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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)

Wednesday, June 29, 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 HEAVEN HILL 3N-15HU  
47-051-02452-00-00

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.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over a blue circular stamp. The signature is fluid and cursive.

James A. Martin  
Chief

Operator's Well Number: HEAVEN HILL 3N-15HU  
Farm Name: ANDREW C WHITLATCH ET AL  
U.S. WELL NUMBER: 47-051-02452-00-00  
Horizontal 6A New Drill  
Date Issued: 6/29/2022

Promoting a healthy environment.

07/01/2022



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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

June 16, 2022

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

RE: Application for Deep Well Permit – API #47-051-02452

COMPANY: Tug Hill Operating, LLC

FARM: Andrew C. Whitlatch et ux

Heaven Hill 3N-15HU

COUNTY: Marshall

DISTRICT: Meade

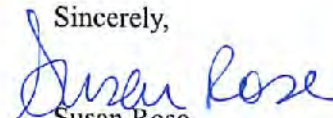
QUAD: Glen Easton

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

**\*\*Heaven Hill 2-8HU 47-051-01912; Heaven Hill 2W-12HU 47-051-01952; Heaven Hill 2W-13HU 47-051-01957; Heaven Hill 3N-10HU 47-051-02016; Heaven Hill 3-6HU 47-051-01968; Heaven Hill 3-7HU 47-051-01969; Heaven Hill 3-8HU 47-051-01967; Heaven Hill 2-6HU 47-051-01910; Heaven Hill 2-7HU 47-051-01911; Keith Stern N-15HU 47-051-02241; Keith Stern N-16HU 47-051-02242; Ten High 1N-11HU 47-051-01960; Ten High 1N-12HU 47-051-01961; Ten High 1N-13HU 47-051-01965; Ten High 1N-20HU 47-051-02021; Ten High 1S-14HU 47-051-01966; Ten High 1S-15HU 47-051-02027; Ten High 1S-16HU 47-051-02028; Ten High 1S-17HU 47-051-02033; Heaven Hill 3N-16HU 47-051-02453**

07/01/2022

# 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

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

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

## PERMIT CONDITIONS

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

07/01/2022

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

1) Well Operator: Tug Hill Operating, LLC      494510851      Marshall      Meade      Glen Easton 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Heaven Hill 3N-15HU      Well Pad Name: Heaven Hill 3

3) Farm Name/Surface Owner: Andrew C. Whitlatch, et ux      Public Road Access: Yeater Lane CR 21/11

4) Elevation, current ground: 1,328'      Elevation, proposed post-construction: 1,328'

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

Other      \_\_\_\_\_

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

Horizontal   

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Point Pleasant is the target formation at a depth of 11,635' - 11,757', thickness of 122' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,907'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 19,094' ✓

11) Proposed Horizontal Leg Length: 6,443.39'

12) Approximate Fresh Water Strata Depths: 70; 1,038'

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

14) Approximate Saltwater Depths: 1,431'

15) Approximate Coal Seam Depths: Sewickley Coal - 945' and Pittsburgh Coal - 1,032' ✓

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

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

(a) If Yes, provide Mine Info:    Name: Marshall County Coal Resources / Marshall County Mine  
Depth: Pittsburgh coal TVD and subsea level  
Seam: Pittsburgh #8  
Owner: Marshall County Coal Resources, Inc.

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#	1,175'	1,175' ✓	1,877FT^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	2,850'	2,850' ✓	2,009FT^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	11,049'	11,049' ✓	3,602FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	19,094'	19,094' ✓	4,562FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,288' ✓	
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							

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

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (10,788'). 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 16,200,000 lb. proppant and 290,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

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21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.43 acres

22) Area to be disturbed for well pad only, less access road (acres): 7.15 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

\*Note: Attach additional sheets as needed.

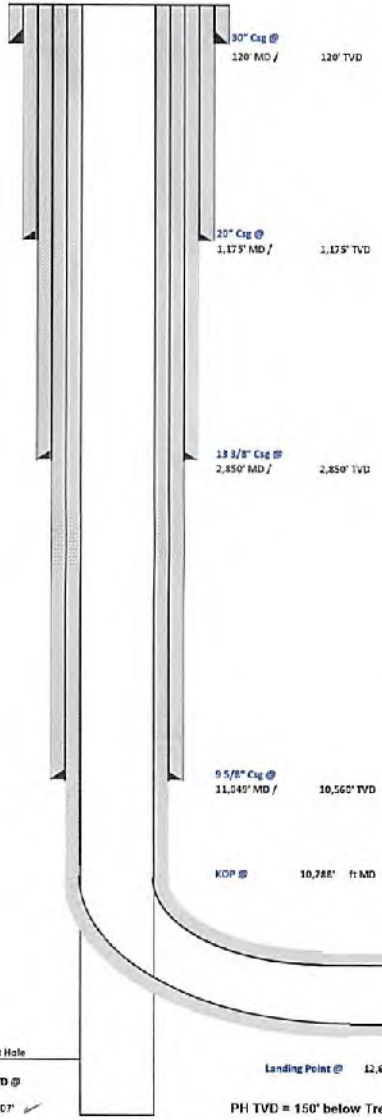


**WELL NAME:** Heaven Hill 3 N-15HU  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Meade  
**DF Elev:** 1,327' **GL Elev:** 1,327'  
**ID:** 19,094'  
**TH Latitude:** 39.80861518  
**TH Longitude:** -80.69340785  
**BH Latitude:** 39.819323  
**BH Longitude:** -80.704733

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1,038'
Sewickley Coal	945'
Pittsburgh Coal	1,092'
Big Lime	2,231'
Berea	2,754'
Tully	6,727'
Marcellus	6,837'
Onondaga	6,887'
Salina	7,545'
Lockport	8,596'
Utica	11,408'
Point Pleasant	11,635'
Landing Depth	11,635'
Trenton	11,757'
Pilot Hole TD	11,907'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	1,175'	1,175'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,850'	2,850'	51.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	11,049'	10,560'	47	HPP110	Surface
Production	8 1/2	5 1/2	19,094'	11,573'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	2,025	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,177	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	3,286	A	14.5	Air	1 Centralizer every other joint
Production	4,612	A	16.3	Air / SCBM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface



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Pilot Hole  
 PH TD @ 11,907' ✓  
 Landing Point @ 12,452' MD / 11,635' TVD  
 PH TVD = 150' below Trenton Top  
 Lateral TD @ 19,094' ft MD  
 11,573' ft TVD





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

**Heaven Hill 3 N-15HU**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,175'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,850'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	11,049'	CTS
Production	5 1/2"	HCP110	8 1/2"	19,094'	CTS

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MAY 25 2022

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**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

07/01/2022

CERTIFICATE OF CONSENT AND EASEMENT

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

Executed this 23<sup>rd</sup> day of May, 2017.

Ricky L. Whitlatch  
Ricky L. Whitlatch

Marshall County  
Jan Post: Clerk  
Instrument 1425010  
05/30/2017 @ 02:26:42 PM  
RIGHT OF WAY W/O CONSIDERATIO  
Book 927 @ Page 121  
Pages Recorded 2  
Recording Cost \$ 11.00

STATE OF WEST VIRGINIA  
COUNTY OF MARSHALL

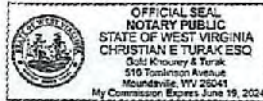
SS:

On this, the 23 day of May, 2017, before me, a notary public, the undersigned officer, personally appeared Ricky L. Whitlatch, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for purposes therein contained.

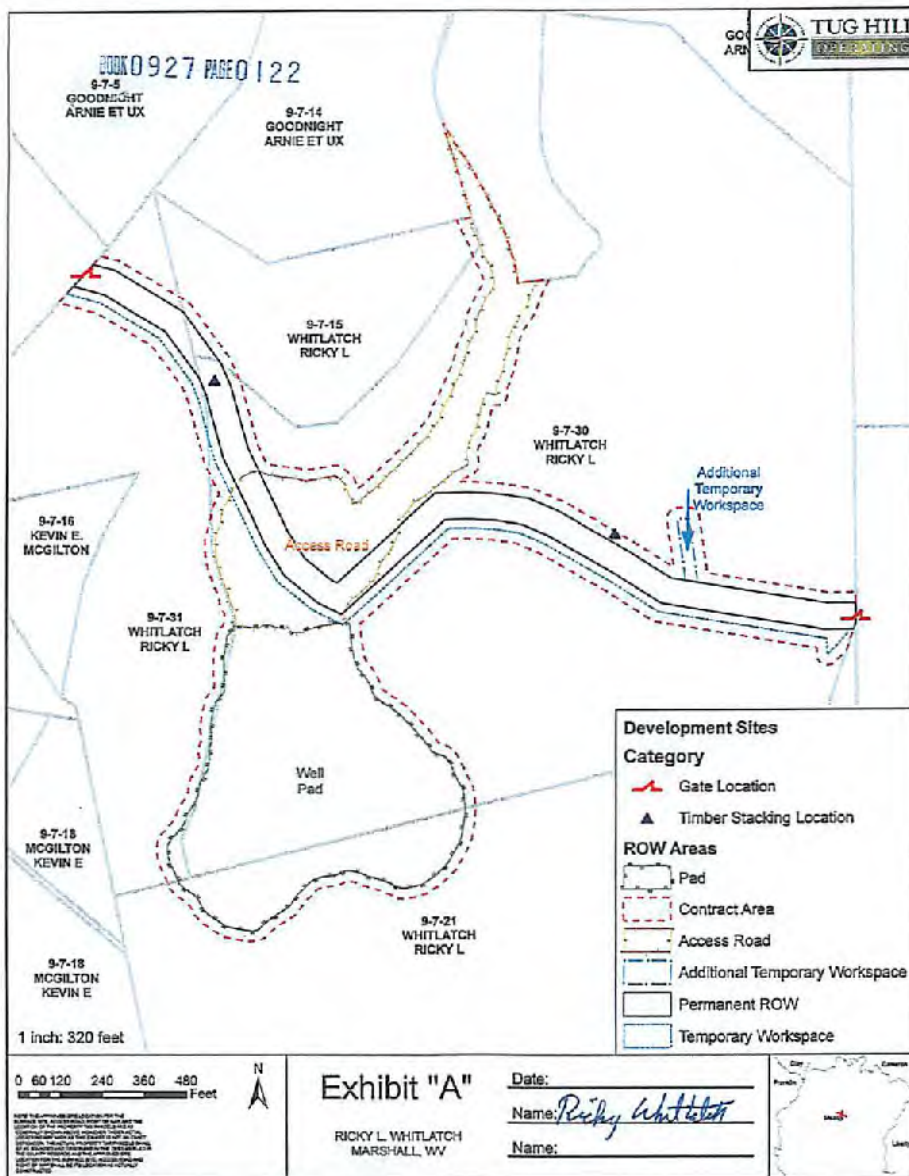
IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission Expires: June 19, 2024  
Signature/Notary Public: [Signature]  
Name/Notary Public (print): CHRISTIAN E. TURAK

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



4838-2618-8605v2



STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 23<sup>rd</sup> day of May, 2017 was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 30<sup>th</sup> day of May, 2017 at 2:26 o'clock P.M.

CPS 5M 4/16

TESTE: Jan Pest Clerk.

07/01/2022



Well: Heaven Hill 3 N-15 HU (N)  
 Site: Heaven Hill 3  
 Project: Marshall County, West Virginia.  
 Design: rev7

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 @ 1327.00usft

Northing 14457191.17 Easting 1726517.39 Latitude 39.80851518 Longitude -80.69340785

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.87°



Azimuths to Grid North  
 True North: -0.20°  
 Magnetic North: -8.87°

Magnetic Field  
 Strength: 51708.4nT  
 Dip Angle: 66.51°  
 Date: 12/2/2021  
 Model: IGRF2020

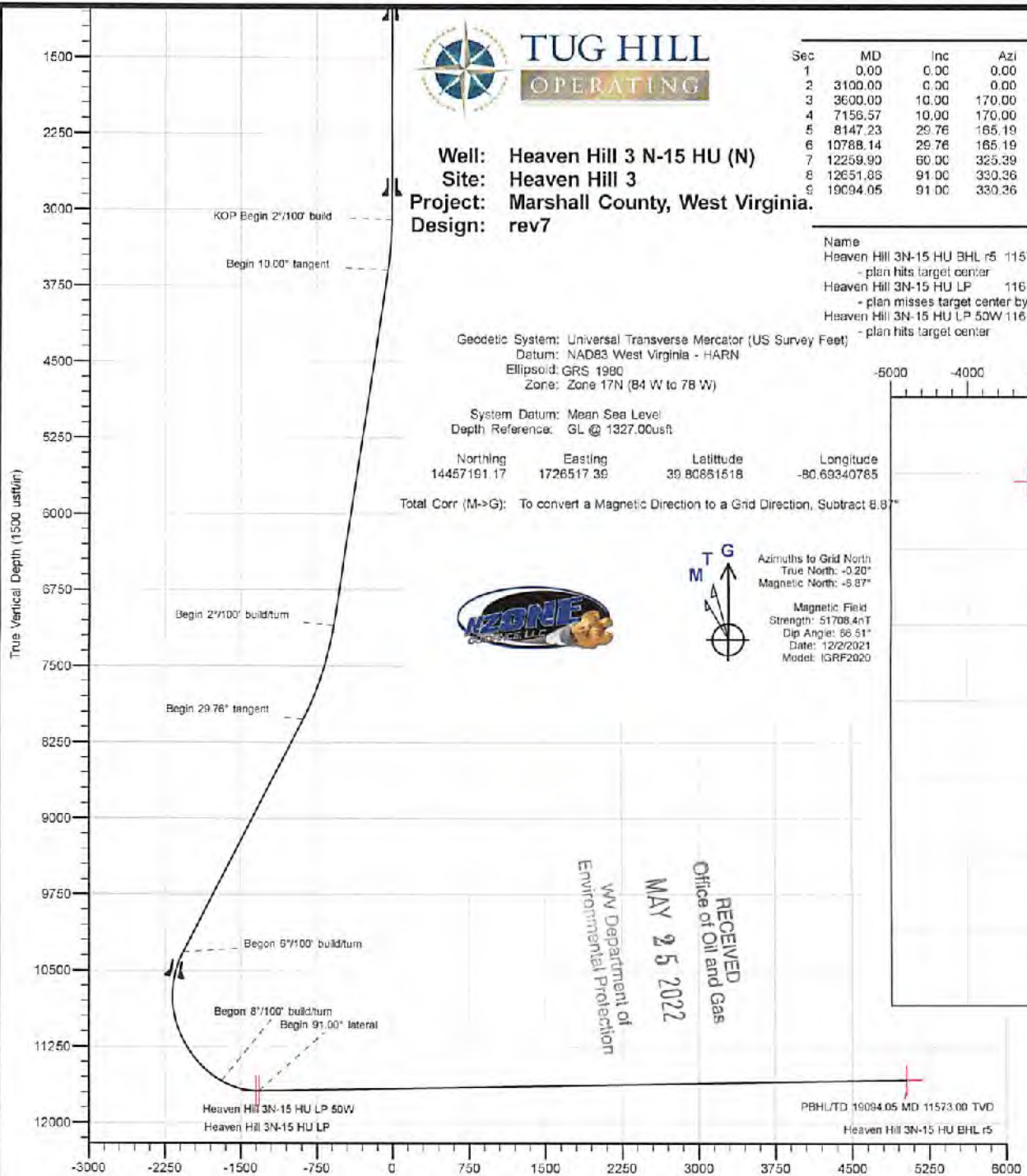
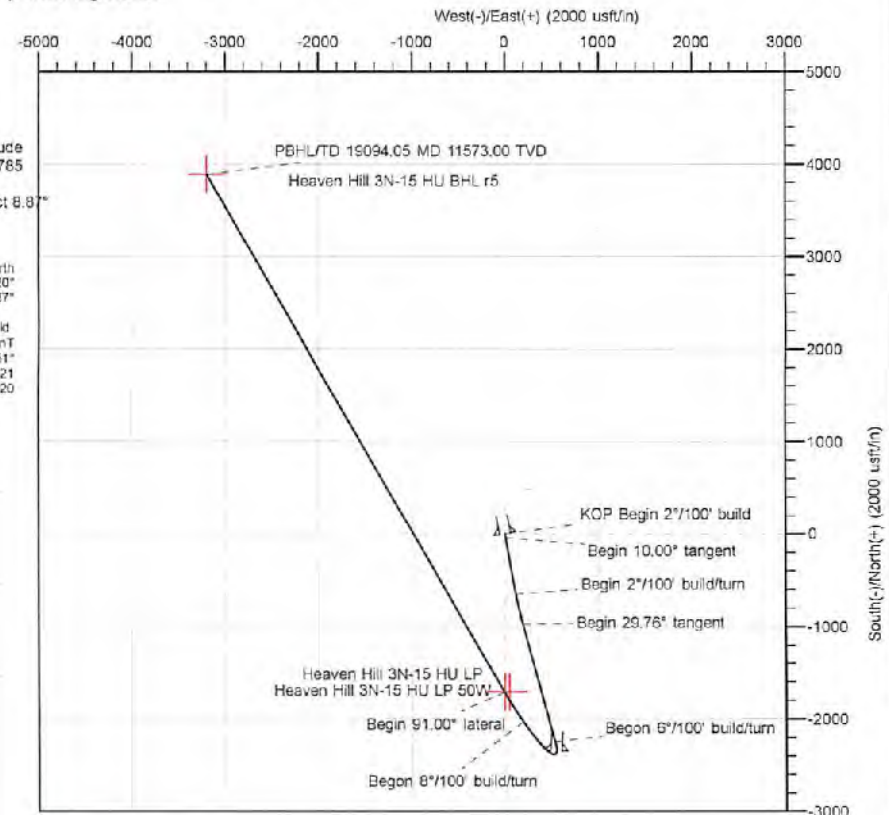
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SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	3600.00	10.00	170.00	3597.47	-42.86	7.56	2.00	170.00	-37.92	Begin 10.00° tangent
4	7156.57	10.00	170.00	7100.00	-651.07	114.00	0.00	0.00	-576.00	Begin 2°/100' build/turn
5	8147.23	29.76	165.19	8027.05	-976.74	193.37	2.00	-7.05	-877.54	Begin 29.76° tangent
6	10788.14	29.76	165.19	10319.63	-2244.14	528.44	0.00	0.00	2069.63	Begin 6°/100' build/turn
7	12259.90	60.00	325.39	11567.98	-2028.25	190.04	6.00	162.93	-1888.02	Begin 8°/100' build/turn
8	12651.85	91.00	330.36	11685.00	-1710.26	-6.23	8.00	9.59	-1316.45	Begin 91.00° lateral
9	19094.05	91.00	330.36	11573.00	3888.34	-3153.33	0.00	0.00	5031.55	PBHLTD 19094.05 MD 11573.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Heaven Hill 3N-15 HU BHL r5	11573.00	3888.34	-3193.33	14461079.51	1723324.06	39.81932300	-80.70473300
- plan hits target center							
Heaven Hill 3N-15 HU LP	11685.00	-1710.26	41.77	14455480.91	1726569.16	39.80391800	-80.69328000
- plan misses target center by 43.40usft at 12626.92usft MD (11585.00 TVD, -1731.91 N, 4.16 E)							
Heaven Hill 3N-15 HU LP 50W	11685.00	-1710.26	-8.23	14455480.91	1726509.16	39.80391847	-80.69345803
- plan hits target center							



Vertical Section at 320.61° (1500 usft/in)



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-15 HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-15 HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev7		

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

Site	Heaven Hill 3		
Site Position:		Northing:	14,457,178.77 usft
From:	Lat/Long	Easting:	1,728,571.98 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	39.80858060
		Longitude:	-80.69321360

Well	Heaven Hill 3 N-15 HU (N)		
Well Position	+N/-S	0.00 usft	0.00 usft
	+E/-W	0.00 usft	0.00 usft
Position Uncertainty	0.00 usft		0.00 usft
Grid Convergence:			
		Wellhead Elevation:	usft
		Latitude:	39.80881518
		Longitude:	-80.69340785
		Ground Level:	1,327.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	12/2/2021	-8.67	68.51	51,708.37527212

Design	rev7			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	320.61

Plan Survey Tool Program	Date				
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	19,094.05	rev7 (Original Hole)		

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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU (N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,600.00	10.00	170.00	3,597.47	-42.86	7.56	2.00	2.00	0.00	170.00	
7,156.57	10.00	170.00	7,100.00	-651.07	114.80	0.00	0.00	0.00	0.00	
8,147.23	29.76	165.19	8,027.06	-976.74	193.37	2.00	1.99	-0.49	-7.05	
10,788.14	29.76	165.19	10,319.63	-2,244.14	528.44	0.00	0.00	0.00	0.00	
12,259.90	80.00	325.39	11,587.98	-2,028.25	190.04	6.00	2.05	10.88	162.93	
12,651.86	91.00	330.36	11,685.00	-1,710.26	-8.23	8.00	7.91	1.27	9.59	
16,094.05	91.00	330.36	11,573.00	3,888.34	-3,193.33	0.00	0.00	0.00	0.00	Heaven Hill 3N-15 HL



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU (N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	CL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	CL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

<b>Project</b>	Marshall County, West Virginia.		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 West Virginia - HARN		
<b>Map Zone:</b>	Zone 17N (64 W to 73 W)		

<b>Site</b>	Heaven Hill 3				
<b>Site Position:</b>		<b>Northing:</b>	14,457,178.77 usft	<b>Latitude:</b>	39.80856060
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,726,571.98 usft	<b>Longitude:</b>	-80.69321360
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "		

<b>Well</b>	Heaven Hill 3 N-15 HU (N)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,457,191.17 usft	<b>Latitude:</b>	39.80861518
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,726,517.39 usft	<b>Longitude:</b>	-80.69340785
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,327.00 usft
<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	12/2/2021	-8.67	66.51	51,708.37527212

<b>Design</b>	rev7			
<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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	320.61

<b>Plan Survey Tool Program</b>	<b>Date</b>			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	19,094.05 rev7 (Original Hole)		

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Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU (N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,600.00	10.00	170.00	3,597.47	-42.88	7.56	2.00	2.00	0.00	170.00	
7,156.57	10.00	170.00	7,100.00	-651.07	114.80	0.00	0.00	0.00	0.00	
8,147.23	29.76	165.19	8,027.06	-976.74	193.37	2.00	1.99	-0.49	-7.05	
10,788.14	29.76	165.19	10,319.63	-2,244.14	528.44	0.00	0.00	0.00	0.00	
12,259.90	60.00	325.39	11,587.98	-2,028.25	190.04	6.00	2.05	10.88	162.93	
12,651.86	91.00	330.36	11,685.00	-1,710.26	-8.23	8.00	7.91	1.27	9.59	
19,094.05	91.00	330.36	11,573.00	3,866.34	-3,193.33	0.00	0.00	0.00	0.00	Heaven Hill 3N-15 HL



MAY 25 2022



Planning Report - Geographic

WV Department of  
Environmental Protection

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,457,191.17	1,728,517.39	39.80861518	-80.69340785	
100.00	0.00	0.00	100.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
121.00	0.00	0.00	121.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
200.00	0.00	0.00	200.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
300.00	0.00	0.00	300.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
400.00	0.00	0.00	400.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
500.00	0.00	0.00	500.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
600.00	0.00	0.00	600.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
700.00	0.00	0.00	700.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
800.00	0.00	0.00	800.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
900.00	0.00	0.00	900.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,131.00	0.00	0.00	1,131.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,851.00	0.00	0.00	2,851.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,457,191.17	1,726,517.39	39.80861518	-80.69340785	
<b>KOP Begin 2°/100' build</b>										
3,200.00	2.00	170.00	3,199.98	-1.72	0.30	14,457,189.45	1,726,517.69	39.80861046	-80.69340679	
3,300.00	4.00	170.00	3,299.84	-6.87	1.21	14,457,184.30	1,726,518.60	39.80859630	-80.69340362	
3,400.00	6.00	170.00	3,399.45	-15.46	2.73	14,457,175.72	1,726,520.11	39.80857271	-80.69339834	
3,500.00	8.00	170.00	3,498.70	-27.46	4.84	14,457,168.71	1,726,522.23	39.80853973	-80.69339095	
3,600.00	10.00	170.00	3,597.47	-42.86	7.58	14,457,148.31	1,726,524.95	39.80849740	-80.69338148	
<b>Begin 10.00° tangent</b>										
3,700.00	10.00	170.00	3,695.95	-59.96	10.57	14,457,131.21	1,726,527.96	39.80845041	-80.69337093	
3,800.00	10.00	170.00	3,794.43	-77.06	13.59	14,457,114.11	1,726,530.96	39.80840342	-80.69336041	
3,900.00	10.00	170.00	3,892.91	-94.16	16.60	14,457,097.01	1,726,533.99	39.80835643	-80.69334988	
4,000.00	10.00	170.00	3,991.39	-111.27	19.62	14,457,079.91	1,726,537.01	39.80830944	-80.69333935	
4,100.00	10.00	170.00	4,089.87	-128.37	22.63	14,457,062.80	1,726,540.02	39.80826244	-80.69332882	
4,200.00	10.00	170.00	4,188.35	-145.47	25.65	14,457,045.70	1,726,543.04	39.80821545	-80.69331829	
4,300.00	10.00	170.00	4,286.83	-162.57	28.67	14,457,028.60	1,726,546.05	39.80816846	-80.69330776	
4,400.00	10.00	170.00	4,385.31	-179.67	31.68	14,457,011.50	1,726,549.07	39.80812147	-80.69329723	
4,500.00	10.00	170.00	4,483.79	-196.77	34.70	14,456,994.40	1,726,552.08	39.80807448	-80.69328671	
4,600.00	10.00	170.00	4,582.27	-213.87	37.71	14,456,977.30	1,726,555.10	39.80802748	-80.69327618	
4,700.00	10.00	170.00	4,680.75	-230.97	40.73	14,456,960.20	1,726,558.12	39.80798049	-80.69326565	
4,800.00	10.00	170.00	4,779.23	-248.07	43.74	14,456,943.10	1,726,561.13	39.80793350	-80.69325512	



Planning Report - Geographic

MAY 25 2022

WV Department of  
Environmental Protection

Database: DB\_Dec2220\_v16  
Company: Tug Hill Operating LLC  
Project: Marshall County, West Virginia.  
Site: Heaven Hill 3  
Well: Haaven Hill 3 N-15 HU (N)  
Wellbore: Original Hole  
Design: rev7

Local Co-ordinate Reference: Well Heaven Hill 3 N-15 HU (N)  
TVD Reference: GL @ 1327.00usft  
MD Reference: GL @ 1327.00usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,900.00	10.00	170.00	4,877.72	-265.17	46.76	14,456,926.00	1,726,564.15	39.80788651	-80.69324459
5,000.00	10.00	170.00	4,976.20	-282.28	49.77	14,456,908.90	1,726,567.16	39.80783952	-80.69323406
5,100.00	10.00	170.00	5,074.68	-299.38	52.79	14,456,891.79	1,726,570.18	39.80779252	-80.69322354
5,200.00	10.00	170.00	5,173.16	-316.48	55.80	14,456,874.69	1,726,573.19	39.80774553	-80.69321301
5,300.00	10.00	170.00	5,271.64	-333.58	58.82	14,456,857.58	1,726,576.21	39.80769854	-80.69320248
5,400.00	10.00	170.00	5,370.12	-350.68	61.83	14,456,840.49	1,726,579.22	39.80765155	-80.69319195
5,500.00	10.00	170.00	5,468.60	-367.78	64.85	14,456,823.39	1,726,582.24	39.80760456	-80.69318142
5,600.00	10.00	170.00	5,567.08	-384.88	67.86	14,456,806.29	1,726,585.25	39.80755756	-80.69317090
5,700.00	10.00	170.00	5,665.56	-401.98	70.88	14,456,789.19	1,726,588.27	39.80751057	-80.69316037
5,800.00	10.00	170.00	5,764.04	-419.08	73.90	14,456,772.09	1,726,591.28	39.80746358	-80.69314984
5,900.00	10.00	170.00	5,862.52	-436.18	76.91	14,456,754.99	1,726,594.30	39.80741659	-80.69313931
6,000.00	10.00	170.00	5,961.00	-453.29	79.93	14,456,737.89	1,726,597.32	39.80736960	-80.69312878
6,100.00	10.00	170.00	6,059.48	-470.39	82.94	14,456,720.78	1,726,600.33	39.80732260	-80.69311825
6,200.00	10.00	170.00	6,157.97	-487.49	85.96	14,456,703.68	1,726,603.35	39.80727561	-80.69310773
6,300.00	10.00	170.00	6,256.45	-504.59	88.97	14,456,686.58	1,726,606.36	39.80722862	-80.69309720
6,400.00	10.00	170.00	6,354.93	-521.69	91.99	14,456,669.48	1,726,609.38	39.80718163	-80.69308667
6,500.00	10.00	170.00	6,453.41	-538.79	95.00	14,456,652.38	1,726,612.39	39.80713464	-80.69307614
6,600.00	10.00	170.00	6,551.89	-555.89	98.02	14,456,635.28	1,726,615.41	39.80708764	-80.69306561
6,700.00	10.00	170.00	6,650.37	-572.99	101.03	14,456,618.18	1,726,618.42	39.80704065	-80.69305509
6,800.00	10.00	170.00	6,748.85	-590.09	104.05	14,456,601.08	1,726,621.44	39.80699366	-80.69304456
6,900.00	10.00	170.00	6,847.33	-607.19	107.06	14,456,583.98	1,726,624.45	39.80694667	-80.69303403
7,000.00	10.00	170.00	6,945.81	-624.29	110.08	14,456,566.88	1,726,627.47	39.80689968	-80.69302350
7,100.00	10.00	170.00	7,044.29	-641.40	113.10	14,456,549.77	1,726,630.48	39.80685269	-80.69301297
7,156.57	10.00	170.00	7,100.00	-651.07	114.80	14,456,540.10	1,726,632.19	39.80682610	-80.69300702
<b>Begin 2°/100' build/tum</b>									
7,200.00	10.88	169.43	7,142.72	-658.81	116.21	14,456,532.36	1,726,633.60	39.80680484	-80.69300211
7,300.00	12.85	168.42	7,240.58	-678.97	120.17	14,456,512.20	1,726,637.56	39.80674944	-80.69299825
7,400.00	14.84	167.67	7,337.67	-702.38	125.14	14,456,488.79	1,726,642.53	39.80668510	-80.69297084
7,500.00	16.84	167.09	7,433.86	-729.01	131.11	14,456,462.16	1,726,648.50	39.80661190	-80.69294991
7,600.00	18.83	166.64	7,529.05	-758.84	138.07	14,456,432.34	1,726,655.46	39.80652993	-80.69292547
7,700.00	20.83	166.27	7,623.12	-791.81	146.02	14,456,399.36	1,726,663.41	39.80643929	-80.69289756
7,800.00	22.83	165.95	7,715.94	-827.90	154.95	14,456,363.27	1,726,672.34	39.80634010	-80.69286621
7,900.00	24.82	165.70	7,807.42	-867.06	164.85	14,456,324.11	1,726,682.23	39.80623246	-80.69283146
8,000.00	26.82	165.47	7,897.43	-909.25	175.69	14,456,281.92	1,726,693.08	39.80611651	-80.69279336
8,100.00	28.82	165.28	7,985.87	-954.40	187.48	14,456,236.77	1,726,704.87	39.80599240	-80.69275194
8,147.23	29.76	165.19	8,027.06	-976.74	193.37	14,456,214.43	1,726,710.78	39.80593099	-80.69273124
<b>Begin 29.76° tangent</b>									
8,200.00	29.76	165.19	8,072.87	-1,002.07	200.06	14,456,189.10	1,726,717.45	39.80586138	-80.69270771
8,300.00	29.76	165.19	8,159.88	-1,050.06	212.75	14,456,141.11	1,726,730.14	39.80572946	-80.69266312
8,400.00	29.76	165.19	8,246.49	-1,098.05	225.44	14,456,093.12	1,726,742.83	39.80559755	-80.69261853
8,500.00	29.76	165.19	8,333.30	-1,146.04	238.13	14,456,045.13	1,726,755.52	39.80546563	-80.69257394
8,600.00	29.76	165.19	8,420.11	-1,194.03	250.82	14,455,997.14	1,726,768.20	39.80533372	-80.69252935
8,700.00	29.76	165.19	8,506.92	-1,242.02	263.50	14,455,949.15	1,726,780.89	39.80520181	-80.69248476
8,800.00	29.76	165.19	8,593.73	-1,290.01	276.19	14,455,901.16	1,726,793.58	39.80506989	-80.69244018
8,900.00	29.76	165.19	8,680.54	-1,338.00	288.88	14,455,853.17	1,726,806.27	39.80493798	-80.69239559
9,000.00	29.76	165.19	8,767.34	-1,385.99	301.57	14,455,805.18	1,726,818.95	39.80480606	-80.69235100
9,100.00	29.76	165.19	8,854.15	-1,433.98	314.25	14,455,757.19	1,726,831.64	39.80467415	-80.69230641
9,200.00	29.76	165.19	8,940.96	-1,481.97	326.94	14,455,709.20	1,726,844.33	39.80454223	-80.69226182
9,300.00	29.76	165.19	9,027.77	-1,529.97	339.63	14,455,661.21	1,726,857.02	39.80441032	-80.69221723
9,400.00	29.76	165.19	9,114.58	-1,577.96	352.32	14,455,613.21	1,726,869.71	39.80427841	-80.69217264
9,500.00	29.76	165.19	9,201.39	-1,625.95	365.01	14,455,565.22	1,726,882.39	39.80414649	-80.69212805
9,600.00	29.76	165.19	9,288.20	-1,673.94	377.69	14,455,517.23	1,726,895.08	39.80401458	-80.69208347
9,700.00	29.76	165.19	9,375.01	-1,721.93	390.38	14,455,469.24	1,726,907.77	39.80388266	-80.69203888
9,800.00	29.76	165.19	9,461.82	-1,769.92	403.07	14,455,421.25	1,726,920.46	39.80375075	-80.69199429



Planning Report - Geographic

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Office of Oil and Gas

MAY 25 2022

WV Department of  
Environmental Protection

Database: DB\_Dec2220\_v16  
Company: Tug Hill Operating LLC  
Project: Marshall County, West Virginia.  
Site: Heaven Hill 3  
Well: Heaven Hill 3 N-15 HU (N)  
Wellbore: Original Hole  
Design: rev7

Local Co-ordinate Reference: Well Heaven Hill 3 N-15 HU (N)  
TVD Reference: GL @ 1327.00usft  
MD Reference: GL @ 1327.00usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	29.76	165.19	9,548.83	-1,817.91	415.76	14,455,373.26	1,726,933.14	39.80361863	-80.69194970
10,000.00	29.76	165.19	9,635.44	-1,865.90	428.44	14,455,325.27	1,726,945.83	39.80348692	-80.69190512
10,100.00	29.76	165.19	9,722.25	-1,913.89	441.13	14,455,277.28	1,726,958.52	39.80335501	-80.69186053
10,200.00	29.76	165.19	9,809.06	-1,961.88	453.82	14,455,229.29	1,726,971.21	39.80322309	-80.69181594
10,300.00	29.76	165.19	9,895.87	-2,009.87	466.51	14,455,181.30	1,726,983.90	39.80309118	-80.69177136
10,400.00	29.76	165.19	9,982.68	-2,057.86	479.20	14,455,133.31	1,726,996.59	39.80295925	-80.69172677
10,500.00	29.76	165.19	10,069.49	-2,105.85	491.88	14,455,085.32	1,727,009.27	39.80282735	-80.69168218
10,600.00	29.76	165.19	10,156.30	-2,153.84	504.57	14,455,037.33	1,727,021.96	39.80269543	-80.69163780
10,700.00	29.76	165.19	10,243.11	-2,201.84	517.26	14,454,989.34	1,727,034.65	39.80256352	-80.69159301
10,788.14	29.76	165.19	10,319.83	-2,244.14	528.44	14,454,947.03	1,727,045.83	39.80244724	-80.69155371
<b>Begin 5°/100' build/turn</b>									
10,800.00	28.08	165.62	10,329.95	-2,249.77	529.91	14,454,941.40	1,727,047.30	39.80243175	-80.69154855
10,850.00	26.23	167.65	10,374.24	-2,272.34	535.29	14,454,918.83	1,727,052.68	39.80236971	-80.69152967
10,900.00	23.42	170.14	10,419.81	-2,292.94	539.36	14,454,898.24	1,727,056.75	39.80231313	-80.69151545
10,950.00	20.66	173.26	10,465.95	-2,311.49	542.09	14,454,879.66	1,727,059.48	39.80226215	-80.69150593
11,000.00	17.97	177.28	10,513.14	-2,327.95	543.50	14,454,863.22	1,727,060.89	39.80221692	-80.69150114
11,049.88	15.39	182.62	10,561.00	-2,342.28	543.56	14,454,848.89	1,727,060.95	39.80217758	-80.69150109
11,050.00	15.39	182.62	10,561.03	-2,342.29	543.56	14,454,848.88	1,727,060.95	39.80217758	-80.69150109
11,100.00	12.98	188.97	10,609.51	-2,354.45	542.28	14,454,836.73	1,727,059.67	39.80214418	-80.69150578
11,150.00	10.87	200.34	10,658.43	-2,364.40	539.87	14,454,826.77	1,727,057.08	39.80211887	-80.69151520
11,200.00	9.26	214.80	10,707.87	-2,372.12	535.73	14,454,819.05	1,727,053.12	39.80209570	-80.69152933
11,250.00	8.43	233.76	10,757.09	-2,377.59	530.47	14,454,813.59	1,727,047.86	39.80208074	-80.69154812
11,300.00	8.62	254.06	10,806.55	-2,380.78	523.91	14,454,810.39	1,727,041.30	39.80207202	-80.69157152
11,350.00	9.77	271.50	10,855.91	-2,381.70	516.06	14,454,809.47	1,727,033.45	39.80206958	-80.69159947
11,400.00	11.80	284.41	10,905.05	-2,380.34	506.95	14,454,810.83	1,727,024.34	39.80207340	-80.69163190
11,450.00	13.83	293.54	10,953.83	-2,376.70	496.60	14,454,814.47	1,727,013.99	39.80208350	-80.69166871
11,500.00	16.31	300.06	11,002.10	-2,370.79	485.04	14,454,820.38	1,727,002.43	39.80209982	-80.69170979
11,550.00	18.94	304.86	11,049.76	-2,362.64	472.30	14,454,828.53	1,726,989.69	39.80212235	-80.69175505
11,600.00	21.66	308.50	11,096.65	-2,352.25	458.42	14,454,838.92	1,726,975.81	39.80215100	-80.69180436
11,650.00	24.45	311.37	11,142.85	-2,339.67	443.43	14,454,851.50	1,726,960.82	39.80218570	-80.69185758
11,700.00	27.27	313.67	11,187.64	-2,324.92	427.37	14,454,866.26	1,726,944.76	39.80222638	-80.69191456
11,750.00	30.13	315.57	11,231.49	-2,308.04	410.30	14,454,883.13	1,726,927.89	39.80227287	-80.69197515
11,800.00	33.01	317.17	11,274.09	-2,289.09	392.25	14,454,902.09	1,726,909.64	39.80232509	-80.69203918
11,850.00	35.91	318.53	11,315.31	-2,268.10	373.27	14,454,923.07	1,726,890.66	39.80238269	-80.69210646
11,900.00	38.82	319.72	11,355.05	-2,245.15	353.43	14,454,946.02	1,726,870.82	39.80244610	-80.69217886
11,950.00	41.75	320.77	11,393.18	-2,220.30	332.76	14,454,970.87	1,726,850.15	39.80251456	-80.69225013
12,000.00	44.68	321.70	11,429.62	-2,193.60	311.34	14,454,997.57	1,726,828.73	39.80258807	-80.69232809
12,050.00	47.62	322.54	11,464.26	-2,165.14	289.21	14,455,026.03	1,726,806.60	39.80266644	-80.69240454
12,100.00	50.56	323.31	11,497.00	-2,135.00	266.44	14,455,056.18	1,726,783.82	39.80274945	-80.69248524
12,150.00	53.51	324.01	11,527.76	-2,103.24	243.09	14,455,087.93	1,726,760.47	39.80283687	-80.69256800
12,200.00	56.46	324.67	11,556.45	-2,069.98	219.22	14,455,121.20	1,726,736.61	39.80292846	-80.69265257
12,250.00	59.41	325.27	11,582.99	-2,035.28	194.90	14,455,155.88	1,726,712.29	39.80302367	-80.69273872
12,259.90	60.00	325.39	11,587.98	-2,028.25	190.04	14,455,162.92	1,726,707.43	39.80304332	-80.69275595
<b>Begin 8°/100' build/turn</b>									
12,300.00	63.16	325.90	11,607.06	-1,999.12	170.16	14,455,192.05	1,726,687.55	39.80312350	-80.69282636
12,350.00	67.11	326.69	11,628.08	-1,961.37	145.03	14,455,229.80	1,726,662.42	39.80322742	-80.69291540
12,400.00	71.07	327.35	11,645.92	-1,922.19	119.61	14,455,268.98	1,726,637.00	39.80333525	-80.69300541
12,450.00	75.02	327.98	11,660.50	-1,881.79	94.04	14,455,309.38	1,726,611.43	39.80344645	-80.69309597
12,500.00	78.98	328.59	11,671.75	-1,840.35	68.44	14,455,350.82	1,726,585.83	39.80356048	-80.69318662
12,550.00	82.93	329.16	11,679.61	-1,798.08	42.83	14,455,393.09	1,726,560.32	39.80367680	-80.69327693
12,600.00	86.88	329.78	11,684.04	-1,755.19	17.64	14,455,435.98	1,726,535.03	39.80379483	-80.69336645
12,651.86	91.00	330.36	11,685.00	-1,710.26	-8.23	14,455,480.91	1,726,509.16	39.80391845	-80.69345802
<b>Begin 91.00° lateral</b>									
12,700.00	91.00	330.36	11,684.16	-1,668.43	-32.03	14,455,522.74	1,726,485.36	39.80403356	-80.69354225



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU (N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
12,800.00	91.00	330.36	11,682.42	-1,581.53	-81.47	14,455,609.65	1,726,435.92	39.80427259	-80.69371723	
12,900.00	91.00	330.36	11,680.68	-1,494.62	-130.91	14,455,696.55	1,726,386.48	39.80451182	-80.69389221	
13,000.00	91.00	330.36	11,678.95	-1,407.71	-180.35	14,455,783.46	1,726,337.03	39.80475095	-80.69405719	
13,100.00	91.00	330.36	11,677.21	-1,320.81	-229.80	14,455,870.36	1,726,287.59	39.80499007	-80.69424218	
13,200.00	91.00	330.36	11,675.47	-1,233.90	-279.24	14,455,957.27	1,726,238.15	39.80522920	-80.69441716	
13,300.00	91.00	330.36	11,673.73	-1,147.00	-328.68	14,456,044.17	1,726,188.71	39.80546833	-80.69459215	
13,400.00	91.00	330.36	11,671.99	-1,060.09	-378.12	14,456,131.08	1,726,139.27	39.80570745	-80.69476714	
13,500.00	91.00	330.36	11,670.25	-973.19	-427.56	14,456,217.98	1,726,089.83	39.80594658	-80.69494212	
13,600.00	91.00	330.36	11,668.51	-886.28	-477.00	14,456,304.89	1,726,040.39	39.80618571	-80.69511711	
13,700.00	91.00	330.36	11,666.78	-799.38	-526.44	14,456,391.79	1,725,990.94	39.80642483	-80.69529211	
13,800.00	91.00	330.36	11,665.04	-712.47	-575.88	14,456,478.70	1,725,941.50	39.80666396	-80.69546710	
13,900.00	91.00	330.36	11,663.30	-625.57	-625.33	14,456,565.60	1,725,892.06	39.80690308	-80.69564209	
14,000.00	91.00	330.36	11,661.55	-538.66	-674.77	14,456,652.51	1,725,842.62	39.80714221	-80.69581709	
14,100.00	91.00	330.36	11,659.82	-451.78	-724.21	14,456,739.41	1,725,793.18	39.80738133	-80.69599208	
14,200.00	91.00	330.36	11,658.08	-364.85	-773.65	14,456,826.32	1,725,743.74	39.80762046	-80.69616708	
14,300.00	91.00	330.36	11,656.34	-277.95	-823.09	14,456,913.23	1,725,694.30	39.80785958	-80.69634208	
14,400.00	91.00	330.36	11,654.61	-191.04	-872.53	14,457,000.13	1,725,644.86	39.80809871	-80.69651708	
14,500.00	91.00	330.36	11,652.87	-104.13	-921.97	14,457,087.04	1,725,595.41	39.80833783	-80.69669208	
14,600.00	91.00	330.36	11,651.13	-17.23	-971.42	14,457,173.94	1,725,545.97	39.80857695	-80.69686708	
14,700.00	91.00	330.36	11,649.39	69.68	-1,020.86	14,457,260.85	1,725,496.53	39.80881608	-80.69704208	
14,800.00	91.00	330.36	11,647.65	156.58	-1,070.30	14,457,347.75	1,725,447.09	39.80905520	-80.69721709	
14,900.00	91.00	330.36	11,645.91	243.49	-1,119.74	14,457,434.66	1,725,397.65	39.80929432	-80.69739209	
15,000.00	91.00	330.36	11,644.18	330.39	-1,169.18	14,457,521.56	1,725,348.21	39.80953345	-80.69756710	
15,100.00	91.00	330.36	11,642.44	417.30	-1,218.62	14,457,608.47	1,725,298.77	39.80977257	-80.69774211	
15,200.00	91.00	330.36	11,640.70	504.20	-1,268.06	14,457,695.37	1,725,249.33	39.81001169	-80.69791712	
15,300.00	91.00	330.36	11,638.96	591.11	-1,317.50	14,457,782.28	1,725,199.89	39.81025081	-80.69809213	
15,400.00	91.00	330.36	11,637.22	678.01	-1,366.95	14,457,869.18	1,725,150.44	39.81048993	-80.69826714	
15,500.00	91.00	330.36	11,635.48	764.92	-1,416.39	14,457,956.09	1,725,101.00	39.81072905	-80.69844215	
15,600.00	91.00	330.36	11,633.74	851.82	-1,465.83	14,458,043.00	1,725,051.56	39.81096817	-80.69861717	
15,700.00	91.00	330.36	11,632.01	938.73	-1,515.27	14,458,129.90	1,725,002.12	39.81120729	-80.69879218	
15,800.00	91.00	330.36	11,630.27	1,025.63	-1,564.71	14,458,216.81	1,724,952.68	39.81144642	-80.69896720	
15,900.00	91.00	330.36	11,628.53	1,112.54	-1,614.15	14,458,303.71	1,724,903.24	39.81168554	-80.69914222	
16,000.00	91.00	330.36	11,626.79	1,199.45	-1,663.59	14,458,390.62	1,724,853.80	39.81192465	-80.69931723	
16,100.00	91.00	330.36	11,625.05	1,286.35	-1,713.03	14,458,477.52	1,724,804.35	39.81216377	-80.69949225	
16,200.00	91.00	330.36	11,623.31	1,373.26	-1,762.48	14,458,564.43	1,724,754.91	39.81240289	-80.69966728	
16,300.00	91.00	330.36	11,621.57	1,460.16	-1,811.92	14,458,651.33	1,724,705.47	39.81264201	-80.69984230	
16,400.00	91.00	330.36	11,619.84	1,547.07	-1,861.36	14,458,738.24	1,724,656.03	39.81288113	-80.70001732	
16,500.00	91.00	330.36	11,618.10	1,633.97	-1,910.80	14,458,825.14	1,724,606.59	39.81312025	-80.70019235	
16,600.00	91.00	330.36	11,616.36	1,720.88	-1,960.24	14,458,912.05	1,724,557.15	39.81335937	-80.70036737	
16,700.00	91.00	330.36	11,614.62	1,807.78	-2,009.68	14,458,998.95	1,724,507.71	39.81359849	-80.70054240	
16,800.00	91.00	330.36	11,612.88	1,894.69	-2,059.12	14,459,085.86	1,724,458.27	39.81383760	-80.70071743	
16,900.00	91.00	330.36	11,611.14	1,981.59	-2,108.56	14,459,172.76	1,724,408.82	39.81407672	-80.70089246	
17,000.00	91.00	330.36	11,609.41	2,068.50	-2,158.01	14,459,259.67	1,724,359.38	39.81431584	-80.70106749	
17,100.00	91.00	330.36	11,607.67	2,155.40	-2,207.45	14,459,346.58	1,724,309.94	39.81455495	-80.70124252	
17,200.00	91.00	330.36	11,605.93	2,242.31	-2,256.89	14,459,433.48	1,724,260.50	39.81479407	-80.70141755	
17,300.00	91.00	330.36	11,604.19	2,329.22	-2,306.33	14,459,520.39	1,724,211.05	39.81503319	-80.70159259	
17,400.00	91.00	330.36	11,602.45	2,416.12	-2,355.77	14,459,607.29	1,724,161.62	39.81527230	-80.70176763	
17,500.00	91.00	330.36	11,600.71	2,503.03	-2,405.21	14,459,694.20	1,724,112.18	39.81551142	-80.70194266	
17,600.00	91.00	330.36	11,598.97	2,589.93	-2,454.65	14,459,781.10	1,724,062.74	39.81575053	-80.70211770	
17,700.00	91.00	330.36	11,597.24	2,676.84	-2,504.09	14,459,868.01	1,724,013.29	39.81598965	-80.70229274	
17,800.00	91.00	330.36	11,595.50	2,763.74	-2,553.54	14,459,954.91	1,723,963.85	39.81622876	-80.70246778	
17,900.00	91.00	330.36	11,593.76	2,850.65	-2,602.98	14,460,041.82	1,723,914.41	39.81646788	-80.70264282	
18,000.00	91.00	330.36	11,592.02	2,937.55	-2,652.42	14,460,128.72	1,723,864.97	39.81670699	-80.70281787	
18,100.00	91.00	330.36	11,590.28	3,024.46	-2,701.86	14,460,215.63	1,723,815.53	39.81694611	-80.70299291	
18,200.00	91.00	330.36	11,588.54	3,111.36	-2,751.30	14,460,302.53	1,723,766.09	39.81718522	-80.70316796	



Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3 N-15 HU (N)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1327.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1327.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3 N-15 HU (N)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev7		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,300.00	91.00	330.36	11,586.80	3,198.27	-2,800.74	14,460,389.44	1,723,716.65	39.81742433	-80.70334300
18,400.00	91.00	330.36	11,585.07	3,285.17	-2,850.18	14,460,476.34	1,723,667.21	39.81766345	-80.70351805
18,500.00	91.00	330.36	11,583.33	3,372.08	-2,899.62	14,460,563.25	1,723,617.76	39.81790256	-80.70369310
18,600.00	91.00	330.36	11,581.59	3,458.98	-2,949.07	14,460,650.16	1,723,568.32	39.81814167	-80.70386815
18,700.00	91.00	330.36	11,579.85	3,545.89	-2,998.51	14,460,737.06	1,723,518.88	39.81838079	-80.70404320
18,800.00	91.00	330.36	11,578.11	3,632.80	-3,047.95	14,460,823.97	1,723,469.44	39.81861990	-80.70421825
18,900.00	91.00	330.36	11,576.37	3,719.70	-3,097.39	14,460,910.87	1,723,420.00	39.81885901	-80.70439331
19,000.00	91.00	330.36	11,574.64	3,806.61	-3,146.83	14,460,997.78	1,723,370.56	39.81909812	-80.70456836
19,094.05	91.00	330.36	11,573.00	3,888.34	-3,193.33	14,461,079.51	1,723,324.06	39.81932300	-80.70473300
PBHL/TD 19094.05 MD 11573.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Heaven Hill 3N-15 HU B - hit/miss target - Shape - Point	0.00	0.01	11,573.00	3,888.34	-3,193.33	14,461,079.51	1,723,324.06	39.81932300	-80.70473300
Heaven Hill 3N-15 HU L - plan misses target center by 43.40usft at 12626.92usft MD (11685.00 TVD, -1731.91 N, 4.16 E) - Point	0.00	0.00	11,685.00	-1,710.26	41.77	14,455,480.91	1,726,559.15	39.80391800	-80.69328000
Heaven Hill 3N-15 HU L - plan hits target center - Point	0.00	0.00	11,685.00	-1,710.26	-8.23	14,455,480.91	1,726,509.16	39.80391847	-80.69345803

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
121.00	121.00		24	26	
1,131.00	1,131.00		13-3/8	17-1/2	
2,851.00	2,851.00		9-5/8	12-1/4	
11,049.96	10,561.00		7-5/8	8-1/2	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,100.00	3,100.00	0.00	0.00	KOP Begin 2°/100' build
3,600.00	3,597.47	-42.86	7.56	Begin 10.00° tangent
7,156.57	7,100.00	-651.07	114.80	Begin 2°/100' build/turn
8,147.23	8,027.06	-876.74	193.37	Begin 29.76° tangent
10,768.14	10,319.63	-2,244.14	528.44	Begin 6°/100' build/turn
12,259.90	11,587.98	-2,028.25	190.04	Begin 8°/100' build/turn
12,651.86	11,685.00	-1,710.26	-8.23	Begin 91.00° lateral
19,094.05	11,573.00	3,888.34	-3,193.33	PBHL/TD 19094.05 MD 11573.00 TVD

WW-9  
(4/16)

API Number 47 - 051 - \_\_\_\_\_

Operator's Well No. Heaven Hill 3N-15HU

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) Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes  No

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

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

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? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV-0100165) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC5-1586426), Chesnut Valley Landfill (100419)

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

Subscribed and sworn before me this 14th day of May, 20 22

Susanne Deliere

Notary Public

My commission expires 1/15/2025

RECEIVED  
Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

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

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 18.43 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.

RECEIVED  
Office of Oil and Gas

MAY 25 2022

Plan Approved by: *Gayne J. Knott*

WW Department of  
Environmental Protection

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

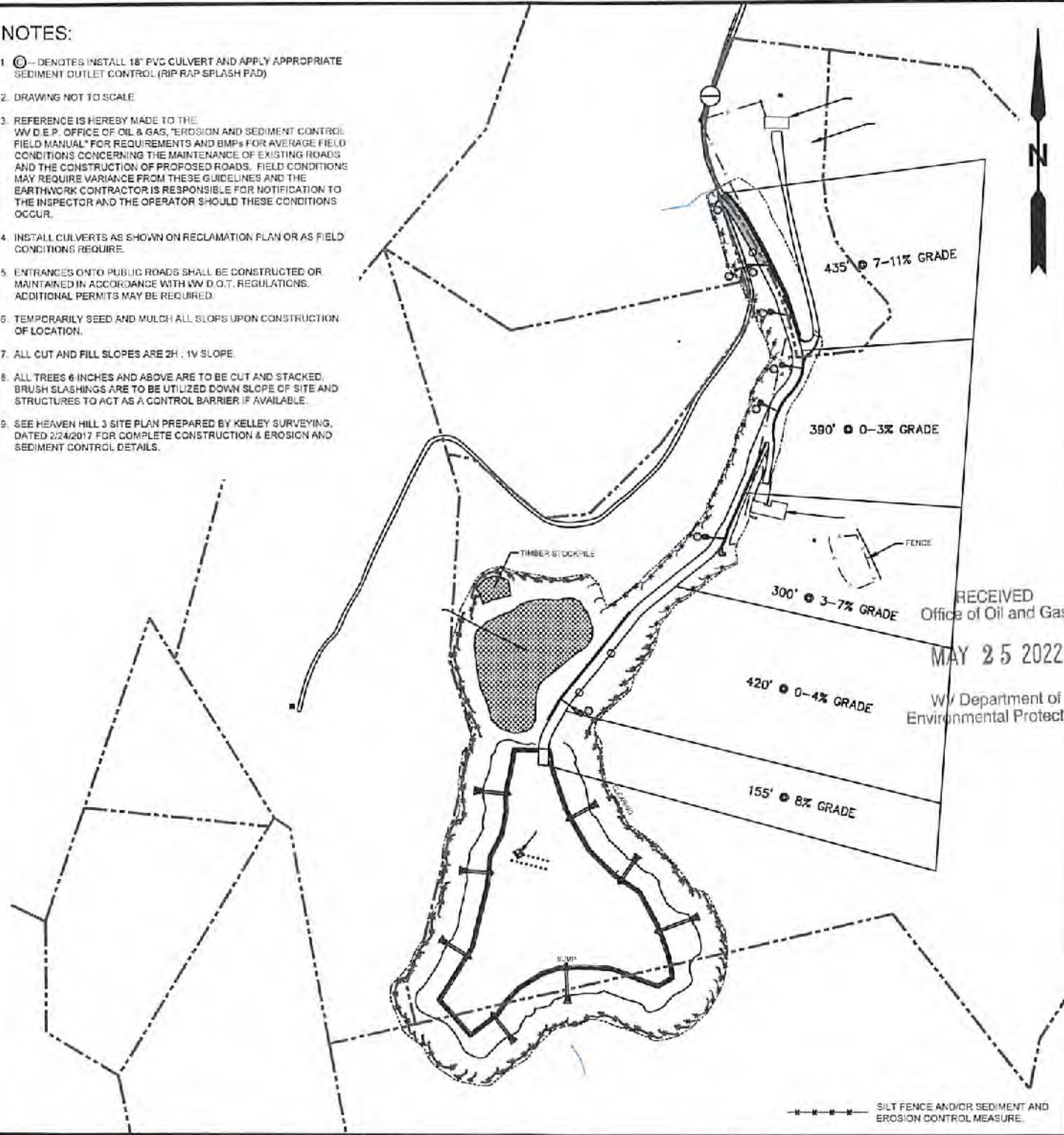
Title: Oil and Gas Inspector Date: 1/19/2022

Field Reviewed? (  ) Yes (  ) No

# PROPOSED HEAVEN HILL 3N - 15HU

**NOTES:**

1. DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. 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.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE
8. ALL TREES 6 INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE HEAVEN HILL 3 SITE PLAN PREPARED BY KELLEY SURVEYING, DATED 2/24/2017 FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.



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**SLS**  
Land & Energy Development  
Solutions from the ground up.  
P.O. Box 180 • 12 Van Horn Drive • Glenville, WV 26751 • (304) 462-5634  
www.slsurveys.com

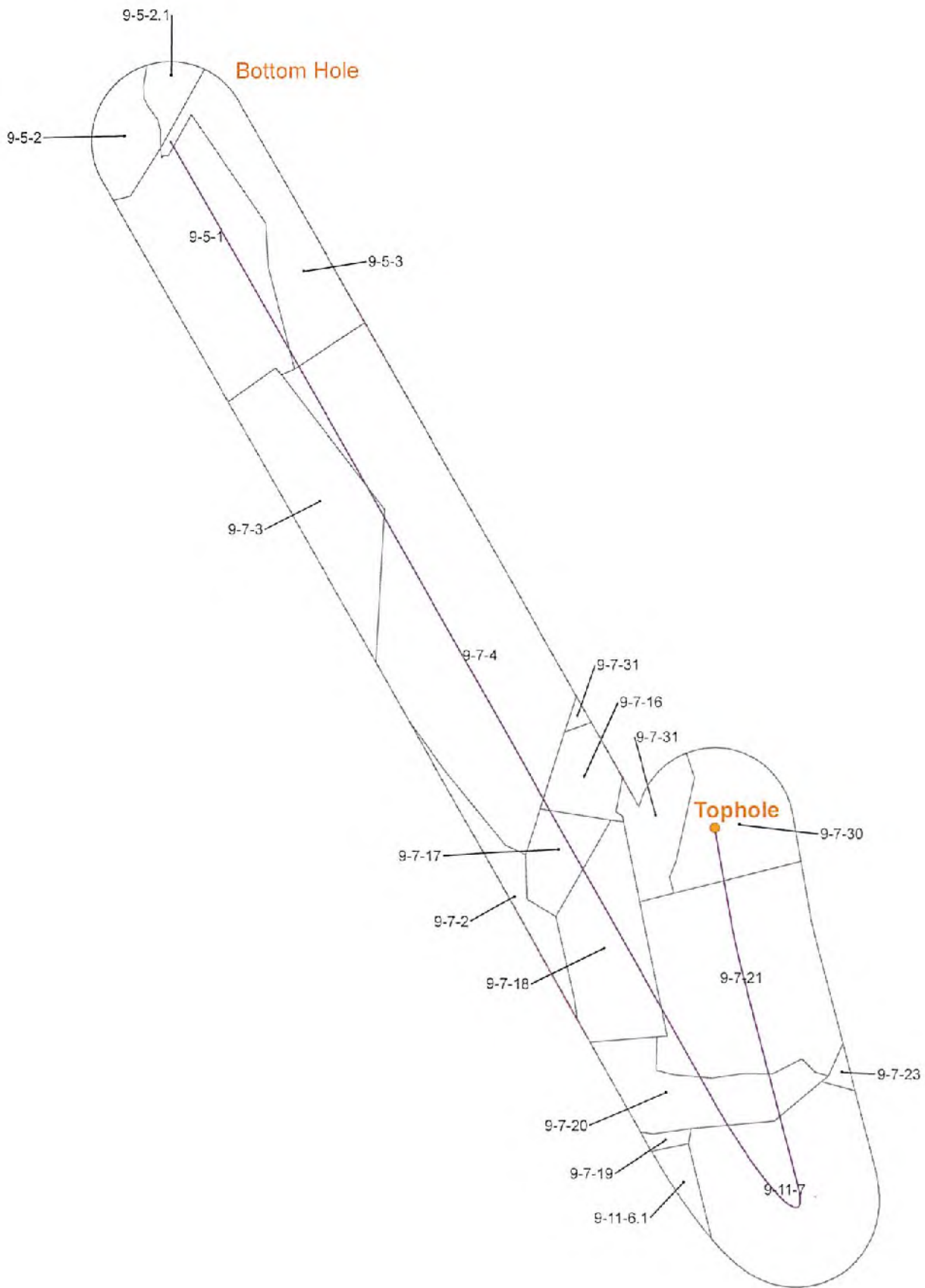
TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/21/2019	NONE

**TUG HILL**  
OPERATING

07/01/2022



Heaven Hill 3 N-15HU



Projection: NAD 83  
 Datum: North American 1983  
 False Northing: 0.0000  
 Scale Factor: 0.9999  
 Units: Feet US

**CONFIDENTIAL**



- Utica Well
- 500' Buffer
- Force Pool

Heaven Hill 3 N-15HU  
 Operators within 500 Feet of Well Borehole



**Offset Operators within 500' of Well Bores  
Heaven Hill 3N - 15HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER/LESSEE	ADDRESS
Marshall	Meade	9-11-6.1	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-11-7	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-5-1	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-5-2	EQT AURORA, LLC	625 Liberty Ave. Pittsburgh, PA 15222
Marshall	Meade	9-5-2.1	EQT AURORA, LLC	625 Liberty Ave. Pittsburgh, PA 15222
Marshall	Meade	9-5-3	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-2	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-3	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-4	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-16	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-17	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-18	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-19	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-20	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-21	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-23	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-30	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
Marshall	Meade	9-7-31	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107

07/01/2022

**Area of Review**

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

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

Data Sources Reviewed:

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

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Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

Contacted Adam Picard 724-485-9331, [apicard@dpslandservices.com](mailto:apicard@dpslandservices.com), DPS GIS (1/11/2022) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

Request maps for:

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

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

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

**Wells within 500' Buffer**

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101935	Tug Hill Operating, LLC.	19555' MD / 6968' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.
4705101947	Tug Hill Operating, LLC.	17877' MD / 6912' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.
4705101948	Tug Hill Operating, LLC.	17936' MD / 6928' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.
4705101962	Tug Hill Operating, LLC.	19057' MD / 6923' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.

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
4705101963	Tug Hill Operating, LLC.	18243' MD / 6904' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.
4705101967	Tug Hill Operating, LLC.	22395' MD / 11920' 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 Heaven Hill 3 N-15HU.
4705101968	Tug Hill Operating, LLC.	23854' MD / 11898' 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 Heaven Hill 3 N-15HU.
4705101969	Tug Hill Operating, LLC.	22722' MD / 11865' 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 Heaven Hill 3 N-15HU.

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
4705102015	Tug Hill Operating, LLC.	15224' MD / 6762' TVD	Marcellus	none	No, this is a producing well in the Marcellus. This 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 Heaven Hill 3 N-15HU.
4705102016	Tug Hill Operating, LLC.	19300' MD / 11612' 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 Heaven Hill 3 N-15HU.
4705102303	Tug Hill Operating, LLC.	6966' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102304	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102305	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.

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
4705102323	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102306	Tug Hill Operating, LLC.	11684' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102307	Tug Hill Operating, LLC.	11701' TVD (proposed)	none	none	Yes, this is a permitted well in the Point Pleasant. This well once completed will be within the expected fracture propagation from the proposed Point Pleasant stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Permitted Point Pleasant well by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-15HU.
4705170645	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well. Well is plugged.	State records are incomplete.
4705140025	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well. Well is plugged.	State records are incomplete.

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
4705170646	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well. Well is plugged.	State records are incomplete.



WV Geological & Economic Survey

Well: County = 51 Permit = 01935

Report Time: Wednesday, January 12, 2022 9:14:23 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101935	Marshall	1935	Meade	Glen Easton	Cameron	39.8086	-80.693321	526251	4406559

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101935	1	As Drilled	527724.7	4402595.6	-80.678272
4705101935	1	As Proposed	527726.5	4402595.6	-80.678251

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
4705101935	10/28/2019	Divd Orgnl Loc	Completed	Ricky L Whitbath	3-1HJ	Heaven Hill	Ricky L Whitbath et al	Tug Hill Operating, LLC	6876	Marcellus Fm			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG_KOD	G_BEFO	G_AFT	O_BEFO
4705101935	10/28/2019	2/15/2018	1326	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6988	19500	19500	7268	0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_QNTY
4705101935	10/28/2019	Water	Fresh Water	Deviated			097						Pennsylvanian System
4705101935	10/28/2019	Water	Salt Water	Deviated			1505						Salt Sands (undrift)
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8487	Marcellus Fm	8349	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8882	Marcellus Fm	8215	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8937	Marcellus Fm	8990	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9012	Marcellus Fm	9165	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9187	Marcellus Fm	9340	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9382	Marcellus Fm	9515	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9537	Marcellus Fm	9690	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9712	Marcellus Fm	9865	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9887	Marcellus Fm	10040	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10052	Marcellus Fm	10215	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10237	Marcellus Fm	10390	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10412	Marcellus Fm	10565	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10597	Marcellus Fm	10740	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10782	Marcellus Fm	10935	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10937	Marcellus Fm	11090	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11112	Marcellus Fm	11268	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11287	Marcellus Fm	11442	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11462	Marcellus Fm	11615	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11637	Marcellus Fm	11790	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11812	Marcellus Fm	11985	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11987	Marcellus Fm	12140	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12162	Marcellus Fm	12315	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12337	Marcellus Fm	12490	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12512	Marcellus Fm	12685	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12687	Marcellus Fm	12840	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12862	Marcellus Fm	13015	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13037	Marcellus Fm	13190	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13212	Marcellus Fm	13365	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13387	Marcellus Fm	13540	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13562	Marcellus Fm	13715	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13737	Marcellus Fm	13890	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13912	Marcellus Fm	14065	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14087	Marcellus Fm	14240	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14262	Marcellus Fm	14415	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14437	Marcellus Fm	14590	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14612	Marcellus Fm	14765	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14787	Marcellus Fm	14940	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14962	Marcellus Fm	15115	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15137	Marcellus Fm	15290	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15312	Marcellus Fm	15465	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15487	Marcellus Fm	15640	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15662	Marcellus Fm	15815	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15837	Marcellus Fm	15990	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16012	Marcellus Fm	16165	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16187	Marcellus Fm	16340	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16362	Marcellus Fm	16515	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16537	Marcellus Fm	16690	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16712	Marcellus Fm	16885	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16887	Marcellus Fm	17040	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17062	Marcellus Fm	17215	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17237	Marcellus Fm	17390	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17412	Marcellus Fm	17565	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17587	Marcellus Fm	17740	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17762	Marcellus Fm	17915	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17937	Marcellus Fm	18090	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18112	Marcellus Fm	18265	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18287	Marcellus Fm	18440	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18462	Marcellus Fm	18615	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18637	Marcellus Fm	18790	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18812	Marcellus Fm	18965	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18987	Marcellus Fm	19140	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	19162	Marcellus Fm	19315	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	19337	Marcellus Fm	19440	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
4705101935	Tug Hill Operating, LLC	2018	456,540	0	0	0	0	0	0	0	0	0	8,004	133,453	315,083
4705101935	Tug Hill Operating, LLC	2020	3,604,659	326,591	290,393	303,260	256,144	269,736	212,997	133,908	242,363	335,580	220,997	205,699	260,721

WV Geological & Economic Survey

Well: County = 51 Permit = 01947

Report Time: Wednesday, January 12, 2022 9:15:35 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101947	Marshall	1947	Meade	Glen Easton	Cameron	39.806577	-80.693191	526262.1	4406556.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101947	1 As Drilled	526127.3	4403271.6	-80.671542	39.77592
4705101947	1 As Proposed	525197.7	4403272.8	-80.67072	39.775929

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
4705101947	10/28/2019	Drill Orig Loc	Completed	Ricky L Whitlatch			3-4M Heaven Hill		Ricky L Whitlatch et al	Tug Hill Operating, LLC		6876 Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEFO	G_AFT
4705101947	10/28/2019	3/15/2019	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acidized	6911	17367			17667	6634

Comment: 10/28/2019 Plat Missing data

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFO	G_AFT	O_BEFO	O_AFT	WATER_QNTY
4705101947	10/28/2019	Water	Fresh Water	Vertical			1054	Pennsylvanian System					
4705101947	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undif)					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	7497	Marcellus Fm	7643	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	7673	Marcellus Fm	7819	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	7848	Marcellus Fm	7994	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8023	Marcellus Fm	8169	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8199	Marcellus Fm	8344	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8373	Marcellus Fm	8519	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8549	Marcellus Fm	8695	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8724	Marcellus Fm	8870	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	8999	Marcellus Fm	9045	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9074	Marcellus Fm	9220	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9249	Marcellus Fm	9395	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9425	Marcellus Fm	9571	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9600	Marcellus Fm	9746	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9775	Marcellus Fm	9921	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	9950	Marcellus Fm	10096	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	10125	Marcellus Fm	10271	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	10301	Marcellus Fm	10447	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	10476	Marcellus Fm	10622	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	10651	Marcellus Fm	10797	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	10826	Marcellus Fm	10972	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11001	Marcellus Fm	11147	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11177	Marcellus Fm	11323	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11352	Marcellus Fm	11498	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11527	Marcellus Fm	11673	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11702	Marcellus Fm	11846	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	11877	Marcellus Fm	12023	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12053	Marcellus Fm	12199	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12228	Marcellus Fm	12374	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12403	Marcellus Fm	12549	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12578	Marcellus Fm	12724	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12753	Marcellus Fm	12899	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	12929	Marcellus Fm	13075	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13104	Marcellus Fm	13250	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13279	Marcellus Fm	13425	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13600	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13629	Marcellus Fm	13775	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13951	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	13980	Marcellus Fm	14126	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	14155	Marcellus Fm	14301	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	14330	Marcellus Fm	14476	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	14505	Marcellus Fm	14651	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	14681	Marcellus Fm	14827	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	14856	Marcellus Fm	15002	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15031	Marcellus Fm	15177	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15206	Marcellus Fm	15352	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15381	Marcellus Fm	15527	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15557	Marcellus Fm	15703	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15732	Marcellus Fm	15878	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	15907	Marcellus Fm	16053	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16082	Marcellus Fm	16228	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16257	Marcellus Fm	16403	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16433	Marcellus Fm	16579	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16608	Marcellus Fm	16754	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16783	Marcellus Fm	16929	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	16958	Marcellus Fm	17104	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	17133	Marcellus Fm	17279	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	17308	Marcellus Fm	17455	Marcellus Fm					
4705101947	10/28/2019	Pay	Oil & Gas	Deviated	17484	Marcellus Fm	17630	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
4705101947	Tug Hill Operating, LLC	2019	442,741	0	0	0	0	0	0	0	0	0	10,039	136,848	295,854
4705101947	Tug Hill Operating, LLC	2020	2,647,164	275,383	251,477	286,751	239,753	245,080	181,060	120,033	213,753	268,319	187,055	179,040	170,442

WV Geological & Economic Survey

Well: County = 51 Permit = 01948

Report Time: Wednesday, January 12, 2022 9:20:26 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101948	Marshall	1048	Meade	Glen Easton	Cameron	39.806632	-80.692941	526283.5	4406562.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD	
4705101948	1	As Drilled	526334.7	4403378.9	-80.669116	39.779562
4705101948	1	As Proposed	526336.6	4403373	-80.692449	39.778991

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705101948	10/28/2019	Dvd Drgr/Loc	Completed	Rickly L Whitlatch	3-SHM	Heaven Hill	Rickly L Whitlatch et al	Tug Hill Operating, LLC	6878	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
4705101948	10/28/2019	3/25/2018	1328	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Add-Frac	6925	19997	19997	6729		

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	C_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101948	10/28/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705101948	10/28/2019	Water	Salt Water	Vertical			2167	Salt Sands (und/f)					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7633	Marcellus Fm	7705	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7806	Marcellus Fm	7958	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7980	Marcellus Fm	8132	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8154	Marcellus Fm	8305	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8328	Marcellus Fm	8480	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8502	Marcellus Fm	8654	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8675	Marcellus Fm	8827	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8849	Marcellus Fm	9001	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9023	Marcellus Fm	9175	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9197	Marcellus Fm	9349	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9371	Marcellus Fm	9523	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9544	Marcellus Fm	9696	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9718	Marcellus Fm	9870	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9892	Marcellus Fm	10044	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10066	Marcellus Fm	10218	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10240	Marcellus Fm	10392	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10413	Marcellus Fm	10565	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10587	Marcellus Fm	10738	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10761	Marcellus Fm	10913	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10935	Marcellus Fm	11087	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11109	Marcellus Fm	11251	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11282	Marcellus Fm	11434	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11455	Marcellus Fm	11605	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11630	Marcellus Fm	11792	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11804	Marcellus Fm	11995	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11978	Marcellus Fm	12136	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12151	Marcellus Fm	12303	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12325	Marcellus Fm	12477	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12499	Marcellus Fm	12651	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12673	Marcellus Fm	12825	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12847	Marcellus Fm	12999	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13020	Marcellus Fm	13172	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13194	Marcellus Fm	13346	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13368	Marcellus Fm	13520	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13542	Marcellus Fm	13694	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13716	Marcellus Fm	13888	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13889	Marcellus Fm	14041	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13910	Marcellus Fm	14170	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14063	Marcellus Fm	14215	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14237	Marcellus Fm	14388	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14411	Marcellus Fm	14563	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14585	Marcellus Fm	14737	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14758	Marcellus Fm	14910	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14932	Marcellus Fm	15064	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15105	Marcellus Fm	15236	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15209	Marcellus Fm	15422	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15454	Marcellus Fm	15605	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15627	Marcellus Fm	15779	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15801	Marcellus Fm	15953	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15975	Marcellus Fm	16127	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16149	Marcellus Fm	16301	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16323	Marcellus Fm	16475	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16498	Marcellus Fm	16648	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16670	Marcellus Fm	16822	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16844	Marcellus Fm	16999	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17102	Marcellus Fm	17344	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17385	Marcellus Fm	17517	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17538	Marcellus Fm	17691	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
4705101948	Tug Hill Operating, LLC	2019	411,073	0	0	0	0	0	0	0	0	0	10,272	104,822	266,979
4705101948	Tug Hill Operating, LLC	2020	2,580,181	289,951	252,973	261,995	223,361	223,367	173,237	117,917	212,652	292,348	188,939	178,050	166,573

WV Geological & Economic Survey

Well: County = 51 Permit = 01962

Report Time: Wednesday, January 12, 2022 9:20:56 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101962	Marshall	1962	Meade	Glen Easton	Cameron	39.698592	-80.693278	526254.7	4406558.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101962	1 As Drilled	527872.2	4402800.7	-80.674541	39.774888
4705101962	1 As Proposed	527874	4402801.1	-80.67452	39.77489

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
4705101962	10/28/2019	Divd Drpl Loc	Completed	Ricky L Whitlatch		5-2HM	Heaven Hill		Ricky L Whitlatch et al	Tug Hill Operating, LLC	6976	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	C
4705101962	10/28/2019	2/25/2016	1325	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6923	15053	15063	6992		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
4705101962	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101962	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (unroof)					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	7781	Marcellus Fm	7335	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	7257	Marcellus Fm	6110	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	6132	Marcellus Fm	6289	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	6308	Marcellus Fm	6461	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	6403	Marcellus Fm	6637	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	6558	Marcellus Fm	6812	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	6834	Marcellus Fm	6967	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9009	Marcellus Fm	9163	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9185	Marcellus Fm	9338	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9360	Marcellus Fm	9514	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9536	Marcellus Fm	9689	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9711	Marcellus Fm	9565	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9937	Marcellus Fm	10040	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10062	Marcellus Fm	10216	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12167	Marcellus Fm	10391	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10413	Marcellus Fm	10566	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10588	Marcellus Fm	10742	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10764	Marcellus Fm	10917	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10939	Marcellus Fm	11093	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11115	Marcellus Fm	11268	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11290	Marcellus Fm	11444	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11466	Marcellus Fm	11619	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11641	Marcellus Fm	11794	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11816	Marcellus Fm	11970	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11992	Marcellus Fm	12145	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12167	Marcellus Fm	12321	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12343	Marcellus Fm	12495	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12518	Marcellus Fm	12672	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12694	Marcellus Fm	12847	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12869	Marcellus Fm	13023	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13044	Marcellus Fm	13196	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13220	Marcellus Fm	13373	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13395	Marcellus Fm	13549	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13571	Marcellus Fm	13724	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13746	Marcellus Fm	13900	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13922	Marcellus Fm	14075	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14097	Marcellus Fm	14241	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14273	Marcellus Fm	14428	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14448	Marcellus Fm	14602	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14623	Marcellus Fm	14777	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14799	Marcellus Fm	14952	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14974	Marcellus Fm	15128	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15150	Marcellus Fm	15303	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15325	Marcellus Fm	15479	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15501	Marcellus Fm	15654	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15676	Marcellus Fm	15830	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15852	Marcellus Fm	16005	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16027	Marcellus Fm	16180	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16202	Marcellus Fm	16356	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16378	Marcellus Fm	16531	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16553	Marcellus Fm	16707	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16729	Marcellus Fm	16882	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16904	Marcellus Fm	17065	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17080	Marcellus Fm	17233	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17255	Marcellus Fm	17409	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17430	Marcellus Fm	17584	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17605	Marcellus Fm	17759	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17781	Marcellus Fm	17935	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17957	Marcellus Fm	18110	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18132	Marcellus Fm	18285	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18305	Marcellus Fm	18451	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18483	Marcellus Fm	18637	Marcellus Fm					
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18659	Marcellus Fm	18812	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
4705101962	Tug Hill Operating, LLC	2019	455,279	0	0	0	0	0	0	0	0	0	8,395	156,934	310,949
4705101962	Tug Hill Operating, LLC	2020	2,891,168	328,765	285,711	299,840	249,569	259,937	202,582	133,439	228,979	317,415	202,370	193,443	165,120

WV Geological & Economic Survey

Well: County = 51 Permit = 01963

Report Time: Wednesday, January 12, 2022 9:21:24 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101963	Marshall	1963	Meade	Glen Easton	Cameron	39.609504	-80.693254	526256.4	4405557.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101963	1 As Drilled	527975.8	4403073.8	-80.67332	39.777162
4705101963	1 As Proposed	527977.5	4403073.8	-80.6733	39.777168

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
4705101963	10/25/2019	D/d	Orig/Loc	Completed	Ricky L Whitatch		3-3HM Heaven Hill		Ricky L Whitatch et al	Tug Hill Operating, LLC	6978	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
4705101963	10/25/2019	3/7/2015	1326	Ground Level	Cameron-Gorner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6904	18261	18261	8523	

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
4705101963	10/25/2019	Water	Fresh Water	Vertical			70		Pennsylvanian System				
4705101963	10/25/2019	Water	Salt Water	Vertical			2137		Big Lime				
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	7663	Marcellus Fm	7617	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	7639	Marcellus Fm	7592	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8014	Marcellus Fm	8168	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8190	Marcellus Fm	8343	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8365	Marcellus Fm	8519	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8541	Marcellus Fm	8694	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8716	Marcellus Fm	8870	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	8892	Marcellus Fm	9045	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9067	Marcellus Fm	9221	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9242	Marcellus Fm	9396	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9418	Marcellus Fm	9572	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9593	Marcellus Fm	9747	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9769	Marcellus Fm	9923	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	9944	Marcellus Fm	10098	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10120	Marcellus Fm	10274	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10295	Marcellus Fm	10449	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10471	Marcellus Fm	10624	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10646	Marcellus Fm	10820	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10822	Marcellus Fm	10975	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	10997	Marcellus Fm	11151	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	11173	Marcellus Fm	11326	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	11348	Marcellus Fm	11502	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	11524	Marcellus Fm	11677	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	11699	Marcellus Fm	11853	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	11875	Marcellus Fm	12026	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12050	Marcellus Fm	12204	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12228	Marcellus Fm	12379	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12401	Marcellus Fm	12555	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12577	Marcellus Fm	12730	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12752	Marcellus Fm	12906	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	12928	Marcellus Fm	13081	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13103	Marcellus Fm	13257	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13279	Marcellus Fm	13432	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13606	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13630	Marcellus Fm	13783	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13959	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	13981	Marcellus Fm	14134	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	14156	Marcellus Fm	14310	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	14332	Marcellus Fm	14489	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	14507	Marcellus Fm	14661	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	14683	Marcellus Fm	14836	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	14858	Marcellus Fm	15012	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15034	Marcellus Fm	15167	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15209	Marcellus Fm	15363	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15385	Marcellus Fm	15536	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15560	Marcellus Fm	15714	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15736	Marcellus Fm	15889	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	15911	Marcellus Fm	16065	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16037	Marcellus Fm	16240	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16282	Marcellus Fm	16416	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16430	Marcellus Fm	16591	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16613	Marcellus Fm	16767	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16789	Marcellus Fm	16942	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	16964	Marcellus Fm	17116	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	17140	Marcellus Fm	17293	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	17315	Marcellus Fm	17469	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	17491	Marcellus Fm	17644	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	17666	Marcellus Fm	17820	Marcellus Fm					
4705101963	10/25/2019	Pay	Oil & Gas	Deviated	17842	Marcellus Fm	17995	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	
4705101963	Tug Hill Operating, LLC	2019	437.799	0	0	0	0	0	0	0	0	0	0	8,654	131,175	297,670
4705101963	Tug Hill Operating, LLC	2020	2,761,598	236,576	269,265	291,341	242,016	251,555	196,881	125,743	221,437	306,996	193,457	106,040	175,683	

WV Geological & Economic Survey

Well: County = 51 Permit = 01967

Report Time: Wednesday, January 12, 2022 9:21:52 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101967	Marshall	1967	Meade	Glen Easton	Cameron	39.00864	-80.693216	526259.8	4406563.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101967	1 As Proposed	527728.2	4404242.7	-80.678162	39.787683
4705101967	1 As Drilled	528190.9	4403437.5	-80.870792	39.788413

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
4705101967	10/28/2019	Divd Orign Loc	Completed	Ricky L Whitlatch	3-SHU	Heaven Hill	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating, LLC	11829	Pt Pleasant Fm		

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF
4705101967	10/28/2019	4/4/2018	1326	Ground Level	Cameron-Gamer	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	22395	22395	10709			

Comment: 10/28/2019 Completion information straight from operator

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_QNTY
4705101967	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101967	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (Undrift)					
4705101967	10/28/2019	Pay	Gas	Deviated	12390	Pt Pleasant Fm	12535	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12564	Pt Pleasant Fm	12709	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12739	Pt Pleasant Fm	12884	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12913	Pt Pleasant Fm	13058	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13088	Pt Pleasant Fm	13253	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13262	Pt Pleasant Fm	13407	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13437	Pt Pleasant Fm	13582	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13611	Pt Pleasant Fm	13756	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13785	Pt Pleasant Fm	13931	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13960	Pt Pleasant Fm	14105	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14135	Pt Pleasant Fm	14280	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14309	Pt Pleasant Fm	14454	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14484	Pt Pleasant Fm	14629	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14658	Pt Pleasant Fm	14803	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14833	Pt Pleasant Fm	14978	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15007	Pt Pleasant Fm	15152	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15182	Pt Pleasant Fm	15327	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15356	Pt Pleasant Fm	15501	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15531	Pt Pleasant Fm	15676	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	20768	Pt Pleasant Fm	20911	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	20840	Pt Pleasant Fm	21085	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21115	Pt Pleasant Fm	21260	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21289	Pt Pleasant Fm	21434	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21464	Pt Pleasant Fm	21609	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21639	Pt Pleasant Fm	21784	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21813	Pt Pleasant Fm	21958	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21988	Pt Pleasant Fm	22133	Pt Pleasant 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
4705101967	Tug Hill Operating, LLC	2019	1,043,859	0	0	0	0	0	0	0	0	0	69,536	439,145	535,178
4705101967	Tug Hill Operating, LLC	2020	4,740,538	485,522	447,406	492,592	450,763	472,547	452,617	393,736	373,315	344,073	336,032	220,857	271,076

WV Geological & Economic Survey

Well: County = 51 Permit = 01968

Report Time: Wednesday, January 12, 2022 9:22:17 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101968	Marshall	1968	Meade	Glen Easton	Cameron	39.808656	-80.693304	526252.4	4405655.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101968	1 As Drilled	527715.5	4402751.7	-80.676373	39.77425
4705101968	1 As Proposed	527075.6	4403363	-80.683799	39.764293

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VID	PROP_TRGT_FM	TFM_EST_PR
4705101968	10/28/2019	Dvtd Orpnt Loc	Completed	Ricky L Whitlatch	3-SHU	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating, LLC	11829	Pi Pleasant Fm			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	IVD	TMD	NEW_FTG	KOD	G_BEFF	G_AFT	O_B
4705101968	10/28/2019	5/20/2019	1326	Ground Level	Cameron-Garner	Tranton Group	Pi Pleasant Fm	Development Well	Gas	Rotary	Acid+Frac	11895	23968	23968	10967				500

Pay/Shew/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFF	G_AFT	O_BEFF	O_AFT	WATER_QNTY
4705101968	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101968	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705101968	10/28/2019	Pay	Gas	Deviated	12583	Pi Pleasant Fm	12759	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	12784	Pi Pleasant Fm	12958	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	12904	Pi Pleasant Fm	13180	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13105	Pi Pleasant Fm	13360	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13365	Pi Pleasant Fm	13561	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13586	Pi Pleasant Fm	13761	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13786	Pi Pleasant Fm	13962	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13937	Pi Pleasant Fm	14182	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14127	Pi Pleasant Fm	14363	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14308	Pi Pleasant Fm	14503	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14508	Pi Pleasant Fm	14764	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14789	Pi Pleasant Fm	14964	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14859	Pi Pleasant Fm	15165	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15190	Pi Pleasant Fm	15365	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15390	Pi Pleasant Fm	15566	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15591	Pi Pleasant Fm	15766	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15791	Pi Pleasant Fm	15967	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15992	Pi Pleasant Fm	16167	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16192	Pi Pleasant Fm	16385	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16393	Pi Pleasant Fm	16580	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16593	Pi Pleasant Fm	16789	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16794	Pi Pleasant Fm	16989	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16994	Pi Pleasant Fm	17170	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17195	Pi Pleasant Fm	17370	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17395	Pi Pleasant Fm	17571	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17596	Pi Pleasant Fm	17771	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17796	Pi Pleasant Fm	17972	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17997	Pi Pleasant Fm	18172	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18197	Pi Pleasant Fm	18373	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18398	Pi Pleasant Fm	18573	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18598	Pi Pleasant Fm	18774	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18799	Pi Pleasant Fm	18974	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18999	Pi Pleasant Fm	19175	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19200	Pi Pleasant Fm	19375	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19400	Pi Pleasant Fm	19576	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19601	Pi Pleasant Fm	19776	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19801	Pi Pleasant Fm	19977	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20002	Pi Pleasant Fm	20177	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20202	Pi Pleasant Fm	20378	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20403	Pi Pleasant Fm	20578	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20603	Pi Pleasant Fm	20779	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20804	Pi Pleasant Fm	20979	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21004	Pi Pleasant Fm	21180	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21205	Pi Pleasant Fm	21360	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21405	Pi Pleasant Fm	21561	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21606	Pi Pleasant Fm	21761	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21806	Pi Pleasant Fm	21962	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22007	Pi Pleasant Fm	22162	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22207	Pi Pleasant Fm	22363	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22408	Pi Pleasant Fm	22563	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22608	Pi Pleasant Fm	22764	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22809	Pi Pleasant Fm	22964	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23010	Pi Pleasant Fm	23165	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23210	Pi Pleasant Fm	23366	Pi Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23411	Pi Pleasant Fm	23566	Pi Pleasant 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
4705101968	Tug Hill Operating, LLC	2019	1,025.627	0	0	0	0	0	0	0	0	0	73.846	424.843	529.938
4705101968	Tug Hill Operating, LLC	2020	5,298.404	540.001	481.650	497.232	482.774	516.775	473.660	455.502	444.396	402.717	412.199	286.197	320.103

WV Geological & Economic Survey

Well: County = 51 Permit = 01969

Report Time: Wednesday, January 12, 2022 9:22:41 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101969	Marshall	1969	Meade	Glen Easton	Cameron	39.808648	-80.693261	526256.1	4406564.4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101969	1 As Drilled	527904.9	4403157.7	-80.674144	39.777992
4705101969	1 As Proposed	527400.6	4404047.6	-80.679996	39.785936

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
4705101969	10/28/2019	Drvd Origl Loc	Completed	Ricky L Whitlatch	3-7HU	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating, LLC	11665	22736	22736	11677	500

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_BE
4705101969	10/28/2019	4/27/2015	1326	Ground Level	Cameron-Garner	Pt Pleasant Fm	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	11665	22736	22736	11677	500	

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
4705101969	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101969	10/28/2019	Water	Sill Water	Vertical			1595	Salt Sands (undiff)					
4705101969	10/28/2019	Pay	Gas	Deviated	12458	Pt Pleasant Fm	12633	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	12558	Pt Pleasant Fm	12834	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	12859	Pt Pleasant Fm	13034	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13059	Pt Pleasant Fm	13235	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13280	Pt Pleasant Fm	13435	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13480	Pt Pleasant Fm	13636	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13661	Pt Pleasant Fm	13836	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13961	Pt Pleasant Fm	14037	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14062	Pt Pleasant Fm	14237	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14282	Pt Pleasant Fm	14438	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14463	Pt Pleasant Fm	14638	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14583	Pt Pleasant Fm	14638	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14684	Pt Pleasant Fm	15039	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15064	Pt Pleasant Fm	15240	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15265	Pt Pleasant Fm	15440	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15465	Pt Pleasant Fm	15641	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15666	Pt Pleasant Fm	15841	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15966	Pt Pleasant Fm	16042	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16067	Pt Pleasant Fm	16242	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16267	Pt Pleasant Fm	16443	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16468	Pt Pleasant Fm	16643	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16668	Pt Pleasant Fm	16844	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16869	Pt Pleasant Fm	17044	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17069	Pt Pleasant Fm	17245	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17270	Pt Pleasant Fm	17445	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17470	Pt Pleasant Fm	17646	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17671	Pt Pleasant Fm	17846	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17871	Pt Pleasant Fm	18047	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18072	Pt Pleasant Fm	18247	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18272	Pt Pleasant Fm	18448	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18473	Pt Pleasant Fm	18648	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18673	Pt Pleasant Fm	18849	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18874	Pt Pleasant Fm	19049	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19074	Pt Pleasant Fm	19250	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19275	Pt Pleasant Fm	19450	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19475	Pt Pleasant Fm	19651	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19676	Pt Pleasant Fm	19851	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19876	Pt Pleasant Fm	20052	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20077	Pt Pleasant Fm	20252	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20277	Pt Pleasant Fm	20453	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20478	Pt Pleasant Fm	20653	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20678	Pt Pleasant Fm	20854	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20879	Pt Pleasant Fm	21054	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21079	Pt Pleasant Fm	21255	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21280	Pt Pleasant Fm	21455	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21480	Pt Pleasant Fm	21656	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21681	Pt Pleasant Fm	21857	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21882	Pt Pleasant Fm	22057	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	22082	Pt Pleasant Fm	22258	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	22283	Pt Pleasant Fm	22459	Pt Pleasant 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
4705101969	Tug Hill Operating, LLC	2019	1,025,727	0	0	0	0	0	0	0	0	0	72,074	427,502	529,151
4705101969	Tug Hill Operating, LLC	2020	4,599,352	502,639	439,245	483,110	459,546	480,864	435,261	400,538	362,031	396,875	297,934	213,120	227,581



WV Geological & Economic Survey

Well: County = 51 Permit = 02015

Report Time: Wednesday, January 12, 2022 9:23:04 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102015	Marshall	2015	Meade	Glen Easton	Cameron	39.808507	-80.693364	526247.3	4406559.0

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102015	1 As Drilled	524614.4	4407664.3	-80.710062	39.818602
4705102015	1 As Proposed	524611.1	4407556	-80.710104	39.817716

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
4705102015	10/28/2019	Dvld Orgnl Loc	Completed	Ricky L Whillatch		3N-9HM	Heaven Hill		Ricky L Whillatch et al	Tug Hill Operating, LLC	6876	Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FTG	KOD	G_BEF	G_AFT O
4705102015	10/28/2019	-26/2019	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6666	15275	15275	6739		

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
4705102015	10/28/2019	Water	Fresh Water	Vertical			1064		Pennsylvanian System					
4705102015	10/28/2019	Water	Salt Water	Vertical			1595		Salt Sands (undiff)					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8344	Marcellus Fm	8497		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8519	Marcellus Fm	8672		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8694	Marcellus Fm	8847		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8869	Marcellus Fm	9022		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9044	Marcellus Fm	9197		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9219	Marcellus Fm	9372		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9394	Marcellus Fm	9547		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9569	Marcellus Fm	9722		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9744	Marcellus Fm	9897		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9919	Marcellus Fm	10072		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10094	Marcellus Fm	10247		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10269	Marcellus Fm	10422		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10444	Marcellus Fm	10597		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10619	Marcellus Fm	10772		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10794	Marcellus Fm	10947		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10969	Marcellus Fm	11122		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11144	Marcellus Fm	11297		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11319	Marcellus Fm	11472		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11494	Marcellus Fm	11647		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11669	Marcellus Fm	11822		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11844	Marcellus Fm	11997		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12019	Marcellus Fm	12172		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12194	Marcellus Fm	12347		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12369	Marcellus Fm	12522		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12544	Marcellus Fm	12697		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12719	Marcellus Fm	12872		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12894	Marcellus Fm	13047		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13069	Marcellus Fm	13222		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13244	Marcellus Fm	13397		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13419	Marcellus Fm	13572		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13594	Marcellus Fm	13747		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13769	Marcellus Fm	13922		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13944	Marcellus Fm	14097		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14119	Marcellus Fm	14272		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14294	Marcellus Fm	14447		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14469	Marcellus Fm	14622		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14644	Marcellus Fm	14797		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14819	Marcellus Fm	14972		Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	15042	Marcellus Fm	15095		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
4705102015	Tug Hill Operating, LLC	2019	275,885	0	0	0	0	0	0	0	0	0	8,566	86,145	181,172
4705102015	Tug Hill Operating, LLC	2020	1,591,527	177,387	165,398	167,891	141,491	143,341	111,951	74,195	113,364	173,870	113,265	106,576	102,608

WV Geological & Economic Survey:

Well: County = 51 Permit = 02016

Report Time: Wednesday, January 12, 2022 9:23:27 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102016	Marshall	2016	Meade	Glen Easton	Cameron	39.808664	-80.693348	526248.7	4406566.1

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102016	1 As Proposed	524924	4407593.6	-80.708785	39.817871
4705102016	1 As Drilled	524925.3	4407592	-80.708769	39.817947

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
4705102016	10/28/2019	Dvtd Orgnl Loc	Completed	Ricky L Whitlatch	3N-10HU	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating, LLC	11698	Pt Pleasant Fm			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705102016	10/28/2019	7/4/2018	1326	Ground Level	Cameron-Garner	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	11701	19300	19300	11200		500		

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
4705102016	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705102016	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705102016	10/28/2019	Pay	Gas	Deviated	12724	Pt Pleasant Fm	12873	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	12922	Pt Pleasant Fm	13071	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13120	Pt Pleasant Fm	13269	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13318	Pt Pleasant Fm	13467	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13516	Pt Pleasant Fm	13665	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13714	Pt Pleasant Fm	13863	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13912	Pt Pleasant Fm	14061	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14110	Pt Pleasant Fm	14259	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14308	Pt Pleasant Fm	14457	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14506	Pt Pleasant Fm	14655	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14704	Pt Pleasant Fm	14853	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14902	Pt Pleasant Fm	15051	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15100	Pt Pleasant Fm	15249	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15298	Pt Pleasant Fm	15447	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15496	Pt Pleasant Fm	15645	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15694	Pt Pleasant Fm	15843	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15892	Pt Pleasant Fm	16041	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16090	Pt Pleasant Fm	16239	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16288	Pt Pleasant Fm	16437	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16486	Pt Pleasant Fm	16635	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16684	Pt Pleasant Fm	16833	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16882	Pt Pleasant Fm	17031	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17080	Pt Pleasant Fm	17229	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17278	Pt Pleasant Fm	17427	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17476	Pt Pleasant Fm	17625	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17674	Pt Pleasant Fm	17823	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17872	Pt Pleasant Fm	18021	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18070	Pt Pleasant Fm	18219	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18268	Pt Pleasant Fm	18417	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18466	Pt Pleasant Fm	18615	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18664	Pt Pleasant Fm	18813	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18862	Pt Pleasant Fm	19011	Pt Pleasant 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
4705102016	Tug Hill Operating, LLC	2019	913,543	0	0	0	0	0	0	0	0	0	85,949	368,699	478,900
4705102016	Tug Hill Operating, LLC	2020	3,760,795	471,086	424,437	476,515	442,726	435,171	329,071	266,387	243,634	194,240	184,792	142,448	150,087

WV Geological & Economic Survey:

**Well: County = 51 Permit = 02303**

Report Time: Wednesday, January 12, 2022 9:23:55 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705102303	Marshall	2303	Meade	Glen Easton	Cameron	39.808631	-80.693495	526236.1	4406562.4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102303	1	As Proposed	525041.3	4407722.8	-80.707409

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
4705102303	-/-		Dvtd Orgnl Loc	Permitted	Ricky L Whittlatch		3N-11HM	Heaven Hill		R L Whittlatch et al	Tug Hill Operating, LLC	6966	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	N
4705102303	-/-	-/-		1330	Ground Level																	

WV Geological & Economic Survey:

**Well: County = 51 Permit = 02304**

Report Time: Wednesday, January 12, 2022 9:24:25 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705102304	Marshall	2304	Meade	Glen Easton	Cameron	39.808623	-80.693453	526239.7	4406561.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102304	1	As Proposed	525205.7	4407897	-80.705481

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
4705102304	-/-		Dvtd Orgnl Loc	Permitted	Ricky L Whittlatch		3N-12HM	Heaven Hill		R L Whittlatch et al	Tug Hill Operating, LLC	6969	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	N
4705102304	-/-	-/-		1333	Ground Level																	

WV Geological & Economic Survey:

**Well: County = 51 Permit = 02305**

Report Time: Wednesday, January 12, 2022 9:24:59 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102305	Marshall	2305	Meade	Glen Easton	Cameron	39.809687	-80.693478	526237.5	4406568.6

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102305	1 As Proposed	525377.5	4408521.3	-80.70345	39.826307

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
4705102305	-/-		Dvtd Orgnl Loc	Permitted	Ricky L Whillatch		3N-14HM	Heaven Hill	R L Whillatch et al	Tug Hill Operating, LLC	6969	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	
4705102305	-/-	-/-	1330	Ground Level																		

WV Geological & Economic Survey:

**Well: County = 51 Permit = 02323**

Report Time: Wednesday, January 12, 2022 9:25:10 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102323	Marshall	2323	Meade	Glen Easton	Cameron	39.808615	-80.693408	526243.5	4406560.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102323	1 As Proposed	525337.6	4408127.8	-80.703931	39.822762

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
4705102323	-/-		Dvtd Orgnl Loc	Permitted	Ricky L Whillatch		3N-13HM	Heaven Hill	R L Whillatch et al	Tug Hill Operating, LLC	6969	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	
4705102323	-/-	-/-	1335	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02306

Report Time: Wednesday, January 12, 2022 10:58:39 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102306	Marshall	2306	Meade	Glen Easton	Cameron	39.800679	-80.693434	526241.3	4406567.8

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102306	-/-	Dvtd Orgnl Loc	Permitted	Ricky L Whitlatch	3	3N-15HU				Tug Hill Operating, LLC	11684	PI Pleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705102306	-/-	-/-	1326	Ground Level							not available	unknown	unknown							

WV Geological & Economic Survey:

Well: County = 51 Permit = 02307

Report Time: Wednesday, January 12, 2022 10:59:00 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102307	Marshall	2307	Meade	Glen Easton	Cameron	39.800671	-80.693391	526245	4406566.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102307	-/-	Dvtd Orgnl Loc	Permitted	Ricky L Whitlatch	3	3N-16HU				Tug Hill Operating, LLC	11701	PI Pleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705102307	-/-	-/-	1326	Ground Level							not available	unknown	unknown							

WV Geological & Economic Survey:

Well: County = 51 Permit = 70645

Report Time: Wednesday, January 12, 2022 11:07:04 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170645	Marshall	70645	Meade	Glen Easton	Cameron	39.804238	-80.691104	526442.5	4406075.5

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170645	-/-	unknown	Prpty Map	E J Jones		1279				----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4705170645	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

WV Geological & Economic Survey:

**Well: County = 51 Permit = 40025**

Report Time: Wednesday, January 12, 2022 9:28:15 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705140025	Marshall	40025	Meade	Glen Easton	Cameron	39.81224	-80.698625	525795.6	4406961.5

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4705140025	Original Loc	Pittsburgh coal	CBM: Drill Hole	971	Reasonable	9	Reasonable	1269	unknown

WV Geological & Economic Survey:

**Well: County = 51 Permit = 70646**

Report Time: Wednesday, January 12, 2022 9:28:30 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170646	Marshall	70646	Meade	Glen Easton	Cameron	39.807431	-80.696181	526006.7	4406428.4

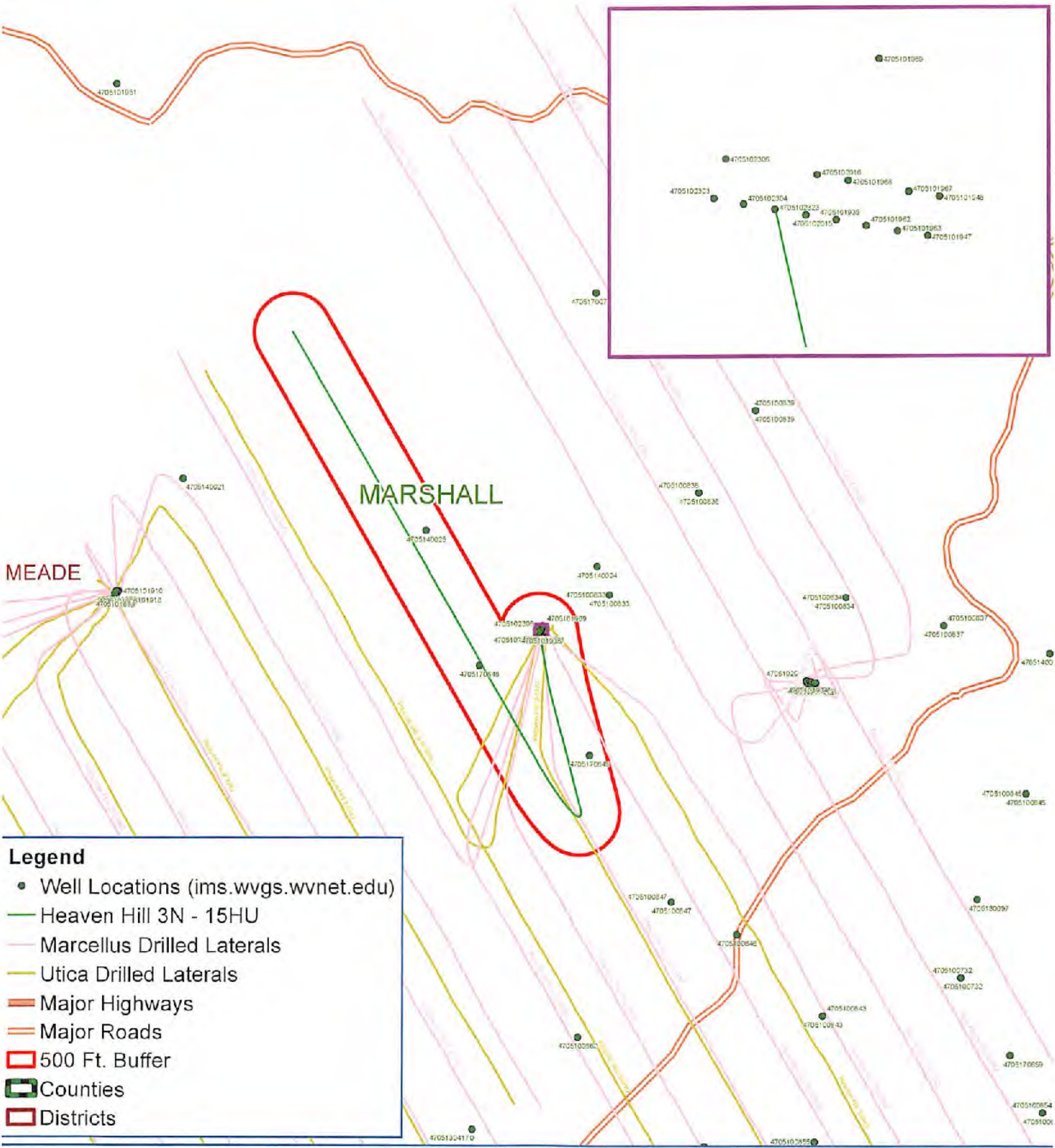
There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705170646	-/-	unknown	Prpty Map	W J Weize!	1				OP=Blackshere	Oper in Min owner fld.no code assgn(Orphan well proj)			

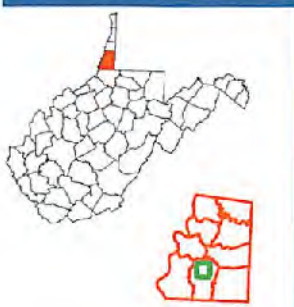
Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4705170646	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									



**Legend**

- Well Locations (ims.wvgs.wvnet.edu)
- Heaven Hill 3N - 15HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- ▭ 500 Ft. Buffer
- ▭ Counties
- ▭ Districts



# Heaven Hill 3N - 15HU Meade District Marshall County, WV



Map Prepared by:

**07/01/2022**

**EPS**  
LAND SERVICES





**TUG HILL**  
**OPERATING**

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

**Well Name: Heaven Hill 3N-15HU**

**Pad Name: Heaven Hill 3**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,406,560.68

Easting: 526,243.55

*Haynes King*  
*11/19/2022*

**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)**

RECEIVED  
Office of Oil and Gas

MAY 25 2022

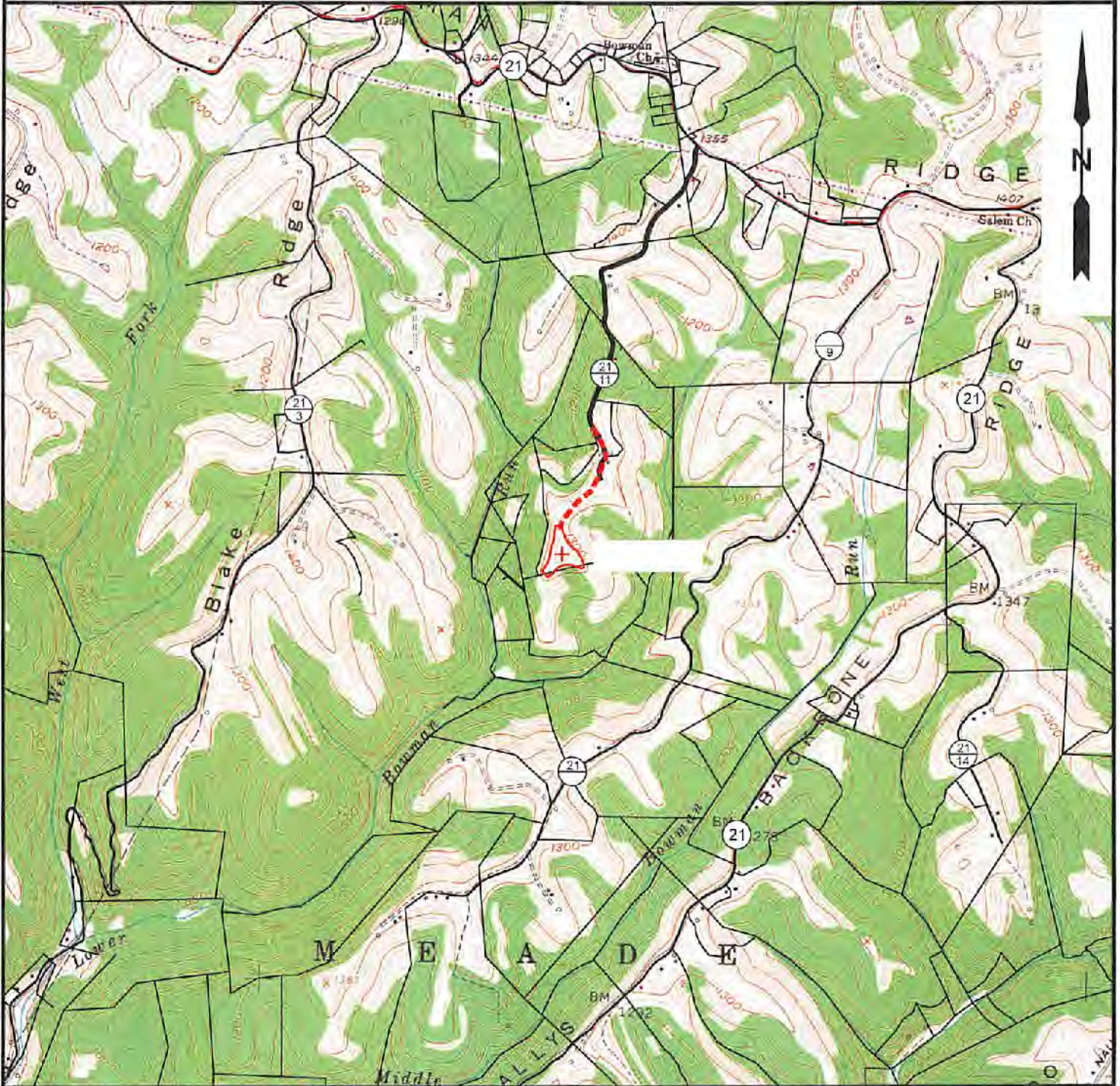
WV Department of  
Environmental Protection

**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

07/01/2022

# PROPOSED HEAVEN HILL 3N - 15HU



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

LAT: 39.829865  
LON: -80.573724  
LOCATED: N 77°44'18" E AT 34,474.56' FROM THE CENTER OF HEAVEN HILL 3N WELL PAD LOCATION.

**SLS**  
Land & Energy Development  
*Solutions from the ground up.*  
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 462-6634  
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/21/2019	1" = 2000'



**TUG HILL**  
OPERATING

07/01/2022

**HEAVEN HILL 3N LEASE  
UTICA UNIT - 686.21 AC±  
WELL 15HU  
TUG HILL OPERATING**

10,692' B.H.

7,512' T.H.

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

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

NAD'83 S.P.C.(FT)	N. 478,865.67	E. 1,633,247.73
NAD'83 GEO.	LAT-(N) 39.808615	LONG-(W) 80.693408
NAD'83 UTM (M)	N. 4,406,560.68	E. 526,243.55

LANDING POINT

NAD'83 S.P.C.(FT)	N. 477,155.2	E. 1,633,210.9
NAD'83 GEO.	LAT-(N) 39.803918	LONG-(W) 80.693458
NAD'83 UTM (M)	N. 4,406,039.4	E. 526,241.0

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 482,808.2	E. 1,630,118.8
NAD'83 GEO.	LAT-(N) 39.819323	LONG-(W) 80.704733
NAD'83 UTM (M)	N. 4,407,745.8	E. 525,270.2

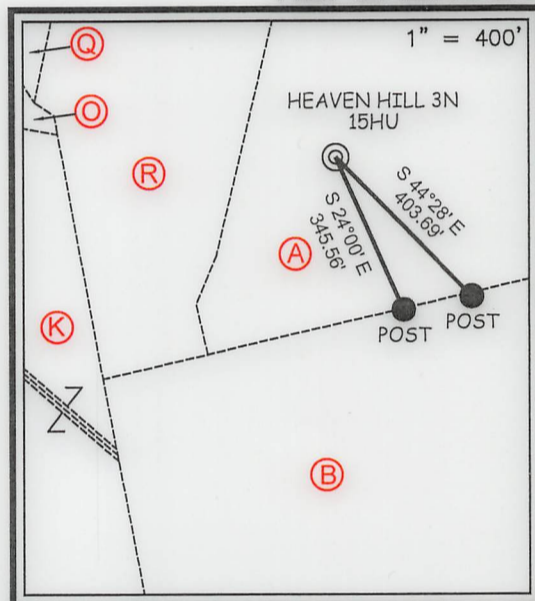
T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"

**NOTES ON SURVEY**

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'
- PROPOSED LATERAL OR TOP HOLE OF HEAVEN HILL 3N-15HU IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF EXISTING WELLS  
HEAVEN HILL 2-6HU (47-051-01910),  
HEAVEN HILL 3-6HU (47-051-01968),  
HEAVEN HILL 3-7HU (47-051-01969),  
HEAVEN HILL 3-8HU (47-051-01967),  
TEN HIGH 1S-14HU (47-051-01966),  
TEN HIGH 1N-11HU (47-051-01960),  
TEN HIGH 1N-12HU (47-051-01961),  
HEAVEN HILL 3N-10HU (47-051-02016) & PROPOSED HEAVEN HILL 3N-16HU.

TAG	SURFACE OWNER	PARCEL	ACRES
A	ANDREW C. WHITLATCH, ET UX	9-7-30	72.82
B	ANDREW C. WHITLATCH, ET UX	9-7-21	42.22
C	LARRY LEE CONKLE	9-7-22	12.00
D	LARRY LEE CONKLE	9-7-24	139.79
E	BRENDA J. WHETZEL (LIFE ESTATE)	9-7-23	36.00
F	BRENDA J. WHETZEL (LIFE ESTATE)	9-11-7	82.858
G	WILLIAM F. & JULIE A. KERNS	9-11-6.2	46.47
H	BRENDA J. WHETZEL (LIFE ESTATE)	9-11-6.1	30.24
I	KEVIN E. MCGILTON	9-7-19	23.00
J	KEVIN E. MCGILTON	9-7-20	13.39
K	KEVIN E. MCGILTON	9-7-18	14.00
L	MURRAY ENERGY, LLC	9-7-2	116.12
M	ANDREW C. WHITLATCH, ET UX	NOT ASSD.	16' X 32P
N	KEVIN E. MCGILTON	9-7-17	5.12
O	ANDREW C. WHITLATCH, ET UX	NOT ASSD.	2.75
P	MICHAEL J. RINE, ET UX	9-7-1	107.46
Q	KEVIN E. MCGILTON	9-7-16	8.00
R	ANDREW C. WHITLATCH, ET UX	9-7-31	16.53
S	ANDREW C. WHITLATCH, ET UX	9-7-15	7.54
T	ARNIE GOODNIGHT, ET UX	9-7-14	39.55
U	XCL MIDSTREAM, LLC	9-7-4	78.95
V	CHARLES R. JR. & ANNA MARIE HAGEDORN	9-7-3	202.163
W	CHARLES R. JR. & ANNA MARIE HAGEDORN	9-7-3.1	4.579
X	CINDY S. & ROBERT L. FISH	9-7-3.2	0.911
Y	ARNIE GOODNIGHT, ET UX	9-7-5	62.18
Z	TERRI L. & HARIKIA SAMPSON	9-5-1	111.71
AA	BRADEN & SARAH SAMPSON	9-5-1.1	4.564
BB	XCL MIDSTREAM, LLC	9-5-3	85.26
CC	MURRAY ENERGY, LLC	9-5-4.1	22.775
DD	ELMER L. ASTON	9-5-4	108.225

**REFERENCES**

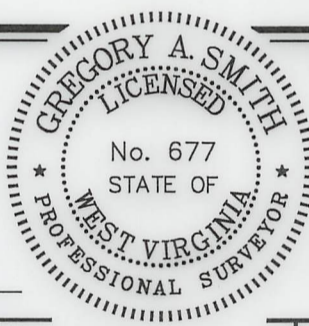


12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slsvw.com

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

P.S.  
677

*Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE AUGUST 26, 2019

REVISED 10/23/19, 03/25/20, 07/08/20, 5/24/22

OPERATORS WELL NO. HEAVEN HILL 3N-15HU

API WELL NO. 47 - 051 - 02452  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P15HUR5.dwg HEAVEN HILL 3N-15HU REV7

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION 1,328.00' WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)

DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER ANDREW C. WHITLATCH ET UX ACREAGE 72.82±

ROYALTY OWNER RICKY L. WHITLATCH, ET AL - SEE ADDITIONAL SHEETS ACREAGE 72.82±

PROPOSED WORK: LEASE NO. SEE ADDITIONAL SHEETS

DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ OTHER \_\_\_

PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,907' / TMD: 19,094'

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

COUNTY NAME PERMIT

07/01/2022

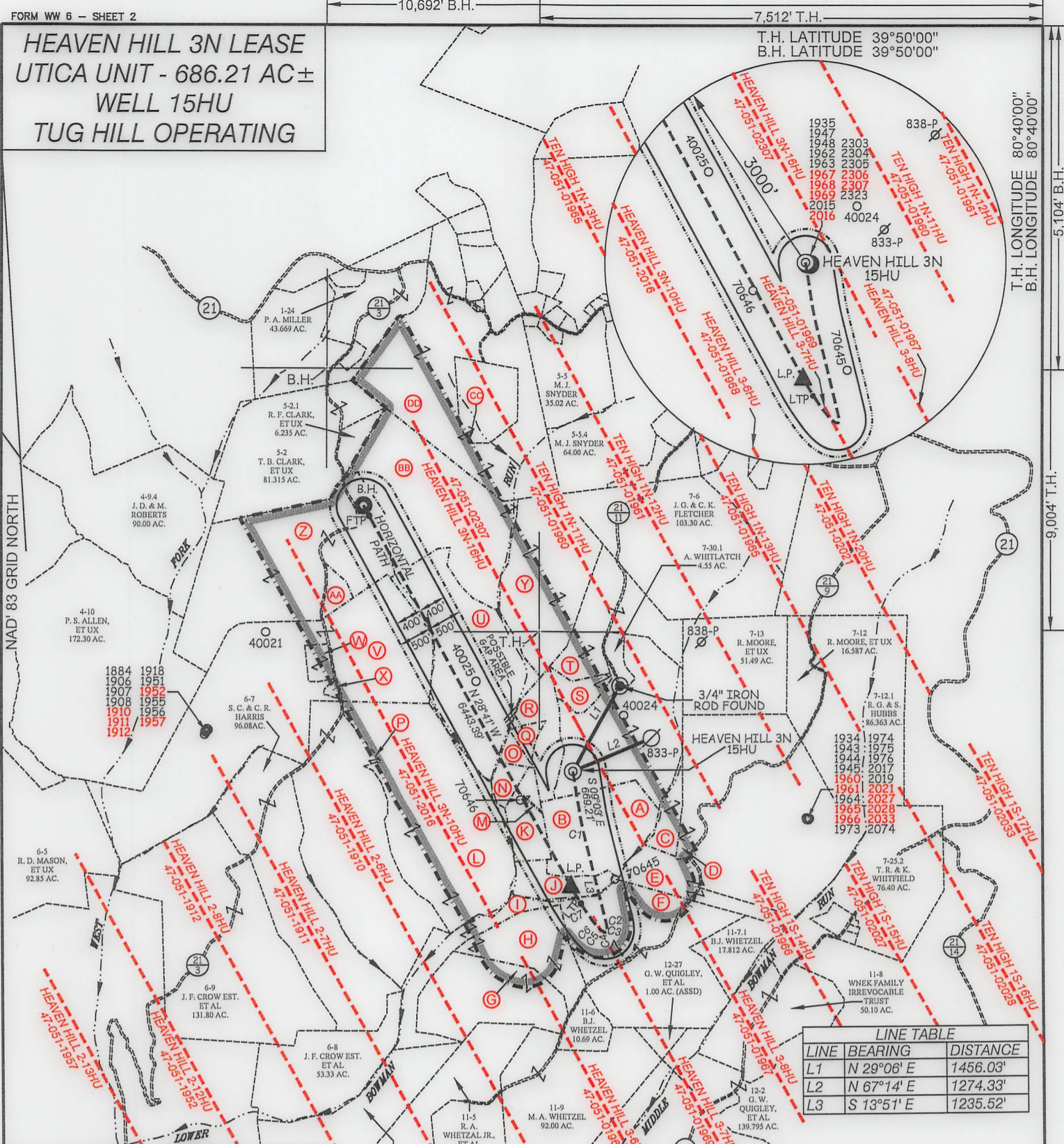
**HEAVEN HILL 3N LEASE  
UTICA UNIT - 686.21 AC±  
WELL 15HU  
TUG HILL OPERATING**

T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"

5,104' B.H.

9,004' T.H.

NAD'83 GRID NORTH



**LINE TABLE**

LINE	BEARING	DISTANCE
L1	N 29°06' E	1456.03'
L2	N 67°14' E	1274.33'
L3	S 13°51' E	1235.52'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	403.19'	6238.53'	S 12°54' E	403.12'
C2	85.31'	458.58'	S 09°14' E	85.19'
C3	52.91'	62.09'	S 15°40' W	51.33'
C4	35.53'	33.56'	N 87°32' W	33.89'
C5	86.84'	275.92'	N 52°15' W	86.48'
C6	175.43'	1300.48'	N 40°30' W	175.30'
C7	580.12'	4017.47'	N 32°31' W	579.62'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com

P.S. 677 *Gregory A. Smith*



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

**LEGEND**

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

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'83 S.P.C.(FT) N. 478,865.67 E. 1,633,247.73  
 NAD'83 GEO. LAT-(N) 39.809615 LONG-(W) 80.693408  
 NAD'83 UTM (M) N. 4,406,560.68 E. 526,243.55  
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 NAD'83 UTM (M) N. 4,407,745.8 E. 525,270.2

SCALE 1" = 2000' FILE NO. 8654P15HUR5.dwg  
 HEAVEN HILL 3-15HU REV7  
 DATE AUGUST 26, 2019  
 REVISED 10/23/19, 03/25/20, 07/08/20, 5/24/22  
 OPERATORS WELL NO. HEAVEN HILL 3N-15HU  
 API WELL NO. 47-051-02452  
 STATE COUNTY PERMIT

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



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

COUNTY NAME PERMIT

07/01/2022

HEAVEN HILL 3N LEASE  
 UTICA UNIT - 686.21 AC±  
 WELL 15HU  
 TUG HILL OPERATING



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 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
 slswv.com

LEASE NAME OR NO.	PARCEL	TAG	LESSOR, GRANTOR, ETC	DEED BOOK	PAGE
10*15557	9-7-30	A	RICKY L WHITLATCH ET AL	780	226
10*15557	9-7-21	B	RICKY L WHITLATCH ET AL	780	226
10*15486	9-7-22	C	RICHARD NEAL NORRIS AND CAROL NORRIS, ET AL	905	430
10*15662	9-7-24	D	LARRY LEE CONKLE, ET AL	863	354
10*15746	9-7-23	E	BRUCE D SCHURR, ET AL	921	478
10*15746	9-11-7	F	BRUCE D SCHURR, ET AL	921	478
10*15560	9-11-6.2	G	WILLIAM F KERNS AND JULIE A KERNS, ET AL	677	561
10*15669	9-11-6.1	H	EMMA CATHERINE ANDERSON, ET AL	861	586
10*15667	9-7-19	I	KEVIN E MCGILTON AND TERESA E MCGILTON	850	351
10*15667	9-7-20	J	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	850	351
10*15667	9-7-18	K	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	850	351
10*16471	9-7-2	L	CNX GAS COMPANY LLC	905	155
10*15557	NOT ASSD	M	RICKY L WHITLATCH ET AL	780	226
10*15667	9-7-17	N	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	850	351
10*15557	NOT ASSD	O	RICKY L WHITLATCH ET AL	780	226
10*15665	9-7-1	P	MICHAEL J RINE ET UX	668	147
10*15667	9-7-16	Q	KEVIN E MCGILTON AND TERESA E MCGILTON	850	351
10*15557	9-7-31	R	RICKY L WHITLATCH ET AL	780	226
10*15557	9-7-15	S	RICKY L WHITLATCH ET AL	780	226
10*15558	9-7-14	T	ARNIE AND BOBBIE B GOODNIGHT	777	59
10*21593	9-7-4	U	HELEN R. PAYNE	791	38
10*15521	9-7-3	V	VENANGO 21ST CENTURY ENERGY INC, ET AL	722	281
10*15608	9-7-3	V	CHARLES R HAGEDORN JR	816	423
10*15521	9-7-3.1	W	VENANGO 21ST CENTURY ENERGY INC, ET AL	722	281
10*16923	9-7-3.2	X	CHARLES R HAGEDORN JR ET UX	689	177
10*15558	9-7-5	Y	ARNIE AND BOBBIE B GOODNIGHT	777	59
10*21585	9-5-1	Z	TERRY L AND HARIKLIA HEIDI SAMPSON	852	351
10*21585	9-5-1.1	AA	TERRY L AND HARIKLIA HEIDI SAMPSON	852	351
10*21588	9-5-3	BB	LAWRENCE ALLEN WAYT, ET AL	687	233
10*15482	9-5-4.1	CC	SUSAN NELSON, ET AL	908	203
10*15481	9-5-4	DD	DEAN P RIGBY AND SUSAN RIGBY, ET AL	908	197

FILE NO. 8654P15HUR5.dwg  
 HEAVEN HILL 3N-15HU REV7

DATE AUGUST 26, 20 19

REVISED 10/23/19, 03/25/20, 07/08/20, 05/24/22

OPERATORS WELL NO. HEAVEN HILL 3N-15HU

API WELL NO. 47 — 051 — 02452  
 STATE COUNTY PERMIT



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



P.S.  
 677

*Gregory A. Smith*

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

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

COUNTY NAME

PERMIT

07/01/2022

**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
----------------------	-----------------------	-----------------------	---------	-----------

\*See attached pages

RECEIVED  
Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

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

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

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

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

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

WW - 6A1 Supplement

Well Bore Tracts

Operator's Well No. Heaven Hill 3N - 15HU

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Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

RECEIVED  
Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	DEED BOOK/PAGE	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT
✓ 10*15557	9-7-30	A	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
✓ 10*15557	9-7-21	B	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
✓ 10*15746	9-11-7	F	BRUCE D SCHURR	TH EXPLORATION LLC	1/8+	921 478	N/A	N/A	N/A	N/A
10*16021	9-11-7	F	TOMMY BONAR AND TANYA S BONAR	TH EXPLORATION LLC	1/8+	925 325	N/A	N/A	N/A	N/A
10*16115	9-11-7	F	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	N/A	N/A	N/A
10*16121	9-11-7	F	ISAIAH BENNETT	TH EXPLORATION LLC	1/8+	933 105	N/A	N/A	N/A	N/A
10*16247	9-11-7	F	CAROL RIGGLE PARSLEY AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925 327	N/A	N/A	N/A	N/A
10*17415	9-11-7	F	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 241	N/A	N/A	N/A	N/A
10*17506	9-11-7	F	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919 239	N/A	N/A	N/A	N/A
10*17507	9-11-7	F	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A	N/A	N/A
10*47051.256.1	9-11-7	F	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A	N/A
10*47051.256.7	9-11-7	F	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905 29	N/A	N/A	N/A	N/A
10*47051.256.8	9-11-7	F	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905 31	N/A	N/A	N/A	N/A
10*47051.256.9	9-11-7	F	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905 33	N/A	N/A	N/A	N/A
10*47051.256.10	9-11-7	F	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905 35	N/A	N/A	N/A	N/A
10*47051.256.11	9-11-7	F	JOHN L MASON	TH EXPLORATION LLC	1/8+	905 37	N/A	N/A	N/A	N/A
10*47051.256.12	9-11-7	F	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905 39	N/A	N/A	N/A	N/A
10*47051.256.13	9-11-7	F	WILLIAM W CRAIG	TH EXPLORATION LLC	1/8+	905 41	N/A	N/A	N/A	N/A
10*47051.256.14	9-11-7	F	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905 43	N/A	N/A	N/A	N/A
10*47051.256.15	9-11-7	F	ROY E AND CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904 455	N/A	N/A	N/A	N/A
10*47051.256.16	9-11-7	F	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905 45	N/A	N/A	N/A	N/A
10*47051.256.17	9-11-7	F	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904 457	N/A	N/A	N/A	N/A
10*47051.256.18	9-11-7	F	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A	N/A
10*47051.256.19	9-11-7	F	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907 207	N/A	N/A	N/A	N/A
10*47051.256.20	9-11-7	F	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907 209	N/A	N/A	N/A	N/A
10*47051.256.21	9-11-7	F	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904 626	N/A	N/A	N/A	N/A
10*47051.256.22	9-11-7	F	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913 581	N/A	N/A	N/A	N/A
10*47051.256.23	9-11-7	F	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913 556	N/A	N/A	N/A	N/A
10*47051.256.24	9-11-7	F	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904 628	N/A	N/A	N/A	N/A
✓ 10*15667	9-7-20	J	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850 351	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*15720	9-7-20	J	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905 458	N/A	N/A	N/A	N/A
10*15721	9-7-20	J	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905 456	N/A	N/A	N/A	N/A
10*16020	9-7-20	J	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905 464	N/A	N/A	N/A	N/A
10*16028	9-7-20	J	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905 460	N/A	N/A	N/A	N/A
10*16051	9-7-20	J	DONNA JEAN SNIDER	TH EXPLORATION LLC	1/8+	905 462	N/A	N/A	N/A	N/A
10*16053	9-7-20	J	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905 466	N/A	N/A	N/A	N/A
10*16289	9-7-20	J	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905 468	N/A	N/A	N/A	N/A
10*16412	9-7-20	J	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905 452	N/A	N/A	N/A	N/A

WW - 6A1 Supplement

Well Bore Tracts

Operator's Well No. Heaven Hill 3N - 15HU

RECEIVED  
 Office of Oil and Gas  
 MAY 25 2022  
 WV Department of Environmental Protection

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	DEED BOOK/PAGE	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT
10*16413	9-7-20	J	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905 454	N/A	N/A	N/A	N/A
10*16852	9-7-20	J	KEVIN R DURBIN AND KRISTA A DURBIN	TH EXPLORATION LLC	1/8+	929 312	N/A	N/A	N/A	N/A
10*17622	9-7-20	J	DAVID E HINERMAN JR AN INCARCERATED PER BY & THRU C	TH EXPLORATION LLC	1/8+	929 314	N/A	N/A	N/A	N/A
10*27947	9-7-20	J	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A
10*15667	9-7-18	K	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850 351	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*15720	9-7-18	K	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905 458	N/A	N/A	N/A	N/A
10*15721	9-7-18	K	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905 456	N/A	N/A	N/A	N/A
10*16020	9-7-18	K	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905 464	N/A	N/A	N/A	N/A
10*16028	9-7-18	K	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905 460	N/A	N/A	N/A	N/A
10*16051	9-7-18	K	DONNA JEAN SNIDER	TH EXPLORATION LLC	1/8+	905 462	N/A	N/A	N/A	N/A
10*16053	9-7-18	K	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905 466	N/A	N/A	N/A	N/A
10*16289	9-7-18	K	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905 468	N/A	N/A	N/A	N/A
10*16412	9-7-18	K	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905 452	N/A	N/A	N/A	N/A
10*16413	9-7-18	K	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905 454	N/A	N/A	N/A	N/A
10*16852	9-7-18	K	KEVIN R DURBIN AND KRISTA A DURBIN	TH EXPLORATION LLC	1/8+	929 312	N/A	N/A	N/A	N/A
10*17622	9-7-18	K	DAVID E HINERMAN JR AN INCARCERATED PER BY & THRU C	TH EXPLORATION LLC	1/8+	929 314	N/A	N/A	N/A	N/A
10*27947	9-7-18	K	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A
10*15667	9-7-17	N	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850 351	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*15720	9-7-17	N	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905 458	N/A	N/A	N/A	N/A
10*15721	9-7-17	N	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905 456	N/A	N/A	N/A	N/A
10*16020	9-7-17	N	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905 464	N/A	N/A	N/A	N/A
10*16028	9-7-17	N	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905 460	N/A	N/A	N/A	N/A
10*16051	9-7-17	N	DONNA JEAN SNIDER	TH EXPLORATION LLC	1/8+	905 462	N/A	N/A	N/A	N/A
10*16053	9-7-17	N	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905 466	N/A	N/A	N/A	N/A
10*16289	9-7-17	N	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905 468	N/A	N/A	N/A	N/A
10*16412	9-7-17	N	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905 452	N/A	N/A	N/A	N/A
10*16413	9-7-17	N	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905 454	N/A	N/A	N/A	N/A
10*16852	9-7-17	N	KEVIN R DURBIN AND KRISTA A DURBIN	TH EXPLORATION LLC	1/8+	929 312	N/A	N/A	N/A	N/A
10*17622	9-7-17	N	DAVID E HINERMAN JR AN INCARCERATED PER BY & THRU C	TH EXPLORATION LLC	1/8+	929 314	N/A	N/A	N/A	N/A
10*27947	9-7-17	N	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A
10*15667	9-7-16	Q	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850 351	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*21593	9-7-4	U	HELEN R. PAYNE	CHEVRON USA INC	1/8+	791 38	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 42/435
10*15521	9-7-3	V	VENANGO 21ST CENTURY ENERGY INC	TRIEENERGY HOLDINGS LLC	1/8+	722 281	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/196	NPAR LLC to Chevron USA Inc: 756/332	Chevron USA Inc to TH Exploration LLC: 36/148
10*15608	9-7-3	V	CHARLES R HAGEDORN JR	CHEVRON USA INC	1/8+	816 423	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148



LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	DEED BOOK/PAGE		ASSIGNMENT	ASSIGNMENT	ASSIGNMENT	ASSIGNMENT
10*47051.073.1	9-7-3	V	VENANGO 21ST CENTURY ENERGY INC	TH EXPLORATION LLC	1/8+	888	618	N/A	N/A	N/A	N/A
10*47051.073.2	9-7-3	V	PATRIOT RESTORATIONS LLC	TH EXPLORATION LLC	1/8+	908	541	N/A	N/A	N/A	N/A
10*47051.073.3	9-7-3	V	TRIENERGY HOLDINGS, LLC	TH EXPLORATION LLC	1/8+	878	330	N/A	N/A	N/A	N/A
10*21585	9-5-1	Z	TERRY L AND HARIKLIA HEIDI SAMPSON	CHEVRON USA INC	1/8+	852	351	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*21588	9-5-3	BB	LAWRENCE ALLEN WAYT	CHESAPEAKE APPALACHIA LLC	1/8+	687	233	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/646	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to TH Exploration LLC: 42/435
10*21591	9-5-3	BB	BEATRICE ANN KIDD	CHESAPEAKE APPALACHIA LLC	1/8+	687	230	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/646	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to TH Exploration LLC: 42/435

RECEIVED  
 Office of Oil and Gas  
 MAY 25 2022  
 WV Department of  
 Environmental Protection



May 24, 2022

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

RE: Heaven Hill 3N-15HU

Subject: Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC (THO) will not be crossing any County Routes in the area of the Heaven Hill 3N-15HU well plat.

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

Sincerely,

Amy L. Morris  
Permitting Specialist  
Appalachia Region

RECEIVED  
Office of Oil and Gas  
MAY 25 2022  
WV Department of  
Environmental Protection

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

RECEIVED  
Office of Oil and Gas

Date of Notice Certification: 05/23/2022

MAY 25 2022  
API No. 47- 051 -  
Operator's Well No. Heaven Hill 3N-15HU  
Well Pad Name: Heaven Hill 3  
WV Department of Environmental Protection

**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>526,243.55</u>
County: <u>Marshall</u>		Northing: <u>4,406,560.68</u>
District: <u>Meade</u>	Public Road Access: <u>Yeater Lane (Co. Rt. 21/11)</u>	
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Ricky L. Whitlatch</u>	
Watershed: <u>(HUC 10) Fish Creek</u>		

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

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

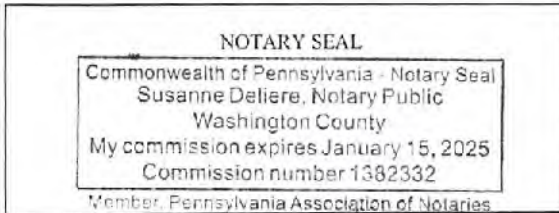
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

07/01/2022

**Certification of Notice is hereby given:**

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

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



Subscribed and sworn before me this 23<sup>rd</sup> day of May, 2022.  
*Susanne Deliere* Notary Public  
 My Commission Expires 1/15/2025

**Oil and Gas Privacy Notice:**

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

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

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

**Date of Notice:** 5/23/2022 **Date Permit Application Filed:** 5/25/2022

Notice of:

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

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

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

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

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

SURFACE OWNER(s)  
 Name: Ricky L. Whittatch  
 Address: 1044 Yeater Lane  
Glen Easton, WV 26039  
 Name: None  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: Marshall County Coal Resources, Inc.  
 Address: 46226 National Road  
St. Clairsville, OH 43950

COAL OPERATOR  
 Name: Same as above coal owner  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: Andrew Whittatch  
 Address: 942 Yeater Lane  
Glen Easton, WV 26039  
 Name: Amie Goodnight, et ux  
 Address: 102 Goodnight Lane  
Moundsville, WV 26041

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
 Name: \*See supplement page 1A attached  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: None  
 Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
 Name: None  
 Address: \_\_\_\_\_

\*Please attach additional forms if necessary

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

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

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

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

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

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

### **Comment Requirements**

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

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

### **Permit Denial or Condition**

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

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

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

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



WW-6A  
(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-15HU  
Well Pad Name: Heaven Hill 3

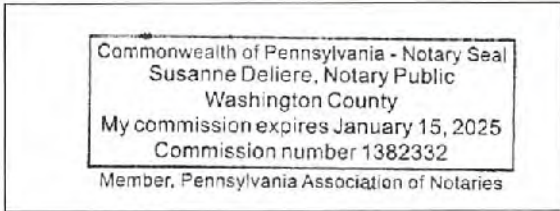
**Notice is hereby given by:**

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

Address: 880 Southpointe Blvd, Southpointe Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 23<sup>rd</sup> day of May, 2022.  
Susanne Deliere Notary Public  
My Commission Expires 1/15/2025

**Exhibit WW-6A**

**Supplement Pg. 1A**

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

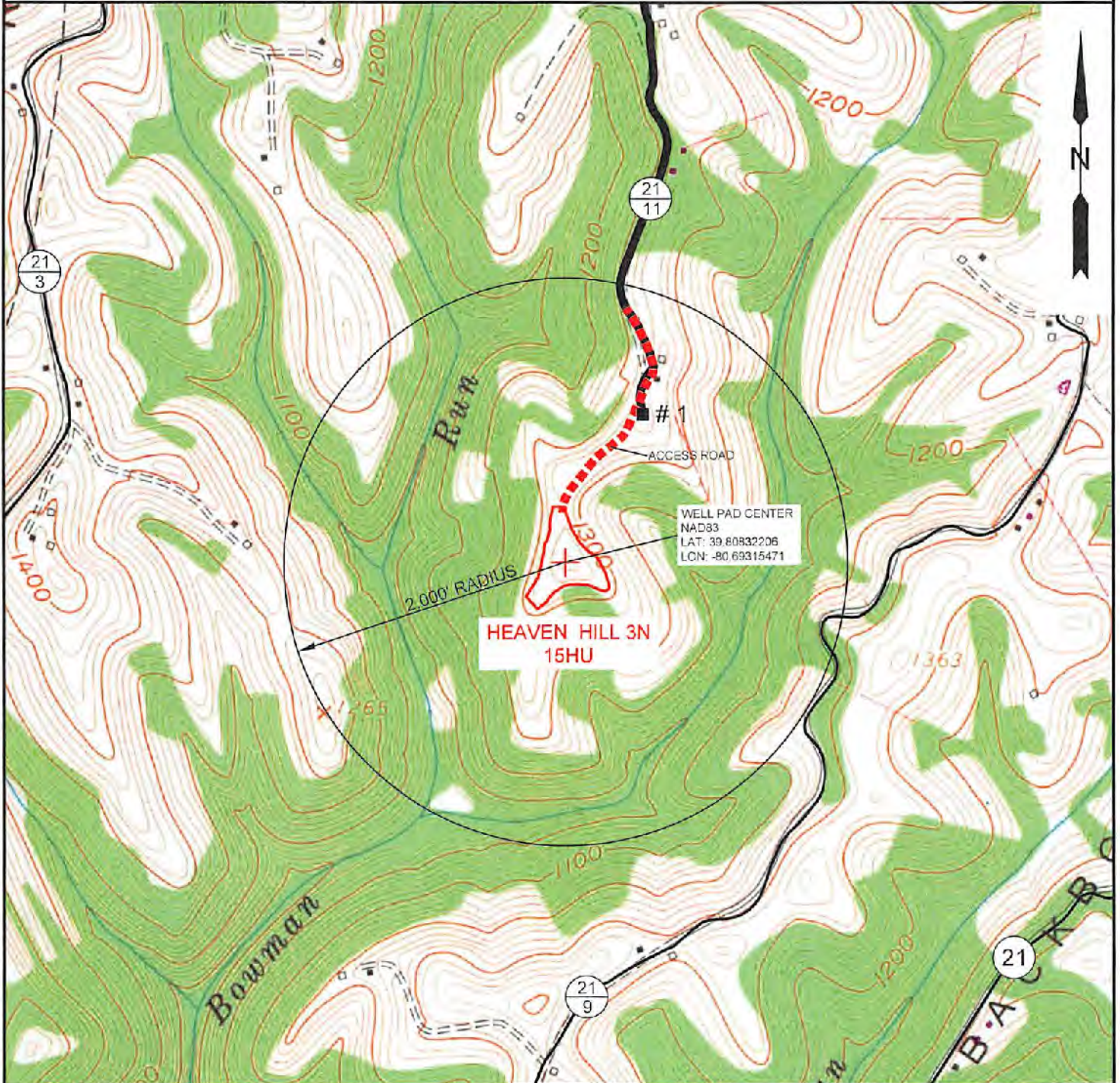
**Residences within Two-Thousand Feet (2,000')**

Well: Heaven Hill 3N – 15HU  
District: Meade (Residence #1)  
State: WV

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

<p><b>Residence (#1)</b> TM 7 Pcl. 30 Ricky L. Whitlatch <b>Phone:</b> 304-843-1168 <b>Physical Address:</b> 1044 Yeater Ln. Glen Easton, WV 26039 <b>Tax Address:</b> Same</p>
---

# PROPOSED HEAVEN HILL 3N - 15HU



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

**SLS**  
Land & Energy Development  
*Solutions from the ground up.*  
P.O. Box 150 • 12 Venhorn Drive • Glenville, WV 26361 • (304) 462-5634  
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/21/2019	1" = 100'

**TUG HILL**  
OPERATING

07/01/2022

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

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

**Notice Time Requirement:** Notice shall be provided at least **TEN (10)** days prior to filing a permit application.  
**Date of Notice:** 03/18/2022      **Date Permit Application Filed:** 03/28/2022

**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: Ricky L. Whitlatch  
Address: 1044 Yeater Lane  
Glen Easton, WV 26039

Name: Andrew Whitlatch  
Address: 942 Yeater Lane  
Glen Easton, WV 26039 \*See attached sheet

**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>528,243.55</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,560.68</u>
District:	<u>Meade</u>	Public Road Access:	<u>Yeater Lane CR 21/11</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Ricky L. Whitlatch</u>	
Watershed:	<u>Fish Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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  
Canonsburg, PA 15317  
Telephone: 724-749-8388  
Email: amorris@tug-hillop.com  
Facsimile: \_\_\_\_\_

Authorized Representative: Darren Brown  
Address: 5098 Washington Street W, Suite 407  
Charleston, WV 25313-1581  
Telephone: 877-467-3525  
Email: ct-statecommunications@wolterskluwer.com  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

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

**Additional WW-6A4 Notice  
Heaven Hill 3**

Arnie Goodnight, et ux /  
102 Goodnight Lane  
Moundsville, WV 26041

**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:** 05/23/2022      **Date Permit Application Filed:** 05/25/2022

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

- CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

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

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

(at the address listed in the records of the sheriff at the time of notice):

Name: Ricky L. Whittlatch  
Address: 1044 Yeater Lane  
Glen Easton, WV 26039

Name: Andrew Whittlatch  
Address: 942 Yeater Lane  
Glen Easton, WV 26039 \*\*See Attached\*\*

**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>526,243.55</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,560.68</u>
District:	<u>Meade</u>	Public Road Access:	<u>Yeater Lane (Co. Rt. 21/11)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Ricky L. Whittlatch</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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: amonis@tug-hill-op.com

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

**Oil and Gas Privacy Notice:**

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

**WW-6A5 Notice of Entry for Plat Survey ..... Attachment 1 of 1**

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

**Name:** Arnie Goodnight, et ux  
**Address:** 102 Goodnight Lane ✓  
Moundsville, WV 26041



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

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

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

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

January 24, 2022

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

Subject: DOH Permit for the Heaven Hill 3 Pad, Marshall County  
Heaven Hill 3N-15HU Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2017-0126 which has been issued to Tug Hill Operating LLC for access to the State Road for a well site located off Marshall County Route 21/11 SLS MP 0.89.

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

Very Truly Yours,

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

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

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





# TUG HILL

## PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

### Heaven Hill 3 Wells

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



**WVDEP OOG**  
**ACCEPTED AS-BUILT**  
*[Signature]*  
6/13/2022

# Heaven Hill 3 Site

Site Design, Construction Plan, & Erosion and Sediment Control Plans  
Tug Hill Operating  
Marshall County  
Meade District  
Latitude 39.80832206°  
Longitude -80.69315471°  
Middle Fish Creek Watershed

**Pertinent Site Information**  
Heaven Hill 3 Site  
Emergency Number: 304-845-1920  
Meade District, Marshall County, WV  
Watershed: Middle Fish Creek Watershed  
Tug Hill Contact Number: 1-817-632-5400

## Exhibit A: As-Built

Section	Station	Notes
Station 1	1+00	Left of Right-of-Way
	1+25	Right of Way
	1+50	Right of Way
	1+75	Right of Way
Station 2	2+00	Right of Way
	2+25	Right of Way
	2+50	Right of Way
	2+75	Right of Way
Station 3	3+00	Right of Way
	3+25	Right of Way
	3+50	Right of Way
	3+75	Right of Way
Station 4	4+00	Right of Way
	4+25	Right of Way
	4+50	Right of Way
	4+75	Right of Way



**Property Owner Information - Heaven Hill 3 Site**

Owner	Acres	Parcel ID
WV State	1.20	1-000000000000000000
WV State	1.20	1-000000000000000000
WV State	1.20	1-000000000000000000
WV State	1.20	1-000000000000000000
WV State	1.20	1-000000000000000000
WV State	1.20	1-000000000000000000

**Arrow Road**

Station	Station	Station	Station
1+00	1+25	1+50	1+75

**Disturbed Area**

Category	Area (Acres)
WV State	1.20
WV State	1.20
WV State	1.20
WV State	1.20
WV State	1.20

**Heaven Hill 3 Site Quantities**

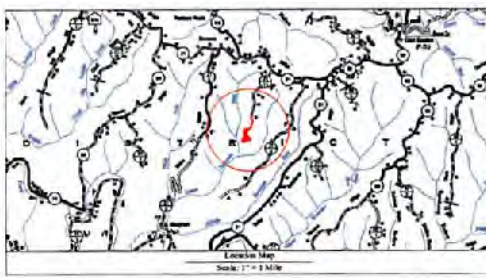
Category	Quantity
WV State	1.20
WV State	1.20
WV State	1.20
WV State	1.20
WV State	1.20

**Project Contacts**

Role	Name	Contact Information
Client	WV State	[Contact Info]
Contractor	[Name]	[Contact Info]
Engineer	[Name]	[Contact Info]

**New Locations (NAD 83)**

Station	Latitude (NAD 83)	Longitude (NAD 83)
1+00	39.80832206	-80.69315471
1+25	39.80832206	-80.69315471
1+50	39.80832206	-80.69315471
1+75	39.80832206	-80.69315471



**WV License Book Notice**

All plans submitted to the engineer with the following information:

- All work shown on this plan is to be constructed in accordance with the provisions of the contract.
- All work shown on this plan is to be constructed in accordance with the provisions of the contract.
- All work shown on this plan is to be constructed in accordance with the provisions of the contract.

**WV License Book Notice**

All plans submitted to the engineer with the following information:

- All work shown on this plan is to be constructed in accordance with the provisions of the contract.
- All work shown on this plan is to be constructed in accordance with the provisions of the contract.
- All work shown on this plan is to be constructed in accordance with the provisions of the contract.

Sheet	Description
1	Cover Sheet
2	Site Notes
3	Site Notes
4	Site Notes
5	Overall Plan View
6	Plan View
7	Cross Sections - We-B Pad
8	Cross Sections - Access Road
9	Cross Sections - Additional Access Road
10	Cross Sections - Additional Access Road
11	Cross Sections - Additional Access Road
12	Cross Sections - Additional Access Road
13	Construction Details
14	Construction Details
15	Construction Details
16	Construction Details
17	Construction Details
18	Construction Details
19	Construction Details
20	Construction Details

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The WV State is hereby notified that the work shown on this plan is to be constructed in accordance with the provisions of the contract.

**Final Construction Conditions**

Item	Condition
Clearance	As Shown
Grading	As Shown
Drainage	As Shown
Erosion Control	As Shown

**TUG HILL OPERATING**

**Heaven Hill 3 Site**  
Meade District  
Marshall County, WV

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

**KS**  
K&S ENGINEERS

Date: 11/15/2021  
Scale: As Shown  
Designed By: JH  
Site No:  
Sheet 1 of 11

