.77	39.80118097	-80.64458639
3,700.00	50.60	270.50	3,339.70	-13.50	-1,013.86	14,454,535.54	1,740,161.50	39.80118366	-80.64486149
3,800.00	50.60	270.50	3,403.17	-12.83	-1,091.13	14,454,536.21	1,740,084.23	39.80118636	-80.64513660
3,900.00	50.60	270.50	3,466.64	-12.15	-1,168.40	14,454,536.89	1,740,006.96	39.80118905	-80.64541170
4,000.00	50.60	270.50	3,530.12	-11.48	-1,245.67	14,454,537.56	1,739,929.69	39.80119174	-80.64568680
4,100.00	50.60	270.50	3,593.59	-10.80	-1,322.94	14,454,538.24	1,739,852.42	39.80119443	-80.64596191
4,200.00	50.60	270.50	3,657.06	-10.13	-1,400.21	14,454,538.91	1,739,775.15	39.80119712	-80.64623701
4,300.00	50.60	270.50	3,720.54	-9.45	-1,477.48	14,454,539.59	1,739,697.88	39.80119981	-80.64651212
4,400.00	50.60	270.50	3,784.01	-8.78	-1,554.75	14,454,540.26	1,739,620.61	39.80120250	-80.64678722
4,498.01	50.60	270.50	3,846.22	-8.12	-1,630.48	14,454,540.92	1,739,544.88	39.80120514	-80.64705685
Begin 2°/100' turn									
4,500.00	50.60	270.45	3,847.48	-8.11	-1,632.02	14,454,540.93	1,739,543.34	39.80120519	-80.64706233



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 Design: rev5

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

Well Fitzgerald 02 HM (slot Q)
 GL @ 1292.91ft
 GL @ 1292.91ft
 Grid
 Minimum Curvature

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Planned Survey

WV Department of Environmental Protection

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,591.40	50.60	268.08	3,905.51	-9.01	-1,702.63	14,454,540.03	1,739,472.73	39.80120347	-80.64731374
Begin 50.60° tangent									
4,800.00	50.60	268.08	3,910.96	-9.23	-1,709.27	14,454,539.81	1,739,466.09	39.80120293	-80.64733739
4,700.00	50.60	268.08	3,974.44	-11.82	-1,786.50	14,454,537.22	1,739,368.86	39.80119667	-80.64761238
4,800.00	50.60	268.08	4,037.92	-14.40	-1,863.72	14,454,534.64	1,739,311.64	39.80119040	-80.64788737
4,900.00	50.60	268.08	4,101.40	-16.99	-1,940.95	14,454,532.05	1,739,234.41	39.80118414	-80.64816236
5,000.00	50.60	268.08	4,164.88	-19.57	-2,018.18	14,454,529.47	1,739,157.19	39.80117787	-80.64843735
5,100.00	50.60	268.08	4,228.36	-22.16	-2,095.40	14,454,528.88	1,739,079.96	39.80117160	-80.64871234
5,200.00	50.60	268.08	4,291.84	-24.74	-2,172.63	14,454,524.30	1,739,002.74	39.80116534	-80.64898733
5,300.00	50.60	268.08	4,355.32	-27.33	-2,249.85	14,454,521.71	1,738,925.51	39.80115907	-80.64926232
5,400.00	50.60	268.08	4,418.79	-29.91	-2,327.08	14,454,519.13	1,738,848.29	39.80115280	-80.64953730
5,500.00	50.60	268.08	4,482.27	-32.50	-2,404.30	14,454,516.54	1,738,771.08	39.80114653	-80.64981229
5,600.00	50.60	268.08	4,545.75	-35.08	-2,481.53	14,454,513.96	1,738,693.83	39.80114026	-80.65008728
5,700.00	50.60	268.08	4,609.23	-37.67	-2,558.75	14,454,511.37	1,738,616.61	39.80113399	-80.65036227
5,800.00	50.60	268.08	4,672.71	-40.25	-2,635.98	14,454,508.79	1,738,539.39	39.80112772	-80.65063726
5,900.00	50.60	268.08	4,736.19	-42.84	-2,713.20	14,454,506.20	1,738,462.16	39.80112145	-80.65091225
6,000.00	50.60	268.08	4,799.67	-45.42	-2,790.43	14,454,503.62	1,738,384.93	39.80111518	-80.65118724
6,100.00	50.60	268.08	4,863.15	-48.01	-2,867.66	14,454,501.03	1,738,307.71	39.80110890	-80.65146223
6,200.00	50.60	268.08	4,926.62	-50.59	-2,944.88	14,454,498.45	1,738,230.48	39.80110263	-80.65173722
6,300.00	50.60	268.08	4,990.10	-53.18	-3,022.11	14,454,495.86	1,738,153.26	39.80109635	-80.65201221
6,400.00	50.60	268.08	5,053.58	-55.76	-3,099.33	14,454,493.28	1,738,076.03	39.80109008	-80.65228720
6,500.00	50.60	268.08	5,117.06	-58.35	-3,176.56	14,454,490.69	1,737,998.81	39.80108380	-80.65256218
6,600.00	50.60	268.08	5,180.54	-60.93	-3,253.78	14,454,488.11	1,737,921.58	39.80107753	-80.65283717
6,700.00	50.60	268.08	5,244.02	-63.52	-3,331.01	14,454,485.52	1,737,844.36	39.80107125	-80.65311216
6,800.00	50.60	268.08	5,307.50	-66.10	-3,408.23	14,454,482.94	1,737,767.13	39.80106497	-80.65338715
6,900.00	50.60	268.08	5,370.98	-68.69	-3,485.46	14,454,480.35	1,737,689.91	39.80105870	-80.65366214
7,000.00	50.60	268.08	5,434.46	-71.27	-3,562.68	14,454,477.77	1,737,612.68	39.80105242	-80.65393713
7,100.00	50.60	268.08	5,497.93	-73.86	-3,639.91	14,454,475.18	1,737,535.46	39.80104614	-80.65421212
7,200.00	50.60	268.08	5,561.41	-76.45	-3,717.13	14,454,472.60	1,737,458.23	39.80103986	-80.65448711
7,300.00	50.60	268.08	5,624.89	-79.03	-3,794.36	14,454,470.01	1,737,381.01	39.80103358	-80.65476209
7,400.00	50.60	268.08	5,688.37	-81.62	-3,871.59	14,454,467.43	1,737,303.78	39.80102729	-80.65503708
7,500.00	50.60	268.08	5,751.85	-84.20	-3,948.81	14,454,464.84	1,737,226.55	39.80102101	-80.65531207
7,600.00	50.60	268.08	5,815.33	-86.79	-4,026.04	14,454,462.25	1,737,149.33	39.80101473	-80.65558706
7,700.00	50.60	268.08	5,878.81	-89.37	-4,103.26	14,454,459.67	1,737,072.10	39.80100845	-80.65586205
7,800.00	50.60	268.08	5,942.29	-91.96	-4,180.49	14,454,457.08	1,736,994.88	39.80100216	-80.65613704
7,900.00	50.60	268.08	6,005.76	-94.54	-4,257.71	14,454,454.50	1,736,917.65	39.80099588	-80.65641202
8,000.00	50.60	268.08	6,069.24	-97.13	-4,334.94	14,454,451.91	1,736,840.43	39.80098959	-80.65668701
8,100.00	50.60	268.08	6,132.72	-99.71	-4,412.16	14,454,449.33	1,736,763.20	39.80098330	-80.65696200
8,200.00	50.60	268.08	6,196.20	-102.30	-4,489.39	14,454,446.74	1,736,685.98	39.80097702	-80.65723699
8,300.00	50.60	268.08	6,259.68	-104.88	-4,566.61	14,454,444.16	1,736,608.75	39.80097073	-80.65751198
8,328.74	50.60	268.08	6,277.92	-105.62	-4,588.81	14,454,443.42	1,736,586.56	39.80096892	-80.65759101
Begin 8°/100' build/turn									
8,400.00	48.87	260.96	6,324.01	-110.77	-4,642.87	14,454,438.27	1,736,532.49	39.80095537	-80.65778357
8,500.00	47.24	250.42	6,390.96	-129.01	-4,714.77	14,454,420.03	1,736,460.60	39.80090601	-80.65803979
8,600.00	46.61	239.50	6,459.37	-159.81	-4,780.77	14,454,389.23	1,736,394.60	39.80082214	-80.65827519
8,700.00	47.03	228.53	6,527.91	-202.55	-4,839.58	14,454,346.49	1,736,335.79	39.80070538	-80.65848517
8,800.00	48.47	217.89	6,595.25	-256.40	-4,890.07	14,454,292.64	1,736,285.30	39.80055801	-80.65866588
8,900.00	50.84	207.86	6,660.08	-320.32	-4,931.24	14,454,228.72	1,736,244.12	39.80038291	-80.65881313
9,000.00	54.01	198.59	6,721.13	-393.06	-4,962.31	14,454,155.98	1,736,213.06	39.80018346	-80.65892471
9,027.40	55.00	196.18	6,737.04	-414.35	-4,968.97	14,454,134.69	1,736,206.40	39.80012507	-80.65894872
Begin 10°/100' build/turn									
9,100.00	58.62	188.66	6,776.82	-473.62	-4,981.94	14,454,075.42	1,736,193.43	39.79996243	-80.65899570
9,200.00	64.25	179.24	6,824.70	-561.07	-4,987.78	14,453,987.97	1,736,187.59	39.79972233	-80.65901767
9,300.00	70.42	170.71	6,863.28	-652.63	-4,979.55	14,453,898.21	1,736,195.82	39.79947027	-80.65898982



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9,400.00	76.97	162.83	6,891.37	-746.10	-4,957.50	14,453,802.94	1,736,217.68	39.79921390	-80.65891239
9,500.00	83.75	155.36	6,908.13	-838.05	-4,922.31	14,453,710.98	1,736,253.06	39.79898101	-80.65876834
9,576.45	88.00	149.79	6,912.97	-905.72	-4,887.18	14,453,643.33	1,736,288.18	39.79677461	-80.65866420
Begin 89.00° lateral									
9,600.00	89.00	149.79	6,913.39	-926.07	-4,875.34	14,453,622.98	1,736,300.03	39.79871881	-80.65862230
9,700.00	89.00	149.79	6,915.13	-1,012.47	-4,825.03	14,453,536.57	1,736,350.34	39.79848099	-80.65844437
9,800.00	89.00	149.79	6,916.88	-1,098.88	-4,774.72	14,453,450.15	1,736,400.65	39.79824316	-80.65826643
9,900.00	89.00	149.79	6,918.63	-1,185.29	-4,724.41	14,453,363.76	1,736,450.95	39.79800534	-80.65808850
10,000.00	89.00	149.79	6,920.37	-1,271.69	-4,674.11	14,453,277.35	1,736,501.26	39.79776752	-80.65791057
10,100.00	89.00	149.79	6,922.12	-1,358.10	-4,623.80	14,453,190.94	1,736,551.57	39.79752970	-80.65773264
10,200.00	89.00	149.79	6,923.87	-1,444.51	-4,573.49	14,453,104.54	1,736,601.87	39.79729188	-80.65755472
10,300.00	89.00	149.79	6,925.62	-1,530.91	-4,523.19	14,453,018.13	1,736,652.18	39.79705406	-80.65737679
10,400.00	89.00	149.79	6,927.36	-1,617.32	-4,472.88	14,452,931.72	1,736,702.49	39.79681623	-80.65719886
10,500.00	89.00	149.79	6,929.11	-1,703.73	-4,422.57	14,452,845.32	1,736,752.79	39.79657841	-80.65702094
10,600.00	89.00	149.79	6,930.86	-1,790.13	-4,372.26	14,452,758.91	1,736,803.10	39.79634059	-80.65684302
10,700.00	89.00	149.79	6,932.61	-1,876.54	-4,321.96	14,452,672.50	1,736,853.41	39.79610277	-80.65666510
10,800.00	89.00	149.79	6,934.35	-1,962.95	-4,271.65	14,452,586.10	1,736,903.72	39.79586494	-80.65648718
10,900.00	89.00	149.79	6,936.10	-2,049.35	-4,221.34	14,452,499.69	1,736,954.02	39.79562712	-80.65630926
11,000.00	89.00	149.79	6,937.85	-2,135.76	-4,171.04	14,452,413.28	1,737,004.33	39.79538929	-80.65613134
11,100.00	89.00	149.79	6,939.60	-2,222.17	-4,120.73	14,452,326.88	1,737,054.64	39.79515147	-80.65595342
11,200.00	89.00	149.79	6,941.34	-2,308.57	-4,070.42	14,452,240.47	1,737,104.94	39.79491365	-80.65577551
11,300.00	89.00	149.79	6,943.09	-2,394.98	-4,020.11	14,452,154.06	1,737,155.25	39.79467582	-80.65559759
11,400.00	89.00	149.79	6,944.84	-2,481.39	-3,969.81	14,452,067.66	1,737,205.56	39.79443800	-80.65541968
11,500.00	89.00	149.79	6,946.59	-2,567.79	-3,919.50	14,451,981.25	1,737,255.87	39.79420017	-80.65524177
11,600.00	89.00	149.79	6,948.33	-2,654.20	-3,869.19	14,451,894.84	1,737,306.17	39.79396234	-80.65506386
11,700.00	89.00	149.79	6,950.08	-2,740.61	-3,818.89	14,451,808.44	1,737,356.48	39.79372452	-80.65488595
11,800.00	89.00	149.79	6,951.83	-2,827.01	-3,768.58	14,451,722.03	1,737,406.79	39.79348669	-80.65470804
11,900.00	89.00	149.79	6,953.58	-2,913.42	-3,718.27	14,451,635.62	1,737,457.09	39.79324887	-80.65453014
12,000.00	89.00	149.79	6,955.32	-2,999.83	-3,667.96	14,451,549.22	1,737,507.40	39.79301104	-80.65435223
12,100.00	89.00	149.79	6,957.07	-3,086.24	-3,617.66	14,451,462.81	1,737,557.71	39.79277321	-80.65417433
12,200.00	89.00	149.79	6,958.82	-3,172.64	-3,567.35	14,451,376.40	1,737,608.01	39.79253538	-80.65399642
12,300.00	89.00	149.79	6,960.57	-3,259.05	-3,517.04	14,451,290.00	1,737,658.32	39.79229756	-80.65381852
12,400.00	89.00	149.79	6,962.31	-3,345.46	-3,466.74	14,451,203.59	1,737,708.63	39.79205973	-80.65364062
12,500.00	89.00	149.79	6,964.06	-3,431.86	-3,416.43	14,451,117.18	1,737,758.94	39.79182190	-80.65346272
12,600.00	89.00	149.79	6,965.81	-3,518.27	-3,366.12	14,451,030.78	1,737,809.24	39.79158407	-80.65328482
12,700.00	89.00	149.79	6,967.56	-3,604.68	-3,315.81	14,450,944.37	1,737,859.55	39.79134624	-80.65310693
12,800.00	89.00	149.79	6,969.30	-3,691.08	-3,265.51	14,450,857.96	1,737,909.86	39.79110841	-80.65292903
12,900.00	89.00	149.79	6,971.05	-3,777.49	-3,215.20	14,450,771.55	1,737,960.16	39.79087059	-80.65275114
13,000.00	89.00	149.79	6,972.80	-3,863.90	-3,164.89	14,450,685.15	1,738,010.47	39.79063276	-80.65257324
13,100.00	89.00	149.79	6,974.54	-3,950.30	-3,114.59	14,450,598.74	1,738,060.78	39.79039493	-80.65239535
13,200.00	89.00	149.79	6,976.29	-4,036.71	-3,064.28	14,450,512.34	1,738,111.08	39.79015710	-80.65221746
13,300.00	89.00	149.79	6,978.04	-4,123.12	-3,013.97	14,450,425.93	1,738,161.39	39.78991927	-80.65203957
13,400.00	89.00	149.79	6,979.79	-4,209.52	-2,963.66	14,450,339.52	1,738,211.70	39.78968143	-80.65186168
13,500.00	89.00	149.79	6,981.53	-4,295.93	-2,913.36	14,450,253.12	1,738,262.01	39.78944360	-80.65168380
13,600.00	89.00	149.79	6,983.28	-4,382.34	-2,863.05	14,450,166.71	1,738,312.31	39.78920577	-80.65150591
13,700.00	89.00	149.79	6,985.03	-4,468.74	-2,812.74	14,450,080.30	1,738,362.62	39.78896794	-80.65132803
13,800.00	89.00	149.79	6,986.78	-4,555.15	-2,762.44	14,449,993.90	1,738,412.93	39.78873011	-80.65115014
13,900.00	89.00	149.79	6,988.52	-4,641.56	-2,712.13	14,449,907.49	1,738,463.23	39.78849228	-80.65097226
14,000.00	89.00	149.79	6,990.27	-4,727.96	-2,661.82	14,449,821.08	1,738,513.54	39.78825445	-80.65079438
14,100.00	89.00	149.79	6,992.02	-4,814.37	-2,611.51	14,449,734.68	1,738,563.85	39.78801661	-80.65061650
14,200.00	89.00	149.79	6,993.77	-4,900.78	-2,561.21	14,449,648.27	1,738,614.16	39.78777878	-80.65043862
14,300.00	89.00	149.79	6,995.51	-4,987.19	-2,510.90	14,449,561.86	1,738,664.46	39.78754095	-80.65026074
14,400.00	89.00	149.79	6,997.26	-5,073.59	-2,460.59	14,449,475.46	1,738,714.77	39.78730311	-80.65008287
14,500.00	89.00	149.79	6,999.01	-5,160.00	-2,410.29	14,449,389.05	1,738,765.08	39.78706528	-80.64990499



Planning Report - Geographic

Database: DB_Dec2220_v16
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Fitzgerald
 Well: Fitzgerald 02 HM (slot Q)
 Wellbore: Original Hole
 Design: rev5

Local Co-ordinate Reference: Well Fitzgerald 02 HM (slot Q)
 TVD Reference: GL @ 1292.91ft
 MD Reference: GL @ 1292.91ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,800.00	89.00	149.79	7,000.76	-5,246.41	-2,359.98	14,449,302.64	1,738,815.38	39.78682745	-80.64972712
14,700.00	89.00	149.79	7,002.50	-5,332.81	-2,309.67	14,449,216.24	1,738,865.69	39.78658961	-80.64954925
14,800.00	89.00	149.79	7,004.25	-5,419.22	-2,259.36	14,449,129.83	1,738,916.00	39.78635178	-80.64937138
14,900.00	89.00	149.79	7,006.00	-5,505.63	-2,209.06	14,449,043.43	1,738,966.30	39.78611394	-80.64919351
15,000.00	89.00	149.79	7,007.75	-5,592.03	-2,158.75	14,448,957.02	1,739,016.61	39.78587511	-80.64901564
15,100.00	89.00	149.79	7,009.49	-5,678.44	-2,108.44	14,448,870.61	1,739,066.92	39.78563827	-80.64883777
15,200.00	89.00	149.79	7,011.24	-5,764.85	-2,058.14	14,448,784.21	1,739,117.23	39.78540044	-80.64865990
15,300.00	89.00	149.79	7,012.99	-5,851.25	-2,007.83	14,448,697.80	1,739,167.53	39.78515260	-80.64848204
15,400.00	89.00	149.79	7,014.74	-5,937.66	-1,957.52	14,448,611.39	1,739,217.84	39.78492476	-80.64830417
15,500.00	89.00	149.79	7,016.48	-6,024.07	-1,907.21	14,448,524.99	1,739,268.15	39.78468693	-80.64812631
15,600.00	89.00	149.79	7,018.23	-6,110.47	-1,856.91	14,448,438.58	1,739,318.45	39.78444909	-80.64794845
15,700.00	89.00	149.79	7,019.98	-6,196.88	-1,806.60	14,448,352.17	1,739,368.76	39.78421125	-80.64777059
15,800.00	89.00	149.79	7,021.72	-6,283.29	-1,756.29	14,448,265.77	1,739,419.07	39.78397342	-80.64759273
15,900.00	89.00	149.79	7,023.47	-6,369.69	-1,705.99	14,448,179.36	1,739,469.38	39.78373558	-80.64741487
16,000.00	89.00	149.79	7,025.22	-6,456.10	-1,655.68	14,448,092.95	1,739,519.68	39.78349774	-80.64723702
16,100.00	89.00	149.79	7,026.97	-6,542.51	-1,605.37	14,448,006.55	1,739,569.99	39.78325990	-80.64705916
16,200.00	89.00	149.79	7,028.71	-6,628.91	-1,555.06	14,447,920.14	1,739,620.30	39.78302206	-80.64688131
16,300.00	89.00	149.79	7,030.46	-6,715.32	-1,504.76	14,447,833.73	1,739,670.60	39.78278422	-80.64670345
16,400.00	89.00	149.79	7,032.21	-6,801.73	-1,454.45	14,447,747.33	1,739,720.91	39.78254639	-80.64652560
16,500.00	89.00	149.79	7,033.96	-6,888.14	-1,404.14	14,447,660.92	1,739,771.22	39.78230855	-80.64634775
16,600.00	89.00	149.79	7,035.70	-6,974.54	-1,353.84	14,447,574.51	1,739,821.52	39.78207071	-80.64616990
16,700.00	89.00	149.79	7,037.45	-7,060.95	-1,303.53	14,447,488.11	1,739,871.83	39.78183287	-80.64599205
16,800.00	89.00	149.79	7,039.20	-7,147.36	-1,253.22	14,447,401.70	1,739,922.14	39.78159503	-80.64581421
16,900.00	89.00	149.79	7,040.95	-7,233.76	-1,202.91	14,447,315.29	1,739,972.45	39.78135719	-80.64563636
17,000.00	89.00	149.79	7,042.69	-7,320.17	-1,152.61	14,447,228.89	1,740,022.75	39.78111935	-80.64545852
17,100.00	89.00	149.79	7,044.44	-7,406.58	-1,102.30	14,447,142.48	1,740,073.06	39.78088151	-80.64528067
17,200.00	89.00	149.79	7,046.19	-7,492.98	-1,051.99	14,447,056.07	1,740,123.37	39.78064366	-80.64510283
17,300.00	89.00	149.79	7,047.94	-7,579.39	-1,001.69	14,446,969.67	1,740,173.67	39.78040582	-80.64492499
17,400.00	89.00	149.79	7,049.68	-7,665.80	-951.38	14,446,883.26	1,740,223.98	39.78016798	-80.64474715
17,500.00	89.00	149.79	7,051.43	-7,752.20	-901.07	14,446,796.85	1,740,274.29	39.77993014	-80.64456931
17,600.00	89.00	149.79	7,053.18	-7,838.61	-850.76	14,446,710.45	1,740,324.60	39.77969230	-80.64439148
17,700.00	89.00	149.79	7,054.93	-7,925.02	-800.46	14,446,624.04	1,740,374.90	39.77945445	-80.64421364
17,800.00	89.00	149.79	7,056.67	-8,011.42	-750.15	14,446,537.63	1,740,425.21	39.77921661	-80.64403581
17,900.00	89.00	149.79	7,058.42	-8,097.83	-699.84	14,446,451.23	1,740,475.52	39.77897877	-80.64385797
18,000.00	89.00	149.79	7,060.17	-8,184.24	-649.54	14,446,364.82	1,740,525.82	39.77874092	-80.64368014
18,100.00	89.00	149.79	7,061.92	-8,270.64	-599.23	14,446,278.41	1,740,576.13	39.77850308	-80.64350231
18,200.00	89.00	149.79	7,063.66	-8,357.05	-548.92	14,446,192.01	1,740,626.44	39.77826524	-80.64332446
18,300.00	89.00	149.79	7,065.41	-8,443.46	-498.61	14,446,105.60	1,740,676.74	39.77802739	-80.64314665
18,400.00	89.00	149.79	7,067.16	-8,529.86	-448.31	14,446,019.19	1,740,727.05	39.77778955	-80.64296882
18,500.00	89.00	149.79	7,068.91	-8,616.27	-398.00	14,445,932.79	1,740,777.36	39.77755170	-80.64279100
18,600.00	89.00	149.79	7,070.65	-8,702.68	-347.69	14,445,846.38	1,740,827.67	39.77731386	-80.64261317
18,700.00	89.00	149.79	7,072.40	-8,789.08	-297.39	14,445,759.97	1,740,877.97	39.77707601	-80.64243535
18,800.00	89.00	149.79	7,074.15	-8,875.49	-247.08	14,445,673.57	1,740,928.28	39.77683817	-80.64225753
18,900.00	89.00	149.79	7,075.89	-8,961.90	-196.77	14,445,587.16	1,740,978.59	39.77660032	-80.64207971
18,906.02	89.00	149.79	7,076.00	-8,967.10	-193.74	14,445,581.96	1,740,981.62	39.77658600	-80.64206900

PBHLTD 18906.02 MD 7076.00 TVD



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Fitzgerald 02 HM (slot Q)
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 02 HM (slot Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

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Design Targets								WV Department of Environmental Protection	
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Fitzgerald-02HM LP r4	0.00	0.00	8,913.00	-905.65	-4,887.13	14,453,643.39	1,738,288.24	39.79877500	-80.65866400
- plan misses target center by 0.09ft at 9576.42ft MD (6912.97 TVD, -905.69 N, -4887.20 E)									
- Point									
Fitzgerald-02HM BHL r4	0.00	0.00	7,076.00	-8,967.10	-193.74	14,445,581.96	1,740,981.62	39.77658600	-80.64206900
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(ft)	(ft)		(")	(")	
18,906.53	7,076.01	20" Casing	20	24	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
1,600.00	1,600.00	0.00	0.00	KOP Begin 3°/100' build	
1,866.67	1,865.80	-3.23	-18.30	Begin 3°/100' build/turn	
3,291.74	3,080.58	-16.25	-698.39	Begin 50.60° tangent	
4,498.01	3,846.22	-8.12	-1,630.48	Begin 2°/100' turn	
4,591.40	3,905.51	-9.01	-1,702.63	Begin 50.60° tangent	
8,328.74	6,277.92	-105.62	-4,588.81	Begin 8°/100' build/turn	
9,027.40	6,737.04	-414.35	-4,968.97	Begin 10°/100' build/turn	
9,576.45	6,912.97	-905.72	-4,887.18	Begin 89.00° lateral	
18,906.02	7,076.00	-8,967.10	-193.74	PBHL/TD 18906.02 MD 7076.00 TVD	



TUG HILL
OPERATING

B.S. 5-27-21

Well Site Safety Plan
Part A – Site Specific Data and Figures

Well Name: Fitzgerald S-2HM

Pad Name: Fitzgerald

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,405,755.36

Easting: 530,711.31

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**KEY CONTACT FOR WELL SITE SAFETY PLAN
DEVELOPMENT AND MAINTENANCE**

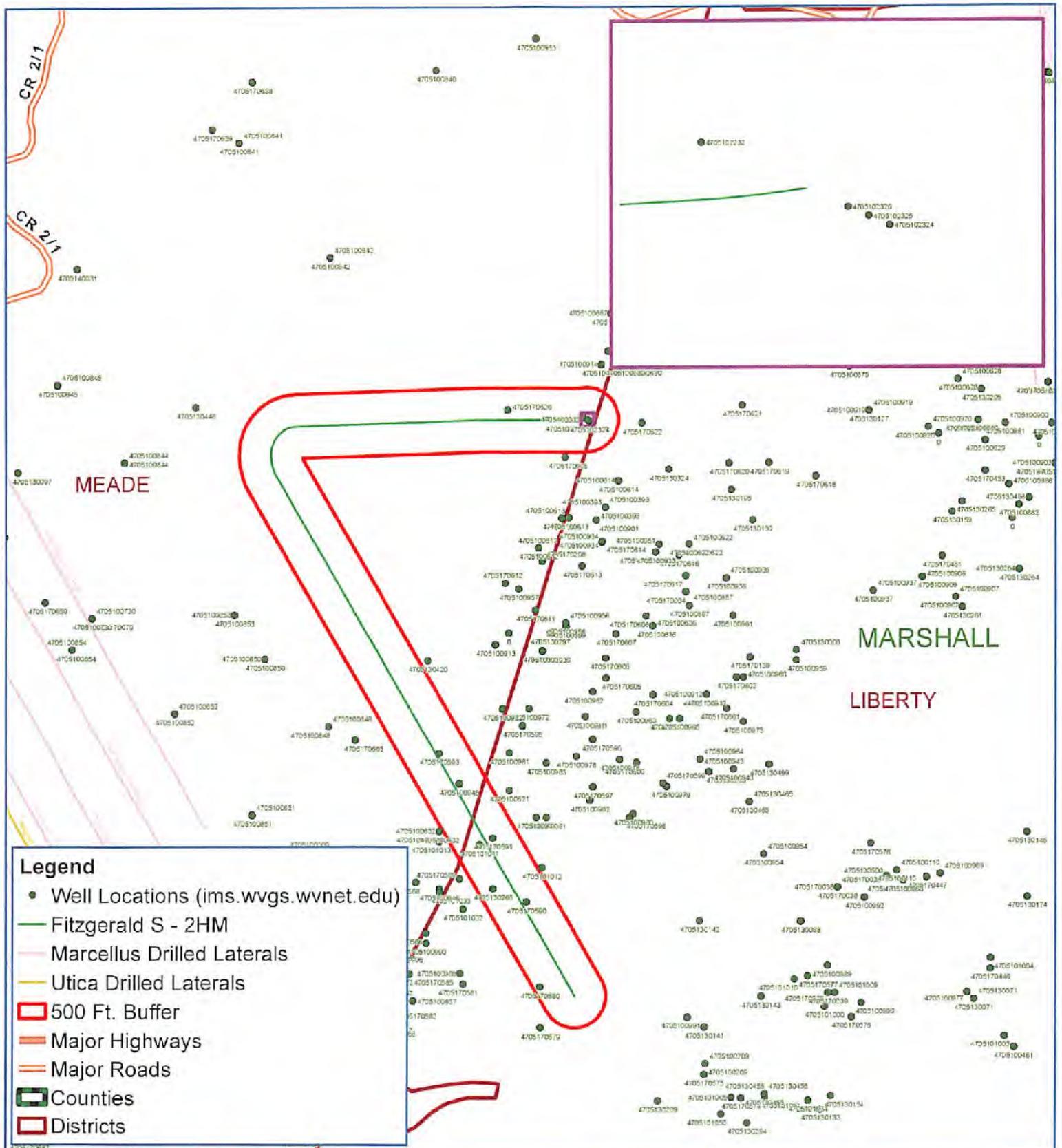
Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745



Map Created: May 14, 2021
Map Current As Of: May 14, 2021

Fitzgerald S - 2HM Meade District Marshall County, WV



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

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WV Department of Environmental Protection
Map Prepared by



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, DPS GIS (5/14/2021) 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

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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

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.

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
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.

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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
4705170626	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.
4705100945	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.	Reassigned from 4705170592. Well was plugged 10/12/2004.
4705170593	Hope Natural Gas Company	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.
4705101011	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 4/17/2006.
4705130266	Randall-Zogg Supply Co.	2998' 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 in 1947.

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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
4705170591	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.	Reassigned to 4705100946. Well was plugged 6/30/2005.
4705170590	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.
4705170580	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.

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WV Geological & Economic Survey:

Well: County = 51 Permit = 02232

Report Time: Monday, May 17, 2021 1:32:12 PM

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	-/-	Dvtd 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_BE	
4705102232	-/-	-/-	1317	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02324

Report Time: Monday, May 17, 2021 1:33:38 PM

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	-80.64366	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	-/-	Dvtd Orgnl Loc	Permitted	Danny and Frances Kerns Estate		S-17HU	Fitzgerald		Danny S Kerns et al	Tug Hill Operating, LLC	12064	PI 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_BE	
4705102324	-/-	-/-	1316	Ground Level																		

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WV Geological & Economic Survey

Well: County = 51 Permit = 02325

Report Time: Monday, May 17, 2021 1:34:08 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	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_PI
4705102325	--	Dvtd Orgnl Loc	Permitted	Danny and Frances Kems Estate		S-19HU	Fitzgerald		Danny S Kems 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_BE	
4705102325	--	--	1319	Ground Level																		

WV Geological & Economic Survey

Well: County = 51 Permit = 02326

Report Time: Monday, May 17, 2021 1:34:51 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	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	531067.9	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_PI
4705102326	--	Dvtd Orgnl Loc	Permitted	Danny and Frances Kems Estate		S-19HU	Fitzgerald		Danny S Kems 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_BE	
4705102326	--	--	1320	Ground Level																		

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WV Geological & Economic Survey:

Well: County = 51 Permit = 70626

Report Time: Monday, May 17, 2021 4:54:08 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170626	Marshall	70626	Liberty	Glen Easton	Cameron	39.801627	-80.645675	530332.5	4405800.1

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
4705170626	--	unknown	Prpty Map	W H Dobbs	2					----- 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
4705170626	--	--						unclassified	unclassified	not available	unknown	unknown								

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WV Geological & Economic Survey:

Well: County = 51 Permit = 00945

Report Time: Monday, May 17, 2021 4:54:50 PM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70592	51	945

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705100945	Marshall	945	Liberty	Glen Easton	Cameron	39.78565	-80.648496	530097.9	4404025.9

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
4705100945	10/12/2004	Plugging	Completed	Consol Coal Co		M-285			Consolidation Coal Co	Consolidation Coal Co.			
4705100945	-/-	unknown	Prpty Map	T T McIvain		2				----- 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
4705100945	10/12/2004	9/30/2004	1154	Ground Level				unclassified	unclassified	not available	unknown	unknown								
4705100945	-/-	-/-						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
4705100945	10/12/2004	0

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WV Geological & Economic Survey

Well: County = 51 Permit = 70593

Report Time: Monday, May 17, 2021 4:55:09 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705170593	Marshall	70593	Liberty	Glen Easton	Cameron	39.7388956	-80.649623	530000.8	4404170.5

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
4705170593	--	unknown	Prpty Map	M E Harris		345				Hope Natural Gas 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
4705170593	--	--						unclassified	unclassified	not available	unknown	unknown								

WV Geological & Economic Survey

Well: County = 51 Permit = 01011

Report Time: Monday, May 17, 2021 4:55:28 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101011	Marshall	1011	Liberty	Glen Easton	Cameron	39.733045	-80.647358	530196.5	4403737.3

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
4705101011	4/17/2006	Plugging	Completed	Consol Coal Co		M-293				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_AFT
4705101011	4/17/2006	3/28/2006	1259	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
4705101011	4/17/2006	0

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WV Geological & Economic Survey:

Well: County = 51 Permit = 30266

Report Time: Monday, May 17, 2021 4:55:50 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705130266	Marshall	30266	Meade	Glen Easton	Cameron	39.78116	-80.646606	530261.7	4403528.3

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
4705130266	6/10/1902	Original Loc	Completed	RR Blake	3		E A Crisswell		Grave Creek Fuel Co	Randall-Zogg Supply 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
4705130266	6/10/1902	-/-	1253	Ground Level	Cameron-Garner	Gordon	Gordon	Development Well	Development Well	Oil	Cable Tool	Shot	2998		2998		0	0	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
4705130266	6/10/1902	Pay	Oil	Vertical			2972	Gordon	0	0			
4705130266	6/10/1902	Pay	Oil	Vertical			2988	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
4705130266	Original Loc	unidentified coal	Well Record	673	Reasonable	5	Reasonable	1253	Ground Level
4705130266	Original Loc	Sewickley coal	Well Record	868	Reasonable	3	Reasonable	1253	Ground Level
4705130266	Original Loc	Pittsburgh coal	Well Record	970	Reasonable	7	Reasonable	1253	Ground Level
4705130266	Original Loc	Mahonig Ss/Big Dunk	Well Record	1465	Reasonable	35	Reasonable	1253	Ground Level
4705130266	Original Loc	Salt Sands (undiff)	Well Record	1740	Reasonable	195	Reasonable	1253	Ground Level
4705130266	Original Loc	Maxton	Well Record	2020	Reasonable	15	Reasonable	1253	Ground Level
4705130266	Original Loc	Big Lime	Well Record	2050	Reasonable	50	Reasonable	1253	Ground Level
4705130266	Original Loc	Big Injun (undiff)	Well Record	2100	Reasonable	260	Reasonable	1253	Ground Level
4705130266	Original Loc	Gordon	Well Record	2970	Reasonable	28	Reasonable	1253	Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705130266	-/-/1947	0

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WV Geological & Economic Survey:

Well: County = 51 Permit = 70591

Report Time: Monday, May 17, 2021 4:56:07 PM

Well Reassignment Information: Reassigned To

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70591	51	946

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170591	Marshall	70591	Liberty	Glen Easton	Cameron	39.783335	-80.646606	530260.7	4403769.7

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
4705170591	---		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_AFT	
4705170591	---	---																					

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WV Geological & Economic Survey

Well: County = 51 Permit = 00946

Report Time: Monday, May 17, 2021 5:01:18 PM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70591	51	946

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100946	Marshall	946	Liberty	Glen Easton	Cameron	39.781151	-80.649624	530003.3	4403526.2

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
4705100946	6/30/2005	Plugging	Completed	Consolidation Coal Co		M-294				Consolidation Coal Co.			
4705100946	--	unknown	Prpty Map	E Criswell	1					----- 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
4705100946	6/30/2005	6/9/2005	1246	Ground Level		undetermined unit	undetermined unit	unclassified	unclassified	not available	unknown	unknown							
4705100946	--	--						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

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100946	Plugging	Pittsburgh coal	Well Record	1004	Reasonable	5	Reasonable		unknown

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100946	6/30/2005	0

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WV Geological & Economic Survey

Well: County = 51 Permit = 70590

Report Time: Monday, May 17, 2021 4:56:30 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170590	Marshall	70590	Liberty	Glen Easton	Cameron	39.78057	-80.644735	530422.2	4403463.4

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
4705170590	-/-	unknown	Prpty Map	H E Gray	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
4705170590	-/-	-/-						unclassified	unclassified	not available	unknown	unknown								

WV Geological & Economic Survey

Well: County = 51 Permit = 70580

Report Time: Monday, May 17, 2021 4:56:45 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170580	Marshall	70580	Liberty	Glen Easton	Cameron	39.776942	-80.643983	530488.2	4403061.1

There is no Bottom Hole Location data for this well

Owner Information:

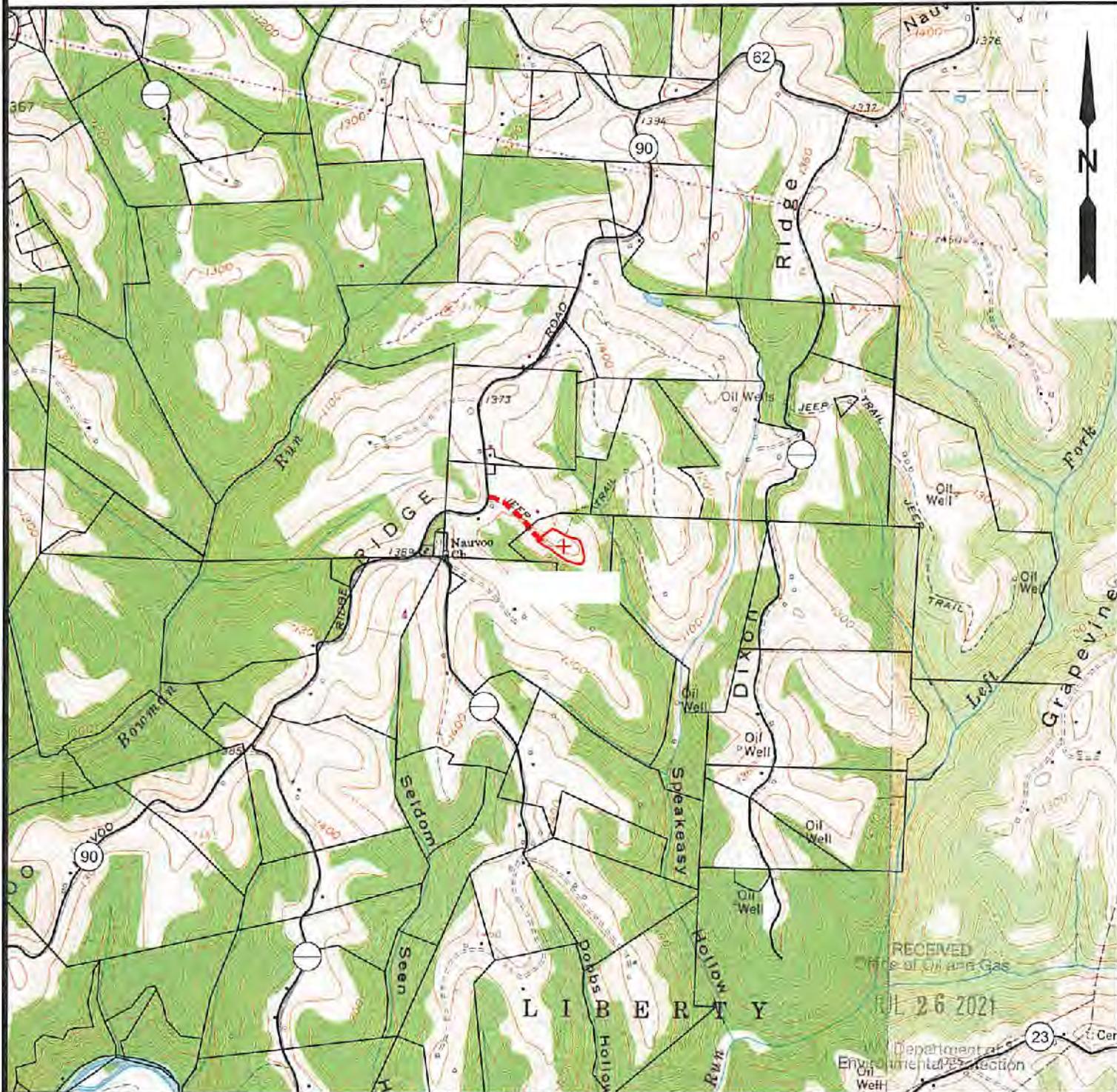
API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170580	-/-	unknown	Prpty Map	H E Gray						unknown			

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
4705170580	-/-	-/-						unclassified	unclassified	not available	unknown	unknown								

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Office of Oil and Gas
JUL 26 2021
WV Department of
Environmental Protection

PROPOSED FITZGERALD S - 2HM



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.

RECEIVED
Office of Oil and Gas
JUL 26 2021
Department of Environmental Protection
Oil Well



12 Vanhoen 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
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'



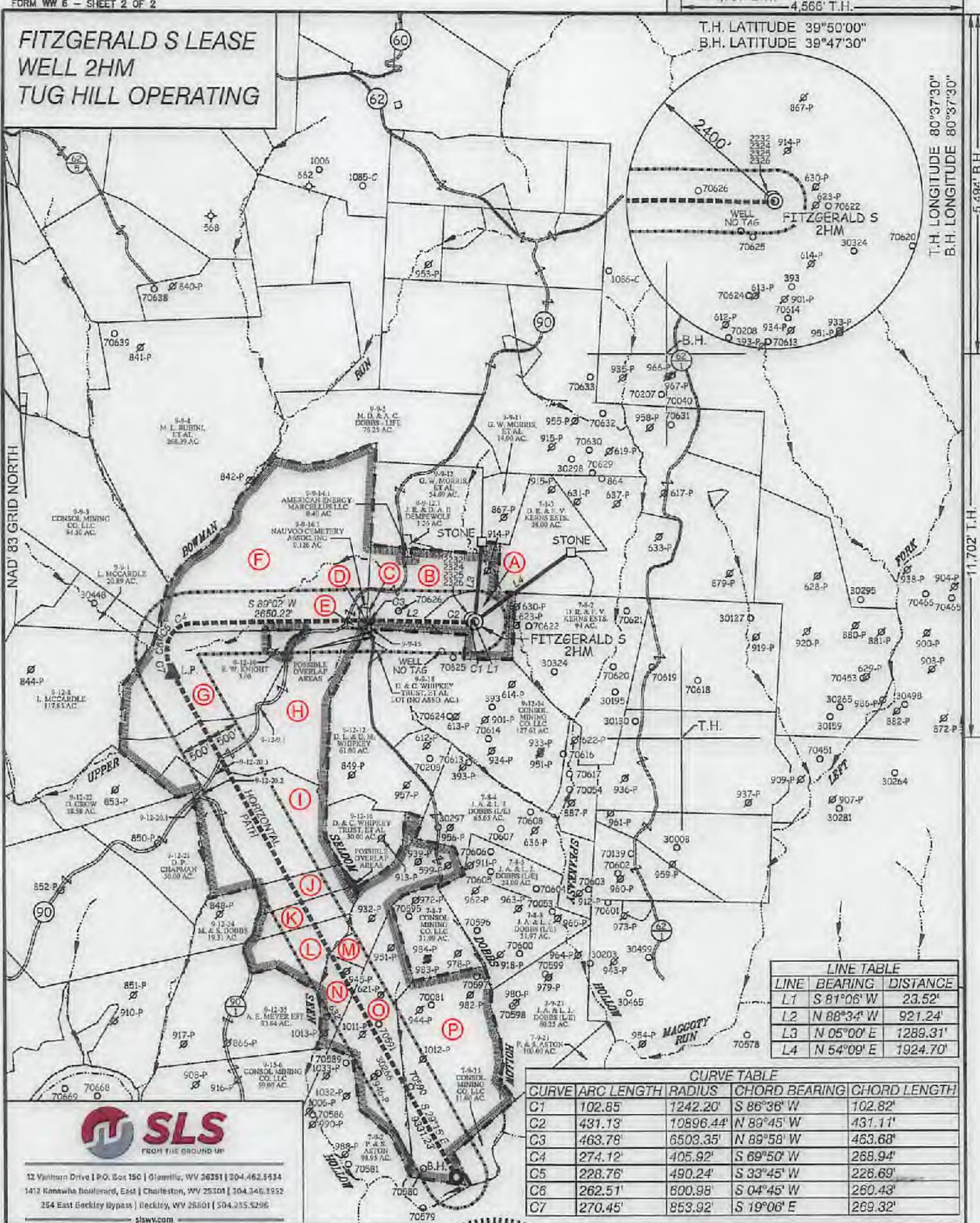
08/27/2021

**FITZGERALD S LEASE
WELL 2HM
TUG HILL OPERATING**

4,797' B.H. 4,568' T.H.
T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°47'30"

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

NAD 83 GRID NORTH



LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 81°06' W	23.52'
L2	N 88°34' W	921.24'
L3	N 05°00' E	1289.31'
L4	N 54°09' E	1924.70'

CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	102.85	1242.20'	S 86°38' W	102.82'
C2	431.13	10896.44'	N 89°45' W	431.11'
C3	463.78	6503.35'	N 89°58' W	463.68'
C4	274.12	405.92'	S 69°50' W	268.94'
C5	228.76	490.24'	S 33°45' W	228.69'
C6	262.51	600.98'	S 04°45' W	260.43'
C7	270.45	853.92'	S 19°06' E	269.32'



12 Vanhook Drive | P.O. Box 150 | Olwehills, WV 26251 | 304-462-5534
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304-346-1952
254 East Beckley Bypass | Beckley, WV 26801 | 304-255-5296
slswv.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'83 S.P.C.(FT) N. 475,978.00 E. 1,647,864.41
NAD'83 GEO. LAT-(N) 39.801210 LONG-(W) 80.641252
NAD'83 UTM (M) N. 4,405,755.56 E. 530,711.31
LANDING POINT
NAD'83 S.P.C.(FT) N. 475,153.8 E. 1,642,961.1
NAD'83 GEO. LAT-(N) 39.798775 LONG-(W) 80.658664
NAD'83 UTM (M) N. 4,405,479.3 E. 529,221.7
BOTTOM HOLE
NAD'83 S.P.C.(FT) N. 467,012.4 E. 1,647,520.7
NAD'83 GEO. LAT-(N) 39.776586 LONG-(W) 80.642069
NAD'83 UTM (M) N. 4,403,022.2 E. 530,652.3



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

P.S. 677 *Gregory A. Smith*

LEGEND	
LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	00-00
SURFACE OWNER (SEE TABLE)	
LEASE # (SEE WW-6A1)	

SCALE 1" = 2000' FILE NO. 8910P2HMR2.dwg
FITZGERALD S 2HM REV5
DATE FEBRUARY 18, 2020
REVISED MAY 19, 2021, JULY 15, 2021
OPERATORS WELL NO. FITZGERALD S 2HM
API WELL NO. 47-051-02392 HGA
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 DARREN BROWN CT CORPORATION ADDRESS 5098 WASHINGTON ST. W, STE 407 CHARLESTON, WV 25313-1561

COUNTY NAME PERMIT

08/27/2021

**FITZGERALD S LEASE
WELL 2HM
TUG HILL OPERATING**

4,797' B.H. 4,566' T.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. 475,878.00	E. 1,647,864.41
NAD'83 GEO.	LAT-(N) 39.801210	LONG-(W) 80.641252
NAD'83 UTM (M)	N. 4,405,755.36	E. 530,711.31

LANDING POINT

NAD'83 S.P.C.(FT)	N. 475,153.8	E. 1,642,961.1
NAD'83 GEO.	LAT-(N) 39.798775	LONG-(W) 80.658864
NAD'83 UTM (M)	N. 4,405,479.3	E. 529,221.7

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 467,012.4	E. 1,647,520.7
NAD'83 GEO.	LAT-(N) 39.776586	LONG-(W) 80.642069
NAD'83 UTM (M)	N. 4,403,022.2	E. 530,652.3

T.H. LONGITUDE 80°37'30"
B.H. LONGITUDE 80°37'30"
5,494' B.H.
11,702' T.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	NAUVOO CEMETERY ASSOCIATION, INC.	9-9-14.2	0.292
D	NAUVOO CEMETERY ASSOCIATION, INC.	9-9-17	1.00
E	GARY W. MORRIS	9-9-22	0.15
F	TODD L. SCHERICH, ET AL	9-9-16	168.204
G	CHARLES WILLIAM DOBBS, ET AL	9-12-9	82.18
H	MARK D. & SHERYL CHAMBERS	9-12-11	91.00
I	RONALD E. & MARY L. DOBBS - LIFE	9-12-20	90.963
J	RONALD EUGENE & MARY LEE DOBBS	9-12-19.1	14.924
K	RAYMOND D. DOBBS, ET AL	9-12-19	15.076
L	ROY ROGERS WOODS, SR.	9-12-18	30.00
M	DAVID & CAROL WHIPKEY TRUST, ET AL	9-12-17	37.27
N	CONSOL MINING CO., LLC	9-12-36	15.30
O	CONSOL MINING CO., LLC	7-9-1	59.00
P	CONSOL MINING CO., LLC	7-9-22	101.36

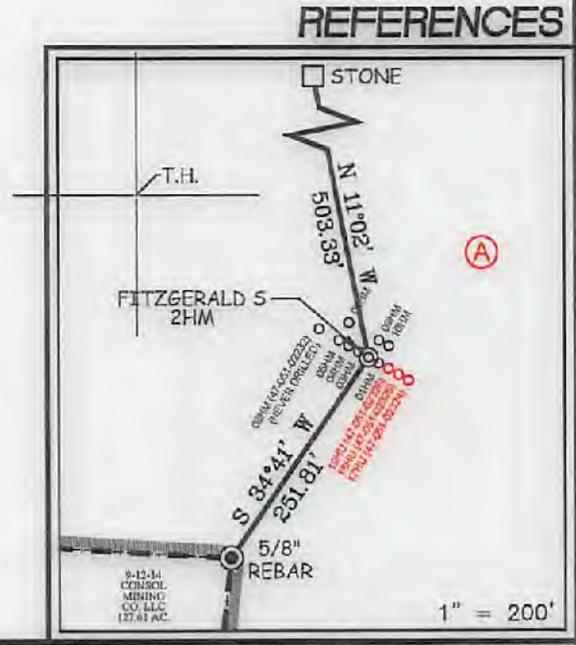
PARCEL	SURFACE ADJOINER	ACRES
9-9-15	TRUSTEES OF THE REORGANIZED CHURCH OF LATTER DAY SAINTS	LOT (NO AC.)
9-12-20.1	WV DEPT OF TRANSPORTATION DOH	0.004
9-12-20.2	WV DEPT OF TRANSPORTATION DOH	0.026
9-12-20.3	WV DEPT OF TRANSPORTATION DOH	0.007

NOTES ON SURVEY

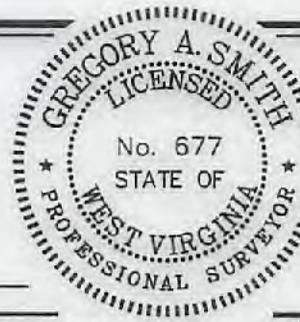
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS OR DWELLINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 525' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.546.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 204.255.5295
 slsww.com



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.



P.S. 677 *Gregory A. Smith*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE FEBRUARY 18, 2020
 REVISED MAY 19, 2021, JULY 15, 2021
 OPERATORS WELL NO. FITZGERALD S 2HM
 API WELL NO. 47 - 051 - 0239216A
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P2HMR2.dwg
FITZGERALD S 2HM 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: 7,018' / TMD: 18,906'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W. STE 407
FORT WORTH, TX 76107 CHARLESTON, WV 25313-1561

COUNTY NAME PERMIT

08/27/2021

WW-6A1
(5/13)

Operator's Well No. Fitzgerald S-2HM

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
----------------------	-----------------------	-----------------------	---------	-----------

*See attached pages

RECEIVED
Office of Oil and Gas

JUL 26 2021

WV Department of
Environmental Protection

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

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

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

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

| Lease ID | Parcel | Tag | Grantor, Lessor, Etc | Grantee, Lessee, Etc | Royalty | Deed Book/Page | Assignment | |
|----------|----------|-----|---------------------------------------------------------------|---------------------------------|---------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------------------------------------------------------|
| 10*25518 | 7-8-1 | A | DANNY S KERNS | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 1010 532 | N/A | American Petroleum Partners 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 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 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 |
| 10*28698 | 9-9-14 | B | DEENA JANINE PALOMO | TH EXPLORATION LLC | 1/8+ | 1075 140 | N/A |
| 10*28699 | 9-9-14 | B | REGINA D FIGUEROA | TH EXPLORATION LLC | 1/8+ | 1075 137 | N/A |
| 10*27299 | 9-9-14.2 | C | NAUVOO CEMETERY ASSOCIATION | TH EXPLORATION LLC | 1/8+ | 1057 357 | N/A |
| 10*27299 | 9-9-17 | D | NAUVOO CEMETERY ASSOCIATION | TH EXPLORATION LLC | 1/8+ | 1057 357 | N/A |
| 10*24535 | 9-9-22 | E | BOARD OF EDUCATION OF MARSHALL COUNTY | TH EXPLORATION LLC | 1/8+ | 1026 64 | N/A |
| 10*19987 | 9-9-16 | F | LESLEY D BALLA | TH EXPLORATION LLC | 1/8+ | 955 103 | N/A |
| 10*19993 | 9-9-16 | F | DIANA D COSLICK | TH EXPLORATION LLC | 1/8+ | 955 105 | N/A |
| 10*19994 | 9-9-16 | F | ELAINE A FONTES | TH EXPLORATION LLC | 1/8+ | 960 36 | N/A |
| 10*21117 | 9-9-16 | F | JOELLYN JOHNSON | TH EXPLORATION LLC | 1/8+ | 952 392 | N/A |
| 10*21322 | 9-9-16 | F | PHILLIP H WAYT AND BILLIE A WAYT | TH EXPLORATION LLC | 1/8+ | 953 293 | N/A |
| 10*22199 | 9-9-16 | F | 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 | F | 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 | F | 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 | F | 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 | F | BARBARA FURFARI | TH EXPLORATION LLC | 1/8+ | 964 528 | N/A |
| 10*22528 | 9-9-16 | F | RONALD DAKAN | TH EXPLORATION LLC | 1/8+ | 964 530 | N/A |
| 10*22553 | 9-9-16 | F | DAVID H DAKAN | TH EXPLORATION LLC | 1/8+ | 966 130 | N/A |
| 10*22783 | 9-9-16 | F | SUZANNE SWIFT | TH EXPLORATION LLC | 1/8+ | 972 85 | N/A |
| 10*23315 | 9-9-16 | F | TIM A WILLIS AND DIANE CLARE WILLIS | TH EXPLORATION LLC | 1/8+ | 988 138 | N/A |
| 10*24047 | 9-9-16 | F | BESSIE CARMICHAEL ET AL SHANE M MALLETT, SPECIAL COMMISSIONER | TH EXPLORATION LLC | 1/8+ | 1021 117 | N/A |
| 10*24397 | 9-9-16 | F | MARK D CHAMBERS AND SHERYL CHAMBERS | TH EXPLORATION LLC | 1/8+ | 1023 163 | N/A |
| 10*24398 | 9-9-16 | F | TODD SCHERICH AND WANDA D SCHERICH | TH EXPLORATION LLC | 1/8+ | 1023 160 | N/A |
| 10*24413 | 9-9-16 | F | BRADLEY S SCHERICH AND LEIGH SCHERICH | TH EXPLORATION LLC | 1/8+ | 1023 157 | N/A |

RECEIVED
 Office of Oil and Gas
 JUL 26 2011
 MN Dept. of Commerce
 Environmental Protection

4705102392

Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*15999	9-12-9	G	CHARLES W DOBBS AND JUDITH M DOBBS	TRIENERGY HOLDINGS, LLC	1/8+	702 171	TriEnergy Holdings LLC to NPAR LLC: 24/180	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Ltd Partnership: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 Ltd Partnership & Enerplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAP LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc Onshore Properties Inc:30/494	Chevron USA Inc to Chesapeake Appalachia LLC: 30/532	Chevron USA Inc to Chesapeake Appalachia LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*16000	9-12-9	G	DAVID J KLUKAS ET UX	TRIENERGY HOLDINGS, LLC	1/8+	702 175	TriEnergy Holdings LLC to NPAR LLC: 24/180	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Ltd Partnership: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 Ltd Partnership & Enerplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAP LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc Onshore Properties Inc:30/494	Chevron USA Inc to Chesapeake Appalachia LLC: 30/532	Chevron USA Inc to Chesapeake Appalachia LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*16001	9-12-9	G	MARLENE D GARIN	TRIENERGY HOLDINGS, LLC	1/8+	702 173	TriEnergy Holdings LLC to NPAR LLC: 24/180	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Ltd Partnership: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 Ltd Partnership & Enerplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAP LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc Onshore Properties Inc:30/494	Chevron USA Inc to Chesapeake Appalachia LLC: 30/532	Chevron USA Inc to Chesapeake Appalachia LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*28509	9-12-9	G	PEGGY ANNETTE GARDNER & ROBERT W GARDNER	TH EXPLORATION LLC	1/8+	1073 348	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28510	9-12-9	G	LINDA SUE BENNETT AND THOMAS BENNETT	TH EXPLORATION LLC	1/8+	1073 350	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28757	9-12-9	G	REBECCA LYNN RITZ AND THOMAS A RITZ	TH EXPLORATION LLC	1/8+	1076 15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*30043	9-12-9	G	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15494	9-12-11	H	CHRISTOPHER SINGER AND SHEREA SINGER	TH EXPLORATION LLC	1/8+	898 433	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*16484	9-12-11	H	PEGGY MARIE SIEBOLD	TH EXPLORATION LLC	1/8+	942 445	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*16485	9-12-11	H	MICHELLE ANN KNAUFF	TH EXPLORATION LLC	1/8+	942 447	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24396	9-12-11	H	ELEANOR CHAMBERS	TH EXPLORATION LLC	1/8+	1023 166	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-12-11	H	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24679	9-12-20	I	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION LLC	1/8+	1026 149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24681	9-12-20	I	WARREN JAY DOBBS AND KATHY M DOBBS	TH EXPLORATION LLC	1/8+	1026 152	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27095	9-12-20	I	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	1046 113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27097	9-12-20	I	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	1046 101	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19748	9-12-19.1	J	ELIZABETH JANE KELLEY	TH EXPLORATION LLC	1/8+	957 335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21333	9-12-19.1	J	VIRGINIA E HAGIN AND RANDOLPH HAGIN	TH EXPLORATION LLC	1/8+	963 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21411	9-12-19.1	J	CAROL JEAN WHIPKEY	TH EXPLORATION LLC	1/8+	957 338	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23100	9-12-19.1	J	PAMELA HOOVER AS TRUSTEE JACK C MCILVAIN TRUST DATED AUG 21 1998	TH EXPLORATION LLC	1/8+	983 625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23441	9-12-19.1	J	BOBBI LOGSDON	TH EXPLORATION LLC	1/8+	1008 345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23493	9-12-19.1	J	SARA LOU KINNEY	TH EXPLORATION LLC	1/8+	1008 347	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23643	9-12-19.1	J	WILLIAM D MCILVAIN & CAROLYN J MCILVAIN	TH EXPLORATION LLC	1/8+	1009 139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23658	9-12-19.1	J	CHRIS RICHARDSON AND DEBRA R RICHARDSON	TH EXPLORATION LLC	1/8+	1011 509	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23659	9-12-19.1	J	JOHN R HOBBS AND HOLLY ANN HOBBS	TH EXPLORATION LLC	1/8+	1011 507	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23660	9-12-19.1	J	STEVEN G RUTAN AND RONDA L RUTAN	TH EXPLORATION LLC	1/8+	1012 197	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23814	9-12-19.1	J	GARY L RICHMOND AND STACIA E RICHMOND	TH EXPLORATION LLC	1/8+	1015 160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23815	9-12-19.1	J	DAVID R RICHMOND AND ROBIN K RICHMOND	TH EXPLORATION LLC	1/8+	1015 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23834	9-12-19.1	J	KEITH A RICHMOND	TH EXPLORATION LLC	1/8+	1016 609	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24111	9-12-19.1	J	JUDY M RICHARDSON	TH EXPLORATION LLC	1/8+	1021 149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24113	9-12-19.1	J	JANET LOU LASCO	TH EXPLORATION LLC	1/8+	1021 138	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24422	9-12-19.1	J	LEONA B RICHMOND	TH EXPLORATION LLC	1/8+	1024 293	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24677	9-12-19.1	J	GLADYS V LARSEN	TH EXPLORATION LLC	1/8+	1023 538	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27105	9-12-19.1	J	MARVIN D DOBBS AND ADA DOBBS	TH EXPLORATION LLC	1/8+	1050 195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27712	9-12-19.1	J	WVSTO UNCLAIMED PROPERTY	TH EXPLORATION LLC	1/8+	1058 520	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28587	9-12-19.1	J	THE GEORGIA RICHMOND PRIMARY TRUST WILLIAM DEAL	TH EXPLORATION LLC	1/8+	1071 595	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*30043	9-12-19.1	J	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19748	9-12-19	K	ELIZABETH JANE KELLEY	TH EXPLORATION LLC	1/8+	957 335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21333	9-12-19	K	VIRGINIA E HAGIN AND RANDOLPH HAGIN	TH EXPLORATION LLC	1/8+	963 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21411	9-12-19	K	CAROL JEAN WHIPKEY	TH EXPLORATION LLC	1/8+	957 338	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23100	9-12-19	K	PAMELA HOOVER AS TRUSTEE JACK C MCILVAIN TRUST DATED AUG 21 1998	TH EXPLORATION LLC	1/8+	983 625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23441	9-12-19	K	BOBBI LOGSDON	TH EXPLORATION LLC	1/8+	1008 345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23493	9-12-19	K	SARA LOU KINNEY	TH EXPLORATION LLC	1/8+	1008 347	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23643	9-12-19	K	WILLIAM D MCILVAIN & CAROLYN J MCILVAIN	TH EXPLORATION LLC	1/8+	1009 139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23658	9-12-19	K	CHRIS RICHARDSON AND DEBRA R RICHARDSON	TH EXPLORATION LLC	1/8+	1011 509	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23659	9-12-19	K	JOHN R HOBBS AND HOLLY ANN HOBBS	TH EXPLORATION LLC	1/8+	1011 507	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23660	9-12-19	K	STEVEN G RUTAN AND RONDA L RUTAN	TH EXPLORATION LLC	1/8+	1012 197	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23814	9-12-19	K	GARY L RICHMOND AND STACIA E RICHMOND	TH EXPLORATION LLC	1/8+	1015 160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23815	9-12-19	K	DAVID R RICHMOND AND ROBIN K RICHMOND	TH EXPLORATION LLC	1/8+	1015 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23834	9-12-19	K	KEITH A RICHMOND	TH EXPLORATION LLC	1/8+	1016 609	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24111	9-12-19	K	JUDY M RICHARDSON	TH EXPLORATION LLC	1/8+	1021 149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24113	9-12-19	K	JANET LOU LASCO	TH EXPLORATION LLC	1/8+	1021 138	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24422	9-12-19	K	LEONA B RICHMOND	TH EXPLORATION LLC	1/8+	1024 293	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24677	9-12-19	K	GLADYS V LARSEN	TH EXPLORATION LLC	1/8+	1023 538	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27105	9-12-19	K	MARVIN D DOBBS AND ADA DOBBS	TH EXPLORATION LLC	1/8+	1050 195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27712	9-12-19	K	WVSTO UNCLAIMED PROPERTY	TH EXPLORATION LLC	1/8+	1058 520	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28587	9-12-19	K	THE GEORGIA RICHMOND PRIMARY TRUST WILLIAM DEAL	TH EXPLORATION LLC	1/8+	1071 595	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*30043	9-12-19	K	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*18073	9-12-18	L	ROY R WOODS	TH EXPLORATION LLC	1/8+	927 22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23763	9-12-17	M	GEORGE T POLAND AND MELVA J POLAND	TH EXPLORATION LLC	1/8+	1014 542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23764	9-12-17	M	RACHEL A SINGELL AND ROBERT A SINGELL	TH EXPLORATION LLC	1/8+	1014 545	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23825	9-12-17	M	JEAN A PYLE	TH EXPLORATION LLC	1/8+	1014 548	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23841	9-12-17	M	SHIRLEY E BURTON AND OKLA D BURTON	TH EXPLORATION LLC	1/8+	1016 604	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*31103	9-12-17	M	J C MCILVAIN AND M J MCILVAIN	SOUTH PENN OIL COMPANY	1/8+	49 478	N/A	N/A	South Penn Oil Company to South Penn Natural Gas Company: 209/552	South Penn Oil Company (1968-1972) aka Pennzoil Company (1889-1963) or Pennzoil United Inc	Pennzoil Company to Pennzoil Products Company: 530/328	PennEnergy Exploration and Production Company LLC, formerly Pennzoil, and Devon Energy Production Company LP to East Resources Inc: 618/1	Devon Energy Production Company LP to East Resources Inc: 618/1	East Resources Coal Company: 16/34	McElroy Coal Consolidation Company et al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 26/225 & 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 49/142	N/A	N/A
10*23842	9-12-17	M	WELDON L AND PEGGY ELLEN ADAMS	TH EXPLORATION LLC	1/8+	1016 601	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23852	9-12-17	M	JANICE LEE EARNEST	TH EXPLORATION LLC	1/8+	1016 599	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23854	9-12-17	M	JOSEPH R LOGSDON	TH EXPLORATION LLC	1/8+	1016 597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23894	9-12-17	M	PATRICIA CHINCHECK AND JOSEPH CHINCHECK	TH EXPLORATION LLC	1/8+	1017 605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23900	9-12-17	M	PAGE WILLIAM GALLAGHER AND SUZANNE GALLAGHER	TH EXPLORATION LLC	1/8+	1021 108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23901	9-12-17	M	DONNA F EARNEST AND LLOYD L EARNEST	TH EXPLORATION LLC	1/8+	1017 611	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23921	9-12-17	M	MARGARET B JOHNSON AND BRENT JOHNSON	TH EXPLORATION LLC	1/8+	1019 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23922	9-12-17	M	WILLIAM N LOGSDON	TH EXPLORATION LLC	1/8+	1019 481	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24039	9-12-17	M	JOHN GALLAGHER AND GERALDINE GALLAGHER	TH EXPLORATION LLC	1/8+	1020 209	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24117	9-12-17	M	IAN MICHELE DUNLAP	TH EXPLORATION LLC	1/8+	1021 140	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24121	9-12-17	M	CASSANDRA J SHERMAN AND RICHARD SHERMAN	TH EXPLORATION LLC	1/8+	1021 119	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24268	9-12-17	M	BARBARA KAY DAVIS AND MICHAEL A DAVIS	TH EXPLORATION LLC	1/8+	1023 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24353	9-12-17	M	SHAREE SAMS	TH EXPLORATION LLC	1/8+	1024 301	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24480	9-12-17	M	KATHRYN R BOWMAN AIF DENNIS M BOWMAN	TH EXPLORATION LLC	1/8+	1025 439	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24500	9-12-17	M	PATRICIA LYNN GATTS AND HARLEY L GATTS	TH EXPLORATION LLC	1/8+	1025 340	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24601	9-12-17	M	JACQUELINE BENNETT AND MARVIN R BENNETT	TH EXPLORATION LLC	1/8+	1017 614	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*25175	9-12-17	M	PAUL ALBERT NOLTE	TH EXPLORATION LLC	1/8+	1029 461	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28625	9-12-17	M	WVSTO UNCLAIMED PROPERTY	TH EXPLORATION LLC	1/8+	1072 398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*30043	9-12-17	M	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21726	9-12-17	M	CAROL JEAN WHIPKEY	TH EXPLORATION LLC	1/8+	965 566	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22343	9-12-17	M	THE WHIPKEY TRUST	TH EXPLORATION LLC	1/8+	965 569	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22839	9-12-17	M	VIRGINIA E HAGIN AND RANDOLPH HAGIN	TH EXPLORATION LLC	1/8+	960 516	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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|----------|---------|-----|-----------------------------------------------------|----------------------------|---------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 10*28320 | 9-12-17 | M | ELIZABETH JANE KELLEY | SWN PRODUCTION COMPANY LLC | 1/8+ | 957 597 | N/A |
| 10*22631 | 7-9-1 | O | FREDA ELIZABETH BLAKE | TH EXPLORATION LLC | 1/8+ | 966 632 | N/A |
| 10*22827 | 7-9-1 | O | VICKI JORDAN | TH EXPLORATION LLC | 1/8+ | 974 188 | N/A |
| 10*22832 | 7-9-1 | O | CHARLES W DOBBS AND JUDITH M DOBBS | TH EXPLORATION LLC | 1/8+ | 974 190 | N/A |
| 10*22835 | 7-9-1 | O | JERRY L PORTER AND DOTTY PORTER | TH EXPLORATION LLC | 1/8+ | 974 186 | N/A |
| 10*22836 | 7-9-1 | O | SHARON BOWERS NUTTER | TH EXPLORATION LLC | 1/8+ | 974 184 | N/A |
| 10*22987 | 7-9-1 | O | JAY H PRICE | TH EXPLORATION LLC | 1/8+ | 977 342 | N/A |
| 10*23423 | 7-9-1 | O | KAREN L KRELL | TH EXPLORATION LLC | 1/8+ | 988 508 | N/A |
| 10*23424 | 7-9-1 | O | NANCY J KEENON | TH EXPLORATION LLC | 1/8+ | 988 510 | N/A |
| 10*23429 | 7-9-1 | O | JOHN DAVID LEWIS & SANDRA LEWIS | TH EXPLORATION LLC | 1/8+ | 1008 322 | N/A |
| 10*23639 | 7-9-1 | O | BARBARA SMITH | TH EXPLORATION LLC | 1/8+ | 1009 124 | N/A |
| 10*23640 | 7-9-1 | O | AMY SMITH | TH EXPLORATION LLC | 1/8+ | 1009 126 | N/A |
| 10*23642 | 7-9-1 | O | KAYLEE LOWERY | TH EXPLORATION LLC | 1/8+ | 1009 128 | N/A |
| 10*23644 | 7-9-1 | O | CHRISTOPHER FILLIEZ AND BRANDY FILLIEZ | TH EXPLORATION LLC | 1/8+ | 1009 122 | N/A |
| 10*23653 | 7-9-1 | O | BRIDGETT SMITH | TH EXPLORATION LLC | 1/8+ | 1009 303 | N/A |
| 10*23698 | 7-9-1 | O | SYDNEY LOWERY | TH EXPLORATION LLC | 1/8+ | 1009 301 | N/A |
| 10*23746 | 7-9-1 | O | JAN K GRIMES SIMNACHER | TH EXPLORATION LLC | 1/8+ | 1011 547 | N/A |
| 10*24469 | 7-9-1 | O | MARK D BLAIR AND ROBERTA A BLAIR | TH EXPLORATION LLC | 1/8+ | 1025 130 | N/A |
| 10*24502 | 7-9-1 | O | ALISON LUCAS STANLEY | TH EXPLORATION LLC | 1/8+ | 1025 427 | N/A |
| 10*24582 | 7-9-1 | O | BARBARA TAPPE ANGELA TAPPE AIF | TH EXPLORATION LLC | 1/8+ | 1026 204 | N/A |
| 10*24952 | 7-9-1 | O | MELINDA MANKOWSKI AND RONALD MANKOWSKI | TH EXPLORATION LLC | 1/8+ | 1028 588 | N/A |
| 10*24966 | 7-9-1 | O | KELLY BOWERS | TH EXPLORATION LLC | 1/8+ | 1028 586 | N/A |
| 10*24967 | 7-9-1 | O | PATRICK BOWERS | TH EXPLORATION LLC | 1/8+ | 1028 584 | N/A |
| 10*24989 | 7-9-1 | O | NANCY C PEKERA AND RONALD J PEKERA | TH EXPLORATION LLC | 1/8+ | 1028 580 | N/A |
| 10*25216 | 7-9-1 | O | HEIDI L WARNER | TH EXPLORATION LLC | 1/8+ | 1030 139 | N/A |
| 10*25302 | 7-9-1 | O | ABBY LOWERY C/O SCOTT LOWERY | TH EXPLORATION LLC | 1/8+ | 1033 111 | N/A |
| 10*25330 | 7-9-1 | O | MELINDA E DIXON AND KENNETH L DIXON | TH EXPLORATION LLC | 1/8+ | 1031 576 | N/A |
| 10*25658 | 7-9-1 | O | VICKIE D PARKS | TH EXPLORATION LLC | 1/8+ | 1033 313 | N/A |
| 10*25696 | 7-9-1 | O | MICHAEL C JUDD AND KAREN JUDD | TH EXPLORATION LLC | 1/8+ | 1034 221 | N/A |
| 10*26432 | 7-9-1 | O | SANDRA M JONES AND TIMMY C JONES | TH EXPLORATION LLC | 1/8+ | 1034 576 | N/A |
| 10*26716 | 7-9-1 | O | GUY KENNETH POSTLEWAIT AND NANCY POSTLEWAIT | TH EXPLORATION LLC | 1/8+ | 1041 209 | N/A |
| 10*26717 | 7-9-1 | O | GARY A POSTLEWAIT AND GWENDOLYN K POSTLEWAIT | TH EXPLORATION LLC | 1/8+ | 1041 212 | N/A |
| 10*26721 | 7-9-1 | O | NELDA SCOTT AND GARY SCOTT | TH EXPLORATION LLC | 1/8+ | 1041 215 | N/A |
| 10*26805 | 7-9-1 | O | RUTH DARLENE WARNER BRAUCHLER AND CHARLES BRAUCHLER | TH EXPLORATION LLC | 1/8+ | 1045 437 | N/A |
| 10*26808 | 7-9-1 | O | GARRY L LOVELESS AND MARSHA E LOVELESS | TH EXPLORATION LLC | 1/8+ | 1045 440 | N/A |
| 10*26809 | 7-9-1 | O | NANCY E WARNER | TH EXPLORATION LLC | 1/8+ | 1045 442 | N/A |
| 10*26810 | 7-9-1 | O | CAROLYN RUTH GALLAHER | TH EXPLORATION LLC | 1/8+ | 1045 444 | N/A |
| 10*26813 | 7-9-1 | O | REBECCA WARNER | TH EXPLORATION LLC | 1/8+ | 1045 435 | N/A |
| 10*26972 | 7-9-1 | O | KAREN ANN POSTLEWAIT HUTTER MCCREARY | TH EXPLORATION LLC | 1/8+ | 1046 188 | N/A |
| 10*26979 | 7-9-1 | O | PHILLIP A GALLAHER AND DARLEEN GALLAHER | TH EXPLORATION LLC | 1/8+ | 1046 161 | N/A |
| 10*26980 | 7-9-1 | O | SANDRA PREUIT AND LARRY PREUIT | TH EXPLORATION LLC | 1/8+ | 1046 164 | N/A |
| 10*26981 | 7-9-1 | O | JANET LEE ELLISON AND JAMES PHILLIP ELLISON | TH EXPLORATION LLC | 1/8+ | 1046 167 | N/A |
| 10*27033 | 7-9-1 | O | DEBORA WARNER REED AND RODNEY REED | TH EXPLORATION LLC | 1/8+ | 1047 449 | N/A |
| 10*27595 | 7-9-1 | O | JEAN ELISE DAVIS | TH EXPLORATION LLC | 1/8+ | 1060 556 | N/A |
| 10*27596 | 7-9-1 | O | JANE ELLEN DAVIS | TH EXPLORATION LLC | 1/8+ | 1060 558 | N/A |
| 10*27598 | 7-9-1 | O | JOSEPH KIRBY SMITH AND HOLLY SMITH | TH EXPLORATION LLC | 1/8+ | 1060 560 | N/A |
| 10*27834 | 7-9-1 | O | SKYLAR LOWERY C/O SCOTT LOWERY | TH EXPLORATION LLC | 1/8+ | 1031 574 | N/A |
| 10*27848 | 7-9-1 | O | ELIZABETH CORLEEN DAVIS SWIGER | TH EXPLORATION LLC | 1/8+ | 1063 265 | N/A |
| 10*27890 | 7-9-1 | O | RONALD WAYNE SMITH AND DELORES C SMITH | TH EXPLORATION LLC | 1/8+ | 1064 159 | N/A |
| 10*27891 | 7-9-1 | O | STANLEY W SNIDER JR AND MARY V COFFLAND SNIDER | TH EXPLORATION LLC | 1/8+ | 1064 157 | N/A |
| 10*27942 | 7-9-1 | O | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1063 559 | N/A |
| 10*27949 | 7-9-1 | O | BRUCE EDWARD WILLIAMS | TH EXPLORATION LLC | 1/8+ | 1064 603 | N/A |
| 10*28001 | 7-9-1 | O | CIRCUIT CLERK OF MARSHALL COUNTY | TH EXPLORATION LLC | 1/8+ | 1067 399 | N/A |
| 10*28025 | 7-9-1 | O | BARBARA GALLAHER SCHANCK | TH EXPLORATION LLC | 1/8+ | 1065 587 | N/A |
| 10*28061 | 7-9-1 | O | MARY E SNIDER | TH EXPLORATION LLC | 1/8+ | 1067 117 | N/A |
| 10*28246 | 7-9-1 | O | KAREN L RAY | TH EXPLORATION LLC | 1/8+ | 1068 565 | N/A |

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10*28476	7-9-1	O	GEORGE BOWERS AND MARGARET BOWERS	TH EXPLORATION LLC	1/8+	1073 345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*30043	7-9-1	O	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31442	7-9-1	O	JOHNNY RAY MORRIS AND ROSE A MORRIS	CHESAPEAKE APPALACHIA LLC	1/8+	742 419	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31443	7-9-1	O	PATRICIA I AND LONNIE J VODENICHAR	CHESAPEAKE APPALACHIA LLC	1/8+	742 413	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31444	7-9-1	O	DARYL GORDON MORRIS AND KATHY J MORRIS	CHESAPEAKE APPALACHIA LLC	1/8+	742 401	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31445	7-9-1	O	ROBERT E BLAKE AND KATHLEEN M BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	742 501	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31446	7-9-1	O	SHARON MARIE DILTS	CHESAPEAKE APPALACHIA LLC	1/8+	742 615	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31447	7-9-1	O	DAVID RANDALL MORRIS	CHESAPEAKE APPALACHIA LLC	1/8+	742 609	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31448	7-9-1	O	TINA L NICGORSKI	CHESAPEAKE APPALACHIA LLC	1/8+	742 597	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120

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10*31449	7-9-1	O	HUBERT EARL MORRIS	CHESAPEAKE APPALACHIA LLC	1/8+	742 591	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31450	7-9-1	O	GARY WAYNE MORRIS	CHESAPEAKE APPALACHIA LLC	1/8+	745 230	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31451	7-9-1	O	CHARLES B MARTIN AND SANDRA D MARTIN	CHESAPEAKE APPALACHIA LLC	1/8+	745 224	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31452	7-9-1	O	DELORES L BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	746 289	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/125	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31453	7-9-1	O	STEVEN R BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	747 310	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31454	7-9-1	O	DAVID BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	747 316	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31455	7-9-1	O	HERMAN WALKER AND EVLYN BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	747 322	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120

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10*31456	7-9-1	O	HARLAND LEE SNYDER	CHESAPEAKE APPALACHIA LLC	1/8+	747 264	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31457	7-9-1	O	SAMUEL NELSON RICHMOND ESTATE DONNA LEE STEWART EXECUTRIX	CHESAPEAKE APPALACHIA LLC	1/8+	754 564	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/125	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31458	7-9-1	O	JAMES RICHARD BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	759 7	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/125	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31459	7-9-1	O	KATHLEEN D & JOHN A BAKER	CHESAPEAKE APPALACHIA LLC	1/8+	761 31	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31460	7-9-1	O	NANCY F PATTERSON	CHESAPEAKE APPALACHIA LLC	1/8+	761 72	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31461	7-9-1	O	JOHN MALCOLM & MARY L HINDS	CHESAPEAKE APPALACHIA LLC	1/8+	761 37	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31462	7-9-1	O	ROBERT W & PATICIA M LEWIS	CHESAPEAKE APPALACHIA LLC	1/8+	761 590	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120

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10*31463	7-9-1	O	ROBERT N HINDS JR	CHESAPEAKE APPALACHIA LLC	1/8+	761 584	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120	
10*31464	7-9-1	O	TAMMY HINDS 7 BRADLEY A HOLSTEIN	CHESAPEAKE APPALACHIA LLC	1/8+	763 336	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/246	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120	
10*31465	7-9-1	O	WILLIAM BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	765 152	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/125	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger of SWN Exchange Titleholder LLC with and into SWN Production Company LLC: CB 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120	
10*31466	7-9-1	O	GEORGE R TAYLOR	SWN PRODUCTION COMPANY LLC	1/8+	931 644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31467	7-9-1	O	THE NINA TAYLOR FAMILY TRUST OF 2014 GEORGE R TAYLOR TRUSTEE	SWN PRODUCTION COMPANY LLC	1/8+	933 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*31468	7-9-1	O	LARRY TODD TAYLOR	SWN PRODUCTION COMPANY LLC	1/8+	932 25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*17930	7-9-22	P	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928 396	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24660	7-9-22	P	LARRY D FROST AND LORAIN L FROST	TH EXPLORATION LLC	1/8+	1026 217	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24661	7-9-22	P	HAROLD M GARBER AND SUSAN B GARBER	TH EXPLORATION LLC	1/8+	1026 202	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24662	7-9-22	P	RAMONA K SPRINGER AND RICHARD D SPRINGER	TH EXPLORATION LLC	1/8+	1026 220	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24664	7-9-22	P	LISA L SHEAKS AND JAMES C SHEAKS	TH EXPLORATION LLC	1/8+	1026 226	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24665	7-9-22	P	JOHN J GARBER	TH EXPLORATION LLC	1/8+	1026 229	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24670	7-9-22	P	SUZANNE FROST	TH EXPLORATION LLC	1/8+	1026 223	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24750	7-9-22	P	KENDRA S BETTS AND RICHARD A BETTS	TH EXPLORATION LLC	1/8+	1027 302	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24846	7-9-22	P	DOLORES A MUIR	TH EXPLORATION LLC	1/8+	1028 133	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24915	7-9-22	P	BETTY G TREMELLING	TH EXPLORATION LLC	1/8+	1028 594	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24916	7-9-22	P	BRENDA L NEUHART	TH EXPLORATION LLC	1/8+	1028 591	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25003	7-9-22	P	LINDA L POTTS AND DONALD D POTTS	TH EXPLORATION LLC	1/8+	1028 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25491	7-9-22	P	GARY M SMITH AND VICKIE L SMITH	TH EXPLORATION LLC	1/8+	1033 126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25572	7-9-22	P	ERICA S OWEN AND MATTHEW J OWEN	TH EXPLORATION LLC	1/8+	1033 121	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26562	7-9-22	P	MARTHA SUE FORBES	TH EXPLORATION LLC	1/8+	1038 510	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26563	7-9-22	P	SCOTT SHOTT AIF JOY A SHOTT	TH EXPLORATION LLC	1/8+	1038 513	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26567	7-9-22	P	PATRICK J MARTIN	TH EXPLORATION LLC	1/8+	1038 506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26568	7-9-22	P	BRENDA R PARSON AND LARRY A PARSON	TH EXPLORATION LLC	1/8+	1038 504	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26632	7-9-22	P	MORGAN GIBSON	TH EXPLORATION LLC	1/8+	1039 319	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc	Grantee, Lessee, Etc	Royalty	Deed Book/Page	Assignment		
10*26636	7-9-22	P	THOMAS SHOTT	TH EXPLORATION LLC	1/8+	1039 316	N/A		
10*26691	7-9-22	P	DANIEL C SHOTT	TH EXPLORATION LLC	1/8+	1041 218	N/A		
10*26970	7-9-22	P	THE ESTATE OF JOHN C SHOTT	TH EXPLORATION LLC	1/8+	1046 190	N/A		
10*26971	7-9-22	P	GRACE R SHOTT-CLARDY	TH EXPLORATION LLC	1/8+	1046 194	N/A		
10*27090	7-9-22	P	HUGH I SHOTT II AIF BETTY SHOTT	TH EXPLORATION LLC	1/8+	1053 9	N/A		
10*27091	7-9-22	P	BRIDGITTE BLAYKE JONES	TH EXPLORATION LLC	1/8+	1050 204	N/A		
10*27092	7-9-22	P	JAMES H SHOTT III	TH EXPLORATION LLC	1/8+	1050 201	N/A		
10*27096	7-9-22	P	JOSEPH H SMITH	TH EXPLORATION LLC	1/8+	1050 230	N/A		
10*28328	7-9-22	P	WVSTO UNCLAIMED PROPERTY	TH EXPLORATION LLC	1/8+	1068 130	N/A		
10*28629	7-9-22	P	WVSTO UNCLAIMED PROPERTY	TH EXPLORATION LLC	1/8+	1072 404	N/A		
10*28864	7-9-22	P	CHERYLYN CAPISTRAN	TH EXPLORATION LLC	1/8+	1075 509	N/A		
10*28897	7-9-22	P	PAIGE FRANCIS	TH EXPLORATION LLC	1/8+	1076 310	N/A		
10*28928	7-9-22	P	SUSAN SHRIVER	TH EXPLORATION LLC	1/8+	1077 10	N/A		
10*30043	7-9-22	P	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098 366	N/A		
10*31476	7-9-22	P	BETTY BROWN GORDON	SWN PRODUCTION COMPANY LLC	1/8+	1067 80	N/A	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120

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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from STATOIL USA ONSHORE PROPERTIES INC., a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on August 22, 2016 (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 herein (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 June 19, 2016 (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*") INsofar AND ONLY INsofar as they cover the Target Formations and INsofar AND ONLY INsofar 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*"). Assignor does hereby reserve unto itself the right and subsurface easement to drill through the Leasehold Rights to access the those depths and formations in the Leases other than the Target Formations and (y) to shoot seismic, sonic, or other energy or waves through the Leasehold Rights and to receive, record and evaluate such energy or waves, including those reflected from or in any way pertaining to the reserved depths, and to utilize any and all other exploration technologies that image the subsurface of the leasehold including the reserved depths and to receive, record and evaluate all images resulting therefrom.

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 1.4 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

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STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

29TH THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this day of June, 2021 (the "Effective Date"), by and between **HG ENERGY II APPALACHIA LLC**, a Delaware limited liability company, whose address is 5260 Dupont Rd. Parkersburg, WV 26101, (hereinafter "Assignor") and **TH EXPLORATION, LLC**, a Texas limited liability company, having an address at 1320 S. University Drive, Suite 500 Fort Worth, TX 7610 (hereinafter "Assignee"). Assignor and Assignee are sometimes hereinafter collectively referred to as the "Parties".

WITNESSETH:

WHEREAS, Assignor is the successor Lessee of record of oil and gas rights under those certain oil and gas lease(s) situated in Franklin District, Marshall County, West Virginia, as described on Exhibit "A", attached hereto and made a part hereof (hereinafter the "Lease(s)");

WHEREAS, Assignor desires to transfer to Assignee, and Assignee desires to accept from Assignor, all of Assignor's right, title and interest in the Lease(s) described in Exhibit "A"; and

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, 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, all of Assignor's right, title, and interest in and to the Lease(s), and the lands covered thereby, together with all rights incident thereto and appurtenances thereon. RESERVING unto Assignor an overriding royalty interest equal to the positive difference, if any, between twenty percent (20%) and all existing leasehold burdens of the oil, gas, associated liquids, and other hydrocarbons produced and saved from the Lease(s) (the "ORRI"). The ORRI shall be proportionately reduced to the extent the net mineral acres covered by a Lease(s) comprise less than 100% of the entire mineral acres in the lands and depths covered thereby. Assignee shall have the right to pool, combine or unitize the Lease(s) and any portion or portions of the lands covered thereby with other lands, leases, or mineral interests in any manner and at any time before or after production. In the event acreage covered by the Lease(s) or any portion thereof is pooled, combined or unitized with other lands, leases or mineral interests to comprise a unit or units, Assignor shall receive from production in lieu of the ORRI herein specified, the portion thereof that the number of acres to which the ORRI is applicable, and which are included in the unit bears to the total number of acres in the unit. Assignee will be responsible to obtain the necessary modifications and agreements to the Lease(s), if any, to allow pooling and unitization without additional costs or ORRI reductions to the Assignor. Notwithstanding anything to the contrary contained within this Assignment, it is the express intent of the Parties that all of Assignor's right, title, and interest in and to the Lease(s), with the exception of the ORRI, be assigned to Assignee whether such interests are properly described or not.

2. Special Warranty. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered its interest in the Lease(s) since the time that Assignor obtained its interests in the Lease(s). 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 Lease(s) or portions thereof included

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EXHIBIT "A"

LEASE(S)

Lessor	Lessee	Lease #	TMP (reference only)	Acreage	Date	Book/ Page	District	County	State
J.C. McIlvain, et ux	South Penn Oil Company	30295-50	9-12-17, 7-8-7	50.00	10/11/1898	49 /478	Meade/Liberty	Marshall	WV

Marshall County
Jan Pest, Clerk
Instrument 1472698
07/21/2021 @ 09:34:53 AM
ASSIGNMENTS
Book 49 @ Page 142
Pages Recorded 7
Recording Cost \$ 14.00

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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 herein (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*") INsofar AND ONLY INsofar 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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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on June 30, 2021 (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 herein (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 June 22, 2021 (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*") INsofar AND ONLY INsofar 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.

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4705102392



July 19, 2021

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

RE: Fitzgerald S-2HM

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 in the area reflected on the Fitzgerald S-2HM 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-hillop.com.

Sincerely,

Amy L. Morris
Permitting Specialist
Appalachia Region

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08/27/2021

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

Date of Notice Certification: 07/21/2021

API No. 47- 051 - 02392
Operator's Well No. Fitzgerald S-2HM ✓
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>530,711.31</u> ✓
County:	<u>Marshall</u> ✓		Northing:	<u>4,405,755.36</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.

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: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <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 <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
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Required Attachments:

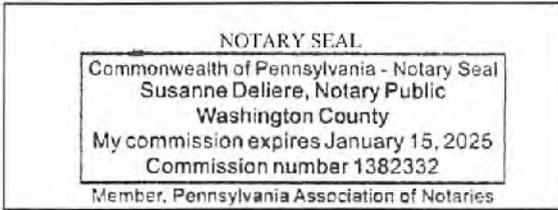
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

08/27/2021

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 21st day of July, 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 depprivacyofficer@wv.gov.

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WW-6A
(9-13)

API NO. 47- 051 - 02392
OPERATOR WELL NO. Fitzgerald S-2HM
Well Pad Name: Fitzgerald

**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: 7/20/2021 **Date Permit Application Filed:** 7/23/2021

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: _____

*Please attach additional forms if necessary

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Office of Oil and Gas

JUL 26 2021

WV Department of
Environmental Protection

08/27/2021

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.

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.

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 or 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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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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 57th St. SE
Charleston, WV 25304
(304) 926-0450

JUL 26 2021
Office of Oil and Gas
WV Department of
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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.**

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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WW-6A
(8-13)

API NO. 47-051 - 02392
OPERATOR WELL NO. Fitzgerald S-2HM
Well Pad Name: Fitzgerald

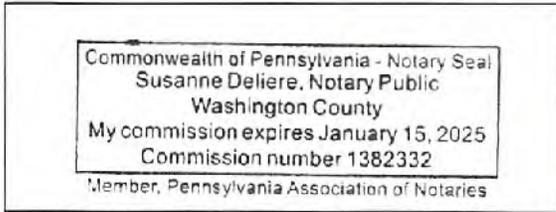
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hill-op.com *anyx 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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 20th day of July, 2021.
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

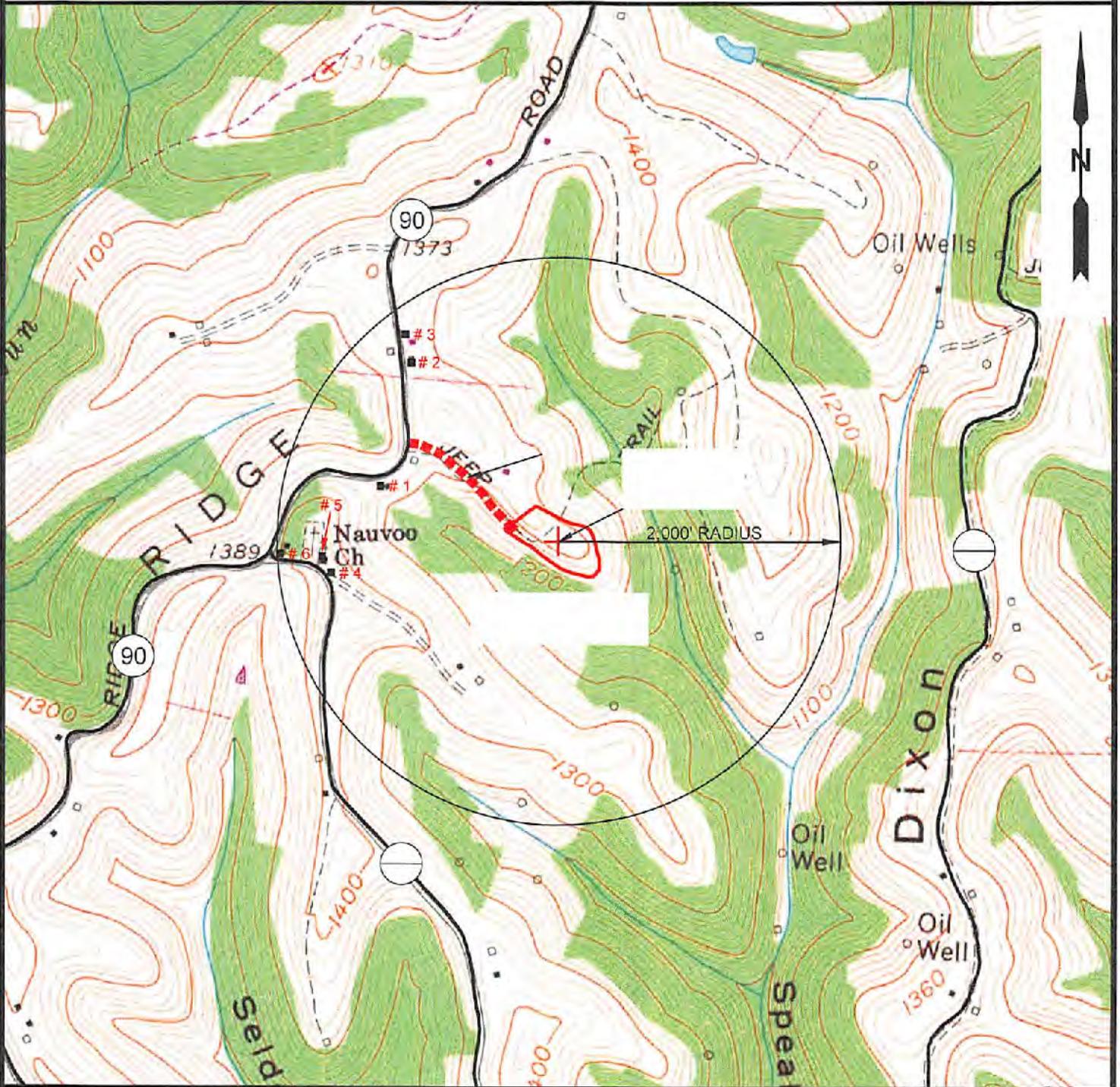
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PROPOSED FITZGERALD S - 2HM



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

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12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5534
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slsw.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5' & CAMERON 7.5'		PREPARED FOR:	
COUNTY		TUG HILL OPERATING, LLC	
DISTRICT		380 SOUTHPOINTE BLVD	
MARSHALL	LIBERTY & MEADE	SUITE 200	
DRAWN BY		DATE	SCALE
K.G.M.		03/03/2020	1" = 1000'

WV Department of Environmental Protection
TUG HILL OPERATING

4705102392

WW-6A NOTICE OF APPLICATION

FITZGERALD PAD

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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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 – 2HM
 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>Residence (#1) TM 9 Pcl. 14 Danny R. Kerns, Et Al Phone: 219-887-6761 (Reverse Address – David A. & Regina D. Figueroa) Physical Address: 1352 Nauvoo Ridge Rd. Cameron, WV 26033 Tax Address: 94 E 700 N Valparaiso, IN 46383</p>	<p>Residence (#2) TM 9 Pcl. 12.1 Jessica R. & David A. II Dempewolf Phone: 304-810-0500 (Reverse Address – Jolene Morris) Physical Address: 1180 Nauvoo Ridge Rd. Cameron, WV 26033 Tax Address: Same</p>	<p>Residence (#3) TM 9 Pcl. 12 Gary W. Morris c/o Gary Morris & Cynthia Patrello Phone: None Found Physical Address: 1156 Nauvoo Ridge Rd. Cameron, WV 26033 Tax Address: Same</p>
<p>Business/Commercial Site (#4) TM 12 Pcl. 14 Consol Mining Co. LLC Consolidation Coal Company c/o Murray Energy c/o Land Dept. Physical Address: 90 The Corner Ln. Glen Easton, WV 26039 (Appears to be an underground mine vent or fan site or other related infrastructure) Tax Address: 46226 National Rd. Saint Clairsville, OH 43950</p>	<p>Church (#5) TM 9 Pcl. 15 Trustees of the Reorganized Church of Latter Day Saints Phone: None Physical Address: 88 The Corner Ln. Glen Easton, WV 26039 Tax Address: Exempt/None</p>	<p>Residence (#6) TM 9 Pcl. 22 Gary W. Morris Phone: None Found Physical Address: 1556 Nauvoo Ridge Rd. Cameron, WV 26033 Tax Address: 1156 Nauvoo RDG Glen Easton, WV 26039</p>

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WW-6A3
(1/12)

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 SL, 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

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

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 57th 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.

Notice is hereby given by:

Well Operator: <u>Tug Hill Operating, LLC</u>	Address: <u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
Telephone: <u>724-749-8388</u>	<u>Canonsburg, PA 15317</u>
Email: <u>amiller@tug-hillop.com</u>	Facsimile: <u>724-338-2030</u>

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.

08/27/2021

**WW-6A3 NOTICE OF ENTRY FOR PLAT SURVEY
FITZGERALD PAD**

MINERAL OWNERS

Danny S. Kerns
3500 West 80th PL
Merrillville, IN 46410

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

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WW-6A5 NOTICE OF PLANNED OPERATION

FITZGERALD PAD

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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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 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Fitzgerald Pad, Marshall County
Fitzgerald S-2HM 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

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

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Fitzgerald Wells

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
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

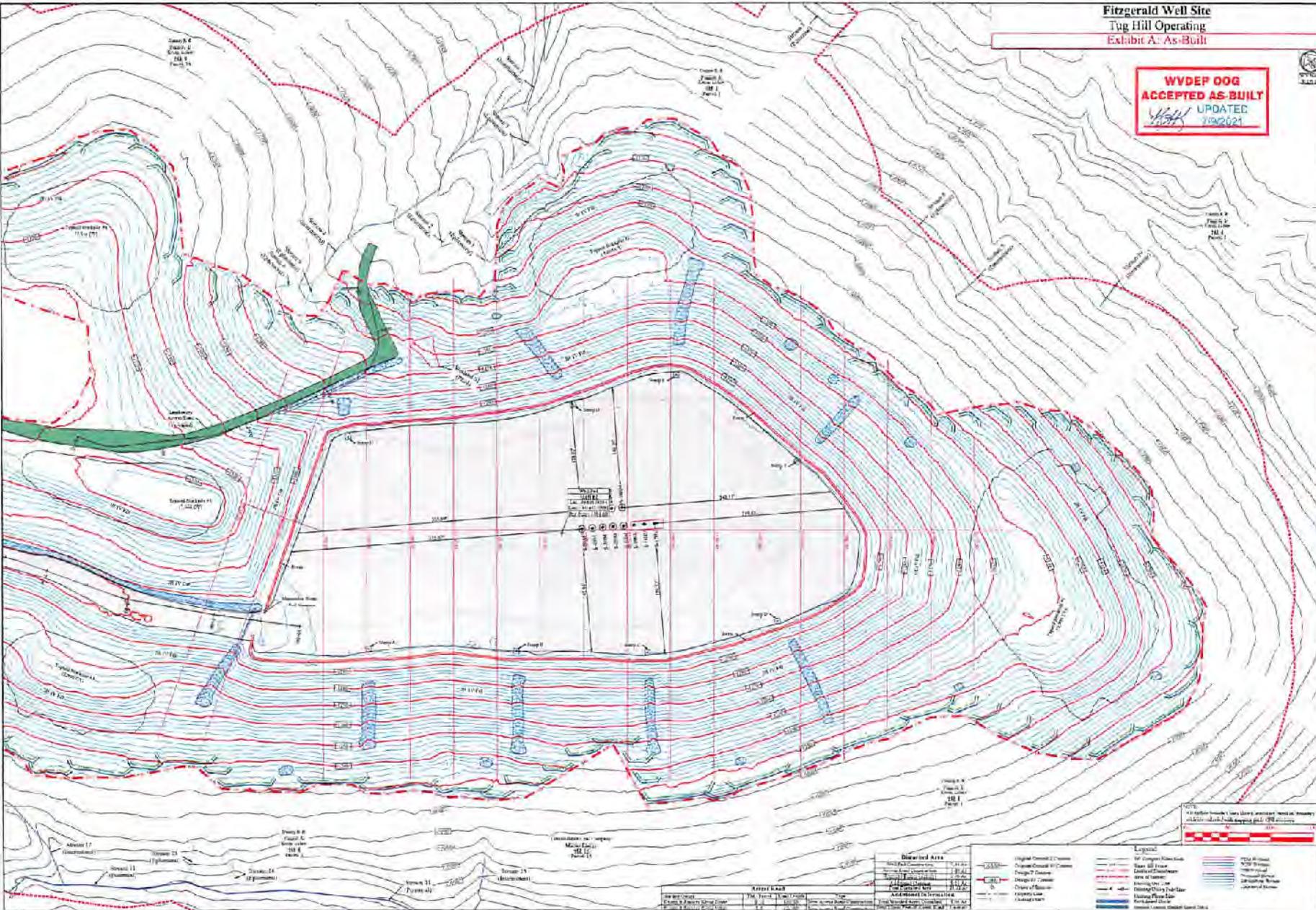
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Office of Oil and Gas

JUL 26 2021

WV Department of
Environmental Protection

Fitzgerald Well Site
 Tug Hill Operating
 Exhibit A: As-Built

WVDEP DOG
ACCEPTED AS-BUILT
 UPDATED
 7/20/2021



THIS DOCUMENT PREPARED FOR THE WELL OPERATOR

TUG HILL OPERATIONS

K&S SURVEYING

Fitzgerald Well Site
 Liberty, West of Marshall County, WV

DATE: 7/20/21
 DRAWN BY: DS
 CHECKED BY: DS

WEST VIRGINIA COUNTY MAP



Fitzgerald Well Site
 Site Design, Construction Plan, &
 Erosion and Sediment Control Plans
 Tug Hill Operating
 Marshall County
 Liberty District
 Latitude 39.80128284°
 Longitude -80.64143991°
 Upper Fish Creek Watershed

Pertinent Site Information
 Fitzgerald Well Site
 Emergency Number: 304-845-1920
 Liberty District, Marshall County, WV
 Watershed: Upper Fish Creek Watershed
 Tug Hill Contact Number: 1-817-532-3400

Project Owner Information - Fitzgerald Well Site

Year	2016	2017	2018	2019	2020	2021	2022
Production (Barrels)	100	100	100	100	100	100	100
Water (Gallons)	100	100	100	100	100	100	100
Electricity (kWh)	100	100	100	100	100	100	100

Exhibit A: As-Built



WV State Plane, NAD 83
 Contour Interval: 5 Feet
 Datum: North American 1983
 UTM Zone: 18Q
 UTM Easting: 650000
 UTM Northing: 4500000

Area Total

Category	Area (Acres)	Percentage
Well Pad	0.15	1.5%
Access Road	0.20	2.0%
Drainage Basin	0.10	1.0%
Other	0.05	0.5%
Total	1.00	100%

Disturbed Area

Category	Area (Acres)
Well Pad	0.15
Access Road	0.20
Drainage Basin	0.10
Other	0.05
Total	0.50

Fitzgerald Well Site Details

Parameter	Value	Unit
Well Depth	100	Feet
Well Diameter	12	Inches
Well Type	Open Hole	
Well Status	Active	

Estimated Runoff Impacts (Linear Feet)

Runoff Type	Impacts (Linear Feet)
Sheetwash	100
Rill	200
Bank Erosion	50
Total	350

Wellhead Impact Closure Fees

Category	Fee (\$)
Wellhead	100
Access Road	50
Drainage Basin	25
Other	15
Total	190

Well ID	Well Type	Well Depth (ft)	Well Diameter (in)	Well Status
WV-1000000001	Open Hole	100	12	Active
WV-1000000002	Open Hole	100	12	Active
WV-1000000003	Open Hole	100	12	Active
WV-1000000004	Open Hole	100	12	Active
WV-1000000005	Open Hole	100	12	Active
WV-1000000006	Open Hole	100	12	Active
WV-1000000007	Open Hole	100	12	Active
WV-1000000008	Open Hole	100	12	Active
WV-1000000009	Open Hole	100	12	Active
WV-1000000010	Open Hole	100	12	Active



Site Location (NAD 83)			Site Location (NAD 83)		
Wellhead	650000	4500000	Wellhead	650000	4500000
Access Road	650000	4500000	Access Road	650000	4500000
Drainage Basin	650000	4500000	Drainage Basin	650000	4500000

Access Road:
 From the intersection of WV Rt 2 and South 12th Street in
 Hazardville, WV. Travel South on WV Rt 2 for 2.2 miles. Turn
 Left onto WV Rt 2 (Hazardville Rd). Follow WV
 Rt 2 for 1.5 miles. Turn Right onto Co Rd 21 (Liberty Rd).
 Follow Co Rd 21 for 1.5 miles. Turn Right onto Co Rd 21 (Liberty
 Ridge Rd). Follow Co Rd 21 for 1.2 miles. Turn Right onto Co
 Rd 21 (Liberty Ridge). Follow Co Rd 21 for 0.5 miles. The access
 road will be on the left hand side of the road.



Bay Stapp
 5-27-21

Professional Engineer
 WV State Seal of Professional Engineer
 State of West Virginia
 License No. 12345
 Exp. 12/31/2024

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 Office of the
SUL 26 2021

WV Division of
 Environmental Regulation

Project Contacts

The Client:
 Tug Hill Operating
 200 W. 12th Street, Hazardville, WV 26036
 Attn: Mr. P. P. Pugh
 304-845-1920

The Designer:
 Bay Stapp
 200 W. 12th Street, Hazardville, WV 26036
 Attn: Mr. P. P. Pugh
 304-845-1920

Environmental:
 Tug Hill Operating
 200 W. 12th Street, Hazardville, WV 26036
 Attn: Mr. P. P. Pugh
 304-845-1920

Tug Hill Operating is a subsidiary of FirstEnergy Services Corporation (FSC).
 From the WV Department of Environmental Protection, Division of Hazardous Waste,
 pursuant to the requirements of the construction activities.
 The WV State Water Pollution Control Board (SWPCB) is reviewing this plan.
 WV State Water Pollution Control Board (SWPCB) is reviewing this plan.
 WV State Water Pollution Control Board (SWPCB) is reviewing this plan.

Final Construction

Category	Value
Wellhead	100
Access Road	50
Drainage Basin	25
Other	15
Total	190

Sheet

Sheet	Description
1	Cover Sheet
2	Schedule of Quantities
3	Site Plan
4	Pre-Construction Site Conditions
5	Overall Site View
6	Plan View
7	Cross Section - Well Pad
8	Cross Section - Well Pad Access Road
9	Cross Section - Landscaped Access Road
10	Gravelled Easement
11	Gravelled Easement
12	Site Redlines
13	Production Easement
14	Production Easement
15	Access Road Details
16	Well Details

TUG HILL OPERATING



THIS DOCUMENT
 PREPARED FOR
 TUG HILL
 OPERATING

Key Services

Fitzgerald Well Site
 Liberty District
 Marshall County, WV

Scale: 1" = 100'
 Date: 05/27/21
 Author: P. P. Pugh
 Designer: P. P. Pugh
 Checker: P. P. Pugh
 Title: 10/1/21