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west virginia department of environmental protection

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

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

Monday, May 16, 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-11HU  
47-051-02447-00-00

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-11HU  
Farm Name: RUSSELL & MARY BLAKE  
U.S. WELL NUMBER: 47-051-02447-00-00  
Horizontal 6A New Drill  
Date Issued: 5/16/2022

Promoting a healthy environment.

05/20/2022



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west virginia department of environmental protection

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

Randall M. Albert, Chairman  
dep.wv.gov

April 28, 2022

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

RE: Application for Deep Well Permit – API #47-051-02447

COMPANY: Tug Hill Operating, LLC

FARM: Russell & Mary Blake Bardstown N-11HU

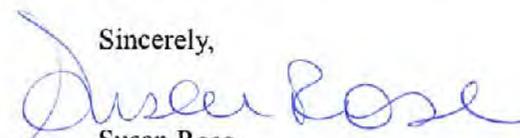
COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point

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,

  
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; Woodford 7HU 47-051-02147; Bardstown N-9HU 47-051-02445

05/20/2022

## 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).

05/20/2022

WW-6B  
(04/15)

HGA  
API NO. 47-051 - 02447 DEEP  
OPERATOR WELL NO. Bardstown N-11HU  
Well Pad Name: Blake

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

1) Well Operator: Tug Hill Operating, LLC      494510851      Marshall      Franklin      Powhatan Point 7  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Bardstown N-11HU      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 X      Oil \_\_\_\_\_      Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_

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

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 11,103' - 11,222', thickness of 119' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,372'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 21,071' ✓

11) Proposed Horizontal Leg Length: 9,387.55' ✓

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', 1595' (47-051-02048 & 47-051-02054) ✓

15) Approximate Coal Seam Depths: Sewickley Coal - 816' and Pittsburgh Coal - 916', 969'-975', 1054'-1059'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated 47-051-02048 & WR-353  
47-051-02054

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

(a) If Yes, provide Mine Info:      Name: \_\_\_\_\_      RECEIVED  
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Depth: \_\_\_\_\_      APR 11 2022  
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#	2,800'	2,800' ✓	1,974FT^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	10,130'	10,130' ✓	3,311FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	21,071'	21,071' ✓	4,999FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,067' ✓	
Liners							

*MJK 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

Kind:	N/A			
Sizes:	N/A			RECEIVED Office of Oil and Gas
Depths Set:	N/A			APR 11 2022

WV Department of  
Environmental Protection

WW-6B  
(10/14)

API NO. 47- 051 - \_\_\_\_\_  
OPERATOR WELL NO. Bardstown N-11HU  
Well Pad Name: Blake

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(10,557'). 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 23,500,000 lb. proppant and 430,000 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

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\*Note: Attach additional sheets as needed.

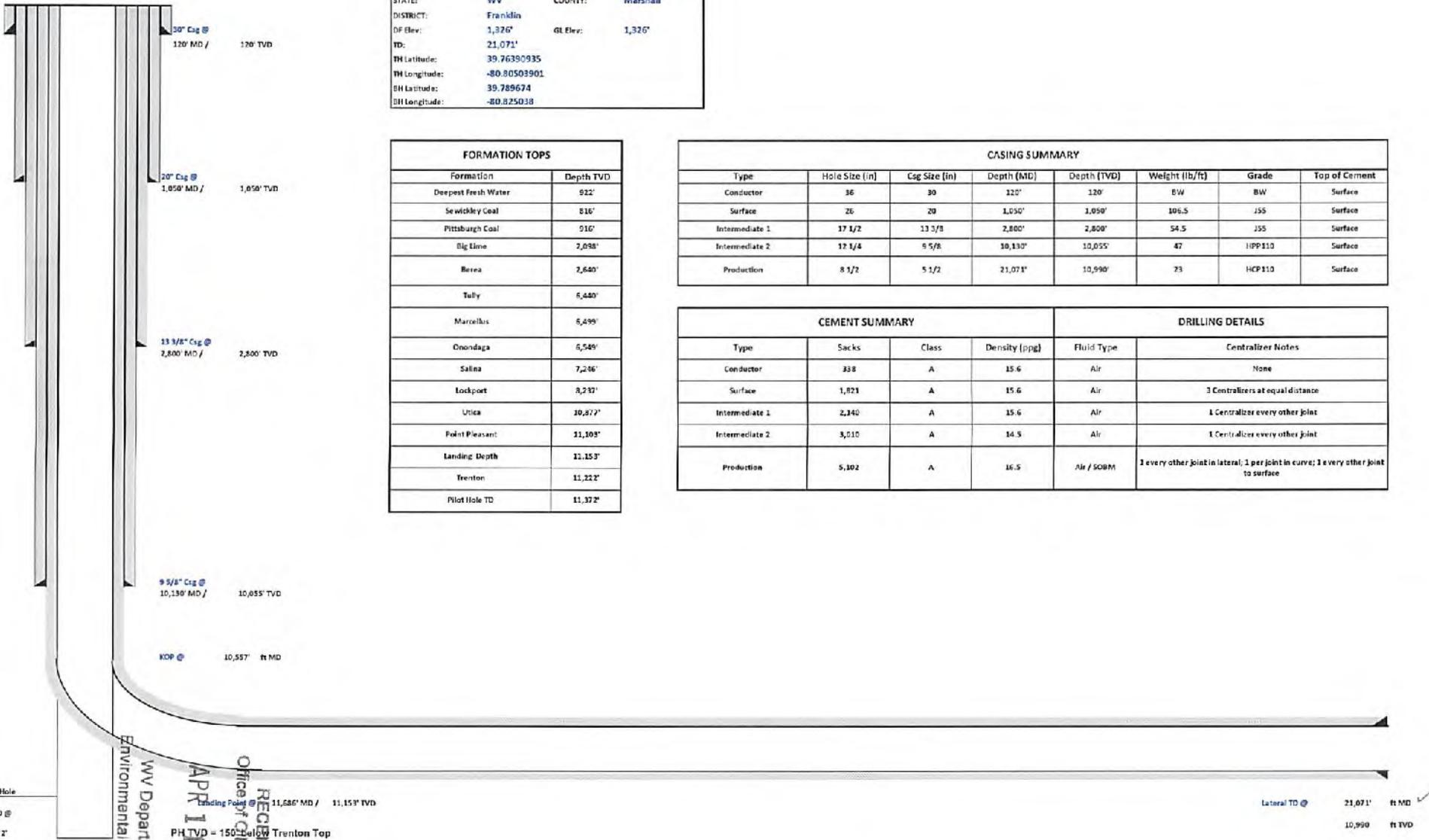


**WELL NAME:** Bardstown N-11HU  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Franklin  
**DF Elev:** 1,326' **GL Elev:** 1,326'  
**TD:** 21,071'  
**TH Latitude:** 39.76390935  
**TH Longitude:** -80.80503901  
**BH Latitude:** 39.789674  
**BH Longitude:** -80.825038

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	922'
Sewickley Coal	816'
Pittsburgh Coal	916'
Big Lime	2,098'
Berea	2,640'
Tully	5,450'
Marcellus	5,499'
Onondaga	5,549'
Salina	7,246'
Lockport	8,292'
Utica	10,877'
Point Pleasant	11,109'
Landing Depth	11,153'
Trenton	11,222'
Pilot Hole TD	11,372'

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'	6W	BW	Surface
Surface	26	20	1,050'	1,050'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,800'	2,800'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,130'	10,055'	47	11PP110	Surface
Production	8 1/2	5 1/2	21,071'	10,990'	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	2,340	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	3,510	A	14.5	Air	1 Centralizer every other joint
Production	5,102	A	16.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface



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PH TD = 150' below Trenton Top



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

**Bardstown N-11HU**

**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"	2,800'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,130'	CTS
Production	5 1/2"	HCP110	8 1/2"	21,071'	CTS

**Cement**

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

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

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

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

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

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 16.5 ppg, Y = 1.03

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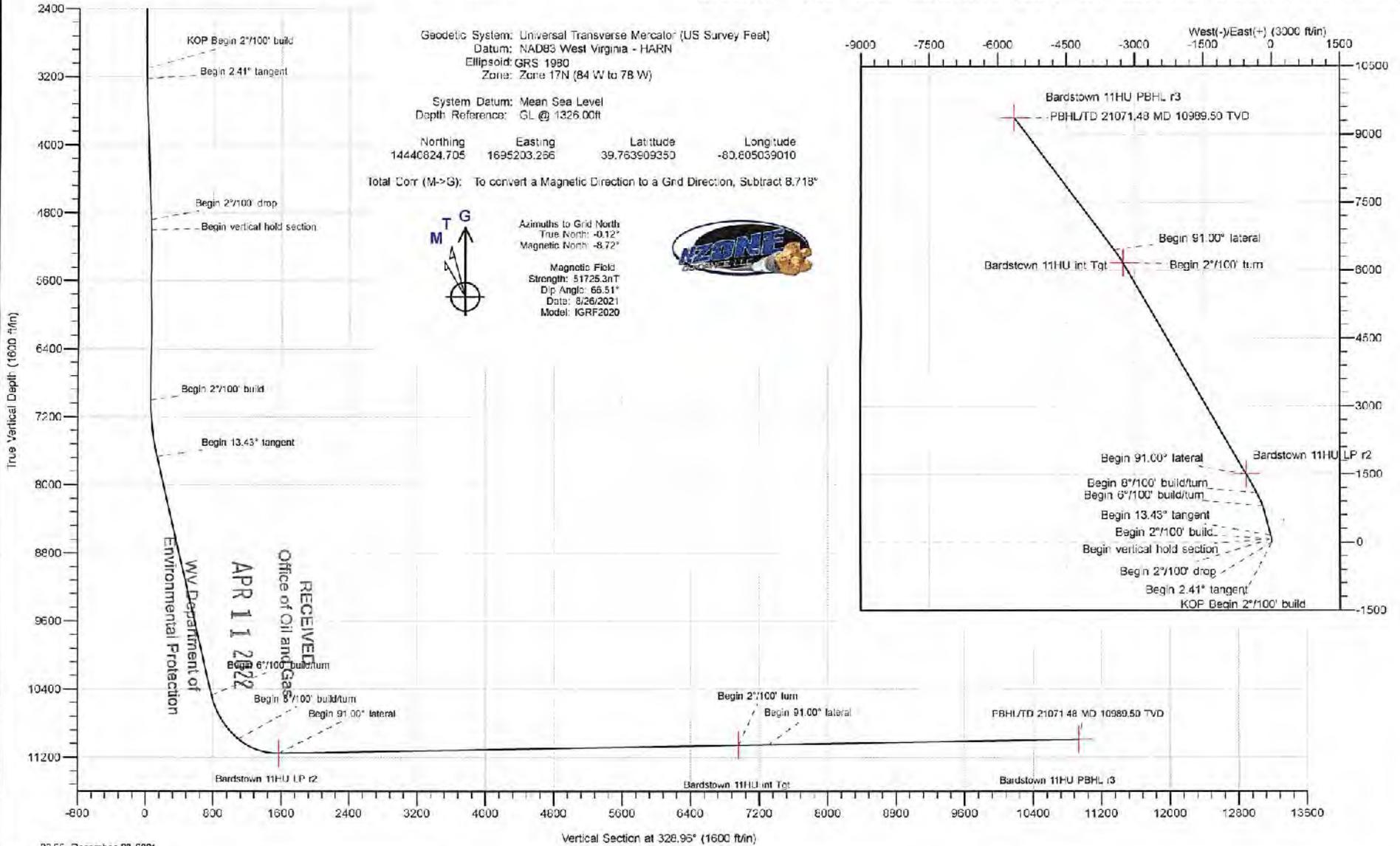
Well: Bardstown N-11 HU (slot L)  
 Site: Blake / Bardstown Pad  
 Project: Marshall County, West Virginia NAD83 UTM 17N  
 Design: rev3

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	0.000	0.00	
2	3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2 1/100' build
3	3220.68	2.41	0.00	3220.65	2.54	0.00	2.00	0.000	2.18	Begin 2.41' tangent
4	4880.86	2.41	0.00	4879.35	72.46	0.00	0.00	0.000	62.08	Begin 2 1/100' drop
5	5001.54	0.00	0.00	5000.00	75.00	0.00	2.00	180.000	64.26	Begin vertical hold section
6	7001.54	0.00	0.00	7000.00	75.00	0.00	0.00	0.000	64.26	Begin 2 1/100' build
7	7673.03	13.43	344.71	7665.35	150.66	-20.65	2.00	344.710	139.65	Begin 13.43° tangent
8	10556.63	13.43	344.71	10470.11	795.58	-197.27	0.00	0.000	784.24	Begin 6 1/100' build/turn
9	11172.06	50.00	332.99	10985.15	1065.60	-327.71	6.00	-15.011	1099.14	Begin 8 1/100' build/turn
10	11585.69	91.00	330.00	11153.00	1501.22	-555.28	8.00	-4.551	1572.59	Begin 91.00° lateral
11	17073.62	91.00	330.00	11059.00	5165.85	-3249.00	0.00	0.000	6959.12	Begin 2 1/100' turn
12	17425.31	91.00	322.97	11052.87	6459.59	-3442.85	2.00	-89.969	7309.90	Begin 91.00° lateral
13	21071.49	91.00	322.97	10989.50	9370.01	-5638.32	0.00	0.000	10935.62	PBHL/TD 21071.48 MD 10989.50 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Bardstown 11HU PBHL r3 - plan hits target center	10939.50	9370.01	-5638.32	4430194.697	1689564.954	39.769574000	-80.825036000
Bardstown 11HU int Tgt - plan hits target center	11059.00	6166.85	-3249.00	4445691.542	1691954.277	39.769864100	-80.816555700
Bardstown 11HU LP r2 - plan misses target center by 0.02ft at 11685.69ft MD (11153.00 TVD, 1501.22 N, -555.28 E)	11153.00	1501.21	-555.29	4442325.912	1694047.972	39.769035400	-80.807003500



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

System Datum: Mean Sea Level  
 Depth Reference: GL @ 1326.00ft

Northing: 14440824.705    Easting: 1695203.295    Latitude: 39.763909350    Longitude: -80.805039010

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.713°



Azimuths to Grid North  
 True North: -0.12°  
 Magnetic North: -8.72°

Magnetic Field  
 Strength: 51725.3nT  
 Dip Angle: 66.51°  
 Date: 8/26/2021  
 Model: IGRF2020



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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-11 HU (slot L)
<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-11 HU (slot L)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

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

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

<b>Well</b>	Bardstown N-11 HU (slot L)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,440,824.705 usft	<b>Latitude:</b>	39.763909350
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,695,203.256 usft	<b>Longitude:</b>	-80.805039010
<b>Position Uncertainty</b>	0.00 ft		<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,326.00 ft
<b>Grid Convergence:</b>						

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	8/26/2021	-8.593	66.515	51,725.31329487

<b>Design</b>	rev3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	328.96

Plan Survey Tool Program		Date		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,071.45 rev3 (Original Hole)		

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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-11 HU (slot L)
<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-11 HU (slot L)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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	0.000		
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.000		
3,220.68	2.41	0.00	3,220.65	2.54	0.00	2.00	2.00	0.00	0.000		
4,690.66	2.41	0.00	4,879.35	72.46	0.00	0.00	0.00	0.00	0.000		
5,001.54	0.00	0.00	5,000.00	75.00	0.00	2.00	-2.00	0.00	160.000		
7,001.54	0.00	0.00	7,000.00	75.00	0.00	0.00	0.00	0.00	0.000		
7,673.03	13.43	344.71	7,665.35	150.56	-20.66	2.00	2.00	0.00	344.710		
10,556.63	13.43	344.71	10,470.11	796.58	-197.27	0.00	0.00	0.00	0.000		
11,172.06	50.00	332.99	10,935.15	1,085.60	-327.71	6.00	5.94	-1.90	-15.011		
11,685.69	91.00	330.00	11,153.01	1,501.22	-555.28	8.00	7.98	-0.58	-4.551		
17,073.92	91.00	330.00	11,059.00	6,166.85	-3,249.00	0.00	0.00	0.00	0.000	Bardstown 11HU int T	
17,425.31	91.00	322.97	11,052.87	6,459.59	-3,442.86	2.00	0.00	-2.00	-69.869		
21,071.49	91.00	322.97	10,989.50	9,370.01	-5,638.32	0.00	0.00	0.00	0.000	Bardstown 11HU PB+	

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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Bardstown N-11 HU (slot L)
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-11 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	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	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
100.00	0.00	0.00	100.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
200.00	0.00	0.00	200.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
300.00	0.00	0.00	300.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
400.00	0.00	0.00	400.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
500.00	0.00	0.00	500.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
600.00	0.00	0.00	600.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
700.00	0.00	0.00	700.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
800.00	0.00	0.00	800.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
900.00	0.00	0.00	900.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,440,824.705	1,695,203.266	39.763909350	-80.805039010
<b>KOP Begin 2"/100' build</b>									
3,200.00	2.00	0.00	3,199.98	1.75	0.00	14,440,826.450	1,695,203.266	39.763914142	-80.805038997
3,220.68	2.41	0.00	3,220.65	2.54	0.00	14,440,827.247	1,695,203.266	39.763916330	-80.805038991
<b>Begin 2.41° tangent</b>									
3,300.00	2.41	0.00	3,299.89	5.83	0.00	14,440,830.587	1,695,203.266	39.763925503	-80.805038965
3,400.00	2.41	0.00	3,399.81	10.09	0.00	14,440,834.798	1,695,203.266	39.763937069	-80.805038932
3,500.00	2.41	0.00	3,499.72	14.30	0.00	14,440,839.010	1,695,203.266	39.763948635	-80.805038900
3,600.00	2.41	0.00	3,599.63	18.52	0.00	14,440,843.221	1,695,203.266	39.763960200	-80.805038867
3,700.00	2.41	0.00	3,699.54	22.73	0.00	14,440,847.433	1,695,203.266	39.763971766	-80.805038834
3,800.00	2.41	0.00	3,799.45	26.94	0.00	14,440,851.644	1,695,203.266	39.763983332	-80.805038802
3,900.00	2.41	0.00	3,899.36	31.15	0.00	14,440,855.855	1,695,203.266	39.763994897	-80.805038769
4,000.00	2.41	0.00	3,999.27	35.36	0.00	14,440,860.067	1,695,203.266	39.764006463	-80.805038736
4,100.00	2.41	0.00	4,099.18	39.57	0.00	14,440,864.278	1,695,203.266	39.764018029	-80.805038704
4,200.00	2.41	0.00	4,199.10	43.78	0.00	14,440,868.490	1,695,203.266	39.764029595	-80.805038671
4,300.00	2.41	0.00	4,299.01	48.00	0.00	14,440,872.701	1,695,203.266	39.764041160	-80.805038639
4,400.00	2.41	0.00	4,398.92	52.21	0.00	14,440,876.912	1,695,203.266	39.764052726	-80.805038606
4,500.00	2.41	0.00	4,498.83	56.42	0.00	14,440,881.124	1,695,203.266	39.764064292	-80.805038573
4,600.00	2.41	0.00	4,598.74	60.63	0.00	14,440,885.335	1,695,203.266	39.764075857	-80.805038541
4,700.00	2.41	0.00	4,698.65	64.84	0.00	14,440,889.547	1,695,203.266	39.764087423	-80.805038508
4,800.00	2.41	0.00	4,798.56	69.05	0.00	14,440,893.758	1,695,203.266	39.764098989	-80.805038476

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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-11 HU (slot L)
<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-11 HU (slot L)	<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
4,880.86	2.41	0.00	4,879.35	72.46	0.00	14,440,897.163	1,695,203.266	39.764108341	-80.805038449
<b>Begin 2°/100' drop</b>									
4,900.00	2.03	0.00	4,898.48	73.20	0.00	14,440,897.905	1,695,203.266	39.764110379	-80.805038443
5,001.54	0.00	0.00	5,000.00	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
<b>Begin vertical hold section</b>									
5,100.00	0.00	0.00	5,098.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,200.00	0.00	0.00	5,198.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,300.00	0.00	0.00	5,298.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,400.00	0.00	0.00	5,398.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,500.00	0.00	0.00	5,498.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,600.00	0.00	0.00	5,598.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,700.00	0.00	0.00	5,698.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,800.00	0.00	0.00	5,798.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
5,900.00	0.00	0.00	5,898.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,000.00	0.00	0.00	5,998.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,100.00	0.00	0.00	6,098.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,200.00	0.00	0.00	6,198.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,300.00	0.00	0.00	6,298.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,400.00	0.00	0.00	6,398.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,500.00	0.00	0.00	6,498.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,600.00	0.00	0.00	6,598.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,700.00	0.00	0.00	6,698.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,800.00	0.00	0.00	6,798.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
6,900.00	0.00	0.00	6,898.46	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
7,001.54	0.00	0.00	7,000.00	75.00	0.00	14,440,899.705	1,695,203.266	39.764115321	-80.805038429
<b>Begin 2°/100' build</b>									
7,100.00	1.97	344.71	7,098.44	76.63	-0.45	14,440,901.337	1,695,202.820	39.764119805	-80.805040004
7,200.00	3.97	344.71	7,198.30	81.63	-1.81	14,440,906.333	1,695,201.454	39.764133534	-80.805044826
7,300.00	5.97	344.71	7,297.92	89.98	-4.10	14,440,914.688	1,695,199.170	39.764156492	-80.805052889
7,400.00	7.97	344.71	7,397.17	101.69	-7.30	14,440,926.391	1,695,195.971	39.764188652	-80.805064184
7,500.00	9.97	344.71	7,495.94	116.72	-11.41	14,440,941.429	1,695,191.860	39.764229974	-80.805078667
7,600.00	11.97	344.71	7,594.11	135.08	-16.42	14,440,959.782	1,695,186.842	39.764280408	-80.805096410
7,673.03	13.43	344.71	7,665.35	150.56	-20.66	14,440,975.267	1,695,182.609	39.764322961	-80.805111354
<b>Begin 13.43° tangent</b>									
7,700.00	13.43	344.71	7,691.59	156.81	-22.31	14,440,981.310	1,695,180.957	39.764339566	-80.805117186
7,800.00	13.43	344.71	7,768.85	179.01	-28.43	14,441,003.713	1,695,174.832	39.764401127	-80.805138807
7,900.00	13.43	344.71	7,886.12	201.41	-34.56	14,441,026.116	1,695,168.708	39.764462699	-80.805160423
8,000.00	13.43	344.71	7,983.38	223.81	-40.68	14,441,048.519	1,695,162.583	39.764524251	-80.805182050
8,100.00	13.43	344.71	8,080.65	246.22	-46.81	14,441,070.922	1,695,156.459	39.764585813	-80.805203671
8,200.00	13.43	344.71	8,177.91	268.62	-52.93	14,441,093.325	1,695,150.334	39.764647374	-80.805225292
8,300.00	13.43	344.71	8,275.18	291.02	-59.06	14,441,115.728	1,695,144.210	39.764708936	-80.805246913
8,400.00	13.43	344.71	8,372.45	313.43	-65.18	14,441,138.131	1,695,138.086	39.764770498	-80.805268535
8,500.00	13.43	344.71	8,469.71	335.83	-71.31	14,441,160.534	1,695,131.960	39.764832060	-80.805290156
8,600.00	13.43	344.71	8,566.98	358.23	-77.43	14,441,182.937	1,695,125.836	39.764893621	-80.805311777
8,700.00	13.43	344.71	8,664.24	380.64	-83.55	14,441,205.340	1,695,119.711	39.764955183	-80.805333399
8,800.00	13.43	344.71	8,761.51	403.04	-89.68	14,441,227.743	1,695,113.587	39.765016745	-80.805355020
8,900.00	13.43	344.71	8,858.77	425.44	-95.80	14,441,250.146	1,695,107.462	39.765078307	-80.805376642
9,000.00	13.43	344.71	8,956.04	447.85	-101.93	14,441,272.549	1,695,101.338	39.765139869	-80.805398263
9,100.00	13.43	344.71	9,053.30	470.25	-108.05	14,441,294.952	1,695,095.213	39.765201430	-80.805419885
9,200.00	13.43	344.71	9,150.57	492.65	-114.18	14,441,317.355	1,695,089.089	39.765262992	-80.805441507
9,300.00	13.43	344.71	9,247.84	515.05	-120.30	14,441,339.758	1,695,082.964	39.765324553	-80.805463128
9,400.00	13.43	344.71	9,345.10	537.46	-126.43	14,441,362.161	1,695,076.840	39.765386115	-80.805484750
9,500.00	13.43	344.71	9,442.37	559.86	-132.55	14,441,384.564	1,695,070.715	39.765447677	-80.805506372



Planning Report - Geographic

Database: DB\_Dec2220\_v16  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia NAD83 UTM  
 17N  
 Site: Blake / Bardstown Pad  
 Well: Bardstown N-11 HU (slot L)  
 Wellbore: Original Hole  
 Design: rev3

Local Co-ordinate Reference: Well Bardstown N-11 HU (slot L)  
 TVD Reference: GL @ 1326.00ft  
 MD Reference: GL @ 1326.00ft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,500.00	13.43	344.71	9,539.63	582.26	-138.68	14,441,406.967	1,695,064.590	39.765509238	-80.805527894
9,700.00	13.43	344.71	9,636.90	604.67	-144.80	14,441,429.370	1,695,058.466	39.765570300	-80.805549615
9,900.00	13.43	344.71	9,734.16	627.07	-150.92	14,441,451.773	1,695,052.341	39.765632362	-80.805571237
9,900.00	13.43	344.71	9,831.43	649.47	-157.05	14,441,474.176	1,695,046.217	39.765693923	-80.805592659
10,000.00	13.43	344.71	9,928.70	671.88	-163.17	14,441,496.579	1,695,040.092	39.765755485	-80.805614481
10,100.00	13.43	344.71	10,025.96	694.28	-169.30	14,441,518.983	1,695,033.968	39.765817047	-80.805636103
10,200.00	13.43	344.71	10,123.23	716.68	-175.42	14,441,541.386	1,695,027.843	39.765878608	-80.805657725
10,300.00	13.43	344.71	10,220.49	739.09	-181.55	14,441,563.789	1,695,021.719	39.765940170	-80.805679347
10,400.00	13.43	344.71	10,317.76	761.49	-187.67	14,441,586.192	1,695,015.594	39.766001732	-80.805700959
10,500.00	13.43	344.71	10,415.02	783.89	-193.80	14,441,608.595	1,695,009.470	39.766063293	-80.805722591
10,556.63	13.43	344.71	10,470.11	796.58	-197.27	14,441,621.282	1,695,006.001	39.766098157	-80.805734636
<b>Begin 6°/100' build/turn</b>									
10,600.00	15.96	342.26	10,512.05	807.12	-200.41	14,441,631.819	1,695,002.856	39.766127115	-80.805745948
10,650.00	18.90	340.23	10,559.75	821.28	-205.24	14,441,645.987	1,694,998.022	39.766166053	-80.805753039
10,700.00	21.85	338.74	10,606.62	837.58	-211.36	14,441,662.281	1,694,991.908	39.766210836	-80.805784671
10,750.00	24.82	337.58	10,652.53	855.95	-218.74	14,441,680.655	1,694,984.531	39.766261341	-80.805810785
10,800.00	27.79	336.65	10,697.35	876.36	-227.36	14,441,701.080	1,694,975.909	39.766317430	-80.805841308
10,850.00	30.76	335.90	10,740.96	898.74	-237.20	14,441,723.439	1,694,966.068	39.766378948	-80.805871656
10,900.00	33.75	335.27	10,783.23	923.03	-248.23	14,441,747.731	1,694,955.034	39.766445728	-80.805915236
10,950.00	36.73	334.72	10,824.07	949.17	-260.43	14,441,773.870	1,694,942.837	39.766517585	-80.805958043
11,000.00	39.71	334.25	10,863.35	977.08	-273.76	14,441,801.784	1,694,929.511	39.766594323	-80.806005646
11,050.00	42.70	333.84	10,900.96	1,006.69	-288.17	14,441,831.396	1,694,915.092	39.766676733	-80.806056730
11,100.00	45.69	333.45	10,936.80	1,037.92	-303.65	14,441,862.626	1,694,899.621	39.766761590	-80.806111549
11,150.00	48.68	333.13	10,970.78	1,070.68	-320.13	14,441,895.387	1,694,883.138	39.766851858	-80.806169853
11,172.05	50.00	332.99	10,985.15	1,085.60	-327.71	14,441,910.303	1,694,875.557	39.766892666	-80.806196617
<b>Begin 8°/100' build/turn</b>									
11,200.00	52.23	332.77	11,002.69	1,104.96	-337.63	14,441,929.660	1,694,865.641	39.766945887	-80.806231955
11,250.00	56.22	332.40	11,031.92	1,140.96	-356.30	14,441,965.659	1,694,846.962	39.767044862	-80.806298151
11,300.00	60.21	332.05	11,058.25	1,178.55	-376.11	14,442,003.254	1,694,827.159	39.767148227	-80.806368330
11,350.00	64.20	331.75	11,081.56	1,217.56	-396.93	14,442,042.263	1,694,806.331	39.767256480	-80.806442151
11,400.00	68.19	331.45	11,101.74	1,257.79	-418.69	14,442,082.495	1,694,784.578	39.767366097	-80.806519254
11,450.00	72.18	331.18	11,118.89	1,299.05	-441.26	14,442,123.754	1,694,762.006	39.767479541	-80.806599263
11,500.00	76.17	330.92	11,132.32	1,341.14	-464.54	14,442,165.839	1,694,738.726	39.767595258	-80.806681789
11,550.00	80.16	330.67	11,142.57	1,383.84	-488.42	14,442,208.546	1,694,714.850	39.767712684	-80.806766429
11,600.00	84.16	330.42	11,149.39	1,426.96	-512.77	14,442,251.666	1,694,690.495	39.767831247	-80.806852771
11,650.00	88.15	330.17	11,152.74	1,470.29	-537.49	14,442,294.989	1,694,665.779	39.767950371	-80.806940395
11,685.69	91.00	330.00	11,153.01	1,501.22	-555.28	14,442,325.920	1,694,647.983	39.768035423	-80.807003489
<b>Begin 91.00° lateral</b>									
11,700.00	91.00	330.00	11,152.76	1,513.61	-562.44	14,442,338.311	1,694,640.829	39.768068494	-80.807028853
11,800.00	91.00	330.00	11,151.01	1,600.20	-612.43	14,442,424.900	1,694,590.837	39.768307588	-80.807206100
11,900.00	91.00	330.00	11,149.27	1,686.79	-662.42	14,442,511.489	1,694,540.845	39.768545682	-80.807383348
12,000.00	91.00	330.00	11,147.52	1,773.38	-712.41	14,442,598.078	1,694,490.852	39.768783776	-80.807560596
12,100.00	91.00	330.00	11,145.78	1,859.97	-762.41	14,442,684.667	1,694,440.860	39.769021864	-80.807737848
12,200.00	91.00	330.00	11,144.03	1,946.56	-812.40	14,442,771.257	1,694,390.867	39.769259952	-80.807915100
12,300.00	91.00	330.00	11,142.29	2,033.14	-862.39	14,442,857.846	1,694,340.875	39.769498040	-80.808092354
12,400.00	91.00	330.00	11,140.54	2,119.73	-912.38	14,442,944.435	1,694,290.883	39.769736128	-80.808269606
12,500.00	91.00	330.00	11,138.80	2,206.32	-962.38	14,443,031.024	1,694,240.890	39.769974216	-80.808446854
12,600.00	91.00	330.00	11,137.05	2,292.91	-1,012.37	14,443,117.613	1,694,190.898	39.770212304	-80.808624121
12,700.00	91.00	330.00	11,135.31	2,379.50	-1,062.36	14,443,204.202	1,694,140.905	39.770450392	-80.808801379
12,800.00	91.00	330.00	11,133.56	2,466.09	-1,112.35	14,443,290.791	1,694,090.913	39.770688480	-80.808978636
12,900.00	91.00	330.00	11,131.82	2,552.68	-1,162.35	14,443,377.380	1,694,040.921	39.770926568	-80.809155898
13,000.00	91.00	330.00	11,130.08	2,639.27	-1,212.34	14,443,463.969	1,693,990.928	39.771164656	-80.809333160
13,100.00	91.00	330.00	11,128.33	2,725.86	-1,262.33	14,443,550.558	1,693,940.936	39.771402744	-80.809510423



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Bardstown N-11 HU (slot L)
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-11 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	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
13,200.00	91.00	330.00	11,126.59	2,812.45	-1,312.32	14,443,637.148	1,693,890.943	39.771640379	-80.809687687
13,300.00	91.00	330.00	11,124.84	2,899.04	-1,362.32	14,443,723.737	1,693,840.951	39.771878969	-80.809864953
13,400.00	91.00	330.00	11,123.10	2,985.83	-1,412.31	14,443,810.326	1,693,790.958	39.772117059	-80.810042219
13,500.00	91.00	330.00	11,121.35	3,072.22	-1,462.30	14,443,896.915	1,693,740.966	39.772355149	-80.810219487
13,600.00	91.00	330.00	11,119.61	3,158.81	-1,512.29	14,443,983.504	1,693,690.974	39.772593238	-80.810396756
13,700.00	91.00	330.00	11,117.86	3,245.39	-1,562.29	14,444,070.093	1,693,640.981	39.772831327	-80.810574027
13,800.00	91.00	330.00	11,116.12	3,331.98	-1,612.28	14,444,156.682	1,693,590.989	39.773069416	-80.810751298
13,900.00	91.00	330.00	11,114.37	3,418.57	-1,662.27	14,444,243.271	1,693,540.996	39.773307504	-80.810928571
14,000.00	91.00	330.00	11,112.63	3,505.16	-1,712.26	14,444,329.861	1,693,491.004	39.773545592	-80.811105845
14,100.00	91.00	330.00	11,110.88	3,591.75	-1,762.26	14,444,416.450	1,693,441.012	39.773783680	-80.811283120
14,200.00	91.00	330.00	11,109.14	3,678.34	-1,812.25	14,444,503.039	1,693,391.019	39.774021768	-80.811460395
14,300.00	91.00	330.00	11,107.39	3,764.93	-1,862.24	14,444,589.628	1,693,341.027	39.774259855	-80.811637673
14,400.00	91.00	330.00	11,105.65	3,851.52	-1,912.23	14,444,676.217	1,693,291.034	39.774497942	-80.811814952
14,500.00	91.00	330.00	11,103.91	3,938.11	-1,962.23	14,444,762.806	1,693,241.042	39.774736029	-80.811992232
14,600.00	91.00	330.00	11,102.16	4,024.70	-2,012.22	14,444,849.395	1,693,191.049	39.774974116	-80.812169513
14,700.00	91.00	330.00	11,100.42	4,111.29	-2,062.21	14,444,935.984	1,693,141.057	39.775212202	-80.812346796
14,800.00	91.00	330.00	11,098.67	4,197.88	-2,112.20	14,445,022.573	1,693,091.065	39.775450288	-80.812524079
14,900.00	91.00	330.00	11,096.93	4,284.47	-2,162.20	14,445,109.163	1,693,041.072	39.775688374	-80.812701354
15,000.00	91.00	330.00	11,095.18	4,371.06	-2,212.19	14,445,195.752	1,692,991.080	39.775926459	-80.812878650
15,100.00	91.00	330.00	11,093.44	4,457.64	-2,262.18	14,445,282.341	1,692,941.087	39.776164544	-80.813055933
15,200.00	91.00	330.00	11,091.69	4,544.23	-2,312.17	14,445,368.930	1,692,891.095	39.776402629	-80.813233226
15,300.00	91.00	330.00	11,089.95	4,630.82	-2,362.17	14,445,455.519	1,692,841.103	39.776640714	-80.813410516
15,400.00	91.00	330.00	11,088.20	4,717.41	-2,412.16	14,445,542.108	1,692,791.110	39.776878798	-80.813587807
15,500.00	91.00	330.00	11,086.46	4,804.00	-2,462.15	14,445,628.697	1,692,741.118	39.777116882	-80.813765099
15,600.00	91.00	330.00	11,084.71	4,890.59	-2,512.14	14,445,715.286	1,692,691.125	39.777354966	-80.813942393
15,700.00	91.00	330.00	11,082.97	4,977.18	-2,562.14	14,445,801.875	1,692,641.133	39.777593050	-80.814119687
15,800.00	91.00	330.00	11,081.23	5,063.77	-2,612.13	14,445,888.465	1,692,591.141	39.777831133	-80.814296980
15,900.00	91.00	330.00	11,079.48	5,150.36	-2,662.12	14,445,975.054	1,692,541.148	39.778069215	-80.814474280
16,000.00	91.00	330.00	11,077.74	5,236.95	-2,712.11	14,446,061.643	1,692,491.156	39.778307298	-80.814651579
16,100.00	91.00	330.00	11,075.99	5,323.54	-2,762.11	14,446,148.232	1,692,441.163	39.778545380	-80.814828878
16,200.00	91.00	330.00	11,074.25	5,410.13	-2,812.10	14,446,234.821	1,692,391.171	39.778783463	-80.815006179
16,300.00	91.00	330.00	11,072.50	5,496.72	-2,862.09	14,446,321.410	1,692,341.178	39.779021544	-80.815183481
16,400.00	91.00	330.00	11,070.76	5,583.31	-2,912.09	14,446,407.999	1,692,291.186	39.779259626	-80.815360784
16,500.00	91.00	330.00	11,069.01	5,669.90	-2,962.08	14,446,494.588	1,692,241.194	39.779497707	-80.815538089
16,600.00	91.00	330.00	11,067.27	5,756.48	-3,012.07	14,446,581.177	1,692,191.201	39.779735788	-80.815715394
16,700.00	91.00	330.00	11,065.52	5,843.07	-3,062.06	14,446,667.767	1,692,141.209	39.779973869	-80.815892701
16,800.00	91.00	330.00	11,063.78	5,929.66	-3,112.06	14,446,754.356	1,692,091.216	39.780211949	-80.816070009
16,900.00	91.00	330.00	11,062.03	6,016.25	-3,162.05	14,446,840.945	1,692,041.224	39.780450029	-80.816247319
17,000.00	91.00	330.00	11,060.29	6,102.84	-3,212.04	14,446,927.534	1,691,991.232	39.780688109	-80.816424629
17,073.92	91.00	330.00	11,059.00	6,166.85	-3,249.00	14,446,991.541	1,691,954.277	39.780864100	-80.816555700
<b>Begin 2°/100' turn</b>									
17,100.00	91.00	329.48	11,058.55	6,189.37	-3,262.14	14,447,014.053	1,691,941.157	39.780926025	-80.816602307
17,200.00	91.00	327.48	11,056.80	6,274.60	-3,314.41	14,447,099.290	1,691,888.865	39.781160376	-80.816787742
17,300.00	91.00	325.48	11,055.06	6,357.95	-3,369.62	14,447,182.640	1,691,833.650	39.781395586	-80.816983659
17,400.00	91.00	323.48	11,053.31	6,439.32	-3,427.71	14,447,264.012	1,691,775.560	39.781631385	-80.817189846
17,425.31	91.00	322.97	11,052.87	6,459.59	-3,442.86	14,447,284.282	1,691,750.409	39.781696197	-80.817243626
<b>Begin 91.00° lateral</b>									
17,500.00	91.00	322.97	11,051.58	6,519.21	-3,487.84	14,447,343.900	1,691,715.437	39.781833118	-80.817403271
17,600.00	91.00	322.97	11,049.84	6,599.03	-3,548.05	14,447,423.721	1,691,655.224	39.782072565	-80.817617017
17,700.00	91.00	322.97	11,048.10	6,678.85	-3,608.26	14,447,503.542	1,691,595.012	39.782312019	-80.817830763
17,800.00	91.00	322.97	11,046.36	6,758.67	-3,668.47	14,447,583.363	1,691,534.799	39.782491760	-80.818044511
17,900.00	91.00	322.97	11,044.62	6,838.49	-3,728.69	14,447,663.184	1,691,474.587	39.782711307	-80.818258261
18,000.00	91.00	322.97	11,042.89	6,918.31	-3,788.90	14,447,743.005	1,691,414.374	39.782930854	-80.818472012

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 Department of Oil and Gas  
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 Environmental Protection



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v18	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-11 HU (slot L)
<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-11 HU (slot L)	<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
18,100.00	91.00	322.97	11,041.15	6,998.14	-3,848.11	14,447,822.826	1,691,354.162	39.783150400	-80.818685754
18,200.00	91.00	322.97	11,039.41	7,077.96	-3,909.32	14,447,902.647	1,691,293.949	39.783369945	-80.818889517
18,300.00	91.00	322.97	11,037.67	7,157.78	-3,969.54	14,447,982.468	1,691,233.736	39.783509491	-80.819113272
18,400.00	91.00	322.97	11,035.93	7,237.60	-4,029.75	14,448,062.289	1,691,173.524	39.783806036	-80.819327028
18,500.00	91.00	322.97	11,034.19	7,317.42	-4,089.96	14,448,142.110	1,691,113.311	39.784026580	-80.819540786
18,600.00	91.00	322.97	11,032.46	7,397.24	-4,150.17	14,448,221.931	1,691,053.099	39.784248124	-80.819754545
18,700.00	91.00	322.97	11,030.72	7,477.06	-4,210.39	14,448,301.752	1,690,992.888	39.784467668	-80.819968305
18,800.00	91.00	322.97	11,028.98	7,556.88	-4,270.60	14,448,381.573	1,690,932.674	39.784687211	-80.820182066
18,900.00	91.00	322.97	11,027.24	7,636.70	-4,330.81	14,448,461.394	1,690,872.461	39.784906754	-80.820395829
19,000.00	91.00	322.97	11,025.50	7,716.53	-4,391.03	14,448,541.215	1,690,812.249	39.785126296	-80.820609594
19,100.00	91.00	322.97	11,023.77	7,796.35	-4,451.24	14,448,621.036	1,690,752.036	39.785345838	-80.820823359
19,200.00	91.00	322.97	11,022.03	7,876.17	-4,511.45	14,448,700.857	1,690,691.824	39.785565380	-80.821037126
19,300.00	91.00	322.97	11,020.29	7,955.99	-4,571.66	14,448,780.678	1,690,631.611	39.785784921	-80.821250895
19,400.00	91.00	322.97	11,018.55	8,035.81	-4,631.88	14,448,860.499	1,690,571.399	39.786004462	-80.821464665
19,500.00	91.00	322.97	11,016.81	8,115.63	-4,692.09	14,448,940.320	1,690,511.186	39.786224003	-80.821678436
19,600.00	91.00	322.97	11,015.08	8,195.45	-4,752.30	14,449,020.141	1,690,450.974	39.786443543	-80.821892208
19,700.00	91.00	322.97	11,013.34	8,275.27	-4,812.51	14,449,099.962	1,690,390.761	39.786663082	-80.822105982
19,800.00	91.00	322.97	11,011.60	8,355.09	-4,872.73	14,449,179.783	1,690,330.549	39.786882622	-80.822319757
19,900.00	91.00	322.97	11,009.86	8,434.92	-4,932.94	14,449,259.604	1,690,270.336	39.787102160	-80.822533534
20,000.00	91.00	322.97	11,008.12	8,514.74	-4,993.15	14,449,339.425	1,690,210.123	39.787321699	-80.822747312
20,100.00	91.00	322.97	11,006.39	8,594.56	-5,053.36	14,449,419.246	1,690,149.911	39.787541237	-80.822961091
20,200.00	91.00	322.97	11,004.65	8,674.38	-5,113.58	14,449,499.067	1,690,089.698	39.787760775	-80.823174872
20,300.00	91.00	322.97	11,002.91	8,754.20	-5,173.79	14,449,578.888	1,690,029.486	39.787980312	-80.823388654
20,400.00	91.00	322.97	11,001.17	8,834.02	-5,234.00	14,449,658.709	1,689,969.273	39.788199849	-80.823602437
20,500.00	91.00	322.97	10,999.43	8,913.84	-5,294.22	14,449,738.530	1,689,909.061	39.788419385	-80.823816222
20,600.00	91.00	322.97	10,997.70	8,993.66	-5,354.43	14,449,818.351	1,689,848.848	39.788638921	-80.824030008
20,700.00	91.00	322.97	10,995.96	9,073.49	-5,414.64	14,449,898.172	1,689,788.636	39.788858457	-80.824243795
20,800.00	91.00	322.97	10,994.22	9,153.31	-5,474.85	14,449,977.993	1,689,728.423	39.789077992	-80.824457584
20,900.00	91.00	322.97	10,992.48	9,233.13	-5,535.07	14,450,057.814	1,689,668.211	39.789297527	-80.824671374
21,000.00	91.00	322.97	10,990.74	9,312.95	-5,595.28	14,450,137.635	1,689,607.998	39.789517062	-80.824885166
21,071.48	91.00	322.97	10,989.50	9,370.00	-5,638.32	14,450,194.691	1,689,564.958	39.789673985	-80.825037984
<b>PBHL/TD 21071.48 MD 10989.50 TVD</b>									
21,071.49	91.00	322.97	10,989.50	9,370.01	-5,638.32	14,450,194.696	1,689,564.954	39.789674000	-80.825038000

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Bardstown 11HU PBHL1 - plan hits target center - Point	0.00	0.00	10,989.50	9,370.01	-5,638.32	14,450,194.696	1,689,564.954	39.789674000	-80.825038000
Bardstown 11HU Int Tgt - plan hits target center - Point	0.00	0.00	11,059.00	6,166.85	-3,249.00	14,446,991.541	1,691,954.277	39.780864100	-80.816555700
Bardstown 11HU LP r2 - plan misses target center by 0.02ft at 11685.69ft MD (11153.00 TVD, 1501.22 N, -555.28 E) - Point	0.00	0.00	11,153.00	1,501.21	-555.28	14,442,325.912	1,694,647.972	39.768035400	-80.807003530

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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v18	<b>Local Co-ordinate Reference:</b>	Well Bardstown N-11 HU (slot L)
<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-11 HU (slot L)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
21,072.43	10,989.48	20" Casing	20	24

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N-S (ft)	+E-W (ft)		
3,100.00	3,100.00	0.00	0.00	KOP Begin 2°/100' build	
3,220.68	3,220.65	2.54	0.00	Begin 2.41° tangent	
4,890.86	4,879.35	72.46	0.00	Begin 2°/100' drop	
5,001.54	5,000.00	75.00	0.00	Begin vertical hold section	
7,001.54	7,000.00	75.00	0.00	Begin 2°/100' build	
7,673.03	7,665.35	150.56	-20.65	Begin 13.43° tangent	
10,556.63	10,470.11	795.53	-197.27	Begin 6°/100' build/turn	
11,172.06	10,985.15	1,085.60	-327.71	Begin 8°/100' build/turn	
11,685.69	11,153.01	1,501.22	-555.28	Begin 91.00° lateral	
17,073.92	11,059.00	6,166.85	-3,249.00	Begin 2°/100' turn	
17,425.31	11,052.67	6,459.59	-3,442.86	Begin 91.00° lateral	
21,071.48	10,989.50	9,370.00	-5,638.32	PBHL/TD 21071.48 MD 10989.50 TVD	

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WW-9  
(4/16)

API Number 47 - 051 - \_\_\_\_\_  
Operator's Well No. Bardstown N-11HU

**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? West Virginia Secretary Landfill (DWF-1021 / WV0109185) and West Virginia Secretary Landfill, LLC (SAM1405 / PA DEP 2041350420), Chester Valley Landfill (120415)

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

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

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

Company Official Signature James A Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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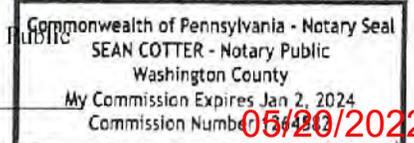
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Subscribed and sworn before me this 6 day of April, 2022

Notary Public

My commission expires 11/21/2024



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: Jayne J. Knudsen

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

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Title: Oil and Gas Inspector

Date: 1/19/2022

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Field Reviewed? (  ) Yes (  ) No

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.

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

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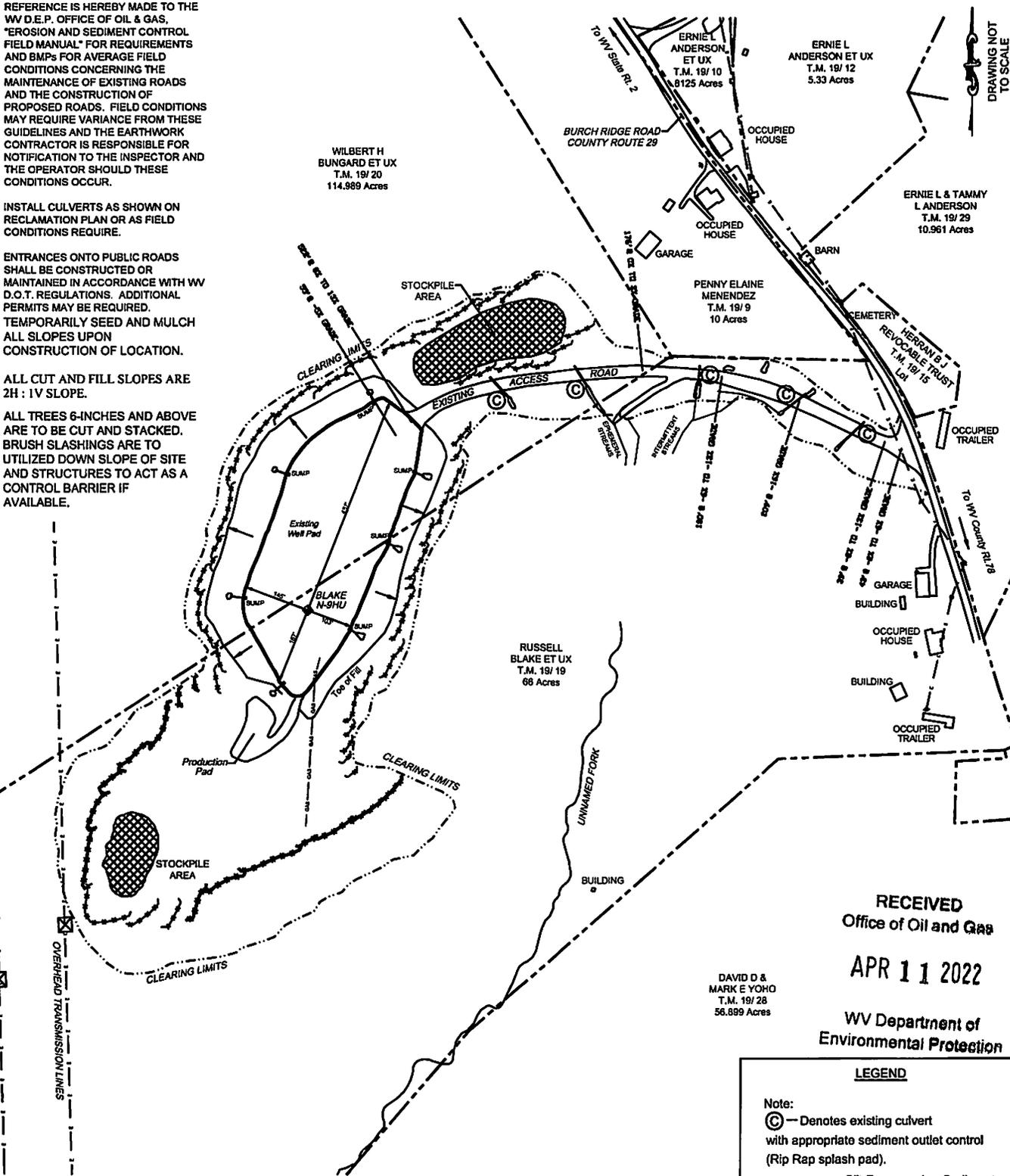
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INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.



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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

DATE: 11-20-2018 PROJECT NO: 494510851 DRAWN BY: J.A.H.

05/20/2022



**Operator's within 500' of Well Bores  
Bardstown N-11HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER/LESSEE	ADDRESS
Marshall	Franklin	5-12-23	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-12-24.3	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-12-24.3	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-10	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-10.1	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-10.2	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-10.3	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-10.4	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-16	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-14-16	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-16	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-17	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-17	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-17	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-14-5	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
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	5-14-7	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	5-14-9	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107

05/20/2022

COUNTY	DISTRICT	TMP	MINERAL OWNER/LESSEE	ADDRESS
Marshall	Franklin	5-14-9	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-9	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-14-9.3	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-9.3	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
Marshall	Franklin	5-14-9.3	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-9.4	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-9.4	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	5-14-9.4	HG ENERGY II APPALACHIA, LLC	5260 Dupont Road Parkersburg, WV 26101
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
Marshall	Franklin	5-19-5	TH EXPLORATION II, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107
Marshall	Franklin	Cemetery	TH EXPLORATION, LLC	1320 S University Drive Suite 500 Fort Worth, TX 76107

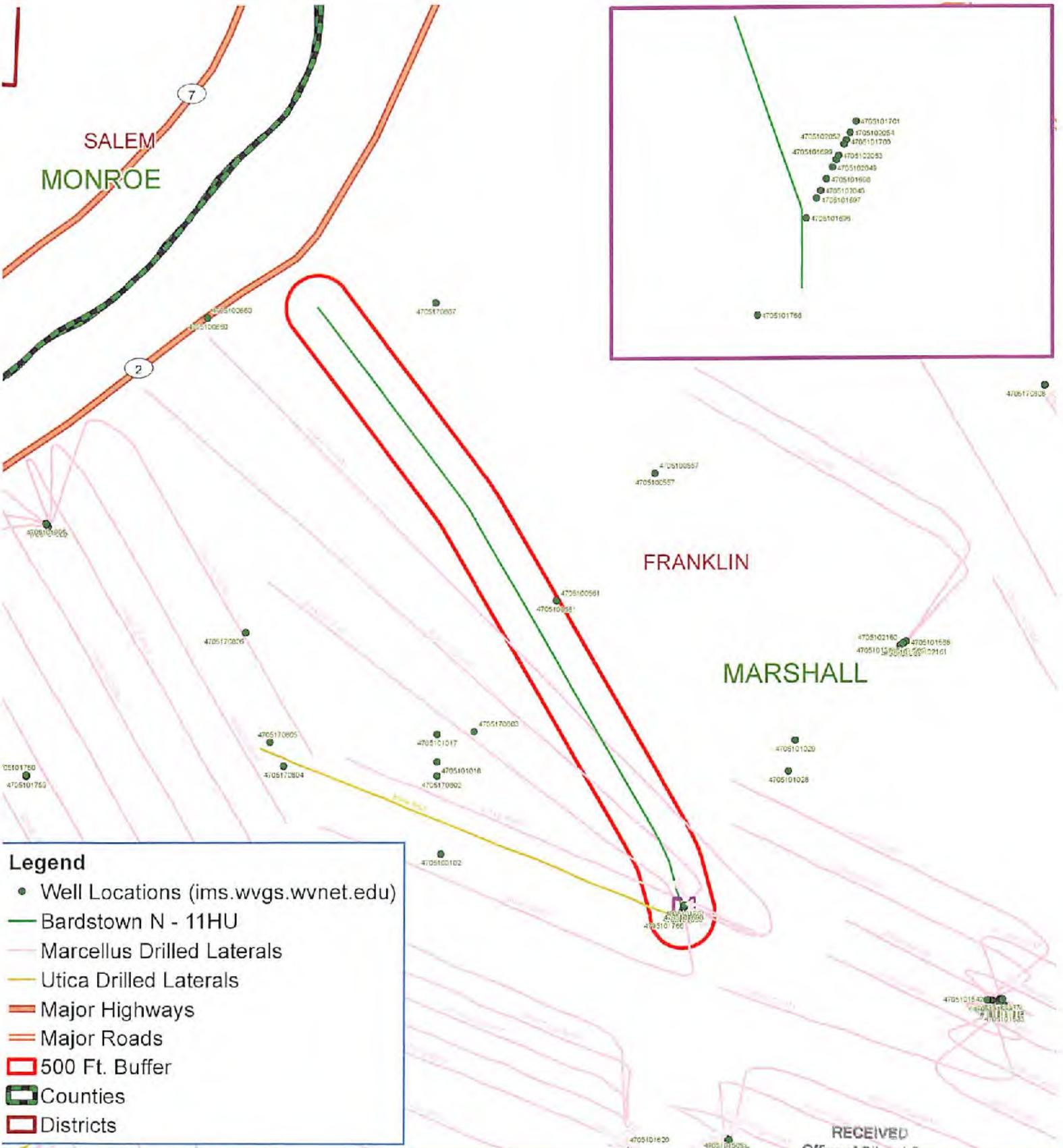
\* TH Exploration II, LLC is a wholly owned subsidiary of THQ Appalachia I, LLC. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under that certain Operating Services Agreement dated July 23, 2014. For further information please see the recorded affidavit submitted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

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**Legend**

- Well Locations (ims.wvgs.wvnet.edu)
- Bardstown N - 11HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- ▭ 500 Ft. Buffer
- ▭ Counties
- ▭ Districts

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# Bardstown N - 11HU Franklin District Marshall County, WV

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Map Prepared by:

**EPS**  
LAND SERVICES

05/20/2022



Notes:  
All locations are approximate and/or for identification purposes only.

**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

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**Wells within 500' Buffer**

Note: Well spots depicted on Area of Review map are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots.

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
✓ 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-11HU.
✓ 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-11HU.
✓ 4705101766	Tug Hill Operating, LLC.	18102' MD / 11066' TVD	Point Pleasant	none	Yes, 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-11HU.
✓ 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.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
✓ 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-11HU.
✓ 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-11HU.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
✓ 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-11HU.
✓ 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-11HU.
✓ 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-11HU.
4705100561	Haddad & Brooks, Inc.	2017' TVD	Maxton	unknown	No, the well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. Well is plugged.	Well was plugged 10/28/1987.

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WV Geological & Economic Survey

Well: County = 51 Permit = 01698

Report Time: Monday, January 10, 2022 11:37:26 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	Clarrington	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	6/6/2015	Divd Orgnl Loc	Completed	Wibert H Eungard et ux	3H		Blake	WV16-0022-001/WV16-0135-000/WV16-0092-001	Russell Blake et al	Gasstar 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	6/6/2015	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_ONTY
4705101698	6/6/2015	Water	Fresh Water	Vertical			60	Pennsylvanian System					
4705101698	6/6/2015	Water	Salt Water	Vertical			1418	3rd Salt Sand					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	6990	Marcellus Fm	7142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	7190	Marcellus Fm	7342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	7390	Marcellus Fm	7542	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	7590	Marcellus Fm	7742	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	7790	Marcellus Fm	7942	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	7990	Marcellus Fm	8142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	8190	Marcellus Fm	8342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	8390	Marcellus Fm	8542	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	8590	Marcellus Fm	8742	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	8790	Marcellus Fm	8942	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	8990	Marcellus Fm	9142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	9190	Marcellus Fm	9342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	9390	Marcellus Fm	9542	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	9590	Marcellus Fm	9742	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	9790	Marcellus Fm	9942	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	9990	Marcellus Fm	10142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	10190	Marcellus Fm	10342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	10390	Marcellus Fm	10542	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	10590	Marcellus Fm	10742	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	10790	Marcellus Fm	10942	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	10990	Marcellus Fm	11142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	11190	Marcellus Fm	11342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	11390	Marcellus Fm	11542	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	11590	Marcellus Fm	11742	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	11790	Marcellus Fm	11942	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	11990	Marcellus Fm	12142	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	12190	Marcellus Fm	12342	Marcellus Fm					
4705101698	6/6/2015	Pay	Oil & Gas	Deviated	12390	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	Gasstar Exploration Inc.	2015	296,054	0	0	0	0	10,747	37,692	45,542	36,547	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	31,998	28,846	30,652	29,373	30,788	28,966	30,026	29,751	28,428	28,941	27,297	27,423
4705101698	Tug Hill Operating, LLC	2018	202,565	27,486	25,500	6,161	31,316	27,680	27,194	27,124	23,359	4,725	0	0	0
4705101698	Tug Hill Operating, LLC	2019	202,872	0	0	0	0	0	31,935	34,973	45,005	26,359	23,220	27,933	13,446
4705101698	Tug Hill Operating, LLC	2020	296,290	31,419	26,732	26,259	24,387	13,615	24,042	22,116	20,299	24,203	23,631	24,772	33,614

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 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_16	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 Wrld Ovr	Completed	W H Bungard et ux	6H		Blake	WV16-0022-001/WV16-0128-000/WV-0135-000	R Blake et al	Gastar 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	Gastar 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	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_B
4705101701	10/23/2014	10/23/2014	1326	Ground Level	Unnamed			Development Well	Unsuccessful		Rotary		5700										
4705101701	6/6/2015	8/3/2014	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_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
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	8468	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8488	Marcellus Fm	8655	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8717	Marcellus Fm	8852	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	8906	Marcellus Fm	9058	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	9111	Marcellus Fm	9308	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	9996	Marcellus Fm	10027	Marcellus Fm					
4705101701	6/6/2015	Pay	Oil & Gas	Deviated	10095	Marcellus Fm	10296	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	10667	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	12094	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	12828	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					

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	Gastar Exploration Inc.	2015	279,549	0	0	0	0	8,503	33,883	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	40,456	37,511	37,817	33,913	34,565
4705101701	Tug Hill Operating, LLC	2017	363,022	36,492	31,913	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	98,659	18,515	0	2,815	19,953	11,139	19,671	0	0	0	0	0	26,566

DIVISION OF  
 MINERAL RESOURCES  
 AND PROTECTION  
 OF THE ENVIRONMENT  
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WV Geological & Economic Survey.

Well: County = 51 Permit = 01766

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101766	Marshall	1766	Franklin	Powhatan Point	Clarington	39.763938	-80.805156	516689	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	39.770931
4705101766	1	As Proposed	514707.6	4402353.7	-80.826271	39.770938

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 Ognl Loc	Completed	Russell Blake et al	U-7H		Blake	WV16-0011-001/WV16-0090-000/WV16-0171-000	Russell Blake et al	Gaslar 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	TL
4705101766	6/6/2015	8/14/2014	1328	Ground Level	Unnamed	Pt Pleasant Fm	Pt Pleasant Fm	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			1415						
4705101766	6/6/2015	Pay	Gas	Deviated	11235	Ullica Sh	11307	Ullica Sh					
4705101766	6/6/2015	Pay	Gas	Deviated	11435	Ullica Sh	11507	Ullica Sh					
4705101766	6/6/2015	Pay	Gas	Deviated	11635	Pt Pleasant Fm	11707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	11835	Pt Pleasant Fm	11907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12035	Pt Pleasant Fm	12107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12235	Pt Pleasant Fm	12307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12435	Pt Pleasant Fm	12507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12640	Pt Pleasant Fm	12707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	12835	Pt Pleasant Fm	12907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13035	Pt Pleasant Fm	13107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13235	Pt Pleasant Fm	13307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13435	Pt Pleasant Fm	13507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13635	Pt Pleasant Fm	13707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	13835	Pt Pleasant Fm	13907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14035	Pt Pleasant Fm	14107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14235	Pt Pleasant Fm	14307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14435	Pt Pleasant Fm	14507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14635	Pt Pleasant Fm	14707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	14835	Pt Pleasant Fm	14907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15040	Pt Pleasant Fm	15107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15235	Pt Pleasant Fm	15307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15435	Pt Pleasant Fm	15507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15635	Pt Pleasant Fm	15707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	15835	Pt Pleasant Fm	15907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16035	Pt Pleasant Fm	16107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16235	Pt Pleasant Fm	16309	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	16707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	16835	Pt Pleasant Fm	16907	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17035	Pt Pleasant Fm	17107	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17235	Pt Pleasant Fm	17307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17235	Pt Pleasant Fm	17307	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17435	Pt Pleasant Fm	17507	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17635	Pt Pleasant Fm	17707	Pt Pleasant Fm					
4705101766	6/6/2015	Pay	Gas	Deviated	17837	Pt Pleasant Fm	18039	Pt Pleasant Fm					

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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	Gaslar Exploration Inc.	2015	2,909,149	0	0	0	0	356,421	546,795	528,584	358,122	297,655	284,458	253,415	273,699
4705101766	Tug Hill Operating, LLC	2016	2,003,118	232,976	205,317	208,682	189,268	191,491	166,605	149,558	148,430	136,880	134,893	124,926	124,281
4705101766	Tug Hill Operating, LLC	2017	1,124,740	119,582	103,011	109,106	100,824	99,888	82,719	92,456	89,951	84,447	84,457	79,271	78,968
4705101766	Tug Hill Operating, LLC	2018	612,130	90,757	75,792	79,301	74,711	77,675	72,383	68,927	63,957	8,117	0	0	0
4705101766	Tug Hill Operating, LLC	2019	420,165	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	47,059	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 11:39:11 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101696	Marshall	1695	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	514899.0	4401783.9	-80.82804	39.76585

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_15	LAT_DD	LON_DD	UTME	UTMN
4705101697	Marshall	1697	Franklin	Powhatan Point	Clarington	39.764145	-80.804999	516702.4	4401593.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101697	1 As Proposed	514942.5	4401859.9	-80.825538	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	WV16-0005-000/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

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	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

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WV Geological & Economic Survey:

Well: County = 51 Permit = 01700

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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	-80.00492	516709.1	4401615.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101700	1 As Proposed	515070.4	4402207.9	-80.024038	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 Fr	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

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Well: County = 51 Permit = 02048

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705102048	Marshall	2048	Franklin	Pownatan Point	Clarrington	39.754187	-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	8/9/2019	Dvld Orgnl Loc	Completed	Wilbert H Bungard et ux	N-1HM	Blake	Russell Blake et al	Tug Hill Operating, LLC	6643	Marcellus Fm			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FTM	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	10/29/2016	1319	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6541	14112	14112	5933		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	Pennsylvanian System					
4705102048	6/9/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7044	Marcellus Fm	7198	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7220	Marcellus Fm	7373	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7395	Marcellus Fm	7549	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7571	Marcellus Fm	7724	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7746	Marcellus Fm	7899	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	7921	Marcellus Fm	8075	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8097	Marcellus Fm	8250	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8272	Marcellus Fm	8426	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8448	Marcellus Fm	8601	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8623	Marcellus Fm	8776	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8798	Marcellus Fm	8952	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	8974	Marcellus Fm	9127	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9149	Marcellus Fm	9303	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9325	Marcellus Fm	9478	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9500	Marcellus Fm	9653	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9675	Marcellus Fm	9829	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	9851	Marcellus Fm	10004	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10026	Marcellus Fm	10180	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10202	Marcellus Fm	10355	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10377	Marcellus Fm	10530	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10552	Marcellus Fm	10706	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10728	Marcellus Fm	10901	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	10903	Marcellus Fm	11057	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11079	Marcellus Fm	11232	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11254	Marcellus Fm	11407	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11429	Marcellus Fm	11583	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11605	Marcellus Fm	11758	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11780	Marcellus Fm	11934	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	11956	Marcellus Fm	12109	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12131	Marcellus Fm	12284	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12308	Marcellus Fm	12460	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12482	Marcellus Fm	12635	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12567	Marcellus Fm	12811	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	12833	Marcellus Fm	12988	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13008	Marcellus Fm	13181	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13183	Marcellus Fm	13337	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13359	Marcellus Fm	13512	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13551	Marcellus Fm	13688	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13710	Marcellus Fm	13853	Marcellus Fm					
4705102048	6/9/2019	Pay	Oil & Gas	Deviated	13900	Marcellus Fm	13943	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
4705102048	Tug Hill Operating, LLC	2019	581.701	0	0	0	0	3,035	19,101	44,525	104,728	127,605	84,759	113,308	115,740
4705102048	Tug Hill Operating, LLC	2020	1,238,793	144,022	125,612	137,938	83,079	0	138,955	105,650	102,165	140,159	93,197	83,627	84,491

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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	Claanngton	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	39.786364
4705102049	1 As Drilled	514152.7	4404050.8	-80.834713	39.786268

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	Drill Orqnl Loc	Completed	Wilbert H Burgard 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_FTM	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_BI	
4705102049	6/9/2019	11/22/2013	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Add-Frac	6462	17942		17942	8151						

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
4705102049	6/9/2019	Water	Fresh Water	Vertical			70						
4705102049	6/9/2019	Water	Salt Water	Vertical			1595						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8851	Marcellus Fm	7005						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7027	Marcellus Fm	7180						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7202	Marcellus Fm	7355						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7377	Marcellus Fm	7531						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7553	Marcellus Fm	7708						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7728	Marcellus Fm	7892						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	7904	Marcellus Fm	8057						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8079	Marcellus Fm	8232						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8254	Marcellus Fm	8405						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8430	Marcellus Fm	8583						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8505	Marcellus Fm	8759						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8781	Marcellus Fm	8934						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	8958	Marcellus Fm	9109						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	9131	Marcellus Fm	9285						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	9307	Marcellus Fm	9480						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	9482	Marcellus Fm	9635						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	9658	Marcellus Fm	9911						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	9833	Marcellus Fm	9988						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10008	Marcellus Fm	10182						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10184	Marcellus Fm	10337						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10359	Marcellus Fm	10513						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10535	Marcellus Fm	10688						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10710	Marcellus Fm	10863						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	10885	Marcellus Fm	11039						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11061	Marcellus Fm	11214						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11236	Marcellus Fm	11390						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11412	Marcellus Fm	11565						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11587	Marcellus Fm	11740						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11762	Marcellus Fm	11916						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	11938	Marcellus Fm	12091						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	12113	Marcellus Fm	12267						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	15270	Marcellus Fm	15424						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	15448	Marcellus Fm	15599						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	15621	Marcellus Fm	15776						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	15797	Marcellus Fm	15950						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	15972	Marcellus Fm	16125						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	16147	Marcellus Fm	16301						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	16323	Marcellus Fm	16478						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	16498	Marcellus Fm	16652						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	16674	Marcellus Fm	16827						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	16849	Marcellus Fm	17002						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	17024	Marcellus Fm	17178						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	17200	Marcellus Fm	17353						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	17375	Marcellus Fm	17529						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	17551	Marcellus Fm	17704						
4705102049	6/9/2019	Pay	Oil & Gas	Deviated	17784	Marcellus Fm	17931						

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
4705102049	Tug Hill Operating, LLC	2019	757,842	0	0	0	0	2,708	12,317	50,300	142,595	163,164	136,950	137,946	111,739
4705102049	Tug Hill Operating, LLC	2020	1,320,268	153,288	137,282	158,098	48,266	0	26	148,198	140,692	185,880	124,675	114,172	109,719

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Well: County = 51 Permit = 02052

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102052	Marshall	2052	Franklin	Powhatan Point	Clarrington	39.764767	-80.804976	516706.6	4401814.1

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102052	1 As Drilled	514681.2	4404376.5	-80.828199	39.769211
4705102052	1 As Proposed	514681.4	4404378.5	-80.828199	39.769213

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	Drill Crgnl Loc	Completed	Wilcox H Burgrad et ux	N-5HM	State	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_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_B
4705102052	09/2019	11/2/2019	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6535	16978	16973	6163						

Pay/ShowWater Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_ORNTY
4705102052	09/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102052	09/2019	Water	Salt Water	Vertical			1595	Salt Sands (undrift)					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7129	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	7797	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	7828	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	8178	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	8528	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	8877	Marcellus Fm	9023	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	9052	Marcellus Fm	9188	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	9938	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	10248	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	10948	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	12379	Marcellus Fm	12524	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12554	Marcellus Fm	12700	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	12729	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	16058	Marcellus Fm	16202	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16231	Marcellus Fm	16377	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16406	Marcellus Fm	16552	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16581	Marcellus Fm	16727	Marcellus Fm					
4705102052	09/2019	Pay	Oil & Gas	Deviated	16809	Marcellus Fm	16957	Marcellus Fm					

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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	564,204	0	0	0	0	4,467	14,506	35,685	131,510	115,539	96,054	88,528	87,835
4705102052	Tug Hill Operating, LLC	2020	1,026,768	123,682	161,824	105,886	87,816	0	107,554	89,100	91,827	118,547	79,011	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	LON_DD	UTME	UTMN
4705102053	Marshall	2053	Franklin	Powhatan Point	Clarington	39.764257	-80.804941	516707.3	4401810.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102053	1 As Proposed	514470.2	4404290	-80.831	39.768438
4705102053	1 As Drilled	514469.3	4404289.1	-80.83101	39.76843

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-4RM	Blake		Russell Blake et al	Tug Hill Operating, LLC		6050 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_2	
4705102053	6/9/2019	12/18/2018	1316	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6559	19338	19338	5870							

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
4705102053	6/9/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705102053	6/9/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
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	7784	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	8693	Marcellus Fm	8840	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	8869	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	9925	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	11655	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	12389	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12389	Marcellus Fm	12564	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12564	Marcellus Fm	12739	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12739	Marcellus Fm	12914	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	12914	Marcellus Fm	13089	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13089	Marcellus Fm	13264	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13264	Marcellus Fm	13439	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13439	Marcellus Fm	13614	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13614	Marcellus Fm	13789	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13789	Marcellus Fm	13964	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	13964	Marcellus Fm	14139	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14139	Marcellus Fm	14314	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14314	Marcellus Fm	14489	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14489	Marcellus Fm	14664	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14664	Marcellus Fm	14839	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	14839	Marcellus Fm	15014	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15014	Marcellus Fm	15189	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15189	Marcellus Fm	15364	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15364	Marcellus Fm	15539	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15539	Marcellus Fm	15714	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15714	Marcellus Fm	15889	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	15889	Marcellus Fm	16064	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16064	Marcellus Fm	16239	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16239	Marcellus Fm	16414	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16414	Marcellus Fm	16589	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16589	Marcellus Fm	16764	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16764	Marcellus Fm	16939	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	16939	Marcellus Fm	17114	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17114	Marcellus Fm	17289	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17289	Marcellus Fm	17464	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17464	Marcellus Fm	17639	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17639	Marcellus Fm	17814	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17814	Marcellus Fm	17989	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	17989	Marcellus Fm	18164	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	18164	Marcellus Fm	18339	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	18339	Marcellus Fm	18514	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	18514	Marcellus Fm	18689	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	18689	Marcellus Fm	18864	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	18864	Marcellus Fm	19039	Marcellus Fm					
4705102053	6/9/2019	Pay	Oil & Gas	Deviated	19039	Marcellus Fm	19214	Marcellus Fm					

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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	1,851	14,931	46,363	142,766	150,918	158,193	118,748	131,155
4705102053	Tug Hill Operating, LLC	2020	1,441,869	170,920	153,101	165,183	48,696	0	106	137,787	158,809	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	39.764318	-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	Dvtd Orgnl Loc	Completed	Wilbert H Bungard et ux		N-8HM	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_AFTO	O_BEFO	O_AFTO	NGL_BEFO	NGL_AFTO	P_BEFO	P_AFTO
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_AFTO	O_BEFO	O_AFTO	WATER_GNTY
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	7638	Marcellus Fm	7791	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7813	Marcellus Fm	7987	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	7969	Marcellus Fm	8142	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8164	Marcellus Fm	8319	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	8690	Marcellus Fm	8844	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	8886	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	9567	Marcellus Fm	9721	Marcellus Fm					
4705102054	6/9/2019	Pay	Oil & Gas	Deviated	9743	Marcellus Fm	9896	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	11146	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	15862	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	16406	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	17336	Marcellus Fm	17396	Marcellus Fm					

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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	850.710	0	0	0	0	1.730	15.575	44.859	140.213	140.314	125.517	119.912	82.590
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	106,026	109,911

WV Geological & Economic Survey

Well: County = 51 Permit = 00561

Report Time Monday, January 10, 2022 11:43:20 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705100561	Marshall	561	Franklin	Powhatan Point	Clarington	39.777242	-80.511964	516102.7	4403050.7

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100561	5/27/1975	Original Loc	Completed	Ellis Rine	1				Nash C & Manda M Rine	Mobay Chemical Corp			
4705100561	10/28/1987	Plugging	Completed	Ellis V Rine			Rhine			Haddad & Brooks, Inc.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT
4705100561	5/27/1975	3/13/1975	1387 Spirit Level	Unnamed	Big Lime	Big Lime	New-pool Wildcat	New-pool Discovery	Gas	Cable Tool	Nat/Open H	2017		2017		50	50	0	0		
4705100561	10/28/1987	10/28/1987	1387 Spirit Level						not available	unknown	unknown										

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100561	5/27/1975	Water	Fresh Water	Vertical			155						0
4705100561	5/27/1975	Water	Fresh Water	Vertical			390						0
4705100561	5/27/1975	Water	Salt Water	Vertical			1512						0
4705100561	5/27/1975	Pay	Gas	Vertical	1560		1971	Maxton	50	0			0

Production Gas Information (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100561	Mobay Chemical Corp	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100561	Mobay Chemical Corp	1983	0	0	0	0	0	0	0	0	0	0	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100561	Mobay Chemical Corp	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100561	Mobay Chemical Corp	1983	0	0	0	0	0	0	0	0	0	0	0	0	0

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

There is no Production Water data for this well

Stratigraphy Information

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV DATUM
4705100561	Original Loc	unidentified coal	Well Record	455	Reasonable	2	Reasonable	1387 Ground Level
4705100561	Original Loc	unidentified coal	Well Record	573	Reasonable	2	Reasonable	1387 Ground Level
4705100561	Original Loc	unidentified coal	Well Record	645	Reasonable	1	Reasonable	1387 Ground Level
4705100561	Original Loc	unidentified coal	Well Record	889	Reasonable	2	Reasonable	1387 Ground Level
4705100561	Original Loc	unidentified coal	Well Record	989	Reasonable	5	Reasonable	1387 Ground Level
4705100561	Original Loc	Pittsburgh coal	Electric Log	981	Reasonable	6	Reasonable	1387 Ground Level
4705100561	Original Loc	Conemaugh coal (udf)	Well Record	1402	Reasonable	0	Reasonable	1387 Ground Level
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1497	Reasonable	4	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1513	Reasonable	4	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1518	Reasonable	3	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1529	Reasonable	3	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1550	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1562	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1559	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1605	Reasonable	6	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1605	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1614	Reasonable	24	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1649	Reasonable	3	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1655	Reasonable	3	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1672	Reasonable	15	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1688	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny coal (udf)	CBM: Electric Log	1712	Reasonable	3	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Allegheny ss (undif)	CBM: Electric Log	1716	Reasonable	72	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Pottsville Ss (undif)	CBM: Electric Log	1788	Reasonable	58	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Maxton	Well Record	1960	Reasonable	11	Reasonable	1387 Ground Level
4705100561	Original Loc	Miss/Penn boundary	Electric Log	1970				1389 Derrick Floor
4705100561	Original Loc	Pottsville coal (ud)	CBM: Electric Log	1974	Reasonable	2	Reasonable	1397 Kelly Bushing
4705100561	Original Loc	Big Lime	Well Record	2008	Reasonable	17	Reasonable	1387 Ground Level

Plugging Information

API	PLG_DT	DEPTH_PBT
4705100561	10/28/1987	0

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



**TUG HILL**  
**OPERATING**

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

**Well Name: Bardstown N-11HU**

**Pad Name: Blake**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,401,572.17

Easting: 516,698.99

*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)**

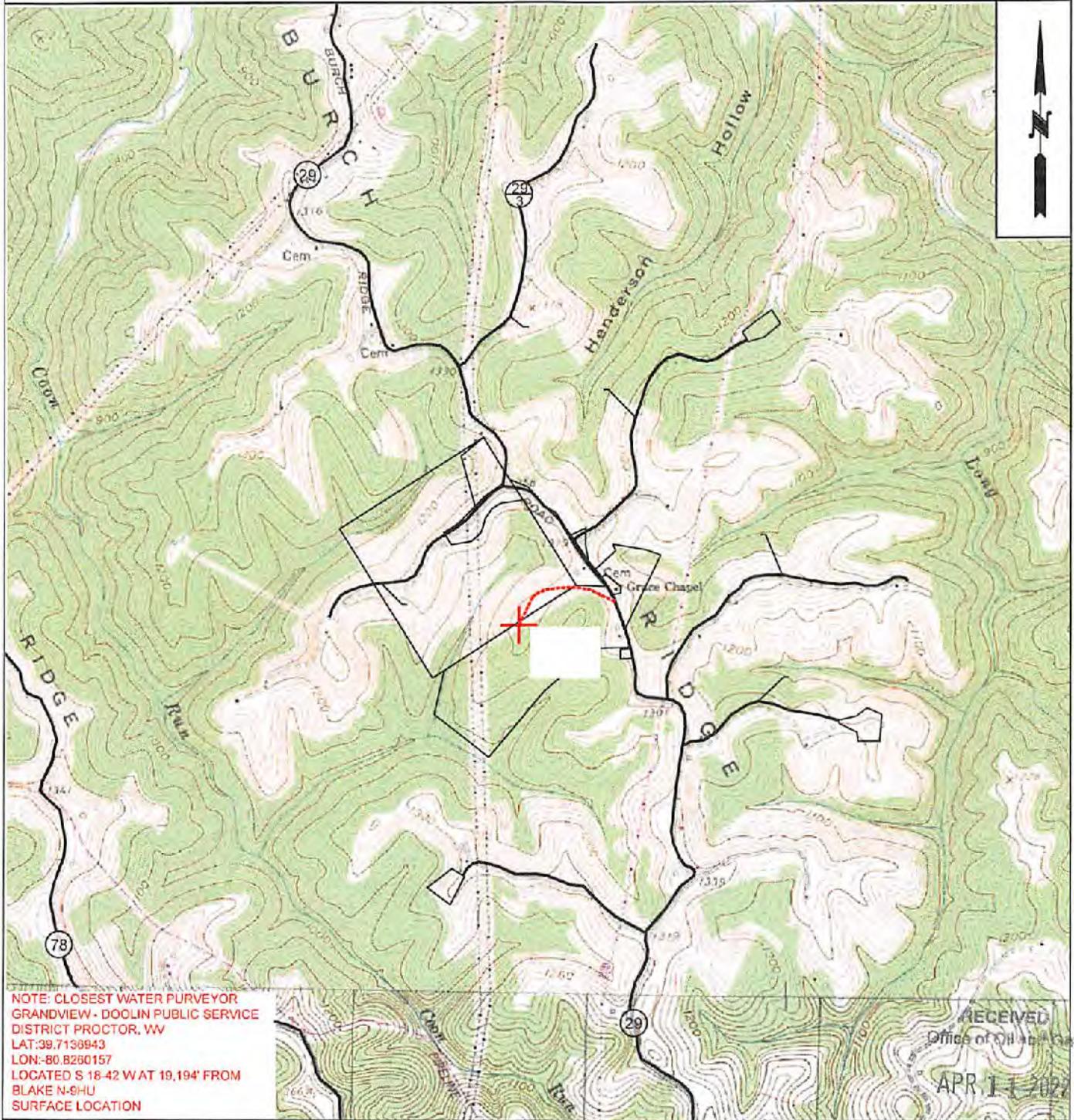
**(412) 736-5767 (cellular)**

**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

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

05/20/2022



NOTE: CLOSEST WATER PURVEYOR  
 GRANDVIEW - DOOLIN PUBLIC SERVICE  
 DISTRICT PROCTOR, WV  
 LAT:39.7136943  
 LON:-80.8260157  
 LOCATED S 18-42 W AT 19,194' FROM  
 BLAKE N-9HU  
 SURFACE LOCATION

RECEIVED  
 Office of Oil and Gas  
 APR 11 2022

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



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-11HU

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,

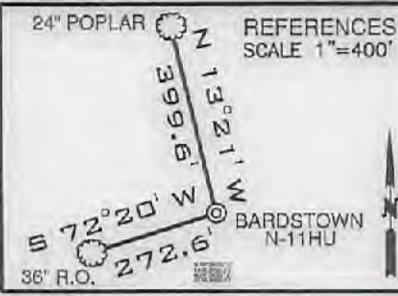
**Amy L. Morris**  
Permitting Specialist  
Tug Hill Operating

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

### BARDSTOWN LEASE WELL N-11HU 391.2076± ACRES

TOTAL LATERAL LENGTH, LPI TO BH - 9,387.55'

NUMBER	CHORD DIRECTION	CHORD LENGTH	RADIUS	ARC LENGTH
C1	N 19°43' W	85.30'	613.85'	85.36'
C2	N 24°48' W	253.85'	3,617.57'	253.95'
C3	N 27°09' W	220.10'	7,908.71'	220.11'
C4	N 28°28' W	232.19'	11,243.40'	232.19'
C5	N 32°33' W	351.23'	2,864.40'	351.45'



NOTES

6. BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILDCOTE, P.C. FILE 0058304, 0101147. LTP & LPL ARE THE SAME POINT.

LINE BEARING	DISTANCE
L1 S 58°06' W	1440.87'
L2 N 01°20' E	1710.25'
L3 N 00°57' E	75.03'
L4 N 14°20' W	748.30'

**SURFACE HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,401,572.17  
E) 516,698.99

**LANDING POINT 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,402,029.74  
E) 516,529.74

- NOTES
- BORE PATH BASED ON GRID NORTH.
  - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 825' OF PAD CENTER WERE FOUND.
  - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2022. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
  - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
  - ALL DEEP WELLS WITHIN 1,000' OF LATERAL ARE SHOWN ON THIS PLAT.

**LEGEND**

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)

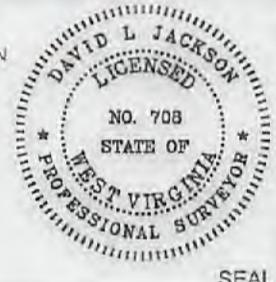
**AZIMUTH POINT 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,403,451.83  
E) 515,708.69

**AZIMUTH POINT 2**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,403,541.06  
E) 515,649.60

**BOTTOM HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,404,428.15  
E) 514,980.43

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

*David L Jackson*



JACKSON SURVEYING INC.  
P.O. Box 1460  
Clarkeburg, WV 26302  
304-823-5851



FILE NUMBER \_\_\_\_\_  
DRAWING NUMBER BARDSTOWN\_N-11HU\_REV 3  
SCALE 1" = 2000'  
MINIMUM DEGREE OF ACCURACY 1/200  
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING  
GRADE GPS

WVDEP  
OFFICE OF OIL & GAS  
801 57TH STREET, SE  
CHARLESTON, WV 25304

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

DATE: APRIL 08, 2022

OPERATORS WELL NO. BARDSTOWN N-11HU  
API WELL NO. 47-051-02447 Deep  
STATE COUNTY PERMIT

LOCATION ELEVATION 1326.2' WATERSHED (HUG 10) FRENCH CREEK - OHIO RIVER  
DISTRICT FRANKLIN COUNTY MARSHALL  
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER RUSSELL & MARY BLAKE ACREAGE 64.148

OIL & GAS ROYALTY OWNER RUSSELL & MARY BLAKE LEASE ACREAGE 64.148

PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_  
PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE (SPECIFY) \_\_\_\_\_

TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,372' TMD: 21,071'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN, CT CORP  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5098 WASHINGTON STREET WEST, SUITE 407 CHARLESTON, WV 25313-1561

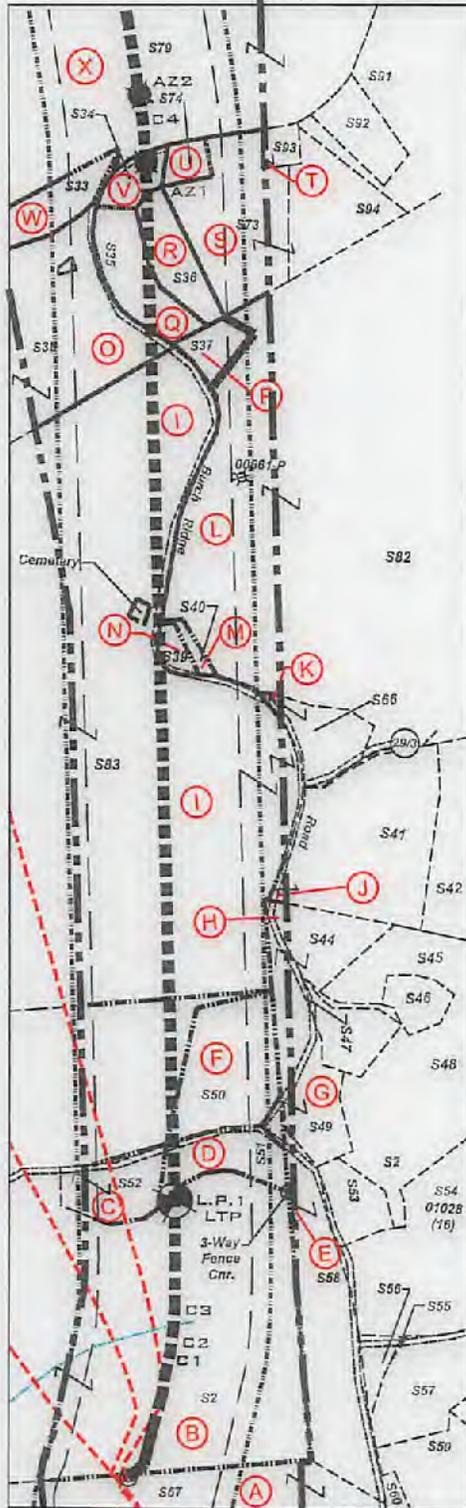
05/20/2022

COUNTY NAME PERMIT

**BARDSTOWN LEASE  
WELL N-11HU  
391.2076± ACRES**

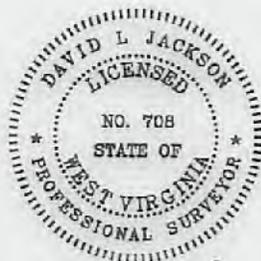
INSET "A"

Inset "A"  
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 05-26-22 4.15 ACRES
- 05-13-41C MAPPED AS PART OF 05-13-41, NOT ASSESSED.



*David L Jackson*

P.S.  
708

Tags	Number	Tax Map - Parcel	Surface Owner	Acres
	S1	05-22-04	CNX RCPC, LLC	136.32
R	S2	05-19-20	WILBERT H BUNGARD ET UX	114.989
	S3	05-19-04	JUSTIN RINE	82.75
	S4	05-14-02	JOHN S WILLIAMS, ET AL	20.17
	S5	05-13-41C	HEIRS OF DENTON DARRAH, LILLIE MAE DUGAN ALMA BITNER, ALBERTA PALMER & ALDREY 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 L MAST	40.0
	S10	05-13-35	DAVID L MAST	24.50
	S11	05-13-23	DAVID L MAST	69.59
	S12	05-13-33	NATHAN D. YODER	140.90
	S13	05-13-25	AARON PAUL HOLDREN, ET UX	30.0
	S14	05-13-22	AARON PAUL HOLDREN, ET UX	25.0
	S15	05-13-28	AARON PAUL HOLDREN, ET UX	17.0
	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
	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	0.57
	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	18.323
	S30	05-12-24.1	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.994
	S31	05-12-23.2	MARSHALL COUNTY COAL RESOURCES, INC.	12.50
AA	S32	05-12-22	CNX RCPC, LLC	0.944
W	S33	05-14-07	DONNA K. & LEROY ANDERSON	4.60
V	S34	05-14-16	GEORGE A KNUTH	1.6386
QL	S35	05-14-9.3	VERNEE A RINE, ET UX	4.118
IL	S36	05-14-9.4	VERNEE A RINE, ET UX	3.404
P	S37	05-14-10.3	VERNEE A & JODY K RINE	1.54
O	S38	05-14-08	LAWRENCE EUGENE ANDERSON	18.29
N	S39	05-14-10.1	IDA BELLE RUTAN (LIFE), RALPH B HOYT	0.50
M	S40	05-14-10.2	IDA BELLE RUTAN (LIFE), RALPH B HOYT	0.495
J	S41	05-14-11	DALE R GALLAHER, ET AL	12
	S42	05-14-12	DALE R GALLAHER & HARRY R GALLAHER	135.100
	S43	05-14-14	ROBERT L SHIELDS, ET AL	29.05
H	S44	05-19-06	MARTHA M RUTAN	5.1099
	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
G	S49	05-19-7.1	ROBERT L SHIELDS, ET UX	3.399
I	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
E	S58	05-19-09	PENNY ELAINE MENENDEZ	10.44
	S59	05-19-29	ERNIE L & TAMMY LANDERSON	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 YOHIO & MARK E YOHIO	56.899
K	S66	05-14-10.4	ADAM R & JESSIE L ROBINSON	3.343
A	S67	05-19-19	RUSSELL & MARY BLAKE	64.148
	S68	05-19-21	SAMMY E WHITLATCH, ET AL	126.45
	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
S	S73	05-14-09	WALTER W. STREIGHT JR, ET UX	9.311
U	S74	05-14-17	JUSTIN E. & JODY RINE	1.1044
	S75	05-13-40	ROBERT RINE	23.76
	S76	05-13-39	THOMAS BOWMAN & VICTORIA BOWMAN	46
Z	S77	05-13-32	C PATRICIA WOBIG ET AL	105.66
Y	S78	05-12-23	CNX RCPC, LLC	236.10
X	S79	05-14-05	DONNA K. & LEROY ANDERSON	110.5
	S80	05-14-04	LEROY & DONNA K ANDERSON	29.29
	S81	05-14-03	LEROY & DONNA K ANDERSON	130
L	S82	05-14-10	WANDA P RINE - LIFE	107.372
I	S83	05-19-05	MARGIRENE KEEFE	126.03
	S84	05-19-13	RONA LEE RICE & CHARLES F MCCARDLE	92.6890
CC	S85	05-12-23.1	JAMES M. DAUGHERTY	0.28
DD	S86	05-12-23.3	WEST VIRGINIA DEPARTMENT OF HIGHWAYS	0.111
	S87	05-12-21.1	ROBERT W RIGGENBACH JR & WENDY RIGGENBACH	14.222
	S88	05-12-21	EDWARD L GIBSON (LIFE)	73.436
	S89	05-12-20	JONI LYNN LEON	0.457
	S90	05-12-19	JONI LYNN LEON	0.457
	S91	05-14-9.2	MARIA T FLORES	23.00
	S92	05-14-9.1	MARIA T FLORES	2.882
T	S93	05-14-19	BRIAN A & CHARLOTTE MULL	0.92
	S94	05-14-9.5	MARIA T FLORES	6.024
	S95	05-12-7	ROBERT & SHARON RIGGENBACH / REVOCABLE TRUST	104.231
BB	S96	05-12-6	CNX RCPC, LLC	70.81
EE	S97	05-12-6.1	WV DEPARTMENT OF HIGHWAYS	0.31
	S98	05-12-6.2	CONSOLIDATION COAL COMPANY / MURKIN TRUST	0.31
	S99	05-19-19.1	RUSSELL & MARY BLAKE	2.52
	S100		CSX RAILROAD	3.58

05/20/2022

OPERATOR'S  
WELL #: Bardstown N-11HU  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

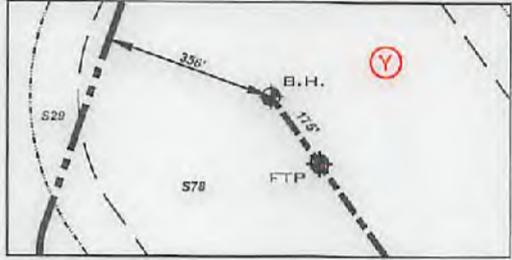
WELL PLAT  
PAGE 2 OF 3  
DATE: 04/08/2022  
47-051-02447-Deep



**TUG HILL  
OPERATING**

**BARDSTOWN LEASE  
WELL N-11HU  
391.2076± ACRES**

*Inset "B"  
NTS*



Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Deed Book/Page	
10*14634	5-19-19	A	RUSSELL & MARY BLAKE	773	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*14635	5-19-9	E	KATHY JO RUNYON, ET AL	775	21
10*14141	5-19-20.2	F	DAVID & DEBORAH TAKACH	720	233
10*16735	5-19-7.1	G	ROBERT L SHIELDS AND REBECCA A SHIELDS	942	27
10*16994	5-19-6	H	MARTHA M RUTAN	942	31
10*14925	5-19-5	I	MOUNTAIN TOP PRODUCTIONS LLC	840	444
10*14928	5-14-11	J	JOSEPH D. & NELLIE B. PARRIOTT	660	517
10*14420	5-14-10.4	K	ELLIS V & WANDA P RINE	725	141
10*14420	5-14-10	L	ELLIS V & WANDA P RINE	725	141
10*17968	5-14-10.2	M	IDA RUTAN	958	402
10*17968	5-14-10.1	N	IDA RUTAN	958	402
10*18121	5-14-8	O	LAWRENCE EUGENE AND NICOLE M ANDERSON	927	68
10*14553	5-14-10.3	P	VERNIE & JODY K RINE	859	597
10*14553	5-14-9.3	Q	VERNIE & JODY K RINE, ET AL	859	597
10*14553	5-14-9.4	R	VERNIE & JODY K RINE, ET AL	859	597
10*14619	5-14-9	S	SHIRLEY R MILLER, ET AL	715	414
10*14619	5-14-19	T	SHIRLEY R MILLER, ET AL	715	414
10*14619	5-14-17	U	SHIRLEY R MILLER, ET AL	715	414
10*14619	5-14-16	V	SHIRLEY R MILLER, ET AL	715	414
10*14945	5-14-7	W	LEROY AND DONNA KAY ANDERSON	735	433
10*14568	5-14-5	X	LEROY ANDERSON AND DONNA KAY ANDERSON, ET AL	772	69
041111	5-12-23	Y	EDWARD DOUGLAS GUIRE ET AL	663	91
10*16609	5-13-32	Z	C PATRICIA AND JAMES CLINTON WOBIG, ET AL	916	118
41112	5-12-22	AA	COLUMBIAN CHEMICAL COMPANY	691	363
041112	5-12-6	BB	COLUMBIAN CHEMICAL COMPANY	691	363
041112	5-12-23.1	CC	COLUMBIAN CHEMICAL COMPANY	691	363
041112	5-12-23.3	DD	COLUMBIAN CHEMICAL COMPANY	691	363
Q081144000	5-12-6.1	EE	HOWARD N WAYNE AND DENISE D WAYNE	816	532



*David L Jackson*

P.S.  
708

05/20/2022



**TUG HILL**  
**OPERATING**

OPERATOR'S  
WELL #: Bardstown N-11HU  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

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

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

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

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

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

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

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

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

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

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

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14634	5-19-19	A	RUSSELL & MARY BLAKE	GASTAR EXPLORATION USA INC	1/8+	773	568	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14141	5-19-20	B	DAVID & DEBORAH TAKACH	GASTAR EXPLORATION USA INC	1/8+	720	233	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263
10*14141	5-19-20.1	D	DAVID & DEBORAH TAKACH	GASTAR EXPLORATION USA INC	1/8+	720	233	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263
10*14141	5-19-20.2	F	DAVID & DEBORAH TAKACH	GASTAR EXPLORATION USA INC	1/8+	720	233	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263
10*14925	5-19-5	I	MOUNTAIN TOP PRODUCTIONS LLC	GASTAR EXPLORATION USA INC	1/8+	840	444	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 33/308	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 33/308	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 33/308
10*17968	5-14-10.2	M	IDA RUTAN	TH EXPLORATION LLC	1/8+	958	402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17968	5-14-10.1	N	IDA RUTAN	TH EXPLORATION LLC	1/8+	958	402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18121	5-14-8	O	LAWRENCE EUGENE AND NICOLE M ANDERSON	TH EXPLORATION LLC	1/8+	927	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14553	5-14-9.3	Q	VERNIE & JODY K RINE	GASTAR EXPLORATION INC AND ATINUM MARCELLUS I LLC	1/8+	859	597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14619	5-14-9.3	Q	SHIRLEY R MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	414	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14620	5-14-9.3	Q	ANITA RAE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	416	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14621	5-14-9.3	Q	WILLIAM DALE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	415	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14622	5-14-9.3	Q	KELLY D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	713	606	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14623	5-14-9.3	Q	DUANE D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	717	149	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14624	5-14-9.3	Q	DOUGLAS E MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	725	559	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 25/582	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41
10*14625	5-14-9.3	Q	JACQUELYN J AND SAMMY R JOHNSON	CHESAPEAKE APPALACHIA LLC	1/8+	715	616	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41	Gastar Exploration USA Inc merged with and into Gastar Exploration Inc: 21/41

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*14626	5-14-9.3	Q	STEVEN POND	CHESAPEAKE APPALACHIA LLC	1/8+	715	622	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14627	5-14-9.3	Q	BRIAN & LENA POND	CHESAPEAKE APPALACHIA LLC	1/8+	717	51	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14628	5-14-9.3	Q	TEXYN L MILLER AND GEORGIA A MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	514	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14629	5-14-9.3	Q	GERALD R MILLER AND LEE ANNE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	717	1	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14630	5-14-9.3	Q	BARBARA BURLEY AND DAVID BURLEY	CHESAPEAKE APPALACHIA LLC	1/8+	716	637	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14631	5-14-9.3	Q	LISA ANN MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	520	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14902	5-14-9.3	Q	BENNY MILLER	GASTAR EXPLORATION INC	1/8+	836	98	N/A	N/A	N/A			Gastar Exploration USA Inc merged with and into Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14903	5-14-9.3	Q	SUE PRUITT	GASTAR EXPLORATION INC	1/8+	836	100	N/A	N/A	N/A			Gastar Exploration USA Inc merged with and into Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14904	5-14-9.3	Q	LEROY MILLER	GASTAR EXPLORATION INC	1/8+	846	398	N/A	N/A	N/A			Gastar Exploration USA Inc merged with and into Atinum Marcellus I LLC: 34/302	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14905	5-14-9.3	Q	JAMES K MILLER	GASTAR EXPLORATION INC	1/8+	854	610	N/A	N/A	N/A			Gastar Exploration USA Inc merged with and into Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14906	5-14-9.3	Q	MARY LOU MILLER-HORTON	GASTAR EXPLORATION INC	1/8+	862	417	N/A	N/A	N/A			Gastar Exploration USA Inc merged with and into Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*17547	5-14-9.3	Q	JAMES AND CATHERINE CONTRERAS RICHARD ARTHUR AND JEANNE	TH EXPLORATION LLC	1/8+	942	400	N/A	N/A	N/A			N/A	N/A	N/A
10*17548	5-14-9.3	Q	MARIE VAN GROL	TH EXPLORATION LLC	1/8+	942	143	N/A	N/A	N/A			N/A	N/A	N/A
10*18202	5-14-9.3	Q	TERRENCE V POWDERLY SR	TH EXPLORATION LLC	1/8+	929	85	N/A	N/A	N/A			N/A	N/A	N/A
10*18209	5-14-9.3	Q	CORINNE E VERNA AND JONATHAN C VERNA SR	TH EXPLORATION LLC	1/8+	929	82	N/A	N/A	N/A			N/A	N/A	N/A
10*18210	5-14-9.3	Q	DAVID F JR AND NANCY A POWDERLY REBECCA LYNN KIER AND ERIC JAMES KIER	TH EXPLORATION LLC	1/8+	929	87	N/A	N/A	N/A			N/A	N/A	N/A
10*18211	5-14-9.3	Q	THOMAS C DAVIS AND MARY ELLEN DAVIS	TH EXPLORATION LLC	1/8+	929	90	N/A	N/A	N/A			N/A	N/A	N/A
10*18212	5-14-9.3	Q	THOMAS A POWDERLY	TH EXPLORATION LLC	1/8+	929	92	N/A	N/A	N/A			N/A	N/A	N/A
10*18213	5-14-9.3	Q	THOMAS A POWDERLY	TH EXPLORATION LLC	1/8+	929	94	N/A	N/A	N/A			N/A	N/A	N/A
10*18214	5-14-9.3	Q	ANNE M AND JOHN LEACH	TH EXPLORATION LLC	1/8+	929	96	N/A	N/A	N/A			N/A	N/A	N/A

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Book	Page	Assignment	Assignment							
10*18215	5-14-9.3	Q	MARGARET J AND LANCE W WHITFORD	TH EXPLORATION LLC	1/8+	929	103	N/A	N/A							
10*18218	5-14-9.3	Q	ERIN E SCHOLL	TH EXPLORATION LLC	1/8+	929	106	N/A	N/A							
10*18806	5-14-9.3	Q	E SHEILA PAVLOVICH	TH EXPLORATION LLC	1/8+	929	576	N/A	N/A							
10*21223	5-14-9.3	Q	EUGENE C GRIEB AND SHIRLEY K GRIEB	TH EXPLORATION LLC	1/8+	961	468	N/A	N/A							
10*21924	5-14-9.3	Q	BEVERLY A MILLER	TH EXPLORATION LLC	1/8+	953	533	N/A	N/A							
10*21926	5-14-9.3	Q	VIOLA JANE BREON AND JAMES RONALD BREON	TH EXPLORATION LLC	1/8+	953	260	N/A	N/A							
10*21930	5-14-9.3	Q	JAMES A GRENOBLE AND MARY JANE GRENOBLE	TH EXPLORATION LLC	1/8+	953	263	N/A	N/A							
10*21938	5-14-9.3	Q	SEAN M GRENOBLE AND CHERYL A GRENOBLE	TH EXPLORATION LLC	1/8+	960	91	N/A	N/A							
10*22442	5-14-9.3	Q	SANDRA J HARMON AND WALTER D HARMON	TH EXPLORATION LLC	1/8+	966	106	N/A	N/A							
10*22449	5-14-9.3	Q	MARGARET CLICKNER	TH EXPLORATION LLC	1/8+	963	644	N/A	N/A							
10*22511	5-14-9.3	Q	SHERLEY R STOWE & KAREN M STOWE	TH EXPLORATION LLC	1/8+	966	104	N/A	N/A							
10*22645	5-14-9.3	Q	STANLEY EUGENE STOWE	TH EXPLORATION LLC	1/8+	968	204	N/A	N/A							
10*22744	5-14-9.3	Q	BRIDGET A POWDERLY	TH EXPLORATION LLC	1/8+	968	206	N/A	N/A							
10*23896	5-14-9.3	Q	MOLLY JO AND JOHN D MORROW MCMAHON	TH EXPLORATION LLC	1/8+	1017	489	N/A	N/A							
10*23969	5-14-9.3	Q	MARK A JOHNSON ET AL	TH EXPLORATION LLC	1/8+	1020	195	N/A	N/A							
10*24673	5-14-9.3	Q	MICHAEL POWDERLY	TH EXPLORATION LLC	1/8+	1025	287	N/A	N/A							
10*26995	5-14-9.3	Q	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1041	56	N/A	N/A							
Q083768091	5-14-9.3	Q	HARRIET C VENTURA ET VIR	NOBLE ENERGY INC	1/8+	894	541	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768093	5-14-9.3	Q	DAVID LEE EVANS JR ET UX	NOBLE ENERGY INC	1/8+	864	180	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/172	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768094	5-14-9.3	Q	MURIEL ANNE MILLER ET VIR	NOBLE ENERGY INC	1/8+	860	541	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 37/169	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768095	5-14-9.3	Q	KATHLEEN A SULLIVAN ET VIR	NOBLE ENERGY INC	1/8+	870	364	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 37/169	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768096	5-14-9.3	Q	FRANCIS F FISCHER ET UX	NOBLE ENERGY INC	1/8+	870	366	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 37/169	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768097	5-14-9.3	Q	DENNIS FISCHER ET UX	NOBLE ENERGY INC	1/8+	870	358	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 37/169	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768098	5-14-9.3	Q	RODNEY F PETERSON	NOBLE ENERGY INC	1/8+	870	380	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 37/169	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768099	5-14-9.3	Q	EILEEN T POWDERLY	NOBLE ENERGY INC	1/8+	873	81	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1

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Environmental Protection

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Book	Page	Assignment						
Q083768100	5-14-9.3	Q	HARRIET C HERMAN ET VIR	NOBLE ENERGY INC	1/8+	873	122	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768101	5-14-9.3	Q	JAMES E HERMAN	NOBLE ENERGY INC	1/8+	873	130	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768102	5-14-9.3	Q	EDWARD P POWDERLY ET UX	NOBLE ENERGY INC	1/8+	873	85	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768103	5-14-9.3	Q	NORA C POWDERLY	NOBLE ENERGY INC	1/8+	873	83	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768104	5-14-9.3	Q	EUGENIA A KERR	NOBLE ENERGY INC	1/8+	873	120	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768105	5-14-9.3	Q	MARY F WEILAND	NOBLE ENERGY INC	1/8+	873	126	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768106	5-14-9.3	Q	JANE H BARNSTEINER ET UX	NOBLE ENERGY INC	1/8+	873	132	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768107	5-14-9.3	Q	ANNE GALBALLY ET VIR	NOBLE ENERGY INC	1/8+	878	373	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768108	5-14-9.3	Q	JAMES T SCHOLL	NOBLE ENERGY INC	1/8+	878	365	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768109	5-14-9.3	Q	ANTHONY T POWDERLY ET UX	NOBLE ENERGY INC	1/8+	878	368	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768110	5-14-9.3	Q	SHARON L SCHOLL	NOBLE ENERGY INC	1/8+	878	350	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768111	5-14-9.3	Q	BRIDGET A POWDERLY	NOBLE ENERGY INC	1/8+	881	26	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768112	5-14-9.3	Q	NORA K POWDERLY	NOBLE ENERGY INC	1/8+	881	32	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768113	5-14-9.3	Q	KEVIN M POWDERLY	NOBLE ENERGY INC	1/8+	890	515	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1
Q083768114	5-14-9.3	Q	MARY S SCHOLL	NOBLE ENERGY INC	1/8+	890	572	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1

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Q083768115	5-14-9.3	Q	BRIAN P POWDERLY ET UX	NOBLE ENERGY INC	1/8+	890	566	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	
Q083768116	5-14-9.3	Q	SUSANNE S QUARTERMAN	NOBLE ENERGY INC	1/8+	890	606	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	
10*14553	5-14-9.4	R	VERNIE & JODY K RINE	GASTAR EXPLORATION USA INC	1/8+	859	597	N/A	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67	
10*14619	5-14-9.4	R	SHIRLEY R MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	414	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14620	5-14-9.4	R	ANITA RAE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	416	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14621	5-14-9.4	R	WILLIAM DALE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	415	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14622	5-14-9.4	R	KELLY D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	713	606	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14623	5-14-9.4	R	DUANE D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	717	149	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14624	5-14-9.4	R	DOUGLAS E MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	725	559	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 25/582	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14625	5-14-9.4	R	JACQUELYN J AND SAMMY R JOHNSON	CHESAPEAKE APPALACHIA LLC	1/8+	715	616	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14626	5-14-9.4	R	STEVEN POND	CHESAPEAKE APPALACHIA LLC	1/8+	715	622	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14627	5-14-9.4	R	BRIAN & LENA POND	CHESAPEAKE APPALACHIA LLC	1/8+	717	51	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14628	5-14-9.4	R	TEXYN L MILLER AND GEORGIA A MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	514	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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	

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10*14629	5-14-9.4	R	GERALD R MILLER AND LEE ANNE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+		717 1	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14630	5-14-9.4	R	BARBARA BURLEY AND DAVID BURLEY	CHESAPEAKE APPALACHIA LLC	1/8+		716 637	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14631	5-14-9.4	R	LISA ANN MILLER	CHESAPEAKE APPALACHIA LLC	1/8+		715 520	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14902	5-14-9.4	R	BENNY MILLER	GASTAR EXPLORATION INC	1/8+		836 98	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14903	5-14-9.4	R	SUE PRUITT	GASTAR EXPLORATION INC	1/8+		836 100	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14904	5-14-9.4	R	LEROY MILLER	GASTAR EXPLORATION USA INC	1/8+		846 398	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 34/302	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14905	5-14-9.4	R	JAMES K MILLER	GASTAR EXPLORATION USA INC	1/8+		854 610	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14906	5-14-9.4	R	MARY LOU MILLER-HORTON	GASTAR EXPLORATION USA INC	1/8+		862 417	N/A	N/A	N/A	N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*17547	5-14-9.4	R	JAMES AND CATHERINE CONTRERAS	TH EXPLORATION LLC	1/8+		942 400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17548	5-14-9.4	R	RICHARD ARTHUR AND JEANNE MARIE VAN GROU	TH EXPLORATION LLC	1/8+		942 143	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18202	5-14-9.4	R	TERRENCE V POWDERLY SR	TH EXPLORATION LLC	1/8+		929 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18209	5-14-9.4	R	CORINNE E VERNA AND JONATHAN C VERNA SR	TH EXPLORATION LLC	1/8+		929 82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18210	5-14-9.4	R	DAVID F JR AND NANCY A POWDERLY	TH EXPLORATION LLC	1/8+		929 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18211	5-14-9.4	R	REBECCA LYNN KIER AND ERIC JAMES KIER	TH EXPLORATION LLC	1/8+		929 90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18212	5-14-9.4	R	THOMAS C DAVIS AND MARY ELLEN DAVIS	TH EXPLORATION LLC	1/8+		929 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18213	5-14-9.4	R	THOMAS A POWDERLY	TH EXPLORATION LLC	1/8+		929 94	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18214	5-14-9.4	R	ANNE M AND JOHN LEACH	TH EXPLORATION LLC	1/8+		929 96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18215	5-14-9.4	R	MARGARET J AND LANCE W WHITFORD	TH EXPLORATION LLC	1/8+		929 103	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18218	5-14-9.4	R	ERIN E SCHOLL	TH EXPLORATION LLC	1/8+		929 106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18806	5-14-9.4	R	E SHEILA PAVLOVICH	TH EXPLORATION LLC	1/8+		929 576	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21223	5-14-9.4	R	EUGENE C GRIEB AND SHIRLEY K GRIEB	TH EXPLORATION LLC	1/8+		961 468	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21924	5-14-9.4	R	BEVERLY A MILLER	TH EXPLORATION LLC	1/8+		953 533	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21926	5-14-9.4	R	VIOLA JANE BREON AND JAMES RONALD BREON	TH EXPLORATION LLC	1/8+		953 260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21930	5-14-9.4	R	JAMES A GRENOBLE AND MARY JANE GRENOBLE	TH EXPLORATION LLC	1/8+		953 263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21938	5-14-9.4	R	SEAN M GRENOBLE AND CHERYL A GRENOBLE	TH EXPLORATION LLC	1/8+		960 91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22442	5-14-9.4	R	SANDRA J HARMON AND WALTER D HARMON	TH EXPLORATION LLC	1/8+		966 106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22449	5-14-9.4	R	MARGARET CLICKNER	TH EXPLORATION LLC	1/8+		963 644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*22511	5-14-9.4	R	SHERLEY R STOWE & KAREN M STOWE	TH EXPLORATION LLC	1/8+	966	104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22645	5-14-9.4	R	STANLEY EUGENE STOWE	TH EXPLORATION LLC	1/8+	968	204	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22744	5-14-9.4	R	BRIDGET A POWDERLY	TH EXPLORATION LLC	1/8+	968	206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23896	5-14-9.4	R	MOLLY JO AND JOHN D MORROW MCMAHON	TH EXPLORATION LLC	1/8+	1017	489	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23969	5-14-9.4	R	MARK A JOHNSON ET AL	TH EXPLORATION LLC	1/8+	1020	195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24673	5-14-9.4	R	MICHAEL POWDERLY	TH EXPLORATION LLC	1/8+	1025	287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26995	5-14-9.4	R	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1041	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14619	5-14-16	V	SHIRLEY R MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	414	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA Inc & Atinum Marcellus I LLC: 27/321	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	5-14-5	X	LEROY ANDERSON AND DONNA KAY ANDERSON	GASTAR EXPLORATION USA INC	1/8+	772	69	N/A	N/A	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*14619	5-14-5	X	SHIRLEY R MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	414	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14620	5-14-5	X	ANITA RAE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	416	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14621	5-14-5	X	WILLIAM DALE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715	415	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14622	5-14-5	X	KELLY D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	713	606	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14623	5-14-5	X	DUANE D MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	717	149	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14624	5-14-5	X	DOUGLAS E MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	725	559	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 25/582	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*14625	5-14-5	X	JACQUELYN J AND SAMMY R JOHNSON	CHESAPEAKE APPALACHIA LLC	1/8+	715	616	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	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*14626	5-14-5	X	STEVEN POND	CHESAPEAKE APPALACHIA LLC	1/8+	715	622	N/A	N/A	N/A	N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	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

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10*14627	5-14-5	X	BRIAN & LENA POND	CHESAPEAKE APPALACHIA LLC	1/8+	717 51	N/A	N/A	RECEIVED Office of Oil and Gas APR 11 2022 WV Department of Environmental Protection	N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14628	5-14-5	X	TEXNY L MILLER AND GEORGIA A MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715 514	N/A	N/A		N/A	Chesapeake Appalachia, LLC & Statoil USA Onshore Properties Inc to Gastar Exploration USA, Inc & Atinum Marcellus I LLC: 27/321	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*14629	5-14-5	X	GERALD R MILLER AND LEE ANNE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	717 1	N/A	N/A		N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	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*14630	5-14-5	X	BARBARA BURLEY AND DAVID BURLEY	CHESAPEAKE APPALACHIA LLC	1/8+	716 637	N/A	N/A		N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	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*14631	5-14-5	X	LISA ANN MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715 520	N/A	N/A		N/A	Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc: 24/204	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*14902	5-14-5	X	BENNY MILLER	GASTAR EXPLORATION INC	1/8+	836 98	N/A	N/A		N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14903	5-14-5	X	SUE PRUITT	GASTAR EXPLORATION INC	1/8+	836 100	N/A	N/A		N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 32/428	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14904	5-14-5	X	LEROY MILLER	GASTAR EXPLORATION INC	1/8+	846 398	N/A	N/A		N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 34/302	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14905	5-14-5	X	JAMES K MILLER	GASTAR EXPLORATION INC	1/8+	854 610	N/A	N/A		N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*14906	5-14-5	X	MARY LOU MILLER-HORTON	GASTAR EXPLORATION INC	1/8+	862 417	N/A	N/A		N/A	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/119	Gastar Exploration Inc to TH Exploration II, LLC: 36/9	Atinum Marcellus I LLC to TH Exploration II LLC: 48/67
10*17547	5-14-5	X	JAMES AND CATHERINE CONTRERAS	TH EXPLORATION LLC	1/8+	942 400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17548	5-14-5	X	RICHARD ARTHUR AND JEANNE MARIE VAN GROL	TH EXPLORATION LLC	1/8+	942 143	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18202	5-14-5	X	TERRENCE V POWDERLY SR	TH EXPLORATION LLC	1/8+	929 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18209	5-14-5	X	CORINNE E VERNA AND JONATHAN C VERNA SR	TH EXPLORATION LLC	1/8+	929 82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18210	5-14-5	X	DAVID F JR AND NANCY A POWDERLY	TH EXPLORATION LLC	1/8+	929 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18211	5-14-5	X	REBECCA LYNN KIER AND ERIC JAMES KIER	TH EXPLORATION LLC	1/8+	929 90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18212	5-14-5	X	THOMAS C DAVIS AND MARY ELLEN DAVIS	TH EXPLORATION LLC	1/8+	929 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18213	5-14-5	X	THOMAS A POWDERLY	TH EXPLORATION LLC	1/8+	929 94	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18214	5-14-5	X	ANNE M AND JOHN LEACH	TH EXPLORATION LLC	1/8+	929 96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18215	5-14-5	X	MARGARET J AND LANCE W WHITFORD	TH EXPLORATION LLC	1/8+	929 103	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18218	5-14-5	X	ERIN E SCHOLL	TH EXPLORATION LLC	1/8+	929 106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18806	5-14-5	X	E SHEILA PAVLOVICH	TH EXPLORATION LLC	1/8+	929 576	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21223	5-14-5	X	EUGENE C GRIEB AND SHIRLEY K GRIEB	TH EXPLORATION LLC	1/8+	961 468	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*21924	5-14-5	X	BEVERLY A MILLER	TH EXPLORATION LLC	1/8+	953	533	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21926	5-14-5	X	VIOLA JANE BREON AND JAMES RONALD BREON	TH EXPLORATION LLC	1/8+	953	260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21930	5-14-5	X	JAMES A GRENOBLE AND MARY JANE GRENOBLE	TH EXPLORATION LLC	1/8+	953	263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21938	5-14-5	X	SEAN M GRENOBLE AND CHERYL A GRENOBLE	TH EXPLORATION LLC	1/8+	960	91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22442	5-14-5	X	SANDRA J HARMON AND WALTER D HARMON	TH EXPLORATION LLC	1/8+	966	106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22449	5-14-5	X	MARGARET CLICKNER	TH EXPLORATION LLC	1/8+	963	644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22511	5-14-5	X	SHERLEY R STOWE & KAREN M STOWE	TH EXPLORATION LLC	1/8+	966	104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22645	5-14-5	X	STANLEY EUGENE STOWE	TH EXPLORATION LLC	1/8+	968	204	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22744	5-14-5	X	BRIDGET A POWDERLY	TH EXPLORATION LLC	1/8+	968	206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23896	5-14-5	X	MOLLY JO AND JOHN D MORROW MCMAHON	TH EXPLORATION LLC	1/8+	1017	489	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23969	5-14-5	X	MARK A JOHNSON ET AL	TH EXPLORATION LLC	1/8+	1020	195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24673	5-14-5	X	MICHAEL POWDERLY	TH EXPLORATION LLC	1/8+	1025	287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26995	5-14-5	X	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1041	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Q083768091	5-14-5	X	HARRIET C VENTURA ET VIR	NOBLE ENERGY INC	1/8+	894	541	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768093	5-14-5	X	DAVID LEE EVANS JR ET UX	NOBLE ENERGY INC	1/8+	864	180	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/172	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768094	5-14-5	X	MURIEL ANNE MILLER ET VIR	NOBLE ENERGY INC	1/8+	860	541	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/172	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768095	5-14-5	X	KATHLEEN A SULLIVAN ET VIR	NOBLE ENERGY INC	1/8+	870	364	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768096	5-14-5	X	FRANCIS F FISCHER ET UX	NOBLE ENERGY INC	1/8+	870	366	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286

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Q083768097	5-14-5	X	DENNIS FISCHER ET UX	NOBLE ENERGY INC	1/8+	870 358	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768098	5-14-5	X	RODNEY F PETERSON	NOBLE ENERGY INC	1/8+	870 380	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768099	5-14-5	X	EILEEN T POWDERLY	NOBLE ENERGY INC	1/8+	873 81	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768100	5-14-5	X	HARRIET C HERMAN ET VIR	NOBLE ENERGY INC	1/8+	873 122	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768101	5-14-5	X	JAMES E HERMAN	NOBLE ENERGY INC	1/8+	873 130	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768102	5-14-5	X	EDWARD P POWDERLY ET UX	NOBLE ENERGY INC	1/8+	873 85	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768103	5-14-5	X	NORA C POWDERLY	NOBLE ENERGY INC	1/8+	873 83	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768104	5-14-5	X	EUGENIA A KERR	NOBLE ENERGY INC	1/8+	873 120	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286

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Q083768105	5-14-5	X	MARY F WEILAND	NOBLE ENERGY INC	1/8+	873	126	N/A	N/A	N/A	RECEIVED Office of Oil and Gas  APR 11 2022  WV Department of Environmental Protection	Noble Energy Inc to CNX Gas Company LLC: 35/313	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768106	5-14-5	X	JANE H BARNSTEINER ET UX	NOBLE ENERGY INC	1/8+	873	132	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768107	5-14-5	X	ANNE GALBALLY ET VIR	NOBLE ENERGY INC	1/8+	878	373	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768108	5-14-5	X	JAMES T SCHOLL	NOBLE ENERGY INC	1/8+	878	365	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768109	5-14-5	X	ANTHONY T POWDERLY ET UX	NOBLE ENERGY INC	1/8+	878	368	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768110	5-14-5	X	SHARON L SCHOLL	NOBLE ENERGY INC	1/8+	878	36	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768111	5-14-5	X	BRIDGET A POWDERLY	NOBLE ENERGY INC	1/8+	881	26	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768112	5-14-5	X	NORA K POWDERLY	NOBLE ENERGY INC	1/8+	881	32	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286

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Q083768113	5-14-5	X	KEVIN M POWDERLY	NOBLE ENERGY INC	1/8+	890	515	N/A	N/A	N/A	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">                     RECEIVED                      Office of Oil and Gas                      APR 11 2022                      WV Department of                      Environmental Protection                 </p>	Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768114	5-14-5	X	MARY S SCHOLL	NOBLE ENERGY INC	1/8+	890	572	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768115	5-14-5	X	BRIAN P POWDERLY ET UX	NOBLE ENERGY INC	1/8+	890	566	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q083768116	5-14-5	X	SUSANNE S QUARTERMAN	NOBLE ENERGY INC	1/8+	890	606	N/A	N/A	N/A		Noble Energy Inc to CNX Gas Company LLC: 36/409	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286
Q041111	5-12-23	Y	EDWARD DOUGLAS GUIRE ET AL	CNX LAND RESOURCES INC	1/8+	663	91	N/A	N/A	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



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-11HU

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-11HU 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,

Amy L. Morris  
Permitting Specialist – Appalachia Region

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**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-11HU  
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>516,698.99</u>
County: <u>Marshall</u>		Northing: <u>4,401,572.17</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.

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

**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.

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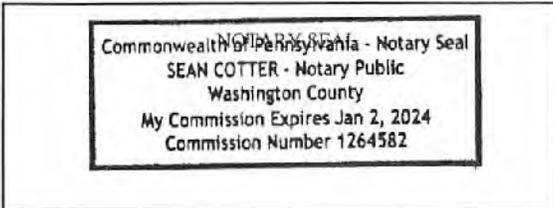
05/20/2022

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 April.

*[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 [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

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Environmental Protection

05/20/2022

WW-6A  
(9-13)

API NO. 47- 051 -  
OPERATOR WELL NO. Bardstown N-11HU  
Well Pad Name: Blake

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: 4/6/2022 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:

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Office of Oil and Gas

SURFACE OWNER(s)  
Name: William H. & Pamela June Bungard  
Address: 243 Bendit Drive  
Proctor, WV 26055  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

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

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SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: Russell & Mary Blake  
Address: 3343 Burch Ridge Road  
Proctor, WV 26055  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL  
AND/OR WATER PURVEYOR(s)  
Name: \*See list attached  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
Name: n/a  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: n/a  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

WV Department of Environmental Protection  
Office of Oil and Gas  
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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Bardstown N-111U  
Well Pad Name: Blake

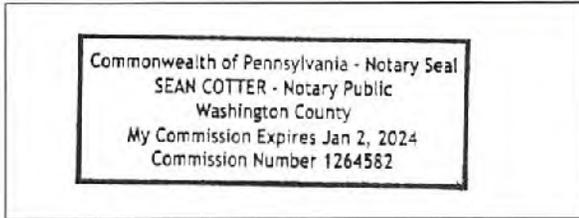
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
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.

*[Handwritten Signature]*

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

My Commission Expires 1/2/2024

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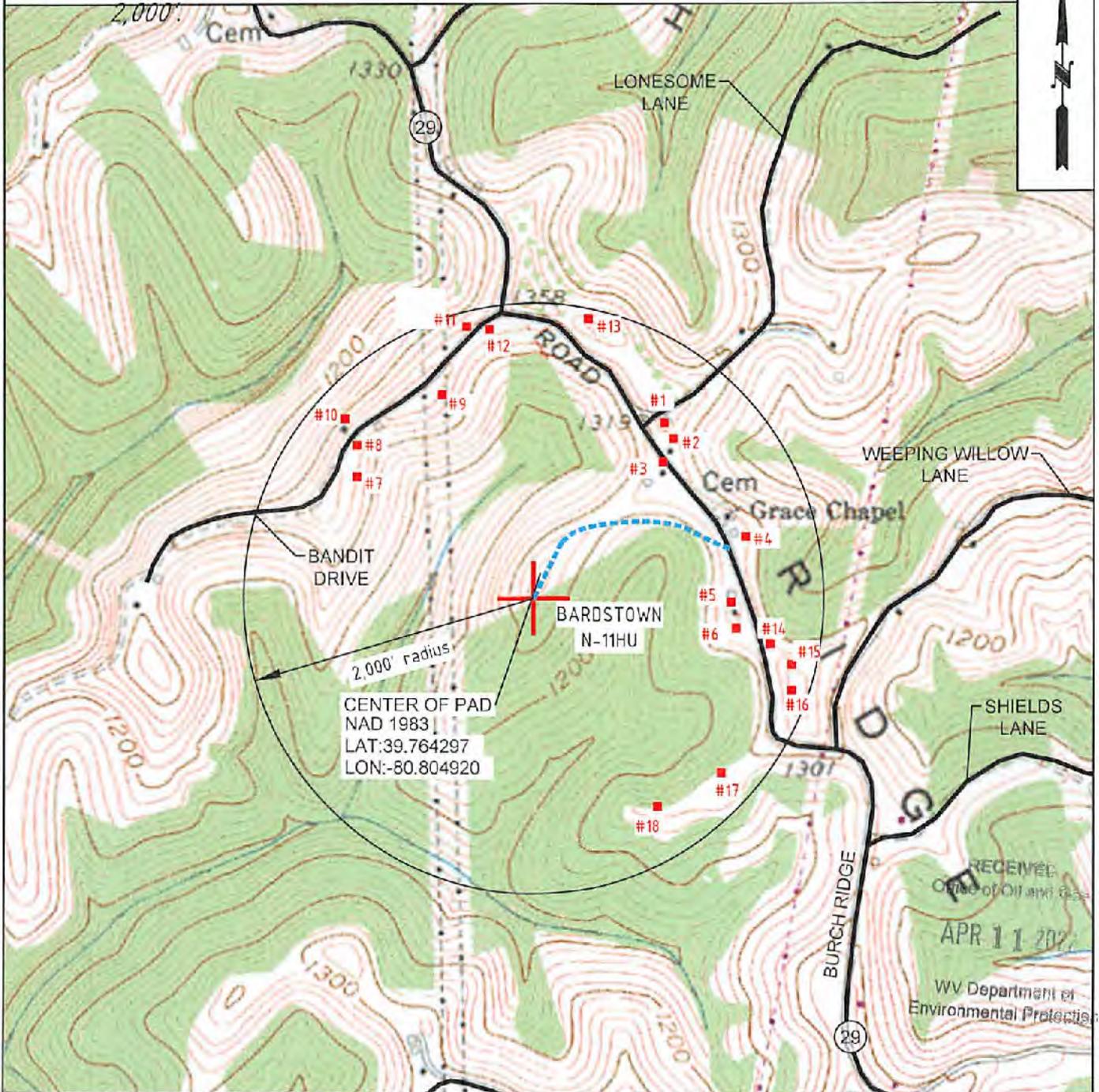
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# PROPOSED BARDSTOWN N-11HU

There appears to be Eighteen ( 18 ) possible water sources within  
2,000'.



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 Environmental Protection

 <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

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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.		
Topo Spot #	Description	Property Owner	E-911 Address	Mailing Address
House/Cabin #1	05-19-10	Anderson, Eric L etux	13 Lonesome Lane, Proctor, WV 26055	3156 Burch Ridge Rd.; Proctor, WV 26055
House/Cabin #2	05-19-10	Anderson, Eric L etux	3156 Burch Ridge Rd., Proctor, WV 26055	
House/Cabin #3	05-19-9	Ashcroft, Feuny Elaine	3171 Burch Ridge Rd.; Proctor, WV 26055	
House/Cabin #4	05-19-29	Anderson, Eric L. & Tammy L.	3296 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	Burgard, Wilbert H etux	296 Bandit Drive; Proctor, WV 26055	243 Bandit Drive; Proctor, WV 26055
House/Cabin #8	05-19-20	Burgard, 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	Burgard, 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 J + Life	26 Bandit Drive; Proctor, WV 26055	
House/Cabin #13	05-19-7.5	Robinson, Adam T & Jessa L.	2932 Burch Ridge Rd.; Proctor, WV 26055	
House/Cabin #14	05-19-30.1	Huggins, 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	Huggins, 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

WW-6A4  
(1/12)

**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:** 04/08/2022

**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 Jura Eungard (Access Road & Well Pad)  
**Address:** 243 Bardill Drive  
Proctor, WV 26055

**Name:** Russell & Mary Blake  
**Address:** 3343 Burch Ridge Rd.  
Proctor, WV 26055

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>516,698.99</u>
County:	<u>Marshall</u>		Northing:	<u>4,401,572.17</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 Eungard, et ux</u>	
Watershed:	<u>French Creek - Ohio River</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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:** Tug Hill Operating, LLC  
**Address:** 380 Southpointe Boulevard, Plaza II, Suite 200  
Caronsburg, PA 15317  
**Telephone:** 724-749-8383  
**Email:** emorris@tug-hill.com  
**Facsimile:** 724-338-2030

**Authorized Representative:** Darren Brown  
**Address:** 5093 Washington Street West, Suite 407  
Charleston, WV 25313-1561  
**Telephone:** 877-467-3525  
**Email:** ct-statecommunications@waltersklower.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).

Office of Oil and Gas

APR 11 2022

WV Dept. of Environmental Protection  
05/20/2022

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

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

**Date of Notice:** 04/06/2022 **Date Permit Application Filed:** 04/08/2022

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

- CERTIFIED MAIL RETURN RECEIPT REQUESTED
- HAND DELIVERY

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

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

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

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

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>516,698.99</u>
County:	<u>Marshall</u>		Northing:	<u>4,401,572.17</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 &amp; William Bungard, et ux</u>	
Watershed:	<u>French Creek - Ohio River (Undefined)</u>			

**This Notice Shall Include:**

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

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

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).

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APR 11 2022

WV Department of  
Environmental Protection

05/20/2022



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-11HU 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

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 APR 11 2022  
 WV Department of  
 Environmental Protection



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

**Bardstown Wells**

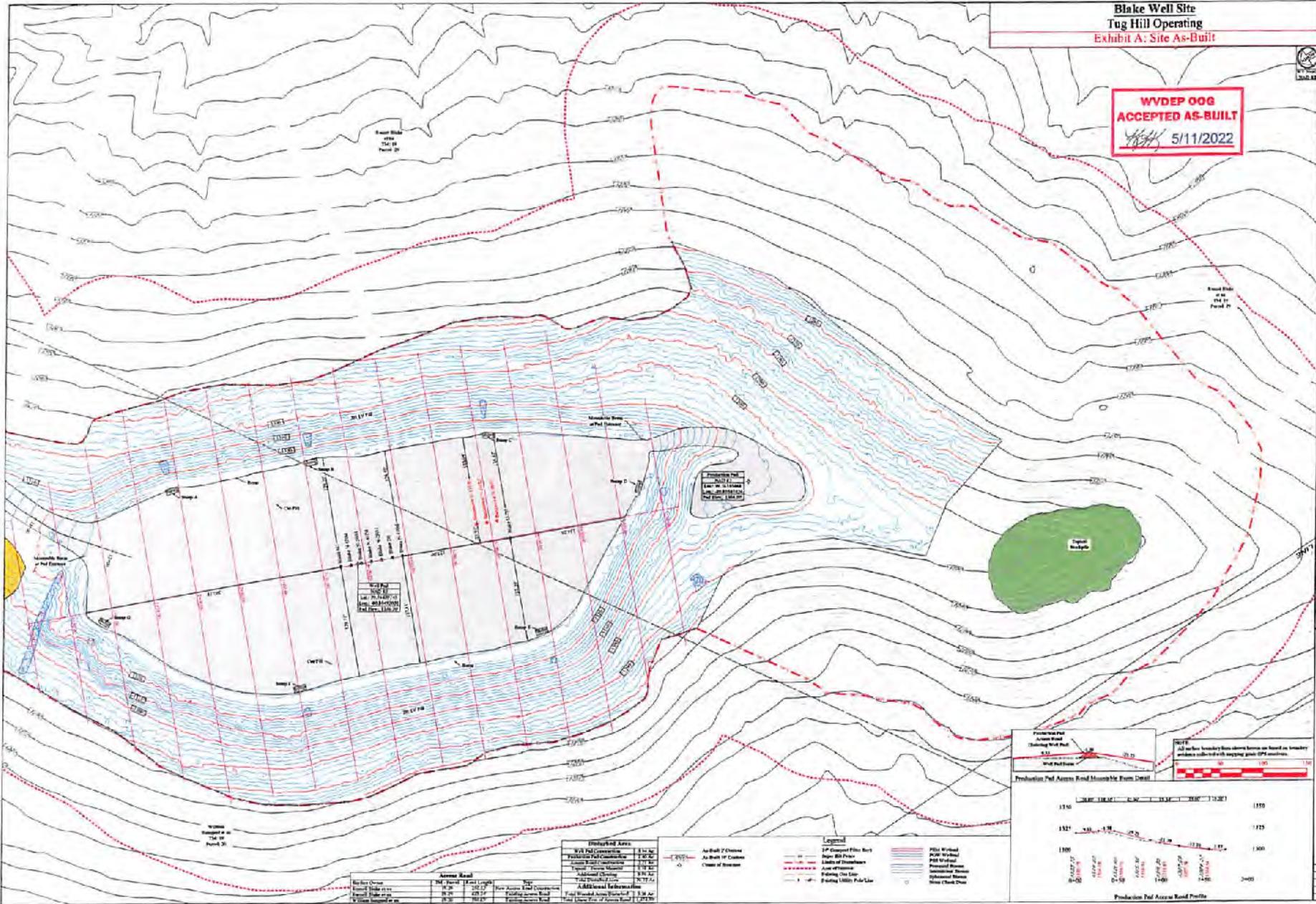
<b>PRODUCT NAME:</b>	<b>CHEMICAL DESCRIPTION:</b>	<b>PRODUCT USE:</b>	<b>HAZARDOUS COMPONENT:</b>
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 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

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APR 11 2022  
WV Department of  
Environmental Protection



**Blake Well Site**  
**Tug Hill Operating**  
**Exhibit A: Site As-Built**

**WVDEP OOG**  
**ACCEPTED AS-BUILT**  
*[Signature]* 5/11/2022

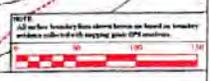


Access Road	MP	Point	Length	Notes
Access Road 1	10.20	102.00	100.00	From Access Road
Access Road 2	10.25	102.50	100.00	From Access Road
Access Road 3	10.30	103.00	100.00	From Access Road

Drilling Area	Well	Depth	Notes
Well Pad	10.20	102.00	100.00
Production Pad	10.25	102.50	100.00
Water Pad	10.30	103.00	100.00

Symbol	Description
—	As-Built 2' Contour
—	As-Built 10' Contour
—	Center of Stream
—	2' Contour Filter Bar
—	Super 80 Filter
—	Limit of Disturbance
—	As-Built Pipeline
—	Proposed Pipeline
—	Proposed 1000' Pad Line
—	2' Contour
—	10' Contour
—	100' Contour
—	200' Contour
—	300' Contour
—	400' Contour
—	500' Contour
—	600' Contour
—	700' Contour
—	800' Contour
—	900' Contour
—	1000' Contour

Symbol	Description
—	Proposed Well Pad
—	Proposed Production Pad
—	Proposed Water Pad
—	Proposed Access Road
—	Proposed Pipeline
—	Proposed 1000' Pad Line
—	Proposed 2' Contour
—	Proposed 10' Contour
—	Proposed 100' Contour
—	Proposed 200' Contour
—	Proposed 300' Contour
—	Proposed 400' Contour
—	Proposed 500' Contour
—	Proposed 600' Contour
—	Proposed 700' Contour
—	Proposed 800' Contour
—	Proposed 900' Contour
—	Proposed 1000' Contour



TUG HILL OPERATING  
 THIS DOCUMENT PREPARED FOR TUG HILL OPERATING  
 K&S CONSULTANTS  
 Blake Well Site  
 Franklin District  
 Marshall County, WV  
 Date: 10/24/2011  
 Scale: As Shown  
 Drawn By: JLS  
 Title No.  
 Sheet 3 of 4