



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

Wednesday, October 12, 2022
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 PENDLETON S-1HM
47-051-02468-00-00

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: PENDLETON S-1HM
Farm Name: ALPINE FARM, LLC
U.S. WELL NUMBER: 47-051-02468-00-00
Horizontal 6A New Drill
Date Issued: 10/12/2022

Promoting a healthy environment.

10/14/2022

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.
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.

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 Franklin Glen Easton 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Pendleton S-1HM Well Pad Name: Pendleton

3) Farm Name/Surface Owner: Alpine Farm, LLC Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1,296' Elevation, proposed post-construction: 1,271.82'

5) Well Type (a) Gas X Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow X Deep _____

Horizontal X

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6,659' - 6,709', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 6,809'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 13,457'

11) Proposed Horizontal Leg Length: 6,173.60'

12) Approximate Fresh Water Strata Depths: 70; 914'

13) Method to Determine Fresh Water Depths: Based on the depth of Pittsburgh Coal seam, per WVGES mapping contours

14) Approximate Saltwater Depths: 1,427'

15) Approximate Coal Seam Depths: Sewickley Coal - 816' and Pittsburgh Coal - 908'

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 X

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

John L. Ground
STRADDLE
8/25/22

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18) CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water/Coal	13 3/8"	NEW	J55	54.5#	1,040'	1,040'	1,073FT^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,841'	2,841'	941FT^3(CTS)
Production	5 1/2"	NEW	P110	20#	13,457'	13,457'	3,440FT^3(CTS)
Tubing	2 3/8"	NEW	P110	4.7#		6,593'	
Liners							

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

PACKERS

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

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8/25/22

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

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

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

Well to be completed with approximately 15,450,000 lb proppant and 280,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 26.23 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.88 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

*Note: Attach additional sheets as needed.

9/25/22

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70510246

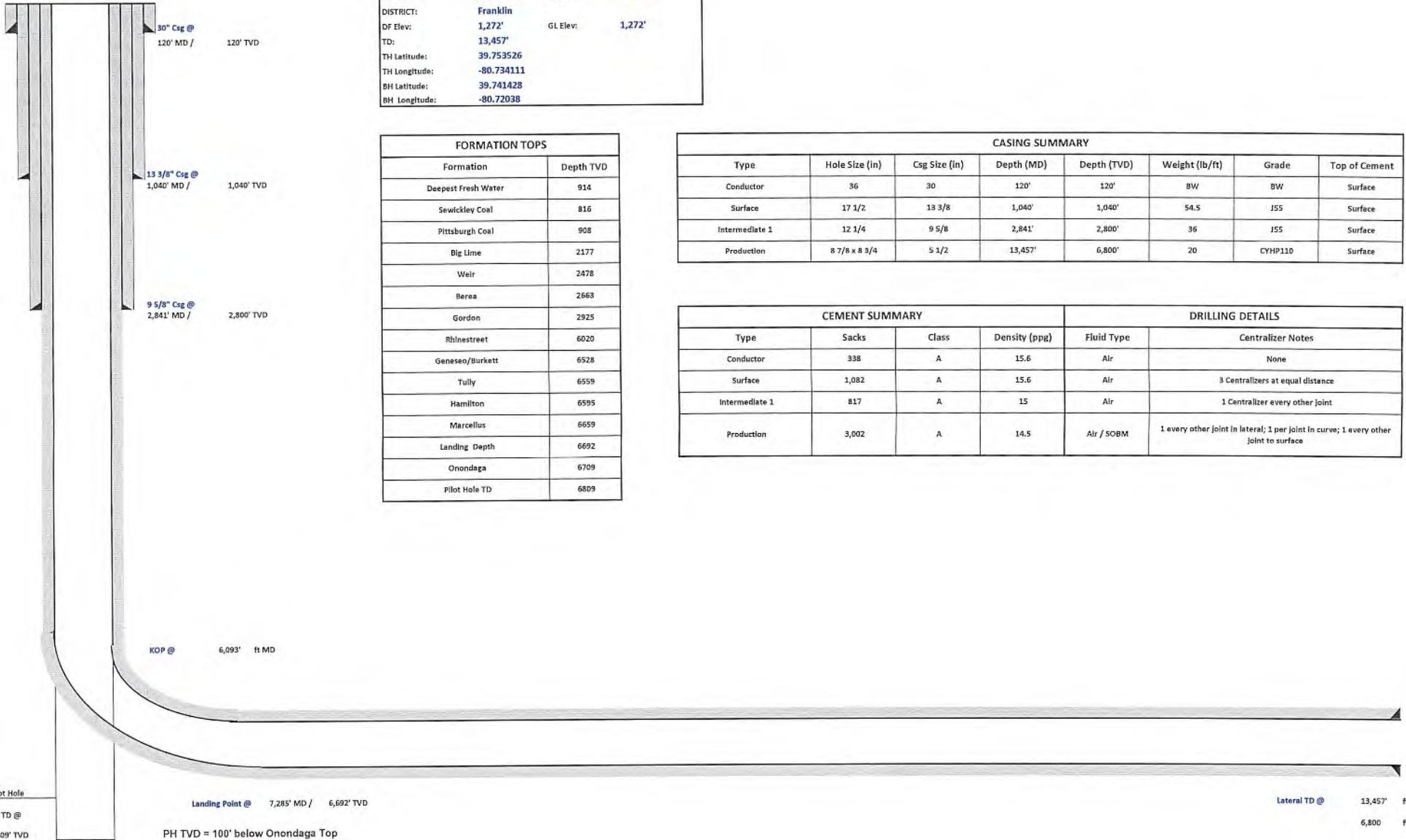


WELL NAME: Pendleton S-1HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,272' GL Elev: 1,272'
 TD: 13,457'
 TH Latitude: 39.753526
 TH Longitude: -80.734111
 BH Latitude: 39.741428
 BH Longitude: -80.72038

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	914
Sewickley Coal	816
Pittsburgh Coal	908
Big Lime	2177
Weir	2478
Berea	2663
Gordon	2925
Rhinestreet	6020
Genesee/Burkett	6528
Tully	6559
Hamilton	6595
Marcellus	6659
Landing Depth	6692
Onondaga	6709
Pilot Hole TD	6809

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	17 1/2	13 3/8	1,040'	1,040'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,841'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	13,457'	6,800'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,082	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	817	A	15	Air	1 Centralizer every other joint
Production	3,002	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface



Pilot Hole
 PH TD @
 6,809' TVD

Landing Point @ 7,285' MD / 6,692' TVD

PH TVD = 100' below Onondaga Top

Lateral TD @ 13,457' ft MD
 6,800' ft TVD



Tug Hill Operating, LLC Casing and Cement Program

Pendleton S-1HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	1,040'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,841'	CTS
Production	5 1/2"	P110	8 7/8 x 8 3/4"	13,457'	CTS

Cement

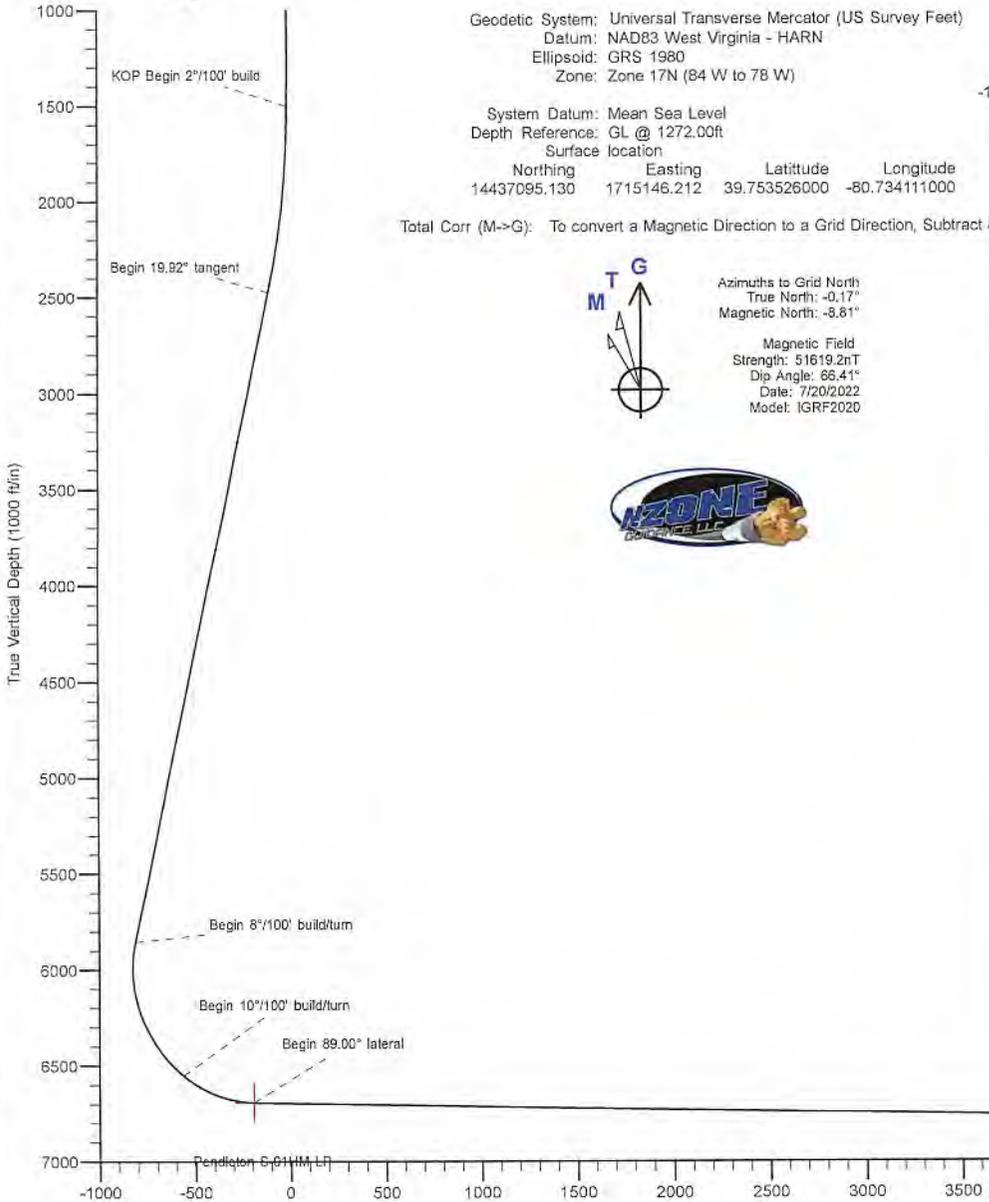
Conductor:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.38
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 14.5 ppg, Y = 1.3

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10/14/2022



Well: Pendleton S-01 HM (slot I)
 Site: Pendleton
 Project: Marshall County, West Virginia NAD83 UTM 17N
 Design: rev1
 Rig:



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

System Datum: Mean Sea Level
 Depth Reference: GL @ 1272.00ft
 Surface location
 Northing Easting Latitude Longitude
 14437095.130 1715146.212 39.753526000 -80.734111000

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.81°



Azimuths to Grid North
 True North: -0.17°
 Magnetic North: -8.81°
 Magnetic Field
 Strength: 51619.2nT
 Dip Angle: 66.41°
 Date: 7/20/2022
 Model: IGRF2022

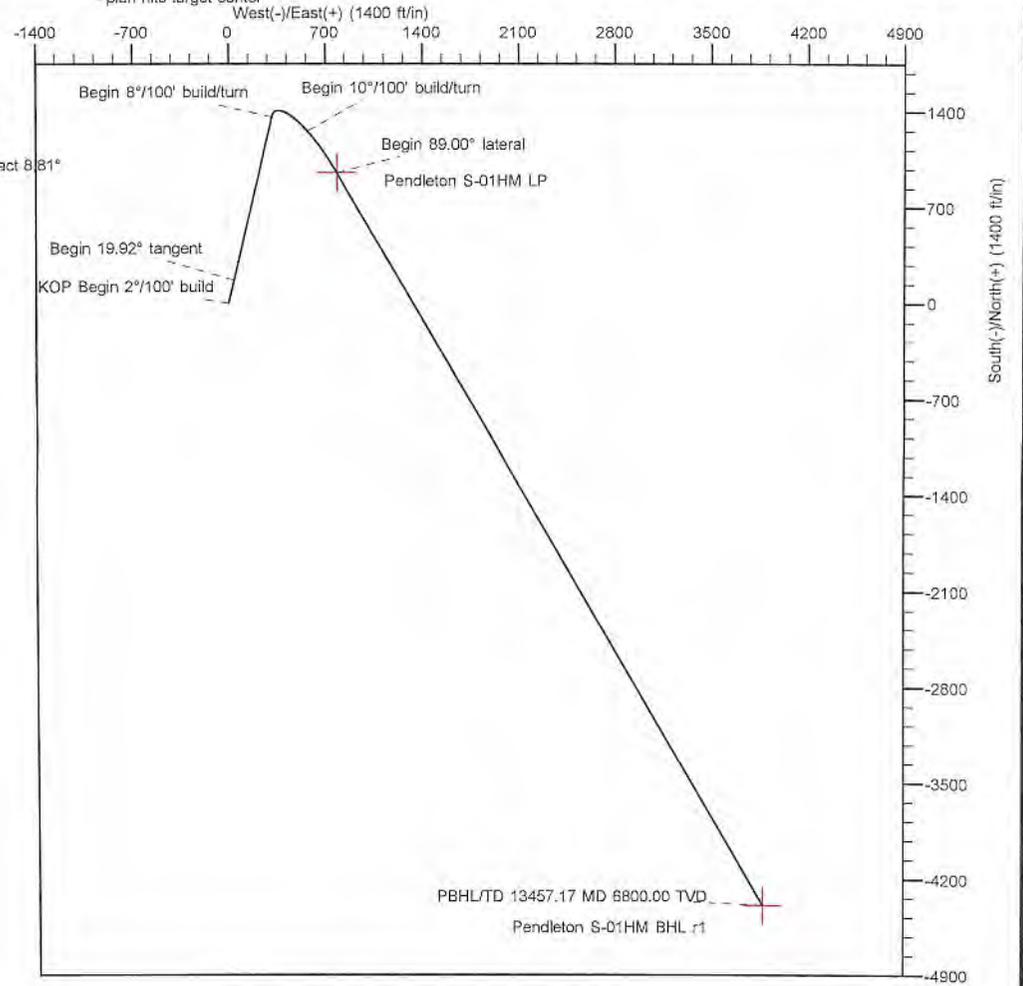


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSEct	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.000	1500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	2495.85	19.92	13.120	2475.91	166.88	38.90	2.00	13.12	-99.46	Begin 19.92° tangent
4	6092.91	19.92	13.120	5857.83	1360.26	317.05	0.00	0.00	-810.74	Begin 8°/100' build/turn
5	6880.59	50.00	138.360	6552.77	1254.58	574.45	8.00	135.40	-561.25	Begin 10°/100' build/turn
6	7284.70	89.00	150.000	6692.00	951.27	787.20	10.00	18.13	-193.04	Begin 89.00° lateral
7	13457.17	89.00	150.000	6800.00	-4393.45	3872.93	0.00	0.00	5856.79	PBHL/TD 13457.17 MD 6800.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Pendleton S-01HM LP	6692.00	951.27	787.20	1715933.414	1715933.414	39.756132000	-80.731300000
- plan misses target center by 0.01ft at 7284.70ft MD (6692.00 TVD, 951.27 N, 787.20 E)							
Pendleton S-01HM BHL r1	6800.00	-4393.45	3872.93	1719019.136	1719019.136	39.741428000	-80.720380000
- plan hits target center							



PBHL/TD 13457.17 MD 6800.00 TVD

Pendleton S-01HM BHL r1

Vertical Section at 138.603° (1000 ft/in)



Planning Report - Geographic

4705102468

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-01 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1272.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-01 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Project	Marshall County, West Virginia NAD83 UTM 17N		
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	Pendleton				
Site Position:		Northing:	14,437,088.243 usft	Latitude:	39.753506850
From:	Lat/Long	Easting:	1,715,175.249 usft	Longitude:	-80.734007760
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Pendleton S-01 HM (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,437,095.130 usft	Latitude:	39.753526000
	+E/-W	0.00 ft	Easting:	1,715,146.212 usft	Longitude:	-80.734111000
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,272.00 ft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/20/2022	-8.64	66.41	51,619.22081518

Design	rev1				
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	138.603	

Plan Survey Tool Program	Date				
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	13,457.17 rev1 (Original Hole)			

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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,495.85	19.92	13.120	2,475.91	166.88	38.90	2.00	2.00	0.00	13.12	
6,092.91	19.92	13.120	5,857.83	1,360.26	317.05	0.00	0.00	0.00	0.00	
6,880.59	50.00	138.360	6,552.77	1,254.58	574.45	8.00	3.82	15.90	135.40	
7,284.70	89.00	150.000	6,692.00	951.27	787.20	10.00	9.65	2.88	18.13	
13,457.17	89.00	150.000	6,800.00	-4,393.45	3,872.93	0.00	0.00	0.00	0.00	Pendleton S-01HM BI

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-01 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1272.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-01 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.000	0.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
100.00	0.00	0.000	100.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
200.00	0.00	0.000	200.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
300.00	0.00	0.000	300.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
400.00	0.00	0.000	400.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
500.00	0.00	0.000	500.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
600.00	0.00	0.000	600.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
700.00	0.00	0.000	700.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
800.00	0.00	0.000	800.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
900.00	0.00	0.000	900.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,437,095.130	1,715,146.212	39.753526000	-80.734111000	
KOP Begin 2°/100' build										
1,600.00	2.00	13.120	1,599.98	1.70	0.40	14,437,096.830	1,715,146.608	39.753530665	-80.734109573	
1,700.00	4.00	13.120	1,699.84	6.80	1.58	14,437,101.926	1,715,147.796	39.753544652	-80.734105292	
1,800.00	6.00	13.120	1,799.45	15.28	3.56	14,437,110.414	1,715,149.774	39.753567945	-80.734098164	
1,900.00	8.00	13.120	1,898.70	27.15	6.33	14,437,122.282	1,715,152.540	39.753600516	-80.734088197	
2,000.00	10.00	13.120	1,997.47	42.39	9.88	14,437,137.517	1,715,156.091	39.753642325	-80.734075402	
2,100.00	12.00	13.120	2,095.62	60.97	14.21	14,437,156.098	1,715,160.422	39.753693320	-80.734059796	
2,200.00	14.00	13.120	2,193.06	82.88	19.32	14,437,178.005	1,715,165.528	39.753753441	-80.734041398	
2,300.00	16.00	13.120	2,289.64	108.08	25.19	14,437,203.210	1,715,171.403	39.753822613	-80.734020229	
2,400.00	18.00	13.120	2,385.27	136.55	31.83	14,437,231.683	1,715,178.039	39.753900752	-80.733996316	
2,495.85	19.92	13.120	2,475.91	166.88	38.90	14,437,262.008	1,715,185.108	39.753983976	-80.733970847	
Begin 19.92° tangent										
2,500.00	19.92	13.120	2,479.82	168.26	39.22	14,437,263.385	1,715,185.428	39.753987756	-80.733969691	
2,600.00	19.92	13.120	2,573.84	201.43	46.95	14,437,296.562	1,715,193.161	39.754078805	-80.733941827	
2,700.00	19.92	13.120	2,667.85	234.61	54.68	14,437,329.738	1,715,200.894	39.754169854	-80.733913963	
2,800.00	19.92	13.120	2,761.87	267.78	62.41	14,437,362.915	1,715,208.627	39.754260903	-80.733886100	
2,900.00	19.92	13.120	2,855.89	300.96	70.15	14,437,396.091	1,715,216.359	39.754351951	-80.733858236	
3,000.00	19.92	13.120	2,949.91	334.14	77.88	14,437,429.268	1,715,224.092	39.754443000	-80.733830372	
3,100.00	19.92	13.120	3,043.93	367.31	85.61	14,437,462.444	1,715,231.825	39.754534049	-80.733802508	
3,200.00	19.92	13.120	3,137.95	400.49	93.35	14,437,495.621	1,715,239.558	39.754625098	-80.733774644	
3,300.00	19.92	13.120	3,231.97	433.67	101.08	14,437,528.797	1,715,247.290	39.754716147	-80.733746779	
3,400.00	19.92	13.120	3,325.99	466.84	108.81	14,437,561.974	1,715,255.023	39.754807196	-80.733718915	
3,500.00	19.92	13.120	3,420.00	500.02	116.54	14,437,595.150	1,715,262.756	39.754898245	-80.733691051	
3,600.00	19.92	13.120	3,514.02	533.20	124.28	14,437,628.327	1,715,270.489	39.754989294	-80.733663186	
3,700.00	19.92	13.120	3,608.04	566.37	132.01	14,437,661.503	1,715,278.221	39.755080342	-80.733635322	
3,800.00	19.92	13.120	3,702.06	599.55	139.74	14,437,694.680	1,715,285.954	39.755171391	-80.733607457	
3,900.00	19.92	13.120	3,796.08	632.73	147.48	14,437,727.856	1,715,293.687	39.755262440	-80.733579593	
4,000.00	19.92	13.120	3,890.10	665.90	155.21	14,437,761.033	1,715,301.420	39.755353489	-80.733551728	
4,100.00	19.92	13.120	3,984.12	699.08	162.94	14,437,794.209	1,715,309.152	39.755444538	-80.733523863	
4,200.00	19.92	13.120	4,078.13	732.26	170.67	14,437,827.386	1,715,316.885	39.755535586	-80.733495999	
4,300.00	19.92	13.120	4,172.15	765.43	178.41	14,437,860.562	1,715,324.618	39.755626635	-80.733468134	
4,400.00	19.92	13.120	4,266.17	798.61	186.14	14,437,893.739	1,715,332.351	39.755717684	-80.733440269	
4,500.00	19.92	13.120	4,360.19	831.79	193.87	14,437,926.915	1,715,340.083	39.755808733	-80.733412404	
4,600.00	19.92	13.120	4,454.21	864.96	201.60	14,437,960.092	1,715,347.816	39.755899781	-80.733384538	
4,700.00	19.92	13.120	4,548.23	898.14	209.34	14,437,993.268	1,715,355.549	39.755990830	-80.733356673	
4,800.00	19.92	13.120	4,642.25	931.32	217.07	14,438,026.445	1,715,363.281	39.756081879	-80.733328808	
4,900.00	19.92	13.120	4,736.27	964.49	224.80	14,438,059.621	1,715,371.014	39.756172928	-80.733300943	



Planning Report - Geographic

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-01 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1272.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-01 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,000.00	19.92	13.120	4,830.28	997.67	232.54	14,438,092.798	1,715,378.747	39.756263976	-80.733273077	
5,100.00	19.92	13.120	4,924.30	1,030.85	240.27	14,438,125.974	1,715,386.480	39.756355025	-80.733245212	
5,200.00	19.92	13.120	5,018.32	1,064.02	248.00	14,438,159.151	1,715,394.212	39.756446074	-80.733217346	
5,300.00	19.92	13.120	5,112.34	1,097.20	255.73	14,438,192.327	1,715,401.945	39.756537123	-80.733189480	
5,400.00	19.92	13.120	5,206.36	1,130.38	263.47	14,438,225.504	1,715,409.678	39.756628171	-80.733161615	
5,500.00	19.92	13.120	5,300.38	1,163.55	271.20	14,438,258.680	1,715,417.411	39.756719220	-80.733133749	
5,600.00	19.92	13.120	5,394.40	1,196.73	278.93	14,438,291.857	1,715,425.143	39.756810269	-80.733105883	
5,700.00	19.92	13.120	5,488.42	1,229.91	286.66	14,438,325.033	1,715,432.876	39.756901317	-80.733078017	
5,800.00	19.92	13.120	5,582.43	1,263.08	294.40	14,438,358.210	1,715,440.609	39.756992366	-80.733050151	
5,900.00	19.92	13.120	5,676.45	1,296.26	302.13	14,438,391.386	1,715,448.342	39.757083415	-80.733022285	
6,000.00	19.92	13.120	5,770.47	1,329.44	309.86	14,438,424.563	1,715,456.074	39.757174463	-80.732994419	
6,092.91	19.92	13.120	5,857.83	1,360.26	317.05	14,438,455.388	1,715,463.259	39.757259060	-80.732968527	
Begin 8°/100' build/turn										
6,100.00	19.52	14.312	5,864.50	1,362.58	317.61	14,438,457.711	1,715,463.826	39.757265433	-80.732966487	
6,150.00	16.96	24.170	5,911.99	1,377.33	322.67	14,438,472.462	1,715,468.878	39.757305904	-80.732948353	
6,200.00	15.02	36.921	5,960.07	1,389.17	329.55	14,438,484.300	1,715,475.759	39.757338357	-80.732923745	
6,250.00	13.97	52.391	6,008.50	1,398.04	338.22	14,438,493.165	1,715,484.434	39.757362633	-80.732892783	
6,300.00	13.99	69.004	6,057.04	1,403.89	348.65	14,438,499.016	1,715,494.862	39.757378615	-80.732855617	
6,350.00	15.10	84.364	6,105.45	1,406.70	360.78	14,438,501.822	1,715,506.991	39.757386223	-80.732812429	
6,400.00	17.07	96.965	6,153.51	1,406.44	374.55	14,438,501.572	1,715,520.763	39.757385423	-80.732763429	
6,450.00	19.66	106.690	6,200.97	1,403.14	389.90	14,438,498.265	1,715,536.110	39.757376216	-80.732708855	
6,500.00	22.64	114.093	6,247.60	1,396.79	406.75	14,438,491.919	1,715,552.958	39.757358648	-80.732648974	
6,550.00	25.89	119.789	6,293.19	1,387.44	425.01	14,438,482.563	1,715,571.225	39.757332805	-80.732584077	
6,600.00	29.31	124.266	6,337.49	1,375.12	444.61	14,438,470.244	1,715,590.821	39.757298813	-80.732514481	
6,650.00	32.86	127.867	6,380.31	1,359.89	465.44	14,438,455.021	1,715,611.652	39.757256836	-80.732440524	
6,700.00	36.48	130.832	6,421.43	1,341.84	487.40	14,438,436.969	1,715,633.615	39.757207080	-80.732362567	
6,750.00	40.17	133.325	6,460.65	1,321.05	510.39	14,438,416.176	1,715,656.604	39.757149787	-80.732280990	
6,800.00	43.91	135.462	6,497.78	1,297.62	534.30	14,438,392.743	1,715,680.506	39.757085237	-80.732196191	
6,850.00	47.68	137.327	6,532.64	1,271.66	559.00	14,438,366.783	1,715,705.206	39.757013743	-80.732108581	
6,880.59	50.00	138.360	6,552.77	1,254.58	574.45	14,438,349.708	1,715,720.661	39.756966721	-80.732053773	
Begin 10°/100' build/turn										
6,900.00	51.85	139.128	6,565.00	1,243.25	584.38	14,438,338.382	1,715,730.593	39.756935536	-80.732018551	
6,950.00	56.63	140.941	6,594.22	1,212.16	610.42	14,438,307.285	1,715,756.629	39.756849923	-80.731926242	
7,000.00	61.43	142.564	6,619.94	1,178.49	636.94	14,438,273.619	1,715,783.148	39.756757248	-80.731832245	
7,050.00	66.25	144.045	6,641.98	1,142.51	663.74	14,438,237.640	1,715,809.946	39.756658219	-80.731737275	
7,100.00	71.08	145.420	6,660.17	1,104.49	690.61	14,438,199.621	1,715,836.821	39.756553588	-80.731642057	
7,150.00	75.92	146.718	6,674.36	1,064.72	717.36	14,438,159.853	1,715,863.567	39.756444151	-80.731547314	
7,200.00	80.77	147.961	6,684.46	1,023.51	743.77	14,438,118.636	1,715,889.982	39.756330743	-80.731453767	
7,250.00	85.63	149.171	6,690.38	981.16	769.65	14,438,076.286	1,715,915.864	39.756214225	-80.731362129	
7,284.70	89.00	150.000	6,692.00	951.27	787.20	14,438,046.401	1,715,933.407	39.756132007	-80.731300027	
Begin 89.00° lateral										
7,300.00	89.00	150.000	6,692.27	938.02	794.85	14,438,033.151	1,715,941.057	39.756095554	-80.731272948	
7,400.00	89.00	150.000	6,694.02	851.43	844.84	14,437,946.561	1,715,991.049	39.755857344	-80.731095997	
7,500.00	89.00	150.000	6,695.77	764.84	894.83	14,437,859.972	1,716,041.041	39.755619133	-80.730919047	
7,600.00	89.00	150.000	6,697.52	678.25	944.82	14,437,773.382	1,716,091.033	39.755380922	-80.730742097	
7,700.00	89.00	150.000	6,699.27	591.66	994.81	14,437,686.793	1,716,141.024	39.755142710	-80.730565150	
7,800.00	89.00	150.000	6,701.02	505.07	1,044.81	14,437,600.204	1,716,191.016	39.754904499	-80.730388203	
7,900.00	89.00	150.000	6,702.77	418.48	1,094.80	14,437,513.614	1,716,241.008	39.754666287	-80.730211257	
8,000.00	89.00	150.000	6,704.52	331.90	1,144.79	14,437,427.025	1,716,291.000	39.754428075	-80.730034313	
8,100.00	89.00	150.000	6,706.27	245.31	1,194.78	14,437,340.435	1,716,340.991	39.754189862	-80.729857370	
8,200.00	89.00	150.000	6,708.02	158.72	1,244.77	14,437,253.846	1,716,390.983	39.753951649	-80.729680428	
8,300.00	89.00	150.000	6,709.77	72.13	1,294.76	14,437,167.257	1,716,440.975	39.753713436	-80.729503488	
8,400.00	89.00	150.000	6,711.52	-14.46	1,344.76	14,437,080.667	1,716,490.967	39.753475223	-80.729326548	

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-01 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1272.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-01 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Deslgn:	rev1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,500.00	89.00	150.000	6,713.27	-101.05	1,394.75	14,436,994.078	1,716,540.958	39.753237009	-80.729149610
8,600.00	89.00	150.000	6,715.02	-187.64	1,444.74	14,436,907.489	1,716,590.950	39.752998795	-80.728972673
8,700.00	89.00	150.000	6,716.76	-274.23	1,494.73	14,436,820.899	1,716,640.942	39.752760581	-80.728795737
8,800.00	89.00	150.000	6,718.51	-360.82	1,544.72	14,436,734.310	1,716,690.934	39.752522367	-80.728618803
8,900.00	89.00	150.000	6,720.26	-447.41	1,594.72	14,436,647.720	1,716,740.925	39.752284152	-80.728441870
9,000.00	89.00	150.000	6,722.01	-534.00	1,644.71	14,436,561.131	1,716,790.917	39.752045937	-80.728264937
9,100.00	89.00	150.000	6,723.76	-620.59	1,694.70	14,436,474.542	1,716,840.909	39.751807722	-80.728088007
9,200.00	89.00	150.000	6,725.51	-707.18	1,744.69	14,436,387.952	1,716,890.901	39.751569506	-80.727911077
9,300.00	89.00	150.000	6,727.26	-793.77	1,794.68	14,436,301.363	1,716,940.892	39.751331290	-80.727734148
9,400.00	89.00	150.000	6,729.01	-880.36	1,844.68	14,436,214.773	1,716,990.884	39.751093074	-80.727557221
9,500.00	89.00	150.000	6,730.76	-966.95	1,894.67	14,436,128.184	1,717,040.876	39.750854858	-80.727380295
9,600.00	89.00	150.000	6,732.51	-1,053.54	1,944.66	14,436,041.595	1,717,090.868	39.750616641	-80.727203370
9,700.00	89.00	150.000	6,734.26	-1,140.13	1,994.65	14,435,955.005	1,717,140.859	39.750378424	-80.727026447
9,800.00	89.00	150.000	6,736.01	-1,226.72	2,044.64	14,435,868.416	1,717,190.851	39.750140207	-80.726849525
9,900.00	89.00	150.000	6,737.76	-1,313.31	2,094.63	14,435,781.826	1,717,240.843	39.749901990	-80.726672603
10,000.00	89.00	150.000	6,739.51	-1,399.90	2,144.63	14,435,695.237	1,717,290.835	39.749663772	-80.726495683
10,100.00	89.00	150.000	6,741.26	-1,486.49	2,194.62	14,435,608.648	1,717,340.826	39.749425554	-80.726318765
10,200.00	89.00	150.000	6,743.01	-1,573.08	2,244.61	14,435,522.058	1,717,390.818	39.749187336	-80.726141847
10,300.00	89.00	150.000	6,744.76	-1,659.66	2,294.60	14,435,435.469	1,717,440.810	39.748949117	-80.725964931
10,400.00	89.00	150.000	6,746.51	-1,746.25	2,344.59	14,435,348.879	1,717,490.802	39.748710898	-80.725788016
10,500.00	89.00	150.000	6,748.26	-1,832.84	2,394.59	14,435,262.290	1,717,540.793	39.748472679	-80.725611102
10,600.00	89.00	150.000	6,750.01	-1,919.43	2,444.58	14,435,175.701	1,717,590.785	39.748234460	-80.725434189
10,700.00	89.00	150.000	6,751.76	-2,006.02	2,494.57	14,435,089.111	1,717,640.777	39.747996240	-80.725257278
10,800.00	89.00	150.000	6,753.51	-2,092.61	2,544.56	14,435,002.522	1,717,690.769	39.747758020	-80.725080368
10,900.00	89.00	150.000	6,755.26	-2,179.20	2,594.55	14,434,915.933	1,717,740.760	39.747519800	-80.724903459
11,000.00	89.00	150.000	6,757.01	-2,265.79	2,644.54	14,434,829.343	1,717,790.752	39.747281579	-80.724726551
11,100.00	89.00	150.000	6,758.76	-2,352.38	2,694.54	14,434,742.754	1,717,840.744	39.747043359	-80.724549644
11,200.00	89.00	150.000	6,760.51	-2,438.97	2,744.53	14,434,656.164	1,717,890.736	39.746805138	-80.724372739
11,300.00	89.00	150.000	6,762.26	-2,525.56	2,794.52	14,434,569.575	1,717,940.727	39.746566916	-80.724195835
11,400.00	89.00	150.000	6,764.01	-2,612.15	2,844.51	14,434,482.986	1,717,990.719	39.746328695	-80.724018932
11,500.00	89.00	150.000	6,765.76	-2,698.74	2,894.50	14,434,396.396	1,718,040.711	39.746090473	-80.723842030
11,600.00	89.00	150.000	6,767.51	-2,785.33	2,944.50	14,434,309.807	1,718,090.703	39.745852251	-80.723665130
11,700.00	89.00	150.000	6,769.26	-2,871.92	2,994.49	14,434,223.217	1,718,140.694	39.745614028	-80.723488230
11,800.00	89.00	150.000	6,771.00	-2,958.51	3,044.48	14,434,136.628	1,718,190.686	39.745375806	-80.723311332
11,900.00	89.00	150.000	6,772.75	-3,045.10	3,094.47	14,434,050.039	1,718,240.678	39.745137583	-80.723134436
12,000.00	89.00	150.000	6,774.50	-3,131.69	3,144.46	14,433,963.449	1,718,290.670	39.744899359	-80.722957540
12,100.00	89.00	150.000	6,776.25	-3,218.28	3,194.46	14,433,876.860	1,718,340.661	39.744661136	-80.722780646
12,200.00	89.00	150.000	6,778.00	-3,304.87	3,244.45	14,433,790.270	1,718,390.653	39.744422912	-80.722603752
12,300.00	89.00	150.000	6,779.75	-3,391.46	3,294.44	14,433,703.681	1,718,440.645	39.744184688	-80.722426860
12,400.00	89.00	150.000	6,781.50	-3,478.05	3,344.43	14,433,617.092	1,718,490.637	39.743946464	-80.722249970
12,500.00	89.00	150.000	6,783.25	-3,564.64	3,394.42	14,433,530.502	1,718,540.628	39.743708239	-80.722073080
12,600.00	89.00	150.000	6,785.00	-3,651.22	3,444.41	14,433,443.913	1,718,590.620	39.743470014	-80.721896192
12,700.00	89.00	150.000	6,786.75	-3,737.81	3,494.41	14,433,357.324	1,718,640.612	39.743231789	-80.721719305
12,800.00	89.00	150.000	6,788.50	-3,824.40	3,544.40	14,433,270.734	1,718,690.604	39.742993563	-80.721542419
12,900.00	89.00	150.000	6,790.25	-3,910.99	3,594.39	14,433,184.145	1,718,740.595	39.742755338	-80.721365534
13,000.00	89.00	150.000	6,792.00	-3,997.58	3,644.38	14,433,097.555	1,718,790.587	39.742517112	-80.721188650
13,100.00	89.00	150.000	6,793.75	-4,084.17	3,694.37	14,433,010.966	1,718,840.579	39.742278885	-80.721011768
13,200.00	89.00	150.000	6,795.50	-4,170.76	3,744.37	14,432,924.377	1,718,890.571	39.742040659	-80.720834887
13,300.00	89.00	150.000	6,797.25	-4,257.35	3,794.36	14,432,837.787	1,718,940.562	39.741802432	-80.720658007
13,400.00	89.00	150.000	6,799.00	-4,343.94	3,844.35	14,432,751.198	1,718,990.554	39.741564205	-80.720481129
13,457.17	89.00	150.000	6,800.00	-4,393.45	3,872.93	14,432,701.691	1,719,019.137	39.741428000	-80.720380000

PBHL/TD 13457.17 MD 6800.00 TVD

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-01 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1272.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-01 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Pendleton S-01HM LP	0.00	0.000	6,692.00	951.27	787.20	14,438,046.399	1,715,933.415	39.756132000	-80.731300000
- plan misses target center by 0.01ft at 7284.70ft MD (6692.00 TVD, 951.27 N, 787.20 E)									
- Point									
Pendleton S-01HM BHL	0.00	0.000	6,800.00	-4,393.45	3,872.93	14,432,701.691	1,719,019.137	39.741428000	-80.720380000
- plan hits target center									
- Point									

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build	
2,495.85	2,475.91	166.88	38.90	Begin 19.92° tangent	
6,092.91	5,857.83	1,360.26	317.05	Begin 8°/100' build/turn	
6,880.59	6,552.77	1,254.58	574.45	Begin 10°/100' build/turn	
7,284.70	6,692.00	951.27	787.20	Begin 89.00° lateral	
13,457.17	6,800.00	-4,393.45	3,872.93	PBHL/TD 13457.17 MD 6800.00 TVD	

WW-9
(4/16)

4705102468

API Number 47 - 051 - _____
Operator's Well No. Pendleton S-1HM

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) Middle 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 and produced water for frac

Will a synthetic liner be used in the pit? Yes No If so, what ml.? ASTs with proper containment

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 drilling

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

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? _____

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings to be disposed of in 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-1021MWV109165) and Westmoreland Sanitary Landfill, LLC (SAN1405/PADEP EC#1356426), Chestnut Valley Landfill (10D419)

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) James Pancake

Company Official Title Vice President - Geosciences

Subscribed and sworn before me this 23 day of August, 20 22

[Signature]

My commission expires 2/16/24

Commonwealth of Pennsylvania - Notary Seal
 David Gabriel Defallo, Notary Public
 Washington County
 My commission expires February 16, 2024
 Commission number 1267492
 Member, Pennsylvania Association of Notaries

10/14/2022

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 6.88 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:  STRADER GOWER

Comments: _____

Title: Oil and Gas Inspector Date: 8/25/22

Field Reviewed? () Yes () No

DRAWING NOT TO SCALE

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.

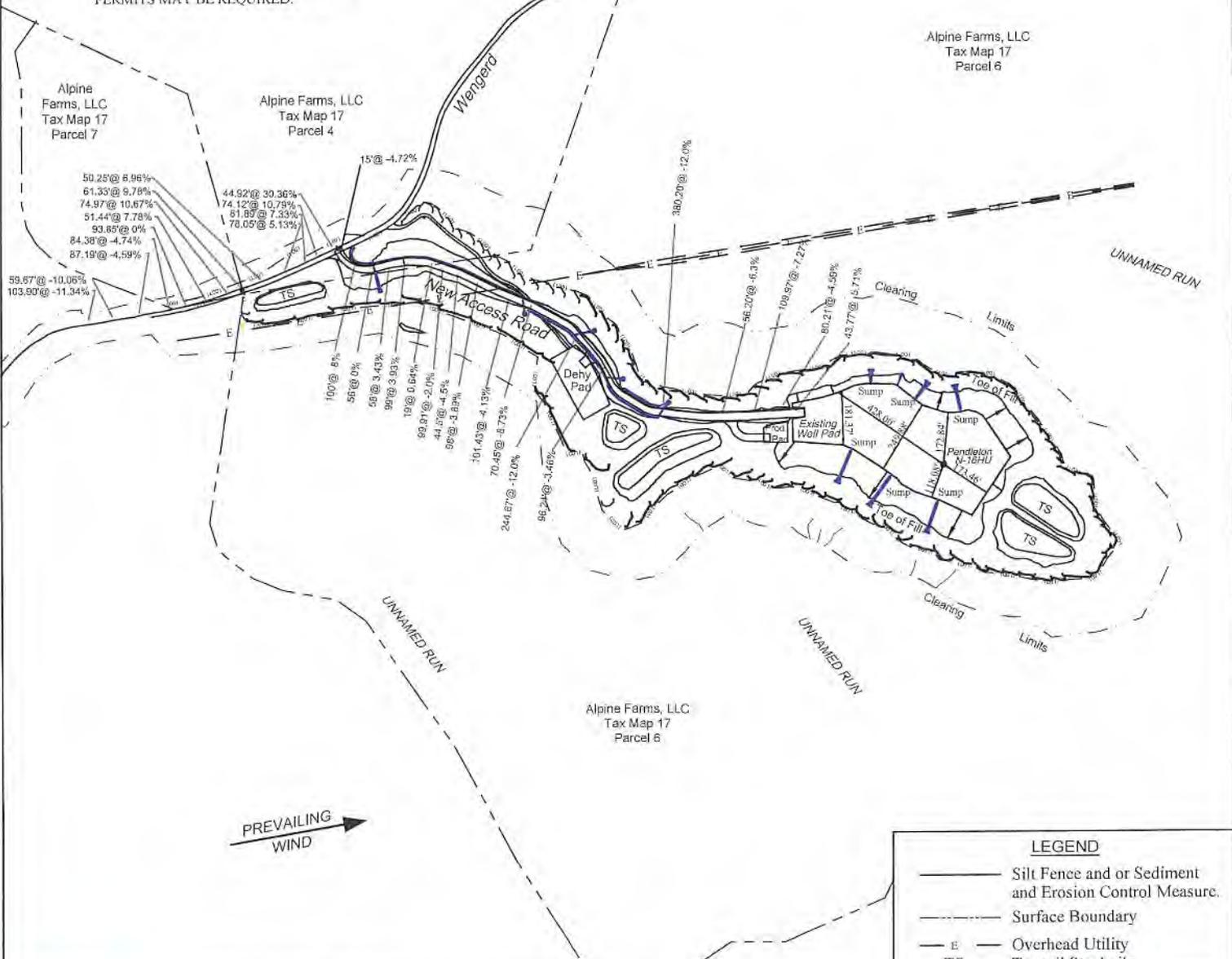
TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.

INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.



Alpine Farms, LLC
Tax Map 17
Parcel 6

Alpine Farms, LLC
Tax Map 17
Parcel 7

Alpine Farms, LLC
Tax Map 17
Parcel 4

Alpine Farms, LLC
Tax Map 17
Parcel 6

LEGEND	
	Silt Fence and or Sediment and Erosion Control Measure.
	Surface Boundary
	Overhead Utility
	Topsoil Stockpile

Jackson Surveying Inc.
2415 E. Pike St.
Clarksburg, WV 26801
Phone: 304-623-6861

TOPO SECTION:	
GLEN EASTON 7.5'	
COUNTY	DISTRICT
MARSHALL	FRANKLIN
DRAWN BY	JOB NO.
J.D.C	4.94510851

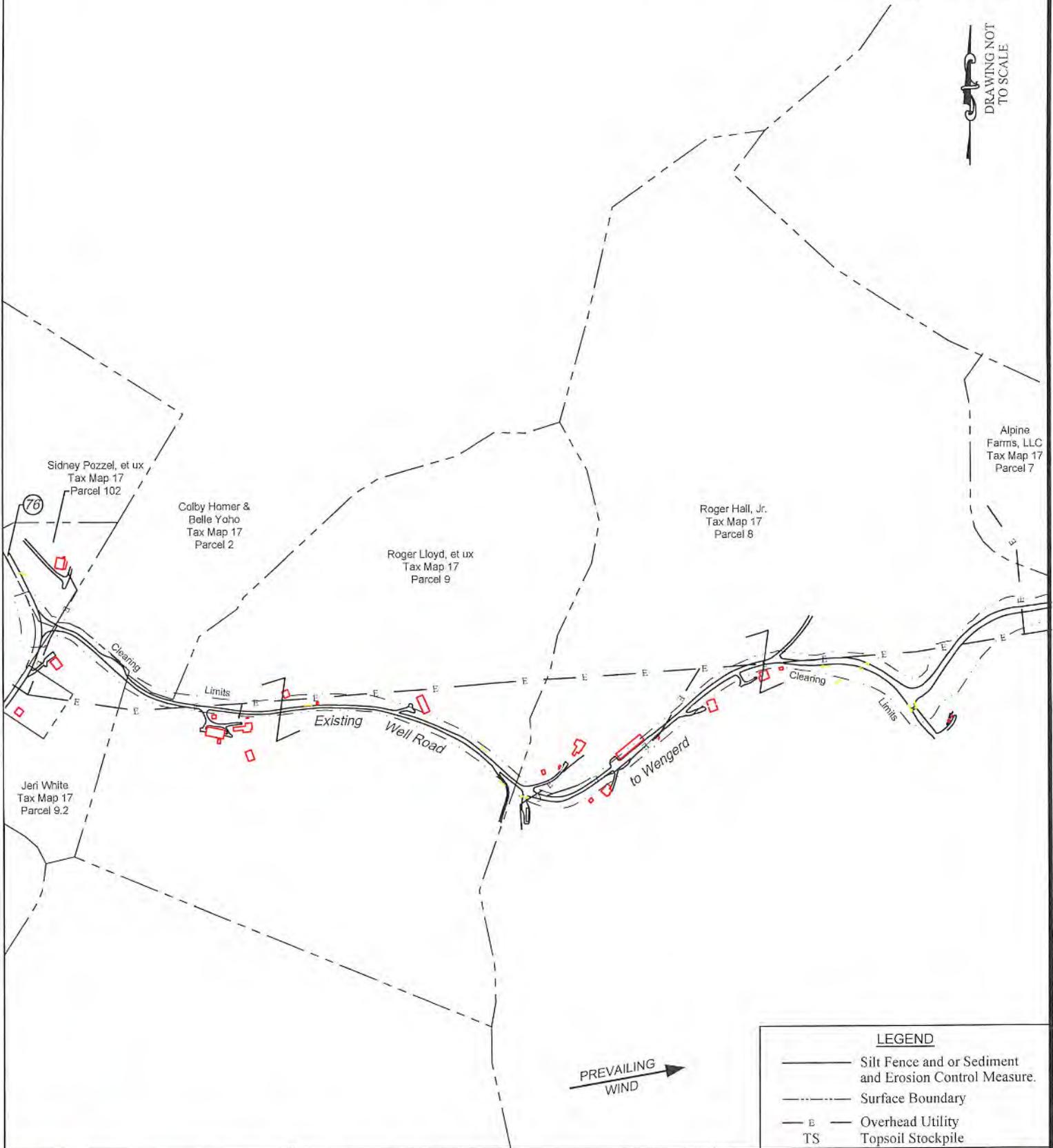
OPERATOR:	
PREPARED FOR:	
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
DATE	SCALE
03-16-2022	NONE

TUG HILL OPERATING
10/14/2022

PROPOSED PENDLETON

Exhibit 1
Page 2 of 2

DRAWING NOT
TO SCALE



LEGEND	
	Silt Fence and or Sediment and Erosion Control Measure.
	Surface Boundary
	Overhead Utility
	Topsoil Stockpile

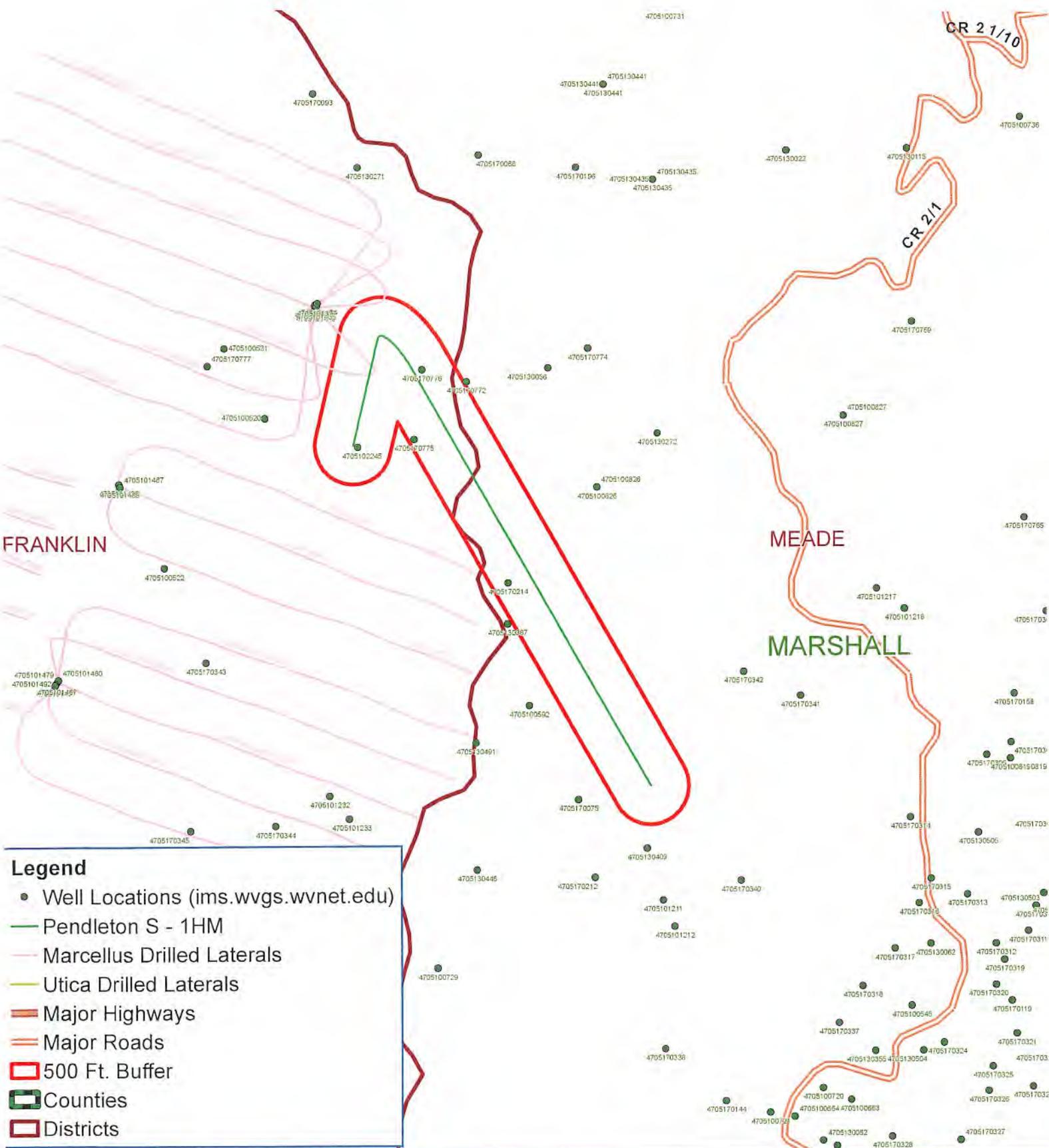


Jackson Surveying Inc.
2418 E. Pike St.
Clarksburg, WV 26301
Phone: 304-623-6851

TOPO SECTION:	
GLEN EASTON 7.5'	
COUNTY	DISTRICT
MARSHALL	FRANKLIN
DRAWN BY	JOB NO.
J.D.C.	494510851

OPERATOR:	
PREPARED FOR:	
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
DATE	SCALE
03-16-2022	NONE

**TUG HILL
OPERATING**
10/14/2022



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Pendleton S - 1HM
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- 500 Ft. Buffer
- Counties
- Districts



Pendleton S - 1HM Franklin District Marshall County, WV



Map Prepared by:

 10/14/2022

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 (7/25/2022) 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 Enverus All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

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

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

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
4705170775	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well.	State records are incomplete.
4705170776	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well.	State records are incomplete.
4705102245	Tug Hill Operating, LLC.	11787' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705170214	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well.	State records are incomplete.

WV Geological & Economic Survey:

Well: County = 51 Permit = 70775

Report Time: Wednesday, January 26, 2022 1:10:11 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170775	Marshall	70775	Franklin	Glen Easton	Cameron	39.753718	-80.73127	523020.9	4400457.5

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
4705170775	-/-	unknown	Prpty Map	Herbert Kelley						----- 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
4705170775	-/-	-/-						unclassified	unclassified	not available	unknown	unknown							

WV Geological & Economic Survey:

Well: County = 51 Permit = 70776

Report Time: Wednesday, January 26, 2022 1:12:17 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170776	Marshall	70776	Franklin	Glen Easton	Cameron	39.756185	-80.730894	523052.3	4400731.4

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
4705170776	-/-	unknown	Prpty Map	Herbert Alley		1262				----- 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
4705170776	-/-	-/-						unclassified	unclassified	not available	unknown	unknown							

WV Geological & Economic Survey:

Well: County = 51 Permit = 02245

Report Time: Wednesday, January 26, 2022 1:12:34 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102245	Marshall	2245	Franklin	Glen Easton	Cameron	39.753455	-80.733897	522795.9	4400427.6

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102245	1 As Proposed	520896.4	4403611.2	-80.755969	39.782188

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
4705102245	-/-	Dvtd Orgnl Loc	Cancelled	Alpine Farm LLC			N-9HU Pendleton		Eli A & Fannie Mae Wengerd et al	Tug Hill Operating, LLC	11787	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_A
4705102245	-/-	-/-	1272	Ground Level																

WV Geological & Economic Survey:

Well: County = 51 Permit = 70214

Report Time: Wednesday, January 26, 2022 1:12:52 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170214	Marshall	70214	Meade	Wileyville	Littleton	39.748628	-80.726928	523394.6	4399893.7

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
4705170214	-/-	Original Loc	Completed	James Mossey		1			OP=Wheeling	Oper in Min.owner fld.no code assgn(Orphan well proj)		

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
4705170214	-/-	-/-						unclassified	unclassified	not available	unknown	unknown							



TUG HILL
OPERATING

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

Well Name: Pendleton S-1HM

Pad Name: Pendleton

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,400,435.36

Easting: 522,777.64

**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

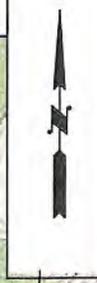
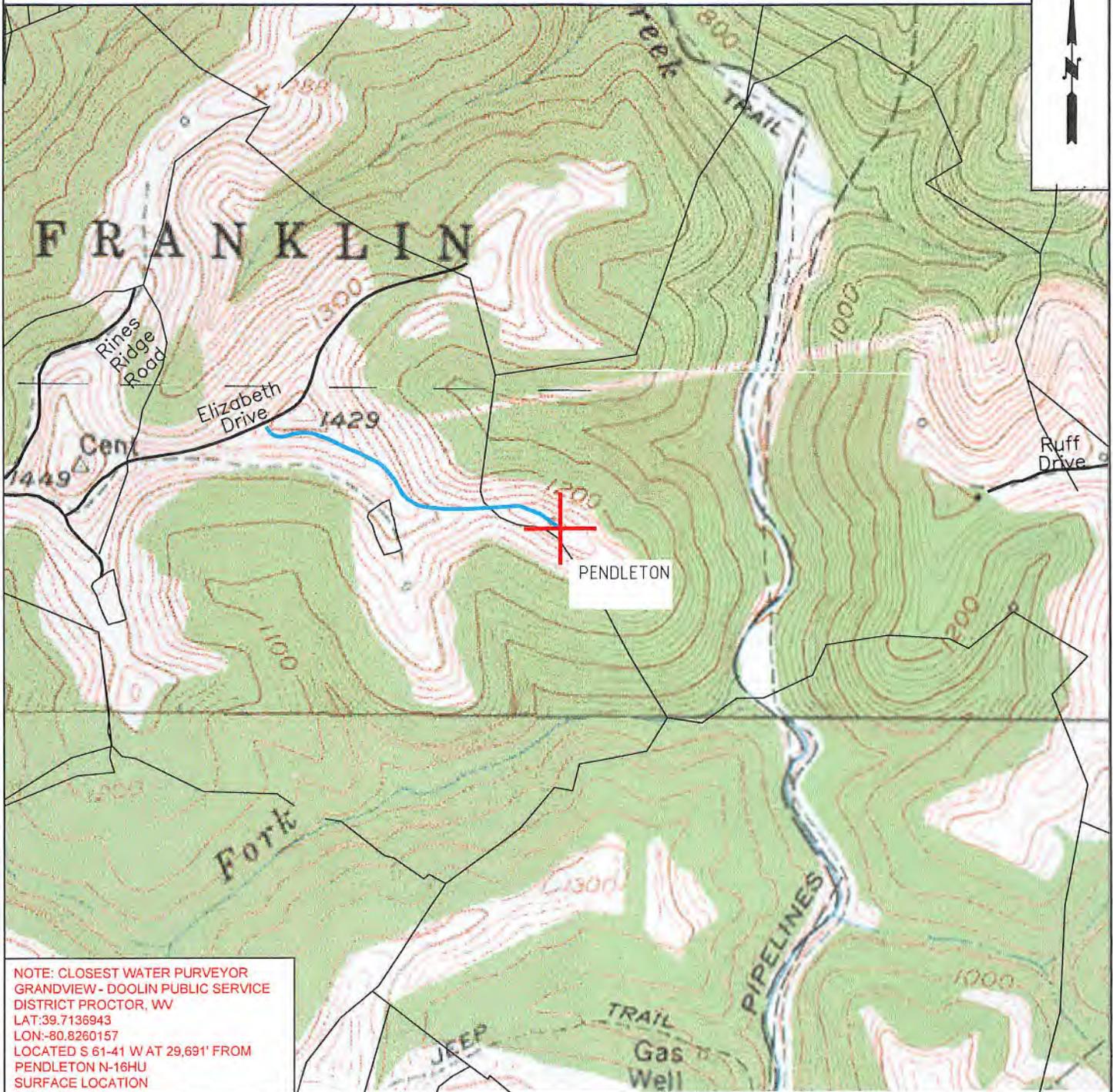
(800) 921-9745

John Cooney
8/25/22
STANDARD WORK

10/14/2022

Pendleton Pad

THERE APPEAR TO BE NO (0) RESIDENCES WITHIN 2,000'.



NOTE: CLOSEST WATER PURVEYOR
 GRANDVIEW - DOOLIN PUBLIC SERVICE
 DISTRICT PROCTOR, WV
 LAT: 39.7136943
 LON: -80.8260157
 LOCATED S 61-41 W AT 29,691' FROM
 PENDLETON N-16HU
 SURFACE LOCATION

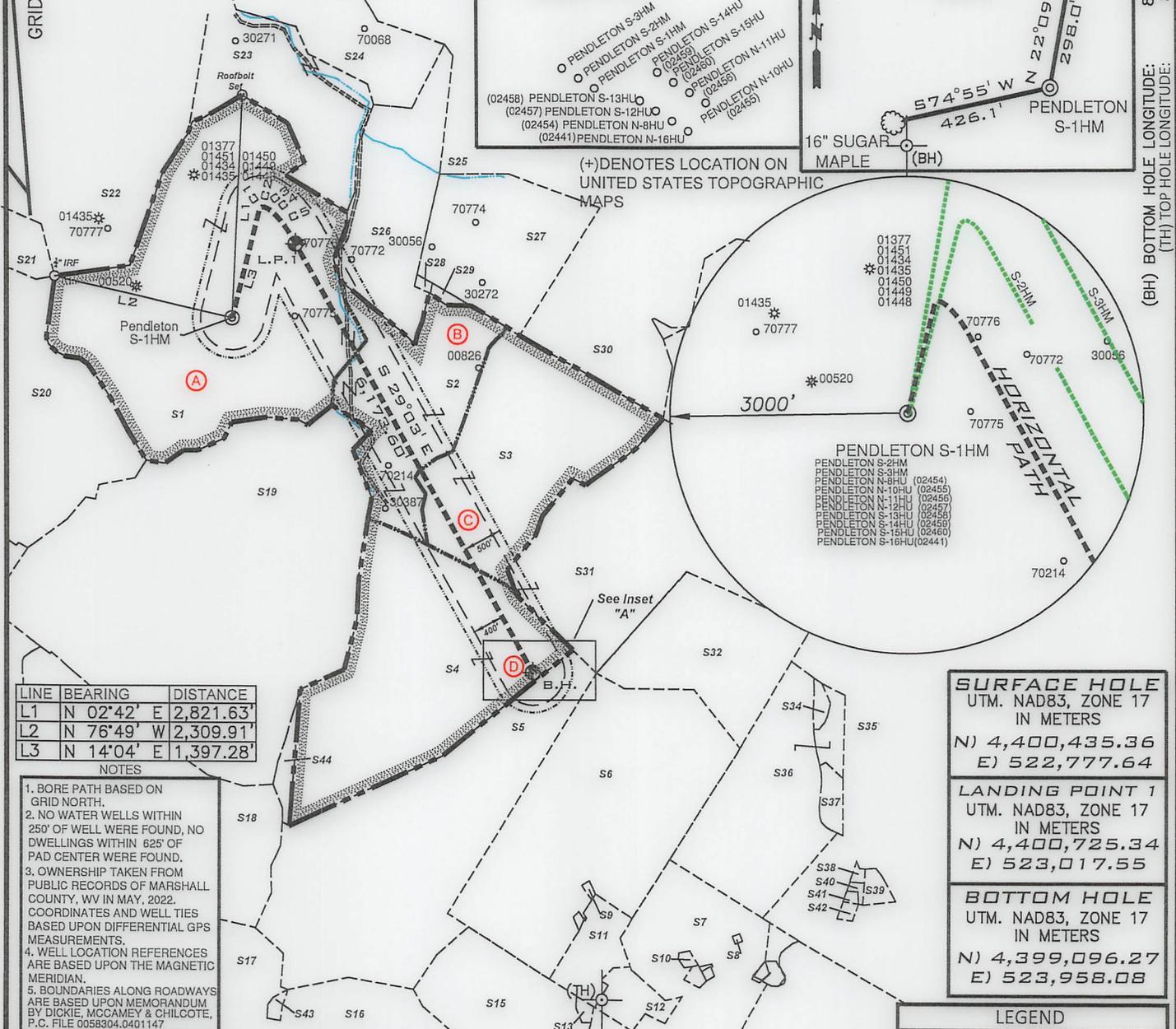
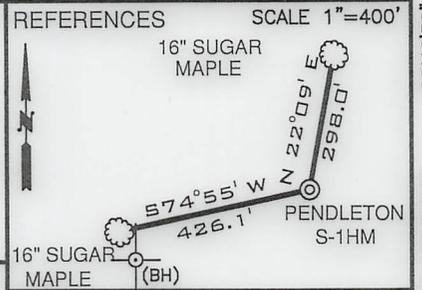
 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		GLEN EASTON 7.5'	PENDLETON
			SCALE: 1" = 1000'	DATE: DATE: 03-16-2022

Stk
8/23/22

10/14/2022

**PENDLETON LEASE
WELL S-1HM
530.73± ACRES**

(TH) 7,291'
(BH) 3,428'
TOP HOLE LATITUDE: 39°47'30"
BOTTOM HOLE LATITUDE: 39°45'00"



LINE	BEARING	DISTANCE
L1	N 02°42' E	2,821.63'
L2	N 76°49' W	2,309.91'
L3	N 14°04' E	1,397.28'

- NOTES**
1. BORE PATH BASED ON GRID NORTH.
 2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MAY, 2022. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 5. BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.0401147

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	N 36°53' E	53.90'	55.56'	56.27'
C2	S 88°00' E	41.27'	67.68'	41.94'
C3	S 59°15' E	87.08'	247.11'	87.53'
C4	S 42°26' E	249.72'	1007.33'	250.36'
C5	S 32°31' E	272.50'	2149.79'	272.68'

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,435.36
E) 522,777.64

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,725.34
E) 523,017.55

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,096.27
E) 523,958.08

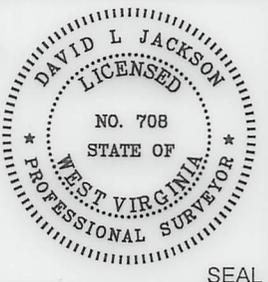
LEGEND

- LEASE TRACTS
- - - SURFACE TRACTS
- - - WELL LATERAL
- - - MARCELLUS LEGS
- ▨ UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)

FILE NUMBER _____
DRAWING NUMBER: PENDLETON S-1HM_REV1
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

David L Jackson



JACKSON SURVEYING INC.
P.O. Box 1460
Clarksburg, WV 26302
304-623-5851

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET, SE
CHARLESTON, WV 25304

DATE: AUGUST 19, 2022
OPERATORS WELL NO. PENDLETON S-1HM
API WELL NO. 47-051-02468
STATE WV COUNTY MARSHALL PERMIT SEE WW-6A1 Form

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION ELEVATION 1271.82' WATERSHED (HUC 10) FISH CREEK
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE GLEN EASTON 7.5' LEASE NUMBER SEE WW-6A1 Form

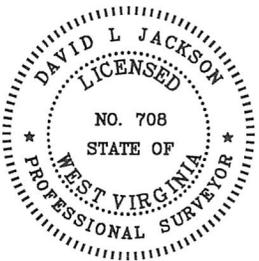
SURFACE OWNER ALPINE FARM, LLC ACREAGE 249.07
OIL & GAS ROYALTY OWNER ELI A. & FANNIE MAE WENGERD, ET AL LEASE ACREAGE 249.07
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____
TARGET FORMATION MARCELLUS PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
ESTIMATED DEPTH TVD: 6,809' TMD: 13,457'
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN, CT CORP
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5098 WASHINGTON STREET WEST, SUITE 407 CHARLESTON, WV 25313-1561

10/14/2022

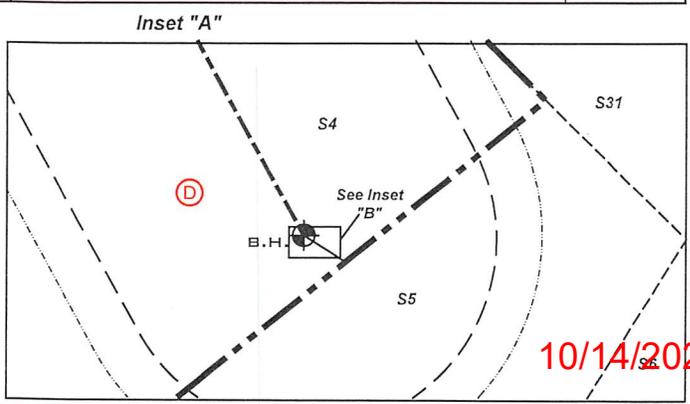
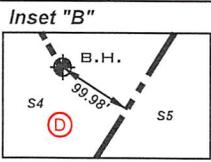
COUNTRY NAME PERMIT

**PENDLETON LEASE
WELL S-1HM
530.73± ACRES**

Parcels within Unit Boundary				
Tags	Number	Tax Map -Parcel	Surface Owner	Acres
A	S1	05-17-06	ALPINE FARM LLC	249.07
B	S2	09-18-01	THOMAS THERESA MAE LONG ET AL	58.66
C	S3	09-18-02	BRIAN T KLUG	85.0
D	S4	09-20-02	MICHAEL JAMES PEKULA ET UX	138.0
Adjoining Parcels Ownership Table				
Tags	Number	Tax Map -Parcel	Surface Owner	Acres
	S5	09-20-04	SHELLIE J PEKULA	171
	S6	09-20-05	GERALD A FROHNAPFEL ET UX TRUST	164.143
	S7	09-20-22	JOAN L KLUG ET AL	70.2398
	S8	09-20-22.3	GRANDVIEW-DOOLIN PUBLIC SERVICE DISTRICT	0.23
	S9	09-20-5.2	WHEELING CATHOLIC DIOCESE	0.447
	S10	09-20-22.8	JOAN LOUISE KLUG	.80
	S11	09-22-04	WHEELING CATHOLIC DIOCESE	20
	S12	09-22-5.1	HILARY G MILLER EST	10.62
	S13	09-22-3.1	MARGARET ANN MYSLIWIEC -LIFE	1.1
	S14	09-22-03	MARK HILARY MILLER	63.73
	S15	09-22-3.2	MARK H MILLER	75
	S16	09-22-01	LOUIS T FOX	124.57
	S17	05-25-03	USA TIMBER & LAND AUCTIONS, LLC	181.548
	S18	05-24-3.3	CHARLES E BERTRAND & DEBRA K BERTRAND	120.43
	S19	05-24-02	ROY FRIEND YOHO	316.8
	S20	05-17-08	ROGER H HALL JR	257.5
	S21	05-17-07	ALPINE FARM LLC	10.8
	S22	05-17-04	ALPINE FARM LLC	212
	S23	05-17-05	ALPINE FARM LLC	76.96
	S24	09-16-02	ROBERT & NANCY R MCCARDLE	53.4
	S25	09-16-05	ROBERT M & NANCY MCCARDLE	133
	S26	09-16-03	BERTHA L KLUG	71
	S27	09-16-04	BERTHA L KLUG	73.39
	S28	09-18-04	BERTHA L KLUG	1
	S29	09-18-03	BERTHA L KLUG	1.33
	S30	09-18-05	BERTHA L KLUG	122.437
	S31	09-18-18	JAMES D FROHNAPFEL ET UX	154.03
	S32	09-20-06	KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST	64.75
	S34	09-20-7.2	MICKEY R DULANEY JR	2.24
	S35	09-20-11	PATRICK A FROHNAPFEL ET UX	139.88
	S36	09-20-07	SONNY M & LINDA L TAGG	72.828
	S37	09-20-7.1	DAVID PAUL FROHNAPFEL	4.930
	S38	09-20-9.5	JAMES MILLER ET UX	0.666
	S39	09-20-9.6	JAMES MILLER ET UX	2.919
	S40	09-20-9.3	JAMES MILLER ET UX	0.804
	S41	09-20-10	JAMES MILLER ET UX	0.5
	S42	09-20-9.4	HELEN B SHUTLER - LIFE	0.78
	S43	09-22-1.1	CNG TRANSMISSION CO	1.43
	S44	09-20-1	MICHAEL JAMES PEKULA ET UX	5



P.S. 708 *David L Jackson*



10/14/2022



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: PENDLETON S-1HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 2 OF 2
DATE: 08/19/2022
47-051-02468

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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*See attached pages

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

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

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

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

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

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	DEED BOOK/PAGE		ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT
10*14114	5-17-6	A	ELI & FANNIE MAE WENGERD	GASTAR EXPLORATION USA INC	1/8+	671	323	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353	Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*28262	9-18-1	B	JAMES W MESSEY ET AL	ECLIPSE OIL COMPANY	1/8+	67	487	Eclipse Oil Company to C.H. Stolzebach: DB 68/507	Wheeling Natural Gas Company to Manufacturers Light & Heat Company: DB 148/389	The Manufacturers Light & Heat Company to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489	AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189	Hundred Gas Company to Carl D Perkins: DB 451/132	Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87
10*28262	9-18-2	C	JAMES W MESSEY ET AL	ECLIPSE OIL COMPANY	1/8+	67	487	Eclipse Oil Company to C.H. Stolzebach: DB 68/507	Wheeling Natural Gas Company to Manufacturers Light & Heat Company: DB 148/389	The Manufacturers Light & Heat Company to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489	AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189	Hundred Gas Company to Carl D Perkins: DB 451/132	Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87
10*39661	9-20-2	D	SHELLIE J PEKULA AND MICHAEL PEKULA	TH EXPLORATION LLC	1/8+	1126	542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SEP 01 2022

WV Department of
Environmental Protection

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

ASSIGNMENT, BILL OF SALE AND CONVEYANCE

THIS ASSIGNMENT, BILL OF SALE AND CONVEYANCE (this “*Assignment*”), dated effective as of 7:00 A.M., local time, where the respective Assets are located, on July 1, 2020 (the “*Effective Time*”), is between **Atinum Marcellus I, LLC**, a Delaware limited liability company (“*Assignor*”), whose mailing address is One Riverway, Suite 710, Houston, TX 77056-1988, and **TH Exploration II, LLC**, a Texas limited liability company, whose mailing address is 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 (“*Assignee*”). Assignor and Assignee are each, individually, referred to herein as a “*Party*” and, collectively, as the “*Parties*.”

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Asset Purchase Agreement dated as of November 13, 2020, by and among Assignor and Assignee (the “*Purchase Agreement*”).

Section 1. Assignment. The conveyance and assignment herein shall be deemed effective as of the Effective Time.

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, and Assignee does hereby acquire, the undivided interests in the Leases (as defined below) set forth on Exhibit A-1, and all other of Assignor’s right, title and interest in and to the interests and properties described in subsections (a) through (k) of this Section 1 (without duplication) (such right, title and interest, less and except the Excluded Assets, collectively, the “*Assets*”):

(a) The oil and gas leases, mineral leases and Royalties located in the Covered Counties (which Covered Counties include, for the avoidance of doubt, the county in which this Assignment is filed of record), including those described on Exhibit A-1 together with any and all other right, title and interest in and to the leasehold estates created thereby, subject to the terms, conditions, covenants and obligations set forth in such leases or other instrument creating such rights or interests or on Exhibit A-1 (such leases, Royalties, and mineral interests, collectively, the “*Leases*”), together with any related interest in the lands covered by the Leases or lands unitized, pooled, communitized or consolidated therewith (the “*Lands*”);

(b) All of the oil and/or gas wells identified on Exhibit A-2 hereto (the “*Wells*”), and any other oil, gas, or other wells located on any of the Leases or the Lands, in each case, whether producing, non-producing, shut-in, temporarily or permanently abandoned or otherwise;

(c) All rights, titles and interests arising under any unitization, pooling and/or communitization agreements, declarations or designations for drilling, spacing and/or production units related to any of the Leases, Wells or Lands, including the units described on Exhibit A-4;



August 24, 2022

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

RE: Pendleton S-1HM

Subject: Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Pendleton S-1HM well plat.

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

Sincerely,

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

Amy L. Morris
Permitting Specialist – Appalachia Region

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

Date of Notice Certification: 08/24/2022

API No. 47- 051 -

Operator's Well No. Pendleton S-1HM

Well Pad Name: Pendleton

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>522,777.64</u>
County:	<u>Marshall</u>		Northing:	<u>4,400,435.36</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Alpine Farm, LLC</u>	
Watershed:	<u>Middle Fish Creek</u>			

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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Required Attachments:

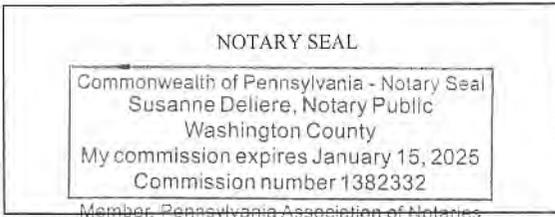
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

10/14/2022

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>amylmorris</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-hillop.com</u>



Subscribed and sworn before me this 24th day of August, 2022
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.

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: 8/24/2022 **Date Permit Application Filed:** 8/25/2022

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: Alpine Farm, LLC (Well Pad and Access Road)
 Address: 7932 TWP Road 662
Dundee, OH 44624-9602

COAL OWNER OR LESSEE
 Name: Consol Energy, LLC Attn: Casey Saunders
 Address: 275 Technology Drive, Suite 101
Canonsburg, PA 15317-9565

Name: _____
 Address: _____

COAL OPERATOR
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Ray J. Miller
 Address: 1538 Township Road 660
Dundee, OH 44624

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: No water purveyors within 2000'
 Address: _____

Name: _____
 Address: _____

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

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: _____
 Address: _____

*Please attach additional forms if necessary

Notice is hereby given:

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

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.

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

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

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.

WW-6A
(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Pendleton S-1HM
Well Pad Name: Pendleton

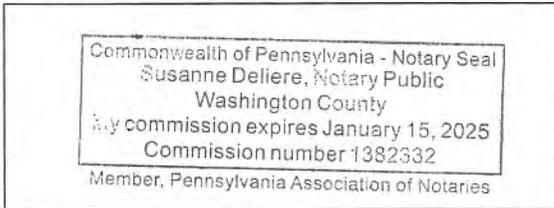
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

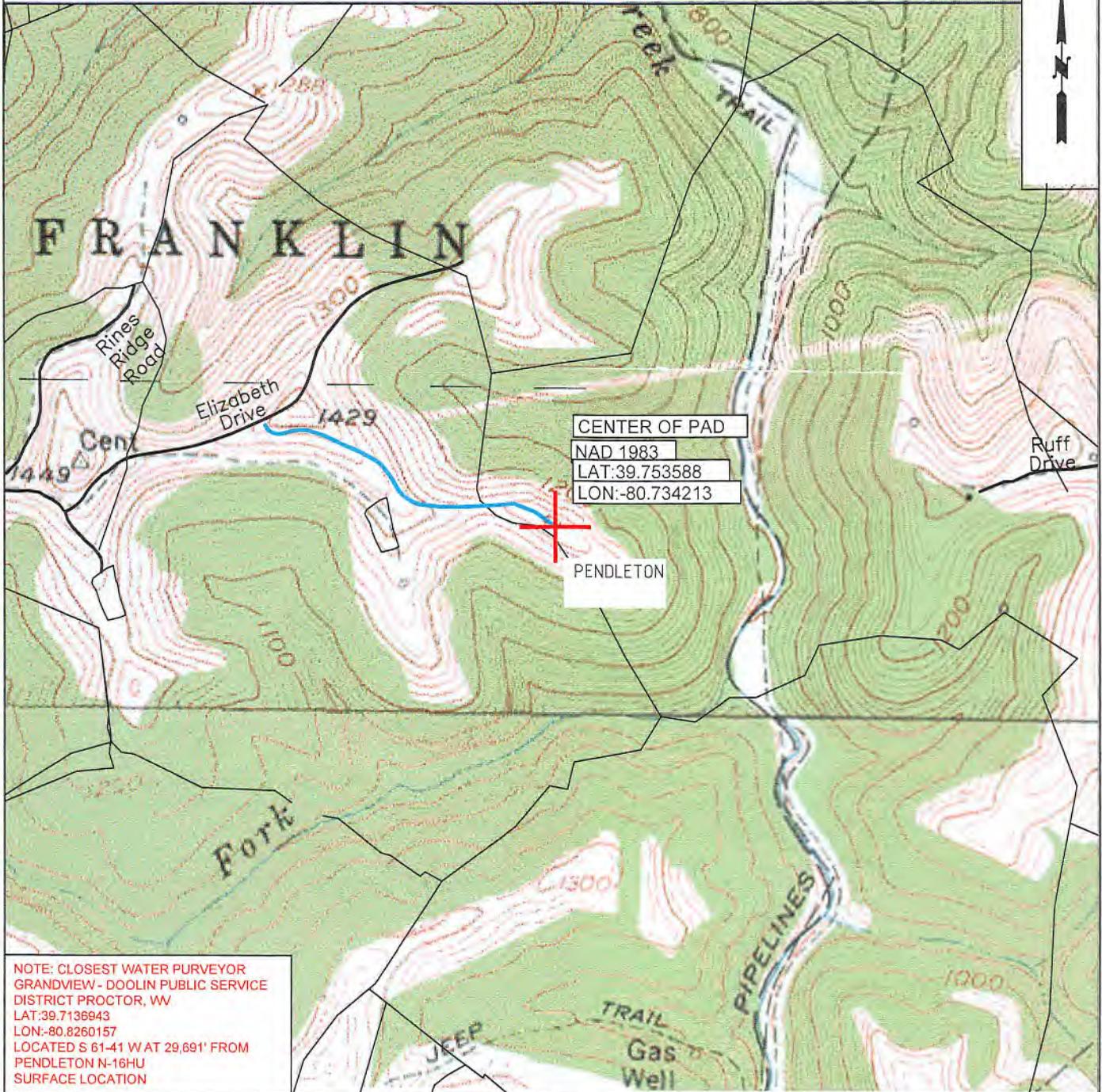
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory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



Subscribed and sworn before me this 24th day of August, 2022
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

Pendleton Pad

THERE APPEAR TO BE NO (0) RESIDENCES WITHIN 2,000'.



NOTE: CLOSEST WATER PURVEYOR
 GRANDVIEW - DOOLIN PUBLIC SERVICE
 DISTRICT PROCTOR, WV
 LAT: 39.7136943
 LON: -80.8260157
 LOCATED S 61-41 W AT 29.691' FROM
 PENDLETON N-16HU
 SURFACE LOCATION

 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		GLEN EASTON 7.5'	PENDLETON
			SCALE: 1" = 1000'	DATE: DATE: 03-15-2022

10/14/2022

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 07/14/2022 **Date Permit Application Filed:** 07/25/2022

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

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Eli and Fannie Mae Wengerd (Well Pad and Access Road)
Address: 7932 TWP Road 662
Dundee, OH 44624-9602

Name: Ray J. Miller (Access Road)
Address: 1538 Township Road 660
Dundee, OH 44624

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>522,777.64</u>
County:	<u>Marshall</u>		Northing:	<u>4,400,435.36</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Eli and Fannie Mae Wengerd</u>	
Watershed:	<u>Fish Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. 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.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Telephone: 724-749-8388
Email: amorris@tug-hilop.com
Facsimile: _____

Authorized Representative: Darren Brown
Address: 5098 Washington Street W, Suite 407
Charleston, WV 25313-1561
Telephone: 877-467-3525
Email: ct-statecommunications@wolterskluwer.com
Facsimile: _____

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.

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

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

Date of Notice: 08/24/2022 **Date Permit Application Filed:** 08/25/2022

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

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: Alpine Farm, LLC (Well Pad and Access Road)
Address: 7932 TWP Road 662
Dundee, OH 44624-9602

Name: Ray J. Miller (Access Road)
Address: 1538 Township Road 660
Dundee, OH 44624

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>522,777.64</u>
County:	<u>Marshall</u>		Northing:	<u>4,400,435.36</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Alpine Farm, LLC</u>	
Watershed:	<u>Fish Creek</u>			

This Notice Shall Include:

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

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

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

Oil and Gas Privacy Notice:

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



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

D. Alan Reed, P.E.
State Highway Engineer

Jimmy Wriston, P. E.
Secretary of Transportation
Commissioner of Highways

January 24, 2022

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 Pendleton Pad, Marshall County
Pendleton S-1HM Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2010-0110 which has been issued to Tug Hill Operating LLC for access to the State Road for a well site located off Marshall County Route 76 SLS MP 1.91.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a DISTRICT WIDE 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Pendleton 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



Pendleton Well Site

Site Design, Construction Plan, & Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Franklin District
Latitude 39.75358810°
Longitude -80.73421256°
Middle Fish Creek Watershed

Pertinent Site Information
Pendleton Site
Emergency Number: 304-843-1130
Franklin District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Site 911 Address:

Tug Hill Contact Number: 1-817-632-3400

Properties Owner Information - Pendleton Well Site

Owner	Acres	Parcel ID	Area	Acres	Area	Acres	Area	Acres	Acres
Franklin District	100	000000000000000000	100	0.00	0.00	0.00	0.00	0.00	0.00
Franklin District	100	000000000000000000	100	0.00	0.00	0.00	0.00	0.00	0.00
Franklin District	100	000000000000000000	100	0.00	0.00	0.00	0.00	0.00	0.00

Exhibit A: Final Design: Issue for Permitting

Section	Station	Station	Station	Station	Station
S101	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00
S102	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00
	0+00	0+00	0+00	0+00	0+00



Access Road

Station	Station	Station	Station
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00

Disturbed Area

Area	Area	Area	Area
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00
0+00	0+00	0+00	0+00

Pendleton Well Site Quantities

Item	Quantity	Unit	Notes
Excavation	100	cu yd	
Fill	100	cu yd	
Gravel	100	cu yd	
Asphalt	100	sq yd	

APPROVED
WVDEP OOG
Updated
4/13/2022

Project Contacts

Tug Hill Operating
Ashley R. Smith - Site Development Lead
Michelle P. Smith - Environmental Lead
David D. Smith - Construction Manager
Kathy Smith - Construction Manager

Franklin District
280 Sanderson Dr.
Sanderson Plaza II, Suite 700
Franklin, WV 26037

WVDEP
1-800-255-4888
www.wvdepr.com

Site Location (NAD 27)

Station	Latitude (N)	Longitude (W)
Center of Well 1	39.75358810	-80.73421256
Center of Well 2	39.75358810	-80.73421256

Site Location (NAD 83)

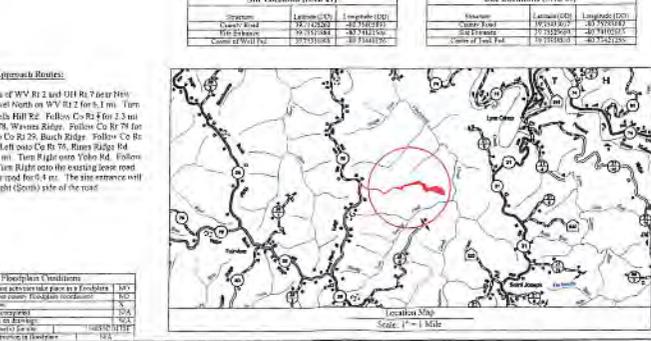
Station	Latitude (N)	Longitude (W)
Center of Well 1	39.75358810	-80.73421256
Center of Well 2	39.75358810	-80.73421256

Applicant Routes:
From the intersection of WV Rt 2 and OH Rt 7 near New Martinsville, WV. Travel North on WV Rt 2 for 1 mi. Turn Right onto Co Rd 76, Wrens Ridge. Follow Co Rd 76 for 0.8 mi. Turn Right onto Co Rd 29, Bush Ridge. Follow Co Rd 29 for 2.1 mi. Turn Left onto Co Rd 76, Wrens Ridge Rd. Follow Co Rd 76 for 1.9 mi. Turn Right onto Yoho Rd. Follow Yoho Rd for 0.6 mi. Turn Right onto the existing access road. Follow the existing road for 0.6 mi. The site entrance will be on the Right (South) side of the road.

Discipline Conditions

The WV Mine Reclamation Act requires that any coal mine be reclaimed. Reclamation includes the construction of any construction activities on the site.

The WV Mine Reclamation Act requires that any coal mine be reclaimed. Reclamation includes the construction of any construction activities on the site.



Sheet

Sheet	Description
1	Cover Sheet
2	Schedule of Quantities
3	Site Plan
4	Site Soil Map
5	Access Easement
6	Overall Plan View
7	Erosion Plan View
8	The Key Exhibit
9	Plan View
10-14	Access Sections - Well Pad
15-20	Access Sections - Access Road
21-25	Construction Exhibit
26-30	Landowner Disturbed Area Exhibit
31	Site Reclamation
32-35	Production Exhibit
36-40	Erosion and Sediment Control Details
41-45	Access Road Details
46-50	End Details

Project Information

Project Name: Pendleton Well Site
Project Number: 2021-001
Project Location: Franklin District, Marshall County, WV
Project Start Date: 04/13/2022
Project End Date: 04/13/2022

Professional Engineer
STATE OF WEST VIRGINIA
Professional Engineer
No. 22214
Name: [Signature]

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

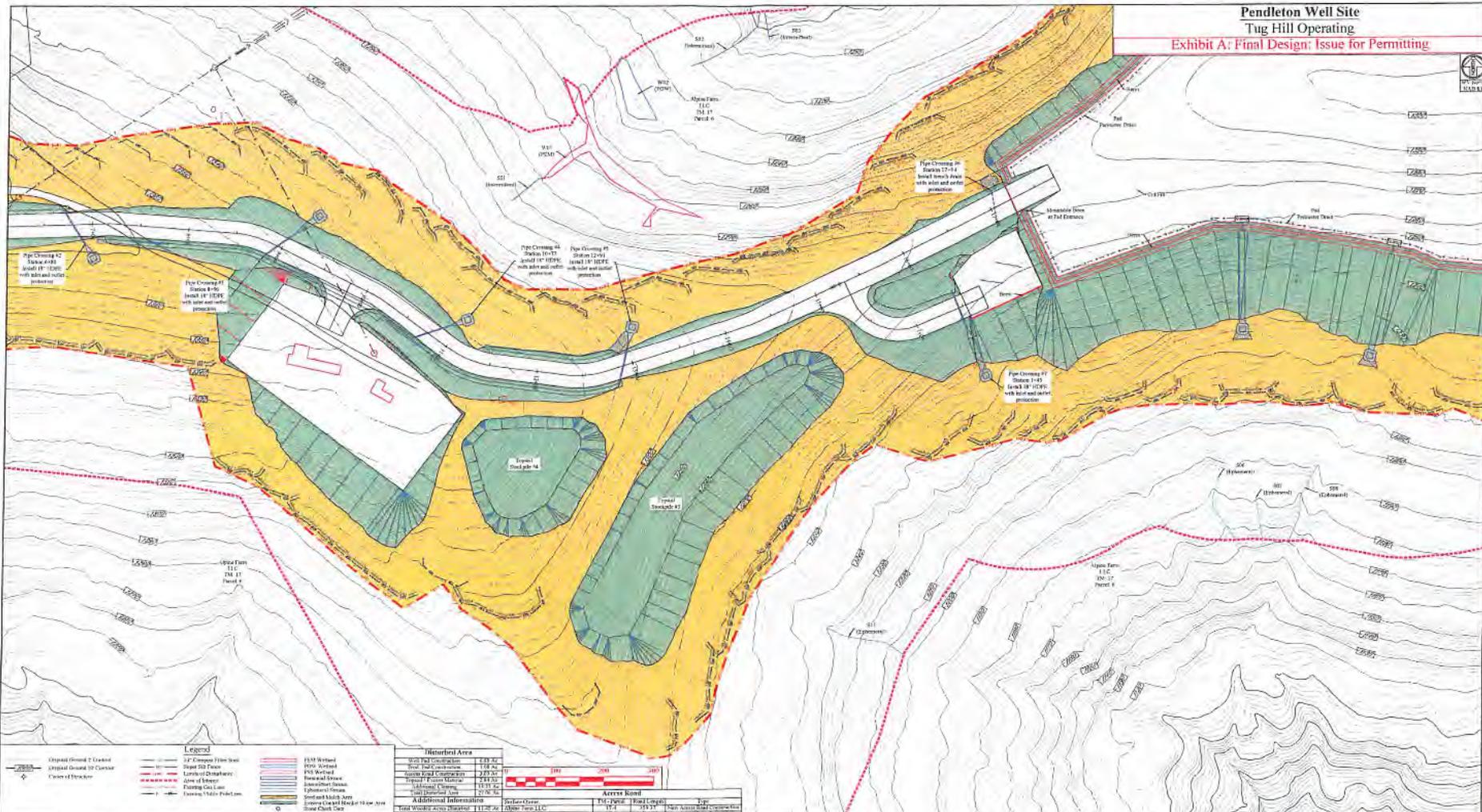
Key Services

Pendleton Well Site
Franklin District, Marshall County, WV

Scale: As Shown
Date: 02/17/2022
Sheet 1 of 50

Pendleton Well Site
Tug Hill Operating

Exhibit A: Final Design: Issue for Permitting

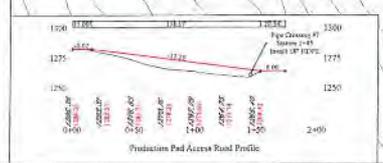
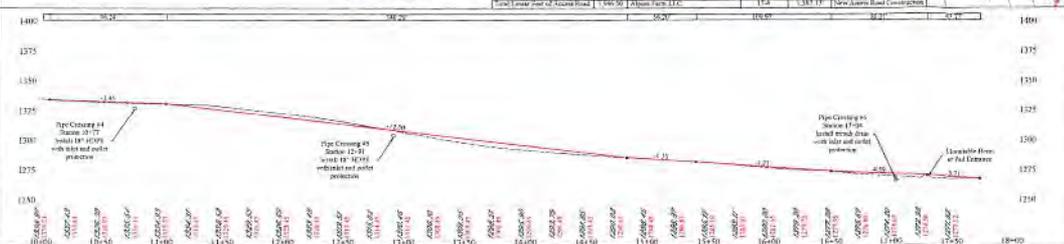


Legend

- Original Ground 2' Contour
- Original Ground 10' Contour
- Class of Elevation
- 1533 Wetland
- 1534 Wetland
- 1535 Wetland
- 1536 Wetland
- 1537 Wetland
- 1538 Wetland
- 1539 Wetland
- 1540 Wetland
- 1541 Wetland
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- 1592 Wetland
- 1593 Wetland
- 1594 Wetland
- 1595 Wetland
- 1596 Wetland
- 1597 Wetland
- 1598 Wetland
- 1599 Wetland
- 1600 Wetland

Additional Information

Item	Description	Quantity
1	1533 Wetland	1.00 AC
2	1534 Wetland	1.00 AC
3	1535 Wetland	1.00 AC
4	1536 Wetland	1.00 AC
5	1537 Wetland	1.00 AC
6	1538 Wetland	1.00 AC
7	1539 Wetland	1.00 AC
8	1540 Wetland	1.00 AC
9	1541 Wetland	1.00 AC
10	1542 Wetland	1.00 AC
11	1543 Wetland	1.00 AC
12	1544 Wetland	1.00 AC
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59	1591 Wetland	1.00 AC
60	1592 Wetland	1.00 AC
61	1593 Wetland	1.00 AC
62	1594 Wetland	1.00 AC
63	1595 Wetland	1.00 AC
64	1596 Wetland	1.00 AC
65	1597 Wetland	1.00 AC
66	1598 Wetland	1.00 AC
67	1599 Wetland	1.00 AC
68	1600 Wetland	1.00 AC



APPROVED
WVDEP OOG
Updated
[Signature]
4/13/2022

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

Kelly Surber

Environment and Socioeconomics Council Plan
Pendleton Well Site
Franklin District
Marshall County, WV

Scale: As Shown
Revised: 05/25
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