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west virginia department of environmental protection

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

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

Monday, November 15, 2021  
WELL WORK PERMIT  
Horizontal 6A / New Drill

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

Re: Permit approval for BRECKENRIDGE S-17HU  
47-051-02396-00-00

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

A blue ink signature of James A. Martin, Chief, is written over the text of his name and title.

Operator's Well Number: BRECKENRIDGE S-17HU  
Farm Name: CNX LAND LLC  
U.S. WELL NUMBER: 47-051-02396-00-00  
Horizontal 6A New Drill  
Date Issued: 11/15/2021

Promoting a healthy environment.

11/19/2021



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

November 5, 2021

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

RE: Application for Deep Well Permit – API #47-051-02396

COMPANY: Tug Hill Operating, LLC

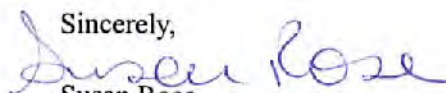
FARM: CNX Land, LLC Breckenridge S-17HU

COUNTY: Marshall DISTRICT: Cameron QUAD: Glen Easton

The deep well review of the application for the above company is Approved to drill to Trenton for Point Pleasant completion. Pooling Docket No. 302-306.

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? Yes. Docket No. 302-306.
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,  
  
Susan Rose  
Administrator

\*\*Hudson S-15HU 47-051-02328; Hudson S-16HU 47-051-02329; Breckenridge S-18HU 47-051-02397; Breckenridge S-19HU 47-051-02398; Breckenridge S-20HU 47-051-02399; Breckenridge S-21HU 47-051-02400; Breckenridge S-22HU 47-051-02401; Breckenridge S-23HU 47-051-02402

11/19/2021

## PERMIT CONDITIONS

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

### CONDITIONS

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

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

## PERMIT CONDITIONS

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

11/19/2021



WW-6B  
(04/15)API NO. 47-051 - \_\_\_\_\_  
OPERATOR WELL NO. Breckenridge S-17HU  
Well Pad Name: Breckenridge

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

- 1) Well Operator: Tug Hill Operating, LLC      494510851      Marshall      Cameron      Glen Easton 7.5'  
Operator ID      County      District      Quadrangle
- 2) Operator's Well Number: Breckenridge S-17HU      Well Pad Name: Breckenridge
- 3) Farm Name/Surface Owner: CNX Land, LLC      Public Road Access: CR 62
- 4) Elevation, current ground: 1380'      Elevation, proposed post-construction: 1370.10'
- 5) Well Type    (a) Gas    X      Oil      \_\_\_\_\_      Underground Storage      \_\_\_\_\_  
Other      \_\_\_\_\_  
(b) If Gas    Shallow      \_\_\_\_\_      Deep      X      \_\_\_\_\_  
Horizontal    X      \_\_\_\_\_
- 6) Existing Pad: Yes or No    No
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Point Pleasant is the target formation at a depth of 11,851' - 11,973', thickness of 122' and anticipated pressure of approx. 7,500 psi.
- 8) Proposed Total Vertical Depth: 12,123'
- 9) Formation at Total Vertical Depth: Trenton
- 10) Proposed Total Measured Depth: 24,042'
- 11) Proposed Horizontal Leg Length: 10,851.97'
- 12) Approximate Fresh Water Strata Depths: 70; 1,048'
- 13) Method to Determine Fresh Water Depths: Offset well reports or noticeable flow at the flowline or when need to start soaping
- 14) Approximate Saltwater Depths: 1,515'
- 15) Approximate Coal Seam Depths: Sewickley Coal - 952' and Pittsburgh Coal - 1042'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?    Yes    X      No      \_\_\_\_\_
- (a) If Yes, provide Mine Info:    Name: Marshall County Mine      RECEIVED  
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Depth: Pittsburgh coal - 1042' and subsea level - 328'      **NOV 15 2021**  
Seam: Pittsburgh  
Owner: Murray Energy Corporation      WV Department of  
Environmental Protection

18)

**CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120' ✓	259ft^3(CTS)
Fresh Water/Coal	20"	NEW	J55	106.5#	1,150'	1,150' ✓	1839ft^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	3,000'	3,000' ✓	2113ft^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	11,433'	11,433' ✓	3730ft^3(CTS)
Production	5 1/2"	NEW	P110	23#	24,042'	24,042' ✓	5702ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#	12,276'		
Liners							

*B.S. 6-17-21*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30#	36#	1.0	2,333	1,866	CLASS A	1.2
Fresh Water/Coa	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			
Sizes:	N/A			
Depths Set:	N/A			

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (11,776'). 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 27,200,000 lb. proppant and 20,580,000 gallons of water. Max rate = 80bpm; max psi = 9,000#.

B.S. 6-17-21

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 45.40

22) Area to be disturbed for well pad only, less access road (acres): 8.21

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 + .375 gal/100sk FP-13L

25) Proposed borehole conditioning procedures:

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

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\*Note: Attach additional sheets as needed.





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

**Breckenridge S-17HU**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,150'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	3,000'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	11,433'	CTS
Production	5 1/2"	HCP110	8 1/2"	24,042'	CTS

**Cement**

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 15.6 ppg, Y=1.99

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.18

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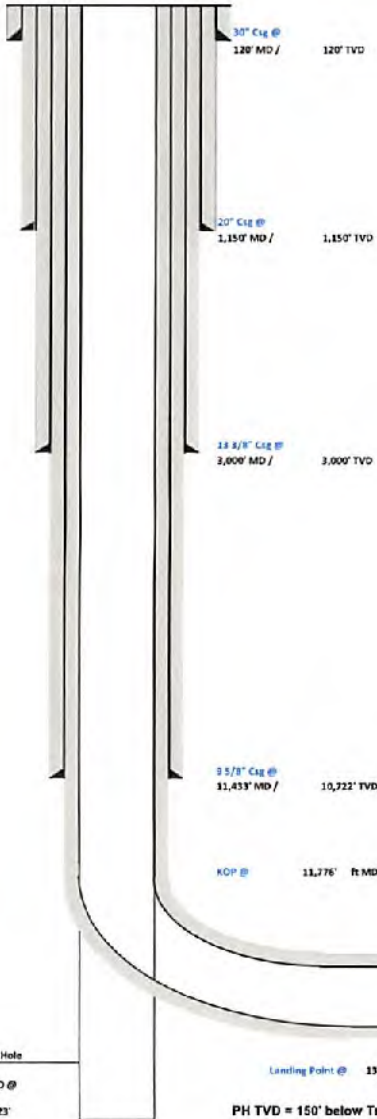
WV Department of  
Environmental Protection

11/19/2021





WELL NAME:	Breckenridge S-17HU
STATE:	WV COUNTY: Marshall
DISTRICT:	Cameron
DF Elev:	1,370' GL Elev: 1,370'
TD:	24,042'
TH Latitude:	39.830761
TH Longitude:	-80.626610
BH Latitude:	39.799032
BH Longitude:	-80.618561



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1,048'
Sewickley Coal	952'
Pittsburgh Coal	1,042'
Big Lime	2,244'
Berea	2,862'
Tully	6,861'
Marcellus	6,981'
Onondaga	7,093'
Salina	7,765'
Lockport	8,733'
Utica	11,610'
Point Pleasant	11,851'
Landing Depth	11,901'
Trenton	11,973'
Pilot Hole TD	12,123'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	BW	Surface
Surface	28	20	1,150'	1,150'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	3,000'	3,000'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	11,433'	10,722'	47	HPP110	Surface
Production	8 3/2	5 1/2	24,042'	12,090'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,384	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,290	A	15	Air	1 Centralizer every other jt
Intermediate 2	3,060	A	14.5	Air	1 Centralizer every other jt
Production	5,028	A	15	Air / SOBIM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to stc

Pilot Hole  
PH TD @  
12,123'

Landing Point @ 11,901' MD / 11,901' TVD  
PH TVD = 150' below Trenton Top

Lateral TD @ 24,042' R MD  
12,090' R TVD

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Well: Breckenridge S-17 HU (slot S)  
 Site: Breckenridge (1 row)  
 Project: Marshall County, West Virginia  
 Design: rev4  
 Rig:

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2'/100' build
3	3750.00	15.00	225.00	3741.48	-69.02	-89.02	2.00	225.000	55.18	Begin 15.00° tangent
4	3850.00	15.00	225.00	3838.05	-87.33	-87.33	0.00	0.000	69.81	Begin 2'/100' turn
5	4200.66	15.00	252.34	4177.21	-133.24	-162.75	2.00	103.221	101.09	Begin 15.00° tangent
6	7123.05	15.00	252.34	7000.00	-362.70	-863.47	0.00	0.000	194.31	Begin 2'/100' build
7	7955.80	31.66	252.34	7781.99	-482.39	-1196.58	2.00	-0.003	234.81	Begin 31.66° tangent
8	11775.89	31.66	252.34	11013.74	-1070.63	-3106.89	0.00	0.000	481.94	Begin 6'/100' build/turn
9	12643.31	50.00	172.05	11710.27	-1498.56	-3290.69	6.00	-106.749	366.86	Begin 8'/100' build/turn
10	13191.52	89.00	150.00	11600.53	-1066.00	-3116.04	8.00	-32.915	1351.38	Begin 89.00° lateral
11	24041.53	89.00	150.00	12090.00	-11361.95	2308.13	0.00	0.000	11592.59	PBHLTD 24041.53 MD 12090.00 TVD

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

System Datum: Mean Sea Level  
 Depth Reference: GL @ 1370.00ft

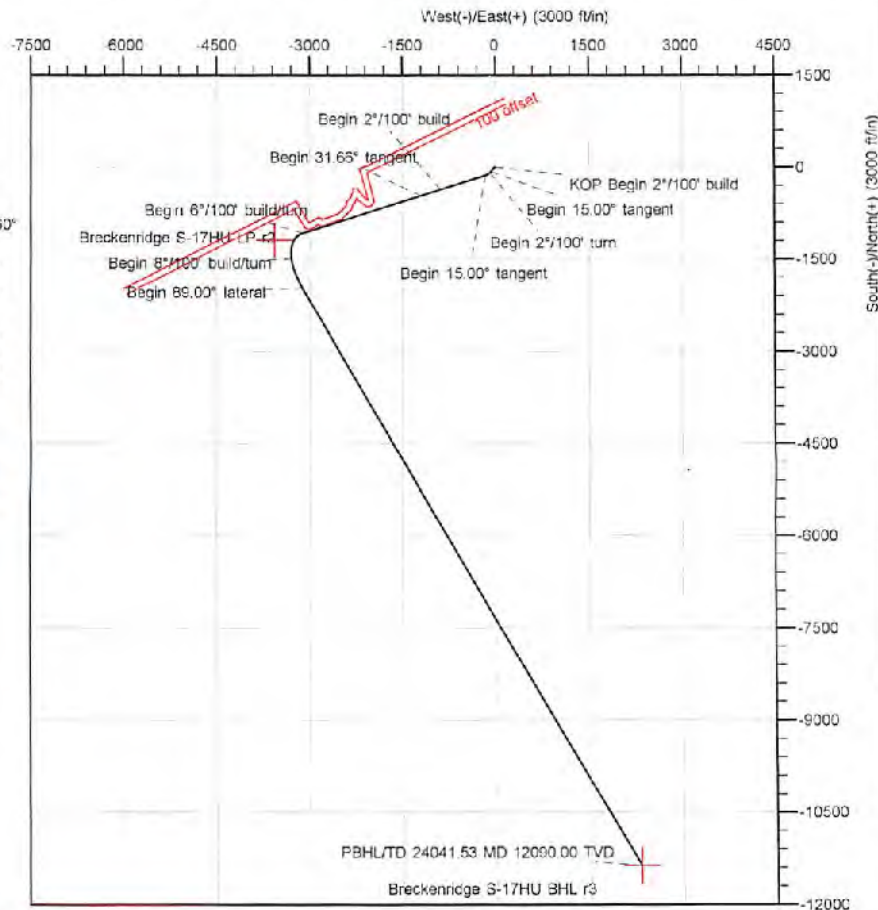
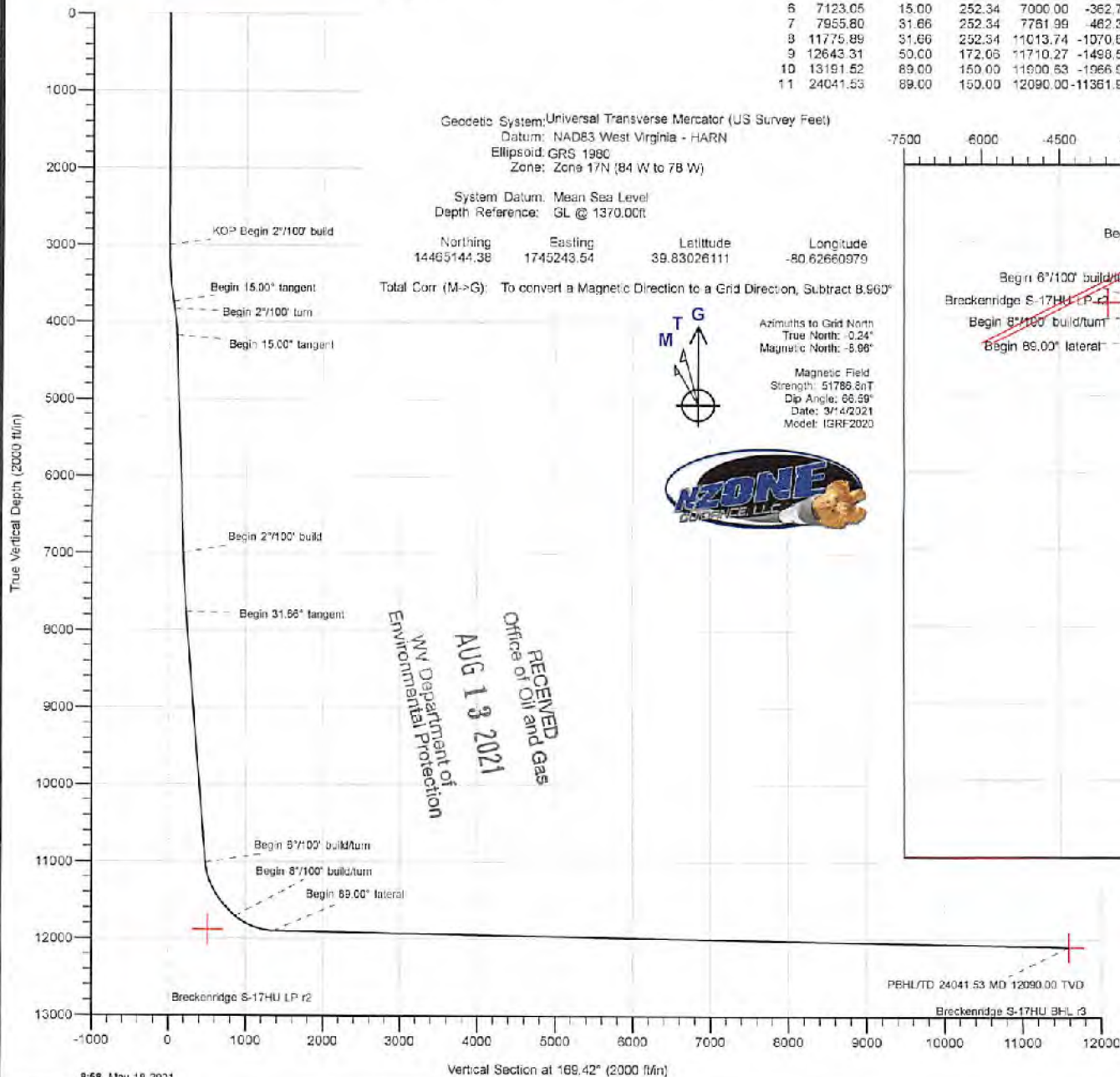
Northing: 14465144.38 Easting: 1745243.54 Latitude: 39.83026111 Longitude: -80.62660979

Total Corr. (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.60°



Azimuths to Grid North  
 True North: 0.24°  
 Magnetic North: -8.66°

Magnetic Field  
 Strength: 51785 nT  
 Dip Angle: 66.59°  
 Date: 3/14/2021  
 Model: IGRF2020



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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Breckenridge S-17 HU (slot S)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1370.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1370.00ft
<b>Site:</b>	Breckenridge (1 row)	<b>North Reference:</b>	Grid
<b>Well:</b>	Breckenridge S-17 HU (slot S)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev4		

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

<b>Site</b>	Breckenridge (1 row)				
<b>Site Position:</b>		<b>Northing:</b>	14,465,184.76 usft	<b>Latitude:</b>	39.83037401
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,745,068.18 usft	<b>Longitude:</b>	-80.62723379
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "		

<b>Well</b>	Breckenridge S-17 HU (slot S)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,465,144.38 usft	<b>Latitude:</b>	39.83026111
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,745,243.54 usft	<b>Longitude:</b>	-80.62680979
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,370.00 ft
<b>Grid Convergence:</b>						

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	3/14/2021	-8.721	66.586	51,786.80406127

<b>Design</b>	rev4			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	169.42

<b>Plan Survey Tool Program</b>	<b>Date</b>			
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	24,041.53 rev4 (Original Hole)		

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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Breckenridge S-17 HU (slot S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1370.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1370.00ft
Site:	Breckenridge (1 rcw)	North Reference:	Grid
Well:	Breckenridge S-17 HU (slot S)	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,750.00	15.00	225.00	3,741.48	-69.02	-69.02	2.00	2.00	0.00	225.000	
3,850.00	15.00	225.00	3,838.05	-87.33	-87.33	0.00	0.00	0.00	0.000	
4,200.88	15.00	252.34	4,177.21	-133.24	-162.75	2.00	0.00	7.80	103.221	
7,123.05	15.00	252.34	7,000.00	-362.70	-883.47	0.00	0.00	0.00	0.000	
7,955.80	31.66	252.34	7,761.99	-462.39	-1,196.58	2.00	2.00	0.00	-0.003	
11,775.89	31.66	252.34	11,013.74	-1,070.63	-3,108.89	0.00	0.00	0.00	0.000	
12,643.31	50.00	172.06	11,710.27	-1,498.58	-3,290.69	6.00	2.11	-9.25	-106.749	
13,191.52	89.00	150.00	11,900.63	-1,968.99	-3,116.04	8.00	7.11	-4.02	-32.819	
24,041.53	89.00	150.00	12,090.00	-11,361.95	2,308.13	0.00	0.00	0.00	0.000	Breckenridge S-17HU

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Planning Report - Geographic

Database: DB\_Dec2220\_v16  
Company: Tug Hill Operating LLC  
Project: Marshall County, West Virginia  
Site: Breckenridge (1 row)  
Well: Breckenridge S-17 HU (slot S)  
Wellbore: Original Hole  
Design: rev4

Local Co-ordinate Reference: Well Breckenridge S-17 HU  
TVD Reference: GL @ 1370.00ft  
MD Reference: GL @ 1370.00ft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
100.00	0.00	0.00	100.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
200.00	0.00	0.00	200.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
300.00	0.00	0.00	300.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
400.00	0.00	0.00	400.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
500.00	0.00	0.00	500.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
600.00	0.00	0.00	600.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
700.00	0.00	0.00	700.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
800.00	0.00	0.00	800.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
900.00	0.00	0.00	900.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,465,144.38	1,745,243.54	39.83026111	-80.62660979
<b>KOP Begin 2°/100' build</b>									
3,100.00	2.00	225.00	3,099.88	-1.23	-1.23	14,465,143.15	1,745,242.30	39.83025774	-80.62661420
3,200.00	4.00	225.00	3,199.84	-4.93	-4.93	14,465,139.45	1,745,238.60	39.83024762	-80.62662744
3,300.00	6.00	225.00	3,299.45	-11.10	-11.10	14,465,133.28	1,745,232.44	39.83023076	-80.62664948
3,400.00	8.00	225.00	3,398.70	-19.71	-19.71	14,465,124.67	1,745,223.82	39.83020720	-80.62668030
3,500.00	10.00	225.00	3,497.47	-30.78	-30.78	14,465,113.61	1,745,212.76	39.83017695	-80.62671967
3,600.00	12.00	225.00	3,595.62	-44.27	-44.27	14,465,100.11	1,745,199.27	39.83014005	-80.62676812
3,700.00	14.00	225.00	3,693.06	-60.17	-60.17	14,465,084.21	1,745,183.36	39.83009656	-80.62682501
3,750.00	15.00	225.00	3,741.46	-69.02	-69.02	14,465,075.36	1,745,174.51	39.83007235	-80.62685667
<b>Begin 15.00° tangent</b>									
3,800.00	15.00	225.00	3,789.76	-78.16	-78.16	14,465,066.21	1,745,165.36	39.83004732	-80.62688940
3,850.00	15.00	225.00	3,838.05	-87.33	-87.33	14,465,057.06	1,745,156.21	39.83002230	-80.62692213
<b>Begin 2°/100' turn</b>									
3,900.00	14.80	226.81	3,886.37	-96.11	-96.71	14,465,048.27	1,745,146.83	39.82999829	-80.62695558
4,000.00	14.60	236.66	3,983.11	-111.45	-116.85	14,465,032.93	1,745,126.68	39.82995639	-80.62702767
4,100.00	14.67	244.58	4,079.97	-123.81	-136.82	14,465,020.57	1,745,104.71	39.82992268	-80.62710610
4,200.00	15.00	252.29	4,176.55	-133.19	-162.58	14,465,011.20	1,745,080.95	39.82989722	-80.62719038
4,200.68	15.00	252.34	4,177.21	-133.24	-162.75	14,465,011.14	1,745,080.79	39.82989707	-80.62719147
<b>Begin 15.00° tangent</b>									
4,300.00	15.00	252.34	4,273.14	-141.04	-187.25	14,465,003.34	1,745,056.29	39.82987594	-80.62727884
4,400.00	15.00	252.34	4,369.74	-148.89	-211.91	14,464,995.49	1,745,031.63	39.82985466	-80.62736680
4,500.00	15.00	252.34	4,466.33	-156.74	-236.57	14,464,987.64	1,745,006.97	39.82983338	-80.62745476
4,600.00	15.00	252.34	4,562.92	-164.59	-261.23	14,464,979.79	1,744,982.30	39.82981210	-80.62754272





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 Company: Tug Hill Operating LLC  
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 Design: rev4

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,700.00	15.00	252.34	4,659.52	-172.44	-285.90	14,464,971.94	1,744,857.64	39.82979081	-80.62763068
4,800.00	15.00	252.34	4,756.11	-180.30	-310.56	14,464,964.08	1,744,932.98	39.82976953	-80.62771864
4,900.00	15.00	252.34	4,852.70	-186.15	-335.22	14,464,956.23	1,744,908.32	39.82974825	-80.62780659
5,000.00	15.00	252.34	4,949.29	-196.00	-359.88	14,464,948.38	1,744,883.66	39.82972697	-80.62789455
5,100.00	15.00	252.34	5,045.09	-203.85	-384.54	14,464,940.53	1,744,858.99	39.82970569	-80.62798251
5,200.00	15.00	252.34	5,142.48	-211.70	-409.21	14,464,932.68	1,744,834.33	39.82968441	-80.62807047
5,300.00	15.00	252.34	5,239.07	-219.56	-433.87	14,464,924.83	1,744,809.67	39.82966313	-80.62815843
5,400.00	15.00	252.34	5,335.66	-227.41	-458.53	14,464,916.97	1,744,785.01	39.82964185	-80.62824639
5,500.00	15.00	252.34	5,432.26	-235.26	-483.19	14,464,909.12	1,744,760.34	39.82962057	-80.62833435
5,600.00	15.00	252.34	5,528.85	-243.11	-507.85	14,464,901.27	1,744,735.68	39.82959929	-80.62842231
5,700.00	15.00	252.34	5,625.44	-250.96	-532.52	14,464,893.42	1,744,711.02	39.82957801	-80.62851027
5,800.00	15.00	252.34	5,722.03	-258.81	-557.18	14,464,885.57	1,744,686.36	39.82955672	-80.62859823
5,900.00	15.00	252.34	5,818.63	-266.67	-581.84	14,464,877.72	1,744,661.70	39.82953544	-80.62868619
6,000.00	15.00	252.34	5,915.22	-274.52	-606.50	14,464,869.86	1,744,637.03	39.82951415	-80.62877415
6,100.00	15.00	252.34	6,011.81	-282.37	-631.17	14,464,862.01	1,744,612.37	39.82949288	-80.62886211
6,200.00	15.00	252.34	6,108.40	-290.22	-655.83	14,464,854.16	1,744,587.71	39.82947160	-80.62895007
6,300.00	15.00	252.34	6,205.00	-298.07	-680.49	14,464,846.31	1,744,563.05	39.82945032	-80.62903803
6,400.00	15.00	252.34	6,301.59	-305.92	-705.15	14,464,838.46	1,744,538.39	39.82942904	-80.62912599
6,500.00	15.00	252.34	6,398.18	-313.78	-729.81	14,464,830.61	1,744,513.72	39.82940775	-80.62921394
6,600.00	15.00	252.34	6,494.77	-321.63	-754.48	14,464,822.75	1,744,489.06	39.82938647	-80.62930190
6,700.00	15.00	252.34	6,591.37	-329.49	-779.14	14,464,814.90	1,744,464.40	39.82936519	-80.62938988
6,800.00	15.00	252.34	6,687.96	-337.33	-803.80	14,464,807.05	1,744,439.74	39.82934391	-80.62947782
6,900.00	15.00	252.34	6,784.55	-345.18	-828.46	14,464,799.20	1,744,415.08	39.82932263	-80.62956578
7,000.00	15.00	252.34	6,881.14	-353.03	-853.13	14,464,791.35	1,744,390.41	39.82930134	-80.62965374
7,100.00	15.00	252.34	6,977.74	-360.89	-877.79	14,464,783.49	1,744,365.75	39.82928006	-80.62974170
7,123.05	15.00	252.34	7,000.00	-362.70	-883.47	14,464,781.69	1,744,360.07	39.82927516	-80.62978197
<b>Begin 2°/100' build</b>									
7,200.00	16.54	252.34	7,074.05	-369.04	-903.40	14,464,775.34	1,744,340.14	39.82925796	-80.62983304
7,300.00	18.54	252.34	7,169.40	-378.18	-932.11	14,464,768.20	1,744,311.43	39.82923318	-80.62993545
7,400.00	20.54	252.34	7,263.64	-388.33	-963.98	14,464,756.05	1,744,279.56	39.82920568	-80.63004910
7,500.00	22.54	252.34	7,356.65	-399.47	-998.96	14,464,744.92	1,744,244.58	39.82917549	-80.63017386
7,600.00	24.54	252.34	7,448.32	-411.58	-1,037.01	14,464,732.90	1,744,206.52	39.82914265	-80.63030958
7,700.00	26.54	252.34	7,538.55	-424.68	-1,078.09	14,464,719.72	1,744,165.45	39.82910720	-80.63045609
7,800.00	28.54	252.34	7,627.21	-438.69	-1,122.15	14,464,705.69	1,744,121.39	39.82906918	-80.63061321
7,900.00	30.54	252.34	7,714.21	-453.64	-1,169.12	14,464,690.74	1,744,074.42	39.82902864	-80.63078075
7,955.80	31.66	252.34	7,761.99	-462.39	-1,196.58	14,464,681.99	1,744,048.96	39.82900493	-80.63087869
<b>Begin 31.66° tangent</b>									
8,000.00	31.66	252.34	7,799.61	-469.43	-1,218.69	14,464,674.96	1,744,024.85	39.82898586	-80.63095752
8,100.00	31.66	252.34	7,884.74	-485.35	-1,268.69	14,464,659.03	1,743,974.85	39.82894270	-80.63113587
8,200.00	31.66	252.34	7,969.86	-501.27	-1,318.70	14,464,643.11	1,743,924.84	39.82889954	-80.63131422
8,300.00	31.66	252.34	8,054.98	-517.19	-1,368.71	14,464,627.19	1,743,874.83	39.82885638	-80.63149258
8,400.00	31.66	252.34	8,140.10	-533.11	-1,418.71	14,464,611.27	1,743,824.83	39.82881322	-80.63167091
8,500.00	31.66	252.34	8,225.23	-549.04	-1,468.72	14,464,595.35	1,743,774.82	39.82877006	-80.63184928
8,600.00	31.66	252.34	8,310.35	-564.96	-1,518.73	14,464,579.42	1,743,724.81	39.82872690	-80.63202761
8,700.00	31.66	252.34	8,395.47	-580.88	-1,568.73	14,464,563.50	1,743,674.81	39.82868374	-80.63220598
8,800.00	31.66	252.34	8,480.59	-596.80	-1,618.74	14,464,547.58	1,743,624.80	39.82864058	-80.63238431
8,900.00	31.66	252.34	8,565.72	-612.73	-1,668.75	14,464,531.66	1,743,574.79	39.82859741	-80.63256265
9,000.00	31.66	252.34	8,650.84	-628.65	-1,718.75	14,464,515.73	1,743,524.79	39.82855425	-80.63274100
9,100.00	31.66	252.34	8,735.96	-644.57	-1,768.76	14,464,499.81	1,743,474.78	39.82851109	-80.63291935
9,200.00	31.66	252.34	8,821.08	-660.49	-1,818.77	14,464,483.89	1,743,424.77	39.82846793	-80.63309769
9,300.00	31.66	252.34	8,906.20	-676.41	-1,868.77	14,464,467.97	1,743,374.77	39.82842477	-80.63327604
9,400.00	31.66	252.34	8,991.33	-692.34	-1,918.78	14,464,452.05	1,743,324.76	39.82838160	-80.63345439
9,500.00	31.66	252.34	9,076.45	-708.26	-1,968.79	14,464,436.12	1,743,274.75	39.82833844	-80.63363273
9,600.00	31.66	252.34	9,161.57	-724.18	-2,018.79	14,464,420.20	1,743,224.75	39.82829528	-80.63381108





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9,700.00	31.66	252.34	9,246.69	-740.10	-2,068.80	14,464,404.28	1,743,174.74	39.82825211	-80.63398942
9,800.00	31.66	252.34	9,331.02	-756.03	-2,118.81	14,464,368.36	1,743,124.73	39.82820895	-80.63416777
9,900.00	31.66	252.34	9,416.04	-771.95	-2,168.81	14,464,372.43	1,743,074.73	39.82816578	-80.63434612
10,000.00	31.66	252.34	9,502.06	-787.87	-2,218.82	14,464,356.51	1,743,024.72	39.82812262	-80.63452446
10,100.00	31.66	252.34	9,587.18	-803.79	-2,268.83	14,464,340.59	1,742,974.71	39.82807945	-80.63470281
10,200.00	31.66	252.34	9,672.31	-819.71	-2,318.83	14,464,324.67	1,742,924.71	39.82803629	-80.63488115
10,300.00	31.66	252.34	9,757.43	-835.64	-2,368.84	14,464,308.75	1,742,874.70	39.82799312	-80.63505949
10,400.00	31.66	252.34	9,842.55	-851.58	-2,418.85	14,464,292.82	1,742,824.69	39.82794995	-80.63523784
10,500.00	31.66	252.34	9,927.67	-867.48	-2,468.85	14,464,276.90	1,742,774.69	39.82790679	-80.63541618
10,600.00	31.66	252.34	10,012.79	-883.40	-2,518.86	14,464,260.98	1,742,724.68	39.82786363	-80.63559453
10,700.00	31.66	252.34	10,097.92	-899.33	-2,568.87	14,464,245.06	1,742,674.67	39.82782045	-80.63577287
10,800.00	31.66	252.34	10,183.04	-915.25	-2,618.87	14,464,229.14	1,742,624.67	39.82777729	-80.63595121
10,900.00	31.66	252.34	10,268.16	-931.17	-2,668.88	14,464,213.21	1,742,574.66	39.82773413	-80.63612956
11,000.00	31.66	252.34	10,353.28	-947.09	-2,718.89	14,464,197.29	1,742,524.65	39.82769096	-80.63630790
11,100.00	31.66	252.34	10,438.41	-963.01	-2,768.89	14,464,181.37	1,742,474.65	39.82764779	-80.63648624
11,200.00	31.66	252.34	10,523.53	-978.94	-2,818.90	14,464,165.45	1,742,424.64	39.82760462	-80.63666458
11,300.00	31.66	252.34	10,608.65	-994.86	-2,868.91	14,464,149.52	1,742,374.63	39.82756146	-80.63684293
11,400.00	31.66	252.34	10,693.77	-1,010.78	-2,918.92	14,464,133.60	1,742,324.63	39.82751829	-80.63702127
11,500.00	31.66	252.34	10,778.90	-1,026.70	-2,968.92	14,464,117.68	1,742,274.62	39.82747512	-80.63719961
11,600.00	31.66	252.34	10,864.02	-1,042.62	-3,018.93	14,464,101.76	1,742,224.61	39.82743195	-80.63737795
11,700.00	31.66	252.34	10,949.14	-1,058.55	-3,068.94	14,464,085.84	1,742,174.61	39.82738878	-80.63755629
11,775.89	31.66	252.34	11,013.74	-1,070.83	-3,108.89	14,464,073.75	1,742,138.66	39.82735602	-80.63769163
<b>Begin 6°/100' build/turn</b>									
11,800.00	31.27	249.67	11,034.31	-1,074.72	-3,118.78	14,464,069.66	1,742,124.76	39.82734481	-80.63773406
11,900.00	30.27	238.08	11,120.31	-1,097.09	-3,164.55	14,464,047.30	1,742,078.99	39.82728401	-80.63769741
12,000.00	30.34	226.18	11,206.72	-1,127.92	-3,204.21	14,464,016.46	1,742,039.34	39.82719076	-80.63803909
12,100.00	31.46	214.69	11,292.60	-1,165.90	-3,237.31	14,463,977.46	1,742,006.24	39.82709308	-80.63815755
12,200.00	33.53	204.19	11,377.01	-1,213.80	-3,253.50	14,463,930.79	1,741,980.05	39.82696515	-80.63825150
12,300.00	36.38	194.96	11,459.02	-1,267.49	-3,282.46	14,463,876.89	1,741,961.06	39.82681736	-80.63831991
12,400.00	39.85	187.01	11,537.74	-1,327.99	-3,294.06	14,463,816.39	1,741,949.48	39.82665133	-80.63836202
12,500.00	43.78	180.21	11,612.29	-1,394.44	-3,298.10	14,463,749.94	1,741,945.44	39.82646888	-80.63837737
12,600.00	48.08	174.35	11,681.87	-1,468.12	-3,294.57	14,463,678.27	1,741,948.98	39.82627201	-80.63836581
12,643.31	50.00	172.06	11,710.27	-1,498.58	-3,290.69	14,463,645.80	1,741,952.85	39.82618282	-80.63835246
<b>Begin 8°/100' build/turn</b>									
12,700.00	53.85	169.02	11,745.23	-1,542.58	-3,283.33	14,463,601.80	1,741,960.22	39.82606191	-80.63832687
12,800.00	60.81	164.32	11,799.20	-1,624.37	-3,263.80	14,463,520.01	1,741,979.74	39.82583707	-80.63825851
12,900.00	67.91	160.22	11,842.46	-1,710.13	-3,236.28	14,463,434.25	1,742,007.26	39.82560125	-80.63816172
13,000.00	75.10	156.52	11,874.18	-1,798.19	-3,201.29	14,463,346.20	1,742,042.25	39.82535904	-80.63803838
13,100.00	82.34	153.06	11,893.73	-1,886.83	-3,159.52	14,463,257.56	1,742,084.02	39.82511516	-80.63789088
13,191.52	89.00	150.00	11,900.63	-1,966.99	-3,116.04	14,463,177.40	1,742,127.50	39.82489454	-80.63773718
<b>Begin 89.00° lateral</b>									
13,200.00	89.00	150.00	11,900.78	-1,974.33	-3,111.80	14,463,170.05	1,742,131.74	39.82487432	-80.63772216
13,300.00	89.00	150.00	11,902.53	-2,000.92	-3,061.81	14,463,083.48	1,742,181.73	39.82463597	-80.63754537
13,400.00	89.00	150.00	11,904.27	-2,147.51	-3,011.82	14,462,996.88	1,742,231.73	39.82439762	-80.63736857
13,500.00	89.00	150.00	11,906.02	-2,234.10	-2,961.82	14,462,910.29	1,742,281.72	39.82415927	-80.63719177
13,600.00	89.00	150.00	11,907.78	-2,320.69	-2,911.83	14,462,823.70	1,742,331.71	39.82392092	-80.63701497
13,700.00	89.00	150.00	11,909.51	-2,407.28	-2,861.84	14,462,737.11	1,742,381.70	39.82368257	-80.63683817
13,800.00	89.00	150.00	11,911.25	-2,493.87	-2,811.85	14,462,650.52	1,742,431.70	39.82344422	-80.63666137
13,900.00	89.00	150.00	11,913.00	-2,580.46	-2,761.85	14,462,563.93	1,742,481.69	39.82320587	-80.63648458
14,000.00	89.00	150.00	11,914.74	-2,667.05	-2,711.86	14,462,477.34	1,742,531.68	39.82296751	-80.63630778
14,100.00	89.00	150.00	11,916.49	-2,753.64	-2,661.87	14,462,390.75	1,742,581.67	39.82272916	-80.63613099
14,200.00	89.00	150.00	11,918.23	-2,840.23	-2,611.88	14,462,304.16	1,742,631.66	39.82249081	-80.63595419
14,300.00	89.00	150.00	11,919.98	-2,926.81	-2,561.89	14,462,217.57	1,742,681.66	39.82225246	-80.63577740
14,400.00	89.00	150.00	11,921.72	-3,013.40	-2,511.89	14,462,130.98	1,742,731.65	39.82201411	-80.63560061





Planning Report - Geographic

Database: DB\_Dec2220\_v16  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Breckenridge (1 row)  
 Well: Breckenridge S-17 HU (slot S)  
 Wellbore: Original Hole  
 Design: rev4

Local Co-ordinate Reference: Well Breckenridge S-17 HU (slot S)  
 TVD Reference: GL @ 1370.00ft  
 MD Reference: GL @ 1370.00ft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

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 AUG 13 2021  
 WV Department of  
 Environmental Protection

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
14,500.00	89.00	150.00	11,923.47	-3,099.99	-2,461.90	14,462,044.39	1,742,781.64	39.82177575	-80.63542382	
14,600.00	89.00	150.00	11,925.21	-3,186.58	-2,411.91	14,461,957.80	1,742,831.63	39.82153740	-80.63524703	
14,700.00	89.00	150.00	11,926.96	-3,273.17	-2,361.92	14,461,871.22	1,742,881.62	39.82129905	-80.63507025	
14,800.00	89.00	150.00	11,928.71	-3,359.76	-2,311.92	14,461,784.93	1,742,931.62	39.82106069	-80.63489348	
14,900.00	89.00	150.00	11,930.45	-3,446.35	-2,261.93	14,461,699.04	1,742,981.61	39.82082234	-80.63471668	
15,000.00	89.00	150.00	11,932.20	-3,532.94	-2,211.94	14,461,611.45	1,743,031.60	39.82058399	-80.63453989	
15,100.00	89.00	150.00	11,933.94	-3,619.53	-2,161.95	14,461,524.86	1,743,081.59	39.82034563	-80.63436311	
15,200.00	89.00	150.00	11,935.69	-3,706.12	-2,111.96	14,461,438.27	1,743,131.59	39.82010728	-80.63418633	
15,300.00	89.00	150.00	11,937.43	-3,792.71	-2,061.96	14,461,351.68	1,743,181.58	39.81986892	-80.63400955	
15,400.00	89.00	150.00	11,939.18	-3,879.30	-2,011.97	14,461,265.09	1,743,231.57	39.81963057	-80.63383277	
15,500.00	89.00	150.00	11,940.92	-3,965.89	-1,961.98	14,461,178.50	1,743,281.56	39.81939221	-80.63365599	
15,600.00	89.00	150.00	11,942.67	-4,052.48	-1,911.99	14,461,091.91	1,743,331.55	39.81915385	-80.63347922	
15,700.00	89.00	150.00	11,944.41	-4,139.07	-1,861.99	14,461,005.32	1,743,381.55	39.81891550	-80.63330244	
15,800.00	89.00	150.00	11,946.16	-4,225.66	-1,812.00	14,460,919.73	1,743,431.54	39.81867715	-80.63312567	
15,900.00	89.00	150.00	11,947.90	-4,312.25	-1,762.01	14,460,832.14	1,743,481.53	39.81843879	-80.63294890	
16,000.00	89.00	150.00	11,949.65	-4,398.83	-1,712.02	14,460,745.56	1,743,531.52	39.81820043	-80.63277213	
16,100.00	89.00	150.00	11,951.39	-4,485.42	-1,662.02	14,460,659.97	1,743,581.52	39.81796208	-80.63259538	
16,200.00	89.00	150.00	11,953.14	-4,572.01	-1,612.03	14,460,572.38	1,743,631.51	39.81772372	-80.63241859	
16,300.00	89.00	150.00	11,954.89	-4,658.60	-1,562.04	14,460,485.79	1,743,681.50	39.81748536	-80.63224182	
16,400.00	89.00	150.00	11,956.63	-4,745.19	-1,512.05	14,460,399.20	1,743,731.49	39.81724700	-80.63206505	
16,500.00	89.00	150.00	11,958.38	-4,831.78	-1,462.06	14,460,312.61	1,743,781.48	39.81700864	-80.63188829	
16,600.00	89.00	150.00	11,960.12	-4,918.37	-1,412.06	14,460,226.02	1,743,831.48	39.81677029	-80.63171153	
16,700.00	89.00	150.00	11,961.87	-5,004.96	-1,362.07	14,460,139.43	1,743,881.47	39.81653193	-80.63153476	
16,800.00	89.00	150.00	11,963.61	-5,091.55	-1,312.08	14,460,052.84	1,743,931.46	39.81629357	-80.63135800	
16,900.00	89.00	150.00	11,965.36	-5,178.14	-1,262.09	14,459,966.25	1,743,981.45	39.81605521	-80.63118124	
17,000.00	89.00	150.00	11,967.10	-5,264.73	-1,212.09	14,459,879.66	1,744,031.45	39.81581685	-80.63100448	
17,100.00	89.00	150.00	11,968.85	-5,351.32	-1,162.10	14,459,793.07	1,744,081.44	39.81557849	-80.63082772	
17,200.00	89.00	150.00	11,970.59	-5,437.91	-1,112.11	14,459,706.48	1,744,131.43	39.81534013	-80.63065097	
17,300.00	89.00	150.00	11,972.34	-5,524.50	-1,062.12	14,459,619.90	1,744,181.42	39.81510177	-80.63047421	
17,400.00	89.00	150.00	11,974.08	-5,611.09	-1,012.12	14,459,533.31	1,744,231.41	39.81486341	-80.63029746	
17,500.00	89.00	150.00	11,975.83	-5,697.68	-962.13	14,459,446.72	1,744,281.41	39.81462505	-80.63012071	
17,600.00	89.00	150.00	11,977.57	-5,784.27	-912.14	14,459,360.13	1,744,331.40	39.81438669	-80.62994395	
17,700.00	89.00	150.00	11,979.32	-5,870.85	-862.15	14,459,273.54	1,744,381.39	39.81414833	-80.62976720	
17,800.00	89.00	150.00	11,981.07	-5,957.44	-812.16	14,459,186.95	1,744,431.38	39.81390997	-80.62959045	
17,900.00	89.00	150.00	11,982.81	-6,044.03	-762.16	14,459,100.36	1,744,481.38	39.81367161	-80.62941371	
18,000.00	89.00	150.00	11,984.56	-6,130.62	-712.17	14,459,013.77	1,744,531.37	39.81343324	-80.62923696	
18,100.00	89.00	150.00	11,986.30	-6,217.21	-662.18	14,458,927.18	1,744,581.36	39.81319488	-80.62906021	
18,200.00	89.00	150.00	11,988.05	-6,303.80	-612.19	14,458,840.59	1,744,631.35	39.81295652	-80.62888347	
18,300.00	89.00	150.00	11,989.79	-6,390.39	-562.19	14,458,754.00	1,744,681.34	39.81271815	-80.62870673	
18,400.00	89.00	150.00	11,991.54	-6,476.98	-512.20	14,458,667.41	1,744,731.34	39.81247979	-80.62852999	
18,500.00	89.00	150.00	11,993.28	-6,563.57	-462.21	14,458,580.82	1,744,781.33	39.81224143	-80.62835324	
18,600.00	89.00	150.00	11,995.03	-6,650.16	-412.22	14,458,494.24	1,744,831.32	39.81200306	-80.62817651	
18,700.00	89.00	150.00	11,996.77	-6,736.75	-362.22	14,458,407.65	1,744,881.31	39.81176470	-80.62799977	
18,800.00	89.00	150.00	11,998.52	-6,823.34	-312.23	14,458,321.06	1,744,931.30	39.81152633	-80.62782303	
18,900.00	89.00	150.00	12,000.26	-6,909.93	-262.24	14,458,234.47	1,744,981.30	39.81128797	-80.62764629	
19,000.00	89.00	150.00	12,002.01	-6,996.52	-212.25	14,458,147.88	1,745,031.29	39.81104960	-80.62746956	
19,100.00	89.00	150.00	12,003.75	-7,083.11	-162.26	14,458,061.29	1,745,081.28	39.81081124	-80.62729283	
19,200.00	89.00	150.00	12,005.50	-7,169.70	-112.26	14,457,974.70	1,745,131.27	39.81057287	-80.62711609	
19,300.00	89.00	150.00	12,007.25	-7,256.28	-62.27	14,457,888.11	1,745,181.27	39.81033451	-80.62693936	
19,400.00	89.00	150.00	12,009.00	-7,342.87	-12.28	14,457,801.52	1,745,231.26	39.81009614	-80.62676263	
19,500.00	89.00	150.00	12,010.74	-7,429.46	37.71	14,457,714.93	1,745,281.25	39.80985778	-80.62658590	
19,600.00	89.00	150.00	12,012.48	-7,516.05	87.71	14,457,628.34	1,745,331.24	39.80961941	-80.62640918	
19,700.00	89.00	150.00	12,014.23	-7,602.64	137.70	14,457,541.75	1,745,381.23	39.80938104	-80.62623245	
19,800.00	89.00	150.00	12,015.97	-7,689.23	187.69	14,457,455.16	1,745,431.23	39.80914268	-80.62605573	
19,900.00	89.00	150.00	12,017.72	-7,775.82	237.68	14,457,368.58	1,745,481.22	39.80890431	-80.62587900	





Planning Report - Geographic

Database: DB\_Dec2220\_v16  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Breckenridge (1 row)  
 Well: Breckenridge S-17 HU (slot S)  
 Wellbore: Original Hole  
 Design: rev4

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

Well Breckenridge S-17 HU (slot S)  
 GL @ 1370.00ft  
 GL @ 1370.00ft  
 Grid  
 Minimum Curvature

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 Office of Oil and Gas  
**AUG 13 2021**  
 WV Department of  
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,000.00	89.00	150.00	12,019.46	-7,862.41	287.67	14,457,281.99	1,745,531.21	39.80806594	-80.62570228
20,100.00	89.00	150.00	12,021.21	-7,949.00	337.67	14,457,195.40	1,745,581.20	39.80842757	-80.62552556
20,200.00	89.00	150.00	12,022.95	-8,035.59	387.66	14,457,108.81	1,745,631.20	39.80818920	-80.62534884
20,300.00	89.00	150.00	12,024.70	-8,122.18	437.65	14,457,022.22	1,745,681.19	39.80795034	-80.62517212
20,400.00	89.00	150.00	12,026.44	-8,208.77	487.64	14,456,935.63	1,745,731.18	39.80771247	-80.62499540
20,500.00	89.00	150.00	12,028.19	-8,295.36	537.64	14,456,849.04	1,745,781.17	39.80747410	-80.62481859
20,600.00	89.00	150.00	12,029.93	-8,381.95	587.63	14,456,762.45	1,745,831.16	39.80723573	-80.62464197
20,700.00	89.00	150.00	12,031.68	-8,468.54	637.62	14,456,675.85	1,745,881.16	39.80699736	-80.62446526
20,800.00	89.00	150.00	12,033.42	-8,555.13	687.61	14,456,589.27	1,745,931.15	39.80675899	-80.62428854
20,900.00	89.00	150.00	12,035.17	-8,641.72	737.61	14,456,502.68	1,745,981.14	39.80652062	-80.62411183
21,000.00	89.00	150.00	12,036.92	-8,728.30	787.60	14,456,416.09	1,746,031.13	39.80628225	-80.62393512
21,100.00	89.00	150.00	12,038.66	-8,814.89	837.59	14,456,329.50	1,746,081.13	39.80604388	-80.62375841
21,200.00	89.00	150.00	12,040.41	-8,901.48	887.58	14,456,242.92	1,746,131.12	39.80580551	-80.62358171
21,300.00	89.00	150.00	12,042.15	-8,988.07	937.57	14,456,156.33	1,746,181.11	39.80556714	-80.62340500
21,400.00	89.00	150.00	12,043.90	-9,074.66	987.57	14,456,069.74	1,746,231.10	39.80532876	-80.62322829
21,500.00	89.00	150.00	12,045.64	-9,161.25	1,037.56	14,456,983.15	1,746,281.09	39.80509039	-80.62305159
21,600.00	89.00	150.00	12,047.39	-9,247.84	1,087.55	14,456,896.56	1,746,331.09	39.80485202	-80.62287489
21,700.00	89.00	150.00	12,049.13	-9,334.43	1,137.54	14,456,809.97	1,746,381.08	39.80461365	-80.62269818
21,800.00	89.00	150.00	12,050.88	-9,421.02	1,187.54	14,456,723.38	1,746,431.07	39.80437528	-80.62252148
21,900.00	89.00	150.00	12,052.62	-9,507.61	1,237.53	14,456,636.79	1,746,481.06	39.80413690	-80.62234479
22,000.00	89.00	150.00	12,054.37	-9,594.20	1,287.52	14,456,550.20	1,746,531.05	39.80389853	-80.62216809
22,100.00	89.00	150.00	12,056.11	-9,680.79	1,337.51	14,456,463.61	1,746,581.05	39.80366016	-80.62199139
22,200.00	89.00	150.00	12,057.86	-9,767.38	1,387.51	14,456,377.02	1,746,631.04	39.80342178	-80.62181469
22,300.00	89.00	150.00	12,059.60	-9,853.97	1,437.50	14,456,290.43	1,746,681.03	39.80318341	-80.62163800
22,400.00	89.00	150.00	12,061.35	-9,940.56	1,487.49	14,456,203.84	1,746,731.02	39.80294504	-80.62146131
22,500.00	89.00	150.00	12,063.10	-10,027.15	1,537.48	14,456,117.26	1,746,781.02	39.80270666	-80.62128461
22,600.00	89.00	150.00	12,064.84	-10,113.74	1,587.47	14,456,030.67	1,746,831.01	39.80246828	-80.62110792
22,700.00	89.00	150.00	12,066.59	-10,200.32	1,637.47	14,454,944.08	1,746,881.00	39.80222991	-80.62093123
22,800.00	89.00	150.00	12,068.33	-10,286.91	1,687.46	14,454,857.49	1,746,930.99	39.80199154	-80.62075455
22,900.00	89.00	150.00	12,070.08	-10,373.50	1,737.45	14,454,770.90	1,746,980.98	39.80175316	-80.62057786
23,000.00	89.00	150.00	12,071.82	-10,460.09	1,787.44	14,454,684.31	1,747,030.98	39.80151478	-80.62040117
23,100.00	89.00	150.00	12,073.57	-10,546.68	1,837.44	14,454,597.72	1,747,080.97	39.80127641	-80.62022448
23,200.00	89.00	150.00	12,075.31	-10,633.27	1,887.43	14,454,511.13	1,747,130.96	39.80103803	-80.62004780
23,300.00	89.00	150.00	12,077.06	-10,719.86	1,937.42	14,454,424.54	1,747,180.95	39.80079966	-80.61987112
23,400.00	89.00	150.00	12,078.80	-10,806.45	1,987.41	14,454,337.95	1,747,230.95	39.80056128	-80.61969444
23,500.00	89.00	150.00	12,080.55	-10,893.04	2,037.41	14,454,251.36	1,747,280.94	39.80032290	-80.61951776
23,600.00	89.00	150.00	12,082.29	-10,979.63	2,087.40	14,454,164.77	1,747,330.93	39.80008452	-80.61934108
23,700.00	89.00	150.00	12,084.04	-11,066.22	2,137.39	14,454,078.18	1,747,380.92	39.79984615	-80.61916440
23,800.00	89.00	150.00	12,085.78	-11,152.81	2,187.38	14,453,991.59	1,747,430.91	39.79960777	-80.61898773
23,900.00	89.00	150.00	12,087.53	-11,239.40	2,237.37	14,453,905.01	1,747,480.91	39.79936939	-80.61881105
24,000.00	89.00	150.00	12,089.28	-11,325.99	2,287.37	14,453,818.42	1,747,530.90	39.79913101	-80.61863438
24,041.53	89.00	150.00	12,090.00	-11,361.95	2,308.13	14,453,782.45	1,747,551.66	39.79903200	-80.61856100

PBHLTD 24041.53 MD 12090.00 TVD



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Breckenridge S-17 HU (slot S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1370.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1370.00ft
Site:	Breckenridge (1 row)	North Reference:	Grid
Well:	Breckenridge S-17 HU (slot S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Breckenridge S-17HU LI	0.00	0.00	11,885.00	-1,189.02	-3,555.21	14,463,955.36	1,741,678.33	39.82703597	-80.63932577
- plan misses target center by 431.07ft at 12533.10ft MD (11635.92 TVD, -1417.63 N, -3297.77 E)									
- Point									
Breckenridge S-17HU B	0.00	0.01	12,090.00	-11,361.95	2,308.13	14,453,782.45	1,747,551.66	39.79903200	-80.61856100
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
3,000.00	3,000.00	0.00	0.00	KOP Begin 2°/100' build
3,750.00	3,741.46	-69.02	-69.02	Begin 15.00° tangent
3,850.00	3,838.05	-87.33	-87.33	Begin 2°/100' turn
4,200.68	4,177.21	-133.24	-162.75	Begin 15.00° tangent
7,123.05	7,000.00	-362.70	-883.47	Begin 2°/100' build
7,955.80	7,761.99	-462.39	-1,196.58	Begin 31.66° tangent
11,775.89	11,013.74	-1,070.63	-3,106.89	Begin 6°/100' build/turn
12,643.31	11,710.27	-1,498.58	-3,290.69	Begin 8°/100' build/turn
13,191.52	11,900.63	-1,966.99	-3,116.04	Begin 89.00° lateral
24,041.53	12,090.00	-11,361.95	2,308.13	PBHL/TD 24041.53 MD 12090.00 TVD

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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) Grave Creek & Laurel Run Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC 2459, UIC 865, UIC 359, UIC 2D0732540, UIC 2D0732523 )
- Reuse (at API Number \_\_\_\_\_ )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP ECH1386428)

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

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

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

Company Official Signature James A Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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Subscribed and sworn before me this 8th day of April, 2021

Susanne Deliere Notary Public

My commission expires 1/15/2025

Commonwealth of Pennsylvania - Notary Seal  
Susanne Deliere, Notary Public  
Washington County  
My commission expires January 15, 2025  
Commission # 1382332  
Member, Pennsylvania Association of Notaries

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 45.40 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Bang Stiller*

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

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Title: Oil and Gas Inspector Date: 6-17-21

Field Reviewed?  Yes  No

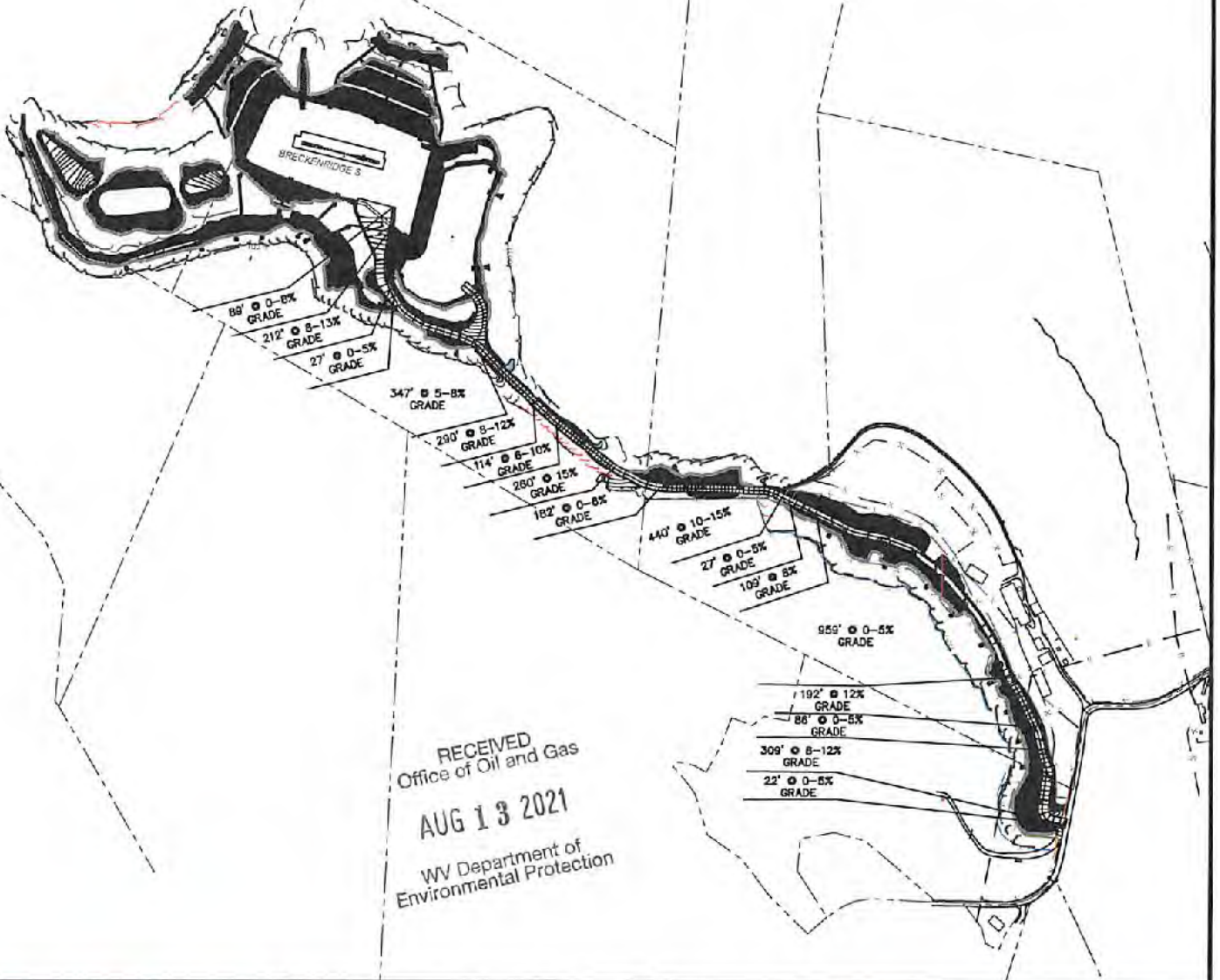


# PROPOSED BRECKENRIDGE S - 17HU



**NOTES:**

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



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12 Van Horn Drive | P.O. Box 150 | Clarksburg, WV 26301 | 304.462.5654  
1412 Kanawha Boulevard, East | Charleston, WV 26301 | 204.346.3162  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5200  
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	CAMERON		
DRAWN BY	JOB NO.	DATE	SCALE
K.C.M.	9026	04-08-21	NONE

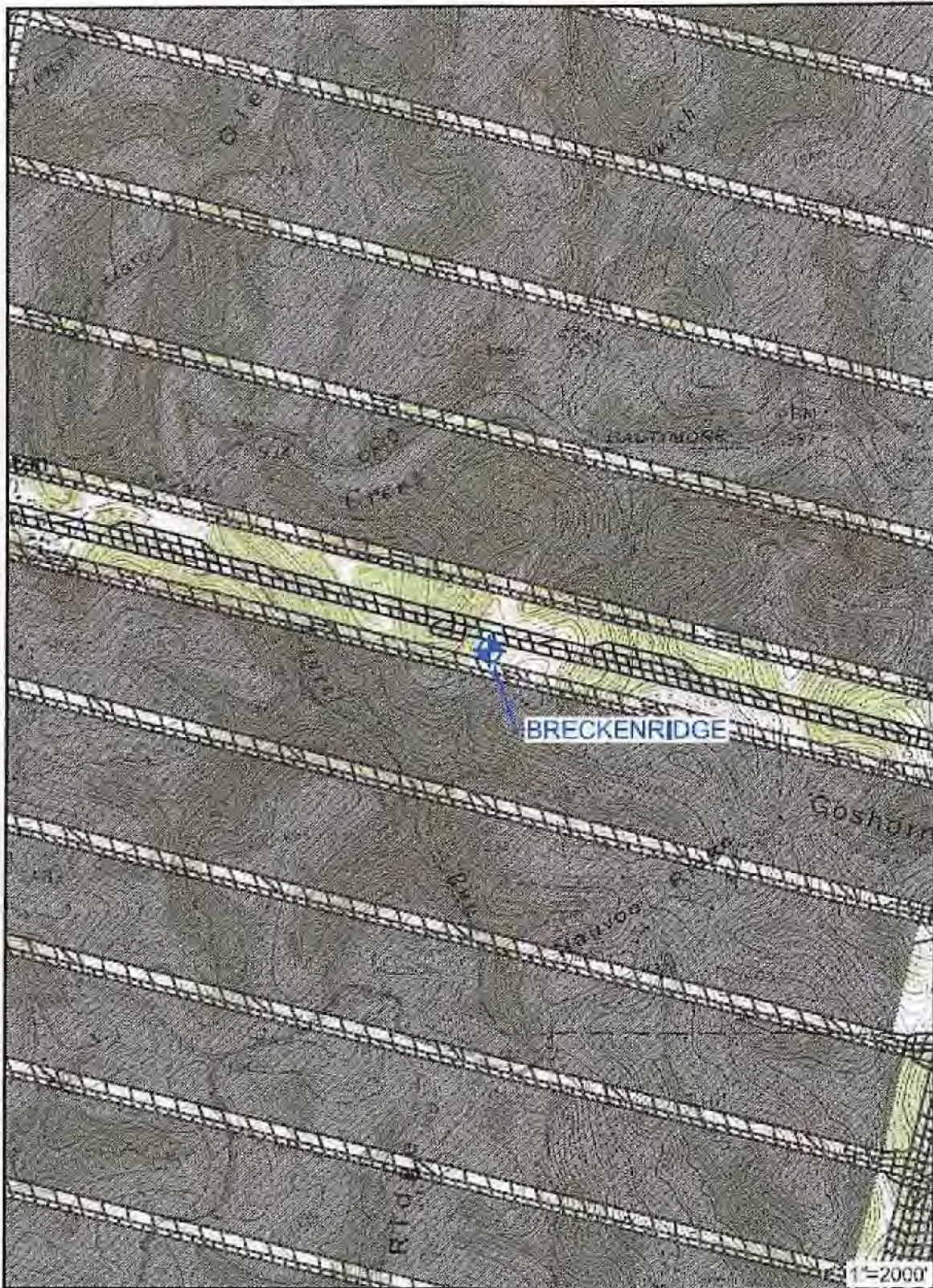


**TUG HILL  
OPERATING**  
11/19/2021



4705102896

# Breckenridge Coal Exhibit



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11/19/2021



**Area of Review****Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.**

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

## Data Sources Reviewed:

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

Contacted Adam Picard 724-485-9331, [apicard@dpslandservices.com](mailto:apicard@dpslandservices.com), DPS GIS (04/7/2021) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

## Request maps for:

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

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

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

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**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
4705101082	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well. Well is plugged.	Well was plugged 7/3/2008.
4705170164	Hope Natural Gas Company	2374' TVD	Big Injun	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	
4705102346	Tug Hill Operating, LLC	7115' TVD (proposed)	none	none	No, this is a proposed well in the Marcellus. Once completed the well will not be deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	A permitted well on the pad that is not drilled or perforated.
4705100754	Leatherwood, Inc.	3045' TVD	Gordon Stray	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 8/8/2008.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705100680	Pennzoil Company	3880' TVD	Speechley	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 1/19/1981.
4705101086	CNX Gas Co. LLC (North)	999' TVD (proposed)	Pittsburgh Coal	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	
4705100966	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well. Well is plugged.	Well was plugged 2/6/2006.
4705100967	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well. Well is plugged.	Well was plugged 12/12/2005.
4705100628	Consolidation Coal Co.	3221' TVD	Fifth Sand Pittsburgh Coal Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 8/4/2005.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705130295	The Tri-State Pipe Company	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well.	State records are incomplete.
4705100629	CNX Gas Co. LLC (North)	2963' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 11/11/2004.
4705100880	Consolidation Coal Co.	2935' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 12/17/2002.
4705100986	Consolidation Coal Co.	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well. Well is plugged.	Well was plugged 12/28/2004.
4705170453	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well.	State records are incomplete.

WV Geological &amp; Economic Survey:

Well: County = 51 Permit = 01082

Report Time: Tuesday, April 13, 2021 10:03:30 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101082	Marshall	1082	Cameron	Glen Easton	Cameron	39.829496	-80.627436	531880.9	4408899.7

There is no Bottom Hole Location data for this well

## Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101082	7/3/2008	Plugging	Completed	J Richard Wayt			M-1334			Consolidation Coal Co.			

## Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705101082	7/3/2008	6/18/2008	1262	Ground Level				unclassified	unclassified	not available	unknown	unknown						

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

## Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705101082	Plugging	Pittsburgh coal	Well Record	946	Reasonable	5	Reasonable	1262	Ground Level

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

## Plugging Information:

API	PLG_DT	DEPTH_PBT
4705101082	7/3/2008	0

There is no Sample data for this well

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WV Geological & Economic Survey:

Well: County = 51 Permit = 70164

Report Time: Tuesday, April 13, 2021 10:04:50 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170164	Marshall	70164	Liberty	Glen Easton	Cameron	39.829496	-80.626308	531977.5	4408900.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_P
4705170164	-/-	Original Loc	Completed	Elijah Williams	1	547				Hope Natural Gas Company			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AI
4705170164	-/-	-/-	1420	Barometer	Big Injun (undiff)	Big Injun (undiff)	Big Injun (undiff)	unclassified	unclassified	not available	unknown	unknown	2374		2374			

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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WV Geological &amp; Economic Survey

Well: County = 51 Permit = 02346

Report Time: Tuesday, April 13, 2021 10:05:07 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102346	Marshall	2346	Cameron	Glen Easton	Cameron	39.830284	-80.626735	531940.6	4409987.3

## Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102346	1	As Proposed	532233.1	4408596.4	-80.623336 39.826751

## Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM
4705102346	-/-	Dvld Wrkd Ovr	Permitted	CNX Land LLC		S-10HM	Breckenridge		Hasans Ventures et al	Tug Hill Operating, LLC	7115	Marcellus Fm

## Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BE	G_AFT	O_BE
4705102346	-/-	-/-	1380	Ground Level															

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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WV Geological & Economic Survey

Well: County = 51 Permit = 00754

Report Time: Tuesday, April 13, 2021 4:26:04 PM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70163	51	754

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705100754	Marshall	754	Liberty	Glen Easton	Cameron	39.828771	-80.627248	531897.4	4408819.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_ES
4705100754	-/-1928	Original Loc	Completed	J O Williams	2					Cameron Heat & Light			
4705100754	8/8/2008	Plugging	Completed	J Richard Wayt		M-100				Leatherwood, Inc			
4705100754	-/-	Worked Over	Permitted	J Richard Wayt	2		J O Williams		J Richard Wayt	Leatherwood, Inc			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTM	FTM
4705100754	-/-1928	-/-	1330	Ground Level	Cameron-Garner	Gordon Stray	Gordon Stray	Development Well	Development Well	Gas w/ Oil Show	Cable Tool	Shot	2999		2999
4705100754	8/8/2008	7/9/2008	1299	Ground Level	Cameron-Garner				not available	unknown	unknown				
4705100754	-/-	-/-	1330	Ground Level	Cameron-Garner	Gordon Stray			Gas			3045			

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH BOT	FM BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100754	-/-1928	Show	Oil & Gas	Vertical			2300	Big Injun (PriceSeq)	0	0			
4705100754	-/-1928	Pay	Gas	Vertical			2954	Gordon Stray	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100754	Cameron Oil and Gas Co.	1993	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Cameron Gas Co.	1994													
4705100754	Cameron Gas Co.	1995													
4705100754	Coleman, C. R.	1996													
4705100754	Mountaineer Gas Services, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Leatherwood, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100754	Cameron Oil and Gas Co.	1993	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Cameron Gas Co.	1994													
4705100754	Cameron Gas Co.	1995													
4705100754	Coleman, C. R.	1996													
4705100754	Mountaineer Gas Services, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Mountaineer Gas Services, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100754	Leatherwood, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100754	8/8/2008	0

There is no Sample data for this well

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WV Geological &amp; Economic Survey:

Well: County = 51 Permit = 00680

Report Time: Tuesday, April 13, 2021 4:26:41 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100680	Marshall	680	Liberty	Glen Easton	Cameron	39.818635	-80.631761	531515.3	4407803.8

There is no Bottom Hole Location data for this well

## Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_ES
4705100680	1/16/1981	Original Loc	Completed	Dewill Morris	3		W D Morris		Dewill Morris	Pennzoil Company			

## Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF
4705100680	1/16/1981	1/10/1981	1424	Ground Level	Cameron-Garner	Speechley	Speechley	Deeper-pool Test	Unsuccessful	Dry	Rotary	Nat/Open H	3880		3880		0

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

## Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100680	Original Loc	unidentified coal	Well Record	1134	Reasonable	3	Reasonable	1424	Ground Level
4705100680	Original Loc	Greenbrier Group	Well Record	2206	Reasonable	104	Reasonable	1424	Ground Level
4705100680	Original Loc	Big Lime	Well Record	2206	Reasonable	104	Reasonable	1424	Ground Level
4705100680	Original Loc	Speechley	Well Record	3800	Reasonable	0	Qstnble Pick	1424	Ground Level

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

## Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100680	1/19/1981	0

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WV Geological & Economic Survey:

Well: County = 51 Permit = 01086

Report Time: Tuesday, April 13, 2021 4:26:59 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101086	Marshall	1086	Liberty	Glen Easton	Cameron	39.817026	-80.633453	531371.7	4407513.5

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_ES
4705101086	-/-	Original Loc	Permitted	Carroll & Anna Morris		5A2			Carroll & Anna Morris	CNX Gas Co. LLC (North)		999	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEFL
4705101086	-/-	-/-	1313	Ground Level			Pittsburgh coal	unclassified	unclassified	Methane (CBM)	unknown	unknown					

There is no Pay data for this well

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101086	CNX Gas Co. LLC (North)	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101086	CNX Gas Co. LLC (North)	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101086	CNX Gas Co. LLC (North)	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101086	CNX Gas Co. LLC (North)	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) \*\*\* some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101086	CNX Gas Co. LLC (North)	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101086	CNX Gas Co. LLC (North)	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101086	CNX Gas Co. LLC (North)	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101086	CNX Gas Co. LLC (North)	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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WV Geological & Economic Survey:

Well: County = 51 Permit = 00966

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100966	Marshall	966	Liberty	Glen Easton	Cameron	39.812386	-80.62988	531679.6	4406999.8

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100966	2/6/2006	Plugging	Completed	Carroll/Anna Morris			M-328B			Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_
4705100966	2/6/2006	12/13/2005	1385	Ground Level				unclassified	unclassified	not available	unknown	unknown						

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100966	Plugging	Pittsburgh coal	Well Record	1133	Reasonable	6	Reasonable	1385	Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100966	2/6/2006	0

There is no Sample data for this well

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WV Geological & Economic Survey:

**Well: County = 51 Permit = 00967**

Report Time: Tuesday, April 13, 2021 4:27:30 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100967	Marshall	967	Liberty	Glen Easton	Cameron	39.812241	-80.630068	531663.6	4406983.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_P
4705100967	12/12/2005	Plugging	Completed	Carroll & Anna Morris		M-328C				Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF
4705100967	12/12/2005	11/16/2005	1367	Ground Level				unclassified	unclassified	not available	unknown	unknown					

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100967	12/12/2005	0

There is no Sample data for this well

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WV Geological & Economic Survey

Well: County = 51 Permit = 00628

Report Time: Tuesday, April 13, 2021 4:27:40 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705100628	Marshall	629	Liberly	Cameron	Cameron	39.802816	-80.620359	532499	1 4405941

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CD_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST
4705100628	2/28/1901	Original Loc	Completed	George W Hubbs	1					South Penn Oil (S Penn Nat Gas)			
4705100628	8/4/2005	Plugging	Completed	James A Hubbs Est			M-364			Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG
4705100628	2/28/1901	12/13/1900	1960	Topo Estimation	Cameron-Garner	Hampshire Grp	Fifth	unclassified	unclassified	Oil w/ Gas Show	unknown	Nat/Open H	3221		3221
4705100628	8/4/2005	7/1/2005	1292	Ground Level			Pittsburgh coal			not available	unknown	unknown			

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100628	2/28/1901	Show	Gas	Vertical			3046	Gordon	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100628	Pennzoil Company	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1982	4	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1983	8	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1984	67	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100628	Pennzoil Company	1981	169	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1982	103	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1983	188	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Company	1984	134	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	East Resources, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100628	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100628	Plugging	Pittsburgh coal	Well Record	1055	Reasonable	7	Reasonable	1360	Topo Estimation

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100628	8/4/2005	0

There is no Sample data for this well

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WV Geological & Economic Survey:

**Well: County = 51 Permit = 30295**

Report Time: Tuesday, April 13, 2021 4:26:05 PM

Well Reassignment Information: Reassigned To

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	30295	51	880

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705130295	Marshall	30295	Liberty	Cameron	Cameron	39.802381	-80.619043	532612	4405883.2

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705130295	-/-	unknown	Reassign							Tri-State Pipe Company, The			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	
4705130295	-/-	-/-																			

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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WV Geological & Economic Survey

Well: County = 51 Permit = 00629

Report Time: Tuesday, April 13, 2021 4:28:22 PM

Well Reassignment Information - Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70453	51	829

Location Information - View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_76	LAT_DD	LONG_DD	UTME	UTMN
4705100629	Marietta	829	Liberty	Carmer	Carmer	-39.036706	-80.610854	533629.2	4485651.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	AT_COMPLETION	PROP_VO	PROP_TRGT_FM
4705100629	10/31/1901		Original Loc	George W Hubbs	3					South Penn C&S Penn Nat Gas			
4705100629	11/11/2024		Plugging	James A Hubbs est	M-372		James A Hubbs est			Consolidation Coal Co			

Completion Information:

API	CMP_DT	SUFFIX	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FHT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	REW_FTG
4705100629	10/31/1901		1200	Topo Estimation	Carmer-Garner	Garner	Gordon	Development Well	Development Well	Oil	Cable Tool	NH Open H	2963		2963
4705100629	11/11/2024		1197	Ground Level							not available	unknown			

Pay/Show Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFF	O_BEF	O_AFF	WATER_QNTY
4705100629	10/31/1901	Pay	Gas	Vertical	2022	Gordon	2948	Gordon	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100629	Pennzoil Company	1901	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1902	4	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1903	5	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1904	67	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1908	41	5	17	0	6	18	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1909	32	0	32	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1991	213	0	19	0	0	0	0	0	0	0	0	6	162
4705100629	Pennzoil Products Company	1997	160	47	63	56	20	66	0	0	0	0	0	0	269
4705100629	Pennzoil Products Company	1993	3755	343	342	507	127	317	225	465	404	306	374	218	234
4705100629	Pennzoil Products Company	1994	2432	286	281	188	182	193	335	208	238	320	221	246	204
4705100629	Pennzoil Products Company	1995	3050	272	217	207	221	235	274	267	267	321	232	266	271
4705100629	Pennzoil Products Company	1996	252	164	74	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) \*\* some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100629	Pennzoil Company	1901	169	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1902	123	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1903	196	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Company	1904	134	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1909	265	6	24	38	40	32	19	18	23	8	33	18	12
4705100629	Pennzoil Products Company	1990	295	6	10	42	35	45	35	8	32	30	4	0	40
4705100629	Pennzoil Products Company	1991	355	48	0	0	45	38	40	45	35	33	35	15	27
4705100629	Pennzoil Products Company	1992	387	27	24	24	10	80	30	20	40	48	40	42	45
4705100629	Pennzoil Products Company	1993	258	35	20	25	20	20	24	23	33	23	29	22	24
4705100629	Pennzoil Products Company	1994	273	19	22	23	20	18	26	25	20	20	25	30	25
4705100629	Pennzoil Products Company	1995	289	23	20	30	23	32	29	26	27	26	28	24	11
4705100629	Pennzoil Products Company	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	Pennzoil Products Company	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	East Resources Inc	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100629	CHX Gas Co LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0	0

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705100629	Original Loc	unidentified coal	Well Record	300	Reasonable	4	Reasonable	1200	Topo Estimation
4705100629	Original Loc	Sevickday coal	Well Record	850	Reasonable	3	Reasonable	1200	Topo Estimation
4705100629	Original Loc	Pittsburgh coal	Well Record	930	Reasonable	5	Reasonable	1200	Topo Estimation
4705100629	Plugging	Pittsburgh coal	Well Record	932	Outside Pick	5	Reasonable	1200	unknown
4705100629	Original Loc	Big Lime	Well Record	2020	Reasonable	35	Reasonable	1200	Topo Estimation
4705100629	Original Loc	Dip Injun (sand)	Well Record	2055	Reasonable	145	Reasonable	1200	Topo Estimation
4705100629	Original Loc	Gordon	Well Record	2930	Reasonable	30	Reasonable	1200	Topo Estimation

Wireline (E-Log) Information:

API	LOG_TOP	LOG_BOT	DEEPEST_FM	LOGS_AVAIL	SCAN	DIGITIZED	GR_TOP	GR_BOT	D_TOP	D_BOT	N_TOP	N_BOT	I_TOP	I_BOT	S_TOP	S_BOT	O_TOP	O_BOT
4705100629	2408	Big Injun (Prestress)	G D L G	Y	Y	Y	0	2400	1822	2406			1618	2400			1662	2400

Comment: logs: caliper, on #42 no permit number, formation-density-no paper log

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the log image of interest and select the save option. Then you can direct the file to a location of your choice. Please note these images vary in size and some may take several minutes to download, especially if using a 56k or slower dialup connection.

- Quick Reference Guide for Log File Names: For more info about WVGES scanned logs click [here](#)
- geologic log type:
- d density (includes bulk density, compensated density, density porosity, grain density, matrix density, etc.)
  - a photoacoustic adsorption (PE or P<sub>a</sub>, etc.)
  - g gamma ray
  - i induction (includes dual induction, medium induction, deep induction, etc.)
  - l lithology
  - m dipmeter
  - n neutron (includes neutron porosity, sidewall neutron-SWN, etc.)
  - o other
  - s sonic or velocity
  - t temperature (includes borehole temperature, BHT, differential temperature, etc.)
  - z spontaneous potential or potential
- mechanical log type:
- b cement bond
  - c caliper
  - c1e1 caliper
  - o perforation depth control or perforate

Other logs may include, but are not limited to, such curves as audio, bit size, CCL-casing collar locator, continuous meter, directional survey, gas detector, guard, NCTL-Nuclear Cement Tool Locator, radioactive tracer, tension

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WV Department of  
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WV Geological & Economic Survey

Well: County = 51 Permit = 00880

Report Time: Tuesday, April 13, 2021 4:29:11 PM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	30295	51	880

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100880	Marshall	880	Liberty	Cameron	Cameron	39.801076	-80.61923	532596.5	4405748.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PRO
4705100880	5/18/1914	Original Loc	Completed	Geo W Hubbs heirs/Sophia Hubbs	6				Geo W Hubbs heirs/Sophia Hubbs	Tri-State Pipe Company, The		
4705100880	12/17/2002	Plugging	Completed	James A Hubbs Estate			M-366		Consolidation Coal Co	Consolidation Coal Co		

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_F
4705100880	5/18/1914	-/-	1180	Ground Level	Cameron-Garner	UDev undf Ber/LoHURN	Gordon	Development Well	Development Well	Oil	Cable Tool	unknown	2935		29
4705100880	12/17/2002	11/21/2002	1171	Ground Level				unclassified	unclassified	not available	unknown	unknown			

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100880	5/18/1914	Pay	Oil	Vertical		Gordon	2908	Gordon	0	0			

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

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
4705100880	5/7/1949	0
4705100880	12/17/2002	0

There is no Sample data for this well

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 WV Department of  
 Environmental Protection



WV Geological & Economic Survey:

**Well: County = 51 Permit = 00986**

Report Time: Tuesday, April 13, 2021 4:29:33 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100986	Marshall	986	Liberty	Cameron	Cameron	39.798321	-80.617537	532742.8	4405443.2

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_ES
4705100986	12/28/2004	Plugging	Completed	James A Hubbs est		M-461			Consolidation Coal Co	Consolidation Coal Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF
4705100986	12/28/2004	12/17/2004	1016	Ground Level				unclassified	unclassified	not available	unknown	unknown					

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100986	12/28/2004	0

There is no Sample data for this well

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WV Geological & Economic Survey:

**Well: County = 51 Permit = 70453**

Report Time: Tuesday, April 13, 2021 4:29:52 PM

**Well Reassignment Information: Reassigned To**

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70453	51	629

**Location Information: [View Map](#)**

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170453	Marshall	70453	Liberly	Cameron	Cameron	39.798901	-80.618853	532629.8	4405507.1

There is no Bottom Hole Location data for this well

**Owner Information:**

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170453	--		unknown	Reassign						----- unknown -----			

**Completion Information:**

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_
4705170453	--	--																		

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

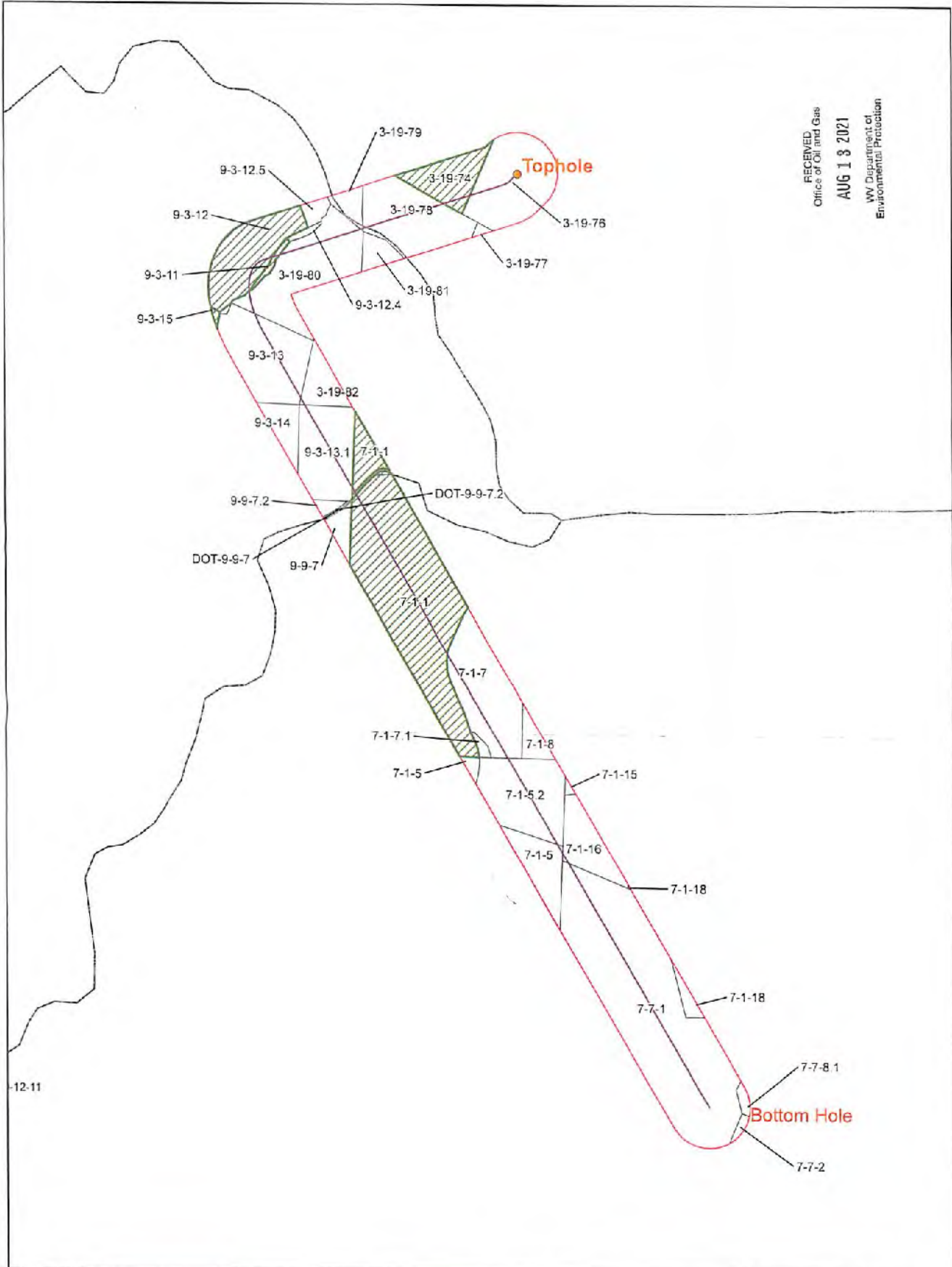
There is no Plugging data for this well

There is no Sample data for this well

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11/19/2021 11:24:00 AM

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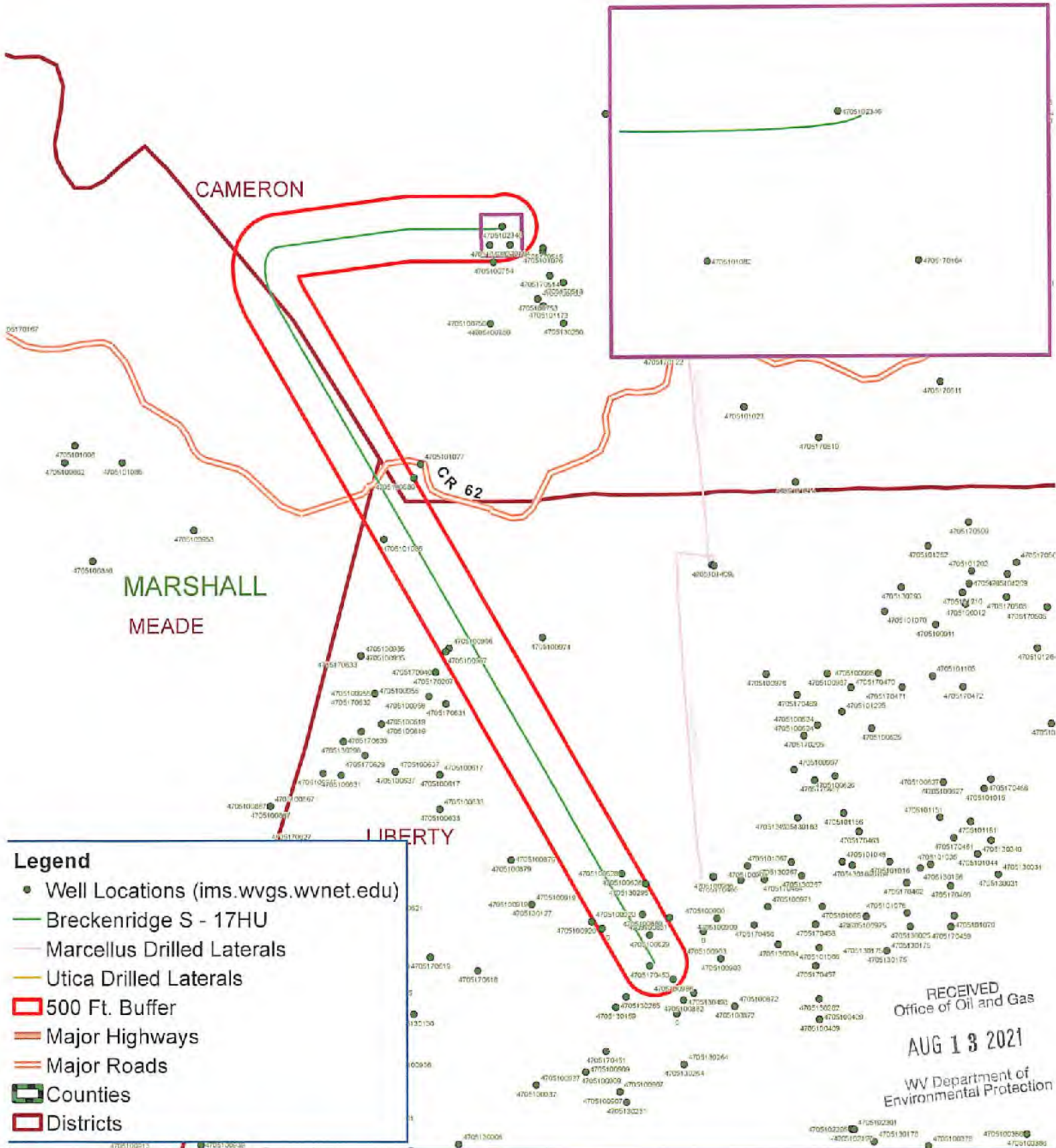


— Utica Well  
 [Green Hatched Box] Force Pool  
 [Pink Outline Box] 500' Buffer

**Breckenridge S-17HU**  
 Operators within 500 Feet of Well Borehole



11/19/2021



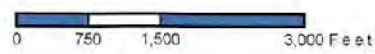
**Legend**

- Well Locations (ims.wvgs.wvnet.edu)
- Breckenridge S - 17HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- 500 Ft. Buffer
- Major Highways
- Major Roads
- ▭ Counties
- ▭ Districts

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# Breckenridge S - 17HU Cameron District Marshall County, WV



Map Prepared by:  
**DPS**  
LAND SERVICES  
11/19/2021





**TUG HILL**  
**OPERATING**

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

**Well Name: Breckenridge S-17HU**

**Pad Name: Breckenridge**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,408,984.82

Easting: 531,951.29

*Bony Stalys 6-17-21*

**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)**

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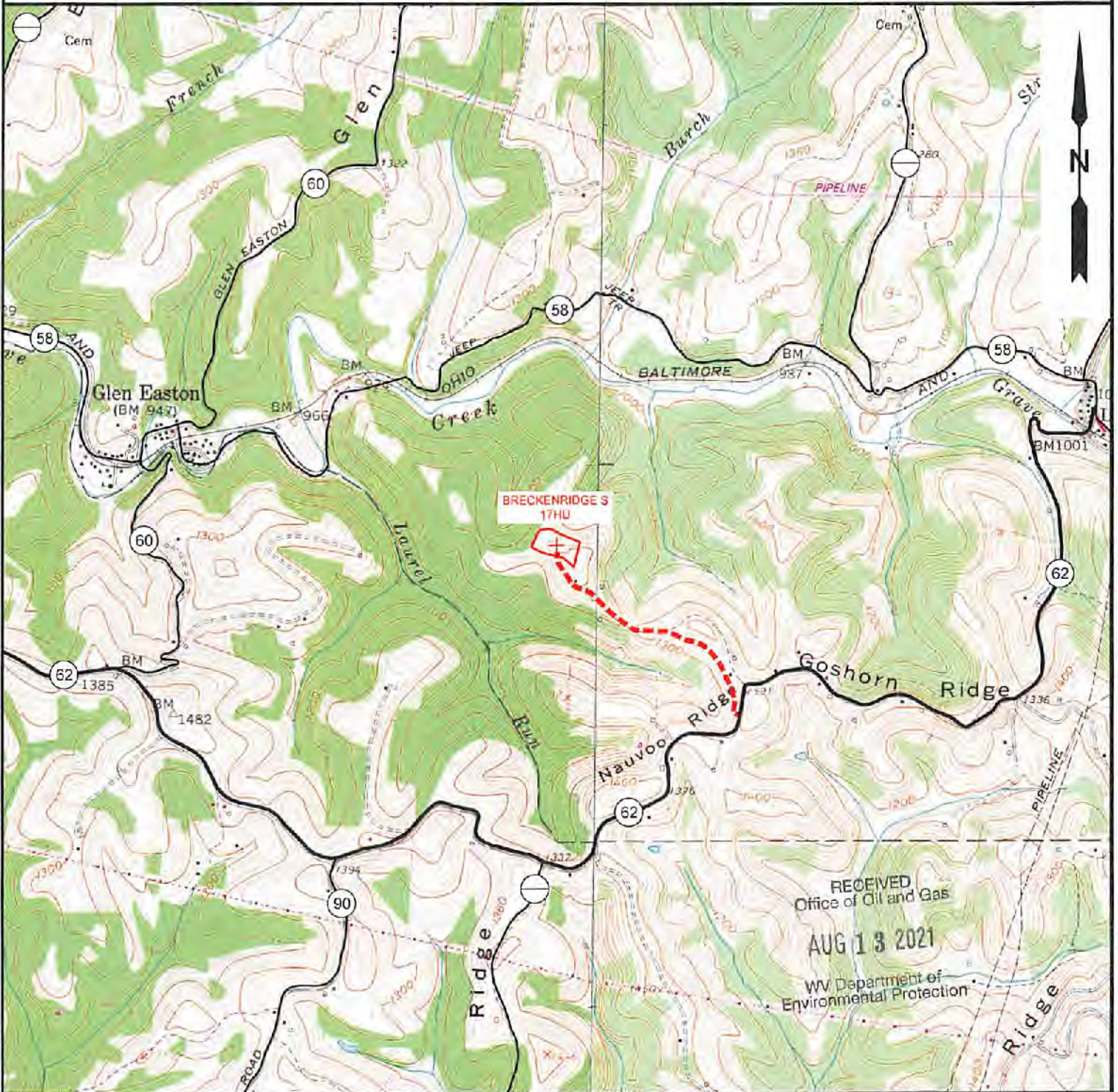
**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

11/19/2021



# PROPOSED BRECKENRIDGE S - 17HU



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

LAT: 39.829865  
LON: -80.573724  
LOCATED: S 88°42'19" E AT 14,928.72' FROM THE CENTER OF BRECKENRIDGE N WELL PAD LOCATION.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 504.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	CAMERON	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	9026	04/08/2021	1" = 2000'



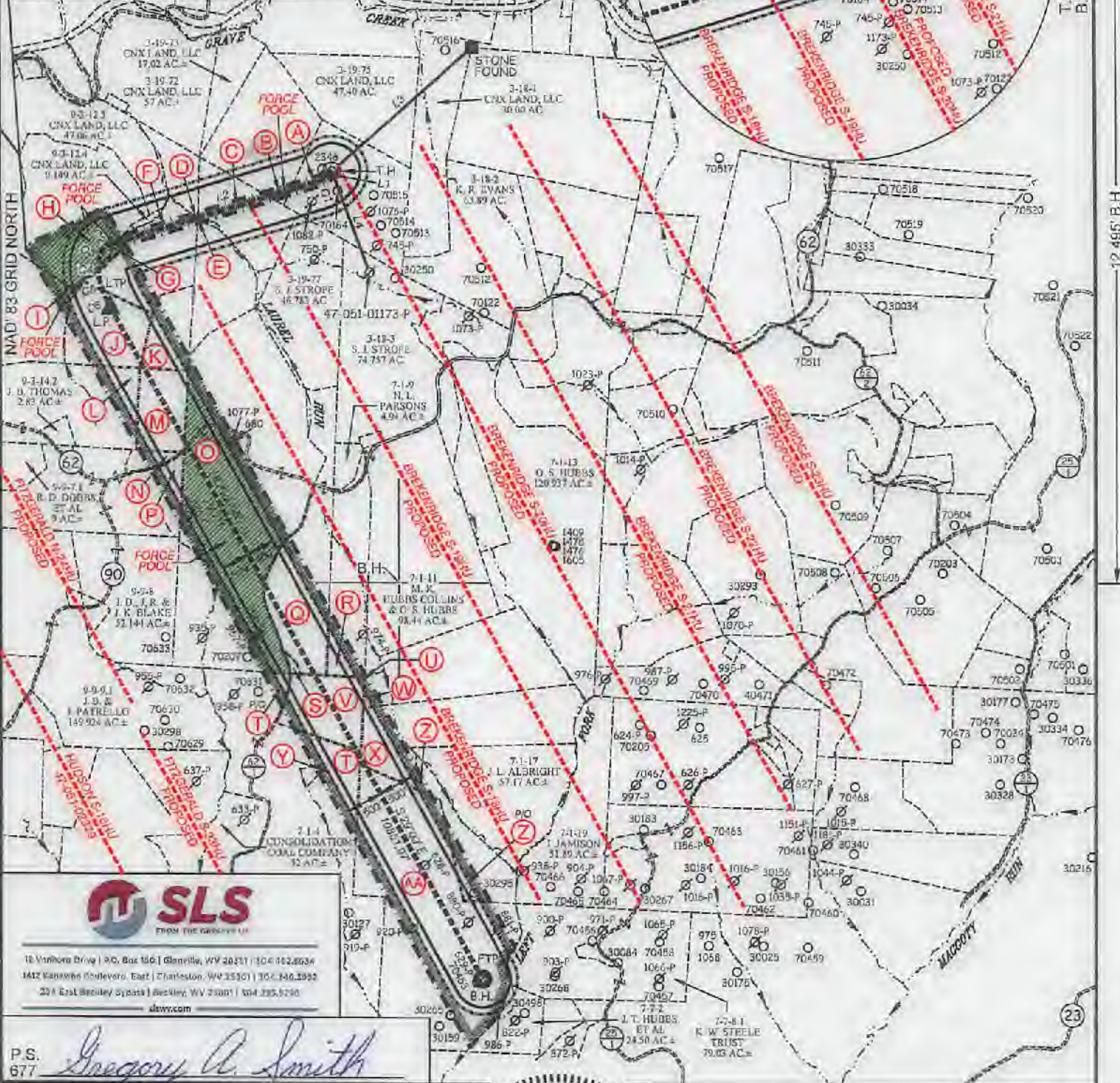
**TUG HILL**  
OPERATING  
11/19/2021



LINE	BEARING	DISTANCE
L1	S 45°57' W	123.54'
L2	S 73°17' W	3103.55'
L3	N 48°45' E	2650.26'
L4	S 20°07' E	1522.30'

**BRECKENRIDGE S LEASE  
UTICA UNIT - 370.92 AC ±  
WELL 17HU  
TUG HILL OPERATING**

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	88.92'	196.39'	S 59°36' W	88.16'
C2	152.18'	275.05'	S 53°05' W	150.20'
C3	172.17'	401.78'	S 20°22' W	170.85'
C4	215.61'	785.21'	S 01°54' E	214.93'
C5	229.18'	1296.81'	S 16°10' E	228.89'
C6	228.96'	1716.44'	S 24°57' E	228.79'



**SLS**  
FROM THE GROUND UP

18 Vanhorn Drive | PO, Box 156 | Glenville, WV 26031 | 304.922.8934  
1412 Kanawha Chautauq, East | Charleston, WV 25301 | 304.346.3392  
231 East Barclay Street | Beckley, WV 25801 | 304.235.5290  
dswv.com

P.S. 677 *Gregory A. Smith*

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD83 S.P.C.(FT)	N. 408,507.39	E. 1,652,110.61
NAD83 GEO.	LAT-(N) 39.830261	LONG-(W) 80.628610
NAD83 UTM (M)	N. 4,408,984.88	E. 531,951.29
LANDING POINT		
NAD83 S.P.C.(FT)	N. 484,582.1	E. 1,648,861.0
NAD83 GEO.	LAT-(N) 39.824095	LONG-(W) 80.637797
NAD83 UTM (M)	N. 4,408,385.3	E. 531,001.5
BOTTOM HOLE		
NAD83 S.P.C.(FT)	N. 475,104.7	E. 1,654,229.1
NAD83 GEO.	LAT-(N) 39.799032	LONG-(W) 80.619561
NAD83 UTM (M)	N. 4,405,521.7	E. 532,654.8



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

**LEGEND**

- EXTERIOR UNIT BOUNDARY
- INTERIOR LEASE BOUNDARY
- SURFACE LINE
- PROPOSED UTICA WELL LATERAL
- 400' OFFSET LINE
- 500' OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- FORCE POOL TRACT
- PROPOSED FIRST TAKE POINT
- PROPOSED LAST TAKE POINT
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- SURFACE OWNER (SEE TABLE)
- LEASE # (SEE ADDITIONAL SHEETS)

11/19/2021

SCALE 1" = 2000'	FILE NO. 9028P17HU2.dwg
DATE MAY 3, 20 21	BRECKENRIDGE S-17HU-REV4
REVISED JULY 15, AUGUST 12, 20 21	
OPERATORS WELL NO. BRECKENRIDGE S-17HU	
API WELL NO. 47-051-02396	Dep
NO. STATE COUNTY PERMIT	

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

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



**BRECKENRIDGE S LEASE  
UTICA UNIT - 370.92 AC±  
WELL 17HU  
TUG HILL OPERATING**

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

T.H.

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT) N. 486,507.39 E. 1,652,110.51  
NAD'83 GEO. LAT-(N) 39.830281 LONG-(W) 80.626610  
NAD'83 UTM (M) N. 4,408,984.82 E. 531,951.29

LANDING POINT

NAD'83 S.P.C.(FT) N. 484,592.1 E. 1,649,961.0  
NAD'83 GEO. LAT-(N) 39.824895 LONG-(W) 80.637737  
NAD'83 UTM (M) N. 4,408,365.3 E. 531,001.5

BOTTOM HOLE

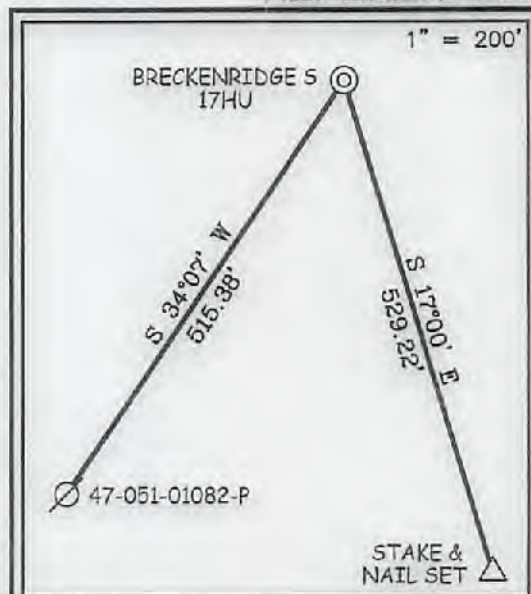
NAD'83 S.P.C.(FT) N. 475,104.7 E. 1,654,229.1  
NAD'83 GEO. LAT-(N) 39.789032 LONG-(W) 80.618561  
NAD'83 UTM (M) N. 4,405,521.7 E. 532,654.8

T.H. LONGITUDE 80°37'30"  
B.H. LONGITUDE 80°35'00"

12,495' B.H.

TAG	SURFACE OWNER	PARCEL	ACRES
A	CNX LAND, LLC	3-19-76	53.25
B	CNX LAND, LLC	3-19-74	44.59
C	CNX LAND, LLC	3-19-78	30.927
D	CNX LAND, LLC	3-19-79	10.75
E	XCL PROCESSING OPERATING LLC	3-19-81	26.52
F	XCL PROCESSING OPERATING LLC	3-19-80	30.54
G	CNX LAND, LLC	9-3-11	1.00
H	RAYMOND DEWAINE DOBBS	9-3-12	66.843
I	RAYMOND DEWAINE DOBBS	9-3-15	70.7424
J	XCL PROCESSING OPERATING LLC	9-3-13	28.00
K	XCL PROCESSING OPERATING LLC	3-19-82	14.89
L	RAYMOND DEWAINE DOBBS, ET AL	9-3-14	81.331
M	XCL PROCESSING OPERATING LLC	9-3-13.1	10.00
N	XCL MIDSTREAM OPERATING LLC	9-9-7.2	3.907
O	ANNA D. MORRIS	7-1-1	179.00
P	JAMES R. THOMAS, ET UX	9-9-7	60.796
Q	NANCY L. PARSONS - LIFE	7-1-7	40.86
R	NANCY L. PARSONS - LIFE	7-1-8	33.00
S	NANCY L. PARSONS - LIFE	7-1-7.1	0.50
T	JAMES TIMOTHY HUGGS, ET AL	7-1-5	116.915
U	NANCY L. PARSONS - LIFE	7-1-6	1.00
V	NICHOLAS J. EVANS	7-1-5.2	22.42
W	MOLLY KAY HUBBS COLLINS, ET AL	7-1-15	57.32
X	MOLLY KAY HUBBS COLLINS, ET AL	7-1-16	54.44
Y	LARRY A. PAYNTER, ET UX	7-1-5.1	1.165
Z	JAMES TIMOTHY HUGGS, ET AL	7-1-18	21.20
AA	KAREN S. EVANS & JUDY K. MATTHEWS	7-7-1	124.12

**REFERENCES**



**NOTES ON SURVEY**

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE ARE 1"=2000'
- PROPOSED LATERAL OR TOP HOLE OF PROPOSED BRECKENRIDGE S-17HU IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF PROPOSED OR EXISTING WELLS:  
PROPOSED BRECKENRIDGE S-18HU,  
PROPOSED BRECKENRIDGE S-19HU,  
PROPOSED BRECKENRIDGE S-20HU,  
PROPOSED BRECKENRIDGE S-21HU,  
PROPOSED BRECKENRIDGE S-22HU,  
PROPOSED BRECKENRIDGE S-23HU,  
PROPOSED FITZGERALD S-23HU &  
PROPOSED FITZGERALD N-24HU.

B.H.



12 Vanders Drive | P.O. Box 160 | Glenville, WV 26031 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.348.2952  
254 East Beckley Bypass | Beckley, WV 26801 | 304.255.6295  
slsv.com

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

P.S. Gregory A. Smith  
677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE MAY 3, 20 21  
REVISED JULY 15, AUGUST 12, 20 21  
OPERATORS WELL NO. BRECKENRIDGE S-17HU  
API WELL NO. 47 - 051 - 02396 Deep  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 9026P17HUR2.dwg  
BRECKENRIDGE S-17HU-REV4  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



WELL TYPE: OIL  GAS  INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: GROUND = 1,388.80' ELEVATION PROPOSED = 1,370.10' WATERSHED GRAVE CREEK (HUC 10) & LAUREL RUN  
DISTRICT CAMERON COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'  
SURFACE OWNER CNX LAND LLC ACREAGE 53.25±  
ROYALTY OWNER HASAN'S VENTURES, ET AL ACREAGE 53.25±  
PROPOSED WORK: LEASE NO. SEE WW-6A1  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_, TARGET FORMATION POINT PLEASANT  
ESTIMATED DEPTH TVD: 12,058' / TMD: 24,042'

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

COUNTY NAME  
PERMIT



**BRECKENRIDGE S LEASE  
UTICA UNIT - 370.92 AC±  
WELL 17HU  
TUG HILL OPERATING**



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5236  
sllwv.com

NO.	Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Deed Book/Page
✓ 1	10*31242	3-19-76	A	EVELYN L BUTLER, ET AL	729 49
✓ 2	**FORCE POOL**	3-19-74	B	KATHERINE ZOGG OLIVER	663 449
✓ 3	10*25525	3-19-78	C	JAN MARIE CREGO, ET AL	939 601
✓ 4	10*22872	3-19-79	D	OKEY RAY GILBERT SR, ET AL	974 210
✓ 5	10*25525	3-19-81	E	JAN MARIE CREGO, ET AL	939 601
✓ 6	10*25182	3-19-80	F	CHARLES ISAIAH PARK ALBRIGHT AND EUN JI LEE	1029 503
✓ 7	**FORCE POOL**	9-3-11	G	C. WILLIAM HARRIS	670 177
✓ 8	**FORCE POOL**	9-3-12	H	C. WILLIAM HARRIS	670 177
✓ 9	**FORCE POOL**	9-3-15	I	RAYMOND DEWAINE DOBBS	677 229
✓ 10	10*25188	9-3-13	J	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT, ET AL	1029 505
✓ 11	10*25188	3-19-82	K	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT, ET AL	1029 505
✓ 12	10*19737	9-3-14	L	ALICE BUZZARD, ET AL	948 195
✓ 13	10*25188	9-3-13.1	M	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT, ET AL	1029 505
✓ 14	10*22767	9-9-7.2	N	DAVID L KINNEY	970 78
✓ 15	**FORCE POOL**	7-1-1	O	CARROLL E. MORRIS AND ANNA D. MORRIS	778 231
✓ 16	10*26738	9-9-7	P	JAMES R THOMAS & DEBORAH L THOMAS	1041 153
✓ 17	10*23798	7-1-7	Q	WILLIAM E PARSONS AND NANCY L PARSONS	1011 489
✓ 18	10*17925	7-1-8	R	BOUNTY MINERALS LLC	928 393
✓ 19	10*19985	7-1-7.1	S	WILLIAM E PARSONS AND NANCY L PARSONS	955 92
✓ 20	10*31110	7-1-5	T	CNX GAS COMPANY LLC	1058 608
✓ 21	10*17925	7-1-6	U	BOUNTY MINERALS LLC	928 393
✓ 22	10*26711	7-1-5.2	V	CNX GAS COMPANY LLC	1074 593
✓ 23	10*17925	7-1-15	W	BOUNTY MINERALS LLC	928 393
✓ 24	10*17925	7-1-16	X	BOUNTY MINERALS LLC	928 393
✓ 25	10*26711	7-1-5.1	Y	CNX GAS COMPANY LLC	1074 593
✓ 26	10*17925	7-1-18	Z	BOUNTY MINERALS LLC	928 393
✓ 27	10*25527	7-7-1	AA	JUDY K MATTHEWS, ET AL	945 103

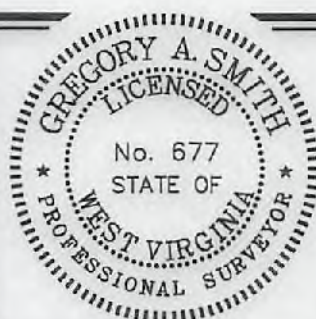
FILE NO. 9026P17HUR2.dwg  
BRECKENRIDGE S-17HU-REV4

DATE MAY 3, 20 21

REVISED JULY 15, AUGUST 12, 20 21

OPERATORS WELL NO. BRECKENRIDGE S-17HU

API WELL NO. 47 — 051 — 02396  
STATE COUNTY PERMIT



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



P.S. 677

*Gregory A. Smith*

WELL OPERATOR TUG HILL OPERATING, LLC  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500  
FORT WORTH, TX 76107

DESIGNATED AGENT DARREN BROWN  
CT CORPORATION  
ADDRESS 5098 WASHINGTON ST. W, STE 407  
CHARLESTON, WV 25313-1561

COUNTY NAME

PERMIT

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

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

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

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

\*See attached pages

RECEIVED  
Office of Oil and Gas  
AUG 13 2021  
WV Department of  
Environmental Protection

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

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

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

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

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



Lease ID	TMP	Tag	Grantor, Lessor, etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*31242	3-19-76	A	EVELYN I BUTLER	TRANS ENERGY INC/REPUBLIC ENERGY VENTURES LLC	1/8*	729 49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Trans Energy Inc to Republic Energy Ventures LLC: 24/260	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to TH Exploration LLC: 37/25	EQT Production Company to TH Exploration LLC: 48/21	
**FORCE POOL**	3-19-74	B	KATHERINE ZOGG OLIVER	GREAT LAKES ENERGY PARTNERS, LLC	1/8*	663 449	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Name change to Range Resources - Appalachia LLC: CB 19/443	Range Resources - Appalachia LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc: 663/849	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/363	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC: 33/424	Cert of Merger - SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: CB 19/624	**Force Pool**	
10*25525	3-19-78	C	JAN MARIE CREGO	AMERICAN PETROLEUM PARTNERS LLC	1/8*	939 601	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503	
10*29085	3-19-78	C	LUJEAN EGAN	TH EXPLORATION LLC	1/8*	1084 192	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*30579	3-19-78	C	GREENFIELD RESOURCES, LLC	TH EXPLORATION LLC	1/8*	1105 272	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*38500	3-19-78	C	NINA FLETCHER AND RICHARD FLETCHER	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 525	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38501	3-19-78	C	DOUGLAS BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38502	3-19-78	C	THOMAS BRIGGS AND BRENDA M BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 527	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38504	3-19-78	C	REGINA D FIGUEROA	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 529	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38505	3-19-78	C	DANNY S KERNS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 530	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38506	3-19-78	C	ROGER BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 540	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38527	3-19-78	C	DEEMA I PALOMO	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38529	3-19-78	C	GERRI A BANNISTER	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8*	779 532	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LLC, Republic Partners VI, LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120

RECEIVED  
Office of Oil and Gas  
AUG 13 2021  
NY Department of Environmental Protection

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Realty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*38530	3-19-78	C	JULIE BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8+	779 533	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38531	3-19-78	C	JOHN BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8+	779 534	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38532	3-19-78	C	JEFF BRIGGS AND CONNIE BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8+	779 537	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38533	3-19-78	C	GARY BRIGGS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8+	779 538	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*38534	3-19-78	C	JERRILYN LITTS AND IVAN LITTS	AMERICAN SHALE DEVELOPMENT INC AND REPUBLIC ENERGY VENTURES LLC	1/8+	779 539	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Shale Development Inc to Republic Partners VIII LLC: 31/482	Republic Energy Ventures LP, Republic Partners VII & VIII, LLC, and Republic Energy Operating LLC to EQT Production Company: 37/25	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/104	SWN Production Company LLC to TH Exploration LLC: 49/120
10*22872	3-19-79	D	OKEY RAY GILBERT SR	TH EXPLORATION LLC	1/8+	974 210	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22873	3-19-79	D	WALTER E GILBERT JR	TH EXPLORATION LLC	1/8+	974 214	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22874	3-19-79	D	WARDNA JEAN GILBERT	TH EXPLORATION LLC	1/8+	977 325	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23027	3-19-79	D	ROBERT W WAYT JR	TH EXPLORATION LLC	1/8+	977 328	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23028	3-19-79	D	SHELIA R CRODY	TH EXPLORATION LLC	1/8+	977 330	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23031	3-19-79	D	TIMOTHY J LEASURE AND JOANNA C LEASURE	TH EXPLORATION LLC	1/8+	977 305	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23078	3-19-79	D	GARLAND E LOWE AND CAROL A LOWE	TH EXPLORATION LLC	1/8+	977 308	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23079	3-19-79	D	RAYMOND E HOWARD AND PATRICK A HOWARD	TH EXPLORATION LLC	1/8+	977 311	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23080	3-19-79	D	FERRY A WELLS AND TAMMY SUE WELLS	TH EXPLORATION LLC	1/8+	977 314	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23081	3-19-79	D	KENNETH R HUGGINS AND OSIE J HUGGINS	TH EXPLORATION LLC	1/8+	977 317	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23082	3-19-79	D	GREGORY L WELLS AND MARY E WELLS	TH EXPLORATION LLC	1/8+	977 323	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23083	3-19-79	D	IAN L POE AND TAMMY M POE	TH EXPLORATION LLC	1/8+	977 320	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23084	3-19-79	D	DIWNY R WELLS SR AND TAMMY WELLS	TH EXPLORATION LLC	1/8+	983 597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23101	3-19-79	D	RICKY LEE EDDY AND HELEN LOUISE EDDY	TH EXPLORATION LLC	1/8+	983 550	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23102	3-19-79	D	THOMAS E DOTY	TH EXPLORATION LLC	1/8+	983 600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23103	3-19-79	D	GWENDOLYN BAKER AND JOHN BAKER	TH EXPLORATION LLC	1/8+	988 503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23355	3-19-79	D	CECEL R LIGHTNER AND SANDRA L LIGHTNER	TH EXPLORATION LLC	1/8+	988 506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23358	3-19-79	D	GILDE M WAYT	TH EXPLORATION LLC	1/8+	1029 54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23415	3-19-79	D	DEBRA E DILLON	TH EXPLORATION LLC	1/8+	1041 558	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23405	3-19-79	D	EDWARD NORRIS JR	TH EXPLORATION LLC	1/8+	1026 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24580	3-19-79	D	ROBERT LEE GLOVER AND LINDA LEE GLOVER	TH EXPLORATION LLC	1/8+	1083 363	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25515	3-19-79	D	GOLDEN EAGLE RESOURCES II LLC	AMERICAN PETROLEUM PARTNERS LLC	1/8+	987 329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*29064	3-19-79	D	JAMES F WHITE AND DEBRA ROYCE	TH EXPLORATION LLC	1/8+	1084 188	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29081	3-19-79	D	TERRY WELLS	TH EXPLORATION LLC	1/8+	1084 190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29082	3-19-79	D	HAZEL MAURE KING AND BOBBIE L KING	TH EXPLORATION LLC	1/8+	1084 186	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29083	3-19-79	D	DONALD WELLS II	TH EXPLORATION LLC	1/8+	1084 184	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29084	3-19-79	D	DANNY WELLS	TH EXPLORATION LLC	1/8+	1084 398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29113	3-19-79	D	LOUIS BRENT WELLS AND EDNA WELLS	TH EXPLORATION LLC	1/8+	1085 178	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29192	3-19-79	D	LOUIS KEVIN WHITE	TH EXPLORATION LLC	1/8+	1086 503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29207	3-19-79	D	DEBRA ROYCE AND WAYNE ROYCE	TH EXPLORATION LLC	1/8+	1089 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29264	3-19-79	D	RICHARD L STANLEY	TH EXPLORATION LLC	1/8+	1096 294	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29376	3-19-79	D	ROGER DALE WELLS	TH EXPLORATION LLC	1/8+	1096 296	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29414	3-19-79	D	DORNA DARLINE WELLS HOOKER	TH EXPLORATION LLC	1/8+	1096 298	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29446	3-19-79	D	GRACE J WELLS HOCHSTETLER	TH EXPLORATION LLC	1/8+	1098 359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29450	3-19-79	D	FRANCES EGGP	TH EXPLORATION LLC	1/8+	1101 11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29764	3-19-79	D	LOUIS ALLEN WHITE	TH EXPLORATION LLC	1/8+	1103 545	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*30004	3-19-79	D	CHICO E GILBERT AND SAMANTHA GILBERT	TH EXPLORATION LLC	1/8+	1106 271	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*30555	3-19-79	D	TELA S MORELAND	TH EXPLORATION LLC	1/8+	1119 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PENDING	3-19-79	D	CHANDRA BAKER	TH EXPLORATION LLC	1/8+	1119 398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PENDING	3-19-79	D	ANNA GILBERT	TH EXPLORATION LLC	1/8+	1119 392	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PENDING	3-19-79	D	FALON MCKWORTER	TH EXPLORATION LLC	1/8+	1119 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PENDING	3-19-79	D	HEATHER BLANKENSHIP	TH EXPLORATION LLC	1/8+	1107 114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PENDING	3-19-79	D	UNKNOWN HEIRS AND ASSIGNS OF ROCKY WELLS, JR.	TH EXPLORATION LLC	1/8+	1029 503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25182	3-19-80	F	CHARLES ISAHM PARK ALBRIGHT AND EUN II LEE	TH EXPLORATION LLC	1/8+	1029 503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Lease ID	TMP	Tag	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
**FORCE POOL**	9-3-11	G	C. WILLIAM HARRIS	TRIENERGY HOLDINGS, LLC	1/8-	670 177	TriEnergy Inc to TriEnergy Holdings LLC: 21/156	TriEnergy Holdings LLC to AB Resources LLC: 21/531	AB Resources LLC and NPAR LLC to Chief Exploration & Development LLC & Radler 2000 Ltd Partnership: 24/466	Chief Exploration & Development LLC: Chief Oil & Gas LLC, Radler 2000 Ltd Partnership & Enerplus Resources (USA) Corp to Chevron USA Inc: 25/1 & 25/105	AB Resources LLC to Chevron USA Inc: 756/397	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc to Statoil USA Onshore Properties Inc: 30/494	Chevron USA Inc to Chesapeake Appalachia LLC: 30/532	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	**Force Pool**		
**FORCE POOL**	9-3-12	H	C. WILLIAM HARRIS	TRIENERGY HOLDINGS, LLC	1/8-	670 177	TriEnergy Inc to TriEnergy Holdings LLC: 21/156	TriEnergy Holdings LLC to AB Resources LLC: 21/531	AB Resources LLC and NPAR LLC to Chief Exploration & Development LLC & Radler 2000 Ltd Partnership: 24/466	Chief Exploration & Development LLC: Chief Oil & Gas LLC, Radler 2000 Ltd Partnership & Enerplus Resources (USA) Corp to Chevron USA Inc: 25/1 & 25/105	AB Resources LLC to Chevron USA Inc: 756/397	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc to Statoil USA Onshore Properties Inc: 30/494	Chevron USA Inc to Chesapeake Appalachia LLC: 30/532	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: 19/624	Name Change - Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 2/427	**Force Pool**		
10*25188	9-3-13	J	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT	TH EXPLORATION LLC	1/8-	1029 505	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26914	9-3-13	J	GARY VENUS AND JUNE TT VENUS	TH EXPLORATION LLC	1/8-	1045 449	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26915	9-3-13	J	SHIRLEY GRIFFITHS	TH EXPLORATION LLC	1/8-	1045 453	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*25183	3-19-82	K	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT	TH EXPLORATION LLC	1/8-	1029 505	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26914	3-19-82	K	GARY VENUS AND JUNE TT VENUS	TH EXPLORATION LLC	1/8-	1045 449	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26915	3-19-82	K	SHIRLEY GRIFFITHS	TH EXPLORATION LLC	1/8-	1045 453	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*25188	9-3-13.1	M	JEFFREY LEE ALBRIGHT AND HYESOO PARK ALBRIGHT	TH EXPLORATION LLC	1/8-	1029 505	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28100	9-3-13.1	M	ARTHUR AND VERA WORSMAAN IRREVOCABLE TRUST	TH EXPLORATION LLC	1/8-	1077 41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28854	9-3-13.1	M	CHARLES HAWKINS AND CONSTANCE HAWKINS	TH EXPLORATION LLC	1/8-	1077 258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28949	9-3-13.1	M	SAMUEL W PHIPPS AND ALLISON M PHIPPS	TH EXPLORATION LLC	1/8-	1078 447	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28463	9-3-13.1	M	TIMOTHY R LINKOUS	TH EXPLORATION LLC	1/8-	1073 356	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
**FORCE POOL**	7-1-1	O	CARROLL E. MORRIS AND ANNA D. MORRIS	CHEVRON USA INC	1/8-	778 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to EQ1 Aurora LLC: 47/1	**Force Pool**
10*23798	7-1-7	Q	WILLIAM E PARSONS AND NANCY L PARSONS	TH EXPLORATION LLC	1/8-	1011 489	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31110	7-1-5	T	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8-	1098 608	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26711	7-1-5-2	V	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8-	1074 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17925	7-1-16	X	BOUNTY METALS LLC	TH EXPLORATION LLC	1/8-	928 393	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25527	7-7-1	AA	JUDY K MATTHEWS	PIKEWOOD ENERGY CORPORATION	1/8-	945 103	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	PikeWood Energy Corporation to American Petroleum Partners Operating LLC: 41/192	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25530	7-7-1	AA	KAREN S WHITZAL	PIKEWOOD ENERGY CORPORATION	1/8-	945 99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	PikeWood Energy Corporation to American Petroleum Partners Operating LLC: 41/192	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503

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ASSIGNMENT AND BILL OF SALE

This ASSIGNMENT AND BILL OF SALE (this "*Assignment*") dated as of December 1, 2020 (the "*Execution Date*"), is made by and between EQT PRODUCTION COMPANY, a Pennsylvania corporation, with an address at 625 Liberty Avenue, Suite 1700, Pittsburgh, Pennsylvania 15222 ("*EQT*"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("*TH*") pursuant to the terms of that certain Acreage Trade Agreement by and among EQT, TH and TH Exploration II, LLC ("*TH II*"), dated July 8, 2020 (the "*Agreement*"). EQT and TH may be referred to herein together as the "*Parties*", and each individually as a "*Party*".

RECITALS

WHEREAS, EQT desires to transfer, convey and assign to TH certain of EQT's oil and gas leasehold interests located in Marshall County, West Virginia set forth on Exhibit A attached hereto and incorporated herein ("*EQT Leases*") in accordance with this Assignment and the Agreement; and

WHEREAS, TH desires to receive from EQT, all of EQT's right, title and interest in and to the EQT Leases in accordance with this Assignment and the Agreement.

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Agreement, the benefits to be derived by each Party hereunder and under the Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

ARTICLE I  
DEFINED TERMS

1.1 *Definitions.* Capitalized terms used herein and not otherwise defined throughout this Assignment shall have the meanings given such terms in the Agreement.

ARTICLE II  
ASSIGNMENT OF ASSETS

2.1 *Assignment.* Subject to the terms and conditions of this Assignment and the Agreement, EQT does hereby assign, convey and transfer to TH all of the right, title and interest of EQT in and to the following (collectively for purposes of this Assignment, the "*EQT Assets*"):

(a) Subject to the conveyance of the Wells Assets from EQT to TH II as described in the Agreement, the EQT Leases and appurtenances thereto (including rights of access and to install facilities), all Hydrocarbons within, produced from, derived from, or sold from the EQT Leases (and all proceeds related thereto), on and after the Valuation Date, and all Surface Contracts including but not limited to those set forth on Exhibit B attached hereto and incorporated herein (the "*EQT Surface Contracts*") related to the EQT Leases and such Hydrocarbons; and

(b) Copies of deeds, files and all other ownership information directly related to the acquisition, operations and maintenance of the EQT Leases, lease files for the EQT Leases

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COPY

STATE OF WEST VIRGINIA §  
COUNTY OF MARSHALL §

Marshall County  
Jan Pest, Clerk  
Instrument 1453305  
04/24/2019 @ 11:51:22 AM  
ASSIGNMENTS  
Book 43 @ Page 503  
Pages Recorded 10  
Recording Cost \$ 17.00

ASSIGNMENT AND CONVEYANCE

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

WITNESSETH:

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

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

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

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

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

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

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

3. Successors and Assigns. The terms of this Assignment shall be binding upon and inure to the benefit of the parties hereto and each of their respective successors

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Environmental Protection

**ASSIGNMENT AND CONVEYANCE**

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on June 30, 2021 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated June 22, 2021 (the "*Acreage Trade Agreement*").

**ARTICLE 1  
 ASSIGNMENT OF ASSETS**

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

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

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

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

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

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

RECEIVED  
 Office of Oil and Gas  
 AUG 13 2021  
 WV Department of  
 Environmental Protection



**CERTIFICATE OF CONSENT AND EASEMENT**

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lots, tracts or parcels of land located in Cameron District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement (subject to the terms of a separate Surface Use Agreement between the undersigned and TH Exploration, LLC (the "SUA")), 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 permitted assigns subject to the SUA, 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.

[Signatures on the Following Page]

Marshall County  
Jan Pest, Clerk  
Instrument 1472063  
11/04/2020 @ 01:07:07 PM  
RIGHT OF WAY W/O CONSIDERATION  
Book 1098 @ Page 555  
Pages Recorded 3  
Recording Cost \$ 11.00

RECEIVED  
Office of Oil and Gas

AUG 13 2021

WV Department of  
Environmental Protection

11/19/2021

Executed the date set forth in the notary but effective as of November 2, 2020.

CNX LAND LLC

By: [Signature]

Name: Peter J. Binotto

Title: Assistant Vice President

COMMONWEALTH OF PENNSYLVANIA

SS:

COUNTY OF WASHINGTON

On this, the 30 day of Oct, 2020, before me, a notary public, the undersigned officer, personally appeared Peter J. Binotto who acknowledged himself/herself to be the Assistant Vice President of CNX Land 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 Assistant Vice President.

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

My Commission Expires: \_\_\_\_\_  
Signature of Notary Public: [Signature]  
Name/Notary Public (print): \_\_\_\_\_

**This instrument prepared by:**  
WV Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street  
Charleston, WV 25304

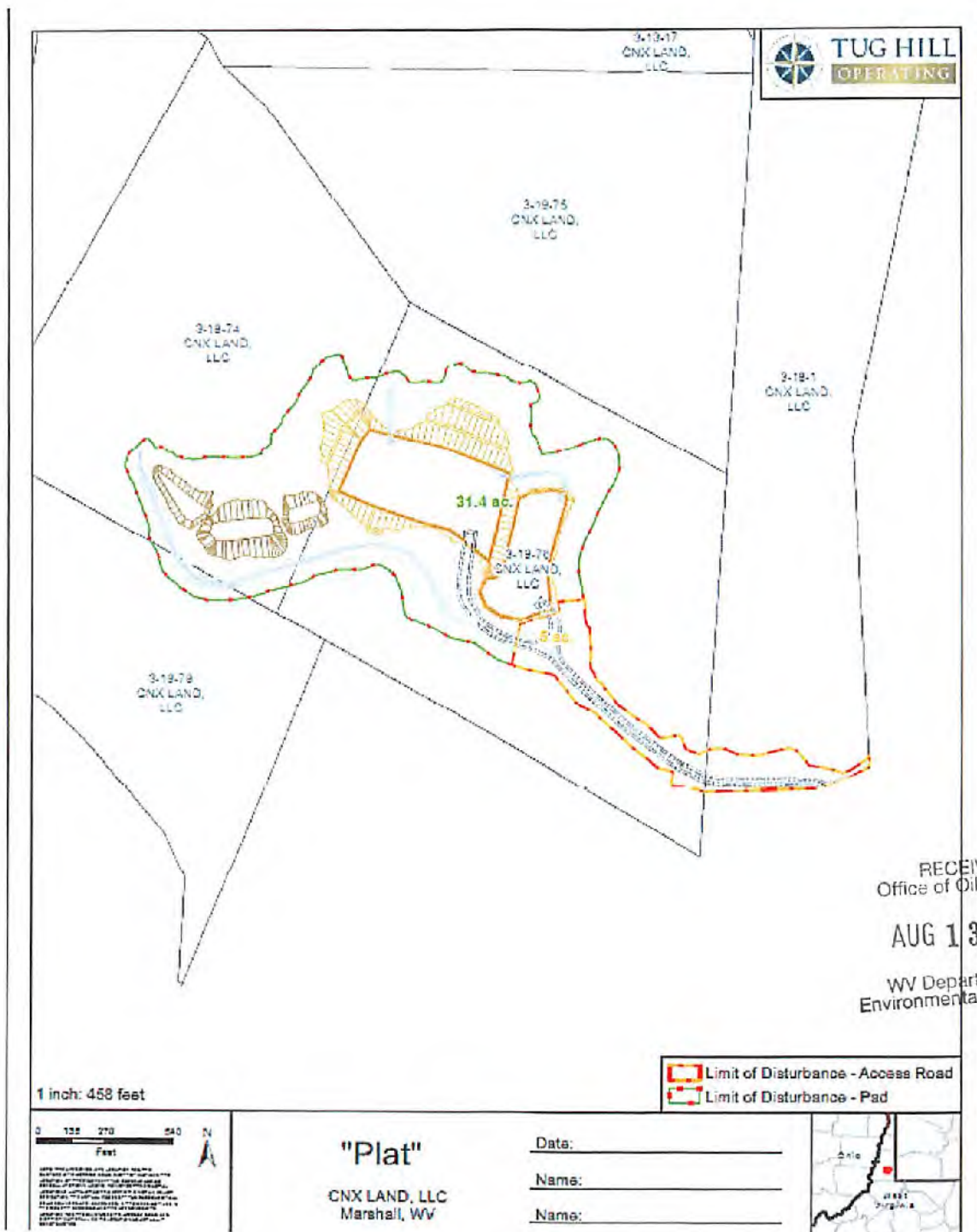
COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
Douglas E. Smith, Notary Public  
Cecil Twp., Washington County  
My Commission Expires Dec. 6, 2020  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

RECEIVED  
Office of Oil and Gas

AUG 13 2021

WV Department of  
Environmental Protection





STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 2nd day of November, 2020, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 4th day of November, 2020 at 1:07 o'clock P. M. 11/19/2021



August 11, 2021

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

RE: Breckenridge S-17HU

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, with the exception of the following tracts which we intend to force pool.

3-19-74  
9-3-11  
9-3-12  
9-3-15  
7-1-1

*9-3-12.4 + 12.5 - Fp but on in this unit*

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](mailto:amorris@tug-hillop.com).

Sincerely,

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

RECEIVED  
Office of Oil and Gas  
AUG 13 2021  
WV Department of  
Environmental Protection





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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

August 27, 2021

EQT Production Company  
625 Liberty Ave Ste 1700  
Pittsburgh, PA 15222

9489 0090 0027 6201 3319 94

---

RE: Intentional Deviation of New Deep Well  
Tug Hill Operating, LLC – Breckenridge S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commissions' granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in black ink that reads "Susan Rose". The signature is written in a cursive, flowing style.

Susan Rose  
Administrator

encl:

11/19/2021



September 22, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 283967525791

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**Delivery Information:**

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<b>Status:</b>	Delivered	<b>Delivered To:</b>	
<b>Signed for by:</b>	Signature release on file	<b>Delivery Location:</b>	400 WOODCLIFF DR
<b>Service type:</b>	FedEx Priority Overnight		
<b>Special Handling:</b>	Deliver Weekday		CANONSBURG, PA, 15317
		<b>Delivery date:</b>	Sep 22, 2021 10:33

---

**Shipping Information:**

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<b>Tracking number:</b>	283967525791	<b>Ship Date:</b>	Sep 21, 2021
		<b>Weight:</b>	0.5 LB/0.23 KG

**Recipient:**  
Corey Peck, EQT Production Company  
400 Woodcliff Drive  
CANONSBURG, PA, US, 15317

**Shipper:**  
AMY MORRIS, TUH HILL OPERATING, LLC  
380 SOUTHPOINTE BLVD  
PLAZA II, SUITE 200  
CANONSBURG, PA, US, 15317

Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

11/19/2021





1/1 transit

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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

August 27, 2021

Equinor USA Onshore Properties, Inc.  
6300 Bridge Point Pkwy Bldg 2 Ste 100  
Austin TX 78730

9489 0090 0027 6201 3319 70

RE: Intentional Deviation of New Deep Well  
Tug Hill Operating, LLC – Breckenridge S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commissions' granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

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Sincerely,

A handwritten signature in cursive script that reads "Susan Rose". The signature is written in black ink and is positioned above the printed name and title.

Susan Rose  
Administrator

encl:

11/19/2021



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

August 27, 2021

Noble Marcellus LP, % Falcon Minerals Corp  
609 Main St Ste 3950  
Houston TX 77002

9489 0090 0027 6201 3320 07

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RE: Intentional Deviation of New Deep Well  
Tug Hill Operating, LLC – Breckenridge S-17HU

Dear Sir or Ma'am:

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Sincerely,

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Susan Rose  
Administrator

encl:

11/19/2021





September 14, 2021

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:  
**9489 0090 0027 6201 3320 07.**

**Item Details**

**Status:** Delivered, Front Desk/Reception/Mail Room  
**Status Date / Time:** September 2, 2021, 11:07 am  
**Location:** HOUSTON, TX 77002  
**Postal Product:** First-Class Mail®  
**Extra Services:** Certified Mail™  
Return Receipt Electronic

**Shipment Details**

**Weight:** 10lb, 1.3oz

**Recipient Signature**

Signature of Recipient:	VA 251 C-19
Address of Recipient:	605 Main 7550

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,  
United States Postal Service®  
475 L'Enfant Plaza SW  
Washington, D.C. 20260-0004

11/19/2021



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

August 27, 2021

Southwestern Energy  
10000 Energy Dr  
Spring TX 77389

9489 0090 0027 6349 8920 12

RE: Intentional Deviation of New Deep Well  
Tug Hill Operating, LLC – Breckenridge S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commissions' granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

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Sincerely,

A handwritten signature in black ink that reads "Susan Rose".

Susan Rose  
Administrator

encl:

11/19/2021





September 14, 2021

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:  
**9489 0090 0027 6349 8920 12.**

Item Details

<b>Status:</b>	Delivered, Front Desk/Reception/Mail Room
<b>Status Date / Time:</b>	September 1, 2021, 11:55 am
<b>Location:</b>	MORGANTOWN, WV 26508
<b>Postal Product:</b>	First-Class Mail®
<b>Extra Services:</b>	Certified Mail™ Return Receipt Electronic

Shipment Details

<b>Weight:</b>	20lb, 3.3oz
----------------	-------------

Recipient Signature

Signature of Recipient:	CO-19 MARVIN
Address of Recipient:	1300 FORT Pierpont #201

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,  
United States Postal Service®  
475 L'Enfant Plaza SW  
Washington, D.C. 20260-0004

11/19/2021



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-414-1239

Randall M. Albert, Chairman  
dep.wv.gov

August 27, 2021

TH Exploration, LLC  
1320 S. University Dr Ste 500  
Ft Worth TX 76107

9489 0090 0027 6201 3319 87

---

RE: Intentional Deviation of New Deep Well  
Tug Hill Operating, LLC – Breckenridge S-17HU

Dear Sir or Ma'am:

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Sincerely,

A handwritten signature in cursive script that reads "Susan Rose".

Susan Rose  
Administrator

encl:

11/19/2021





September 14, 2021

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:  
**9489 0090 0027 6201 3319 87.**

**Item Details**

**Status:** Delivered, Front Desk/Reception/Mail Room  
**Status Date / Time:** September 2, 2021, 1:35 pm  
**Location:** FORT WORTH, TX 76107  
**Postal Product:** First-Class Mail®  
**Extra Services:** Certified Mail™  
Return Receipt Electronic

**Shipment Details**

**Weight:** 20lb, 3.9oz

**Recipient Signature**

Signature of Recipient:	<i>JB</i>
Address of Recipient:	<i>JB With Covid-19 1320 S University 76107 #500</i>

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,  
United States Postal Service®  
475 L'Enfant Plaza SW  
Washington, D.C. 20260-0004

11/19/2021

**Offset Operator's within 500'  
Breckenridge S - 17HU**

COUNTY	DISTRICT	TMP	OWNER	ADDRESS
Marshall	Cameron	3-19-74	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Cameron	3-19-74	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Cameron	3-19-76	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-77	TH EXPLORATION LLC	1321 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-78	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-79	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-80	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-81	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Cameron	3-19-82	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-1	EQT PRODUCTION COMPANY	625 Liberty Avenue Suite 1700 Pittsburgh, PA 15222
Marshall	Liberty	7-1-15	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-16	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-18	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-5	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-5.2	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107

11/19/2021



**Offset Operator's within 500'  
Breckenridge S - 17HU**

COUNTY	DISTRICT	TMP	OWNER	ADDRESS
Marshall	Liberty	7-1-7	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-7.1	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-1-8	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-7-1	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth, TX 76107
Marshall	Liberty	7-7-2	NOBLE MARCELLUS LP, C/O FALCON MINERALS CORPORATION	609 Main Street Suite 3950 Houston, Texas 77002
Marshall	Liberty	7-7-2	UNKNOWN HEIRS OF REBECCA DICKSON	ADDRESS UNKNOWN
Marshall	Liberty	7-7-8.1	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Liberty	7-7-8.1	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Meade	9-3-11	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-3-11	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Meade	9-3-12	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-3-12	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Meade	9-3-12.4	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-3-12.4	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Meade	9-3-12.5	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-3-12.5	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730

**Offset Operator's within 500'  
Breckenridge S - 17HU**

COUNTY	DISTRICT	TMP	OWNER	ADDRESS
Marshall	Meade	9-3-13	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	9-3-13.1	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	9-3-14	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	9-3-15	SOUTHWESTERN ENERGY	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-3-15	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Bldg 2 Suite 100 Austin, TX 78730
Marshall	Meade	9-9-7	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	DOT-9-9-7	TH EXPLORATION LLC	1321 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	DOT-9-9-7.2	TH EXPLORATION LLC	1322 S. University Blvd. Suite 500 Fort Worth,TX 76107
Marshall	Meade	9-9-7.2	TH EXPLORATION LLC	1320 S. University Blvd. Suite 500 Fort Worth,TX 76107

"For those parties identified as Missing or Address Unknown, the following actions were performed in pursuit of locating these individuals : A reasonable review of the records of the clerk of the county commission, the sheriff, the assessor, and the clerk of the circuit court in the county in which the interest is located, and includes unknown heirs, successors and assigns known to be alive; A reasonable inquiry in the vicinity of the owner's last known place of residence; A diligent inquiry into known interest owners in the same tract; and A reasonable review of available Internet resources commonly utilized by the industry."





August 4, 2021

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

RE: Breckenridge S-17HU

Subject: Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 62 and 62/1 in the area reflected on the Breckenridge S-17HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Route and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

Amy L. Morris  
Permitting Specialist – Appalachia Region

RECEIVED  
Office of Oil and Gas  
AUG 13 2021  
WV Department of  
Environmental Protection

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

Date of Notice Certification: 08/05/2021

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

Operator's Well No. Breckenridge S-17HU

Well Pad Name: Breckenridge

**Notice has been given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>531,951.29</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,984.82</u>
District:	<u>Cameron</u>	Public Road Access:	<u>County Route 62</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>CNX Land, LLC</u>	
Watershed:	<u>Grave Creek (HUC 10) &amp; Laurel Run</u>			

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

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

**Required Attachments:**

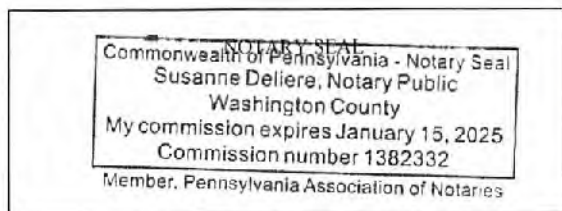
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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



Subscribed and sworn before me this 5<sup>th</sup> day of August 2021  
*Susanne Deliere* Notary Public  
 My Commission Expires 1/15/2025

**Oil and Gas Privacy Notice:**

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

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

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

**Date of Notice:** 8/10/2021 **Date Permit Application Filed:** 8/11/2021

Notice of:

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

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

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

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

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

SURFACE OWNER(s)  
Name: CNX Land, LLC (Well Pad and Access Road) ✓  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

COAL OWNER OR LESSEE ✓  
Name: CNX Land, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

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Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OPERATOR ✓  
Name: Marshall County Coal Resources, Inc. Attn: Steve Blal  
Address: 46226 National Road  
St. Clairsville, OH 43950

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

Name: Kevin R. & Shelly Jo Evans  
Address: 3820 New Bethel Road  
Cameron, WV 26033

SURFACE OWNER OF WATER WELL  
AND/OR WATER PURVEYOR(s)  
Name: \*see attached

Name: David L. & Arianne R. Robinson ✓  
Address: 3513 New Bethel Road  
Cameron, WV 26033

Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary



**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

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**Well Location Restrictions**

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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> 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.**

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

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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WW-6A  
(8-13)

API NO. 47- 051 -  
OPERATOR WELL NO. Breckenridge S-17HU  
Well Pad Name: Breckenridge

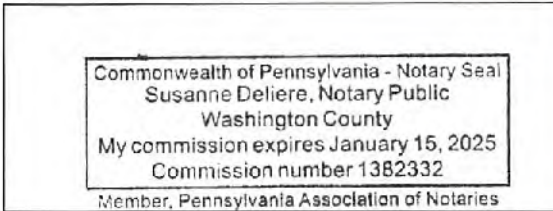
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-6388  
Email: amorris@tug-hilltop.com *amorris*

Address: 360 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 5<sup>th</sup> day of August 2021  
Susanne Deliere Notary Public  
My Commission Expires 1/15/2025

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

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

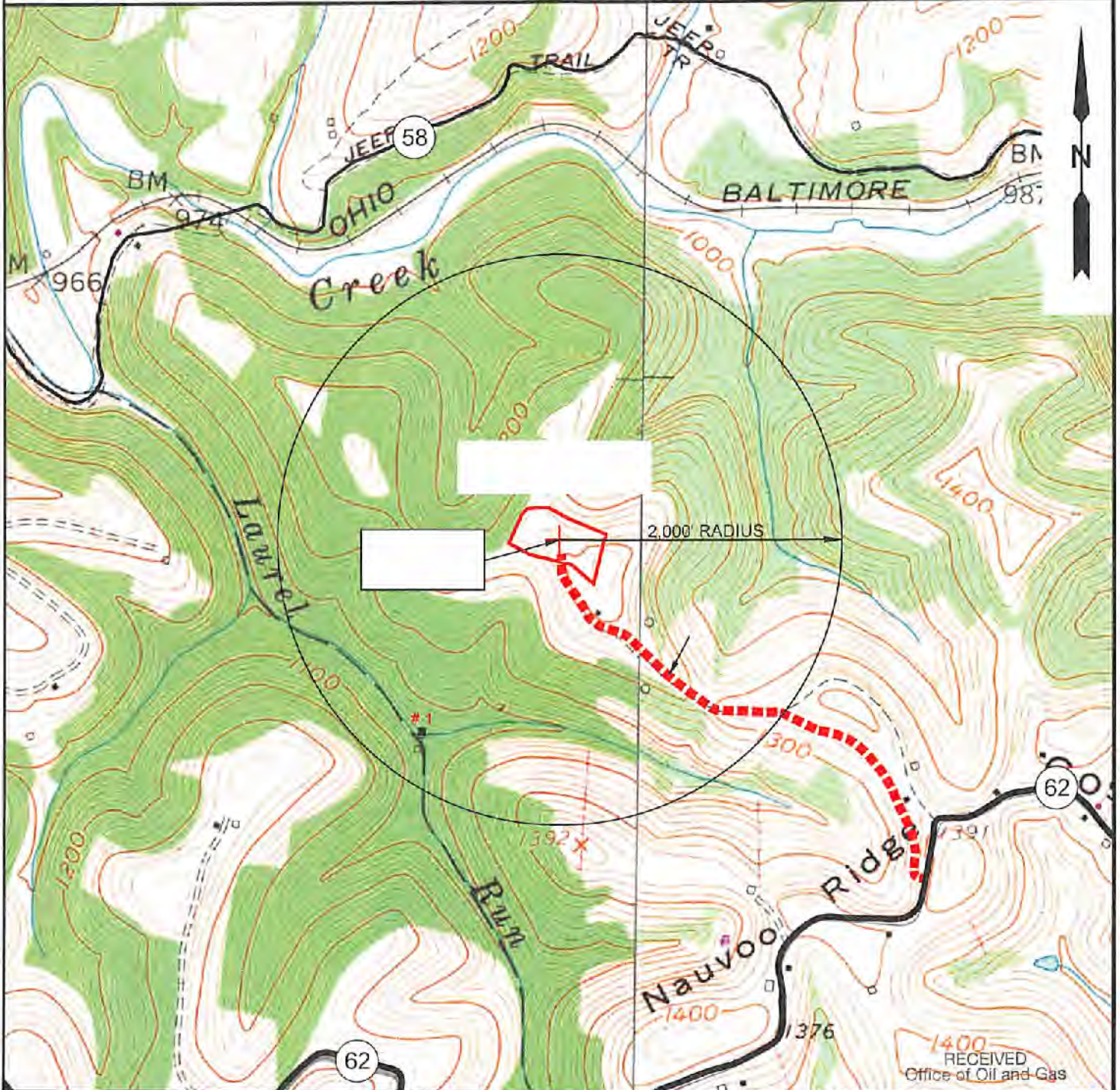
Well: Breckenridge S – 17HU  
District: Cameron  
State: WV

There is one (1) residence, no business or commercial sites, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p><b>Residence (#1)</b> TM 3-19-78 CNX Land, LLC <b>Phone:</b> 724-485-4000 <b>Physical Address:</b> Unknown – Possible Unoccupied Home or Hunting Cabin <b>Tax Address:</b> 1000 Consol Energy DR Canonsburg, PA 15317-6506</p>
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# PROPOSED BRECKENRIDGE S - 17HU



NOTE: THERE APPEARS TO BE ONE (1) POSSIBLE WATER SOURCE WITHIN 2,000'.

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Environmental Protection



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.492.5034  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.348.5132  
234 East Beckley Bypass | Beckley, WV 25801 | 304.285.5298  
sllwv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	CAMERON		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	9026	04/08/2021	1" - 1000'



**TUG HILL**  
OPERATING

11/19/2021

RECEIVED  
Office of Oil and Gas



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:** 12/1/2020      **Date of Planned Entry:** 12/7/2020

**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: CNX Land, LLC (Well Pad and Access Road)

Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

Name: Kevin R & Shelly Jo Evans (Access Road)

Address: 3820 New Bethel Road  
Cameron, WV 26033

Name: David L. & Arianne R. Robinson

Address: 3518 New Bethel Road  
Cameron, WV 26033

COAL OWNER OR LESSEE

Name: CNX Land, LLC

Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Onward E. Burge

Address: RD 3 Box 33  
Cameron, WV 26033      \*\*See attached list

\*please attach additional forms if necessary

**Notice is hereby given:**

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

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.83027651; -80.62665846</u>
County: <u>Marshall</u>	Public Road Access: <u>County Route 62</u>
District: <u>Cameron</u>	Watershed: <u>Grave Creek (HUC 10) and Laurel Run</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>CNX Land, LLC</u>

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

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**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC

Telephone: 724-749-8388

Email: amorris@tug-hillco.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317

Facsimile: 724-338-2020

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**Oil and Gas Privacy Notice:**

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

11/19/2021

WW-6A3 Attachment  
Breckenridge Well Pad

Jan Marie Crego 2110 Plum Street Parkersburg, WV 26101	Nina K. Fletcher 45 Briarwood Drive Wheeling, WV 26003
Leon McCard 25 Honour Cir NW Atlanta, GA 30305	Gary Briggs 1508 26th Street Cody, WY 82414
Jeff and Connie Briggs 803 Meadow Lane Ave Apt 5 Cody, WY 42414	Roger L. Briggs 908 Amble Court Harrington, DE 19952
Thomas A. Briggs 996 Tunnel Hill Road Cameron, WV 26033	Julia A. Briggs 8154 W. Ohio State Lane NW Lancaster, OH 43130
Deena J. Palomo 20 Maxwell Street, Apartment 4 Hebron, IN 46341	Jerrilyn Litts 5582 Fairview Street Stevensville, MI 49127
Douglas Briggs PO Box 1416 Gillette, WY 82717	Gerri A Bannister 508 Richards Ave Gillette, WY 82717
John Briggs PO Box 2008 Richland, WA 99352	Noble Marcellus LP 15601 North Dallas Parkway, Suite 900 Addison, TX 75001
Meridius Ventures LLC PO Box 1099 Ripley, WV 25271	Hasan's Ventures LLC PO Box 1099 Ripley, WV 25271
Bounty Minerals LLC 777 Main Street, Suite 3400 Fort Worth, TX 76102	Goshorn Ridge, LLC 112 Algonquin Trace Wheeling, WV 26003

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WW-6A5  
(1/12)

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

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

**Date of Notice:** 08/10/2021      **Date Permit Application Filed:** 08/11/2021

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

CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

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

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

Name: CNX Land, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

Name: Kevin R. and Shelly Jo Evans \*See Attached  
Address: 3820 New Bethel Road  
Cameron, WV 26033

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>531,951.29</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,984.82</u>
District:	<u>Cameron</u>	Public Road Access:		<u>CR 62</u>
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:		<u>CNX Land, LLC</u>
Watershed:	<u>Grace Creek (Huc 10) &amp; Laurel Run</u>			

**This Notice Shall Include:**

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

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

Address: 360 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 of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
**Division of Highways**

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

Byrd E. White, III  
Secretary of Transportation

January 8, 2021

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

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

Subject: DOH Permit for the Breckenridge Pad, Marshall County  
Breckenridge S-17HU Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2020-0398 issued to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 62 SLS MP 3.81.

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.

Very Truly Yours,

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

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

11/19/2021





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

**Breckenridge Wells**

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

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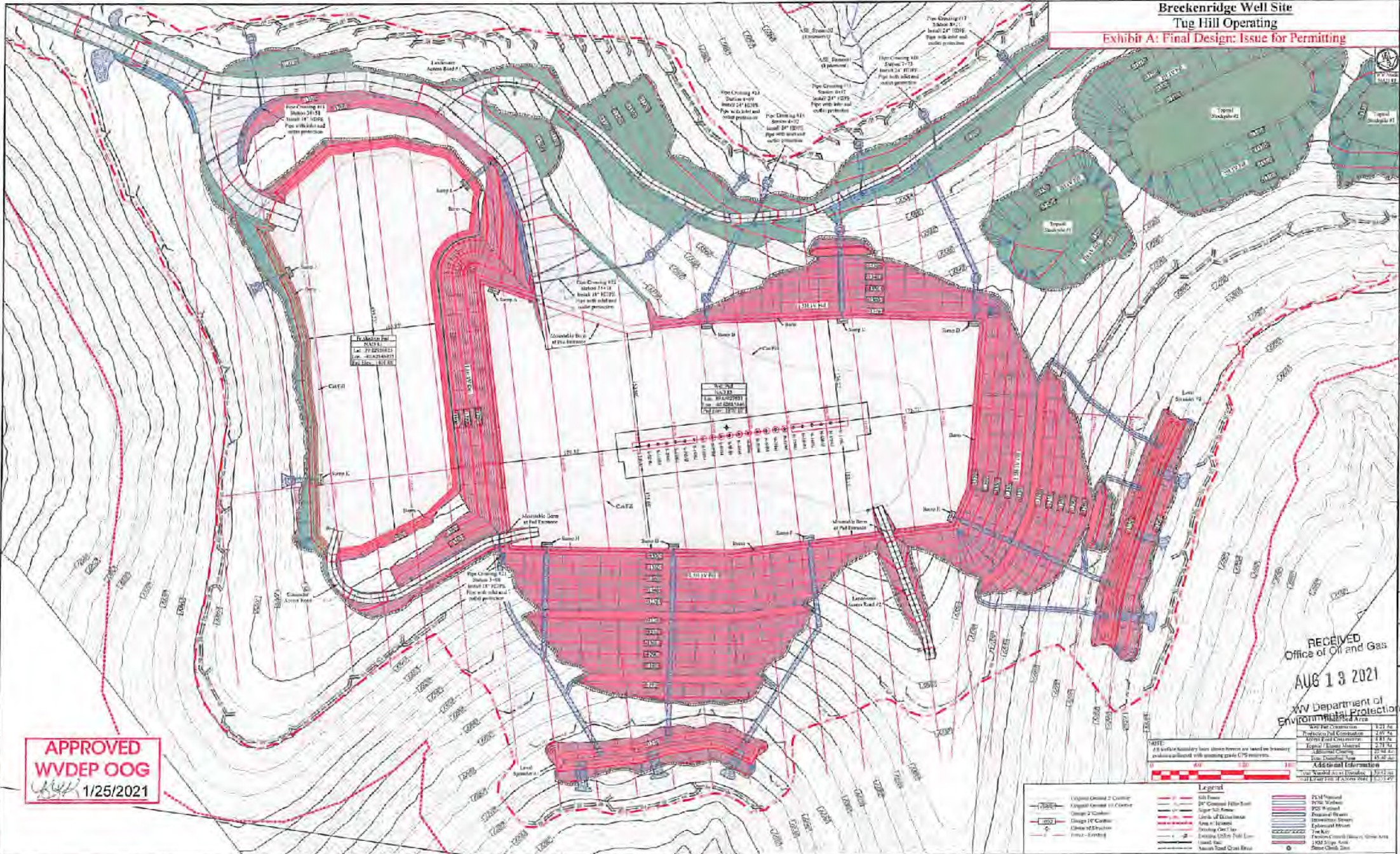
WV Department of  
Environmental Protection







**Breckenridge Well Site**  
**Tug Hill Operating**  
**Exhibit A: Final Design: Issue for Permitting**



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**WVDEP OOG**  
*WJ* 1/25/2021

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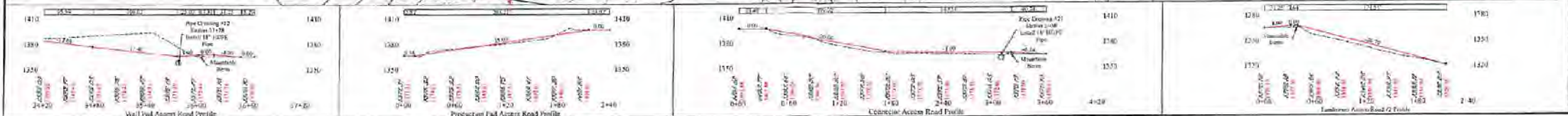
NOTE: All wells and auxiliary lines shown herein are based on boundary surveys collected with existing grade CPS records.

Well Pad Construction	1,21' x 42'
Production Well Construction	2,31' x 94'
Water Well Construction	1,91' x 76'
Special Flow Meter	2,31' x 94'
Special Casing	2,31' x 94'
Site Construction Area	41,32' x 21'
Well Number as per Database	1,91' x 76'
Well Area	1,91' x 76'

Additional Information

**Legend**

- - - - -	Village Center 2 Center	- - - - -	36" Cased Hole	- - - - -	P5M Paved
- - - - -	Village Center 10 Center	- - - - -	24" Cased Hole	- - - - -	P2M Paved
- - - - -	Orange 2 Center	- - - - -	24" Cased Hole	- - - - -	Excavation
- - - - -	Orange 10 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Shallow)
- - - - -	Orange 15 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Deep)
- - - - -	Orange 20 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 25 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 30 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 35 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 40 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 45 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 50 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 55 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 60 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 65 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 70 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 75 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 80 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 85 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 90 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 95 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)
- - - - -	Orange 100 Center	- - - - -	24" Cased Hole	- - - - -	Excavation (Very Deep)



TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

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WV Department of Environmental Protection

**Breckenridge Well Site**  
 Cameron District  
 Marshall County, WV

Date: 1/19/2021  
 Scale: As Shown  
 Designed By: ZS  
 Title: JG  
 Sheet 11 of 26