



---

west virginia department of environmental protection

---

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)

Friday, May 13, 2022  
WELL WORK PERMIT  
Horizontal 6A / New Drill

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

Re: Permit approval for BARDSTOWN N-10HU  
47-051-02446-00-00

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

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

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

Operator's Well Number: BARDSTOWN N-10HU  
Farm Name: RUSSELL & MARY BLAKE  
U.S. WELL NUMBER: 47-051-02446-00-00  
Horizontal 6A: New Drill  
Date Issued: 5/13/2022

Promoting a healthy environment.

05/13/2022



---

west virginia department of environmental protection

---

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

May 12, 2022

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

RE: Application for Deep Well Permit – API #47-051-02446

COMPANY: Tug Hill Operating, LLC

FARM: Russell & Mary Blake

Bardstown N-10HU

COUNTY: Marshall

DISTRICT: Franklin

QUAD: Powhatan Point

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

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

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

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose". The signature is fluid and cursive.

Susan Rose  
Administrator

\*\*Burch Ridge S-7HU 47-051-02194; Burch Ridge S-6HU 47-051-02193; Blake U-7H 47-051-01766; McMasters N-11HU 47-051-02317; McMasters N-12HU 47-051-02316; McMasters N-13HU 47-051-02332; McMasters N-14HU 47-051-02333; McMasters N-15HU 47-051-02334; McMasters S-16HU 47-051-02337; McMasters S-17HU 47-051-02338; McMasters S-18HU 47-051-02339; McMasters S-19HU 47-051-02340; McMasters S-20HU 47-051-02341; Woodford 6HU 47-051-02143; Bardstown N-11HU 47-051-02447; Bardstown N-9HU 47-051-02445

05/13/2022

# PERMIT CONDITIONS

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

## CONDITIONS

---

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

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).

05/13/2022

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

1) Well Operator: Tug Hill Operating, LLC

<u>494510851</u>	<u>Marshall</u>	<u>Franklin</u>	<u>Powhatan Point 7</u>
------------------	-----------------	-----------------	-------------------------

  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Bardstown N-10HU      Well Pad Name: Blake

3) Farm Name/Surface Owner: Russell Blake, et ux; William Bungard, et ux      Public Road Access: Burch Ridge Road - CR 29

4) Elevation, current ground: 1,326.20'      Elevation, proposed post-construction: 1,326.20'

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

Other      \_\_\_\_\_

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

Horizontal   

6) Existing Pad: Yes or No    Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Point Pleasant is the target formation at a depth of 11,104' - 11,223', thickness of 119' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,373'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 22,288'

11) Proposed Horizontal Leg Length: 10,651.46'

12) Approximate Fresh Water Strata Depths: 70; 922'

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

14) Approximate Saltwater Depths: 1,370'

15) Approximate Coal Seam Depths: Sewickley Coal - 816' and Pittsburgh Coal - 916'

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

**RECEIVED**  
Office of Oil and Gas

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?    Yes      \_\_\_\_\_      No          APR 11 2022

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

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#	1,050'	1,050'	1,689FT^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	2,801'	2,801'	1,975FT^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	10,082'	10,082'	3,297FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	22,288'	22,288'	5,277FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,908'	
Liners							

*XJK 1/19/2022*

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	20"	26"	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.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

RECEIVED  
Office of Oil and Gas

Kind:	N/A			APR 11 2022
Sizes:	N/A			WV Department of Environmental Protection
Depths Set:	N/A			

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP(10,408'). 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 26,700,000 lb. proppant and 480,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 20.72 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.94 acres

23) Describe centralizer placement for each casing string:

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

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

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

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection

\*Note: Attach additional sheets as needed.

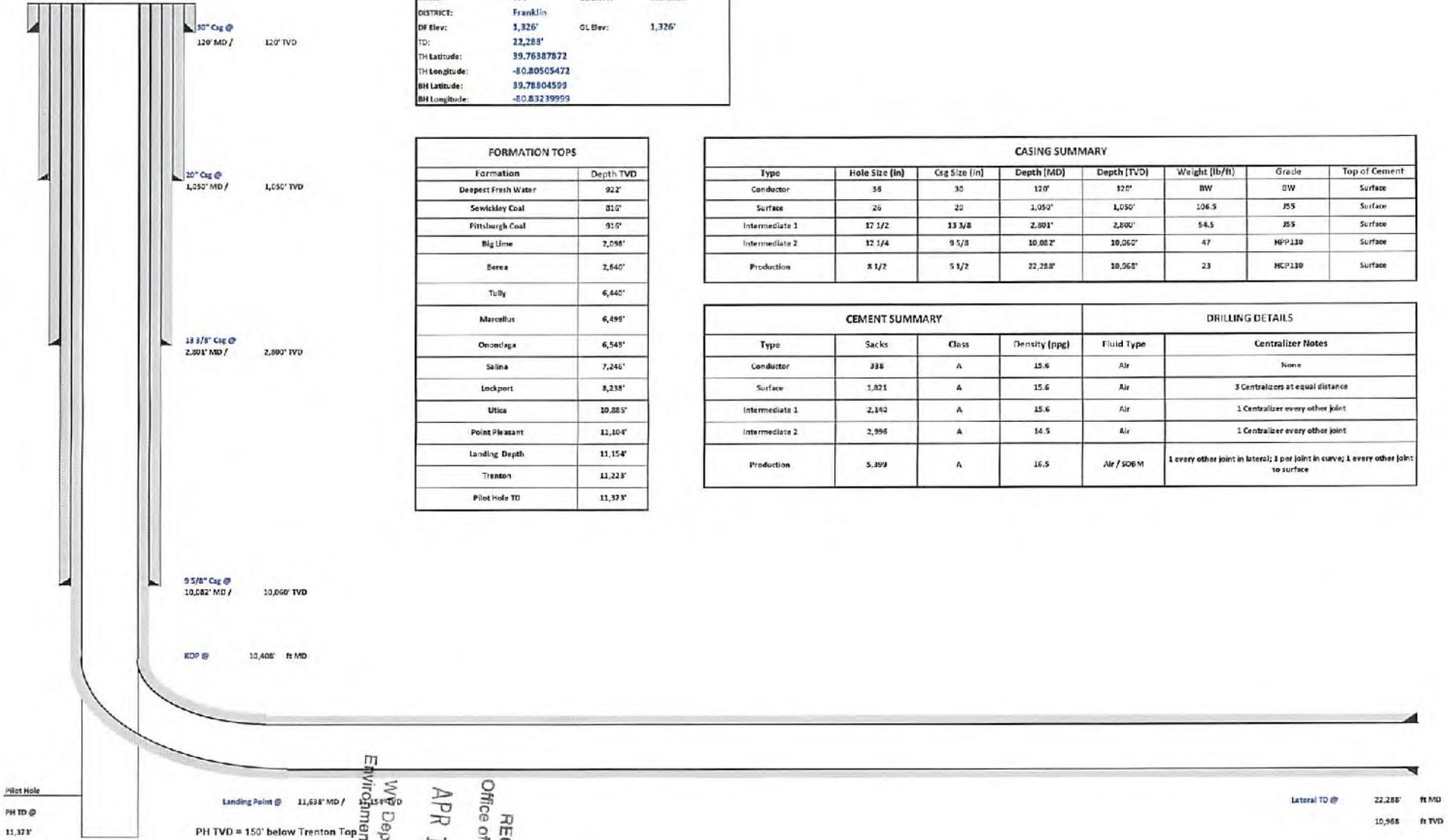


**WELL NAME:** Bardstown N-10HU  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Franklin  
**DI Elev:** 1,326' **GI Elev:** 1,326'  
**TD:** 22,288'  
**TH Latitude:** 39.76387872  
**TH Longitude:** -80.80505472  
**BH Latitude:** 39.76804593  
**BH Longitude:** -80.83239999

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	92'
Sewickley Coal	81.0'
Pittsburgh Coal	91.0'
Big Lime	2,058'
Serea	2,640'
Tully	6,440'
Marcellus	6,499'
Onondaga	6,549'
Salina	7,246'
Lockport	8,238'
Utica	10,885'
Point Pleasant	11,104'
Landing Depth	11,154'
Trenton	11,223'
Pilot Hole TD	11,373'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	GW	Surface
Surface	26	20	1,050'	1,050'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,801'	2,800'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,052'	10,060'	47	HCP110	Surface
Production	8 1/2	5 1/2	22,288'	10,060'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,821	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,140	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	2,996	A	14.5	Air	1 Centralizer every other joint
Production	5,399	A	16.5	Air / SOB M	1 every other joint in laterals; 1 per joint in curve; 1 every other joint to surface



RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of Environmental Protection



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

**Bardstown N-10HU**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,050'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,601'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,082'	CTS
Production	5 1/2"	HCP110	8 1/2"	22,288'	CTS

**Cement**

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

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

Intermediate 1: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 14.5 ppg, Y=1.35

Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L – KOP Plug

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.5 ppg, Y = 1.03

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

05/13/2022



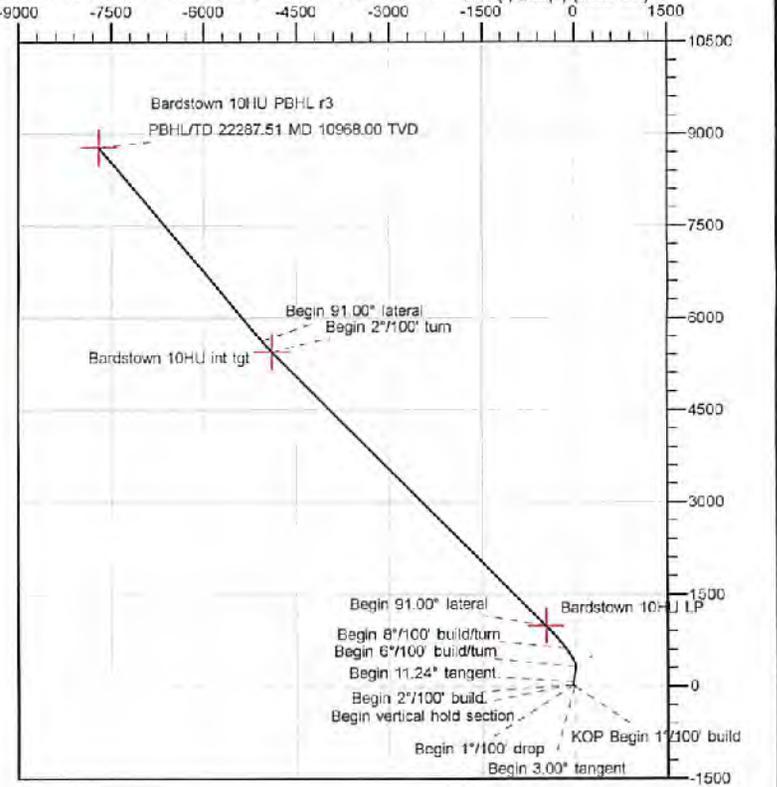
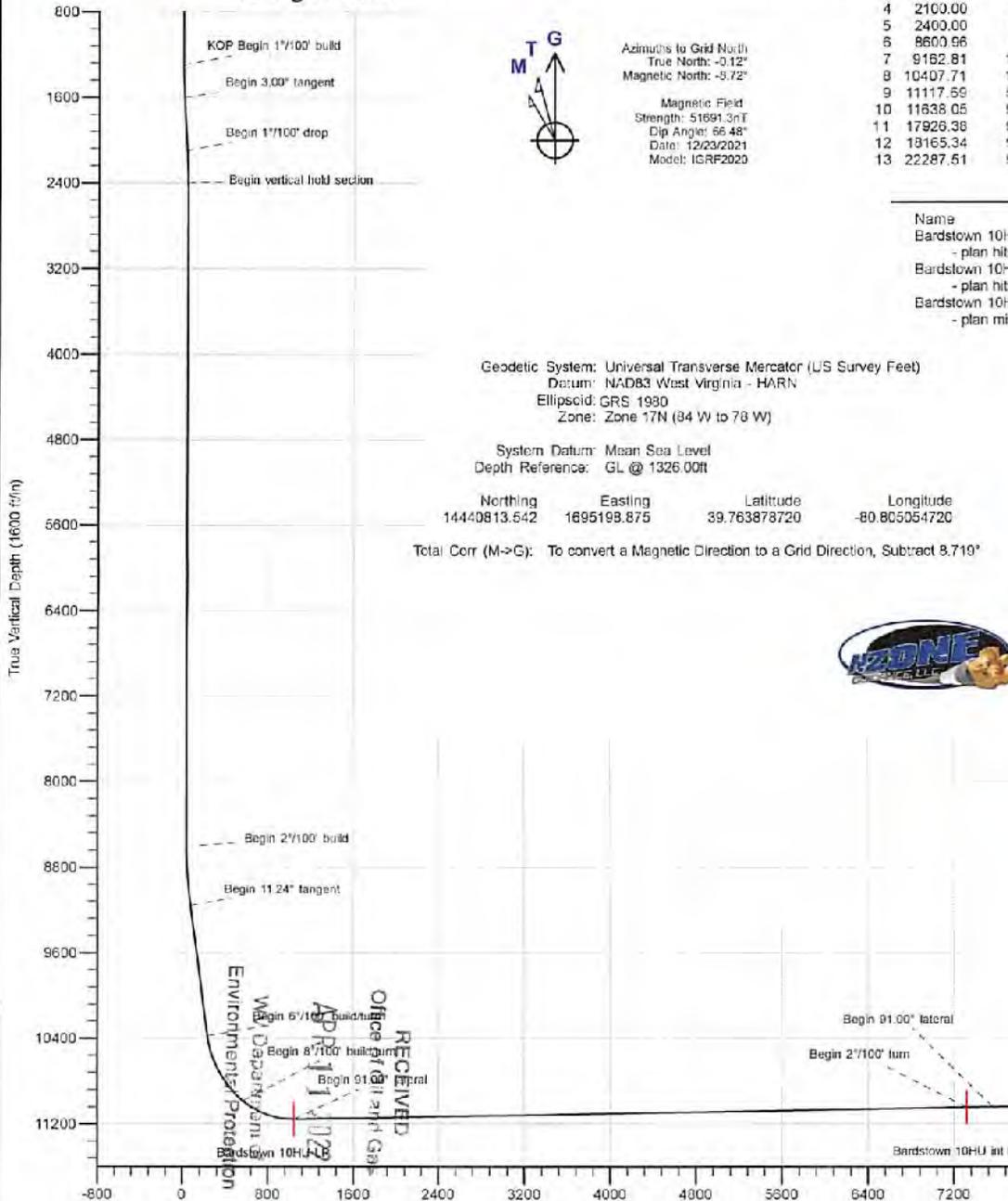
Well: Bardstown N-10 HU (slot N)  
 Site: Blake / Bardstown Pad  
 Project: Marshall County, West Virginia NAD83 UTM 17N  
 Design: rev3

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1'100' build
3	1800.00	3.00	315.00	1599.86	5.55	-5.55	1.00	315.000	7.84	Begin 3.00° tangent
4	2100.00	3.00	315.00	2099.16	24.06	-24.06	0.00	0.000	33.95	Begin 1'100' drop
5	2400.00	0.00	315.00	2399.04	29.51	-29.51	1.00	180.000	41.78	Begin vertical hold section
6	8600.96	0.00	315.00	8600.00	29.61	-29.61	0.00	315.000	41.78	Begin 2'100' build
7	9182.81	11.24	8.07	9158.25	83.98	-21.90	2.00	8.068	77.59	Begin 11.24° tangent
8	10407.71	11.24	8.07	10379.29	324.17	12.15	0.00	0.000	235.76	Begin 6'100' build/turn
9	11117.59	50.00	323.12	10983.76	824.13	-148.83	6.00	-53.087	567.43	Begin 8'100' build/turn
10	11638.05	91.00	315.25	11154.00	984.28	-465.65	8.00	-11.896	1047.10	Begin 91.00° lateral
11	17926.38	91.00	315.25	11044.00	5449.35	-4892.20	0.00	0.000	7322.67	Begin 2'100' turn
12	18165.34	91.00	320.03	11039.83	5625.83	-5053.14	2.00	90.006	7561.48	Begin 91.00° lateral
13	22287.51	91.00	320.03	10968.00	8784.42	-7700.88	0.00	0.000	1682.01	PBHLTD 22287.51 MD 10968.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Bardstown 10HU PBHL r3	10968.00	8764.42	-7700.88	1687498.015	1687498.015	39.786046000	-80.832400000
- plan hits target center							
Bardstown 10HU int tgt	11044.00	5449.35	-4892.20	1690306.684	1690306.684	39.778872100	-80.822425300
- plan hits target center							
Bardstown 10HU LP	11154.00	984.28	-465.65	1694733.217	1694733.217	39.766584590	-80.806704220
- plan misses target center by 0.01ft at 11638.04ft MD (11154.00 TVD, 984.28 N, -465.65 E)							



RECEIVED  
 APR 11 10 29  
 Office of Air and  
 Environmental Protection  
 W. Department  
 10/29



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Bardstown N-10 HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1326.00ft
Site:	Blake / Bardstown Pad	North Reference:	Grid
Well:	Bardstown N-10 HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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

Site	Blake / Bardstown Pad				
Site Position:	From:	Northing:	14,440,917.719 usft	Latitude:	39.764164710
	Lat/Long	Easting:	1,695,217.289 usft	Longitude:	-80.804988390
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Bardstown N-10 HU (slot N)					
Well Position	+N/-S	0.00 ft	Northing:	14,440,813.542 usft	Latitude:	39.763878720
	+E/-W	0.00 ft	Easting:	1,695,198.876 usft	Longitude:	-80.805054720
Position Uncertainty:	0.00 ft	Wellhead Elevation:	ft	Ground Level:	1,326.00 ft	
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	12/23/2021	-8.594	66.483	51,691.34122044

Design	rev3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	318.78

Plan Survey Tool Program	Date				
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	22,287.50	rev3 (Original Hole)		

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Bardstown N-10 HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1326.00ft
Site:	Blake / Bardstown Pad	North Reference:	Grid
Well:	Bardstown N-10 HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	3.00	315.00	1,599.96	5.55	-5.55	1.00	1.00	0.00	315.000	
2,100.00	3.00	315.00	2,099.18	24.06	-24.06	0.00	0.00	0.00	0.000	
2,400.00	0.00	315.00	2,399.04	29.61	-29.61	1.00	-1.00	0.00	180.000	
8,800.96	0.00	315.00	8,600.00	29.61	-29.61	0.00	0.00	0.00	315.000	
9,162.81	11.24	8.07	9,158.25	83.98	-21.90	2.00	2.00	9.45	8.068	
10,407.71	11.24	8.07	10,379.29	324.17	12.15	0.00	0.00	0.00	0.000	
11,117.69	50.00	323.12	10,963.76	624.13	-148.83	6.00	5.46	-6.33	-53.067	
11,638.05	91.00	315.25	11,154.00	964.28	-465.65	8.00	7.88	-1.51	-11.895	
17,926.39	91.00	315.25	11,044.00	5,449.35	-4,892.20	0.00	0.00	0.00	0.000	Bardstown 10HU int t
18,165.34	91.00	320.03	11,039.83	5,625.83	-5,053.14	2.00	0.00	2.00	90.005	
22,287.51	91.00	320.03	10,968.00	8,784.42	-7,700.88	0.00	0.00	0.00	0.000	Bardstown 10HU PB-

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-10 HU (slot N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1326.00ft
<b>Site:</b>	Bleke / Bardstown Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Bardstown N-10 HU (slot N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

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	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
100.00	0.00	0.00	100.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
200.00	0.00	0.00	200.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
300.00	0.00	0.00	300.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
400.00	0.00	0.00	400.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
500.00	0.00	0.00	500.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
600.00	0.00	0.00	600.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
700.00	0.00	0.00	700.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
800.00	0.00	0.00	800.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
900.00	0.00	0.00	900.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,440,813.542	1,695,198.876	39.783878720	-80.805054720	
<b>KOP Begin 1°/100' build</b>										
1,400.00	1.00	315.00	1,399.99	0.62	-0.62	14,440,814.159	1,695,198.259	39.783880418	-80.805056911	
1,500.00	2.00	315.00	1,499.98	2.47	-2.47	14,440,816.010	1,695,198.408	39.783885512	-80.805063484	
1,600.00	3.00	315.00	1,599.86	5.55	-5.55	14,440,819.095	1,695,193.323	39.783894001	-80.805074435	
<b>Begin 3.00° tangent</b>										
1,700.00	3.00	315.00	1,699.73	9.25	-9.25	14,440,822.795	1,695,189.623	39.783904185	-80.805087576	
1,800.00	3.00	315.00	1,799.59	12.95	-12.95	14,440,826.496	1,695,185.922	39.783914372	-80.805100716	
1,900.00	3.00	315.00	1,899.45	16.65	-16.65	14,440,830.197	1,695,182.221	39.783924557	-80.805113957	
2,000.00	3.00	315.00	1,999.31	20.36	-20.36	14,440,833.897	1,695,178.520	39.783934742	-80.805126997	
2,100.00	3.00	315.00	2,099.18	24.06	-24.06	14,440,837.598	1,695,174.820	39.783944928	-80.805140138	
<b>Begin 1°/100' drop</b>										
2,200.00	2.00	315.00	2,199.08	27.14	-27.14	14,440,840.882	1,695,171.735	39.783955116	-80.805151089	
2,300.00	1.00	315.00	2,299.05	28.99	-28.99	14,440,842.533	1,695,169.885	39.783958511	-80.805157862	
2,400.00	0.00	315.00	2,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
<b>Begin vertical hold section</b>										
2,500.00	0.00	315.00	2,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
2,600.00	0.00	315.00	2,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
2,700.00	0.00	315.00	2,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
2,800.00	0.00	315.00	2,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
2,900.00	0.00	315.00	2,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,000.00	0.00	315.00	2,999.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,100.00	0.00	315.00	3,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,200.00	0.00	315.00	3,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,300.00	0.00	315.00	3,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,400.00	0.00	315.00	3,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,500.00	0.00	315.00	3,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,600.00	0.00	315.00	3,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,700.00	0.00	315.00	3,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,800.00	0.00	315.00	3,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
3,900.00	0.00	315.00	3,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,000.00	0.00	315.00	3,999.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,100.00	0.00	315.00	4,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,200.00	0.00	315.00	4,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,300.00	0.00	315.00	4,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,400.00	0.00	315.00	4,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,500.00	0.00	315.00	4,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,600.00	0.00	315.00	4,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,700.00	0.00	315.00	4,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	
4,800.00	0.00	315.00	4,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.783960209	-80.805159853	

RECEIVED  
 State of Oil and Gas  
 Department of  
 Environmental Protection  
 APR 11 2022



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-10 HU (slot N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1326.00ft
<b>Site:</b>	Blake / Bardstown Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Bardstown N-10 HU (slot N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,900.00	0.00	315.00	4,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,000.00	0.00	315.00	4,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,100.00	0.00	315.00	5,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,200.00	0.00	315.00	5,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,300.00	0.00	315.00	5,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,400.00	0.00	315.00	5,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,500.00	0.00	315.00	5,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,600.00	0.00	315.00	5,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,700.00	0.00	315.00	5,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,800.00	0.00	315.00	5,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
5,900.00	0.00	315.00	5,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,000.00	0.00	315.00	5,999.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,100.00	0.00	315.00	6,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,200.00	0.00	315.00	6,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,300.00	0.00	315.00	6,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,400.00	0.00	315.00	6,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,500.00	0.00	315.00	6,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,600.00	0.00	315.00	6,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,700.00	0.00	315.00	6,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,800.00	0.00	315.00	6,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
6,900.00	0.00	315.00	6,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,000.00	0.00	315.00	6,999.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,100.00	0.00	315.00	7,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,200.00	0.00	315.00	7,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,300.00	0.00	315.00	7,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,400.00	0.00	315.00	7,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,500.00	0.00	315.00	7,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,600.00	0.00	315.00	7,599.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,700.00	0.00	315.00	7,699.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,800.00	0.00	315.00	7,799.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
7,900.00	0.00	315.00	7,899.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,000.00	0.00	315.00	7,999.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,100.00	0.00	315.00	8,099.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,200.00	0.00	315.00	8,199.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,300.00	0.00	315.00	8,299.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,400.00	0.00	315.00	8,399.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,500.00	0.00	315.00	8,499.04	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
8,600.00	0.00	315.00	8,600.00	29.61	-29.61	14,440,843.150	1,695,169.267	39.763960209	-80.805159853	
<b>Begin 2°/100' build</b>										
8,700.00	1.98	8.07	8,699.02	31.30	-29.37	14,440,844.845	1,695,169.508	39.763960209	-80.805159853	
8,800.00	3.98	8.07	8,788.88	36.45	-28.64	14,440,849.994	1,695,170.237	39.763978997	-80.805156348	
8,900.00	5.98	8.07	8,898.50	45.05	-27.42	14,440,858.590	1,695,171.456	39.764002596	-80.805151946	
9,000.00	7.98	8.07	8,997.75	57.08	-25.71	14,440,870.822	1,695,173.182	39.764035582	-80.805145783	
9,100.00	9.98	8.07	9,095.52	72.54	-23.52	14,440,886.077	1,695,175.352	39.764078961	-80.805137867	
9,162.81	11.24	8.07	9,158.25	83.98	-21.90	14,440,897.526	1,695,176.975	39.764109493	-80.805132004	
<b>Begin 11.24° tangent</b>										
9,200.00	11.24	8.07	9,194.73	91.16	-20.88	14,440,904.702	1,695,177.992	39.764128194	-80.805128329	
9,300.00	11.24	8.07	9,292.82	110.45	-18.15	14,440,923.995	1,695,180.727	39.764182164	-80.805116447	
9,400.00	11.24	8.07	9,390.90	129.75	-15.41	14,440,943.289	1,695,183.482	39.764235134	-80.805108566	
9,500.00	11.24	8.07	9,488.98	149.04	-12.68	14,440,962.583	1,695,186.197	39.764288104	-80.805096685	
9,600.00	11.24	8.07	9,587.06	168.33	-9.94	14,440,981.877	1,695,188.932	39.764341074	-80.805088803	
9,700.00	11.24	8.07	9,685.15	187.63	-7.21	14,441,001.171	1,695,191.666	39.764394044	-80.805076922	
9,800.00	11.24	8.07	9,783.23	206.92	-4.47	14,441,020.464	1,695,194.401	39.764447014	-80.805069040	

RECEIVED  
Office of Oil and Gas  
ADD 1 1 2022  
Department of Environmental Protection



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-10 HU (slot N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1326.00ft
<b>Site:</b>	Blake / Bardstown Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Bardstown N-10 HU (slot N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	11.24	8.07	9,881.31	226.22	-1.74	14,441,039.758	1,695,197.136	39.764499964	-80.805059158
10,000.00	11.24	8.07	9,979.40	245.51	1.00	14,441,059.052	1,695,199.871	39.764552954	-80.805049277
10,100.00	11.24	8.07	10,077.48	264.80	3.73	14,441,078.346	1,695,202.606	39.764605924	-80.805039395
10,200.00	11.24	8.07	10,175.56	284.10	6.47	14,441,097.640	1,695,205.341	39.764658894	-80.805029514
10,300.00	11.24	8.07	10,273.65	303.39	9.20	14,441,116.933	1,695,208.076	39.764711864	-80.805019632
10,407.71	11.24	8.07	10,379.29	324.17	12.15	14,441,137.715	1,695,211.021	39.764768920	-80.805009888
<b>Begin 6°/100' build/turn</b>									
10,450.00	12.92	358.96	10,420.65	332.98	12.64	14,441,149.522	1,695,211.514	39.764793104	-80.805007168
10,500.00	15.21	350.97	10,469.15	345.05	11.51	14,441,158.592	1,695,210.382	39.764826258	-80.805011101
10,550.00	17.71	345.11	10,517.10	358.88	8.52	14,441,172.425	1,695,207.397	39.764864265	-80.805021618
10,600.00	20.35	340.69	10,564.36	374.44	3.69	14,441,187.983	1,695,202.566	39.764907020	-80.805038689
10,650.00	23.07	337.25	10,610.82	391.68	-2.97	14,441,205.224	1,695,195.902	39.764954408	-80.805052269
10,700.00	25.85	334.52	10,656.33	410.56	-11.45	14,441,224.099	1,695,187.424	39.765006297	-80.805092292
10,750.00	28.87	332.28	10,700.77	431.02	-21.72	14,441,244.559	1,695,177.155	39.765062545	-80.805128675
10,800.00	31.52	330.42	10,744.03	453.00	-33.75	14,441,266.546	1,695,165.124	39.765122999	-80.805171321
10,850.00	34.39	328.84	10,785.98	476.46	-47.51	14,441,290.000	1,695,151.363	39.765187493	-80.805220110
10,900.00	37.28	327.47	10,826.51	501.32	-62.97	14,441,314.856	1,695,135.909	39.765255580	-80.805274911
10,950.00	40.19	326.28	10,865.51	527.51	-80.07	14,441,341.048	1,695,118.806	39.765327882	-80.805335572
11,000.00	43.10	325.22	10,902.87	554.96	-98.78	14,441,368.503	1,695,100.100	39.765403392	-80.805401928
11,050.00	46.03	324.27	10,938.49	583.60	-119.03	14,441,397.145	1,695,079.842	39.765482173	-80.805473796
11,100.00	48.96	323.41	10,972.27	613.36	-140.79	14,441,426.897	1,695,058.088	39.765564009	-80.805550980
11,117.69	50.00	323.12	10,983.76	624.13	-148.83	14,441,437.671	1,695,050.046	39.765593546	-80.805579515
<b>Begin 8°/100' build/turn</b>									
11,150.00	52.53	322.45	11,003.98	644.20	-164.08	14,441,457.741	1,695,034.800	39.765648855	-80.805633615
11,200.00	56.46	321.49	11,033.01	676.25	-189.15	14,441,489.791	1,695,009.724	39.765737022	-80.805722603
11,250.00	60.39	320.62	11,059.19	709.37	-215.92	14,441,522.910	1,694,982.952	39.765828137	-80.805817618
11,300.00	64.32	319.82	11,082.39	743.40	-244.26	14,441,556.938	1,694,954.615	39.765921757	-80.805918198
11,350.00	68.26	319.06	11,102.49	778.17	-274.03	14,441,591.709	1,694,924.850	39.766017425	-80.806023853
11,400.00	72.21	318.35	11,119.39	813.61	-305.07	14,441,627.053	1,694,893.803	39.766114675	-80.806134057
11,450.00	76.15	317.67	11,133.02	849.26	-337.25	14,441,662.799	1,694,861.624	39.766213034	-80.806246305
11,500.00	80.10	317.01	11,143.31	885.23	-370.41	14,441,698.771	1,694,828.471	39.766312021	-80.806366008
11,550.00	84.05	316.36	11,150.20	921.26	-404.37	14,441,734.796	1,694,794.504	39.766411156	-80.806486605
11,600.00	88.00	315.73	11,153.67	957.16	-438.99	14,441,770.696	1,694,759.890	39.766509955	-80.806609507
11,638.05	91.00	315.25	11,154.00	984.28	-465.65	14,441,797.822	1,694,733.223	39.766584609	-80.806704199
<b>Begin 91.00° lateral</b>									
11,700.00	91.00	315.25	11,152.92	1,028.27	-509.26	14,441,841.814	1,694,689.811	39.766705680	-80.806859052
11,800.00	91.00	315.25	11,151.17	1,099.28	-579.66	14,441,912.819	1,694,619.218	39.766901098	-80.807109023
11,900.00	91.00	315.25	11,149.42	1,170.28	-650.06	14,441,983.824	1,694,548.825	39.767096515	-80.807358885
12,000.00	91.00	315.25	11,147.67	1,241.29	-720.44	14,442,054.829	1,694,478.433	39.767291931	-80.807608949
12,100.00	91.00	315.25	11,145.92	1,312.30	-790.84	14,442,125.835	1,694,408.040	39.767487347	-80.807858915
12,200.00	91.00	315.25	11,144.17	1,383.30	-861.23	14,442,196.840	1,694,337.647	39.767682763	-80.808108882
12,300.00	91.00	315.25	11,142.42	1,454.31	-931.62	14,442,267.845	1,694,267.254	39.767878178	-80.808358850
12,400.00	91.00	315.25	11,140.68	1,525.31	-1,002.02	14,442,338.851	1,694,196.861	39.768073592	-80.808608819
12,500.00	91.00	315.25	11,138.93	1,596.32	-1,072.41	14,442,409.856	1,694,126.469	39.768268999	-80.808858790
12,600.00	91.00	315.25	11,137.18	1,667.32	-1,142.80	14,442,480.861	1,694,056.076	39.768464419	-80.809108763
12,700.00	91.00	315.25	11,135.43	1,738.33	-1,213.19	14,442,551.867	1,693,985.683	39.768659832	-80.809358737
12,800.00	91.00	315.25	11,133.68	1,809.33	-1,283.59	14,442,622.872	1,693,915.290	39.768855244	-80.809608712
12,900.00	91.00	315.25	11,131.93	1,880.34	-1,353.98	14,442,693.877	1,693,844.897	39.769050656	-80.809858689
13,000.00	91.00	315.25	11,130.18	1,951.34	-1,424.37	14,442,764.882	1,693,774.504	39.769246067	-80.810108667
13,100.00	91.00	315.25	11,128.43	2,022.35	-1,494.77	14,442,835.888	1,693,704.112	39.769441477	-80.810358646
13,200.00	91.00	315.25	11,126.68	2,093.36	-1,565.16	14,442,906.893	1,693,633.719	39.769636887	-80.810608627
13,300.00	91.00	315.25	11,124.93	2,164.36	-1,635.55	14,442,977.898	1,693,563.326	39.769832297	-80.810858610
13,400.00	91.00	315.25	11,123.18	2,235.37	-1,705.94	14,443,048.904	1,693,492.933	39.770027706	-80.811108593

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
Wellbore Department of  
Environmental Protection



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-10 HU (slot N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1326.00ft
<b>Site:</b>	Blake / Bardstown Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Bardstown N-10 HU (slot N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
13,500.00	91.00	315.25	11,121.43	2,306.37	-1,776.34	14,443,119.909	1,693,422.540	39.770223114	-80.811358578	
13,600.00	91.00	315.25	11,119.68	2,377.38	-1,346.73	14,443,190.914	1,693,352.148	39.770418522	-80.811608564	
13,700.00	91.00	315.25	11,117.93	2,446.38	-1,917.12	14,443,261.920	1,693,281.755	39.770613930	-80.811858552	
13,800.00	91.00	315.25	11,116.18	2,519.39	-1,987.52	14,443,332.925	1,693,211.362	39.770809336	-80.812108542	
13,900.00	91.00	315.25	11,114.44	2,590.39	-2,057.91	14,443,403.930	1,693,140.969	39.771004743	-80.812358532	
14,000.00	91.00	315.25	11,112.69	2,661.40	-2,128.30	14,443,474.935	1,693,070.576	39.771200148	-80.812608525	
14,100.00	91.00	315.25	11,110.94	2,732.40	-2,198.70	14,443,545.941	1,693,000.184	39.771395553	-80.812858518	
14,200.00	91.00	315.25	11,109.19	2,803.41	-2,269.09	14,443,616.946	1,692,929.791	39.771590958	-80.813108513	
14,300.00	91.00	315.25	11,107.44	2,874.41	-2,339.48	14,443,687.951	1,692,859.398	39.771786362	-80.813358510	
14,400.00	91.00	315.25	11,105.69	2,945.42	-2,409.87	14,443,758.957	1,692,789.005	39.771981766	-80.813608508	
14,500.00	91.00	315.25	11,103.94	3,016.43	-2,480.27	14,443,829.962	1,692,718.612	39.772177169	-80.813858507	
14,600.00	91.00	315.25	11,102.19	3,087.43	-2,550.66	14,443,900.967	1,692,648.220	39.772372571	-80.814108508	
14,700.00	91.00	315.25	11,100.44	3,158.44	-2,621.05	14,443,971.972	1,692,577.827	39.772567973	-80.814358510	
14,800.00	91.00	315.25	11,098.69	3,229.44	-2,691.45	14,444,042.978	1,692,507.434	39.772763374	-80.814608514	
14,900.00	91.00	315.25	11,096.94	3,300.45	-2,761.84	14,444,113.983	1,692,437.041	39.772958775	-80.814858519	
15,000.00	91.00	315.25	11,095.19	3,371.45	-2,832.23	14,444,184.988	1,692,366.648	39.773154176	-80.815108525	
15,100.00	91.00	315.25	11,093.44	3,442.46	-2,902.63	14,444,255.994	1,692,296.256	39.773349575	-80.815358533	
15,200.00	91.00	315.25	11,091.69	3,513.46	-2,973.02	14,444,326.999	1,692,225.863	39.773544975	-80.815608542	
15,300.00	91.00	315.25	11,089.94	3,584.47	-3,043.41	14,444,398.004	1,692,155.470	39.773740373	-80.815858553	
15,400.00	91.00	315.25	11,088.20	3,655.47	-3,113.80	14,444,469.010	1,692,085.077	39.773935771	-80.816108565	
15,500.00	91.00	315.25	11,086.45	3,726.48	-3,184.20	14,444,540.015	1,692,014.684	39.774131169	-80.816358578	
15,600.00	91.00	315.25	11,084.70	3,797.49	-3,254.59	14,444,611.020	1,691,944.292	39.774326568	-80.816608593	
15,700.00	91.00	315.25	11,082.95	3,868.49	-3,324.98	14,444,682.025	1,691,873.899	39.774521962	-80.816858609	
15,800.00	91.00	315.25	11,081.20	3,939.50	-3,395.38	14,444,753.031	1,691,803.506	39.774717358	-80.817108627	
15,900.00	91.00	315.25	11,079.45	4,010.50	-3,465.77	14,444,824.038	1,691,733.113	39.774912754	-80.817358646	
16,000.00	91.00	315.25	11,077.70	4,081.51	-3,536.16	14,444,895.041	1,691,662.720	39.775108149	-80.817608667	
16,100.00	91.00	315.25	11,075.95	4,152.51	-3,606.55	14,444,966.047	1,691,592.328	39.775303543	-80.817858689	
16,200.00	91.00	315.25	11,074.20	4,223.52	-3,676.95	14,445,037.052	1,691,521.935	39.775498937	-80.818108712	
16,300.00	91.00	315.25	11,072.45	4,294.52	-3,747.34	14,445,108.057	1,691,451.542	39.775694330	-80.818358737	
16,400.00	91.00	315.25	11,070.70	4,365.53	-3,817.73	14,445,179.062	1,691,381.149	39.775889723	-80.818608763	
16,500.00	91.00	315.25	11,068.95	4,436.53	-3,888.13	14,445,250.068	1,691,310.756	39.776085115	-80.818858790	
16,600.00	91.00	315.25	11,067.20	4,507.54	-3,958.52	14,445,321.073	1,691,240.364	39.776280507	-80.819108819	
16,700.00	91.00	315.25	11,065.45	4,578.55	-4,028.91	14,445,392.078	1,691,169.971	39.776475898	-80.819358850	
16,800.00	91.00	315.25	11,063.70	4,649.55	-4,099.31	14,445,463.084	1,691,099.578	39.776671288	-80.819608882	
16,900.00	91.00	315.25	11,061.96	4,720.56	-4,169.70	14,445,534.089	1,691,029.185	39.776866678	-80.819858915	
17,000.00	91.00	315.25	11,060.21	4,791.56	-4,240.09	14,445,605.094	1,690,958.792	39.777062059	-80.820108950	
17,100.00	91.00	315.25	11,058.46	4,862.57	-4,310.48	14,445,676.100	1,690,888.400	39.777257457	-80.820358986	
17,200.00	91.00	315.25	11,056.71	4,933.57	-4,380.88	14,445,747.105	1,690,818.007	39.777452845	-80.820609023	
17,300.00	91.00	315.25	11,054.96	5,004.58	-4,451.27	14,445,818.110	1,690,747.614	39.777648233	-80.820859062	
17,400.00	91.00	315.25	11,053.21	5,075.58	-4,521.66	14,445,889.115	1,690,677.221	39.777843620	-80.821109102	
17,500.00	91.00	315.25	11,051.46	5,146.59	-4,592.06	14,445,960.121	1,690,606.828	39.778039007	-80.821359144	
17,600.00	91.00	315.25	11,049.71	5,217.59	-4,662.45	14,446,031.126	1,690,536.435	39.778234393	-80.821609187	
17,700.00	91.00	315.25	11,047.96	5,288.60	-4,732.84	14,446,102.131	1,690,466.043	39.778429779	-80.821859232	
17,800.00	91.00	315.25	11,046.21	5,359.61	-4,803.23	14,446,173.137	1,690,395.650	39.778625164	-80.822109278	
17,900.00	91.00	315.25	11,044.46	5,430.61	-4,873.63	14,446,244.142	1,690,325.257	39.778820548	-80.822359325	
17,925.39	91.00	315.25	11,044.00	5,449.35	-4,892.20	14,446,262.977	1,690,306.684	39.778872100	-80.822425300	
<b>Begin 2°/100' turn</b>										
18,000.00	91.00	316.72	11,042.71	5,502.28	-4,943.34	14,446,315.807	1,690,255.542	39.779017742	-80.822606958	
18,100.00	91.00	318.72	11,040.97	5,576.25	-5,010.60	14,446,369.780	1,690,188.281	39.779221257	-80.822845839	
18,165.34	91.00	320.03	11,039.83	5,625.83	-5,053.14	14,446,439.363	1,690,145.745	39.779357657	-80.822996890	
<b>Begin 91.00° lateral</b>										
18,200.00	91.00	320.03	11,039.22	5,652.39	-5,075.40	14,446,465.921	1,690,123.482	39.779430713	-80.823075943	
18,300.00	91.00	320.03	11,037.48	5,729.01	-5,139.63	14,446,542.545	1,690,059.251	39.779641493	-80.823304026	

RECEIVED  
Office of Oil and Gas  
APR 1 2022  
WV Department of Environmental Protection



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Wall Bardstown N-10 HU (slot N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1326.00ft
<b>Site:</b>	Blake / Bardstown Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Bardstown N-10 HU (slot N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,400.00	91.00	320.03	11,035.74	5,805.64	-5,203.87	14,446,619.169	1,689,995.020	39.779652273	-80.823532111
18,500.00	91.00	320.03	11,033.99	5,882.26	-5,268.10	14,446,695.793	1,689,930.788	39.780063052	-80.823760196
18,600.00	91.00	320.03	11,032.25	5,958.89	-5,332.33	14,446,772.417	1,689,866.557	39.780273630	-80.823988284
18,700.00	91.00	320.03	11,030.51	6,035.51	-5,396.56	14,446,849.041	1,689,802.325	39.780484608	-80.824218372
18,800.00	91.00	320.03	11,028.77	6,112.14	-5,460.79	14,446,925.665	1,689,738.094	39.780695386	-80.824444462
18,900.00	91.00	320.03	11,027.03	6,188.76	-5,525.02	14,447,002.289	1,689,673.863	39.780906163	-80.824672553
19,000.00	91.00	320.03	11,025.28	6,265.38	-5,589.26	14,447,078.913	1,689,609.631	39.781116940	-80.824900646
19,100.00	91.00	320.03	11,023.54	6,342.01	-5,653.49	14,447,155.538	1,689,545.400	39.781327716	-80.825128740
19,200.00	91.00	320.03	11,021.80	6,418.63	-5,717.72	14,447,232.162	1,689,481.168	39.781538492	-80.825356836
19,300.00	91.00	320.03	11,020.06	6,495.26	-5,781.95	14,447,308.786	1,689,416.937	39.781749267	-80.825584933
19,400.00	91.00	320.03	11,018.31	6,571.88	-5,846.18	14,447,385.410	1,689,352.706	39.781960042	-80.825813031
19,500.00	91.00	320.03	11,016.57	6,648.51	-5,910.41	14,447,462.034	1,689,288.474	39.782170817	-80.826041131
19,600.00	91.00	320.03	11,014.83	6,725.13	-5,974.64	14,447,538.658	1,689,224.243	39.782381591	-80.826269232
19,700.00	91.00	320.03	11,013.09	6,801.75	-6,038.88	14,447,615.282	1,689,160.011	39.782592364	-80.826497334
19,800.00	91.00	320.03	11,011.34	6,878.38	-6,103.11	14,447,691.906	1,689,095.780	39.782803137	-80.826725438
19,900.00	91.00	320.03	11,009.60	6,955.00	-6,167.34	14,447,768.530	1,689,031.549	39.783013910	-80.826953543
20,000.00	91.00	320.03	11,007.86	7,031.63	-6,231.57	14,447,845.154	1,688,967.317	39.783224682	-80.827181650
20,100.00	91.00	320.03	11,006.12	7,108.25	-6,295.80	14,447,921.778	1,688,903.086	39.783435454	-80.827409758
20,200.00	91.00	320.03	11,004.37	7,184.88	-6,360.03	14,447,998.402	1,688,838.854	39.783646225	-80.827637868
20,300.00	91.00	320.03	11,002.63	7,261.50	-6,424.26	14,448,075.027	1,688,774.623	39.783856996	-80.827865978
20,400.00	91.00	320.03	11,000.89	7,338.12	-6,488.50	14,448,151.651	1,688,710.392	39.784067766	-80.828094091
20,500.00	91.00	320.03	10,999.15	7,414.75	-6,552.73	14,448,228.275	1,688,646.160	39.784278536	-80.828322204
20,600.00	91.00	320.03	10,997.40	7,491.37	-6,616.96	14,448,304.899	1,688,581.929	39.784489305	-80.828550319
20,700.00	91.00	320.03	10,995.66	7,568.00	-6,681.19	14,448,381.523	1,688,517.697	39.784700075	-80.828778436
20,800.00	91.00	320.03	10,993.92	7,644.62	-6,745.42	14,448,458.147	1,688,453.466	39.784910843	-80.829006553
20,900.00	91.00	320.03	10,992.18	7,721.24	-6,809.65	14,448,534.771	1,688,389.235	39.785121611	-80.829234673
21,000.00	91.00	320.03	10,990.43	7,797.87	-6,873.89	14,448,611.395	1,688,325.003	39.785332379	-80.829462793
21,100.00	91.00	320.03	10,988.69	7,874.49	-6,938.12	14,448,688.019	1,688,260.772	39.785543146	-80.829690915
21,200.00	91.00	320.03	10,986.95	7,951.12	-7,002.35	14,448,764.643	1,688,196.540	39.785753913	-80.829919038
21,300.00	91.00	320.03	10,985.21	8,027.74	-7,066.58	14,448,841.267	1,688,132.309	39.785964679	-80.830147163
21,400.00	91.00	320.03	10,983.46	8,104.37	-7,130.81	14,448,917.891	1,688,068.078	39.786175445	-80.830375289
21,500.00	91.00	320.03	10,981.72	8,180.99	-7,195.04	14,448,994.516	1,688,003.846	39.786386211	-80.830603417
21,600.00	91.00	320.03	10,979.98	8,257.61	-7,259.27	14,449,071.140	1,687,939.615	39.786596975	-80.830831546
21,700.00	91.00	320.03	10,978.24	8,334.24	-7,323.51	14,449,147.764	1,687,875.383	39.786807740	-80.831059676
21,800.00	91.00	320.03	10,976.49	8,410.86	-7,387.74	14,449,224.388	1,687,811.152	39.787018504	-80.831287806
21,900.00	91.00	320.03	10,974.75	8,487.49	-7,451.97	14,449,301.012	1,687,746.921	39.787229268	-80.831515941
22,000.00	91.00	320.03	10,973.01	8,564.11	-7,516.20	14,449,377.636	1,687,682.689	39.787440031	-80.831744075
22,100.00	91.00	320.03	10,971.27	8,640.74	-7,580.43	14,449,454.260	1,687,618.458	39.787650793	-80.831972211
22,200.00	91.00	320.03	10,969.53	8,717.36	-7,644.66	14,449,530.884	1,687,554.226	39.787861556	-80.832200348
22,287.51	91.00	320.03	10,968.00	8,784.41	-7,708.87	14,449,597.938	1,687,490.017	39.788072319	-80.832399992

PBHL/TD 22287.51 MD 10968.00 TVD

APR 11 2022

RECEIVED  
Office of Oil and Gas  
WV Department of Environmental Protection



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Wall Bardstown N-10 HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1326.00ft
Site:	Blake / Bardstown Pad	North Reference:	Grid
Well:	Bardstown N-10 HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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									
Bardstown 10HU PBHL   - plan hits target center - Point	0.00	0.01	10,968.00	8,784.42	-7,700.88	14,449,597.940	1,687,496.015	39.786046000	-80.832400000
Bardstown 10HU int tgt - plan hits target center - Point	0.00	0.01	11,044.00	5,449.35	-4,892.20	14,446,262.877	1,690,306.684	39.778672100	-80.822425300
Bardstown 10HU LP - plan misses target center by 0.01ft at 11636.04ft MD (11154.00 TVD, 984.28 N, -465.65 E) - Point	0.00	0.01	11,154.00	984.28	-465.66	14,441,797.815	1,694,733.217	39.766584590	-80.806704220

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
22,287.51	10,968.00	20" Casing	20	24

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
1,300.00	1,300.00	0.00	0.00	KOP Begin 1°/100' build	
1,600.00	1,599.86	5.55	-5.55	Begin 3.00° tangent	
2,100.00	2,099.18	24.06	-24.06	Begin 1°/100' drop	
2,400.00	2,399.04	29.61	-29.61	Begin vertical hold section	
8,600.96	8,600.00	29.61	-29.61	Begin 2°/100' build	
9,162.81	9,156.25	83.98	-21.90	Begin 11.24° tangent	
10,407.71	10,379.29	324.17	12.15	Begin 6°/100' build/turn	
11,117.69	10,983.76	624.13	-148.83	Begin 8°/100' build/turn	
11,638.05	11,154.00	984.28	-465.65	Begin 91.00° lateral	
17,926.39	11,044.00	5,449.35	-4,892.20	Begin 2°/100' turn	
18,165.34	11,039.83	5,625.83	-5,053.14	Begin 91.00° lateral	
22,287.51	10,968.00	8,784.41	-7,700.87	PBHL/TD 22287.51 MD 10968.00 TVD	

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

WW-9  
(4/16)

API Number 47 - 051 - \_\_\_\_\_  
Operator's Well No. Bardstown N-10HU

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) French Creek - Ohio River Quadrangle Powhatan Point 7.5'

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? \_\_\_\_\_

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings to be disposed of in 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-1027 / WV0109105) and Westmoreland Sanitary Landfill, LLC (SAN 405 / PA DEP ED#1366426), Cheat River Valley Landfill (100418)

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.

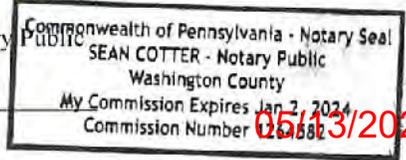
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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 [Signature]  
Company Official (Typed Name) Jim Pancake  
Company Official Title Vice President - Geosciences

Office of Oil and Gas  
APR 11 2022  
WV Department of Environmental Protection

Subscribed and sworn before me this 6<sup>th</sup> day of April, 2022  
[Signature] Notary

My commission expires 1/21/2024



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 5.94 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: *Amy K...*

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Title: Oil and Gas Inspector

Date: 1/19/2022

Field Reviewed? (  ) Yes (  ) No

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

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.

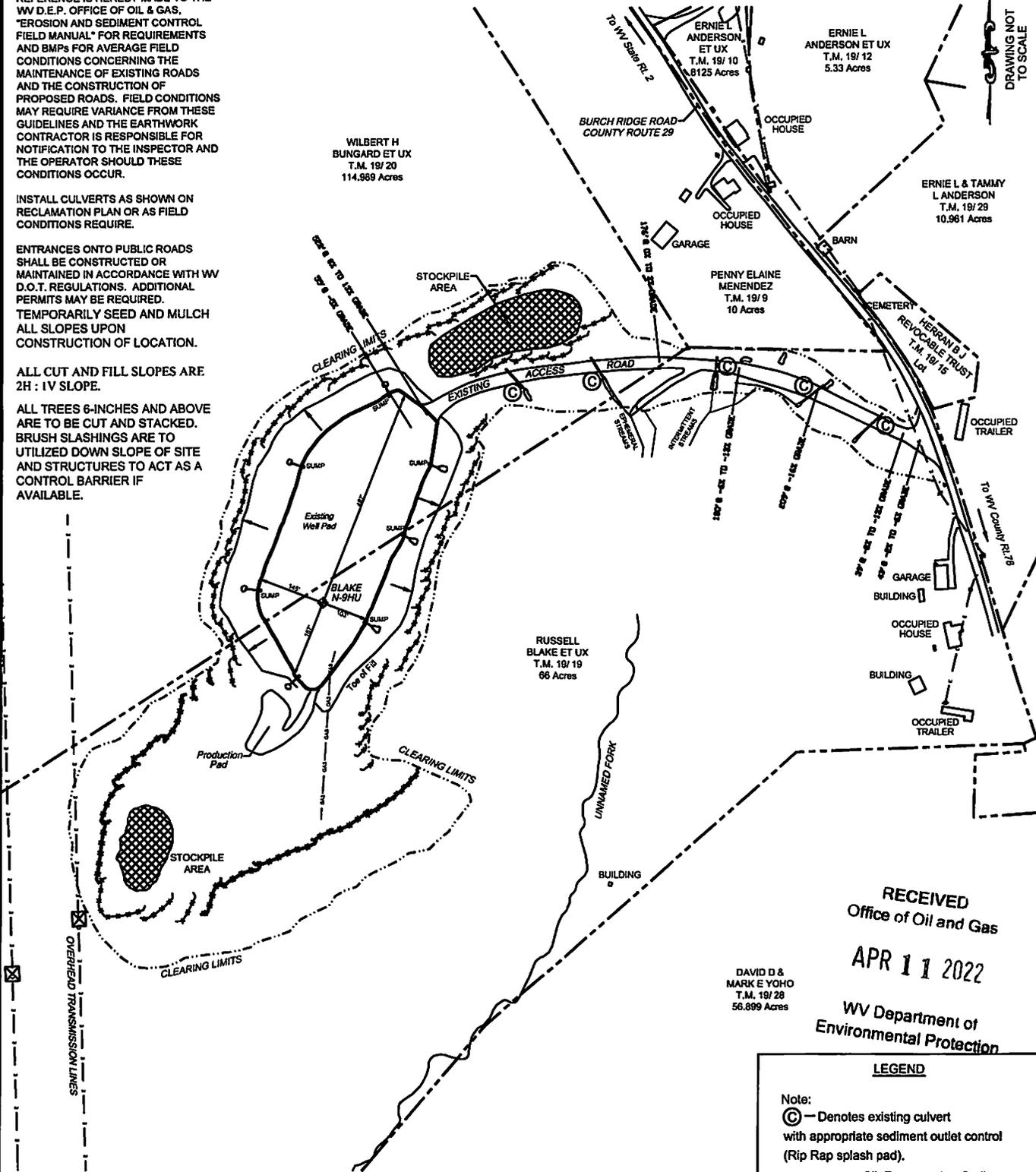
INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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

DRAWING NOT TO SCALE



RECEIVED  
Office of Oil and Gas

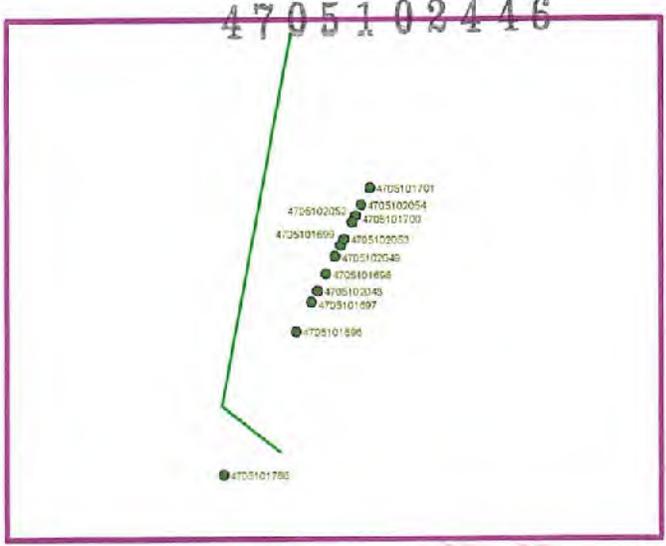
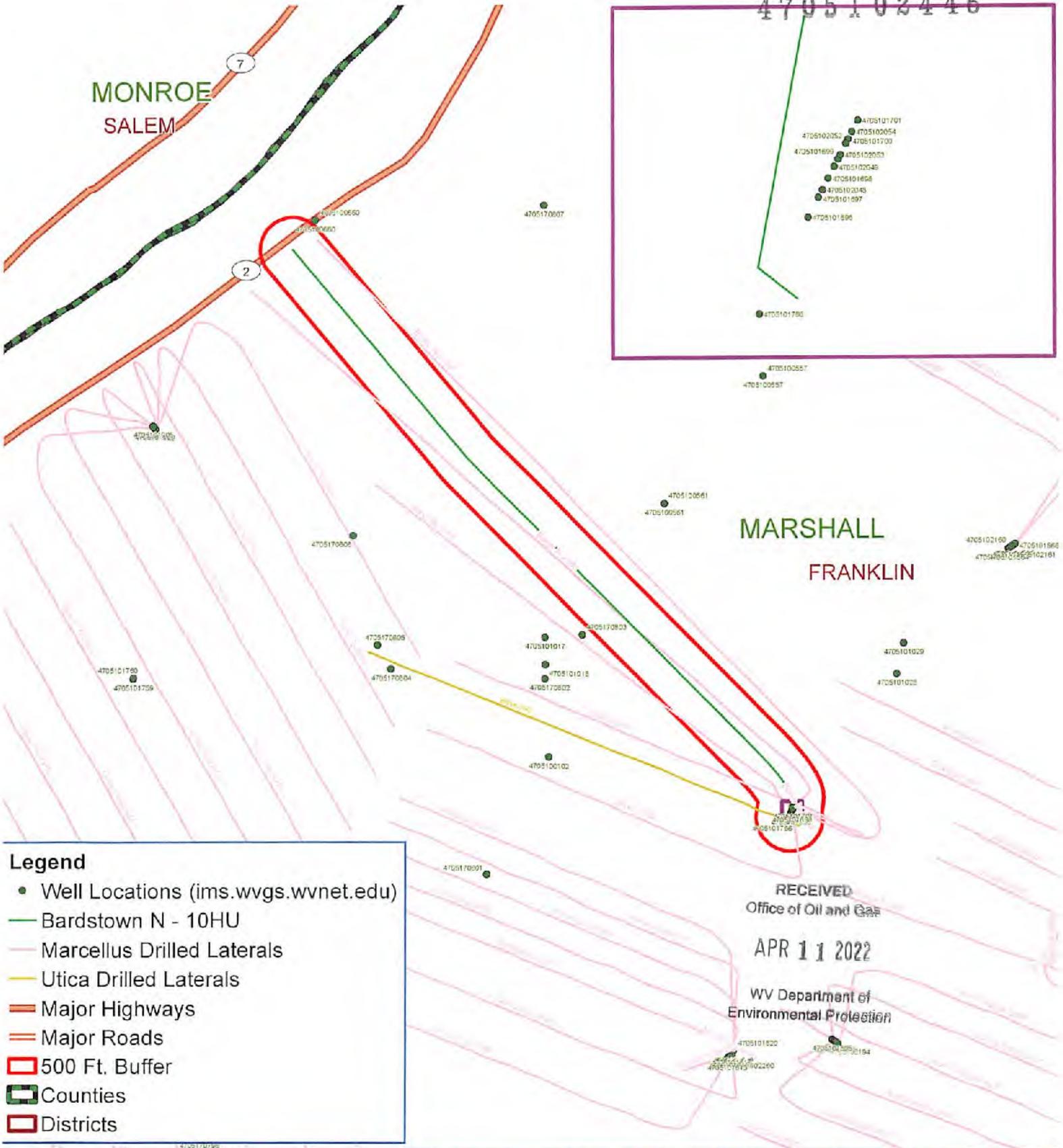
APR 11 2022

WV Department of  
Environmental Protection

DAVID D &  
MARK E YOHO  
T.M. 19/ 28  
56.899 Acres

LEGEND

- Note:  
 (C) — Denotes existing culvert with appropriate sediment outlet control (Rip Rap splash pad).  
 - - - - - Silt Fence and or Sediment and Erosion Control Measure.  
 - - - - - Surface Boundary

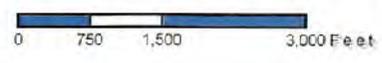


- Legend**
- Well Locations (ims.wvgs.wvnet.edu)
  - Bardstown N - 10HU
  - Marcellus Drilled Laterals
  - Utica Drilled Laterals
  - Major Highways
  - Major Roads
  - 500 Ft. Buffer
  - Counties
  - Districts

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection



# Bardstown N - 10HU Franklin District Marshall County, WV



Map Prepared by:  
**EPS**  
LAND SERVICES  
05/13/2022

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

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

## Data Sources Reviewed:

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

Contacted Adam Picard 724-485-9331, [apicard@dpslandservices.com](mailto:apicard@dpslandservices.com), DPS GIS (1/04/2022) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

## Request maps for:

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

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

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

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection

**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
✓ 4705101698	Tug Hill Operating, LLC.	12673' MD / 6503' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
✓ 4705101701	Tug Hill Operating, LLC.	13354' MD / 6514' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
✓ 4705101766	Tug Hill Operating, LLC.	18102' MD / 11066' TVD	Point Pleasant	none	<u>Yes</u> , this is a producing well in the Point Pleasant. This well is within the expected fracture propagation from the proposed Point Pleasant stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Point Pleasant well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
✓ 4705101696	Gastar Exploration USA, Inc.	6506' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled.

WV Department of Environmental Protection  
 RECEIVED  
 Office of Oil and Gas  
 APR 11 2022

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
4705101697	Gastar Exploration USA, Inc.	6511' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled.
4705101699	Gastar Exploration USA, Inc.	6518' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled.
4705101700	Gastar Exploration USA, Inc.	6521' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled.
4705102048	Tug Hill Operating, LLC.	14112' MD / 6465' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
4705102049	Tug Hill Operating, LLC.	17942' MD / 6462' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.

RECEIVED  
 Office of Oil and Gas  
 WV Department of  
 Environmental Protection  
 APR 11 2022

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
✓ 4705102052	Tug Hill Operating, LLC.	16978' MD / 6417' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
✓ 4705102053	Tug Hill Operating, LLC.	19291' MD / 6437' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.
✓ 4705102054	Tug Hill Operating, LLC.	17512' MD / 6416' TVD	Marcellus	none	No, this producing Marcellus well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Bardstown N-10HU.

**RECEIVED**  
 Office of Oil and Gas  
**APR 11 2022**  
 WV Department of  
 Environmental Protection

WV Geological & Economic Survey:

Well: County = 51 Permit = 01698

Report Time: Monday, January 10, 2022 11:37:28 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101698	Marshall	1698	Franklin	Powhatan Point	Clarington	39.764195	-80.804973	516704.6	4401603.9

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101698	1 As Drilled	514982.7	4401990.6	-80.825067	39.767711
4705101698	1 As Proposed	514985.1	4401995.9	-80.825039	39.767759

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
4705101698	8/8/2015	David Orgnl Loc	Completed	Wilbert H Bungard et ux	3H		Blake	WV16-0022-001/WV16-0135-000/WV16-0092-001	Russell Blake et al	Gastar Exploration USA, Inc.	6511	Marcellus Fm	3000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	
4705101698	8/8/2015	7/23/2014	1326 Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Fractured	6562	12673	12673	6184		1261			155			

Comment: 6/6/2015 KOP 6184, Additional Mineral Owners: WV16-0068-000/WV16-0011-001/WV16-0006-000

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
4705101698	8/8/2015	Water	Fresh Water	Vertical			60						
4705101698	8/8/2015	Water	Salt Water	Vertical			1419						
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	6990	Marcellus Fm	7142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	7150	Marcellus Fm	7342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	7390	Marcellus Fm	7542	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	7590	Marcellus Fm	7742	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	7790	Marcellus Fm	7942	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	7990	Marcellus Fm	8142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	8190	Marcellus Fm	8342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	8390	Marcellus Fm	8542	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	8590	Marcellus Fm	8742	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	8790	Marcellus Fm	8942	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	8990	Marcellus Fm	9142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	9190	Marcellus Fm	9342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	9390	Marcellus Fm	9542	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	9590	Marcellus Fm	9742	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	9790	Marcellus Fm	9942	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	9990	Marcellus Fm	10142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	10190	Marcellus Fm	10342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	10390	Marcellus Fm	10542	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	10590	Marcellus Fm	10742	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	10790	Marcellus Fm	10942	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	10990	Marcellus Fm	11142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	11190	Marcellus Fm	11342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	11390	Marcellus Fm	11542	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	11590	Marcellus Fm	11742	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	11790	Marcellus Fm	11942	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	11990	Marcellus Fm	12142	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	12190	Marcellus Fm	12342	Marcellus Fm					
4705101698	8/8/2015	Pay	Oil & Gas	Deviated	12392	Marcellus Fm	12594	Marcellus Fm					

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
4705101698	Gastar Exploration Inc	2015	298,054	0	0	0	0	10,747	37,692	45,542	38,547	42,848	45,302	39,243	38,133
4705101698	Tug Hill Operating, LLC	2016	460,714	46,503	41,512	42,171	37,298	40,563	38,637	38,967	37,930	35,208	35,119	33,223	33,582
4705101698	Tug Hill Operating, LLC	2017	352,489	31,988	28,848	30,652	29,373	30,788	28,968	30,026	29,751	28,428	28,941	27,297	27,423
4705101698	Tug Hill Operating, LLC	2018	702,565	27,486	25,500	8,181	31,316	27,650	27,194	27,124	23,359	4,725	0	0	0
4705101698	Tug Hill Operating, LLC	2019	202,872	0	0	0	0	31,935	34,973	45,006	26,359	23,220	27,933	13,446	
4705101698	Tug Hill Operating, LLC	2020	295,290	31,419	28,022	29,259	24,387	13,615	24,042	22,118	20,298	24,203	23,631	24,772	33,614

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of Environmental Protection

WV Geological & Economic Survey.

Well: County = 51 Permit = 01701

Report Time: Monday, January 10, 2022 11:38:13 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101701	Marshall	1701	Franklin	Powhatan Point	Clarrington	39.784348	-80.804894	516711.3	4401620.9

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101701	1 As Drilled	515111.9	4402311.1	-80.823551	39.770597
4705101701	1 As Proposed	515113.1	4402313.9	-80.823537	39.770622

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
4705101701	10/23/2014	Dvld Wrkd Ovr	Completed	W H Bungard et ux	6H		Blake	WV16-0022-001/WV16-0128-000/WV16-0135-000	R Blake et al	Gasbar Exploration USA, Inc.	6521	Marcellus Fm	
4705101701	6/6/2015	Dvld Drld Dpr	Completed	Wibert H Bungard, et al	6H	6H	Blake	16-0135-000, 16-0022-001, 16-0128-000, 16-0068-000	Russell Blake, et al	Gasbar Exploration USA, Inc.		Marcellus Fm	
4705101701	-/-	Dvld Orgnl Loc	Completed	Wibert H Bungard et ux	6H		Blake	WV16-0022-001/WV16-0135-000/WV16-0128-000	Russell Blake et al	Gasbar Exploration USA, Inc.	6521	Marcellus Fm	3000

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_BEFO	G_AFT	O_BEFO	O_AFT	NGL_BEFO	NGL_AFT	P_E
4705101701	10/23/2014	10/23/2014	1326 Ground Level	Unnamed			Development Well	Unsuccessful		Rotary	Fractured	6572	13355	12785	5805			2161		185		
4705101701	6/6/2015	6/3/2014	1326 Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Fractured	6572	13355	12785	5805			2161		185		
4705101701	-/-	-/-	1326 Ground Level				Development Well	Unsuccessful			NotCmpltd	6754		6754								

Comment: -/- Additional Mineral Owners:WV16-0068-000/WV16-0006-000

Comment: 10/23/2014 Additional Lease Numbers:WV16-0068-000/WV16-0006-000. Received affidavit for partial plug without other completion information and before original completion.

Comment: 6/6/2015 KOP 5805', addl. lease #: 16-0006-000

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_ONTY
4705101701	6/6/2015	Water	Fresh Water	Vertical			60	Pennsylvanian System					
4705101701	6/6/2015	Water	Salt Water	Vertical			1418	3rd Salt Sand					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	7231	Marcellus Fm	7384	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	7445	Marcellus Fm	7580	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	7606	Marcellus Fm	7769	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	7831	Marcellus Fm	7982	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8040	Marcellus Fm	8272	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8315	Marcellus Fm	8485	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8486	Marcellus Fm	8655	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8717	Marcellus Fm	8952	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8908	Marcellus Fm	9059	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9111	Marcellus Fm	9305	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9340	Marcellus Fm	9481	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9518	Marcellus Fm	9670	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9725	Marcellus Fm	9872	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9899	Marcellus Fm	10027	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10095	Marcellus Fm	10295	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10340	Marcellus Fm	10479	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10527	Marcellus Fm	10687	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10734	Marcellus Fm	10887	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10959	Marcellus Fm	11092	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	11140	Marcellus Fm	11392	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	11422	Marcellus Fm	11614	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	11645	Marcellus Fm	11879	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	11912	Marcellus Fm	12084	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	12146	Marcellus Fm	12356	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	12409	Marcellus Fm	12586	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	12629	Marcellus Fm	12826	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	12878	Marcellus Fm	13030	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	13080	Marcellus Fm	13282	Marcellus Fm					

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

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
4705101701	Gasbar Exploration Inc.	2015	279,549	0	0	0	0	8,503	33,803	37,132	29,474	47,803	48,312	39,995	34,447
4705101701	Tug Hill Operating, LLC	2016	501,239	43,322	50,023	47,827	45,429	45,995	42,225	42,149	40,486	37,511	37,817	33,913	34,565
4705101701	Tug Hill Operating, LLC	2017	363,022	36,492	31,613	34,203	32,833	31,157	29,067	29,949	29,561	28,216	26,636	26,292	26,797
4705101701	Tug Hill Operating, LLC	2018	213,414	26,834	24,970	26,996	25,901	26,969	28,712	26,031	23,995	3,006	0	0	0
4705101701	Tug Hill Operating, LLC	2019	20,140	0	0	0	0	0	15,182	4,958	0	0	0	0	0
4705101701	Tug Hill Operating, LLC	2020	88,659	18,515	0	2,815	19,953	11,139	19,671	0	0	0	0	0	26,568

WV Geological & Economic Survey

Well: County = 51 Permit = 01766

Report Time: Monday, January 10, 2022 11:38:46 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101766	Marshall	1766	Franklin	Powhatan Point	Clarington	39.763938	-80.805156	516609	4401564.2

Bottom Hole Location Information:

API	EP	FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101766	1	As Drilled	514707.7	4402354.1	-80.82827	39.770991
4705101766	1	As Proposed	514707.6	4402353.7	-80.828271	39.770998

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
4705101766	6/6/2015	Divd Orgnl Loc	Completed	Russell Blake et al	U-7H		Blake	WV16-0011-001/WV16-0090-000/WV16-0171-000	Russell Blake et al	Gastar Exploration USA, Inc.	11131	Pt Pleasant Fm	7000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI	
4705101766	6/6/2015	8/14/2014	1326	Ground Level	Unnamed	Pt Pleasant Fm	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Fractured	18102	18102	9400										37957

Comment: 6/6/2015 Additional Lease Numbers:WV16-0022-001/WV16-0092-001/WV16-0006-000/WV16-0135-000/WV16-0068-000/WV16-0128-000. KOP 9400'

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
4705101766	6/6/2015	Water	Fresh Water	Vertical					60				
4705101766	6/6/2015	Water	Salt Water	Vertical									
4705101766	6/6/2015	Pay	Gas	Deviated	11235	Ulica Sh	11387	Ulica Sh					
4705101766	6/6/2015	Pay	Gas	Deviated	11435	Ulica Sh	11587	Ulica Sh					
4705101766	6/6/2015	Pay	Gas	Deviated	11635	Pt Pleasant Fm	11787	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	11835	Pt Pleasant Fm	11987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12035	Pt Pleasant Fm	12187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12235	Pt Pleasant Fm	12387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12435	Pt Pleasant Fm	12587	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12640	Pt Pleasant Fm	12797	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12835	Pt Pleasant Fm	12987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13035	Pt Pleasant Fm	13187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13235	Pt Pleasant Fm	13387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13435	Pt Pleasant Fm	13587	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13635	Pt Pleasant Fm	13787	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13835	Pt Pleasant Fm	13987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14035	Pt Pleasant Fm	14187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14235	Pt Pleasant Fm	14387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14435	Pt Pleasant Fm	14587	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14635	Pt Pleasant Fm	14787	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14835	Pt Pleasant Fm	14987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15040	Pt Pleasant Fm	15187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15235	Pt Pleasant Fm	15387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15435	Pt Pleasant Fm	15587	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15635	Pt Pleasant Fm	15787	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15835	Pt Pleasant Fm	15987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16035	Pt Pleasant Fm	16187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16235	Pt Pleasant Fm	16389	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16435	Pt Pleasant Fm	16507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16635	Pt Pleasant Fm	16797	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16835	Pt Pleasant Fm	16987	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17035	Pt Pleasant Fm	17187	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17235	Pt Pleasant Fm	17387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17235	Pt Pleasant Fm	17387	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17435	Pt Pleasant Fm	17587	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17635	Pt Pleasant Fm	17787	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17837	Pt Pleasant Fm	18039	Pt Pleasant Fm					

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

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
4705101766	Gastar Exploration Inc.	2015	2,909,149	0	0	0	0	366,421	546,795	526,584	358,122	297,655	264,458	253,415	273,899
4705101766	Tug Hill Operating, LLC	2016	2,003,118	232,976	205,317	208,582	189,288	181,481	166,605	149,558	148,430	136,680	134,893	124,926	124,201
4705101766	Tug Hill Operating, LLC	2017	1,124,740	119,562	103,011	109,106	100,804	99,800	82,719	92,456	89,951	84,447	84,457	79,271	78,968
4705101766	Tug Hill Operating, LLC	2018	612,130	90,767	75,792	79,801	74,711	77,675	72,383	68,827	63,957	6,117	0	0	0
4705101766	Tug Hill Operating, LLC	2019	420,185	0	0	0	0	0	37,446	59,870	90,230	73,197	68,799	64,067	26,576
4705101766	Tug Hill Operating, LLC	2020	594,495	67,292	51,326	55,171	48,070	42,353	57,543	47,069	47,133	45,443	47,951	43,500	41,644

WV Geological & Economic Survey:

Well: County = 51 Permit = 01696

Report Time: Monday, January 10, 2022 11:59:11 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101696	Marshall	1696	Franklin	Powhatan Point	Clarington	39.764093	-80.805026	516700.1	4401592.6

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101696	1 As Proposed	514899.6	4401783.9	-80.82604	39.76595

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
4705101696	-/-	Divd Orgnl Loc	Cancelled	Wibert H Bungard et ux	1H		Blake	WV16-0022-001/WV16-0092-001/WV16-0103-001	Russell Blake et al	Gastar Exploration USA, Inc.	6506	Marcellus Fm	3000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT
4705101696	-/-	-/-	1326	Ground Level																				

Comment: -/- Additional Lease Owners:WV16-0135-000/WV16-0068-000/WV16-0010-001

WV Geological & Economic Survey:

Well: County = 51 Permit = 01697

Report Time: Monday, January 10, 2022 11:39:30 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101697	Marshall	1697	Franklin	Powhatan Point	Clarington	39.764145	-80.804999	516702.4	4401598.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101697	1 As Proposed	514942.5	4401839.9	-80.825539	39.768805

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
4705101697	-/-	Divd Orgnl Loc	Cancelled	Wibert H Bungard et ux	2H		Blake	WV16-0008-000/WV16-0072-000/WV16-0022-001	Russell Blake et al	Gastar Exploration USA, Inc.	6511	Marcellus Fm	3000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT
4705101697	-/-	-/-	1326	Ground Level																				

Comment: -/- WV16-0092-001/WV16-0011-001/WV16-0135-000/WV16-0068-000/WV16-0010-001

WV Geological & Economic Survey:

Well: County = 51 Permit = 01699

Report Time: Monday, January 10, 2022 11:39:46 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101699	Marshall	1699	Franklin	Powhatan Point	Clarington	39.764246	-80.804947	516706.8	4401609.6

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101699	1 As Proposed	515027.8	4402101.9	-80.824538	39.768713

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
4705101699	-/-	Divd Orgnl Loc	Cancelled	Wibert H Bungard et ux	4H		Blake	WV16-0022-001/WV16-0135-000/WV16-0092-001	Russell Blake et al	Gastar Exploration USA, Inc.	6518	Marcellus Fm	3000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT
4705101699	-/-	-/-	1328	Ground Level																				

Comment: -/- Additional Lease Numbers:WV16-0068-000/WV16-0011-001/WV16-0006-000

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

WV Geological & Economic Survey:

Well: County = 51 Permit = 01700

Report Time: Monday, January 10, 2022 11:40:00 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101700	Marshall	1700	Franklin	Powhatan Point	Clarington	39.764298	-80.80492	516709.1	4401615.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LCN_DD	LAT_DD
4705101700	1	As Proposed	515070.4	4402207.9	-80.824038 39 769668

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
4705101700	-/-	Dvtd Orgnl Loc	Cancelled	Wibert H Bungard	5H		Blake	WV16-0072-000/WV16-0022-001/WV16-0135-000	Russell Blake et al	Gastar Exploration USA, Inc.	6521	Marcellus Fm	3000

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_A
4705101700	-/-	-/-	1326	Ground Level																					

Comment: -/- Additional Lease Numbers: WV16-0128-000/WV16-0068-000/WV16-0011-001/WV16-0006-000

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

WV Geological & Economic Survey:

Well: County = 51 Permit = 02048

Report Time: Monday, January 10, 2022 11:40:13 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102048	Marshall	2048	Franklin	Powhatan Point	Clanngton	39.764167	-80.80499	516703.1	4401600.8

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102048	1 As Proposed	514744.8	4403137.7	-80.827819	39.778051
4705102048	1 As Drilled	514744.7	4403138.1	-80.82782	39.778055

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
4705102048	6/9/2019	Dvtd Orqnl Loc	Completed	Wilbert H Bungard et ux		N-1HM	Blake		Russell Blake et al	Tug Hill Operating, LLC	6843	Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BE	
4705102048	6/9/2019	10/29/2010	1319	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6541	14112	14112	5933		0		0			

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705102048	6/9/2019	Water	Fresh Water	Vertical					70				
4705102048	6/9/2019	Water	Salt Water	Vertical					1595				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7044	Marcellus Fm			7198				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7220	Marcellus Fm			7373				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7395	Marcellus Fm			7549				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7571	Marcellus Fm			7724				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7748	Marcellus Fm			7899				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7925	Marcellus Fm			8075				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8097	Marcellus Fm			8250				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8272	Marcellus Fm			8426				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8448	Marcellus Fm			8601				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8623	Marcellus Fm			8776				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8798	Marcellus Fm			8952				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8974	Marcellus Fm			9127				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9149	Marcellus Fm			9303				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9325	Marcellus Fm			9478				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9500	Marcellus Fm			9653				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9675	Marcellus Fm			9829				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9851	Marcellus Fm			10004				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10026	Marcellus Fm			10180				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10202	Marcellus Fm			10355				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10377	Marcellus Fm			10530				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10552	Marcellus Fm			10706				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10728	Marcellus Fm			10881				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10903	Marcellus Fm			11057				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11079	Marcellus Fm			11232				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11254	Marcellus Fm			11407				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11429	Marcellus Fm			11583				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11605	Marcellus Fm			11758				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11780	Marcellus Fm			11934				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11956	Marcellus Fm			12109				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12131	Marcellus Fm			12284				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12306	Marcellus Fm			12460				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12482	Marcellus Fm			12635				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12567	Marcellus Fm			12811				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12633	Marcellus Fm			12986				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13008	Marcellus Fm			13161				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13183	Marcellus Fm			13337				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13359	Marcellus Fm			13512				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13534	Marcellus Fm			13688				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13710	Marcellus Fm			13863				
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13886	Marcellus Fm			13943				

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

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
4705102048	Tug Hill Operating, LLC	2019	581,701	0	0	0	0	3,035	10,101	44,525	104,728	127,505	54,759	113,308	115,740
4705102048	Tug Hill Operating, LLC	2020	1,238,793	144,022	125,512	137,936	83,079	0	133,955	105,650	102,165	140,159	93,197	83,627	84,491

WV Geological & Economic Survey

Well: County = 51 Permit = 02049

Report Time: Monday, January 10, 2022 11:40:55 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705102049	Marshall	2049	Franklin	Powhatan Point	Clarrington	39.764226	-80.804957	516705.9	4401607.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705102049	1	As Proposed	514154.4	4404059.2	-80.834893
4705102049	1	As Drilled	514152.7	4404050.8	-80.834713

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
4705102049	8/9/2019	Dvts Orig Loc	Completed	Wilbert H Bungard et ux	N-2HM	Blake	Russell Blake et al	Tug Hill Operating, LLC	6645	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_BEFO	G_AFT	O_BEFO	O_AFT	NGL_BEFO	NGL_AFT	P_B	
4705102049	8/9/2019	11/22/2018	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6462	17942	17942	8151							

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_QNTY
4705102049	8/9/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102049	8/9/2019	Water	Salt Water	Vertical			1595	Salt Sands (undif)					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	6851	Marcellus Fm	7005	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7027	Marcellus Fm	7180	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7202	Marcellus Fm	7355	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7377	Marcellus Fm	7531	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7553	Marcellus Fm	7706	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7728	Marcellus Fm	7892	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	7904	Marcellus Fm	8057	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8079	Marcellus Fm	8232	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8254	Marcellus Fm	8408	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8430	Marcellus Fm	8503	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8605	Marcellus Fm	8759	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8781	Marcellus Fm	8934	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	8956	Marcellus Fm	9109	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	9131	Marcellus Fm	9285	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	9307	Marcellus Fm	9460	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	9482	Marcellus Fm	9636	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	9658	Marcellus Fm	9811	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	9833	Marcellus Fm	9958	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10008	Marcellus Fm	10162	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10184	Marcellus Fm	10337	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10359	Marcellus Fm	10513	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10535	Marcellus Fm	10688	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10710	Marcellus Fm	10863	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	10865	Marcellus Fm	11039	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11061	Marcellus Fm	11214	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11236	Marcellus Fm	11390	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11412	Marcellus Fm	11565	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11507	Marcellus Fm	11740	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11762	Marcellus Fm	11916	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	11938	Marcellus Fm	12091	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	12113	Marcellus Fm	12261	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	15270	Marcellus Fm	15424	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	15446	Marcellus Fm	15599	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	15621	Marcellus Fm	15775	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	15797	Marcellus Fm	15950	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	15972	Marcellus Fm	16125	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	16147	Marcellus Fm	16301	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	16323	Marcellus Fm	16476	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	16498	Marcellus Fm	16652	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	16674	Marcellus Fm	16827	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	16849	Marcellus Fm	17002	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	17024	Marcellus Fm	17178	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	17200	Marcellus Fm	17353	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	17375	Marcellus Fm	17529	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	17551	Marcellus Fm	17704	Marcellus Fm					
4705102049	8/9/2019	Pay	Oil & Gas	Deviated	17764	Marcellus Fm	17831	Marcellus Fm					

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRO_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102049	Tug Hill Operating, LLC	2019	757,842	0	0	0	0	2,708	12,317	50,200	142,698	163,184	126,950	137,948	111,739
4705102049	Tug Hill Operating, LLC	2020	1,320,268	153,288	137,262	158,098	48,266	0	26	149,198	140,682	185,660	124,675	114,172	109,719

WV Geological & Economic Survey

Well: County = 51 Permit = 02052

Report Time: Monday, January 10, 2022 11:49:53 AM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705102052	Marshall	2052	Franklin	Pouhatan Point	Clarrington	39.754267	-80.804926	516706.6	4401614.1

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102052	1 As Drilled	514851.2	4404376.6	-80.828199	39.763211
4705102052	1 As Proposed	514851.4	4404376.8	-80.828196	39.763213

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
4705102052	09/2019		Old Oprnl Lop. Completed	Wibert H Burgard et ux			N-SHM	Blake	Russell Blake et al	Tug Hill Operating, LLC	6647	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_BEFO	G_AFT	O_BEFO	O_AFT	NGL_BEFO	NGL_AFT	P_B
4705102052	09/2019	1/12/2019	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6535	16979		16979	6163					

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_ONLY
4705102052	09/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102052	09/2019	Water	Salt Water	Vertical			1555	Salt Sands (undif.)					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7126	Marcellus Fm	7271	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7301	Marcellus Fm	7447	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7476	Marcellus Fm	7622	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7651	Marcellus Fm	7757	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7826	Marcellus Fm	7972	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8001	Marcellus Fm	8147	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8176	Marcellus Fm	8322	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8351	Marcellus Fm	8497	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8526	Marcellus Fm	8672	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8701	Marcellus Fm	8847	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	8876	Marcellus Fm	9022	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9051	Marcellus Fm	9193	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9227	Marcellus Fm	9373	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9402	Marcellus Fm	9548	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9577	Marcellus Fm	9723	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9752	Marcellus Fm	9930	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9927	Marcellus Fm	10073	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10102	Marcellus Fm	10240	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10277	Marcellus Fm	10423	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10452	Marcellus Fm	10598	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10628	Marcellus Fm	10773	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10803	Marcellus Fm	10949	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	10978	Marcellus Fm	11124	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	11153	Marcellus Fm	11299	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	11328	Marcellus Fm	11474	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	11503	Marcellus Fm	11649	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	11678	Marcellus Fm	11824	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	11853	Marcellus Fm	11999	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12028	Marcellus Fm	12174	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12203	Marcellus Fm	12349	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12378	Marcellus Fm	12524	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12553	Marcellus Fm	12700	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12728	Marcellus Fm	12875	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12904	Marcellus Fm	13050	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13079	Marcellus Fm	13225	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13254	Marcellus Fm	13400	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13429	Marcellus Fm	13575	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13604	Marcellus Fm	13750	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13779	Marcellus Fm	13925	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	13954	Marcellus Fm	14100	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	14130	Marcellus Fm	14275	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	14305	Marcellus Fm	14451	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	14480	Marcellus Fm	14626	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	14655	Marcellus Fm	14801	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	14830	Marcellus Fm	14976	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15005	Marcellus Fm	15151	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15180	Marcellus Fm	15326	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15355	Marcellus Fm	15501	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15530	Marcellus Fm	15676	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15705	Marcellus Fm	15851	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	15880	Marcellus Fm	16026	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16055	Marcellus Fm	16201	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16230	Marcellus Fm	16376	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16405	Marcellus Fm	16551	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16580	Marcellus Fm	16726	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16755	Marcellus Fm	16901	Marcellus Fm					

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

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
4705102052	Tug Hill Operating, LLC	2019	504.204	0	0	0	0	4.487	14.565	35.665	131.510	115.539	96.054	88.528	97.835
4705102052	Tug Hill Operating, LLC	2020	1,026,788	123,692	101,824	106,888	87,916	0	107,554	89,100	81,827	110,647	79,811	69,534	70,775

WV Geological & Economic Survey

Well: County = 51 Permit = 02053

Report Time: Monday, January 10, 2022 11:41:51 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705102053	Marshall	2053	Franklin	Powhatan Point	Clarrington	39 754257	-80 504941	516707.3	4401610.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705102053	1 As Proposed	514470.2	4404290	-80.031	39.788438
4705102053	1 As Drilled	514469.3	4404289	-80.03101	39.78843

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
4705102053	6/9/2019	Dvtd Orign Loc	Completed	Wilbert H Bungard et ux	N-4HM	Blake	Russell Blake et al	Tug Hill Operating, LLC	6559	19338	19338	5070	Marcellus Fm

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_1	
4705102053	6/9/2019	12/18/2016	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6559	19338	19338	5070							

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_ONTY
4705102053	6/9/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102053	6/9/2019	Water	Salt Water	Vertical			1595	Salt Sands (undrift)					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	7285	Marcellus Fm	7432	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	7461	Marcellus Fm	7608	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	7637	Marcellus Fm	7704	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	7813	Marcellus Fm	7960	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	7989	Marcellus Fm	8136	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8165	Marcellus Fm	8312	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8341	Marcellus Fm	8488	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8517	Marcellus Fm	8664	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8593	Marcellus Fm	8840	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8569	Marcellus Fm	9016	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9045	Marcellus Fm	9192	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9221	Marcellus Fm	9368	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9397	Marcellus Fm	9544	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9573	Marcellus Fm	9720	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9749	Marcellus Fm	9896	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	9925	Marcellus Fm	10072	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10101	Marcellus Fm	10248	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10277	Marcellus Fm	10424	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10453	Marcellus Fm	10600	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10629	Marcellus Fm	10776	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10805	Marcellus Fm	10952	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	10981	Marcellus Fm	11128	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	11157	Marcellus Fm	11304	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	11333	Marcellus Fm	11480	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	11509	Marcellus Fm	11656	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	11685	Marcellus Fm	11832	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	11861	Marcellus Fm	12008	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12037	Marcellus Fm	12214	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12213	Marcellus Fm	12380	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12389	Marcellus Fm	12546	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12565	Marcellus Fm	12712	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12741	Marcellus Fm	12878	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12917	Marcellus Fm	13044	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13093	Marcellus Fm	13210	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13269	Marcellus Fm	13376	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13445	Marcellus Fm	13542	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13621	Marcellus Fm	13708	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13797	Marcellus Fm	13874	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13973	Marcellus Fm	14040	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14149	Marcellus Fm	14206	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14325	Marcellus Fm	14372	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14501	Marcellus Fm	14438	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14677	Marcellus Fm	14504	Marcellus Fm					

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

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
4705102053	Tug Hill Operating, LLC	2019	764,775	0	0	0	0	1,651	14,981	46,363	142,766	150,916	158,193	118,740	131,155
4705102053	Tug Hill Operating, LLC	2020	1,441,989	170,920	153,101	165,188	46,696	0	106	137,787	158,009	206,079	141,589	133,140	128,574

WV Geological & Economic Survey

Well: County = 51 Permit = 02054

Report Time: Monday, January 10, 2022 11:42:18 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102054	Marshall	2054	Franklin	Powhatan Point	Clarrington	39.784318	-80.80491	516710	4401617.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102054	1 As Proposed	515003.8	4404779.1	-80.824757	39.792836
4705102054	1 As Drilled	514999	4404780.9	-80.824813	39.792852

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
4705102054	6/9/2019	Divd Orgnl Loc	Completed	Wilbert H Bungard et ux		N-01M	Blake		Russell Blake et al	Tug Hill Operating, LLC		6647 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_BEFO	G_AFT	O_BEFO	O_AFT	NGL_BEFO	NGL_AFT	P_BEFO	P_AFT
4705102054	6/9/2019	2/1/2019	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6539	17512	17512	5876								

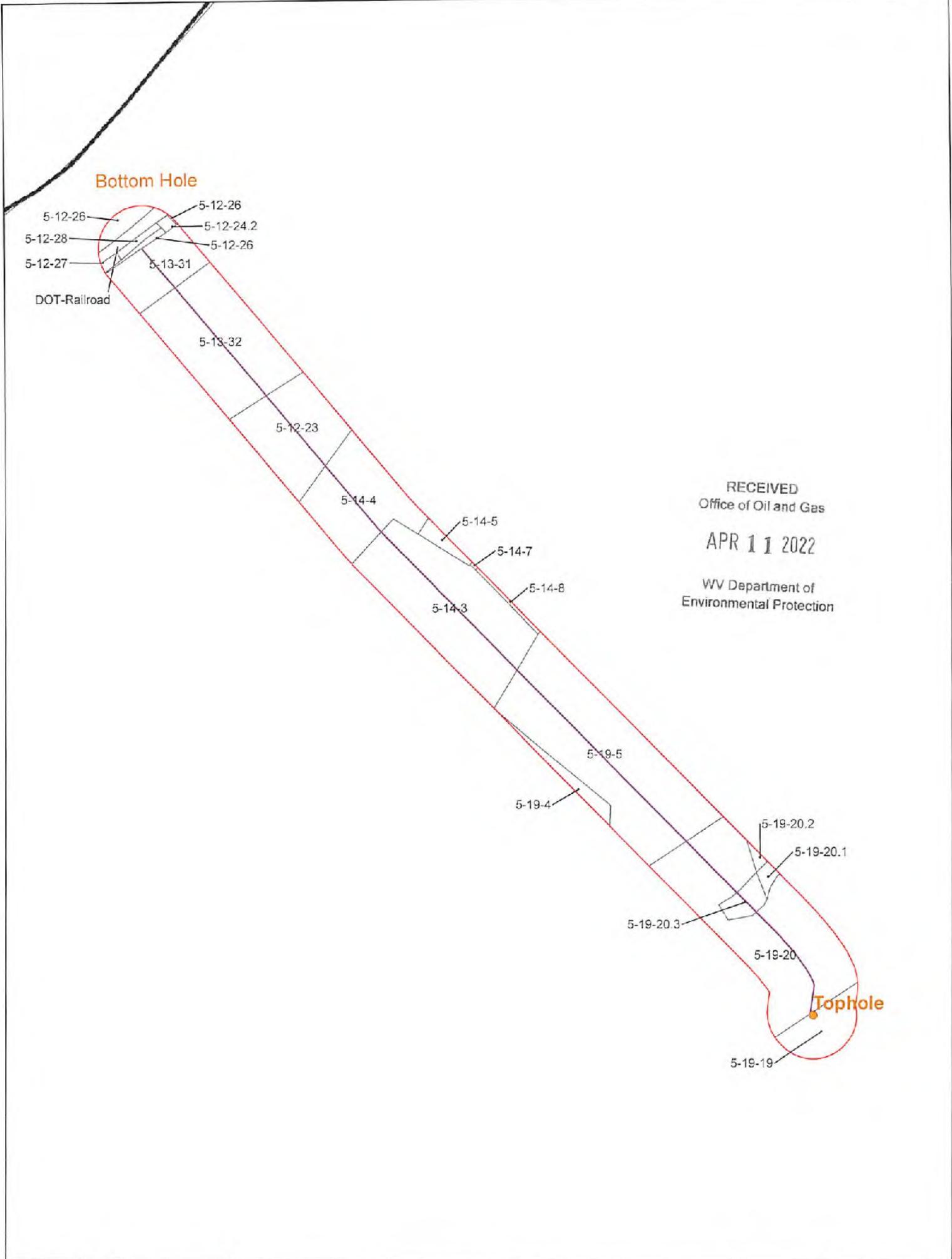
Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_QNTY
4705102054	6/9/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102054	6/9/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7463	Marcellus Fm	7616	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7838	Marcellus Fm	7791	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7813	Marcellus Fm	7967	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7969	Marcellus Fm	8142	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8184	Marcellus Fm	8318	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8340	Marcellus Fm	8493	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8515	Marcellus Fm	8658	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8590	Marcellus Fm	8844	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8866	Marcellus Fm	9019	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9041	Marcellus Fm	9195	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9217	Marcellus Fm	9370	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9392	Marcellus Fm	9545	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9587	Marcellus Fm	9721	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9743	Marcellus Fm	9936	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9918	Marcellus Fm	10072	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10094	Marcellus Fm	10247	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10269	Marcellus Fm	10422	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10444	Marcellus Fm	10598	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10620	Marcellus Fm	10773	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10795	Marcellus Fm	10949	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	10971	Marcellus Fm	11124	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	11148	Marcellus Fm	11299	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	11321	Marcellus Fm	11475	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	11497	Marcellus Fm	11650	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	11672	Marcellus Fm	11826	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	11848	Marcellus Fm	12001	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	12023	Marcellus Fm	12176	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	12198	Marcellus Fm	12352	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	12374	Marcellus Fm	12527	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	15882	Marcellus Fm	16035	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16057	Marcellus Fm	16211	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16233	Marcellus Fm	16386	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16408	Marcellus Fm	16561	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16583	Marcellus Fm	16737	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16759	Marcellus Fm	16912	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	16934	Marcellus Fm	17088	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	17110	Marcellus Fm	17263	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	17338	Marcellus Fm	17386	Marcellus Fm					

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022  
 WV Department of  
 Environmental Protection

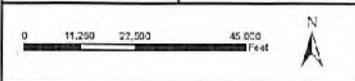
Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102054	Tug Hill Operating, LLC	2019	650,710	0	0	0	1,730	15,575	44,859	140,213	140,314	125,517	119,912	62,590	
4705102054	Tug Hill Operating, LLC	2020	1,281,947	7,146	136,546	150,273	91,121	0	102,072	133,563	143,489	184,877	116,923	109,911	



Coordinate System: NAD 83 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North American 1983  
 False Easting: 100,000.0000  
 False Northing: 0.0000  
 Central Meridian: -81.0000  
 Scale Factor: 0.9999  
 Latitude Of Origin: 36.0000  
 Units: Feet US

**CONFIDENTIAL**



- Utica Well
- Force Pool
- 500' Buffer

Bardstown N-10HU  
 Operators within 500 Feet of Well Borehole



**Operators within 500' Well Bores  
Bardstown N - 10HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER OR LESSEE	ADDRESS
Marshall	Franklin	5-12-23	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-12-24.2 5-12-26 5-12-28	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-12-26	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-12-27	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-12-28	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-13-31	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-13-31	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-13-31	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-13-32	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-3	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-4	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-5	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-5	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-14-7	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-8	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-19	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-20	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-20.1	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-20.2	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-20.3	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

05/19/2022

Marshall	Franklin	5-19-4	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-19-5	TH EXPLORATION II, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Jean C. Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Gregory Lee Sberna	18 Hickory Avenu Moundsville, WV 26041  2106 First Street Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Donald R. Montgomery	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Kenneth Jefferson Montgomery	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Naomi Montgomery Bussard	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Mary Evelyn Hughes	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Debra L. Richey	2006 E. Dupont Avenue Belle, WV 25015
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Patricia Louise Crow	1738 Green Field Ridge Cameron, WV 26033
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Nancy Rae McCardle	1081 Shutler Lane Proctor, WV 26055
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Paul G. Fox	5761 St. Josephs Road Proctor, WV 26055
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Patricia Parriott	803 Green Valley Road Cameron, WV 26033
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Brian Edwin Lemasters	75 Durward Court Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Timothy Scott Lemasters	<b>05/13/2022</b> 308 East North Street Worthington, OH 43085

Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Deborah D. Mercer	2676 Fork Ridge Road Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Trudy B. Sampson	371 Rodriguez Lane Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Harry Leroy Parriott	83 N. 34th Street Newark, OH 43055
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Kimberly D. Lake	5735 Ancient Angora Street Las Vegas, NV 89031
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Randy K. Parriott	389 Quail Run Road Newark, OH 43055
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Aaron Jay Parriott	201 SW 5th Avenue Okeechobee, FL 34974
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Troy Douglas Parriott	1759 NE Media Avenue Jensen Beach, FL 34957
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Shane Thomas Parriott	24585 NW 160th Drive Okeechobee, FL 34972
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Willard Paul Parriott	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Frances Ornetta Hall	5710 North Loft Lane Tucson, AZ 85718
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Charles W. Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Elizabeth Blanche Stanek	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Maryetta M. Phillips	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Wonedora Dora Roth	108 Pine Avenue Unit 102 Clairsville, OH 43950 05/13/2022
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Emma Lou Higgs	13536 Turtle Marsh Loop Apt 518 Orlando, FL 32837

Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Kathryn B. Nolte	125 Shepherd Terrace St. Clairsville, OH 43950
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Deborah L. Lathrop	121 Robinson Street Allegan, MI 49010
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Patricia F. Daniels	9515 Bluewing Terrace Blue Ash, OH 45241
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Barbara L. Carna	575 Conestoga Trail Pulaski, PA 16143
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Kimberly L. Travis	67541 Willow Grove Road St. Clairsville, OH 43950
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	David W. Hall	P.O. Box 372 St. Clairsville, OH 43950
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Irwin Lee Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Betty J. Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Jerry Richard Beavon	644 Allegheny Drive Sun City Center, FL 33573
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Marjorie J. Beavon	368 Cedar Falls Drive Apollo Center, FL 33572
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Alice Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Maggie Higgs	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Dora Travis Rist	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	The Board of Trustees of the Simpson United Methodist Church	800 7th Street Moundsville, WV 26041 <b>05/13/2022</b>
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Susan J. Burke	392 Skyline Drive Moundsville, WV 26041

Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	C. Richard Wilson	515 Jefferson Avenue Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Dina A. Youtz	104 Freedom Circle Winchester, VA 22602
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Edna Ruth Clifton aka Ruth Wilson McCracken	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Walter C. Wilson	234 Happy Valley Road South Williamson, KY 41503
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	William H. Wilson	65198 Three Hills Drive Bellaire, OH 43906
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Carole Sue Myers	2566 Fork Ridge Road Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Nancy J. Woods	2588 Fork Ridge Road Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Raymond W. Woods	210 Snedeker Lane Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Francis Glen Wilson	P.O. Box 894386 Mililani, HI 96789
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Susan Marie Johnson aka Susan M. Huber	3301 Arena Blvd., Apt 46 Sacramento, CA 95834
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Charles Steven Johnson	4 Adena Drive Glen Dale, WV 26038
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Daisy Rine	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Gertrude Anderson	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	H. Jay Zink or Unknown Heirs	Unknown  05/13/2022
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Ann K. Wood	4911 Oleander Drive Wilmington, NC 28403

Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Charles C. Wilson	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Kip Layne Wilson	360 South Main Street Lot 734 West Salem, OH 44287
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Wendy Jo Warsinsky	3476 West County Road 100 South Rockport, IN 47635
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Jodi Ann Maddox	300 Lee Street Glen Dale, WV 26038
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Marvin C. Wilson	214 Saint Andrews Circle Oxford, MS 36855
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Juanita Sue Hatch	1437 North Overland Trails Dr. Washington, UT 84780
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Joyce Ann Ostray	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Howard W. Johnson	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Evelyn L. Fox	3099 Silverlake, Box 466 Erlanger, KY 41018
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Bertha Lynn Klug	47 Shutler Lane Proctor, WV 26055
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Unknown Heirs of Thomas Allen Wilson	Unknown
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Mavis K. Kime	23273 Flory Road Defiance, OH 43512
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Pennie S. Howe	544 State Route 108 Napolean, OH 43545
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Hugh M. Wendell	200 Prospect Street Defiance, OH 43512 05/13/2022
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	William D. Wendell	1150 Wayne Avenue Defiance, OH 43512

Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Patricia M. Vargp	30 Duquesne Drive Napoleon, OH 43545
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Jewel Durham Wilson	2805 Lake Road Huntsville, TX 77340
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Anna L. Wilson	3708 NW 19th Avenue Okeechobee, FL 34972
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Terry Eugene Wilson	P.O. Box 3756 Courtenay BC, Canada V9N7P1
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Karen Wilson Taylor	1105 12th Street, Lot #2 Moundsville, WV 26041
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	Esther Wilson Allen	2674 Poplar Springs Road Cameron, WV 26033
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	John Alfred Wilson	3708 NW 19th Avenue Okeechobee, FL 34972
Marshall	Franklin	5-12-24.2 5-12-26 5-12-27 5-12-28	David Scott Wilson	199 SW Rucks Dairy Road Okeechobee, FL 34972
Marshall	Franklin	DOT-RAILROAD	CSX TRANSPORTATION INC	500 Water Street J-180 Jacksonville, FL 32202

\* TH Exploration II, LLC is a wholly owned subsidiary of THQ Appalachia I, LLC. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under that certain Operating Services Agreement dated July 23, 2014. For further information please see the recorded affidavit submitted as part of the permit pack.

"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."

05/13/2022



**TUG HILL**  
**OPERATING**

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

**Well Name: Bardstown N-10HU**

**Pad Name: Blake**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,401,568.77

Easting: 516,697.65

*Approved by  
1/19/2022*

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

**Jerry V. DeRosa, Director EH&S Affairs**

**(724) 338-2029 (office)**

**(412) 736-5767 (cellular)**

**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

05/13/2022



April 7, 2022

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

RE: Bardstown N-10HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

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

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

Sincerely,

**Amy L. Morris**  
Permitting Specialist  
Tug Hill Operating

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection



**BARDSTOWN LEASE  
WELL N-10HU  
397.8794± ACRES**

**SURFACE HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,401,568.77  
E) 516,697.65

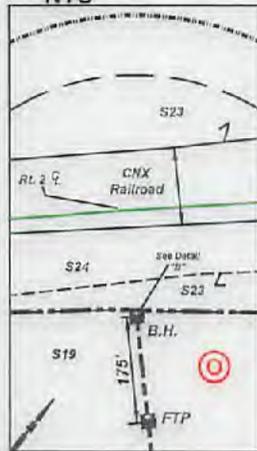
**LANDING POINT 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,401,868.78  
E) 516,555.72

**AZIMUTH 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,403,229.73  
E) 515,206.51

**AZIMUTH 2**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,403,283.52  
E) 515,157.45

**BOTTOM HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,404,246.26  
E) 514,350.42

Detail "A"  
NTS



Detail "B"  
NTS

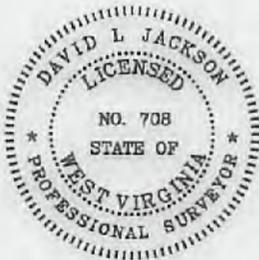


NOTES:

- 05-13-41A MAPPED AS PART OF 05-13-41
- 05-13-41B MAPPED AS PART OF 05-13-41. INCORRECTLY ASSESSED AS 05-25-22 4.15 ACRES
- 05-13-41C MAPPED AS PART OF 05-13-41. NOT ASSESSED.

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Deed Book/Page
10*14636	5-19-19	A	RUSSELL & MARY BLAKE	775 568
10*14141	5-19-20	B	DAVID & DEBORAH TAKACH	720 233
10*14141	5-19-20.3	C	DAVID & DEBORAH TAKACH	720 233
10*14141	5-19-20.1	D	DAVID & DEBORAH TAKACH	720 233
10*14141	5-19-20.2	E	DAVID & DEBORAH TAKACH	720 233
10*14925	5-19-5	F	MOUNTAIN TOP PRODUCTIONS LLC	840 444
10*14613	5-19-4	G	CHESTNUT HOLDINGS INC	827 556
10*18121	5-14-8	H	LAWRENCE EUGENE AND NICOLE M ANDERSON	927 68
10*14568	5-14-3	J	LEROY ANDERSON AND DONNA KAY ANDERSON	772 69
10*14945	5-14-7	I	LEROY ANDERSON AND DONNA KAY ANDERSON	735 433
10*14568	5-14-5	K	LEROY ANDERSON AND DONNA KAY ANDERSON, ET AL	772 69
10*14568	5-14-4	L	LEROY ANDERSON AND DONNA KAY ANDERSON	772 69
041111	5-12-23	M	EDWARD DOUGLAS GUIRE ET AL	663 91
10*16609	5-13-32	N	C PATRICIA WOBBIG, ET AL	916 118
041112	5-13-31	O	COLUMBIAN CHEMICALS COMPANY, ET AL	691 363
10*14636	5-13-30	P	WANDA JUNE RIDING, ET AL	794 503

Tags	Number	Tax Map - Parcel	Surface Owner	Acres
	S1	05-22-04	CNX RCPC, LLC	136.32
B	S2	05-19-20	WILBERT H BUNGARD ET UX	114.989
G	S3	05-19-04	JUSTIN ERINE	82.75
	S4	05-24-02	JOHN B WILLIAMS, ET AL	20.17
	S5	05-13-41C	HEIRS OF BENTON DARRAH, LILLIE MAE DUGAN ALMA BITZER, ALBERTA PALMER & AUDREY HOWARD	1.0
	S6	05-13-41B	LARRY & JUDY DARRAH	2.50
	S7	05-13-41A	RODNEY & RHONDA JACKSON	17.05
	S8	05-13-42	THOMAS & VICTORIA BOWMAN	45.0
	S9	05-13-34	DAVID J. MAST	40.0
	S10	05-13-35	DAVID J. MAST	24.90
	S11	05-13-23	DAVID J. MAST	69.59
	S12	05-13-33	NATHAN D. YODER	140.90
	S13	05-13-25	AARON PAUL HOLDREN, ET UX	30.0
	S14	05-13-27	AARON PAUL HOLDREN, ET UX	25.0
	S15	05-13-28	AARON PAUL HOLDREN, ET UX	17.0
P	S16	05-13-30	CINDY D ALUFF	3.0
	S17	05-13-28.1	CINDY D ALUFF	1.80
	S18	05-13-29	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	1.0
O	S19	05-13-31	CNX LAND RESOURCES, INC.	31.723
	S20	05-13-31.1	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.277
	S21	05-13-31.2	CNX LAND RESOURCES, INC.	0.938
	S22	05-12-27	CNX RCPC, LLC	0.67
	S23	05-12-26	CSX	4.00
	S24	05-12-28	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	1.1
	S26	05-12-24.2	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.539
	S27	05-12-25	CSX	12.8
	S28	05-12-24	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.964
	S29	05-12-24.3	CNX RCPC, LLC	18.523
	S30	05-12-24.1	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.994
	S31	05-12-23.2	MARSHALL COUNTY COAL RESOURCES, INC.	12.50
	S32	05-12-22	CNX RCPC, LLC	0.944
J	S33	05-14-07	DONNA K. & LEROY ANDERSON	4.60
	S34	05-14-16	GEORGE A KNUTH	1.6386
	S35	05-14-9.3	VERNEE A RINE, ET UX	4.128
	S36	05-14-9.4	VERNEE A RINE, ET UX	3.404
	S37	05-14-10.3	VERNEE A & JODY K RINE	1.54
H	S38	05-14-08	LAWRENCE EUGENE ANDERSON	18.29
	S39	05-14-10.1	IDA BELLE RUTAN (LIFE), RALPH R HOYT	0.50
	S40	05-14-10.2	IDA BELLE RUTAN (LIFE), RALPH R HOYT	0.495
	S41	05-14-11	DALE R GALLAHER, ET AL	12
	S42	05-14-12	DALE R GALLAHER & HARRY E GALLAHER	135.100
	S43	05-14-14	ROBERT L SHIELDS, ET AL	29.05
	S44	05-19-06	MARTHA M RUTAN	5.1089
	S45	05-19-7.3	OLAN V RUTAN, ET UX	0.341
	S46	05-19-7.4	OLAN V RUTAN, ET UX	1.787
	S47	05-19-7.2	OLAN RUTAN	2.783
	S48	05-19-07	OLAN V RUTAN, ET UX	32.4801
	S49	05-19-7.1	ROBERT L SHIELDS, ET UX	3.399
F	S50	05-19-20.2	CASANDRA L HARMON	7.448
D	S51	05-19-20.1	JOHN J EBERT, LIFE	3.848
C	S52	05-19-20.3	SIDNEY HARMON	3.715
	S53	05-19-7.5	ADAM T & JESSIE L ROBINSON	2.640
	S54	05-19-08	CNX RCPC, LLC	40
	S55	05-19-11	ERNIE L ANDERSON, ET UX	0.08
	S56	05-19-10	ERNIE L ANDERSON, ET UX	0.8125
	S57	05-19-12	ERNIE L ANDERSON, ET UX	5.33
	S58	05-19-09	PENNY ELAINE ASHCRAFT	10.44
	S59	05-19-29	ERNIE L & TAMMY L ANDERSON	10.961
	S60	05-19-15	CARLY HERRAN	0.72
	S61	05-19-30	ERNIE & TAMMY ANDERSON	19.037
	S62	05-19-30.1	ERIC R W & ASHLEY A HUGGINS	2.911
	S63	05-19-31	CHARLES F & DIANA L HAYNES	8.779
	S64	05-19-32	JASPER N BURCH ET AL - TRUSTEES	0.397
	S65	05-19-28	DAVID E YOHO & MARK E YOHO	56.899
	S66	05-14-10.4	ADAM R & JESSIE L ROBINSON	3.343
A	S67	05-19-19	RUSSELL & MARY BLAKE	64.248
	S68	05-19-21	SAMMY E WHITLATCH, ET AL	116.45
	S69	05-19-03	MILTON R & LINDA L NEAL	72.01
	S70	05-19-22	GEORGE A & KELLY A KNUTH	71.0
	S71	05-19-02	MILTON R & LINDA L NEAL	63.1
	S72	05-19-01	ROBERT RINE	30.80
	S73	05-20-26	ROBERT RINE	60.52
	S74	05-20-25	ROBERT RINE	43.82
	S75	05-13-40	ROBERT RINE	29.76
	S76	05-13-39	THOMAS BOWMAN & VICTORIA BOWMAN	46
N	S77	05-13-32	C PATRICIA WOBBIG ET AL	103.66
M	S78	05-12-23	CNX RCPC, LLC	236.10
K	S79	05-14-05	DONNA K. & LEROY ANDERSON	110.5
L	S80	05-14-04	LEROY & DONNA K ANDERSON	29.29
I	S81	05-14-03	LEROY & DONNA K ANDERSON	130
	S82	05-14-10	WANDA P RINE - LIFE	107.372
F	S83	05-19-05	MARGIRENE KEEFE	126.03
	S84	05-19-13	RONA LEE RICE & CHARLES F MCCARDLE	34.5



*David L Jackson*

P.S. 708

47-051-02446 Deep

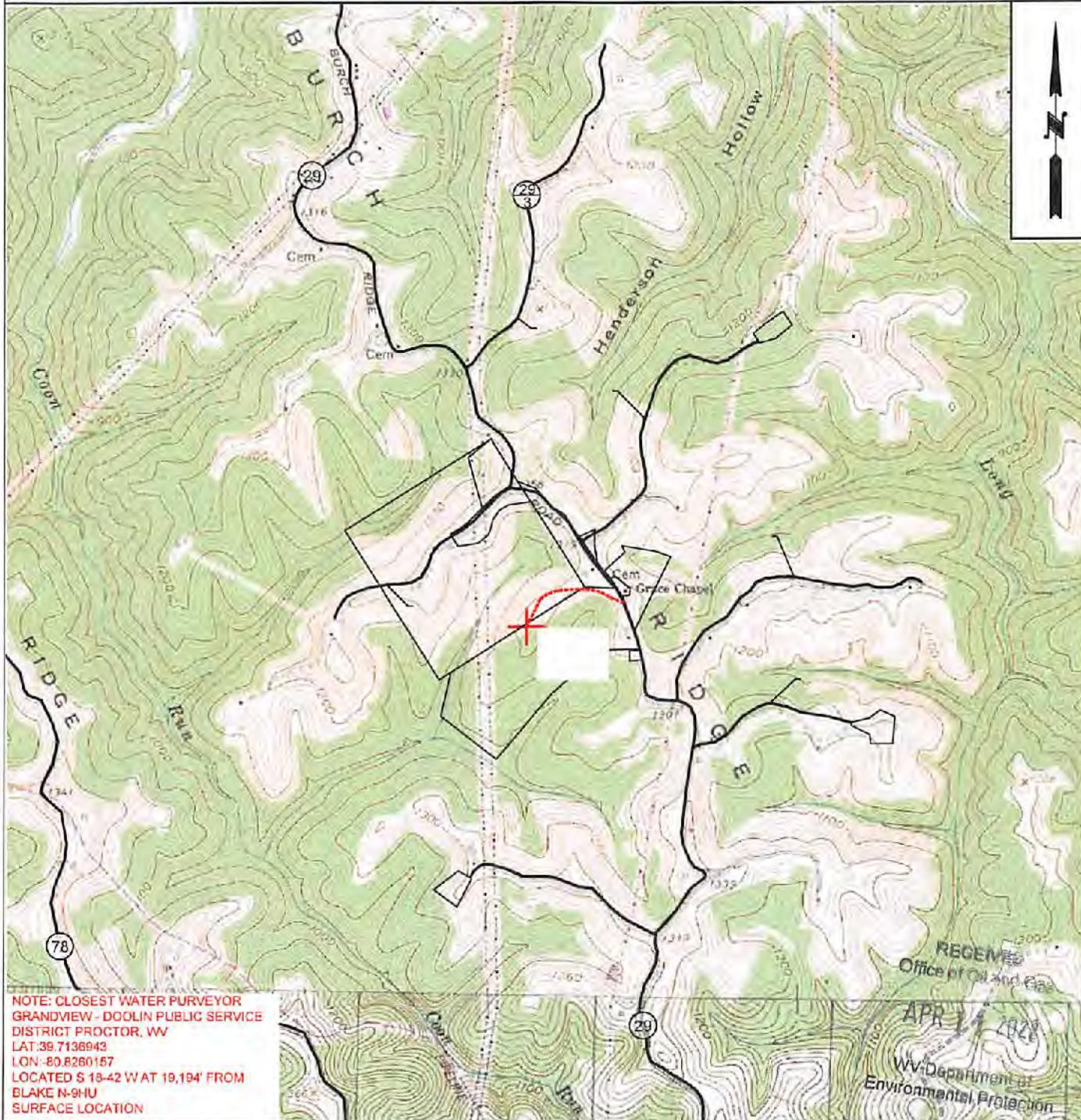
OPERATOR'S  
WELL #: Bardstown N-10HU  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

WELL PLAT  
PAGE 2 OF 3  
DATE: 04/08/2022



**TUG HILL  
OPERATING**

05/13/2022



NOTE: CLOSEST WATER PURVEYOR  
 GRANDVIEW - DOOLIN PUBLIC SERVICE  
 DISTRICT PROCTOR, WV  
 LAT: 39.7136943  
 LON: -80.8280157  
 LOCATED S 18-42 W AT 19,194' FROM  
 BLAKE N-9HU  
 SURFACE LOCATION

 <b>TUG HILL OPERATING</b>	<b>OPERATOR</b>	494510851	<b>TOPO SECTION</b>	<b>LEASE NAME</b>
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	BLAKE
			<b>SCALE:</b>	<b>DATE:</b>
			1" = 2000'	DATE: 11-20-2018

**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

APR 11 2022

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	
✓ 10*14634	5-19-19	A	RUSSELL & MARY BLAKE	GASTAR EXPLORATION USA INC	1/8+	773 568	RECEIVED Office of Oil and Gas APR 15 2022 WV Department of Environmental Protection	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 28/499	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
✓ 10*14141	5-19-20	B	DAVID & DEBORAH TAKACH	GASTAR EXPLORATION USA INC	1/8+	720 233		N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 43/563	
✓ 10*14141	5-19-20.3	C	DAVID & DEBORAH TAKACH	GASTAR EXPLORATION USA INC	1/8+	720 233		N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 43/563	
✓ 10*14925	5-19-5	F	MOUNTAIN TOP PRODUCTIONS LLC	GASTAR EXPLORATION INC	1/8+	840 444		N/A	N/A	Gastar Exploration Inc fka Atinum Marcellus I LLC: 33/308	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
✓ 10*14568	5-14-3	I	LEROY ANDERSON AND DONNA KAY ANDERSON	GASTAR EXPLORATION USA INC	1/8+	772 69		N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 27/639	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
✓ 10*14568	5-14-4	L	LEROY ANDERSON AND DONNA KAY ANDERSON	GASTAR EXPLORATION USA INC	1/8+	772 69		N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 27/639	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
✓ 041111	5-12-23	M	EDWARD DOUGLAS GUIRE ET AL	CNX LAND RESOURCES INC	1/8+	663 91		N/A	CNX Land Resources Inc to CNX Gas Company LLC: 745/117	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
✓ 10*16609	5-13-32	N	C PATRICIA WOBIG	TH EXPLORATION LLC	1/8+	916 118		N/A	N/A	N/A	N/A	N/A	N/A
✓ 10*16610	5-13-32	N	RICHARD B SMITH SR & EVELYN MARIE SMITH	TH EXPLORATION LLC	1/8+	916 120		N/A	N/A	N/A	N/A	N/A	N/A
✓ 041112	5-13-31	O	COLUMBIAN CHEMICALS COMPANY	CNX LAND RESOURCES INC	1/8+	691 363		N/A	CNX Land Resources Inc to CNX Gas Company LLC: 745/117	CNX Gas Company LLC to Noble Energy Inc: 851/220	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
10*14688	5-13-31	O	DEBBIE RICHMOND	GASTAR EXPLORATION USA INC	1/8+	786 398	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 29/157	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
10*14690	5-13-31	O	DANA HAMBEL	GASTAR EXPLORATION USA INC	1/8+	789 289	N/A	N/A	Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 29/157	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
10*14692	5-13-31	O	BARBARA ANN DEEM	GASTAR EXPLORATION USA INC	1/8+	804 247	N/A	N/A	Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 31/184	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
10*14693	5-13-31	O	CHARLES DOWNS	GASTAR EXPLORATION USA INC	1/8+	809 501	N/A	N/A	Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 31/184	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	

10*14694	5-13-31	O	MARY FUNK	GASTAR EXPLORATION USA INC	1/8+	821	36	N/A	RECEIVED Office of Oil and Gas APR 11 2022 MDW Department of Environmental Protection	Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14695	5-13-31	O	KATHY MITCHELL	GASTAR EXPLORATION USA INC	1/8+	822	258	N/A		Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14696	5-13-31	O	MCKENZIE ANN BORTH	GASTAR EXPLORATION USA INC	1/8+	827	224	N/A		Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14697	5-13-31	O	ANGELA ADAMS WALLACE	GASTAR EXPLORATION USA INC	1/8+	839	533	N/A		Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 33/308	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14698	5-13-31	O	JASON ADAMS	GASTAR EXPLORATION INC	1/8+	842	372	N/A	N/A	Gastar Exploration Inc fka Gastar Exploration USA Inc to Atinum Marcellus I LLC: 33/308	Gastar Exploration Inc to TH Exploration II LLC: 36/9	TH Exploration II LLC to TH Exploration LLC: 43/519	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*16873	5-13-31	O	LUCILLE R YOUNG	TH EXPLORATION LLC	1/8+	917	93	N/A	N/A	N/A	N/A	N/A	N/A
10*16875	5-13-31	O	CHRISTOPHER M EARICH AND BREA D EARICH	TH EXPLORATION LLC	1/8+	917	99	N/A	N/A	N/A	N/A	N/A	N/A
10*16877	5-13-31	O	RENEE E CAIN	TH EXPLORATION LLC	1/8+	917	89	N/A	N/A	N/A	N/A	N/A	N/A
10*16878	5-13-31	O	DIANE L GOODE	TH EXPLORATION LLC	1/8+	917	91	N/A	N/A	N/A	N/A	N/A	N/A
10*18571	5-13-31	O	JUDITH R GADE AND WILLIAM S GADE	TH EXPLORATION LLC	1/8+	935	72	N/A	N/A	N/A	N/A	N/A	N/A
10*18760	5-13-31	O	DAVID HAMBEL	TH EXPLORATION LLC	1/8+	938	452	N/A	N/A	N/A	N/A	N/A	N/A
10*19420	5-13-31	O	REBECCA L RICHMOND	TH EXPLORATION LLC	1/8+	940	264	N/A	N/A	N/A	N/A	N/A	N/A
10*19916	5-13-31	O	RALPH M RICHMOND & WENDY L RICHMOND	TH EXPLORATION LLC	1/8+	948	595	N/A	N/A	N/A	N/A	N/A	N/A
10*26995	5-13-31	O	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1041	56	N/A	N/A	N/A	N/A	N/A	N/A



April 7, 2022

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

RE: Bardstown N-10HU

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 29 in the area reflected on the Bardstown N-10HU 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 blue ink that reads "Amy L. Morris".

Amy L. Morris  
Permitting Specialist – Appalachia Region

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

WW-6AC  
(1/12)

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

Date of Notice Certification: 04/06/2022

API No. 47- 051 - \_\_\_\_\_  
Operator's Well No. Bardstown N-10HU  
Well Pad Name: Blake

**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>516,697.65</u>
County: <u>Marshall</u>	Northing: <u>4,401,568.77</u>
District: <u>Franklin</u>	Public Road Access: <u>Burch Ridge Road - CR 29</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>Russell Blake, et ux; William Bungard, et ux</u>
Watershed: <u>French Creek - Ohio River (Undefined)</u>	

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:  *PLEASE CHECK ALL THAT APPLY  <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED  <input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED  <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or  <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)  <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION  <input checked="" type="checkbox"/> 5. PUBLIC NOTICE  <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		<b>OOG OFFICE USE ONLY</b>  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED
RECEIVED Office of Oil and Gas  APR 11 2022  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.

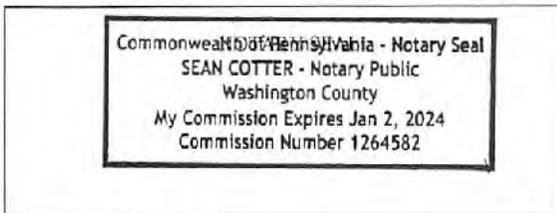
05/13/2022

WW-6AC  
(1/12)

**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></u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amorris@tug-hillop.com</u>



Subscribed and sworn before me this 6 day of Apr 21.

*[Signature]* Notary Public

My Commission Expires 1/2/2024

**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).

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of  
Environmental Protection

**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:** 4/9/2022    **Date Permit Application Filed:** 4/8/2022

Notice of:

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

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

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

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

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

SURFACE OWNER(s)

Name: William H. & Pamela June Bungard  
 Address: 243 Bandit Drive  
Proctor, WV 26055  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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

Name: Russell & Mary Blake  
 Address: 3343 Burch Ridge Road  
Proctor, WV 26055  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: n/a  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: Consol Energy  
 Address: 275 Technology Drive, Suite 101  
Canonsburg, PA 15317-9565  
 COAL OPERATOR  
 Name: n/a  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER AND/OR WATER PURVEYOR(S)

Name: \*See list attached  
 Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: n/a  
 Address: \_\_\_\_\_

\*Please attach additional forms if necessary

RECEIVED  
Office of Oil and Gas  
APR 11 2022  
WV Department of Environmental Protection

**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.dhep.wv.gov/air-and-gas/pages/default.aspx](http://www.dhep.wv.gov/air-and-gas/pages/default.aspx).

APR 11 2022

**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

05/13/2022

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

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection

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.**

05/13/2022

**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.

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection

05/13/2022

WW-6A  
(8-13)

API NO. 47- 051 -  
OPERATOR WELL NO. Bardstown N-10HU  
Well Pad Name: Blake

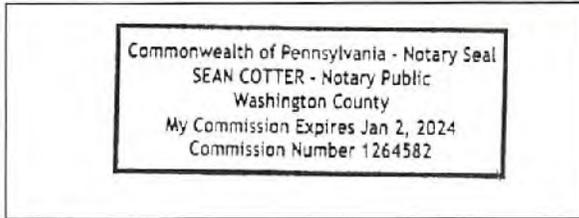
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-0388  
Email: amorris@tug-hill-op.com *amorris*

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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 6 day of April 2022.

*[Signature]*

\_\_\_\_\_  
Notary Public

My Commission Expires 1/2/2024

RECEIVED  
Office of Oil and Gas

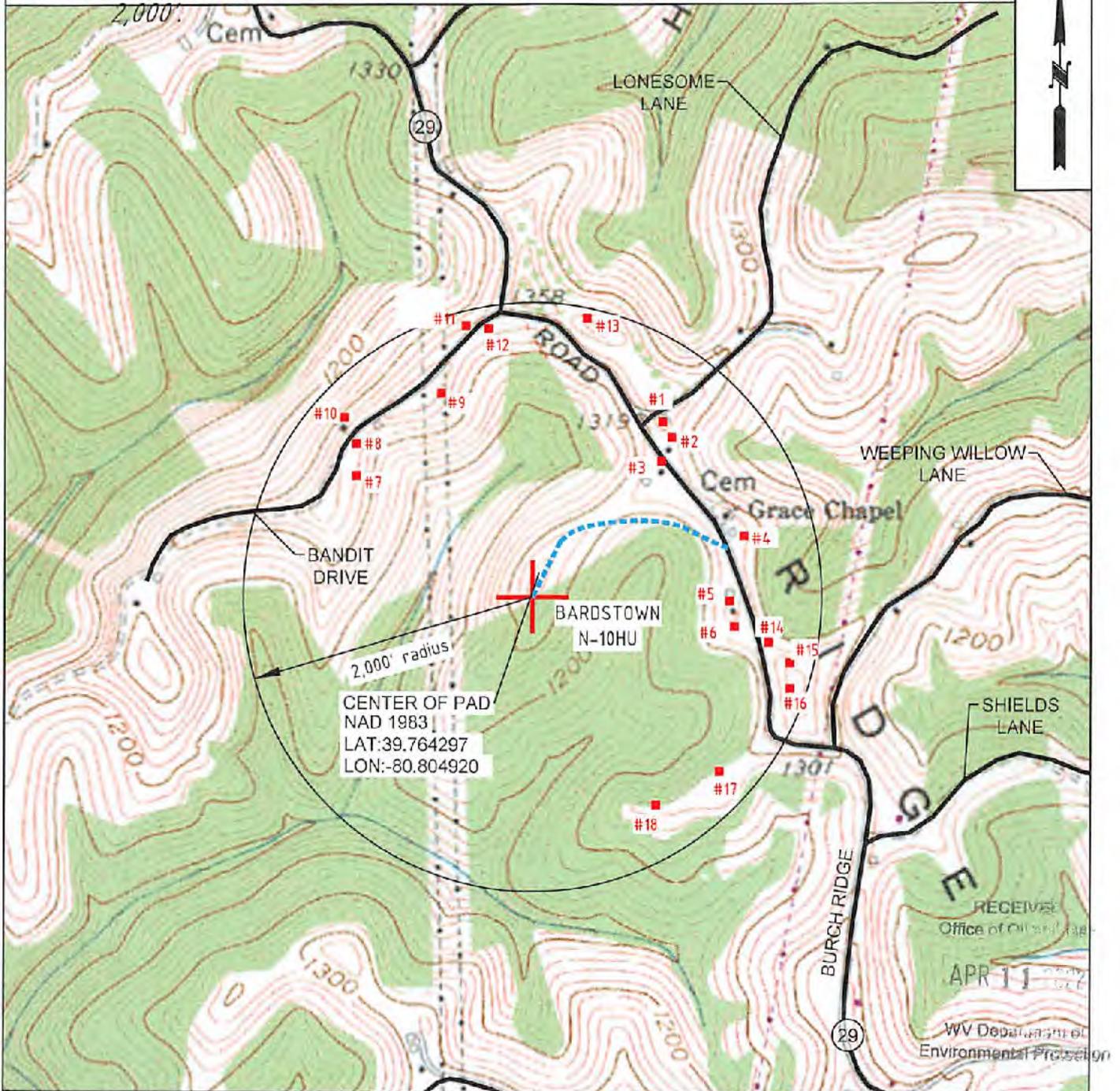
APR 11 2022

WV Department of  
Environmental Protection

05/13/2022

# PROPOSED BARDSTOWN N-10HU

There appears to be Eighteen ( 18 ) possible water sources within



 <b>TUG HILL OPERATING</b>	<b>OPERATOR</b>	494510851	<b>TOPO SECTION</b>	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	BARDSTOWN
			<b>SCALE:</b>	<b>DATE:</b>
			1" = 1000'	DATE: 03-28-2022

RESIDENCES WITHIN 2000' OF BARDSTOWN WELL PAD		There appear to be Eighteen (18) Residences & Zero (0) Businesses, Churches, Schools or Emergency Facilities within 2000' of the Bardstown Well Pad			
WELL: Bardstown					
DISTRICT: Franklin					
COUNTY: Marshall					
STATE: WV					
Topo Spot #	Description	Property Owner	E-911 Address	Mailing Address	Notes
House/Cabin #1	05-19-10	Anderson, Ernie Lenix	13 Lonesome Lane, Proctor, WV 26055	3156 Burch Ridge Rd., Proctor, WV 26055	
House/Cabin #2	05-19-10	Anderson, Ernie Lenix	3156 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #3	05-19-9	Ashcraft, Penny Elaine	3171 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #4	05-19-29	Anderson, Ernie L. & Tammy L.	3298 Burch Ridge Rd., Proctor, WV 26055	3156 Burch Ridge Rd., Proctor, WV 26055	
House/Cabin #5	05-19-19	Blake, Russell & Mary	3343 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #6	05-19-19.1	Blake, Russell & Mary	3435 Burch Ridge Rd., Proctor, WV 26055	3343 Burch Ridge Rd., Proctor, WV 26055	
House/Cabin #7	05-19-20	Bungard, Wilbert H etux	296 Bandit Drive, Proctor, WV 26055	243 Bandit Drive, Proctor, WV 26055	
House/Cabin #8	05-19-20	Bungard, Wilbert H etux	243 Bandit Drive, Proctor, WV 26055		
House/Cabin #9	05-19-20.3	Harmon, Sidney	92 Bandit Drive, Proctor, WV 26055	37 Bandit Drive, Proctor, WV 26055	
House/Cabin #10	05-19-20	Bungard, Wilbert H etux	No E911	243 Bandit Drive, Proctor, WV 26055	
House/Cabin #11	05-19-20.2	Harmon, Casandra L.	37 Bandit Drive, Proctor, WV 26055		
House/Cabin #12	05-19-20.1	Ebert, John I - Life	26 Bandit Drive, Proctor, WV 26055		
House/Cabin #13	05-19-7.5	Robinson, Adam T & Jesse L.	2932 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #14	05-19-30.1	Higgins, Eric R W & Ashley A.	3430 Burch Ridge Rd., Proctor, WV 26055	3486 Burch Ridge Rd., Proctor, WV 26055	
House/Cabin #15	05-19-30.1	Higgins, Eric R W & Ashley A.	3486 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #16	05-19-31	Haynes, Charles F & Diana L.	3508 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #17	05-19-28	Yoho, David E & Mark E Yoho	3555 Burch Ridge Rd., Proctor, WV 26055		
House/Cabin #18	05-19-28	Yoho, David E & Mark E Yoho	No E911 Address.	3555 Burch Ridge Rd., Proctor, WV 26055	

RECEIVED  
 Office of Environmental Affairs  
 APR 11 2022  
 WV Department of Environmental Protection

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

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

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

**Date of Notice:** 02/11/2022      **Date Permit Application Filed:** 04/03/2022

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

HAND DELIVERY       CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

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

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

Name: William H. & Pamela Juna Bungard (Access Road & Well Pad)  
Address: 243 Bandit Drive  
Proctor, WV 26055

Name: Russell & Mary Blake  
Address: 3343 Burch Ridge Road  
Proctor, WV 26055

RECEIVED  
Office of Oil and Gas  
APR 11 2022

**Notice is hereby given:**

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

State: West Virginia      UTM NAD 83      Easting: 516,697.65  
County: Marshall      Northing: 4,401,568.77  
District: Franklin      Public Road Access: Burch Ridge Road - CR 29  
Quadrangle: Powhatan Point 7.5'      Generally used farm name: Russell Blake, et ux; William Bungard, et ux  
Watershed: French Creek - Ohio River

WV Department of  
Environmental Protection

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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).

**Notice is hereby given by:**

Well Operator: West Virginia  
Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Telephone: 724-749-8388  
Email: amorris@tug-hilltop.com  
Facsimile: 724-338-2030

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

**Oil and Gas Privacy Notice:**

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





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

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

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

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

January 21, 2022

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 Blake Pad, Marshall County  
 Bardstown N-10HU Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2013-0426 which has been issued to Tug Hill Operating LLC for access to the State Road for a well site located off Marshall County Route 29 SLS MP 3.39.

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

Very Truly Yours,

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

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

RECEIVED  
 Office of Oil and Gas

APR 11 2022

WV Department of  
 Environmental Protection



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

**Bardstown 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

RECEIVED  
Office of Oil and Gas

APR 11 2022

WV Department of  
Environmental Protection



