

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, August 24, 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-14HU 47-051-02459-00-00

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-14HU Farm Name: ALPINE FARMS, LLC U.S. WELL NUMBER: 47-051-02459-00-00 Horizontal 6A New Drill Date Issued: 8/24/2022

Promoting a healthy environment.



west virginia department of environmental protection.

Oil and Gas Conservation Commission 601 57th Street SE, Charleston, WV 25304 304-926-0499 Ext 41239

Randall M. Albert, Chairman dep.wv.gov

August 5, 2022

Department of Environmental Protection Office of Oil and Gas Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02459

COMPANY: Tug Hill Operating, LLC

FARM: <u>Alpine Farm, LLC</u>

Pendleton S-14HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Glen Easton

The deep well review of the application for the above company is <u>Approved to drill to Trenton for</u> <u>Point Pleasant completion.</u>

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

- 1. Comments to Notice of Deviation filed? No.
- 2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
- 3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes
- 4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

Jusenhose

Susan Rose Administrator

**Van Winkle S-20HU 47-051-02353; Van Winkle S-21HU 47-051-02354; Pendleton N-16HU 47-051-02441; Pendleton N-8HU 47-051-02454; Pendleton N-10HU 47-051-02455; Pendleton N-11HU 47-051-02456; Pendleton S-12HU 47-051-02457; Pendleton S-13HU 47-051-02458; Pendleton S-15HU 47-051-02460

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

- 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 (20) feet of casing 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 supply well.
- 6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
- 7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
- 8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
- 9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
- 10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number:

PERMIT CONDITIONS

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

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

1) Well Operator: Tug Hill Operat	ing, LLC	494510851	Marshall	Franklin	Glen Easton 7.5'
		Operator ID	County	District	Quadrangle
2) Operator's Well Number: Pendle	eton S-14HU	Well Pa	ad Name: Pend	leton	
3) Farm Name/Surface Owner: Alp	ine Farm, LL	C Public Ro	ad Access: Rine	es Ridge Ro	ad (County Route 76)
4) Elevation, current ground: <u>1,29</u>	96' El	levation, proposed	l post-constructi	on: <u>1,271</u> .	82'
5) Well Type (a) Gas X	Oil	Unc	lerground Stora	ge	
Other					
(b)If Gas Shallov	V	Deep	X		
Horizor	ntal X				
6) Existing Pad: Yes or No <u>No</u>			_ EQIC -	1/28/20	
7) Proposed Target Formation(s), De	epth(s), Antic	ipated Thickness	and Expected P	ressure(s):	
Point Pleasant is the target formation at	a depth of 11,53	34' - 11,651', thicknes	s of 117' and antici	pated pressur	e of approx. 7,500 psi.
8) Proposed Total Vertical Depth:	11,801'				
9) Formation at Total Vertical Depth	n: Trenton				
10) Proposed Total Measured Depth	: 18,114'				
11) Proposed Horizontal Leg Length	n: <u>5,965.91</u>				
12) Approximate Fresh Water Strata	Depths:	70; 914'			
13) Method to Determine Fresh Wat	er Depths:	Based on the depth o	of Pittsburgh Coal s	seam, per W∨	GES mapping contours
14) Approximate Saltwater Depths:	1,427'				
15) Approximate Coal Seam Depths	: Sewickley	Coal - 816' and	Pittsburgh Coa	ıl - 908'	
16) Approximate Depth to Possible	Void (coal mi	ine, karst, other):	None anticipa	ted	
17) Does Proposed well location con directly overlying or adjacent to an a		ms Yes	No	X	
(a) If Yes, provide Mine Info: Na	ame:				
	epth:				
	am:				
Ov	wner:				

18)

CASING AND TUBING PROGRAM

ТҮРЕ	<u>Size</u> (in)	<u>New</u> <u>or</u> <u>Used</u>	Grade	<u>Weight per ft.</u> (lb/ft)	<u>FOOTAGE: For</u> <u>Drilling (ft)</u>	INTERVALS: Left in Well (ft)	<u>CEMENT:</u> <u>Fill-up</u> (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water/Coal	20"	NEW	J55	106.5#	1,040'	1,040'	1,674FT^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	2,800'	2,800'	1,974FT^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	10,560'	10,560'	3,446FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	18,114'	18,114'	4,329FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,142'	
Liners							

MDK 7/28/202

ТҮРЕ	Size (in)	<u>Wellbore</u> Diameter (in)	<u>Wall</u> <u>Thickness</u> <u>(in)</u>	<u>Burst Pressure</u> (psi)	<u>Anticipated</u> <u>Max. Internal</u> <u>Pressure (psi)</u>	<u>Cement</u> <u>Type</u>	<u>Cement</u> <u>Yield</u> (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water/Coal	20"	26"	.5	2,410	1,928	SEE #24	1.2
Intermediate 1	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate 2	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.33
Production	5 1/2"	8 1/2"	.415	16,510	13,208	SEE #24	1.17/1.19
Tubing	2 7/8"			14,530	11,624		
Liners							

PACKERS

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



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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (10,642'). 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 15,000,000 lb. proppant and 270,000 bbl of water. Max rate = 80bpm; 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:

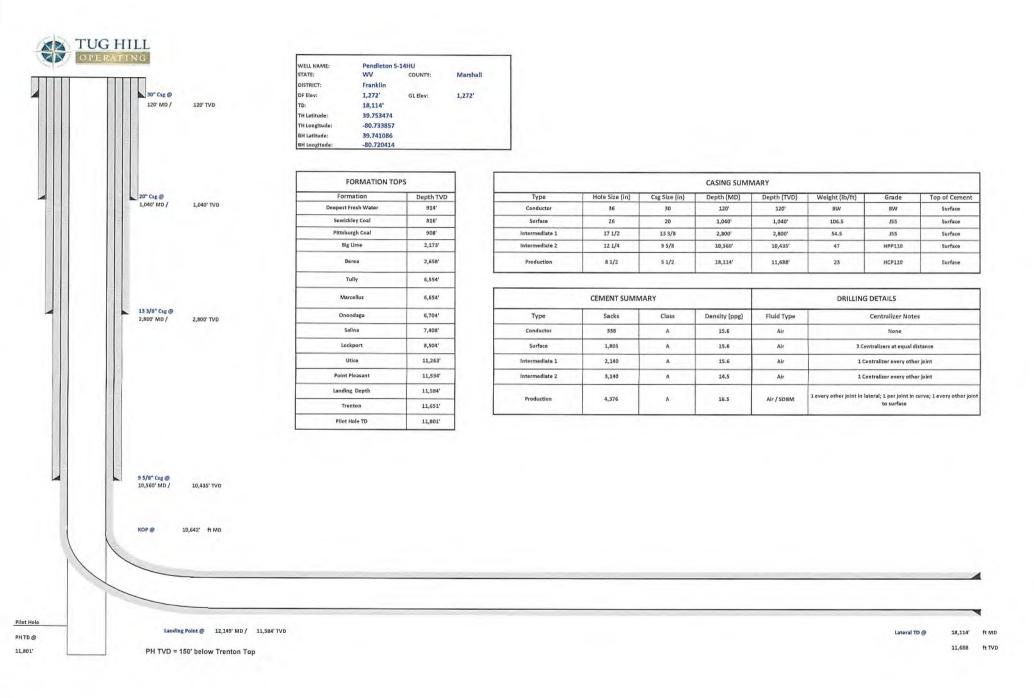
Will run 3 centralizers on surface casing at equal distance. Intermediate strings will have 1 centralizer every other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3%

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





Tug Hill Operating, LLC Casing and Cement Program

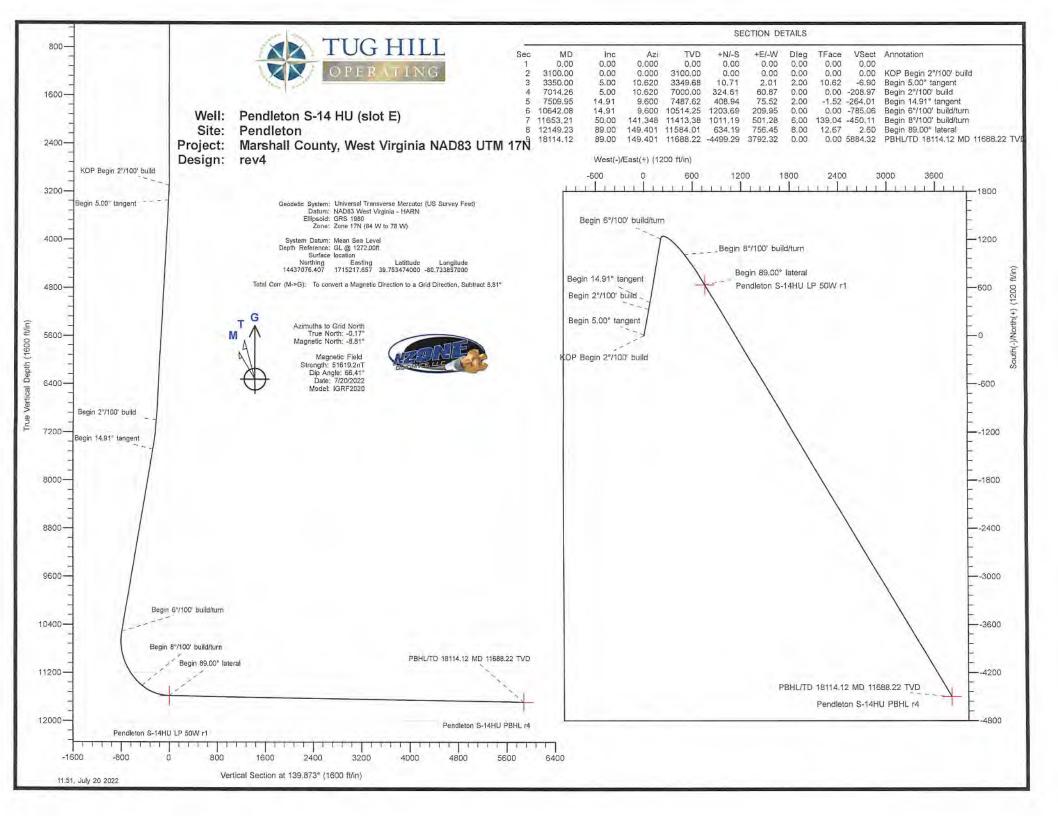
Pendleton S-14HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,040'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,800'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,560'	CTS
Production	5 1/2"	HCP110	8 1/2"	18,114'	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 1:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2
Intermediate 2:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 14.5 ppg, Y=1.35
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 16.5 ppg, Y = 1.03





Plan Survey Tool Pro Depth From (ft)	gram Depth To (ft)	Date Survey (Well	pore)	Tool Name	Don	narks			
2					2.14				
vertical dection.			(ft) 0.00	(ft) 0.00	(ft)		(°) 139.873		
Version: Vertical Section:		Donth	Phase: From (TVD)	PLAN +N/-S	Tie On De	epth:	0.00 Direction		
Audit Notes:									
Design	rev4								
	IG	RF2020	7/20/2022	()	-8.64		5.41	51,619.16	660711
Magnetics	Model Na	ime	Sample Date	Declination (°)		Dip Angle (°)		Field Streng (nT)	th
Wellbore	Original Hole								
Position Uncertainty Grid Convergence:		0.00 ft	Wellhead Elev	ation:	п	Ground Lev	el;		1,272.00 11
	+E/-W	0.00 ft	Easting:	1,715	,217.656 usft	Longitude: Ground Leve			-80.73385700 1.272.00 ft
Well Well Position	Pendleton S-1 +N/-S	4 HU (slot E) 0.00 ft	Northing:	14 405	,076.408 usft	Latitude:			39.75347400
Site Position: From: Position Uncertainty:	Lat/Long	0.00 ft	Northing: Easting: Slot Radius:	14,437,088.24 1,715,175.24 13-3/1	9 usft Long	ide: itude:			39.75350685 -80.73400776
Site	Pendleton								
oco Datann	Universal Trans NAD83 West V Zone 17N (84 V	irginia - HARN	or (US Survey Feet)	System Datum:		Mean Sea I	_evel		
Project	Marshall Cour	nty, West Virgi	nia NAD83 UTM 17N	1/					
Nellbore: Design:	Original Hole rev4			Survey Survey	non metrica.				
Database: Company: Project: Site: Nell:	17N Pendleton	rating LLC	ginia NAD83 UTM	Local Co-ordin TVD Reference MD Reference: North Reference Survey Calcula	: :e:	GL @ 12 GL @ 12 Grid		IU (slot E)	



Planning Report - Geographic

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-14 HU (slot E)
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-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

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	
3,100.00	0.00	0.000	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,350.00	5.00	10.620	3,349.68	10.71	2.01	2.00	2.00	0.00	10.62	
7,014.26	5.00	10.620	7,000.00	324.61	60.87	0.00	0.00	0.00	0.00	
7,509.95	14.91	9.600	7,487.62	408.94	75.52	2.00	2.00	-0.21	-1.52	
10,642.08	14.91	9.600	10,514.25	1,203.69	209.95	0.00	0.00	0.00	0.00	
11,653.21	50.00	141.348	11,413.38	1,011.19	501.28	6.00	3.47	13.03	139.04	
12,149.23	89.00	149,400	11,584.01	634.19	756.45	8.00	7.86	1.62	12.67	
18,114,12	89.00	149,400	11,688.22	-4,499,29	3,792.32	0.00	0.00	0.00	0.00	Pendleton S-14HU P



Database:	DB Feb2822	Local Co-ordinate Reference:	Well Pendleton S-14 HU (slot E)
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-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

leasured 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	14,437,076.408	1,715,217.656	39,753474000	-80.7338570
100.00	0.00	0.000	100.00	0.00	0.00	14,437,076,408	1,715,217.656	39,753474000	-80.7338570
200.00	0.00	0.000	200.00	0.00	0.00	14,437,076,408	1,715,217.656	39.753474000	-80.7338570
300.00	0.00	0.000	300.00	0.00	0.00	14,437,078,408	1,715,217.656	39.753474000	-80,7338570
	0.00	0.000	400.00	0.00	0.00		and the second se	39,753474000	-80.7338570
400.00			500.00	0.00		14,437,076.408	1,715,217.656	39.753474000	-80.7338570
500.00	0.00	0.000	600.00		0.00	14,437,076.408	1,715,217.656	39.753474000	-80.7338570
600.00	0.00	0.000	700.00	0,00 0,00	0.00	14,437,076.408	1.715,217.656	39,753474000	-80,733857
700.00	0.00				0.00	14,437,076.408	1.715,217.656		-80,733857
800.00	0.00	0.000	800.00	0.00	0.00	14,437,076,408	1,715,217.656	39,753474000	01104 0 0 7 2 81
900.00	0.00	0.000	900.00	0.00	0.00	14,437,076.408	1.715,217.656	39.753474000	-80.733857
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
1,300.00	0.00	0.000	1,300.00	0,00	0,00	14,437,076,408	1,715,217.656	39,753474000	-80.733857
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,437,076,408	1,715,217.656	39,753474000	-80.733857
1,500,00	0.00	0.000	1,500.00	0.00	0.00	14,437,076,408	1,715,217.656	39,753474000	-80,733857
1,600.00	0.00	0,000	1,600.00	0,00	0.00	14,437,076.408	1,715,217.656	39,753474000	-80.733857
1,700.00	0.00	0.000	1,700.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
1,800.00	0.00	0.000	1,800.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
1,900.00	0.00	0.000	1,900.00	0.00	0.00	14,437,076.408	1,715,217.656	39,753474000	-80.733857
2,000.00	0.00	0.000	2,000.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80,733857
2,100.00	0.00	0.000	2,100.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
2,200.00	0.00	0.000	2,200.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
2,300,00	0,00	0.000	2,300.00	0.00	0.00	14,437,076.408	1,715,217.656	39,753474000	-80.733857
2,400.00	0.00	0.000	2,400.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80,733857
2,500.00	0.00	0.000	2,500.00	0.00	0.00	14,437,076,408	1,715,217.656	39.753474000	-80,7338570
2,600.00	0.00	0.000	2,600.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.7338570
2,700.00	0.00	0.000	2,700.00	0.00	0.00	14,437,076.408	1,715,217.656	39,753474000	-80.733857
2,800.00	0.00	0.000	2,800.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80,733857
2,900.00	0.00	0.000	2,900.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
3,000.00	0.00	0.000	3,000.00	0.00	0.00	14,437,076.408	1,715,217.656	39.753474000	-80.733857
3,100.00	0.00	0.000	3,100.00	0.00	0.00	14,437,076,408	1,715,217.656	39,753474000	-80.733857
			3,100.00	0.00	0.00	14,457,070,400	1,112,211,000	00,700474000	-00.700007
	jin 2°/100' bui			4.70				00 750 170700	
3,200.00	2.00	10.620	3,199.98	1.72	0.32	14,437,078,123	1,715,217.978	39.753478708	-80.733855
3,300.00	4.00	10.620	3,299.84	6.86	1.29	14,437,083,267	1,715,218.942	39.753492826	-80.733852
3,350.00	5,00	10,620	3,349.68	10.71	2.01	14,437,087.122	1,715,219.665	39.753503409	-80,733849
	00° tangent								
3,400.00	5.00	10.620	3,399.49	15.00	2.81	14,437,091.405	1,715,220.468	39.753515165	-80.733846
3,500.00	5.00	10.620	3,499.11	23.56	4.42	14,437,099,972	1,715,222.075	39,753538678	-80,733841
3,600.00	5.00	10.620	3,598.73	32.13	6,02	14,437,108.538	1,715,223.681	39,753562190	-80,733835
3,700.00	5.00	10.620	3,698.35	40,70	7.63	14,437,117.104	1,715,225.287	39.753585702	-80.733829
3,800.00	5.00	10.620	3,797,97	49.26	9.24	14,437,125.670	1,715,226.893	39.753609215	-80.733823
3,900.00	5.00	10.620	3,897.59	57.83	10.84	14,437,134.237	1,715,228.500	39.753632727	-80.733817
4,000.00	5,00	10.620	3,997,21	66.40	12.45	14,437,142,803	1,715,230,106	39,753656239	-80.733812
4,100.00	5.00	10.620	4,096.83	74.96	14.06	14,437,151.369	1,715,231.712	39.753679751	-80.733806
4,200.00	5.00	10.620	4,196.45	83.53	15.66	14,437,159.936	1,715,233.318	39.753703264	-80.733800
4,300,00	5,00	10.620	4,296.07	92.09	17.27	14,437,168,502	1,715,234.924	39.753726776	-80.733794
4,400.00	5.00	10.620	4,395,69	100.66	18.87	14,437,177.068	1,715,236,531	39.753750288	-80.733788
4,500.00	5.00	10.620	4,495.31	109.23	20.48	14,437,185.634	1,715,238,137	39.753773800	-80.733782
4,600.00	5.00	10.620	4,594,93	117.79	22.09	14,437,194.201	1,715,239,743	39.753797313	-80.733777
4,700.00	5.00	10.620	4,694.55	126.36	23.69	14,437,202.767	1,715,241.349	39.753820825	-80.733771
4,800.00	5.00	10.620	4,794.17	134,93	25.30	14,437,211.333	1,715,242,956	39,753844337	-80.733765
4,900.00	5.00	10.620	4,893.78	143.49	26.91	14,437,219.899	1,715,244.562	39.753867850	-80.733759





Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Pendleton S-14 HU (slot E)
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-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

leasured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	5,00	10.620	4,993.40	152.06	28.51	14,437,228.466	1,715,246.168	39.753891362	-80.7337539
5,100.00	5.00	10.620	5,093.02	160.62	30.12	14,437,237.032	1,715,247.774	39.753914874	-80.7337481
5,200.00	5.00	10.620	5,192.64	169.19	31.72	14,437,245.598	1,715,249.381	39.753938386	-80.7337423
5,300.00	5.00	10.620	5,292.26	177.76	33.33	14,437,254,164	1,715,250,987	39.753961899	-80,7337365
5,400.00	5.00	10.620	5,391.88	186.32	34.94	14,437,262,731	1,715,252,593	39,753985411	-80.7337307
5,500.00	5.00	10.620	5,491.50	194.89	36.54	14,437,271.297	1,715,254.199	39.754008923	-80.7337249
5,600.00	5.00	10.620	5,591.12	203.46	38.15	14,437,279,863	1,715,255.805	39.754032435	-80.7337191
5.700.00	5.00	10.620	5,690,74	212.02	39.76	14,437,288,430	1,715,257,412	39.754055948	-80.7337133
5,800.00	5.00	10.620	5,790.36	220.59	41.36	14,437,296,996	1,715,259.018	39,754079460	-80,7337075
5,900.00	5.00	10.620	5,889.98	229.15	42.97	14,437,305.562	1,715,260.624	39.754102972	-80.7337016
6,000.00	5.00	10.620	5,989.60	237.72	44.57	14,437,314.128	1,715,262.230	39.754126485	-80.7336958
6,100.00	5.00	10.620	6,089,22	246.29	46.18	14,437,322,695	1.715,263.837	39.754149997	-80.7336900
6,200.00	5.00	10.620	6,188.84	254.85	47.79	14,437,331,261	1.715,265.443	39,754173509	-80.7336842
6,300.00	5.00	10.620	6,288.46	263.42	49.39	14,437,339,827	1,715,267.049	39.754197021	-80.7336784
6,400.00	5.00	10.620	6,388.08	271.99	51.00	14,437,348.393	1,715,268.655	39.754220534	-80.7336726
6,500.00	5.00	10.620	6,487.70	280,55	52.61	14,437,356,960	1,715,270,262	39.754244046	-80,7336668
6,600.00	5,00	10.620	6,587.32	289.12	54.21	14,437,365,526	1.715,271.868	39.754267558	-80.7336610
6,700.00	5.00	10.620	6,686.94	297.69	55.82	14,437,374.092	1,715,273.474	39.754291070	-80.733655
6,800.00	5.00	10.620	6,786.55	306.25	57.42	14,437,382.658	1,715,275.080	39,754314583	-80.7336494
6,900.00	5.00	10.620	6,886.17	314.82	59.03	14,437,391,225	1,715,276.686	39.754338095	-80.7336436
7,000.00	5.00	10.620	6,985.79	323.38	60.64			39.754361607	-80.7336378
						14,437,399.791	1,715,278.293		
7,014.26	5.00	10.620	7,000.00	324.61	60.87	14,437,401.013	1,715,278.522	39.754364960	-80.7336370
	/100' build					1 1 222 224 224	1 2 2 2 2 2 2 2 2 2 2 2		
7,100.00	6.71	10.230	7,085,29	333.21	62,44	14,437,409.618	1,715,280.101	39,754388581	-80.733631
7,200.00	8.71	9.968	7,184.38	346.43	64,79	14,437,422.833	1,715,282.450	39.754424854	-80.7336228
7,300.00	10.71	9.804	7,282.94	363.05	67.69	14,437,439.455	1,715,285.345	39.754470479	-80.7336123
7,400.00	12.71	9,690	7,380.85	383.06	71.12	14,437,459,464	1,715,288.780	39.754525399	-80.7335998
7,509.95	14,91	9.600	7,487,62	408.94	75,52	14,437,485.343	1,715,293.176	39,754596436	-80.7335839
Begin 14	.91° tangent								
7,600.00	14.91	9.600	7,574.63	431.79	79.38	14,437,508,192	1,715,297.041	39.754659153	-80.7335699
7,700.00	14.91	9,600	7,671.26	457,16	83,68	14,437,533.566	1,715,301.333	39,754728803	-80,7335544
7,800.00	14.91	9,600	7,767,90	482.53	87.97	14,437,558.940	1,715,305.625	39.754798452	-80,7335389
7,900.00	14.91	9.600	7,864.53	507.91	92.26	14,437,584.314	1,715,309,917	39,754868102	-80,7335233
8,000.00	14.91	9.600	7,961.16	533,28	96.55	14,437,609.689	1,715,314.208	39,754937751	-80.7335078
8,100.00	14.91	9,600	8,057.79	558.66	100.84	14,437,635.063	1,715,318.500	39.755007401	-80.7334923
8,200.00	14.91	9.600	8,154,42	584,03	105.14	14,437,660.437	1,715,322.792	39,755077050	-80,733476
8,300.00	14.91	9,600	8,251.06	609.40	109.43	14,437,685.811	1,715,327.084	39.755146700	-80.7334612
8,400.00	14.91	9,600	8,347.69	634.78	113.72	14,437,711.185	1,715,331.376	39.755216349	-80.7334456
8,500.00	14.91	9.600	8,444.32	660.15	118.01	14,437,736.559	1,715,335.667	39.755285999	-80.733430
8,600.00	14.91	9,600	8,540.95	685,53	122.30	14,437,761.934	1,715,339,959	39.755355649	-80,7334145
8,700.00	14.91	9.600	8,637.58	710,90	126.60	14,437,787,308	1,715,344.251	39.755425298	-80,7333990
8,800.00	14.91	9,600	8,734.22	736.28	130.89	14,437,812,682	1,715,348.543	39.755494948	-80,7333835
8,900.00	14.91	9.600	8,830.85	761.65	135,18	14,437,838.056	1,715,352.835	39.755564597	-80.7333679
9,000.00	14.91	9.600	8,927.48	787.02	139.47	14,437,863,430	1,715,357.127	39.755634247	-80,7333524
9,100.00	14.91	9.600	9,024.11	812.40	143.76	14,437,888.804	1,715,361.418	39.755703896	-80,7333368
9,200.00	14.91	9.600	9,120.74	837.77	148.05	14,437,914.179	1,715,365.710	39.755773546	-80.7333213
9,300.00	14.91	9.600	9,217.38	863.15	152.35	14,437,939.553	1,715,370.002	39.755843195	-80.7333058
9,400.00	14.91	9,600	9,314.01	888.52	156.64	14,437,964.927	1,715,374.294	39.755912844	-80.7332902
9.500.00	14,91	9,600	9,410.64	913,90	160.93	14,437,990.301	1,715,378.586	39.755982494	-80.7332747
9,600,00	14.91	9.600	9,507.27	939.27	165.22	14,438,015.675	1,715,382.878	39.756052143	-80.7332591
9,700.00	14.91	9,600	9,603.90	964.64	169.51	14,438,041.050	1,715,387.169	39.756121793	-80.7332436
9,800.00	14.91	9.600	9,700,54	990.02	173,81	14,438,066.424	1,715,391.461	39.756191442	-80.733228
9,900.00	14.91	9.600	9,797.17	1,015.39	178.10	14,438,091.798	1,715,395.753	39,756261092	-80.7332125





Database:	DB Feb2822	Local Co-ordinate Reference:	Well Pendleton S-14 HU (slot E)
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-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,000.00	14.91	9.600	9,893.80	1,040.77	182.39	14,438,117.172	1,715,400.045	39.756330741	-80.733197038
10,100.00		9.600	9,990.43	1,066.14	186.68	14,438,142.546	1,715,404.337	39.756400391	-80.733181499
10,200.00		9.600	10,087.06	1,091.52	190.97	14,438,167.920	1,715,408.628	39.756470040	-80.733165959
10,300.00		9.600	10,183.69	1,116.89	195.26	14,438,193,295	1,715,412.920	39.756539690	-80.733150419
10,400.00		9.600	10,280.33	1,142.26	199.56	14,438,218,669	1,715,417.212	39,756609339	-80,733134879
10,500.00		9.600	10,376.96	1,167.64	203.85	14,438,244.043	1,715,421.504	39.756678989	-80.733119339
10,600.00		9.600	10,473.59	1,193.01	208.14	14,438,269,417	1,715,425.796	39,756748638	-80,733103799
10,642.08		9,600	10,514.25	1,203.69	209,95	14,438,280,095	1,715,427.602	39.756777947	-80,733097260
	°/100' build/tur		Tota L Gale		- Sectors		111 1 1 1 1 1 1 1 1 1 1 1 1 1		
10,650.00		10.840	10,521,91	1,205.67	210.30	14,438,282.077	1,715,427.959	39.756783388	-80.733095969
10,700.00		20.186	10,570,53	1,216.92	213,35	14,438,293,327	1,715,431.007	39,756814258	-80,733085002
10,750.00		32.690	10,619.50	1,225.97	217.76	14,438,302.371	1,715,435.420	39.756839061	-80.733069206
10,800.00		48,508	10,668,69	1,232.78	223.53	14,438,309,185	1,715,441.185	39.756857727	-80,733048622
10,850.00		66.125	10,717.97	1,237.35	230.63	14,438,313,750	1,715,448.285	39.756870205	-80.733023309
10,900.00		82,648	10,767.19	1,239.65	239.05	14,438,316.054	1,715,456.703	39.756876462	-80.732993334
10,950.00		96.061	10.816.24	1,239.68	248.76	14,438,316.089	1,715,466.413	39,756876480	-80.732958781
11,000.00		106.174	10,864.96	1,237.45	259.74	14,438,313,857	1,715,477.391	39.756870260	-80.732919743
			10,913.23	1,232.96	271.95	14,438,309.362	1,715,489.606	39.756857817	-80.732876329
11,050.00		113,674 119,306		1,226.21	285.37	14,438,309.562	1,715,503.024	39.756839187	-80.732828656
11,100.00		123.636	10,960.92 11.007.89	1,217.24	299,95		1,715,517.609	39,756814420	-80.732776856
11,150.00				1,206.06		14,438,293,644		39.756783584	-80.732721071
11,200.00		127.048	11,054.01 11.099.17		315.67	14,438,282,463	1,715,533.321	39,756746765	-80.732661453
11,250.00		129,802	0.14	1,192.70	332.46	14,438,269,106	1,715,550,116		-80.732598166
11,300.00		132.074	11,143.23	1,177.20	350,29	14,438,253.609	1,715,567.949	39.756704061	
11,350.00		133,983	11,186.07	1,159.61	369.11	14,438,236.016	1,715,586.770	39.756655592	-80.732531384
11,400,00		135.616	11,227.58	1,139.97	388.87	14,438,216.375	1,715,606.529	39.756601489	-80,732461289
11,450,00		137.032	11,267.65	1,118.33	409.51	14,438,194.739	1,715,627.170	39.756541901	-80,732388074
11,500.00		138.278	11,306.16	1,094.76	430.98	14,438,171.167	1,715,648.638	39.756476991	-80.732311939
11,550.00		139.387	11,343.00	1,069.32	453.22	14,438,145.725	1,715,670.873	39,756406937	-80.732233094
11,600.00		140,385	11,378,09	1,042.08	476.16	14,438,118,482	1,715,693.815	39.756331931	-80.732151753
11,653.21		141.348	11,413.38	1,011.19	501.28	14,438,087.596	1,715,718,935	39.756246902	-80.732062701
the second se	°/100' build/tur								
11,700.00		142.367	11,442.29	982.26	523.99	14,438,058,666	1,715,741.643	39.756167267	-80.731982211
11,750.00	57.57	143.355	11,470.53	949.37	548.89	14,438,025.774	1,715,766.544	39.756076733	-80.731893961
11,800.00	61.50	144.260	11,495.87	914.59	574.33	14,437,990.997	1,715,791.982	39.755981016	-80.731803821
11,850.00	65.42	145.100	11,518.21	878.10	600.18	14,437,954.504	1,715,817.833	39,755880582	-80.731712230
11,900.00	69,36	145.889	11,537.43	840.07	626.32	14,437,916.472	1,715,843.971	39.755775921	-80.731619633
11,950.00	73.29	146.639	11,553.43	800.68	652.61	14,437,877.087	1,715,870.269	39.755667542	-80.731526482
12,000.00		147.358	11,566.15	760.13	678.94	14,437,836.540	1,715,896.600	39.755555973	-80.731433231
12,050.00	81.17	148.055	11,575.51	718.62	705.18	14,437,795.030	1,715,922.833	39.755441758	-80.731340334
12,100.00	85.12	148.737	11,581.48	676.35	731.19	14,437,752,758	1,715,948.842	39.755325453	-80.731248244
12,149.23	89.00	149.400	11,584.01	634.19	756,45	14,437,710.594	1,715,974,107	39.755209452	-80.731158799
Begin 8	9.00° lateral								
12,200.00	89.00	149.400	11,584.89	590.49	782,29	14,437,666.899	1,715,999.947	39.755089241	-80.731067323
12,300.00	89.00	149.400	11,586.64	504.43	833.19	14,437,580.838	1,716,050.843	39,754852473	-80.730887154
12,400.00	89.00	149.400	11,588.39	418.37	884,08	14,437,494.777	1,716,101,738	39.754615704	-80.730706985
12,500.00	89.00	149.400	11,590.13	332.31	934.98	14,437,408.715	1,716,152.634	39,754378935	-80.730526818
12,600.00	89.00	149,400	11,591.88	246,25	985.87	14,437,322.654	1,716,203.529	39.754142166	-80,730346653
12,700.00	89.00	149,400	11,593,63	160.19	1.036.77	14,437,236,593	1,716,254,425	39.753905397	-80.730166488
12,800,00	89,00	149,400	11,595.38	74.12	1.087.67	14,437,150.531	1,716,305,320	39.753668627	-80.729986325
12,900.00	89.00	149.400	11,597.12	-11.94	1,138.56	14,437,064.470	1,716,356.216	39.753431857	-80.729806162
13,000.00	89.00	149.400	11,598.87	-98.00	1,189.46	14,436,978.409	1,716,407,111	39.753195087	-80.729626001
13,100,00	89.00	149.400	11,600.62	-184.06	1,240.35	14,436,892.347	1.716,458.007	39.752958317	-80.729445842
13,200,00	89.00	149,400	11,602,36	-270,12	1,291.25	14,436,806,286	1,716,508,902	39.752721546	-80.729265683





Database: Company: Project:	DB_Feb2822 Tug Hill Operating LLC Marshall County, West Virginia NAD83 UTM 17N	Local Co-ordinate Reference: TVD Reference: MD Reference:	Well Pendleton S-14 HU (slot E) GL @ 1272.00ft GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Veasured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,300.00	89.00	149.400	11,604.11	-356.18	1,342.14	14,436,720.225	1,716,559.798	39.752484775	-80.7290855
13,400.00	89.00	149.400	11,605.86	-442.25	1,393.04	14,436,634.163	1,716,610,693	39.752248004	-80,7289053
13,500.00	89.00	149.400	11,607.61	-528.31	1,443.93	14,436,548.102	1,716,661,589	39.752011232	-80.7287252
13,600.00	89,00	149.400	11,609.35	-614.37	1,494.83	14,436,462.041	1,716,712.484	39,751774460	-80.7285450
13,700.00	89.00	149,400	11,611.10	-700.43	1,545.73	14,436,375.979	1,716,763,380	39.751537688	-80,7283649
13,800.00	89.00	149.400	11,612.85	-786.49	1,596.62	14,436,289,918	1,716,814.275	39,751300915	-80,7281847
13,900.00	89.00	149.400	11,614.59	-872.55	1,647.52	14,436,203.857	1,716,865.171	39.751064143	-80.7280046
14,000,00	89.00	149,400	11,616.34	-958.61	1,698.41	14,436,117,795	1,716,916.066	39,750827370	-80.7278244
14,100.00	89,00	149,400	11,618,09	-1,044.68	1,749.31	14,436,031.734	1,716,966.962	39,750590596	-80.7276443
14,200.00	89.00	149.400	11,619.84	-1,130.74	1,800.20	14,435,945.673	1,717,017.857	39,750353823	-80.7274641
14,300.00	89.00	149.400	11,621.58	-1,216.80	1,851.10	14,435,859.611	1,717,068.753	39.750117049	-80.7272840
14,400.00	89.00	149,400	11,623,33	-1,302.86	1,902.00	14,435,773.550	1.717,119.648	39,749880275	-80.7271038
14,500.00	89.00	149.400	11,625.08	-1,388.92	1,952,89	14,435,687.489	1,717,170,544	39.749643500	-80,7269237
14,600.00	89.00	149,400	11,626.82	-1,474.98	2,003.79	14,435,601.427	1,717,221.439	39.749406725	-80,7267435
14,700.00	89.00	149.400	11,628.57	-1,561.04	2,054.68	14,435,515.366	1,717,272.335	39.749169950	-80.7265634
14,800.00	89.00	149,400	11,630.32	-1,647.11	2,105.58	14,435,429,305	1,717,323.230	39,748933175	-80,7263833
14,900.00	89.00	149,400	11,632.07	-1,733.17	2,156.47	14,435,343.243	1,717,374.126	39,748696399	-80.726203
15,000.00	89.00	149.400	11,633.81	-1,819.23	2.207.37	14,435,257.182	1,717,425.021	39,748459623	-80.7260230
15,100.00	89.00	149.400	11,635.56	-1,905.29	2,258.26	14,435,171.121	1,717,475.917	39.748222847	-80.7258429
15,200.00	89.00	149.400	11,637.31	-1,991,35	2,309,16	14,435,085.059	1,717,526,812	39.747986071	-80.725662
15,300.00	89.00	149.400	11,639.05	-2,077.41	2,360.06	14,434,998,998	1,717,577.708	39,747749294	-80.7254820
15,400.00	89.00	149.400	11,640.80	-2,163.48	2,410.95	14,434,912.937	1,717,628.603	39,747512517	-80.725302
15,500.00	89.00	149.400	11,642.55	-2,249.54	2,461.85	14,434,826.875	1,717,679,499	39,747275740	-80.725122
15,600.00	89,00	149,400	11,644.30	-2,335,60	2,512.74	14,434,740.814	1,717,730.394	39.747038962	-80,7249422
15,700.00	89.00	149.400	11,646.04	-2,421.66	2,563.64	14,434,654,752	1,717,781.290	39,746802184	-80.724762
15,800.00	89.00	149.400	11,647.79	-2,507.72	2,614.53	14,434,568.691	1,717,832.186	39,746565406	-80.7245819
15,900.00	89.00	149.400	11,649.54	-2,593.78	2,665.43	14,434,482.630	1,717,883.081	39,746328627	-80.7244018
16,000.00	89.00	149.400	11,651,28	-2,679,84	2,716.32	14,434,396,568	1,717,933,977	39,746091849	-80.724221
16,100.00	89.00	149,400	11,653.03	-2,765.91	2,767.22	14,434,310.507	1,717,984,872	39.745855070	-80,7240410
16,200.00	89.00	149.400	11,654.78	-2,851.97	2,818.12	14,434,224,446	1,718,035.768	39.745618290	-80.723861
16,300.00	89.00	149.400	11,656.53	-2,938.03	2,869.01	14,434,138,384	1,718,086.663	39.745381511	-80.7236813
16,400.00	89.00	149.400	11,658.27	-3,024.09	2,919.91	14,434,052.323	1,718,137.559	39.745144731	-80.7235013
16,500.00	89.00	149.400	11,660.02	-3,110.15	2,970.80	14,433,966,262	1,718,188.454	39.744907951	-80.723321
16,600.00	89.00	149.400	11,661.77	-3,196.21	3,021.70	14,433,880.200	1,718,239.350	39.744671170	-80.7231410
16,700.00	89.00	149,400	11,663.51	-3,282.28	3,072.59	14,433,794,139	1,718,290,245	39.744434389	-80,7229609
16,800.00	89.00	149.400	11,665.26	-3,368.34	3,123,49	14,433,708.078	1,718,341,141	39.744197608	-80.722780
16,900.00	89.00	149.400	11,667.01	-3,454.40	3,123,49	14,433,622.016	1,718,392,036	39.743960827	-80,722600
17,000.00	89.00	149.400	11,668,76	-3,434.40	3,174.39	14,433,535,955	1,718,442,932	39.743724046	-80.7224205
17,100.00	89.00	149.400	11,670.50	-3,626.52	3,225.26	14,433,449.894	1,718,493.827	39.743487264	-80.722420
17,200.00	89.00	149.400	11,672.25	-3,712.58	3,327.07	14,433,363,832	1,718,544.723	39.743250481	-80,722060;
17,300.00	89.00	149.400	11,674.00	-3,712.50	3,327.07		1,718,595,618	39.743230481	-80,721880
17,400.00	89.00	149.400	11,675.74	-3,884.71	3,428.86	14,433,277.771	1,718,646.514	39.742776916	-80.721880
						14,433,191.710			
17,500.00	89.00 89.00	149.400	11,677.49	-3,970.77	3,479,76	14,433,105.648	1,718,697,409	39.742540133	-80.7215200
17,600.00	89.00	149.400 149.400	11,679,24	-4,056,83	3,530.65	14,433,019.587	1,718,748.305	39.742303350	-80,7211598
			11,680.99	-4,142.89	3,581.55	14,432,933,526	1,718,799.200	39.742066566	
17,800.00	89,00	149,400	11,682.73	-4,228.95	3,632.45	14,432,847,464	1,718,850.096	39.741829782	-80.720979
17,900.00	89.00	149.400	11,684.48	-4,315.01	3,683,34	14,432,761.403	1,718,900,991	39.741592998	-80.7207996
18,000.00	89.00	149.400	11,686.23	-4,401.08	3,734.24	14,432,675.342	1,718,951.887	39.741356214	-80.7206195
18,100,00	89.00	149,400	11,687.97	-4,487.14	3,785.13	14,432,589,280	1,719,002.782	39.741119429	-80.7204394
18,114,12	89.00	149.400 11688.22 TV	11,688.22	-4,499.29	3,792.32	14,432,577.130	1,719,009.968	39.741086000	-80.7204140



Database: Company: Project:	DB_Feb2822 Tug Hill Operating LLC Marshall County, West Virginia NAD83 UTM 17N	Local Co-ordinate Reference: TVD Reference: MD Reference:	Well Pendleton S-14 HU (slot E) GL @ 1272.00ft GL @ 1272.00ft
Site:	Pendleton	North Reference:	Grid
Well:	Pendleton S-14 HU (slot E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pendleton S-14HU LP 5 - plan misses target o - Point	0.00 center by 0.03		11,584.00 22ft MD (115	634.17 84.01 TVD, 63	756.42 34.19 N, 756.	14,437,710.580 45 E)	1,715,974.076	39.755209413	-80.731158910
Pendleton S-14HU PBH - plan hits target cent - Point	0.00 ter	0.000	11,688.22	-4,499.29	3,792.32	14,432,577.130	1,719,009.968	39.741086000	-80.720414000

Plan Annotations Local Coordinates Measured Vertical Depth Depth +N/-S +E/-W (ft) (ft) Comment (ft) (ft) 3,100.00 3,100.00 0.00 0.00 KOP Begin 2°/100' build 2.01 3,350.00 3,349.68 10.71 Begin 5.00° tangent 7,014.26 7,000.00 324.61 60.87 Begin 2°/100' build 7,509.95 7,487.62 408.94 75.52 Begin 14.91° tangent Begin 6°/100' build/turn 10,642.08 10,514.25 1,203.69 209.95 Begin 8°/100' build/turn 11,653.21 11,413.38 1,011.19 501.28 12,149.23 11,584.01 634.19 756.45 Begin 89.00° lateral 18,114.12 11,688.22 -4,499.29 3,792.32 PBHL/TD 18114.12 MD 11688.22 TVD

WW-9 (4/16)

API Number 47 -	051	
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Operator's Well No. Pendleton S-14HU

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 v Will a pit be used? Yes <u>No</u> No	
If so, please describe anticipated pit waste:AST Tanks with proper containment	
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 Reuse (at API Number	, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523)
Off Site Disposal (Supply form WW-9 for disposal loc Other (Explain	cation)
Will closed loop system be used? If so, describe: Yes - For vertical drilling	
Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwate	er, 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 dri	Il cuttings to be disposed of in Landfill
-If left in pit and plan to solidify what medium will be used? (cement, lin	ne, sawdust) <u>N/A</u>
-Landfill or offsite name/permit number?	atmonsland Saniitary Landfill, LLC (SAN1405/PADEP EC#1356426). Chesinut Valley Landfill (100419)
Permittee shall provide written notice to the Office of Oil and Gas of any load of o	에는 것 같은 것 같

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 Company Official (Typed Name) James Pancake Company Official Title Vice President - Geosciences	SEAN COT Wast My Commissi	f Pennsylvania - Notary Seal TER - Notary Public nington County on Expires Jan 2, 2024 on Number 1264582
Subscribed and sworn before me this day of	, 20 <u>)</u>	BECEIVED Office of Oil and Gas JUN 0 6 2022
My commission expires 1/2/2027	Notary Public	WV Department of Environmental Protection

Form WW-9

Tug Hill Operating, LLC

roposed Revegetation Treatment	it: Acres Disturbed 0.00	Prevegetation pH	
Lime 3	_ Tons/acre or to correct to pH	6.5	
Fertilizer type 10-20-	20 🔳		
Fertilizer amount 500	lbs	s/acre	
Mulch 2.5	Tons/a	cre	
	Seed	Mixtures	
Тетр	orary	Perma	nent
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

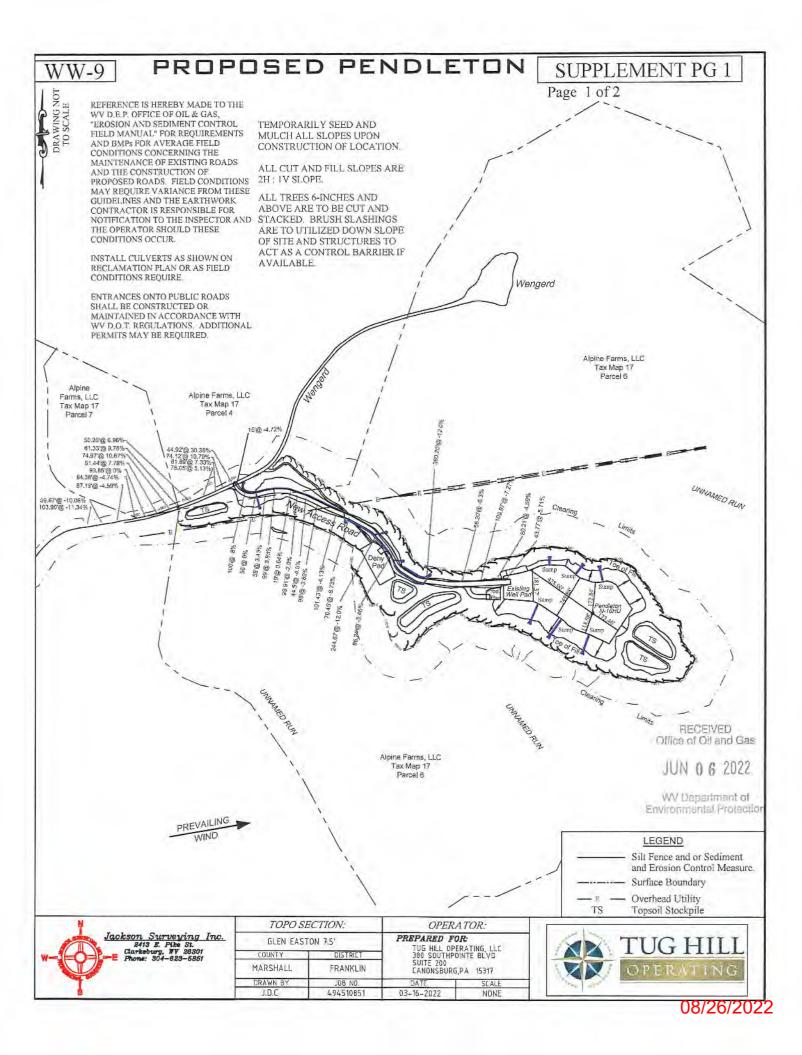
Attach:

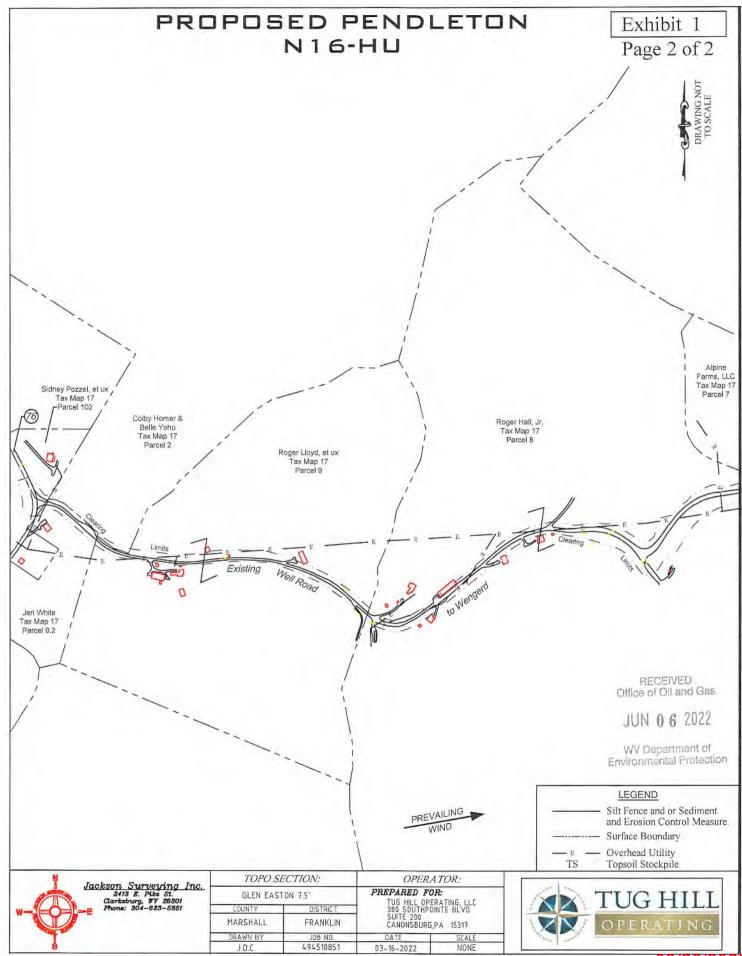
Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

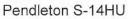
Photocopied section of involved 7.5' topographic sheet.

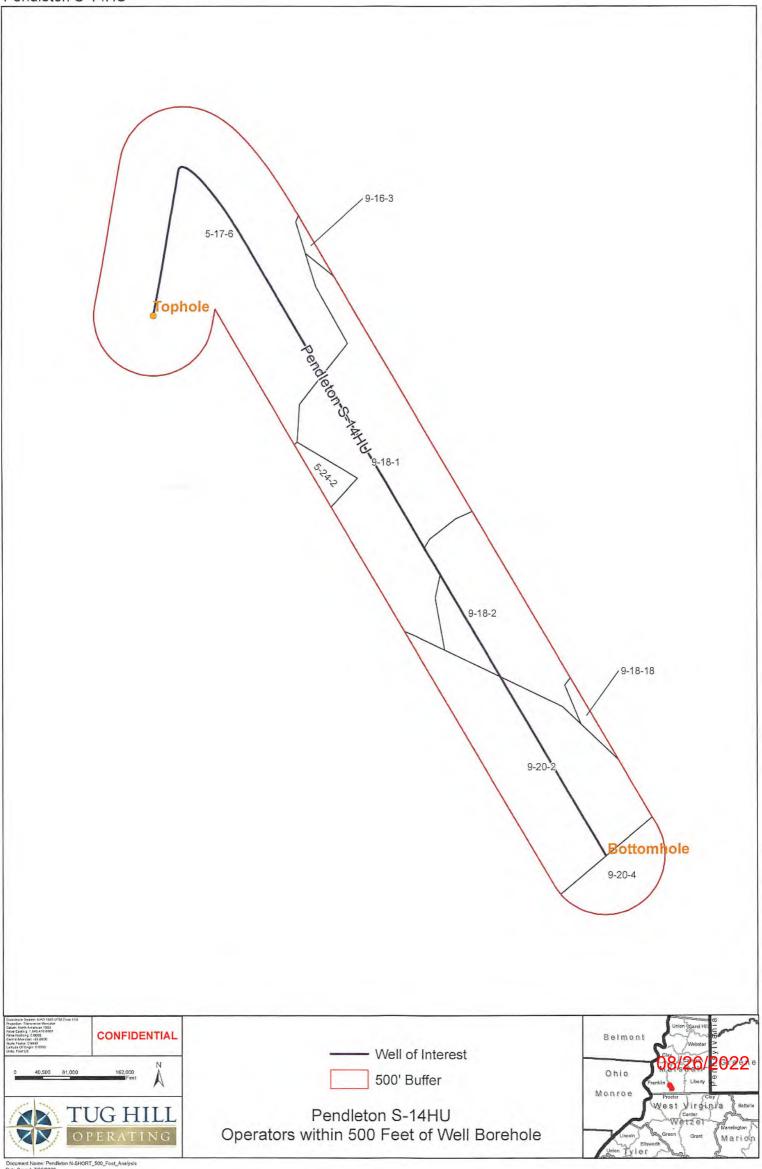
Plan Approved by: June Green My	
Comments:	
Title: Oil and Gas Inspector Date: 5/24/22	RECEIVED Office of Oil and Ga
Field Reviewed? (X) Yes () No	JUN 0 6 2022

WV Department of Environmental Protection





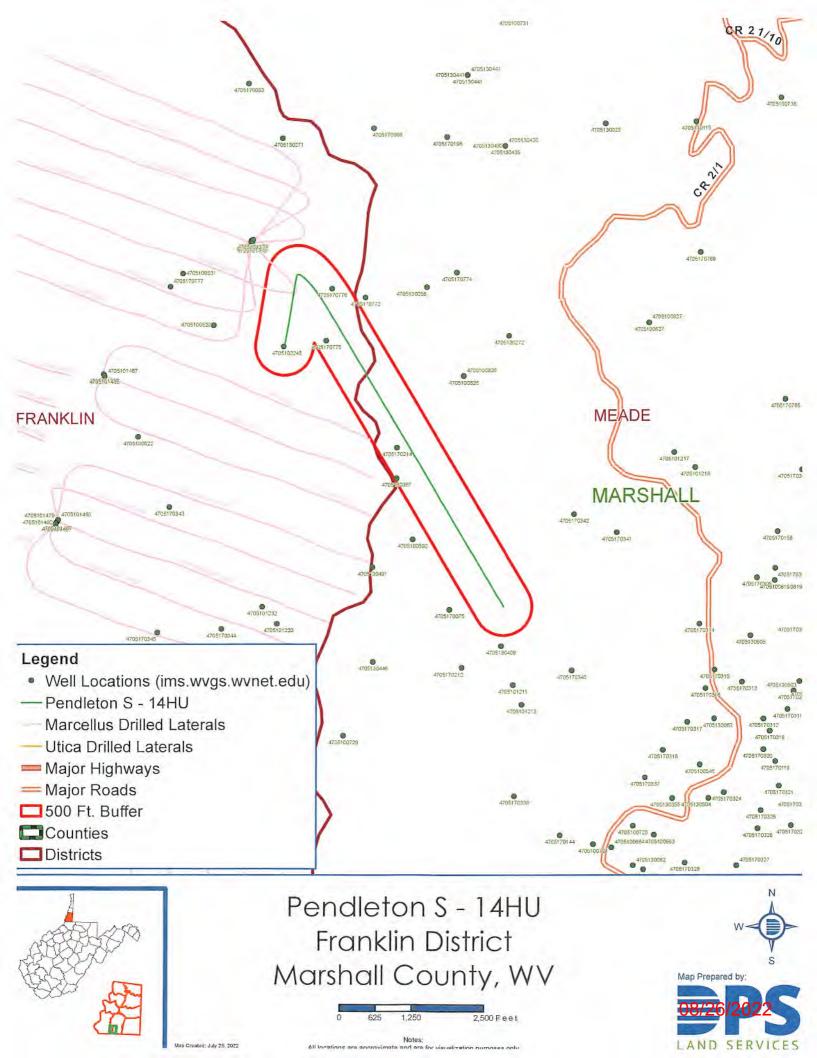




ved: 7/28/2022

Operators within 500' of Well Bores Pendleton S - 14HU

	DICTRICT	TNAD		ADDRESS
COUNTY	DISTRICT	ТМР	MINERAL OWNER/LESSEE	
				1320 S. University Dr.
				Suite 500
MARSHALL	FRANKLIN	5-17-6	TH EXPLORATION II, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	FRANKLIN	5-24-2	TH EXPLORATION II, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-16-3	TH EXPLORATION, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-18-1	TH EXPLORATION, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-18-18	TH EXPLORATION, LLC	FT Worth,TX 76107
· · · · · · · · · · · · · · · · · · ·				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-18-2	TH EXPLORATION, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-20-2	TH EXPLORATION, LLC	FT Worth,TX 76107
				1320 S. University Dr.
				Suite 500
MARSHALL	MEADE	9-20-4	TH EXPLORATION, LLC	FT Worth,TX 76107



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, <u>apicard@dpslandservices.com</u>, 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

Page 1 of 5

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.

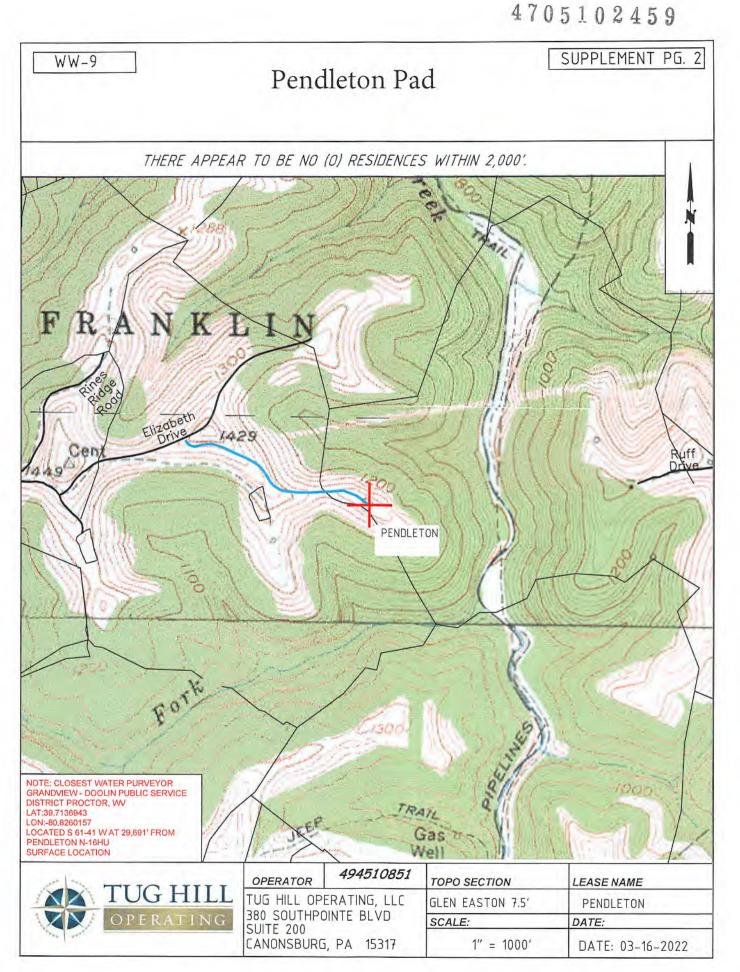
API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	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 Point Pleasant 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 Point Pleasant 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.
4705130387	Manufacturers Light & Heat Co.	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 Point Pleasant well. Well is plugged.	Well was plugged 3/28/1958.

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
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 Point Pleasant well.	State records are incomplete.

-

	Well:	County = 51 Permit = 70775	Report Time: Thursday, May 26, 2022 3:16:57 F
Location Information: View Map			
API COUNTY PERMIT TAX_DISTRICT QUAD_75 QU/ 4705170775 Marshall 70775 Franklin Glen Easton Can	AD_15 LAT_DD LON_DD meron 39.753718 -80.73127	UTME UTMN 523020.9 4400457.5	
There is no Bottom Hole Location data for this well			
Owner Information:			
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170775 -/-/- unknown Prpty Map Herbert Kelley	WELL_NUM CO_NUM LEAS	E LEASE_NUM MINERAL_OWN OPERATOR_AT_	COMPLETION PROP_VD PROP_TRGT_FM TFM_EST_PR
Completion Information:			
API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES 4705170775 -/-//	ST_FM DEEPEST_FMT INIT uncl	IAL_CLASS FINAL_CLASS TYPE RIG assified unclassified not available unknown	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_E unknown
WV Geological & Economic Survey:	Well:	County = 51 Permit = 70776	Report Time: Thursday, May 26, 2022 3:17:15
Location Information: View Map			
API COUNTY PERMIT TAX DISTRICT QUAD_75 QU 4705170776 Marshall 70776 Franklin Glen Easton Car	AD_15 LAT_DD LON_DD	UTME UTMN 04 523052 3 4400731 4	
There is no Bottom Hole Location data for this well			
Owner Information:			CONDUCTION DOOD VD DOOD TOOT ON TON FOT DD
	WELL_NUM CO_NUM LEAS	E LEASE_NUM MINERAL_OWN OPERATOR_AT_	COMPLETION PROP_VD PROP_TRGT_FM TFM_EST_PR
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/-/- unknown Prpty Map Herbert Alley	WELL_NUM CO_NUM LEAS 1262	E LEASE_NUM MINERAL_OWN OPERATOR_AT_	COMPLETION PROP_VD PROP_TRGT_FM TFM_EST_PR
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/-/- unknown Prpty Map Herbert Alley Completion Information:	1262	unknown	
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/-/- unknown Prpty Map Herbert Alley Completion Information:	1262 ST_FM DEEPEST_FMT INIT	unknown	CMP_MTHD_TVD_TMD_NEW_FTG_KOD_G_BEF_G_AFT_O_E
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/-/- unknown Prpty Map Herbert Alley Completion Information: API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES	1262 ST_FM DEEPEST_FMT INIT uncl	IAL CLASS FINAL CLASS TYPE RIG	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_E
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/-/- unknown Prpty Map Herbert Alley Completion Information: API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES 4705170776 -/-// WV Geological & Economic Survey:	1262 ST_FM DEEPEST_FMT INIT uncl	IAL_CLASS FINAL_CLASS TYPE RIG assified unclassified not available unknown	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_E
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/ unknown Prpty Map Herbert Alley Completion Information: API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES 4705170776 -// WV Geological & Economic Survey: Location Information: View Map	1262 ST_FM DEEPEST_FMT INIT uncl Well:	IAL_CLASS FINAL_CLASS TYPE RIG assified unclassified not available unknown County = 51 Permit = 02245	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_I
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/ unknown Proty Map Herbert Alley Completion Information: API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES 4705170776 -// WV Geological & Economic Survey: Location Information: <u>View Map</u> API COUNTY PERMIT TAX DISTRICT QUAD 75 QU	1262 ST_FM DEEPEST_FMT INIT uncl Well:	IAL_CLASS FINAL_CLASS TYPE RIG assified unclassified not available unknown County = 51 Permit = 02245	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_E
API CMP_DT SUFFIX STATUS SURFACE_OWNER V 4705170776 -/ unknown Prpty Map Herbert Alley Completion Information: Prpty Map Herbert Alley API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPES 4705170776 -/ -/ -/ WV Geological & Economic Survey: WV Geological & Economic Survey: -/ -/ -/ Location Information: View Map -/ QUAD_75 QU, API COUNTY PERMIT TAX_DISTRICT QUAD_75 QU, 4705102245 Marshall 2245 Franklin Glen Easton Car	1262 ST_FM DEEPEST_FMT INIT uncl Well:	IAL_CLASS FINAL_CLASS TYPE RIG assified unclassified not available unknown County = 51 Permit = 02245	CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_E
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WV Geological & Economic Survey:	Well: Count	y = 51 Permit = 30387	Report Time: Thursday, May 26, 2022 3:17:45 PM
Location Information: View Map			
API COUNTY PERMIT TAX_DISTRICT QUAD_75 QU 4705130387 Marshall 30387 Meade Wileyville Lift	AD_15 LAT_DD LON_DD UTME eton 39.747178 -80.726962 523392.2	UTMN 4399732.7	
There is no Bottom Hole Location data for this well			
Owner Information:			
API CMP_DT SUFFIX STATUS SURFACE_OW 4705130387 -/-/1900 Original Loc Completed James&Caroline		EASE_NUM MINERAL_OWN OPERATOR_A 2883 Manufacturers L	COMPLETION PROP_VD PROP_TRGT_FM TFM_EST_PR ight & Heat Co.
Completion Information:			
API CMP_DT SPUD_DT ELEV DATUM FIELD D 4705130387 -/-/1900 -/-/- 845 Spirit Level	EPEST_FM DEEPEST_FMT INITIAL_CLA unclassified	ASS FINAL_CLASS TYPE RIG CI unclassified not available unknown un	MP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_B
There is no Pay data for this well			
There is no Production Gas data for this well			
There is no Production Oil data for this well ** some of	perators may have reported NGL ur	ider Oil	
here is no Production NGL data for this well ** some	operators may have reported NGL	under Oil	
There is no Production Water data for this well			
There is no Stratigraphy data for this well			
There is no Wireline (E-Log) data for this well			
Plugging Information:			
API PLG_DT DEPTH_PBT 4705130387 3/28/1958 0			
WV Geological & Economic Survey:	Well: Count	y = 51 Permit = 70214	Report Time: Thursday, May 26, 2022 3:18:00 PM
ocation Information: View Map	Calculation and the second		
API COUNTY PERMIT TAX_DISTRICT QUAD_75 Q 4705170214 Marshall 70214 Meade Wileyville Li	JAD_15 LAT_DD LON_DD UTME leton 39.748628 -80.726928 523394.6	UTMN 4399893.7	
There is no Bottom Hole Location data for this well			
Owner Information:			
API CMP_DT SUFFIX STATUS SURFACE_OW 4705170214 -/ Original Loc Completed James Mossey	VER WELL_NUM CO_NUM LEASE LEA	SE_NUM MINERAL_OWN OPERATOR_AT_C OP=Wheeling Oper in Min.owner f	OMPLETION PROP_VD PROP_TRGT_FM Id.no code assgn(Orphan well proj)
Completion Information:	and the second second second		
API CMP_DT SPUD_DT ELEV DATUM FIELD DEE 4705170214 -/-//	PEST_FM DEEPEST_FMT INITIAL_CLAS unclassified	S FINAL_CLASS TYPE RIG CMP unclassified not available unknown unkn	_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_BEF

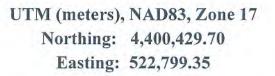




Well Site Safety Plan Part A – Site Specific Data and Figures

Well Name: Pendleton S-14HU Pad Name: Pendleton

County: Marshall



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) RECEIVED Office of Oil and Gas

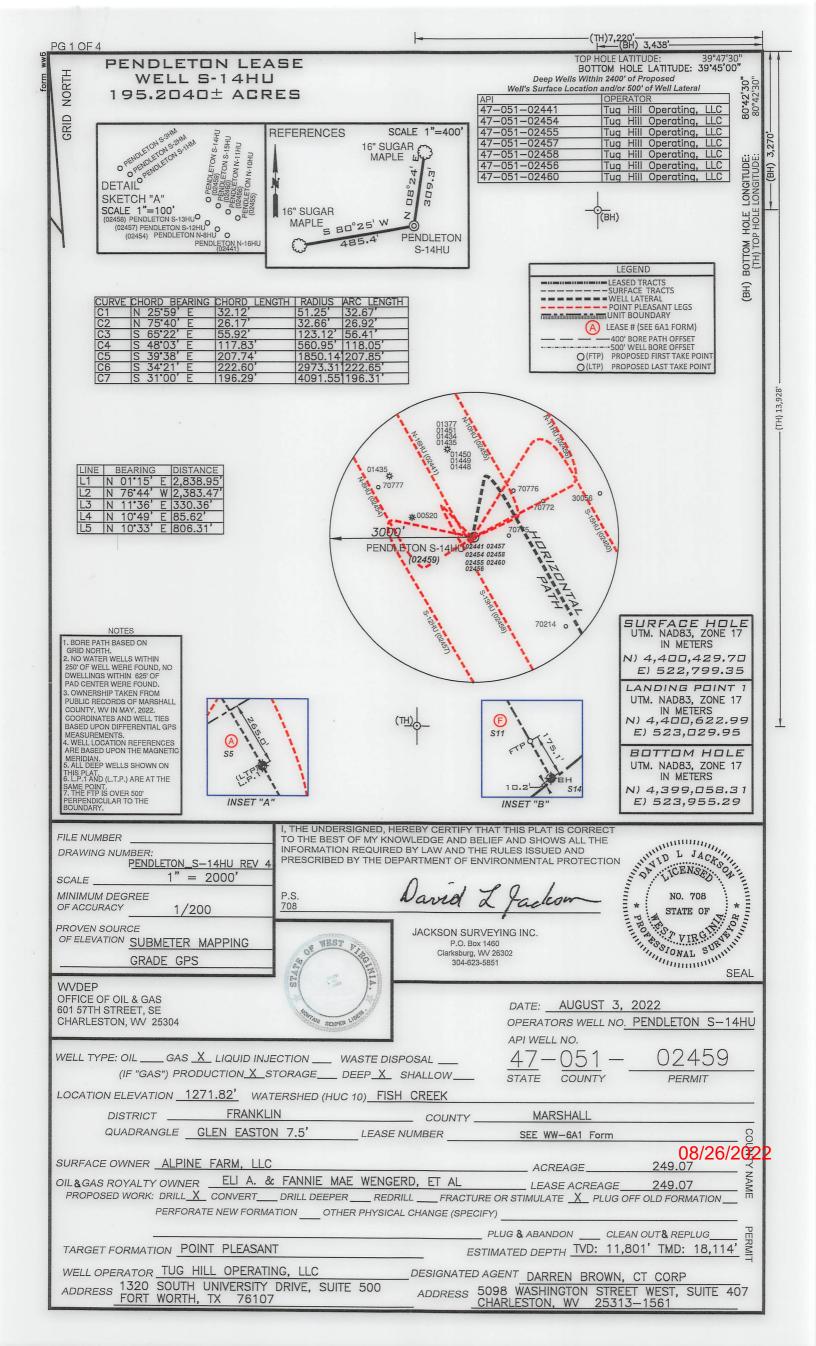
124/22

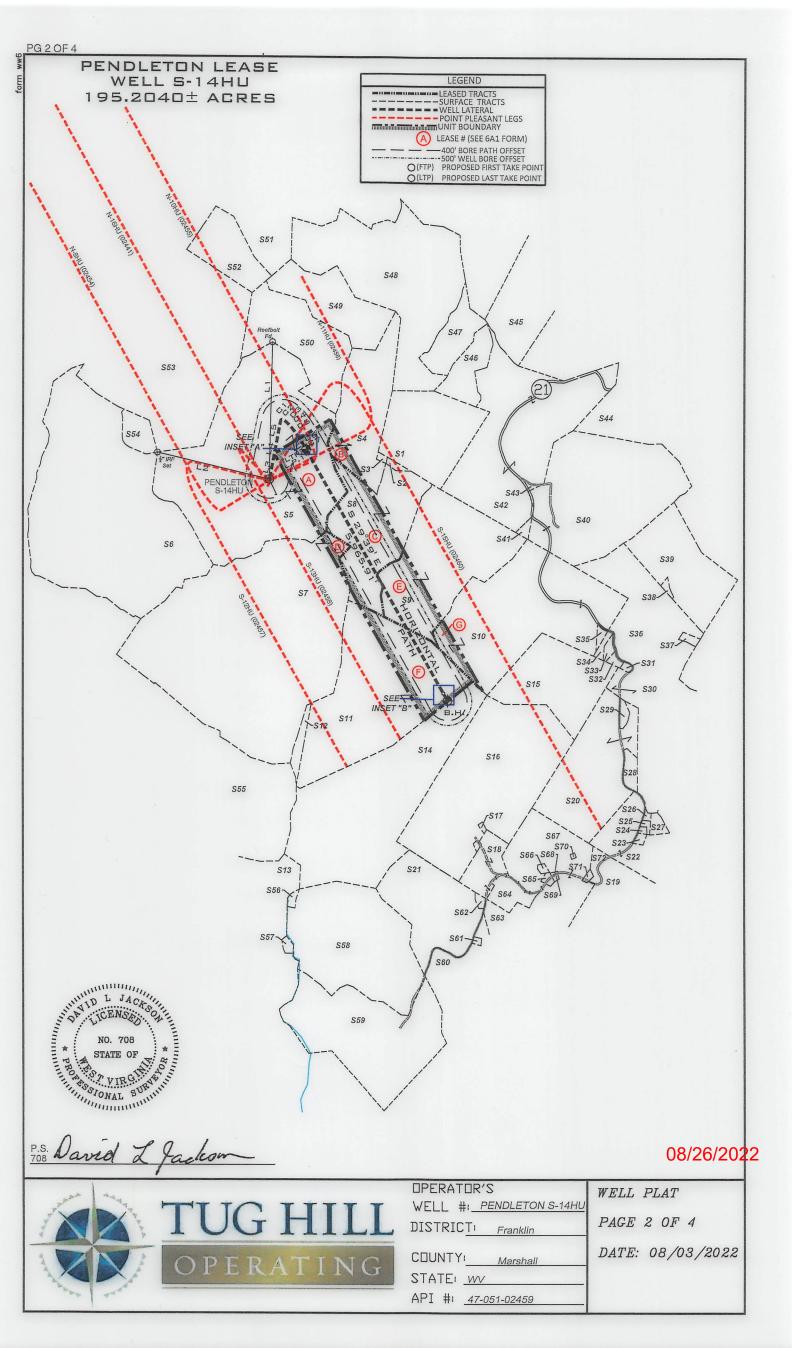
JUN 0 6 2022

WV Department of Environmental Protection

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745





Tarra	Number	Tax Map -Parcel	Parcels within Unit Boundary Surface Owner	Acres
Tags	Number	05-17-06	ALPINE FARM LLC	249.07
A	\$5 \$4	09-16-03	BERTHA L KLUG	71
B C	54 58	09-18-03	THERESA MAE LONG THOMAS ET AL	58.66
	58 57	05-24-02	ROY FRIEND YOHO	316.80
D			BRIAN T KLUG	85
E	S9	09-18-02		138
F	S11	09-20-02	MICHAEL JAMES PEKULA ET UX	154.03
G	S10	09-18-18	JAMES D. FROHNAPFEL ET UX	154.05
			Adjoining Parcels	1
	Number	Tax Map -Parcel	Surface Owner	Acres
	\$1	09-16-04	BERTHA L KLUG	73.39
	S2	09-18-03	BERTHA L KLUG	1.33
	\$3	09-18-04	BERTHA L KLUG	1
	S6	05-17-08	ROGER H HALL JR	257.50
	S12	09-20-01	MICHAEL JAMES PEKULA ET UX	5
	S13	05-25-03	USA TIMBER AND LAND AUCTIONS LLC	181.54
	S14	09-20-04	SHELLI E J PEKULA	171
	\$15	09-20-06	KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST	64.74
	\$16	09-20-05	GERALD A ET UX FROHNAPFEL - TRUST	164.14
	S17	09-20-5.2	WHEELING CATHOLIC DIOCESE	.447
	S18	09-22-04	WHEELING CATHOLIC DIOCESE	20
	S19	09-20-17	MARTIN L KLUG	49.78
	\$15 \$20	09-20-07	SONNY M & LINDA L TAGG	72.828
	520 521	09-22-3.2	MARK H MILLER	75
	S21	09-20-9	JOHN G JR & MARILYN S WEIGAND	48,131
	522 523	09-20-9	HELEN B SHUTLER - LIFE	.78
				.50
	\$24	09-20-10	JAMES MILLER ET UX	
	\$25	09-20-9.3	JAMES MILLER ET UX	.80
	\$26	09-20-9.5	JAMES MILLER ET UX	.666
	S27	09-20-9.6	JAMES MILLER ET UX	2.919
	S28	09-20-7.1	DAVID PAUL FROHNAPFEL	4.930
	S29	09-20-7.2	MICKEY R DULANEY JR	2.242
	S30	09-18-15	KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST	29.5
	\$31	09-18-15.1	NICHOLAS FROHNAPFEL ET UX	1.50
	\$32	09-18-16.1	NICHOLAS C FROHNAPFEL ET UX	1.50
	S33	09-18-16.3	JOHN F WAYMAN EST	1.818
	\$34	09-18-16.2	JOHN F WAYMAN EST	2.17
	\$35	09-18-18.1	JOHN F WAYMAN EST	1.1
	\$36	09-18-16	ROBERT F VILLERS	62.893
	537	09-18-16.4	ROBERT F & APRIL L VILLERS	1.50
	\$38	09-18-17.1	VINCENT JOHN WAYMAN	1.010
	\$39	09-18-17	VINCENT J WAYMAN ET UX	68.99
	\$40	09-18-06	LOUIS FOX	141.75
	S41	09-18-5.1	LOUIS FOX	1.583
	541	09-18-05		122.43
			BERTHA L KLUG	
	\$43 \$44	09-18-5.2		0.933
	\$44 \$45	09-16-20	LOUIS T FOX	83.174
	S45	09-16-11	JAMES G RICHMOND	67.88
	\$46	09-16-07	BERTHA L KLUG	26.105
	S47	09-16-06	ROBERT M & NANCY R McCARDLE	31
	S48	09-16-05	ROBERT M & NANCY R McCARDLE	133
	549	09-16-02	ROBERT M & NANCY R McCARDLE	53.40
	S50	05-17-05	ALPINE FARM LLC	76.96
	\$51	09-16-01	ROBERT M & NANCY R McCARDLE	46.80
	S52	05-16-13	DAVID ALAN RUBCICH ET AL	33.31
	\$53	05-17-04	ALPINE FARM LLC	212
	\$54	05-17-07	ALPINE FARM LLC	10.8
	S55	05-24-3.3	CHARLES E BERTRAND & DEBRA K BERTRANO	120.43
	\$56	09-22-1.1	CNG TRANSMISSION CO	1.43
	\$57	05-25-3.2	CONSOL ENERGY HOLDINGS LLC XVI	1.43
	\$58	09-22-01	LOUIS T FOX	124.57
	\$59	09-22-01	MARK H J MILLER ETAL	124.57
	\$60	09-22-02		63.73
-	-		MARK HILARY MILLER	
	561	09-22-3.3	MARY C WRIGHT	.617
	S62	09-22-3.1	MARGARET ANN MYSUWIEC - UFE	1.1
	\$63	09-20-22.6	MARY MARGARET STINE	0.1185
	S64	09-22-5.1	HILARY G MILLER EST	10.62
	S65	09-20-22.7	JOAN L KLUG	1.06
	S66	09-20-22.8	JOAN LOUISE KLUG	.80
	S67	09-20-22	JOAN L KLUG	70.239
	S68	09-20-22.4	JOAN L KLUG	0.165
	S69	09-20-22.5	JOAN L KLUG	.3767
	S70	09-20-22.3	GRANDVIEW-DOOLIN PSD	0.23
	S71	09-20-22.1	MARY MARGARET STINE	8/26
	S72	09-20-21	MARY MARGARET STINE	3.25

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PENDLETON LEASE WELL S-14HU 195.2040± ACRES

PG 3 OF 4

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P.S. David I Jacksom



WELL PLAT
PAGE 3 OF 4
DATE: 08/03/2022

PG 4 OF 4

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PENDLETON LEASE WELL S-14HU 195.2040± ACRES

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	DEED BC	OOK/PAGE
10*14114	5-17-6	А	ELI & FANNIE MAE WENGERD	671	323
10*19638	9-16-3	В	GREGORY J HALL, ET AL	944	461
10*28262	9-18-1	С	JAMES W MESSEY ET AL	67	487 /
10*14024	5-24-2	D	ROY FRIEND YOHO AND DARLENE J YOHO, ET AL	665	508
10*28262	9-18-2	E	JAMES W MESSEY ET AL	67	487 -
10*39661	9-20-2	F	SHELLIE J AND MICHAEL PEKULA	1126	542
10*47051.047.1	9-18-18	G	JAMES E BLATT, ET AL	869	587



P.S. David L Jackson



DPERATOR'S	Γ
WELL #: <u>PENDLETON S-14HU</u>	
DISTRIC <u>T: Franklin</u>	
COUNTY: <u>Marshall</u>	
STATE: <u>wv</u>	
API #: <u>47-051-02459</u>	

WELL PLAT
PAGE 4 OF 4
DATE: 08/03/2022
21112. 00,00,2022

WW-6A1 (5/13)

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:

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 any Sugards				
lts:	Permitting Specialist - Appalachia Region				

Page 1 of

Operator's Well No. Pendleton S - 14HU

WELL BORE PARCELS

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	D BOOK/P	AGE	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT
10*14114	5-17-6	A	ELI & FANNIE MAE WENGERD	GASTAR EXPLORATION USA	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	с	JAMES W MESSEY ET AL	ECLIPSE OIL COMPANY	1/8+	67	487	Eclipse Oil ompany to C.H. Stolzebach: DB 68/507	Company to Manufacturers Light &		AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189	1	Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418		Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87
10*28262		E	JAMES W MESSEY ET AL	ECLIPSE OIL COMPANY	1/8+	67	487	C.H. Stolzebach: DB 68/507	Heat Company: DB 148/389	to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489	Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189	to Carl D Perkins: DB 451/132	Perkins: DB 451/418	Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87 N/A
10*39661		F	SHELLIE J AND MICHAEL PEKULA	TH EXPLORATION LLC	1/8+	1126	542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

TH EXPLORATION LLC ROBIN BOCK 1320 S INTVERSITY SUTTE 500 FORT WORTH TX 76107

DOK 0048 PAGE 0067 Execution Version

STATE OF WEST VIRGINIA § COUNTY OF MARSHALL §

101

2.8

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. <u>Assignment</u>. 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 <u>Exhibit A-1</u>, and all other of Assignor's right, title and interest in and to the interests and properties described in <u>subsections (a)</u> through (k) of this <u>Section 1</u> (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 <u>Exhibit A-1</u> 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 <u>Exhibit A-1</u> (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 <u>Exhibit A-2</u> 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 3, 2022

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

RE: Pendleton S-14HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

Tug Hill Operating, LLC is authorized through, either lease or other agreement, to unitize and pool all lands falling within the boundaries of the proposed voluntary unit included with this submission.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 724-749-8388, or by email at amorris@tug-hillop.com.

Sincerely,

anyslous

Amy L. Morris Permitting Specialist – Appalachia Region Tug Hill Operating

MOK 1052 PAGE0490

CERTIFICATE OF CONSENT AND EASEMENT

6000 TOWN CENTER BOULEVARD, SUITE 145

DPS LAND SERVICES CORP

CANONSBURG PA 15317-5841

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Marshall County Jan Pest, Clerk Executed this _____ day of $\underline{\int u/y}$, 2019. Instrument 1456384 07/12/2019 @ 12:25:33 PM en dia kaominina dia mandri dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina

(b) (a) we see the group of the second control of the second second second STATE OF OHIO: BY the second second

SS:

COUNTY OF HOLMES

ALPINE FARM, LLC. By: Name: Eli A. Wengerd / Title: Member RIGHT OF WAY W/O CONSIDERATION Book 1052 @ Page 490 Pages Recorded 2 Recording Cost \$ 11.00

On this, the $1^{2^{2}}$ day of 5_{12} , 2019, before me, a notary public, the undersigned officer, personally appeared \underline{E} ; \underline{B} . Wanger , who acknowledged himself/herself to be the \underline{Ouver} of Alpine Farm, LLC and that he/she as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the company by himself/herself as \underline{Ouver} .

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

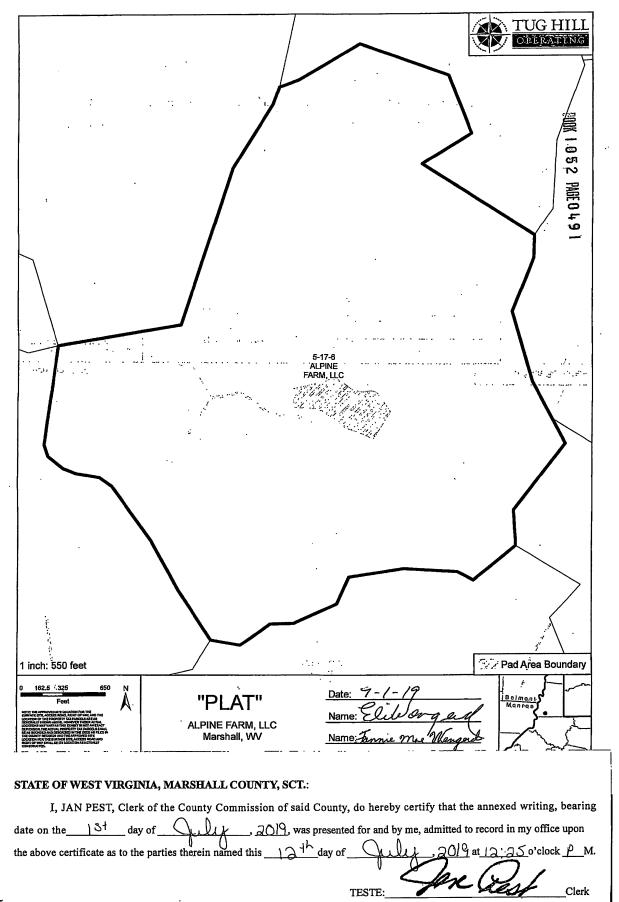
28.23 N 28 283 5458

This instrument prepared by: WV Oil and Gas Conservation Commission 601 57th Street Charleston, WV 25304 My Commission Expires: <u>July 14, 2019</u> Signature/Notary Public: <u>Bub K. Suk</u> Name/Notary Public (print): <u>Amber K. Sumek</u>

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 $\{1,1\}^{(i)}$ AMBER K SRAMEK * Notary Public, State of Ohio My Comm. Expires 07/14/2019 KF, OF, 9

4838-2618-8605v2



08/26/2022



June 1, 2022

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

RE: Pendleton N-14HU

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 N-14HU 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-hillop.com.

Sincerely,

anyslovis

Amy L. Morris Permitting Specialist – Appalachia Region

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS <u>NOTICE CERTIFICATION</u>

Date of Notice Certification: 06/01/2022

API No. 47- 051	
Operator's Well No	Pendleton N-14HU
Well Pad Name: F	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:	West Virginia	UTM NAD 83	Easting:	522,799.35
County:	Marshall	UTIVI INAD 85	Northing:	4,400,429.70
District:	Franklin	Public Road Acc	cess:	Rines Ridge Road (County Route 76)
Quadrangle:	Glen Easton 7.5'	Generally used f	arm name:	Alpine Farm, LLC
Watershed:	Middle Fish Creek			

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY	OOG OFFICE USE ONLY
□ 1. NOTICE OF SEISMIC ACTIVITY or ■ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	□ RECEIVED/ NOT REQUIRED
■ 2. NOTICE OF ENTRY FOR PLAT SURVEY or ■ NO PLAT SURVEY WAS CONDUCTED	□ RECEIVED
 3. NOTICE OF INTENT TO DRILL or DIVISION NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) 	□ RECEIVED/ NOT REQUIRED
4. NOTICE OF PLANNED OPERATION	□ RECEIVED
■ 5. PUBLIC NOTICE	RECEIVED
■ 6. NOTICE OF APPLICATION	□ RECEIVED

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.

Certification of Notice is hereby given:

THEREFORE, I <u>Amy L. Morris</u>, 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:	Tug Hill Operating, LLC	Ad	dress:	380 Southpointe Boulevard, Plaza II, Suite 200 Canonsburg, PA 15317 724-338-2030		
By:	Amy L. Morris UNUSUOUUS		Facsimile:			
Its:	Permitting Specialist - Appalachia Region	Fa				
Telephone:	724-749-8388	En		amorris@tug-hillop.com		
My	SEAN COTTER - Notary Public Washington County Commission Expires Jan 2, 2024 Commission Number 1264582		l and swo hission Ex	Probe me this day of June		

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 <u>depprivacyofficer@wv.gov</u>.

WW-6A (9-13)

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS <u>NOTICE OF APPLICATION</u>

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

	e of Notice: <u>6/1/2022</u> ice of:	Date Permit Applicat	tion Filed: 6/3/2022
	PERMIT FOR ANY WELL WORK		CATE OF APPROVAL FOR THE RUCTION OF AN IMPOUNDMENT OR PIT
Deli	very method pursua	nt to West Virginia Co	de § 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:
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VI SURFA	CE OWNER(s)	J.
	pine Farm, LLC (Well Pad and Access Road)	L T
Address:	7932 TWP Road 662	4
Dundee, OH	44624-9602	
Name:		Ē
Address:		Ĩ
Name: Ra		Ē
Address:	1538 Township Road 660	F
Dundee, OH	44624	r
Name:		I
Address:		-
SURFA	CE OWNER(s) (Impoundments or Pits)	L L
Name:		F
Address:		

] COA	L OWNER	OR	LES	SEE	
Contractor .	Canaal Engine	ILC	A 44-00 1	Conner	è

Name: Consol Energy, LLC Attn: Casey Saunders Address: 275 Technology Drive, Suite 101

Canonsburg, PA 15317-9565

COAL OPERATOR

Address:

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

OPERATOR O	OF ANY NATURAL	L GAS STORAGE	FIELD
Name:			
Address.			

*Please attach additional forms if necessary

API NO. 47-051 -OPERATOR WELL NO. Pendleton S-14HU Well Pad Name: Pendleton

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 <u>www.dep.wv.gov/oil-and-gas/pages/default.aspx</u>.

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



WW-6A (8-13)

4705102459

API NO. 47-051 -OPERATOR WELL NO. Pendleton S-14HU Well Pad Name: Pendleton

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.

WW-6A (8-13) 4705102459

API NO. 47-051 OPERATOR WELL NO. Pendleton S-14HU Well Pad Name: Pendleton

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-

<u>Permits/Pages/default.aspx</u> 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)

Notice is hereby given by:

Well Operat Telephone:	tor: Tug Hill Operating, LLC 724-749-8388	
	is@tug-hillop.com	

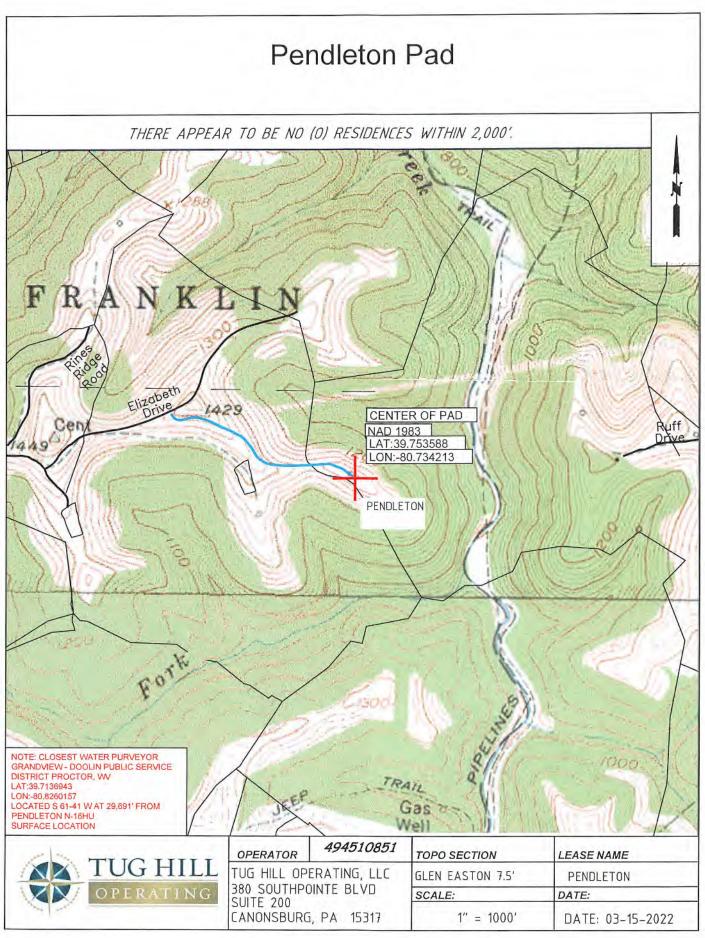
Address: 380 Southpointe Boulevard, Plaza II, Suite 200 Canonsburg, PA 15317 Facsimile: 724-338-2030

Oil and Gas Privacy Notice:

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

Commonwealth of Pennsylvania - Notary Seal SEAN COTTER - Notary Public	
Washington County	
My Commission Expires Jan 2, 2024	
Commission Number 1264582	

Subscribed and sworth befor	me this /	_ day of Ju	e John.
A	>) +		Notary Public
My Commission Expires	121	2024	



08/26/2022

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

Notice Time Requirement: Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry
Date of Notice: 1/28/2019
Date of Planned Entry: 2/8/2019

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

PERSONAL
SERVICE

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

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

Notice is hereby provided to:

SURFACE OWNER(s)

Name: Eli	and Fannie Mae Wengerd (Well Pad and Access Road)
Address:	7932 TWP Road 662
Dundee, OH	-
Name: Ra	y J. Miller (Access Road)
Address:	1538 Township Road 660
Dundee, OH	44624
Name:	
Address:	

COAL OWNER OR LESSEE

Name: Co	ONSOL Energy, LLC Attn: Casey Saunders
Address:	1000 CONSOL Energy Drive
Canonsburg,	PA 15317

MINERAL OWNER(s)

Address:	7932 TWP Road 662	
Dundee, OH	44624-9602	

Notice is hereby given:

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

West Virginia	Approx. Latitude & Longitude:	39.75344; -80.73397	
Marshall	Public Road Access:	Rines Ridge Road (County Route 76)	
Franklin	Watershed:	Fish Creek	
Glen Easton 7.5'	Generally used farm name:	Ell and Fannie Mae Wengerd	
	Marshall Frenklin	Marshall Public Road Access: Franklin Watershed:	Marshall Public Road Access: Rines Ridge Road (County Route 76) Franklin Watershed: Fish Creek

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

Notice is hereby given by:

Well Operator:	Tug Hill Operating, LLC	Address:	380 Southpointe Boulevard, Plaza II, Suite 200	
Telephone:	724-749-8388	and the second second	Canonsburg, PA 15317	
Email:	amiller@tug-hillop.com	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 <u>deprivacyofficer@wv.gov</u>.

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: 06/02/2022 Date Permit Application Filed: 06/06/2022

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

a	CERTIFIED MAIL	HAND
	RETURN RECEIPT REOUESTED	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)	Name: Ray J. Miller (Access Road)
Address: 7932 TWP Road 662	Address: 1538 Township Road 660
Dundee, OH 44624-9602	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:	West Virginia		Easting:	522,799.35
County:	Marshall	UTM NAD 83	Northing:	4,400,429.70
District:	Franklin	Public Road Acc	cess:	Rines Ridge Road (County Route 76)
Quadrangle:	Glen Easton 7.5'	Generally used f	arm name:	Alpine Farm, LLC
Watershed:	Fish Creek			

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 <u>www.dep.wv.gov/oil-and-gas/pages/default.aspx</u>.

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



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**

November 22, 2021

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

Subject: DOH Permit for the Pendleton Pad, Marshall County Pendleton S-14HU Well Site

Dear Mr. Martin.

This well site will be accessed from a DOH permit #06-2010-0110 which has been transferred 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,

Jary 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 Quatemary 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

