



west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Thursday, June 30, 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-16HU
47-051-02453-00-00

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 blue ink signature of James A. Martin, Chief, is written over a white background.

James A. Martin
Chief

Operator's Well Number: HEAVEN HILL 3N-16HU
Farm Name: ANDREW C WHITLATCH ET AL
U.S. WELL NUMBER: 47-051-02453-00-00
Horizontal 6A New Drill
Date Issued: 6/30/2022

Promoting a healthy environment.

07/01/2022



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

June 14, 2022

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

RE: Application for Deep Well Permit – API #47-051-02453

COMPANY: Tug Hill Operating, LLC

FARM: Andrew C. Whitlatch, et ux

Heaven Hill 3N-16HU

COUNTY: Marshall

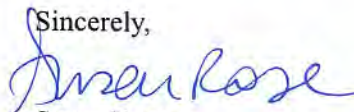
DISTRICT: Meade

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-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-15HU 47-051-02452

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

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.

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-16HU Well Pad Name: Heaven Hill 3

3) Farm Name/Surface Owner: Ricky L. Whitlatch 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

Stacy L. ...
5-17-22 *MSJK*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,651' - 11,773', thickness of 122' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,923'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 19,738'

11) Proposed Horizontal Leg Length: 7,180.22'

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.

WW-6B
(04/15)

API NO. 47-051 -
 OPERATOR WELL NO. Heaven Hill 3N-16HU
 Well Pad Name: Heaven Hill 3

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#	2,852'	2,852'	2,010FT^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	10,966'	10,966'	3,576FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	19,738'	19,738'	4,708FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,614'	
Liners							

Signature
5-17-22. *PSK*

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

PACKERS

Kind:	N/A			
Sizes:	N/A			
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 (11,114'). 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 17,947,500 lb. proppant and 277,481 bbl of water. Max rate = 80bpm; max psi = 9,000#.

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.

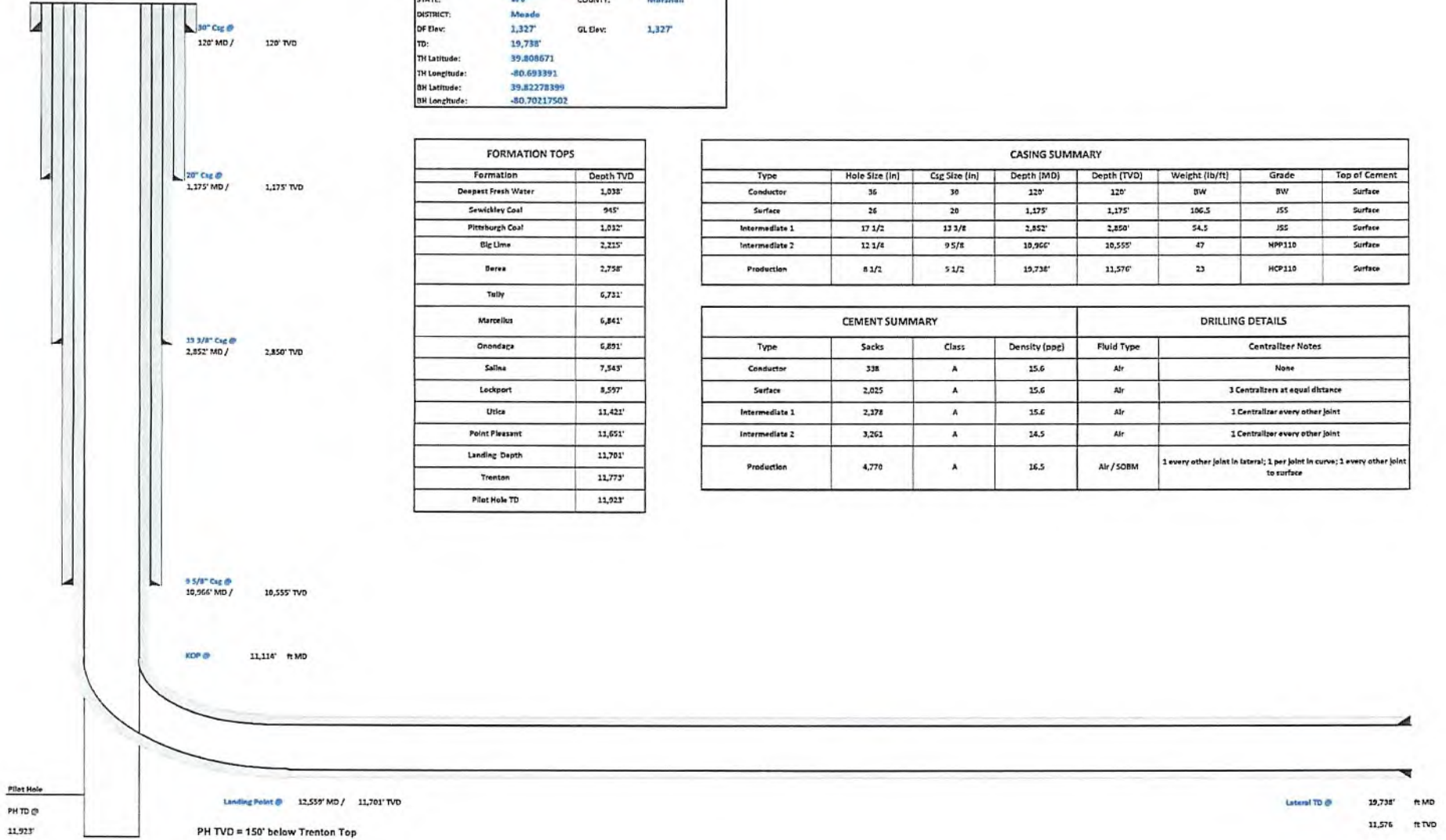


WELL NAME: **Heaven Hill 3 H-16HJ**
 STATE: **WV** COUNTY: **Marshall**
 DISTRICT: **Meade**
 DF Elev: **1,327'** GL Elev: **1,327'**
 TD: **19,738'**
 TH Latitude: **39.808671**
 TH Longitude: **-80.693391**
 BH Latitude: **39.82278399**
 BH Longitude: **-80.70217502**

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1,038'
Sewickley Coal	945'
Pittsburgh Coal	1,032'
Big Lime	2,215'
Berea	2,758'
Tully	6,721'
Marcellus	6,841'
Onondaga	6,891'
Salina	7,543'
Lockport	8,597'
Utica	11,422'
Point Pleasant	11,651'
Landing Depth	11,701'
Trenton	11,773'
Pilot Hole TD	11,923'

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	2,852'	2,850'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,966'	10,555'	47	NPP110	Surface
Production	8 1/2	5 1/2	19,738'	11,576'	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	2,378	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	3,261	A	14.5	Air	1 Centralizer every other joint
Production	4,770	A	16.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface





Tug Hill Operating, LLC Casing and Cement Program

Heaven Hill 3 N-16HU

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"	2,852'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,966'	CTS
Production	5 1/2"	HCP110	8 1/2"	19,738'	CTS

Cement

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

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

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

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

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

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

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 23RD day of May, 2017.

Ricky L Whitlatch
Ricky L. Whitlatch

Marshall County
Jan Pest: 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

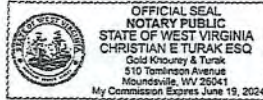
SS:

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 purposed therein contained.

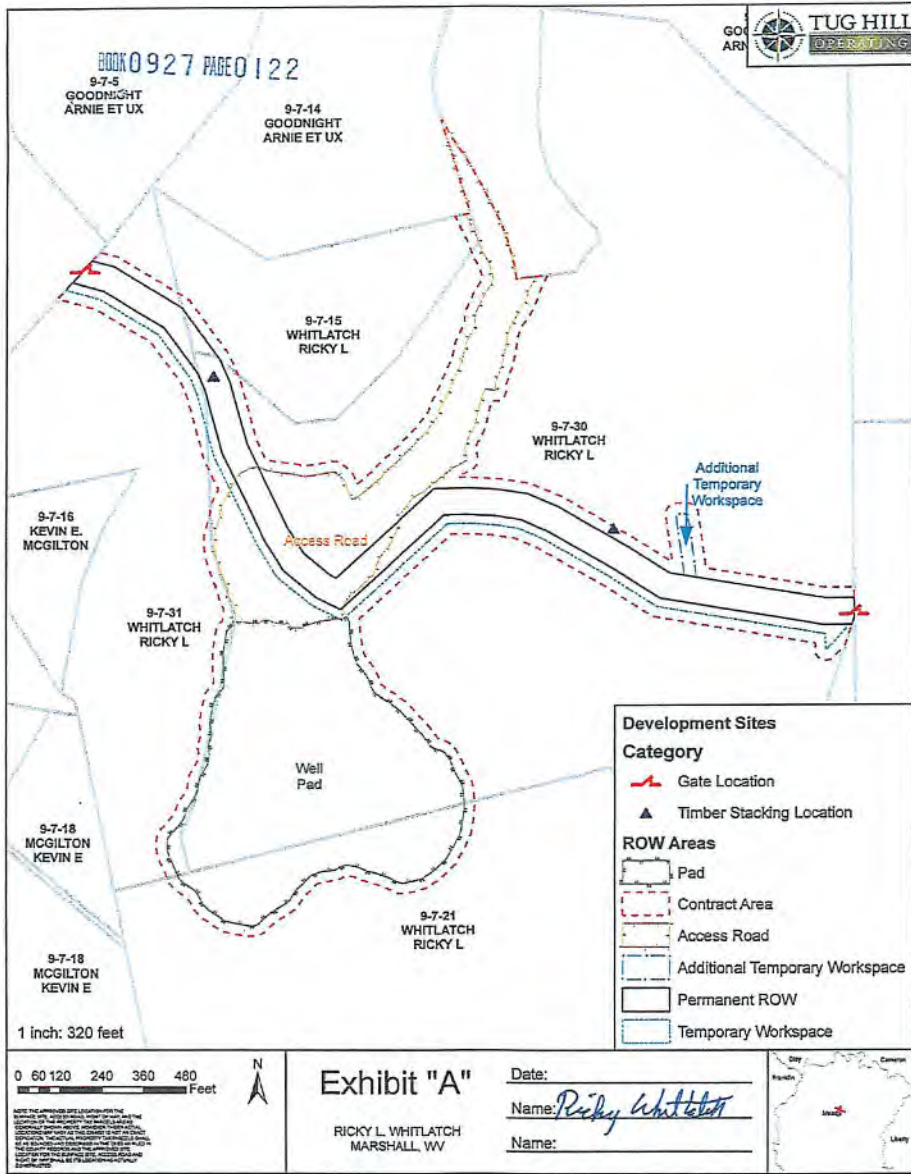
IN WITNESS WHEREOF, I hereunto set my hand and official seal.

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 57th 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 23rd 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 30th 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 3N-16 HU (C)
 Site: Heaven Hill 3
 Project: Marshall County, West Virginia.
 Design: rev6

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

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

Northing 14457211.51 Easting 1726522.05 Latitude 39.80867100 Longitude -80.69338100

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.956°

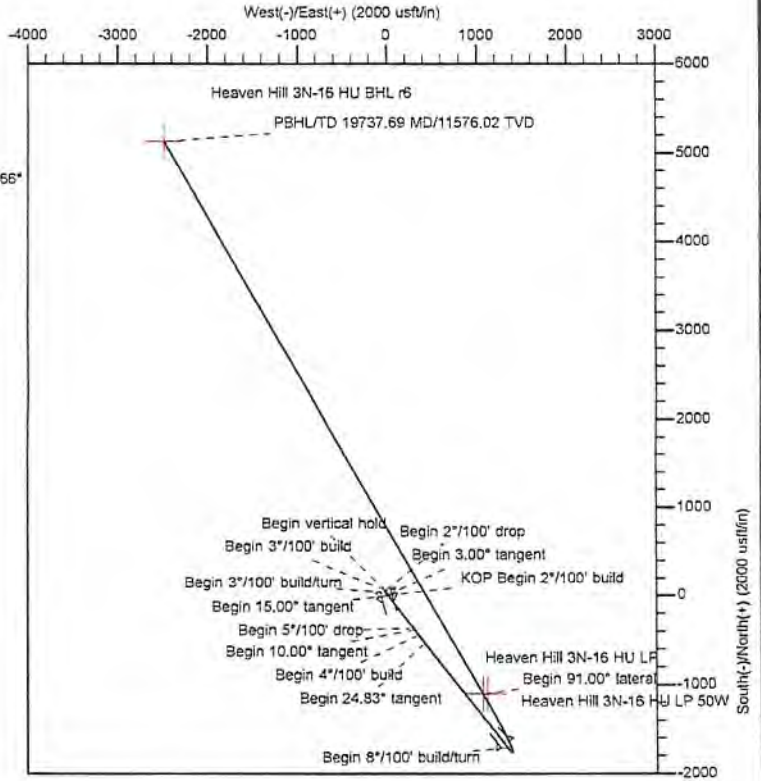
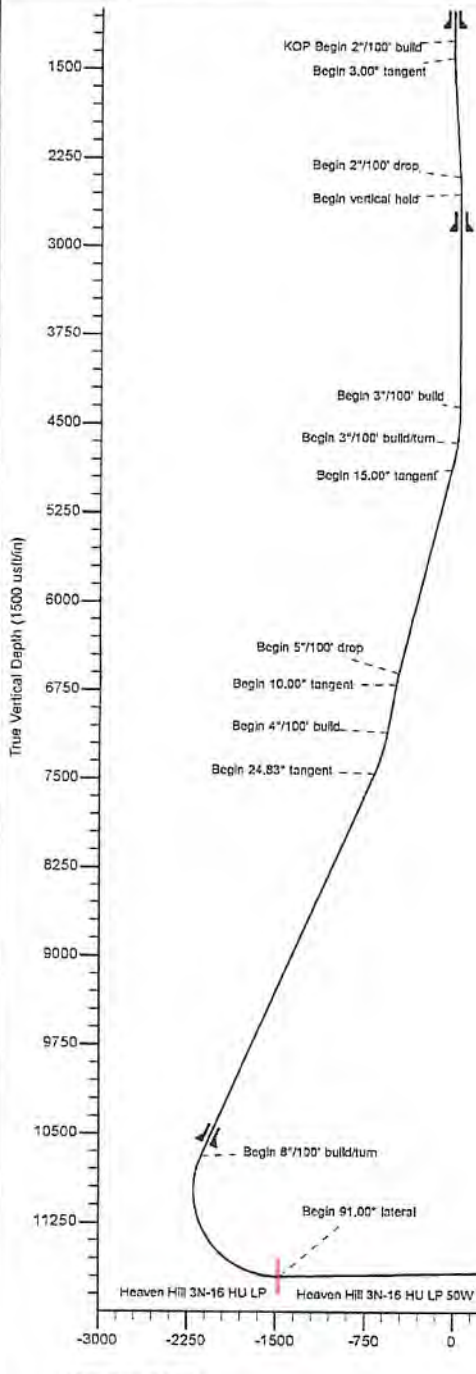


Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.97°

Magnetic Field
 Strength: 51920.0snT
 Dip Angle: 66.79°
 Date: 8/26/2019
 Model: IGRF2015

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	1250.00	0.00	0.00	1250.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1400.00	3.00	345.00	1399.93	3.79	-1.02	2.00	345.000	3.86	Begin 3.00° tangent
4	2400.00	3.00	345.00	2398.56	54.34	-14.56	0.00	0.000	55.26	Begin 2°/100' drop
5	2550.00	0.00	345.00	2548.49	58.14	-15.58	2.00	180.000	59.12	Begin vertical hold
6	4351.51	0.00	345.00	4350.00	58.14	-15.58	0.00	345.000	59.12	Begin 3°/100' build
7	4651.51	9.00	160.00	4648.77	36.04	-7.54	3.00	160.000	35.72	Begin 3°/100' build/turn
8	4884.01	15.00	142.27	4876.16	-4.90	17.13	3.00	-40.469	-11.87	Begin 15.00° tangent
9	6568.66	15.00	142.27	6500.00	-370.21	299.78	0.00	0.000	-463.85	Begin 5°/100' drop
10	6768.66	10.00	142.27	6697.60	-387.33	313.02	5.00	180.000	-485.02	Begin 10.00° tangent
11	7177.27	10.00	142.27	7100.00	-443.44	356.44	0.00	0.000	-564.45	Begin 4°/100' build
12	7548.02	24.83	142.27	7452.77	-530.96	424.15	4.00	0.008	-662.73	Begin 24.83° tangent
13	11114.25	24.83	142.27	10589.33	-1715.45	1340.47	0.00	0.000	-2128.14	Begin 8°/100' build/turn
14	12558.81	91.00	330.32	11701.00	-1105.65	1069.87	8.00	-171.073	-1461.36	Begin 91.00° lateral
15	19737.69	91.00	330.32	11576.02	5130.63	-2483.94	0.00	0.000	5700.29	PBHL/TD



Vertical Section at 334.17° (1500 usft/in)



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-16 HU (C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-16 HU (C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev6		

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	Latitude:	39.80858060
From:	Lat/Long	Easting:	1,726,571.98 usft	Longitude:	-80.69321360
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.196 °

Well	Heaven Hill 3N-16 HU (C)					
Well Position	+N/-S	0.00 usft	Northing:	14,457,211.51 usft	Latitude:	39.80867100
	+E/-W	0.00 usft	Easting:	1,726,522.05 usft	Longitude:	-80.69339100
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	1,326.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/29/2019	-8.770	66.787	51,928.96514748

Design	rev6			
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	334.17

Plan Survey Tool Program	Date	3/16/2020		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,737.69 rev6 (Original Hole)	MWD MWD - Standard	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-16 HU (C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-16 HU (C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev6		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Bulld 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	0.000	
1,250.00	0.00	0.00	1,250.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,400.00	3.00	345.00	1,399.93	3.79	-1.02	2.00	2.00	0.00	345.000	
2,400.00	3.00	345.00	2,398.56	54.34	-14.56	0.00	0.00	0.00	0.000	
2,550.00	0.00	345.00	2,548.49	58.14	-15.58	2.00	-2.00	0.00	180.000	
4,351.51	0.00	345.00	4,350.00	58.14	-15.58	0.00	0.00	0.00	345.000	
4,651.51	9.00	160.00	4,648.77	36.04	-7.54	3.00	3.00	0.00	160.000	
4,884.01	15.00	142.27	4,876.16	-4.90	17.13	3.00	2.58	-7.63	-40.469	
6,668.66	15.00	142.27	6,600.00	-370.21	299.78	0.00	0.00	0.00	0.000	
6,768.66	10.00	142.27	6,697.60	-387.33	313.02	5.00	-5.00	0.00	180.000	
7,177.27	10.00	142.27	7,100.00	-443.44	356.44	0.00	0.00	0.00	0.000	
7,548.02	24.83	142.27	7,452.77	-530.96	424.15	4.00	4.00	0.00	0.008	
11,114.25	24.83	142.27	10,689.33	-1,715.46	1,340.47	0.00	0.00	0.00	0.000	
12,558.81	91.00	330.32	11,701.00	-1,105.65	1,069.87	8.00	4.58	-11.90	-171.073	Heaven Hill 3N-16 HL
19,737.69	91.00	330.32	11,576.02	5,130.63	-2,483.94	0.00	0.00	0.00	0.000	Heaven Hill 3N-16 HL



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Heaven Hill 3
 Well: Heaven Hill 3N-16 HU (C)
 Wellbore: Original Hole
 Design: rev6

Local Co-ordinate Reference: Well Heaven Hill 3N-16 HU (C)
 TVD Reference: GL @ 1326.00usft
 MD Reference: GL @ 1326.00usft
 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
0.00	0.00	0.00	0.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
100.00	0.00	0.00	100.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
120.00	0.00	0.00	120.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
200.00	0.00	0.00	200.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
300.00	0.00	0.00	300.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
400.00	0.00	0.00	400.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
500.00	0.00	0.00	500.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
600.00	0.00	0.00	600.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
700.00	0.00	0.00	700.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
800.00	0.00	0.00	800.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
900.00	0.00	0.00	900.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
1,130.00	0.00	0.00	1,130.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
1,250.00	0.00	0.00	1,250.00	0.00	0.00	14,457,211.51	1,726,522.05	39.80867100	-80.69339100
KOP Begin 2*/100' build									
1,300.00	1.00	345.00	1,300.00	0.42	-0.11	14,457,211.93	1,726,521.94	39.80867216	-80.69339140
1,400.00	3.00	345.00	1,399.93	3.79	-1.02	14,457,215.31	1,726,521.03	39.80868143	-80.69339457
Begin 3.00° tangent									
1,500.00	3.00	345.00	1,499.79	8.85	-2.37	14,457,220.36	1,726,519.68	39.80869532	-80.69339933
1,600.00	3.00	345.00	1,599.66	13.90	-3.73	14,457,225.42	1,726,518.33	39.80870922	-80.69340410
1,700.00	3.00	345.00	1,699.52	18.96	-5.08	14,457,230.47	1,726,516.97	39.80872311	-80.69340886
1,800.00	3.00	345.00	1,799.38	24.01	-6.43	14,457,235.53	1,726,515.62	39.80873701	-80.69341362
1,900.00	3.00	345.00	1,899.25	29.07	-7.79	14,457,240.58	1,726,514.26	39.80875090	-80.69341838
2,000.00	3.00	345.00	1,999.11	34.12	-9.14	14,457,245.64	1,726,512.91	39.80876480	-80.69342314
2,100.00	3.00	345.00	2,098.97	39.18	-10.50	14,457,250.69	1,726,511.55	39.80877870	-80.69342790
2,200.00	3.00	345.00	2,198.84	44.23	-11.85	14,457,255.75	1,726,510.20	39.80879259	-80.69343267
2,300.00	3.00	345.00	2,298.70	49.29	-13.21	14,457,260.80	1,726,508.84	39.80880649	-80.69343743
2,400.00	3.00	345.00	2,398.56	54.34	-14.56	14,457,265.86	1,726,507.49	39.80882038	-80.69344219
Begin 2*/100' drop									
2,500.00	1.00	345.00	2,498.50	57.72	-15.46	14,457,269.23	1,726,506.59	39.80882965	-80.69344536
2,550.00	0.00	0.00	2,548.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
Begin vertical hold									
2,600.00	0.00	345.00	2,598.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
2,700.00	0.00	345.00	2,698.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
2,800.00	0.00	345.00	2,798.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
2,851.51	0.00	345.00	2,850.00	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
2,900.00	0.00	345.00	2,898.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,000.00	0.00	345.00	2,998.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,100.00	0.00	345.00	3,098.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,200.00	0.00	345.00	3,198.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,300.00	0.00	345.00	3,298.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,400.00	0.00	345.00	3,398.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,500.00	0.00	345.00	3,498.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,600.00	0.00	345.00	3,598.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,700.00	0.00	345.00	3,698.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,800.00	0.00	345.00	3,798.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
3,900.00	0.00	345.00	3,898.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
4,000.00	0.00	345.00	3,998.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
4,100.00	0.00	345.00	4,098.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
4,200.00	0.00	345.00	4,198.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
4,300.00	0.00	345.00	4,298.49	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Heaven Hill 3
 Well: Heaven Hill 3N-16 HU (C)
 Wellbore: Original Hole
 Design: rev6

Local Co-ordinate Reference: Well Heaven Hill 3N-16 HU (C)
 TVD Reference: GL @ 1326.00usft
 MD Reference: GL @ 1326.00usft
 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
4,351.51	0.00	345.00	4,350.00	58.14	-15.58	14,457,269.65	1,726,506.47	39.80883081	-80.69344576
Begin 3°/100' build									
4,400.00	1.45	160.00	4,398.49	57.56	-15.37	14,457,269.07	1,726,508.68	39.80882922	-80.69344502
4,500.00	4.45	160.00	4,498.34	52.72	-13.60	14,457,264.23	1,726,508.45	39.80881590	-80.69343880
4,600.00	7.45	160.00	4,597.79	42.97	-10.06	14,457,254.48	1,726,511.99	39.80878910	-80.69342629
4,651.51	9.00	160.00	4,648.77	36.04	-7.54	14,457,247.55	1,726,514.52	39.80877005	-80.69341739
Begin 3°/100' build/tum									
4,700.00	10.15	154.64	4,696.58	28.82	-4.41	14,457,240.13	1,726,517.64	39.80874963	-80.69340635
4,800.00	12.72	146.76	4,794.60	11.44	5.40	14,457,222.95	1,726,527.45	39.80870237	-80.69337162
4,884.01	15.00	142.27	4,876.16	-4.89	17.13	14,457,206.62	1,726,539.18	39.80865740	-80.69333008
Begin 15.00° tangent									
4,900.00	15.00	142.27	4,891.60	-8.17	19.66	14,457,203.35	1,726,541.71	39.80864839	-80.69332110
5,000.00	15.00	142.27	4,988.20	-28.64	35.50	14,457,182.88	1,726,557.55	39.80859202	-80.69326495
5,100.00	15.00	142.27	5,084.79	-49.11	51.34	14,457,162.41	1,726,573.39	39.80853566	-80.69320880
5,200.00	15.00	142.27	5,181.38	-69.58	67.17	14,457,141.93	1,726,589.22	39.80847929	-80.69315266
5,300.00	15.00	142.27	5,277.97	-90.05	83.01	14,457,121.46	1,726,605.06	39.80842293	-80.69309651
5,400.00	15.00	142.27	5,374.57	-110.52	98.85	14,457,100.99	1,726,620.90	39.80836656	-80.69304036
5,500.00	15.00	142.27	5,471.16	-130.99	114.69	14,457,080.52	1,726,636.74	39.80831020	-80.69298422
5,600.00	15.00	142.27	5,567.75	-151.46	130.53	14,457,060.05	1,726,652.58	39.80825383	-80.69292807
5,700.00	15.00	142.27	5,664.34	-171.93	146.36	14,457,039.58	1,726,668.42	39.80819747	-80.69287192
5,800.00	15.00	142.27	5,760.94	-192.40	162.20	14,457,019.11	1,726,684.25	39.80814110	-80.69281578
5,900.00	15.00	142.27	5,857.53	-212.87	178.04	14,456,998.64	1,726,700.09	39.80808474	-80.69275963
6,000.00	15.00	142.27	5,954.12	-233.34	193.88	14,456,978.17	1,726,715.93	39.80802837	-80.69270349
6,100.00	15.00	142.27	6,050.72	-253.81	209.72	14,456,957.70	1,726,731.77	39.80797201	-80.69264734
6,200.00	15.00	142.27	6,147.31	-274.28	225.56	14,456,937.23	1,726,747.61	39.80791564	-80.69259119
6,300.00	15.00	142.27	6,243.90	-294.75	241.39	14,456,916.76	1,726,763.44	39.80785928	-80.69253505
6,400.00	15.00	142.27	6,340.49	-315.22	257.23	14,456,896.29	1,726,779.28	39.80780291	-80.69247890
6,500.00	15.00	142.27	6,437.09	-335.69	273.07	14,456,875.82	1,726,795.12	39.80774654	-80.69242276
6,600.00	15.00	142.27	6,533.68	-356.16	288.91	14,456,855.35	1,726,810.96	39.80769018	-80.69236661
6,668.66	15.00	142.27	6,600.00	-370.21	299.78	14,456,841.30	1,726,821.83	39.80765148	-80.69232806
Begin 5°/100' drop									
6,700.00	13.43	142.27	6,630.38	-376.30	304.49	14,456,835.21	1,726,826.54	39.80763472	-80.69231137
6,768.66	10.00	142.27	6,697.60	-387.33	313.02	14,456,824.19	1,726,835.07	39.80760436	-80.69228112
Begin 10.00° tangent									
6,800.00	10.00	142.27	6,728.46	-391.63	316.35	14,456,819.88	1,726,838.40	39.80759251	-80.69226932
6,900.00	10.00	142.27	6,826.94	-405.36	328.88	14,456,806.15	1,726,849.03	39.80755469	-80.69223165
7,000.00	10.00	142.27	6,925.42	-419.10	337.61	14,456,792.41	1,726,859.66	39.80751687	-80.69219398
7,100.00	10.00	142.27	7,023.90	-432.83	348.23	14,456,778.68	1,726,870.28	39.80747905	-80.69215631
7,177.27	10.00	142.27	7,100.00	-443.44	356.44	14,456,768.07	1,726,878.49	39.80744983	-80.69212720
Begin 4°/100' build									
7,200.00	10.91	142.27	7,122.35	-446.71	358.97	14,456,764.81	1,726,881.02	39.80744085	-80.69211826
7,300.00	14.91	142.27	7,218.80	-464.37	372.64	14,456,747.14	1,726,894.69	39.80739221	-80.69206981
7,400.00	18.91	142.27	7,315.46	-487.37	390.43	14,456,724.14	1,726,912.48	39.80732887	-80.69200673
7,500.00	22.91	142.27	7,408.86	-515.60	412.26	14,456,695.92	1,726,934.31	39.80725116	-80.69192933
7,548.02	24.83	142.27	7,452.77	-530.96	424.15	14,456,680.55	1,726,946.20	39.80720884	-80.69188719
Begin 24.83° tangent									
7,600.00	24.83	142.27	7,499.94	-548.23	437.51	14,456,663.28	1,726,959.56	39.80716130	-80.69183984
7,700.00	24.83	142.27	7,590.70	-581.44	463.20	14,456,630.07	1,726,985.25	39.80706985	-80.69174876
7,800.00	24.83	142.27	7,681.45	-614.66	488.90	14,456,596.86	1,727,010.95	39.80697839	-80.69165768
7,800.00	24.83	142.27	7,772.21	-647.87	514.59	14,456,563.64	1,727,036.64	39.80688693	-80.69156659
8,000.00	24.83	142.27	7,862.97	-681.09	540.28	14,456,530.43	1,727,062.34	39.80679547	-80.69147551
8,100.00	24.83	142.27	7,953.72	-714.30	565.98	14,456,497.21	1,727,088.03	39.80670402	-80.69138443
8,200.00	24.83	142.27	8,044.48	-747.51	591.67	14,456,464.00	1,727,113.72	39.80661256	-80.69129335
8,300.00	24.83	142.27	8,135.23	-780.73	617.37	14,456,430.78	1,727,139.42	39.80652110	-80.69120226



Planning Report - Geographic

Database:	DB_Aug1918_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-16 HU (C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-16 HU (C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,400.00	24.83	142.27	8,225.99	-813.94	643.06	14,456,397.57	1,727,165.11	39.80642964	-80.69111118	
8,500.00	24.83	142.27	8,316.75	-847.16	668.76	14,456,364.36	1,727,190.81	39.80633818	-80.69102010	
8,600.00	24.83	142.27	8,407.50	-880.37	694.45	14,456,331.14	1,727,216.50	39.80624673	-80.69092902	
8,700.00	24.83	142.27	8,498.26	-913.59	720.15	14,456,297.93	1,727,242.20	39.80615527	-80.69083794	
8,800.00	24.83	142.27	8,589.01	-946.80	745.84	14,456,264.71	1,727,267.89	39.80606381	-80.69074686	
8,900.00	24.83	142.27	8,679.77	-980.01	771.53	14,456,231.50	1,727,293.59	39.80597235	-80.69065578	
9,000.00	24.83	142.27	8,770.52	-1,013.23	797.23	14,456,198.28	1,727,319.28	39.80588089	-80.69056470	
9,100.00	24.83	142.27	8,861.28	-1,046.44	822.92	14,456,165.07	1,727,344.97	39.80578943	-80.69047362	
9,200.00	24.83	142.27	8,952.04	-1,079.66	848.62	14,456,131.86	1,727,370.67	39.80569798	-80.69038254	
9,300.00	24.83	142.27	9,042.79	-1,112.87	874.31	14,456,098.64	1,727,396.36	39.80560652	-80.69029146	
9,400.00	24.83	142.27	9,133.55	-1,146.09	900.01	14,456,065.43	1,727,422.06	39.80551506	-80.69020038	
9,500.00	24.83	142.27	9,224.30	-1,179.30	925.70	14,456,032.21	1,727,447.75	39.80542360	-80.69010930	
9,600.00	24.83	142.27	9,315.06	-1,212.51	951.40	14,455,999.00	1,727,473.45	39.80533214	-80.69001822	
9,700.00	24.83	142.27	9,405.81	-1,245.73	977.09	14,455,965.78	1,727,499.14	39.80524068	-80.68992714	
9,800.00	24.83	142.27	9,496.57	-1,278.94	1,002.78	14,455,932.57	1,727,524.83	39.80514922	-80.68983606	
9,900.00	24.83	142.27	9,587.33	-1,312.16	1,028.48	14,455,899.36	1,727,550.53	39.80505776	-80.68974498	
10,000.00	24.83	142.27	9,678.08	-1,345.37	1,054.17	14,455,866.14	1,727,576.22	39.80496630	-80.68965391	
10,100.00	24.83	142.27	9,768.84	-1,378.59	1,079.87	14,455,832.93	1,727,601.92	39.80487485	-80.68956283	
10,200.00	24.83	142.27	9,859.59	-1,411.80	1,105.56	14,455,799.71	1,727,627.61	39.80478339	-80.68947175	
10,300.00	24.83	142.27	9,950.35	-1,445.01	1,131.26	14,455,766.50	1,727,653.31	39.80469193	-80.68938067	
10,400.00	24.83	142.27	10,041.11	-1,478.23	1,156.95	14,455,733.28	1,727,679.00	39.80460047	-80.68928960	
10,500.00	24.83	142.27	10,131.86	-1,511.44	1,182.64	14,455,700.07	1,727,704.70	39.80450901	-80.68919852	
10,600.00	24.83	142.27	10,222.62	-1,544.66	1,208.34	14,455,666.86	1,727,730.39	39.80441755	-80.68910744	
10,700.00	24.83	142.27	10,313.37	-1,577.87	1,234.03	14,455,633.64	1,727,756.08	39.80432609	-80.68901637	
10,800.00	24.83	142.27	10,404.13	-1,611.09	1,259.73	14,455,600.43	1,727,781.78	39.80423463	-80.68892529	
10,900.00	24.83	142.27	10,494.88	-1,644.30	1,285.42	14,455,567.21	1,727,807.47	39.80414317	-80.68883422	
10,991.58	24.83	142.27	10,578.00	-1,674.72	1,308.95	14,455,536.79	1,727,831.00	39.80405941	-80.68874314	
11,000.00	24.83	142.27	10,585.64	-1,677.51	1,311.12	14,455,534.00	1,727,833.17	39.80405171	-80.68874314	
11,100.00	24.83	142.27	10,676.40	-1,710.73	1,336.81	14,455,500.78	1,727,858.86	39.80396025	-80.68865206	
11,114.25	24.83	142.27	10,689.33	-1,715.46	1,340.47	14,455,496.05	1,727,862.52	39.80394722	-80.68863909	
Begin 8°/100' build/turn										
11,200.00	18.06	138.85	10,769.09	-1,739.75	1,360.27	14,455,471.76	1,727,882.32	39.80386032	-80.68856690	
11,300.00	10.39	129.53	10,865.96	-1,757.21	1,377.47	14,455,454.31	1,727,899.52	39.80383222	-80.68850789	
11,400.00	4.11	84.94	10,965.17	-1,762.64	1,388.01	14,455,448.87	1,727,910.06	39.80381720	-80.68847042	
11,500.00	7.32	0.96	11,064.80	-1,755.95	1,391.69	14,455,455.57	1,727,913.74	39.80383554	-80.68845724	
11,600.00	14.77	344.73	11,162.90	-1,737.26	1,388.43	14,455,474.26	1,727,910.48	39.80386690	-80.68846860	
11,700.00	22.59	339.42	11,257.57	-1,706.93	1,378.31	14,455,504.58	1,727,900.36	39.80397028	-80.68850427	
11,800.00	30.50	336.75	11,346.96	-1,665.56	1,361.51	14,455,545.95	1,727,883.56	39.80408404	-80.68856356	
11,900.00	38.45	335.11	11,429.33	-1,613.96	1,336.37	14,455,597.55	1,727,860.42	39.80422598	-80.68864532	
12,000.00	46.41	333.95	11,503.08	-1,553.12	1,308.33	14,455,658.39	1,727,831.38	39.80439334	-80.68874796	
12,100.00	54.38	333.07	11,566.78	-1,484.23	1,274.96	14,455,727.28	1,727,797.01	39.80458284	-80.68886948	
12,200.00	62.36	332.35	11,619.18	-1,408.64	1,235.93	14,455,802.87	1,727,757.98	39.80479082	-80.68900751	
12,300.00	70.34	331.72	11,659.26	-1,327.81	1,193.00	14,455,883.71	1,727,715.05	39.80501322	-80.68915937	
12,400.00	78.32	331.16	11,686.25	-1,243.31	1,147.00	14,455,968.20	1,727,669.05	39.80524571	-80.68932211	
12,500.00	86.30	330.63	11,699.62	-1,156.79	1,098.84	14,456,054.72	1,727,620.89	39.80548376	-80.68949255	
12,558.81	91.00	330.32	11,701.00	-1,105.65	1,069.87	14,456,105.86	1,727,591.92	39.80562449	-80.68959505	
Begin 91.00° lateral										
12,600.00	91.00	330.32	11,700.28	-1,069.87	1,049.48	14,456,141.65	1,727,571.53	39.80572265	-80.68966721	
12,700.00	91.00	330.32	11,698.54	-983.00	999.98	14,456,228.51	1,727,522.03	39.80596199	-80.68984240	
12,800.00	91.00	330.32	11,696.80	-896.13	950.47	14,456,315.38	1,727,472.53	39.80620102	-80.69001760	
12,900.00	91.00	330.32	11,695.06	-809.26	900.97	14,456,402.25	1,727,423.02	39.80644006	-80.69019279	
13,000.00	91.00	330.32	11,693.32	-722.39	851.47	14,456,489.12	1,727,373.52	39.80667910	-80.69036799	
13,100.00	91.00	330.32	11,691.58	-635.52	801.96	14,456,575.99	1,727,324.01	39.80691813	-80.69054319	
13,200.00	91.00	330.32	11,689.84	-548.65	752.46	14,456,662.86	1,727,274.51	39.80715717	-80.69071839	



Planning Report - Geographic

Database:	DB_Aug1818_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-16 HU (C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-16 HU (C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
13,300.00	91.00	330.32	11,688.10	-461.78	702.96	14,456,749.73	1,727,225.01	39.80739620	-80.69089359	
13,400.00	91.00	330.32	11,686.36	-374.91	653.45	14,456,836.60	1,727,175.50	39.80763524	-80.69106679	
13,500.00	91.00	330.32	11,684.61	-289.04	603.95	14,456,923.47	1,727,126.00	39.80787427	-80.69124399	
13,600.00	91.00	330.32	11,682.87	-201.17	554.44	14,457,010.34	1,727,076.50	39.80811331	-80.69141920	
13,700.00	91.00	330.32	11,681.13	-114.30	504.94	14,457,097.21	1,727,026.99	39.80835234	-80.69159440	
13,800.00	91.00	330.32	11,679.39	-27.43	455.44	14,457,184.08	1,726,977.49	39.80859138	-80.69176961	
13,900.00	91.00	330.32	11,677.65	59.44	405.93	14,457,270.95	1,726,927.98	39.80883041	-80.69194482	
14,000.00	91.00	330.32	11,675.91	146.31	356.43	14,457,357.82	1,726,878.48	39.80906944	-80.69212003	
14,100.00	91.00	330.32	11,674.17	233.18	306.93	14,457,444.69	1,726,828.98	39.80930848	-80.69229524	
14,200.00	91.00	330.32	11,672.43	320.05	257.42	14,457,531.56	1,726,779.47	39.80954751	-80.69247045	
14,300.00	91.00	330.32	11,670.69	406.92	207.92	14,457,618.43	1,726,729.97	39.80978654	-80.69264566	
14,400.00	91.00	330.32	11,668.95	493.79	158.42	14,457,705.30	1,726,680.47	39.81002557	-80.69282088	
14,500.00	91.00	330.32	11,667.21	580.66	108.91	14,457,792.17	1,726,630.96	39.81026461	-80.69299609	
14,600.00	91.00	330.32	11,665.46	667.53	59.41	14,457,879.04	1,726,581.46	39.81050364	-80.69317131	
14,700.00	91.00	330.32	11,663.72	754.40	9.90	14,457,965.91	1,726,531.96	39.81074267	-80.69334653	
14,800.00	91.00	330.32	11,661.98	841.27	-39.60	14,458,052.78	1,726,482.45	39.81098170	-80.69352175	
14,900.00	91.00	330.32	11,660.24	928.14	-89.10	14,458,139.65	1,726,432.95	39.81122073	-80.69369697	
15,000.00	91.00	330.32	11,658.50	1,015.01	-138.61	14,458,226.52	1,726,383.44	39.81145976	-80.69387219	
15,100.00	91.00	330.32	11,656.76	1,101.88	-188.11	14,458,313.39	1,726,333.94	39.81169879	-80.69404741	
15,200.00	91.00	330.32	11,655.02	1,188.75	-237.61	14,458,400.26	1,726,284.44	39.81193782	-80.69422263	
15,300.00	91.00	330.32	11,653.28	1,275.62	-287.12	14,458,487.13	1,726,234.93	39.81217685	-80.69439786	
15,400.00	91.00	330.32	11,651.54	1,362.49	-336.62	14,458,574.00	1,726,185.43	39.81241588	-80.69457308	
15,500.00	91.00	330.32	11,649.80	1,449.36	-386.12	14,458,660.87	1,726,135.93	39.81265491	-80.69474831	
15,600.00	91.00	330.32	11,648.06	1,536.23	-435.63	14,458,747.74	1,726,086.42	39.81289394	-80.69492354	
15,700.00	91.00	330.32	11,646.32	1,623.10	-485.13	14,458,834.61	1,726,036.92	39.81313297	-80.69509877	
15,800.00	91.00	330.32	11,644.57	1,709.97	-534.64	14,458,921.48	1,725,987.42	39.81337200	-80.69527400	
15,900.00	91.00	330.32	11,642.83	1,796.84	-584.14	14,459,008.35	1,725,937.91	39.81361103	-80.69544923	
16,000.00	91.00	330.32	11,641.09	1,883.70	-633.64	14,459,095.22	1,725,888.41	39.81385006	-80.69562447	
16,100.00	91.00	330.32	11,639.35	1,970.57	-683.15	14,459,182.09	1,725,838.90	39.81408908	-80.69579970	
16,200.00	91.00	330.32	11,637.61	2,057.44	-732.65	14,459,268.96	1,725,789.40	39.81432811	-80.69597494	
16,300.00	91.00	330.32	11,635.87	2,144.31	-782.15	14,459,355.83	1,725,739.90	39.81456714	-80.69615018	
16,400.00	91.00	330.32	11,634.13	2,231.18	-831.66	14,459,442.70	1,725,690.39	39.81480617	-80.69632541	
16,500.00	91.00	330.32	11,632.39	2,318.05	-881.16	14,459,529.57	1,725,640.89	39.81504519	-80.69650065	
16,600.00	91.00	330.32	11,630.65	2,404.92	-930.66	14,459,616.44	1,725,591.39	39.81528422	-80.69667589	
16,700.00	91.00	330.32	11,628.91	2,491.79	-980.17	14,459,703.31	1,725,541.88	39.81552324	-80.69685114	
16,800.00	91.00	330.32	11,627.17	2,578.66	-1,029.67	14,459,790.18	1,725,492.38	39.81576227	-80.69702638	
16,900.00	91.00	330.32	11,625.42	2,665.53	-1,079.18	14,459,877.05	1,725,442.88	39.81600130	-80.69720162	
17,000.00	91.00	330.32	11,623.68	2,752.40	-1,128.68	14,459,963.92	1,725,393.37	39.81624032	-80.69737687	
17,100.00	91.00	330.32	11,621.94	2,839.27	-1,178.18	14,460,050.79	1,725,343.87	39.81647935	-80.69755212	
17,200.00	91.00	330.32	11,620.20	2,926.14	-1,227.69	14,460,137.65	1,725,294.36	39.81671837	-80.69772736	
17,300.00	91.00	330.32	11,618.46	3,013.01	-1,277.19	14,460,224.52	1,725,244.86	39.81695740	-80.69790261	
17,400.00	91.00	330.32	11,616.72	3,099.88	-1,326.69	14,460,311.39	1,725,195.36	39.81719642	-80.69807786	
17,500.00	91.00	330.32	11,614.98	3,186.75	-1,376.20	14,460,398.26	1,725,145.85	39.81743544	-80.69825312	
17,600.00	91.00	330.32	11,613.24	3,273.62	-1,425.70	14,460,485.13	1,725,096.35	39.81767447	-80.69842837	
17,700.00	91.00	330.32	11,611.50	3,360.49	-1,475.20	14,460,572.00	1,725,046.85	39.81791349	-80.69860362	
17,800.00	91.00	330.32	11,609.76	3,447.36	-1,524.71	14,460,658.87	1,724,997.34	39.81815251	-80.69877888	
17,900.00	91.00	330.32	11,608.02	3,534.23	-1,574.21	14,460,745.74	1,724,947.84	39.81839154	-80.69895413	
18,000.00	91.00	330.32	11,606.27	3,621.10	-1,623.72	14,460,832.61	1,724,898.34	39.81863056	-80.69912939	
18,100.00	91.00	330.32	11,604.53	3,707.97	-1,673.22	14,460,919.48	1,724,848.83	39.81886958	-80.69930465	
18,200.00	91.00	330.32	11,602.79	3,794.84	-1,722.72	14,461,006.35	1,724,799.33	39.81910860	-80.69947991	
18,300.00	91.00	330.32	11,601.05	3,881.71	-1,772.23	14,461,093.22	1,724,749.82	39.81934763	-80.69965517	
18,400.00	91.00	330.32	11,599.31	3,968.58	-1,821.73	14,461,180.09	1,724,700.32	39.81958665	-80.69983043	
18,500.00	91.00	330.32	11,597.57	4,055.45	-1,871.23	14,461,266.96	1,724,650.82	39.81982567	-80.70000570	
18,600.00	91.00	330.32	11,595.83	4,142.32	-1,920.74	14,461,353.83	1,724,601.31	39.82006469	-80.70018096	
18,700.00	91.00	330.32	11,594.09	4,229.19	-1,970.24	14,461,440.70	1,724,551.81	39.82030371	-80.70035623	



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Heaven Hill 3
 Well: Heaven Hill 3N-16 HU (C)
 Wellbore: Original Hole
 Design: rev6

Local Co-ordinate Reference: Well Heaven Hill 3N-16 HU (C)
 TVD Reference: GL @ 1326.00usft
 MD Reference: GL @ 1326.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,800.00	91.00	330.32	11,592.35	4,316.06	-2,019.75	14,461,527.57	1,724,502.31	39.82054273	-80.70053150
18,900.00	91.00	330.32	11,590.61	4,402.93	-2,069.25	14,461,614.44	1,724,452.80	39.82078175	-80.70070677
19,000.00	91.00	330.32	11,588.87	4,489.80	-2,118.75	14,461,701.31	1,724,403.30	39.82102077	-80.70088203
19,100.00	91.00	330.32	11,587.12	4,576.67	-2,168.26	14,461,788.18	1,724,353.79	39.82125979	-80.70105731
19,200.00	91.00	330.32	11,585.38	4,663.54	-2,217.76	14,461,875.05	1,724,304.29	39.82149881	-80.70123258
19,300.00	91.00	330.32	11,583.64	4,750.41	-2,267.26	14,461,961.92	1,724,254.79	39.82173783	-80.70140785
19,400.00	91.00	330.32	11,581.90	4,837.28	-2,316.77	14,462,048.79	1,724,205.28	39.82197685	-80.70158313
19,500.00	91.00	330.32	11,580.16	4,924.15	-2,366.27	14,462,135.66	1,724,155.78	39.82221587	-80.70175840
19,600.00	91.00	330.32	11,578.42	5,011.02	-2,415.77	14,462,222.53	1,724,106.28	39.82245489	-80.70193368
19,700.00	91.00	330.32	11,576.68	5,097.89	-2,465.28	14,462,309.40	1,724,056.77	39.82269390	-80.70210896
19,737.69	91.00	330.32	11,576.02	5,130.63	-2,483.94	14,462,342.14	1,724,038.11	39.82278399	-80.70217502

PBHL/TD 19737.69 MD/11576.02 TVD

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Heaven Hill 3N-16 HU B - hit/miss target - Shape	0.00	0.00	11,576.00	5,130.63	-2,483.93	14,462,342.14	1,724,038.12	39.82278400	-80.70217500
- plan misses target center by 0.02usft at 19737.69usft MD (11576.02 TVD, 5130.63 N, -2483.94 E)									
- Point									
Heaven Hill 3N-16 HU L - plan misses target center by 43.47usft at 12534.17usft MD (11701.01 TVD, -1127.07 N, 1082.05 E)	0.00	0.00	11,701.00	-1,105.65	1,119.88	14,456,105.86	1,727,641.93	39.80562400	-80.68941700
- Point									
Heaven Hill 3N-16 HU L - plan hits target center - Point	0.00	0.00	11,701.00	-1,105.65	1,069.87	14,456,105.86	1,727,591.93	39.80562448	-80.68959504

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
120.00	120.00		24	27
1,130.00	1,130.00		13-3/8	17-1/2
2,851.51	2,850.00		9-5/8	12-1/4
10,991.58	10,578.00		7-5/8	8-1/2



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-16 HU (C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-16 HU (C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev6		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,250.00	1,250.00	0.00	0.00	KOP Begin 2°/100' build
1,400.00	1,399.93	3.79	-1.02	Begin 3.00° tangent
2,400.00	2,398.56	54.34	-14.56	Begin 2°/100' drop
2,550.00	2,548.49	58.14	-15.58	Begin vertical hold
4,351.51	4,350.00	58.14	-15.58	Begin 3°/100' build
4,651.51	4,648.77	36.04	-7.54	Begin 3°/100' build/turn
4,884.01	4,876.16	-4.89	17.13	Begin 15.00° tangent
6,668.66	6,600.00	-370.21	299.78	Begin 5°/100' drop
6,768.66	6,697.60	-387.33	313.02	Begin 10.00° tangent
7,177.27	7,100.00	-443.44	356.44	Begin 4°/100' build
7,548.02	7,452.77	-530.96	424.15	Begin 24.83° tangent
11,114.25	10,689.33	-1,715.46	1,340.47	Begin 8°/100' build/turn
12,558.81	11,701.00	-1,105.65	1,069.87	Begin 91.00° lateral
19,737.69	11,576.02	5,130.63	-2,483.94	PBHL/TD 19737.69 MD/11576.02 TVD

4705102453

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Heaven Hill 3N-16HU

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 water for frac and flow back water

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459, UIC 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 and Horizontal Drilling

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1395426)

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 Jim Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President, Geoscience

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Office of Oil and Gas

MAY 25 2022

WV Department of
Environmental Protection

Subscribed and sworn before me this 23rd day of MAY, 20 22

[Signature]

My commission expires _____

Commonwealth of Pennsylvania - Notary Public
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

07/01/2022

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.

Plan Approved by: *Stacy L. D... HGL*

Comments: _____

Title: Oil and Gas Inspector

Date: 5-17-2022

Field Reviewed? Yes No

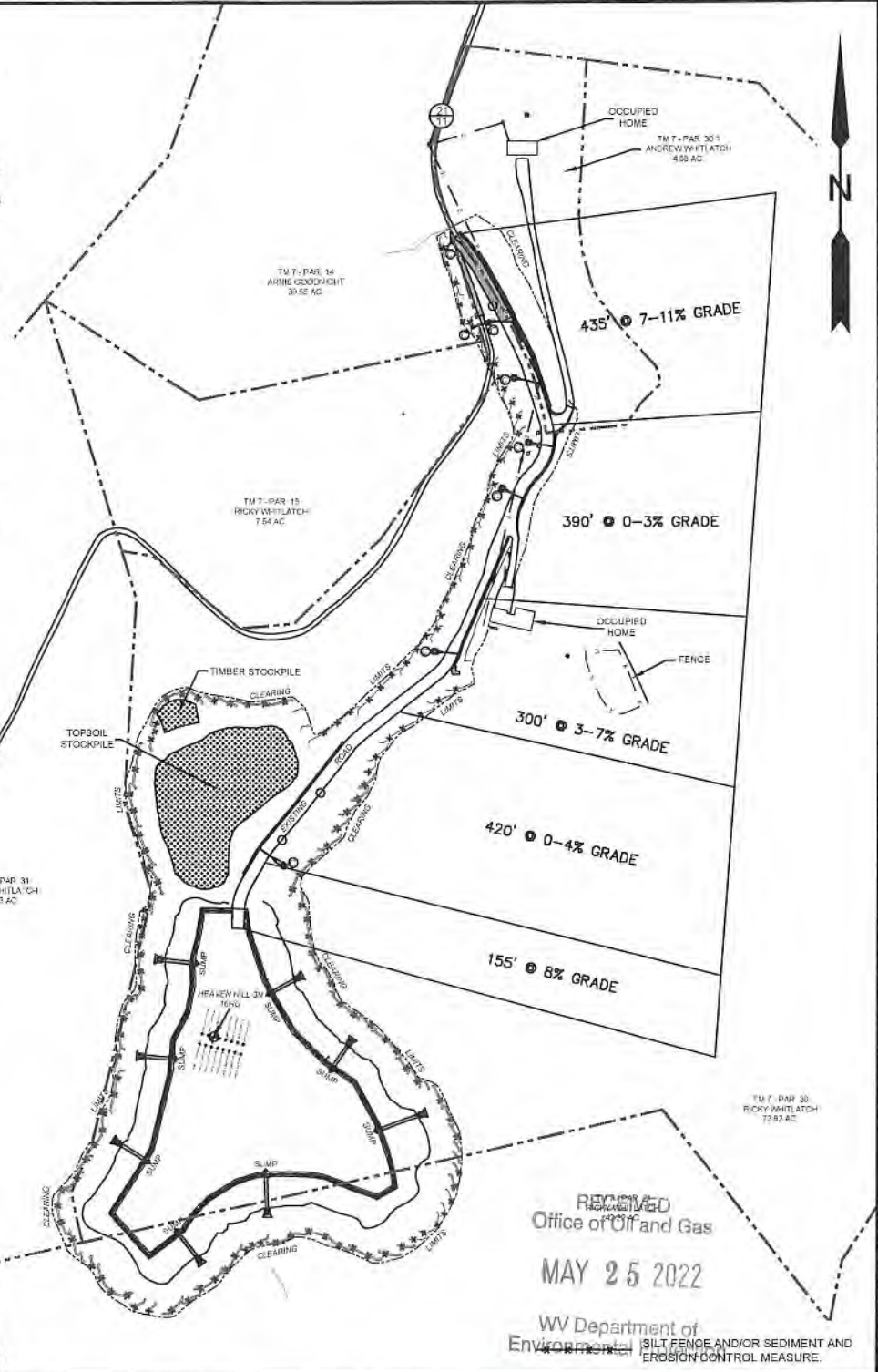
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Environmental Protection

07/01/2022

PROPOSED HEAVEN HILL 3N - 16HU

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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WV Department of
Environmental Protection
SILT FENCE AND/OR SEDIMENT AND
EROSION CONTROL MEASURE.

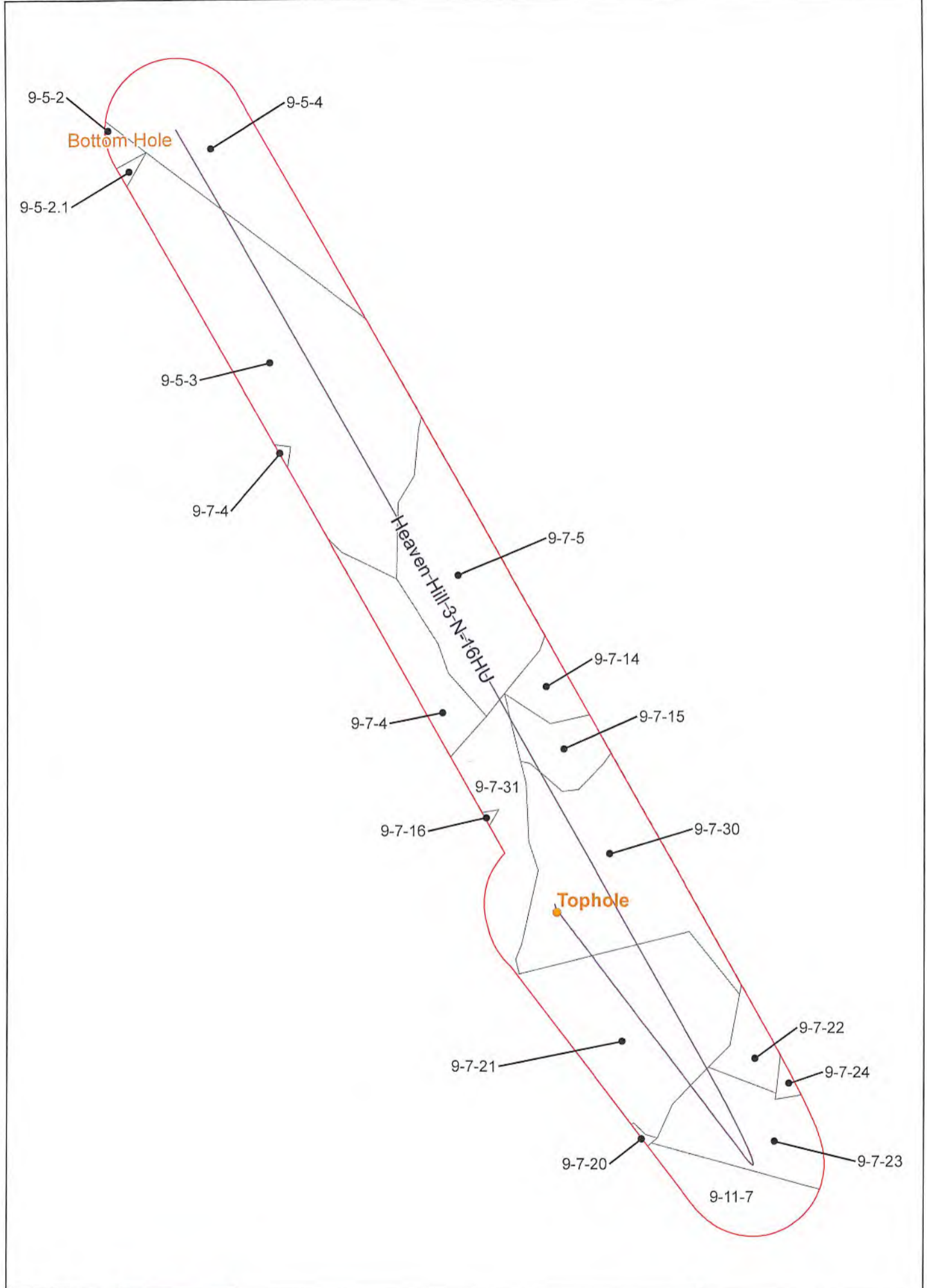
SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 412 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPONTE 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-16HU



Coordinate System: NAD 83 UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983
 False Easting: 1500000.0000
 False Northing: 0.0000
 Central Meridian: -85.0000
 Scale Factor: 0.9999
 Meters of Origin: 0.0000
 Units: FeetUS

CONFIDENTIAL

0 250 500 1,000 Feet

— Utica Well

□ 500 Foot Buffer

Heaven Hill 3 N-16HU
 Operators within 500 Feet of Well Borehole



**Offset Operators within 500' of Well Bores
Heaven Hill 3N - 16HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER/LESSEE	ADDRESS
MARSHALL	MEADE	9-11-7	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	9-5-4	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
MARSHALL	MEADE	9-7-14	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
MARSHALL	MEADE	9-7-15	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	9-7-21	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
MARSHALL	MEADE	9-7-22	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	9-7-24	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
MARSHALL	MEADE	9-7-4	TH EXPLORATION LLC	1320 S. University Dr. Suite 500 FT Worth, TX 76107
MARSHALL	MEADE	9-7-5	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

07/01/2022

Operator's Well No. Heaven Hill 3 N-16HU**Area of Review****Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.**

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

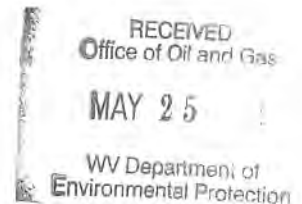
Data Sources Reviewed:

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

Contacted Adam Picard 724-485-9331, apicard@dpslandservices.com, DPS GIS (5/09/2022) 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-16HU.
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-16HU.
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-16HU.
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-16HU.

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-16HU.
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-16HU.
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-16HU.
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-16HU.

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-16HU.
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-16HU.
4705102303	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. A new permitted Marcellus well will be drilled. Once completed it will not be deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Permit canceled by Tug Hill Operating, LLC. Well will be permitted on same pad with different API # at later date.
4705102304	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. A new permitted Marcellus well will be drilled. Once completed it will not be deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Permit canceled by Tug Hill Operating, LLC. Well will be permitted on same pad with different API # at later date.

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
4705102305	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. A new permitted Marcellus well will be drilled. Once completed it will not be deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Permit canceled by Tug Hill Operating, LLC. Well will be permitted on same pad with different API # at later date.
4705102323	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. A new permitted Marcellus well will be drilled. Once completed it will not be deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation.	Permit canceled by Tug Hill Operating, LLC. Well will be permitted on same pad with different API # at later date.
4705102306	Tug Hill Operating, LLC.	11684' TVD (proposed)	none	none	Yes, this well will be within the expected fracture propagation from the proposed Point Pleasant stimulation once it is completed. Proper casing and cement should prevent migration of fluids between wellbores.	Permit canceled by Tug Hill Operating, LLC. Well will be permitted on same pad with different API # at later date.
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.	State records are incomplete.

WV Geological & Economic Survey:

Well: County = 51 Permit = 01935

Report Time: Wednesday, May 11, 2022 2:48:08 PM

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	-80.676272
4705101935	1	As Proposed	527726.5	4402595.6	-80.676251

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	Dvld Orgnl Loc	Completed	Ricky L Whitlatch			3-1HM 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_BEF	G_AFT	O_BEF
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	6968	19500	19500	7266		0

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101935	Tug Hill Operating, LLC	2019	456,540	0	0	0	0	0	0	0	0	0	0	8,004	133,453
4705101935	Tug Hill Operating, LLC	2020	3,004,659	326,581	290,383	303,268	256,144	269,736	212,967	133,906	242,383	338,580	220,997	208,993	200,721

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101935	Tug Hill Operating, LLC	2019	10,005	0	0	0	0	0	0	0	0	0	146	2,510	7,349
4705101935	Tug Hill Operating, LLC	2020	33,102	6,214	5,304	4,813	3,510	3,560	2,047	1,227	1,827	1,483	1,249	969	899

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101935	Tug Hill Operating, LLC	2019	43,298	0	0	0	0	0	0	0	0	0	784	12,723	29,791
4705101935	Tug Hill Operating, LLC	2020	241,290	30,827	27,089	28,233	23,576	24,404	19,905	12,534	24,646	12,519	12,519	12,519	12,519

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101935	Tug Hill Operating, LLC	2019	8,001	0	0	0	0	0	0	0	0	0	0	2,055	5,946
4705101935	Tug Hill Operating, LLC	2020	51,743	6,110	5,966	5,836	5,123	5,101	2,158	2,228	3,869	3,489	5,041	3,380	3,442

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

There is no Plugging data for this well

There is no Sample data for this well

WW Geological & Economic Survey:

Well: County = 51 Permit = 01947

Report Time: Wednesday, May 11, 2022 2:48:55 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101947	Marshall	1947	Meade	Glen Easton	Cameron	39.808577	-80.693191	526262.1	4406556.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101947	1 As Drilled	528127.3	4403271.6	-80.671542	39.77892
4705101947	1 As Proposed	528197.7	4403272.8	-80.67072	39.778929

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	Dvld Orgnl Loc	Completed	Ricky L Whitlatch			3-4HM 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	3/15/2018	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acidized	6911	17867	17867	6634	

Comment: 10/28/2019 Plat Missing data

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	2,647,154	275,383	251,477	286,751	230,753	245,080	191,068	120,033	213,753	296,319	187,055	179,040	170,442

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101947	Tug Hill Operating, LLC	2019	6,701	0	0	0	0	0	0	0	0	0	157	1,893	4,651
4705101947	Tug Hill Operating, LLC	2020	16,300	3,432	2,896	2,677	1,800	1,751	829	578	737	563	448	320	269

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101947	Tug Hill Operating, LLC	2019	42,004	0	0	0	0	0	0	0	0	0	984	13,047	27,973
4705101947	Tug Hill Operating, LLC	2020	233,475	25,994	23,460	26,695	21,239	22,173	17,858	11,236	21,296	17,298	16,338	15,633	14,255

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101947	Tug Hill Operating, LLC	2019	7,691	0	0	0	0	0	0	0	0	0	0	2,108	5,583
4705101947	Tug Hill Operating, LLC	2020	45,564	5,152	5,166	5,518	4,608	4,635	1,936	1,997	3,412	3,054	4,267	2,896	2,923

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01948

Report Time: Wednesday, May 11, 2022 2:49:08 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101948	Marshall	1948	Meade	Glen Easton	Cameron	39.808632	-80.692941	526283.5	4406562.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101948	1 As Drilled	528334.7	4403376.9	-80.669116	39.779862
4705101948	1 As Proposed	526336.6	4403373	-80.692449	39.779891

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
4705101948	10/28/2019	Dvtd Orgnl Loc	Completed	Rickly L Whitlatch			3-SHM Heaven Hill		Rickly L Whitlatch et al	Tug Hill Operating, LLC		6978 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_BEFT	G_AFT
4705101948	10/28/2019	3/26/2018	1326	Ground Level	Cameron-Gamer	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6925	19967	19967	6729	

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	0	10,272	104,822	295,979
4705101948	Tug Hill Operating, LLC	2020	2,580,161	289,951	252,973	261,995	223,361	223,387	173,237	117,917	212,652	292,346	188,939	176,850	166,573	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101948	Tug Hill Operating, LLC	2019	6,952	0	0	0	0	0	0	0	0	0	157	1,713	5,082
4705101948	Tug Hill Operating, LLC	2020	18,047	3,899	3,398	2,816	1,914	1,860	975	632	786	600	479	356	332

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101948	Tug Hill Operating, LLC	2019	38,986	0	0	0	0	0	0	0	0	0	1,007	9,994	27,985
4705101948	Tug Hill Operating, LLC	2020	227,872	27,370	23,600	24,390	20,559	20,211	16,192	11,038	21,323	17,138	16,564	15,501	13,966

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101948	Tug Hill Operating, LLC	2019	7,200	0	0	0	0	0	0	0	0	0	0	1,614	5,586
4705101948	Tug Hill Operating, LLC	2020	44,262	5,425	5,197	5,042	4,242	4,224	1,756	1,962	3,395	3,013	4,310	2,860	2,856

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01962

Report Time: Wednesday, May 11, 2022 2:49:23 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101962	Marshall	1962	Meade	Glen Easton	Cameron	39.808592	-80.693278	526254.7	4406553.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101962	1 As Drilled	527872.2	4402800.7	-80.674541	39.774686
4705101962	1 As Proposed	527874	4402801.1	-80.67452	39.77469

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	Dvtd Orqnl Loc	Completed	Rickly L Whitlatch			3-2HM Heaven Hill		Rickly 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_BEF	G_AFT
4705101962	10/28/2019	2/25/2018	1326 Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6923	19063	19063	6989		0

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM	
4705101962	Tug Hill Operating, LLC	2019	456,279	0	0	0	0	0	0	0	0	0	0	8,396	136,934	310,949
4705101962	Tug Hill Operating, LLC	2020	2,891,168	329,763	288,711	299,840	249,569	259,937	202,582	133,439	228,979	317,415	202,370	193,443	185,120	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101962	Tug Hill Operating, LLC	2019	8,744	0	0	0	0	0	0	0	0	0	147	2,233	6,364
4705101962	Tug Hill Operating, LLC	2020	24,423	5,336	4,114	3,711	2,639	2,532	1,282	978	1,170	904	730	539	488

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101962	Tug Hill Operating, LLC	2019	43,278	0	0	0	0	0	0	0	0	0	823	13,055	29,400
4705101962	Tug Hill Operating, LLC	2020	243,580	31,128	26,933	27,914	22,971	23,518	18,935	12,491	22,666	14,256	14,256	14,256	14,256

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101962	Tug Hill Operating, LLC	2019	7,977	0	0	0	0	0	0	0	0	0	0	2,109	5,868
4705101962	Tug Hill Operating, LLC	2020	49,842	6,170	5,931	5,770	4,937	4,916	2,053	2,220	3,655	3,271	4,616	3,129	3,174

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01963

Report Time: Wednesday, May 11, 2022 2:49:35 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101963	Marshall	1963	Meade	Glen Easton	Cameron	39.808584	-80.693234	526258.4	4406557.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101963	1 As Drilled	527975.8	4403078.1	-80.67332	39.777182
4705101963	1 As Proposed	527977.5	4403078.8	-80.6733	39.777188

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	10/28/2019	Dvtd Orgnl Loc	Completed	Ricky L Whitlatch			3-3HM 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_BEF	G_AFT
4705101963	10/28/2019	3/7/2018	1326	Ground Level	Cameron-Gamer	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6904	18261	18261	6623		

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	8,954	131,175	297,670
4705101963	Tug Hill Operating, LLC	2020	2,761,998	296,576	269,268	291,341	242,016	251,555	196,881	125,743	221,437	306,996	198,457	188,040	175,688	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101963	Tug Hill Operating, LLC	2019	11,560	0	0	0	0	0	0	0	0	0	152	3,468	7,940
4705101963	Tug Hill Operating, LLC	2020	27,086	6,179	4,425	3,567	2,859	2,487	1,329	982	1,213	1,142	1,094	1,013	796

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101963	Tug Hill Operating, LLC	2019	41,528	0	0	0	0	0	0	0	0	0	877	12,506	28,145
4705101963	Tug Hill Operating, LLC	2020	233,646	27,995	25,120	27,123	22,276	22,759	18,402	11,770	22,017	14,046	14,046	14,046	14,046

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101963	Tug Hill Operating, LLC	2019	7,638	0	0	0	0	0	0	0	0	0	0	2,020	5,618
4705101963	Tug Hill Operating, LLC	2020	47,557	5,549	5,532	5,607	4,778	4,757	1,995	2,092	3,535	3,164	4,527	3,009	3,012

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01967

Report Time: Wednesday, May 11, 2022 2:49:46 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101967	Marshall	1967	Meade	Glen Easton	Cameron	39.80864	-80.693218	526259.8	4406563.5

Bottom Hole Location Information:

API	EP	FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101967	1	As Proposed	527728.2	4404242.7	-80.676162	39.787683
4705101967	1	As Drilled	528190.9	4403437.5	-80.670792	39.780413

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	Dvtd Orgnl Loc	Completed	Ricky L Whitlatch			3-8HU 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_BE
4705101967	10/28/2019	4/4/2018	1326	Ground Level	Cameron-Garner	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary Acid+Frac		22395	22395	10708			

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

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	0	69,536	439,145	535,178
4705101967	Tug Hill Operating, LLC	2020	4,740,538	485,522	447,408	492,592	450,763	472,547	452,617	393,736	373,315	344,073	336,032	220,857	271,076	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101967	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101967	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101967	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101967	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101967	Tug Hill Operating, LLC	2019	16,863	0	0	0	0	0	0	0	0	0	0	6,763	10,100
4705101967	Tug Hill Operating, LLC	2020	79,982	9,084	9,192	9,480	8,928	8,936	4,587	6,552	5,960	5,211	3,832	3,572	4,648

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01968

Report Time: Wednesday, May 11, 2022 2:49:58 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101968	Marshall	1968	Meade	Glen Easton	Cameron	39.808656	-80.693304	526252.4	4406565.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101968	1 As Drilled	527715.5	4402751.7	-80.676373	39.77425
4705101968	1 As Proposed	527075.6	4403863	-80.683799	39.784283

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
4705101968	10/28/2019	Dvtd Orgnl Loc	Completed	Ricky L Whitlatch	3-6HU	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_BEFO	G_AFT	O_E
4705101968	10/28/2019	5/20/2018	1326	Ground Level	Cameron-Gamer	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary Acid+Frac	11895	23868	23868	10987			500

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	1,028,627	0	0	0	0	0	0	0	0	0	0	73,846	424,843	529,938
4705101968	Tug Hill Operating, LLC	2020	5,293,404	540,001	461,650	497,232	482,774	516,773	473,860	455,502	444,396	402,717	412,199	286,197	320,103	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101968	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101968	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101968	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101968	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101968	Tug Hill Operating, LLC	2019	16,544	0	0	0	0	0	0	0	0	0	0	6,543	10,001
4705101968	Tug Hill Operating, LLC	2020	89,069	10,103	9,484	9,569	9,748	9,772	4,802	7,579	7,094	6,099	4,701	4,629	5,489

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 01969

Report Time: Wednesday, May 11, 2022 2:50:09 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_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	LON_DD	LAT_DD
4705101969	1 As Drilled	527904.9	4403167.7	-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	Dvtd Orgnl Loc	Completed	Ricky L Whitlatch			3-7HU 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_E
4705101969	10/28/2019	4/27/2018	1326	Ground Level	Cameron-Garner	Pt Pleasant Fm	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	11865	22736	22736	11677			500

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	1,028,727	0	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	483,118	459,546	480,964	435,261	400,538	362,681	296,675	297,984	213,120	227,581	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101969	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101969	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101969	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101969	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101969	Tug Hill Operating, LLC	2019	16,570	0	0	0	0	0	0	0	0	0	0	6,584	9,986
4705101969	Tug Hill Operating, LLC	2020	78,001	9,404	9,024	9,298	9,074	9,095	4,411	6,665	5,790	4,493	3,398	3,447	3,902

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 02015

Report Time: Wednesday, May 11, 2022 2:50:22 PM

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	39.808607	-80.693364	526247.3	4406559.8

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102015	1 As Drilled	524814.4	4407664.3	-80.710062	39.818602
4705102015	1 As Proposed	524811.1	4407566	-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	Dvtd Orgrnl Loc	Completed	Ricky L Whitlatch			3N-9HM 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_BEFF	G_AFT
4705102015	10/28/2019	-/26/2018	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6886	15275	15275	6739		

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	0	8,568	86,145	181,172
4705102015	Tug Hill Operating, LLC	2020	1,591,527	177,387	165,398	167,981	141,491	143,341	111,951	74,195	113,364	173,970	113,265	106,576	102,608	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102015	Tug Hill Operating, LLC	2019	8,409	0	0	0	0	0	0	0	0	0	132	2,622	5,655
4705102015	Tug Hill Operating, LLC	2020	29,102	4,573	3,812	3,297	2,418	2,351	2,021	1,451	1,934	2,055	1,856	1,639	1,695

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102015	Tug Hill Operating, LLC	2019	25,343	0	0	0	0	0	0	0	0	0	0	8,213	17,130
4705102015	Tug Hill Operating, LLC	2020	143,986	16,744	15,430	15,638	13,023	12,969	10,464	6,945	12,157	10,885	10,587	9,959	9,185

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102015	Tug Hill Operating, LLC	2019	4,746	0	0	0	0	0	0	0	0	0	0	1,327	3,419
4705102015	Tug Hill Operating, LLC	2020	27,422	3,319	3,398	3,233	2,722	2,711	1,135	1,235	1,810	1,793	2,583	1,724	1,759

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

There is no Plugging data for this well

There is no Sample data for this well

WW Geological & Economic Survey:

Well: County = 51 Permit = 02016

Report Time: Wednesday, May 11, 2022 2:50:35 PM

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	4407583.6	-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	Dvld Orgrnl	Completed	Ricky L Whitlatch	3N-10HU	Heaven Hill	Ricky L Whitlatch et al		Ricky L Whitlatch et al	Tug Hill Operating, LLC	11898	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_B
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

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	913,548	0	0	0	0	0	0	0	0	0	0	65,949	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	243,834	194,240	184,792	142,449	150,087	

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102016	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705102016	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102016	Tug Hill Operating, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705102016	Tug Hill Operating, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102016	Tug Hill Operating, LLC	2019	14,716	0	0	0	0	0	0	0	0	0	0	5,678	9,038
4705102016	Tug Hill Operating, LLC	2020	64,735	8,814	8,720	9,170	8,215	8,229	3,335	4,433	3,893	2,942	2,107	2,304	2,573

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 02303

Report Time: Wednesday, May 11, 2022 2:50:45 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	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 39.819122

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
4705102303	-/-	-/-	1330	Ground Level																	

- There is no Production Gas data for this well
- There is no Production Oil data for this well ** some operators may have reported NGL under Oil
- There is no Production NGL data for this well ** some operators may have reported NGL under Oil
- There is no Production Water data for this well
- There is no Wireline (E-Log) data for this well
- There is no Plugging data for this well
- There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 02304

Report Time: Wednesday, May 11, 2022 2:51:01 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102304	Marshall	2304	Meade	Glen Easton	Cameron	39.808823	-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	39.820687

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
4705102304	-/-	-/-	1333	Ground Level																	

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 02305

Report Time: Wednesday, May 11, 2022 2:51:21 PM

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	39.808687	-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 Whitlatch		3N-14HM	Heaven Hill		R L Whitlatch 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																	

- There is no Production Gas data for this well
- There is no Production Oil data for this well ** some operators may have reported NGL under Oil
- There is no Production NGL data for this well ** some operators may have reported NGL under Oil
- There is no Production Water data for this well
- There is no Wireline (E-Log) data for this well
- There is no Plugging data for this well
- There is no Sample data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 02323

Report Time: Wednesday, May 11, 2022 2:51:35 PM

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

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 Whitlatch		3N-13HM	Heaven Hill		R L Whitlatch 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	-/-	-/-	1336	Ground Level																	

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 02306

Report Time: Wednesday, May 11, 2022 3:18:28 PM

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	39.808679	-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 Orqnl Loc Permitted	Ricky L Whitlatch	3	3N-15HU				Tug Hill Operating, LLC	11684	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
4705102306	-/-	-/-	1326	Ground Level						not available	unknown	unknown								

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 70645

Report Time: Wednesday, May 11, 2022 2:52:07 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	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	NGI
4705170645	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

There is no Pay data for this well

There is no Production Gas data for this well

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

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

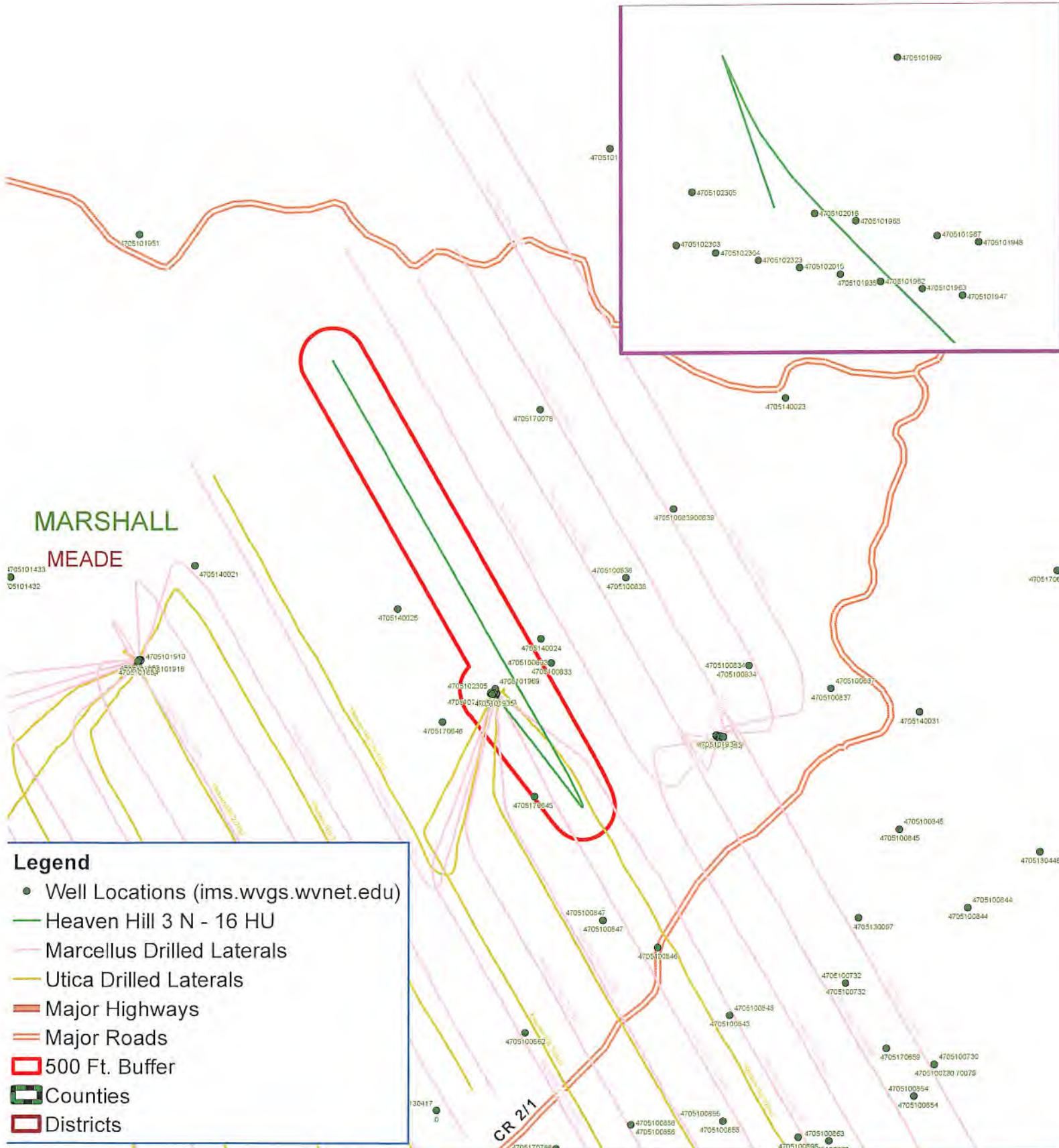
There is no Production Water data for this well

There is no Stratigraphy data for this well

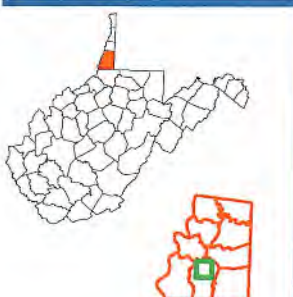
There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well



- Legend**
- Well Locations (ims.wvgs.wvnet.edu)
 - Heaven Hill 3 N - 16 HU
 - Marcellus Drilled Laterals
 - Utica Drilled Laterals
 - Major Highways
 - Major Roads
 - 500 Ft. Buffer
 - ▭ Counties
 - ▭ Districts



Heaven Hill 3 N - 16 HU

Meade District

Marshall County, WV



Notes:
All locations are approximate and are for visualization purposes only.

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-16HU

Pad Name: Heaven Hill 3

County: Marshall

[Handwritten Signature]
5-17-22
HJL

UTM (meters), NAD83, Zone 17

Northing: 4,406,566.92

Easting: 526,244.97

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

Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

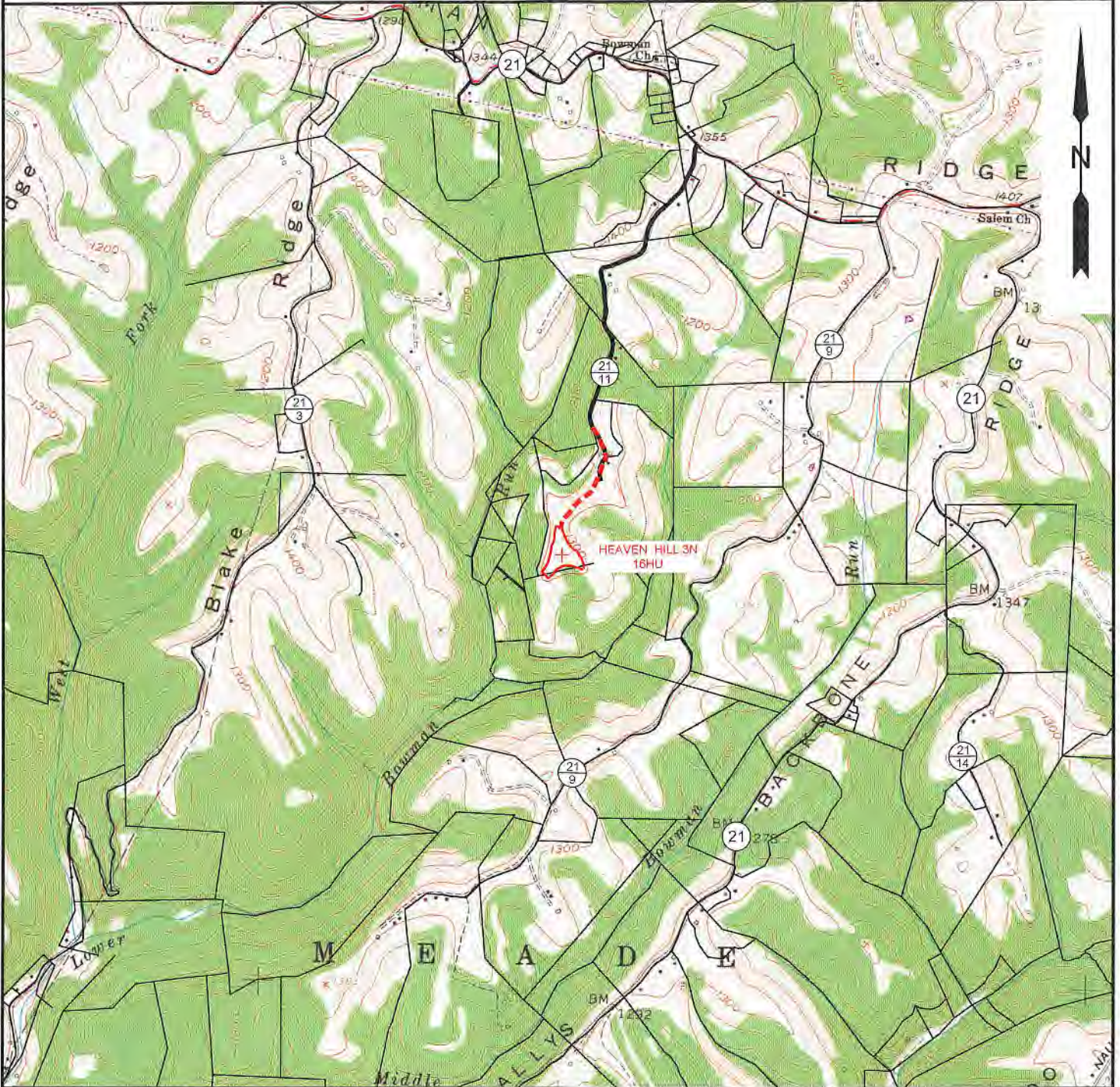
(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

07/01/2022

PROPOSED HEAVEN HILL 3N - 16HU



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.



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TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		06/21/2019	1" = 2000'



TUG HILL
OPERATING

07/01/2022

**HEAVEN HILL 3N LEASE
UTICA UNIT - 686.21 AC ±
WELL 16HU
TUG HILL OPERATING**

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. 478,865.94	E. 1,633,252.74
NAD'83 GEO.	LAT-(N) 39.808671	LONG-(W) 80.693391
NAD'83 UTM (M)	N. 4,406,566.88	E. 526,244.97

LANDING POINT

NAD'83 S.P.C.(FT)	N. 477,762.2	E. 1,634,304.3
NAD'83 GEO.	LAT-(N) 39.805624	LONG-(W) 80.689595
NAD'83 UTM (M)	N. 4,406,229.9	E. 526,571.1

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 484,059.1	E. 1,630,854.1
NAD'83 GEO.	LAT-(N) 39.822784	LONG-(W) 80.702175
NAD'83 UTM (M)	N. 4,408,130.7	E. 525,487.9

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



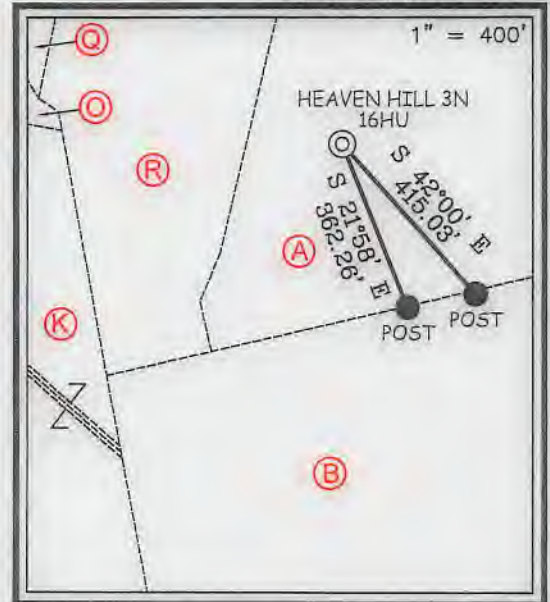
NOTES ON SURVEY

- 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-16HU (47-051-02307) IS WITHIN 3000' OF THE TOP HOLES' OR LATERALS OF EXISTING WELLS
 HEAVEN HILL 3-6HU (47-051-01968),
 HEAVEN HILL 3-7HU (47-051-01969),
 HEAVEN HILL 3-8HU (47-051-01967),
 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-10HU (47-051-02016) &
 PROPOSED HEAVEN HILL 3N-15HU (47-051-02306).

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

T.H.

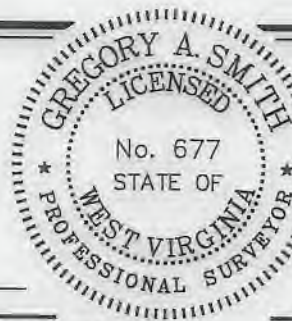
REFERENCES



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 | 304.255.5295
 slsw.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.
649



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 20, 20 19
 REVISED 10/23/19, 03/25/20, 07/08/20, 05/16/22
 OPERATORS WELL NO. HEAVEN HILL 3N-16HU
 API WELL NO. 47 - 051 - 02453
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P16HUR5.dwg
HEAVEN HILL 3N-16HU REV6
 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:
 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: 11,923' / TMD: 19,738'

COUNTY NAME PERMIT

07/01/2022

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

HEAVEN HILL 3N LEASE
UTICA UNIT - 888.21 AC ±
WELL 16HU
TUG HILL OPERATING

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

LANDS UTM (M)		LANDS S.P.C.(FT)	
E. 852,487.9	N. 4,408,130.7	E. 1,830,824.1	N. 4,408,130.7
LANDS UTM (M)		LANDS S.P.C.(FT)	
E. 852,521.1	N. 4,408,229.9	E. 1,834,304.3	N. 4,408,229.9
LANDS UTM (M)		LANDS S.P.C.(FT)	
E. 852,544.97	N. 4,408,268.88	E. 1,838,252.74	N. 4,408,268.88
LANDS UTM (M)		LANDS S.P.C.(FT)	
E. 852,588.21	N. 4,408,307.79	E. 1,842,201.11	N. 4,408,307.79

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 250' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOP MARK SCALE IS 1"=2000'
3. PROPOSED LATERAL OR TOP HOLE OF HEAVEN HILL 3N-16HU (47-021-02307) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF EXISTING WELLS
- HEAVEN HILL 3-8HU (47-021-01988)
- HEAVEN HILL 3-7HU (47-021-01989)
- HEAVEN HILL 3-6HU (47-021-01990)
- HEAVEN HILL 3-5HU (47-021-01991)
- HEAVEN HILL 3-4HU (47-021-01992)
- HEAVEN HILL 3-3HU (47-021-01993)
- HEAVEN HILL 3-2HU (47-021-01994)
- HEAVEN HILL 3-1HU (47-021-01995)
- HEAVEN HILL 3-0HU (47-021-01996)
- HEAVEN HILL 2-10HU (47-021-02001)
- HEAVEN HILL 2-9HU (47-021-02002)
- HEAVEN HILL 2-8HU (47-021-02003)
- HEAVEN HILL 2-7HU (47-021-02004)
- HEAVEN HILL 2-6HU (47-021-02005)
- HEAVEN HILL 2-5HU (47-021-02006)
- HEAVEN HILL 2-4HU (47-021-02007)
- HEAVEN HILL 2-3HU (47-021-02008)
- HEAVEN HILL 2-2HU (47-021-02009)
- HEAVEN HILL 2-1HU (47-021-02010) & PROPOSED HEAVEN HILL 3N-16HU (47-021-02307)

REFERENCES



TAG	SURFACE OWNER	PARCEL	ACRES
A	ANDREW C. WHITLATCH, ET UX	9-7-30	12.82
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	129.79
E	BRENDA J. WHITZEL (LIFE ESTATE)	9-7-23	26.00
F	BRENDA J. WHITZEL (LIFE ESTATE)	9-11-7	82.828
G	WILLIAM F. & JULIE A. KERNS	9-11-2	46.47
H	BRENDA J. WHITZEL (LIFE ESTATE)	9-11-1	30.24
I	KEVIN E. MCGILTON	9-7-19	23.00
J	KEVIN E. MCGILTON	9-7-20	13.29
K	KEVIN E. MCGILTON	9-7-18	14.00
L	MURRAY ENERGY, L.L.C.	9-7-2	116.12
M	ANDREW C. WHITLATCH, ET UX	NOT ASSD.	19 X 329
N	KEVIN E. MCGILTON	9-7-17	2.12
O	ANDREW C. WHITLATCH, ET UX	NOT ASSD.	2.25
P	MICHAEL I. RINE, ET UX	9-7-1	107.46
Q	KEVIN E. MCGILTON	9-7-16	8.00
R	ANDREW C. WHITLATCH, ET UX	9-7-21	16.22
S	ANDREW C. WHITLATCH, ET UX	9-7-12	7.24
T	ARNIE GOODING, ET UX	9-7-14	39.22
U	XCL MIDSTREAM, L.L.C.	9-7-4	78.92
V	CHARLES R. JR. & ANNA MARIE HAGEDORN	9-7-3	202.193
W	CHARLES R. JR. & ANNA MARIE HAGEDORN	9-7-1	4.279
X	CINDY S. & ROBERT L. RISH	9-7-2	9.911
Y	ARNIE GOODING, ET UX	9-7-2	62.18
Z	TERRI L. & HARKILA SAMPTON	9-2-1	111.71
AA	BRADEN & SARAH SAMPTON	9-2-1	4.294
BB	XCL MIDSTREAM, L.L.C.	9-2-3	82.26
CC	MURRAY ENERGY, L.L.C.	9-2-4	22.772
DD	ELMER L. ASTON	9-2-4	108.222

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

PERMIT NO. 02423
WELL NO. 47-021
STATE 47 COUNTY 021

DATE JUNE 20 2019

OPERATORS WELL NO. HEAVEN HILL 3N-16HU

REVISOR 102319, 0325120, 07108120, 0816122

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



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

P. S. 8x8

WELL OPERATOR TUG HILL OPERATING, LLC
DESIGNATED AGENT DARREN BROWN
CT CORPORATION

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76102

ADDRESS 5088 WASHINGTON ST. W, STE 407
CHARLESTON, WV 25313-1861

PROPOSED WORK: 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) _____
ESTIMATED DEPTH TVD: 11,923' \ TMD: 19,738'
TARGET FORMATION POINT PLEASANT
POINT PLEASANT

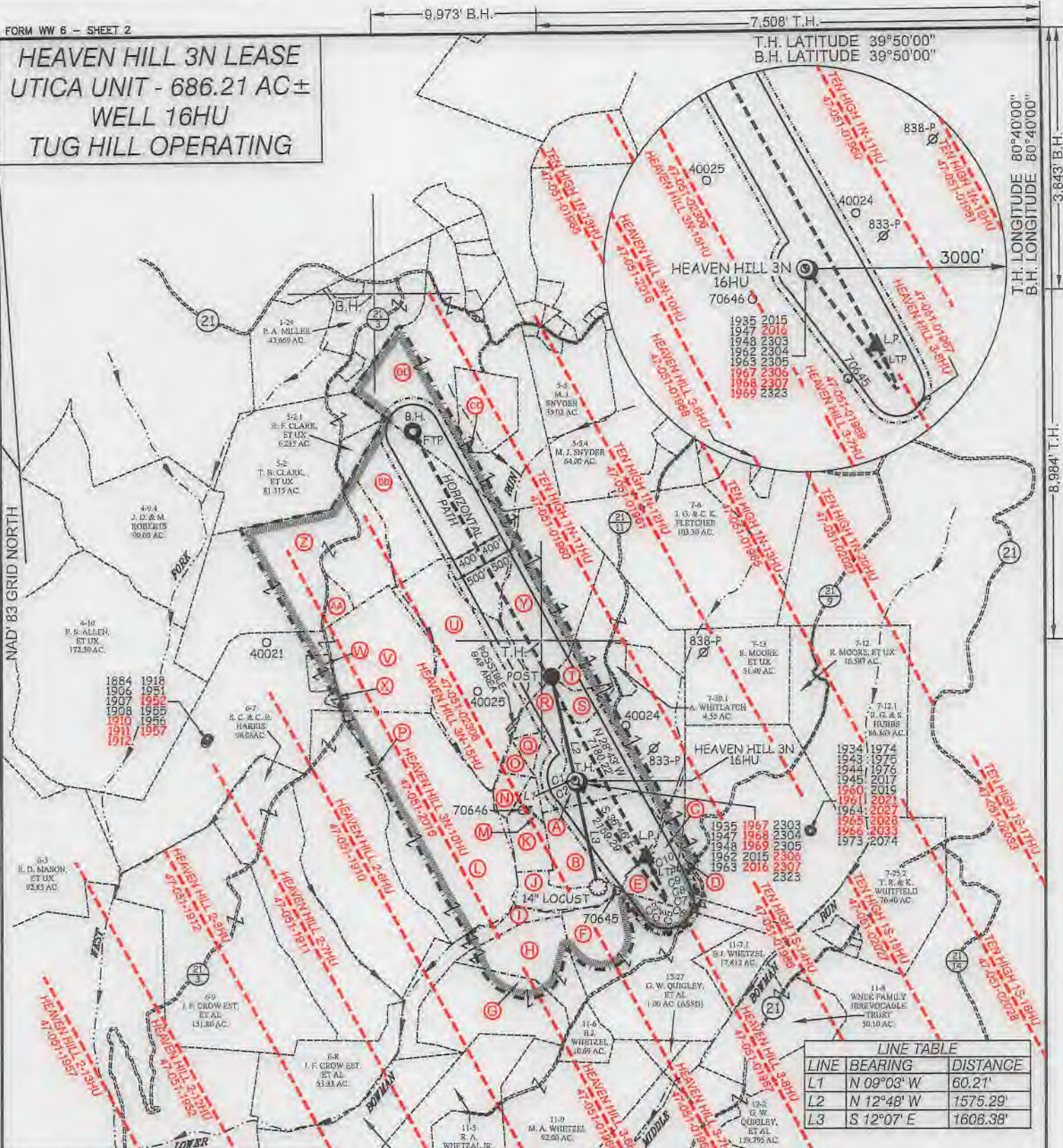
CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORNS NETWORK)
SCALE 1" = 2000'
FILE NO. 8824P16HUR5.dwg

WELL TYPE: OIL GAS INJECTION DISPOSAL "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 T.2
SURFACE OWNER ANDREW C. WHITLATCH ET UX ACREAGE 72.82±
RICKY L. WHITLATCH, ET AL - SEE ADDITIONAL SHEETS

LEASE NO. SEE ADDITIONAL SHEETS COUNTY NAME MEADE

**HEAVEN HILL 3N LEASE
UTICA UNIT - 686.21 AC±
WELL 16HU
TUG HILL OPERATING**



NAD 83 GRID NORTH

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

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

3,843' B.H.
8,984' T.H.

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 09°03' W	60.21'
L2	N 12°48' W	1575.29'
L3	S 12°07' E	1608.38'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	89.53'	655.86'	S 39°11' E	89.46'
C2	24.96'	70.38'	S 53°20' E	24.83'
C3	7.85'	5.86'	N 77°22' E	7.28'
C4	11.06'	21.41'	N 10°51' E	10.94'
C5	33.70'	173.96'	N 10°57' W	33.65'
C6	131.69'	1222.87'	N 20°28' W	131.63'
C7	337.45'	5191.78'	N 25°13' W	337.39'
C8	305.85'	9751.84'	N 27°50' W	305.84'

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.2952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5295
slsww.com

P.S. 677 *Gregory A. Smith*

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

NAD'83 S.P.C.(FT)	N. 478,885.94	E. 1,633,252.74
NAD'83 GEO.	LAT-(N) 39.808671	LONG-(W) 80.693391
NAD'83 UTM (M)	N. 4,406,566.88	E. 526,244.97

LANDING POINT

NAD'83 S.P.C.(FT)	N. 477,752.2	E. 1,634,304.3
NAD'83 GEO.	LAT-(N) 39.805624	LONG-(W) 80.689595
NAD'83 UTM (M)	N. 4,406,229.9	E. 526,571.1

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 484,059.1	E. 1,630,854.1
NAD'83 GEO.	LAT-(N) 39.822764	LONG-(W) 80.702175
NAD'83 UTM (M)	N. 4,408,130.7	E. 525,487.9



(+) 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)

SCALE 1" = 2000' FILE NO. 8654P16HUR5.dwg
HEAVEN HILL 3N-16HU REV 6

DATE JUNE 20, 2019
REVISED 10/23/19, 03/25/20, 07/08/20, 05/24/22

OPERATORS WELL NO. HEAVEN HILL 3N-16HU
API WELL NO. 47-051-02453

NO. STATE COUNTY PERMIT

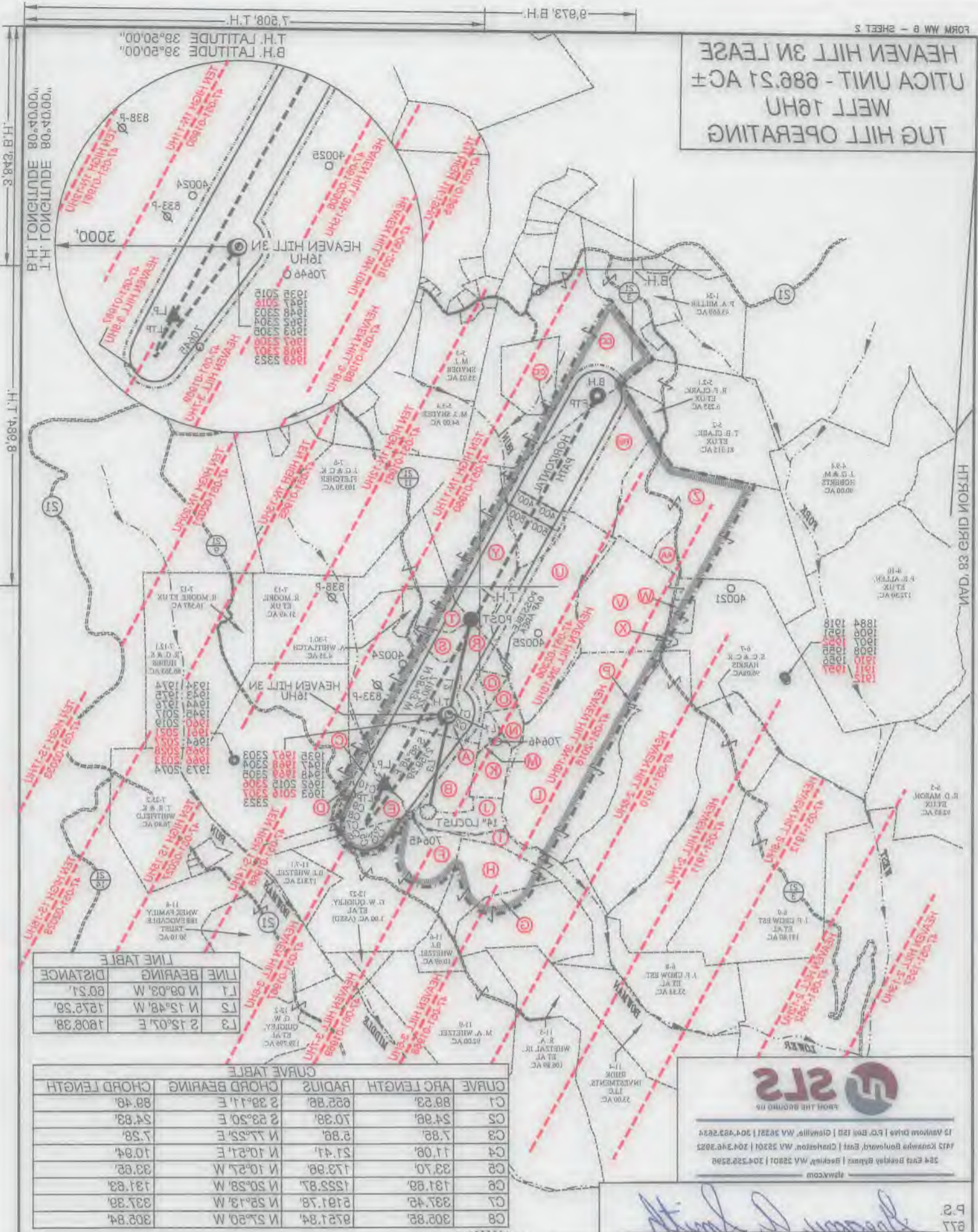
STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

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

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

DATE 07/01/2022

TUG HILL OPERATING
WELL 18HU
HEAVEN HILL 3N LEASE
UTICA UNIT - 68.21 AC ±



LINE TABLE

LINE	BEARING	DISTANCE
L1	N 09°03' W	60.21
L2	N 72°48' W	157.59
L3	S 15°07' E	1808.98

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	89.53	652.88	S 39°11' E	89.49
C2	24.98	70.38	S 53°50' E	24.83
C3	7.88	8.88	N 77°52' E	7.58
C4	11.08	21.47	N 10°27' E	10.84
C5	33.70	173.98	N 10°27' W	33.65
C6	131.88	1252.87	N 20°28' W	131.83
C7	337.45	6191.78	N 28°13' W	337.39
C8	308.85	9251.84	N 27°50' W	308.84

677
P.2
Gregory A. Smith

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)

PERMIT

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

PROFESSIONAL SURVEYOR
WEST VIRGINIA
STATE OF
No. 677
GREGORY A. SMITH
LICENSED

NO. STATE COUNTY PERMIT

WELL 47 - 051 - 02122

OPERATORS WELL NO. HEAVEN HILL 3N-18HU

REVISED 10/23/19 03:25:20 07/01/20 05:25:22

DATE JUNE 20 20 19

HEAVEN HILL 3N-18HU REV

FILE NO. 8854P18HUR5.dwg

SCALE: 1" = 200'

DESIGNED BY: DARREN BROWN
DESIGNED AGENT: CT CORPORATION
ADDRESS: 5088 WASHINGTON ST. W. STE 402
CHARLESTON, WV 25313-1561

WELL OPERATOR: TUG HILL OPERATING, LLC
ADDRESS: 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76102

COUNTY NAME

PERMIT

HEAVEN HILL 3N LEASE
 UTICA UNIT - 686.21 AC ±
 WELL 16HU
 TUG HILL OPERATING



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

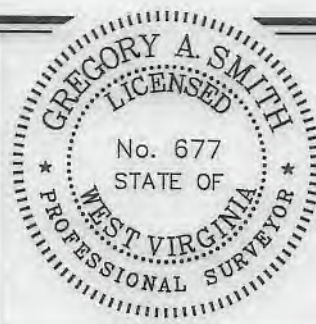
FILE NO. 8654P16HUR5.dwg
 HEAVEN HILL 3N-16HU REV6

DATE JUNE 20, 20 19

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

OPERATORS WELL NO. HEAVEN HILL 3N-16HU

API WELL NO. 47 — 051 — 02453
 STATE COUNTY PERMIT



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



P.S. 677

Gregory A. Smith

COUNTY NAME

PERMIT

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



TUG HILL OPERATING
WELL 18HU
UTICA UNIT - 686.21 AC ±
HEAVEN HILL 3N LEASE

LEASE NAME OR NO.	PARCEL	TAG	LESSOR, GRANTEE, ETC	DEED BOOK	PAGE
10*12481	9-2-4	DD	DEAN P RIGBY AND SUSAN RIGBY, ET AL	908	192
10*12482	9-2-4.1	CC	SUSAN NELSON, ET AL	908	203
10*21288	9-2-3	BB	LAWRENCE ALLEN WAYT, ET AL	687	233
10*21285	9-2-1.1	AA	TERRY L AND HARILIA HEIDI SAMPSON	822	321
10*21282	9-2-1	Z	TERRY L AND HARILIA HEIDI SAMPSON	822	321
10*12228	9-2-2	Y	ARNIE AND BOBBIE B GOODNIGHT	777	29
10*16623	9-2-3.2	X	CHARLES R HAGEDORN JR ET UX	669	177
10*12221	9-2-3.1	W	VENANGO 21ST CENTURY ENERGY INC, ET AL	722	281
10*12608	9-2-3	V	CHARLES R HAGEDORN JR	816	423
10*12221	9-2-3	V	VENANGO 21ST CENTURY ENERGY INC, ET AL	722	281
10*12228	9-2-4	U	HELEN R. PAYNE	791	38
10*12228	9-2-14	T	ARNIE AND BOBBIE B GOODNIGHT	777	29
10*12227	9-2-12	S	RICKY L WHITLATCH ET AL	780	226
10*12227	9-2-31	R	RICKY L WHITLATCH ET AL	780	226
10*12227	9-2-16	Q	KEVIN E MCGILTON AND TERESA E MCGILTON	820	321
10*12227	9-2-1	P	MICHAEL J RINE ET UX	668	147
10*12227	NOT ASSD	O	RICKY L WHITLATCH ET AL	780	226
10*12227	9-2-17	N	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	820	321
10*12227	NOT ASSD	M	RICKY L WHITLATCH ET AL	780	226
10*16471	9-2-2	L	CNX GAS COMPANY LLC	902	122
10*12227	9-2-18	K	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	820	321
10*12227	9-2-20	J	KEVIN E MCGILTON AND TERESA E MCGILTON, ET AL	820	321
10*12227	9-2-19	I	KEVIN E MCGILTON AND TERESA E MCGILTON	820	321
10*12227	9-2-16.1	H	EMMA CATHERINE ANDERSON, ET AL	861	286
10*12227	9-2-16.2	G	WILLIAM F KERNS AND JULIE A KERNS, ET AL	677	261
10*12481	9-2-17	F	BRUCE D SCHURR, ET AL	921	478
10*12481	9-2-23	E	BRUCE D SCHURR, ET AL	921	478
10*12662	9-2-24	D	LARRY LEE CONKLE, ET AL	863	324
10*12486	9-2-22	C	RICHARD NEAL NORRIS AND CAROL NORRIS, ET AL	902	430
10*12227	9-2-21	B	RICKY L WHITLATCH ET AL	780	226
10*12227	9-2-30	A	RICKY L WHITLATCH ET AL	780	226

COUNTY NAME

PERMIT



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



P.S. 677
Gregory A. Smith

FILE NO. 8684P18HU.R5.pwb
HEAVEN HILL 3N-18HU REVE
DATE 07/01/2022
REVISED 10/23/19 03/25/20 07/08/20 08/24/22
OPERATORS WELL NO. HEAVEN HILL 3N-18HU
NO. STATE COUNTY PERMIT
47-051-0422

WELL OPERATOR TUG HILL OPERATING, LLC
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 600
FORT WORTH, TX 76102
DESIGNATED AGENT DARRIN BROWN
ADDRESS 5088 WASHINGTON ST., W. STE 402
CHARLESTON, WV 25313-1861

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

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

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

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

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

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

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

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

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

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC.	GRANTEE, LESSEE, ETC.	ROYALTY	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

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	TRIENERGY 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



May 24, 2022

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

RE: Heaven Hill 3N-16HU

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-16HU well plat.

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

Sincerely,

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

Amy L. Morris
Permitting Specialist
Appalachia Region

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

Date of Notice Certification: 05/23/2022

API No. 47- 051 - _____
Operator's Well No. Heaven Hill 3N-16HU
Well Pad Name: Heaven Hill 3

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>OOG OFFICE USE ONLY</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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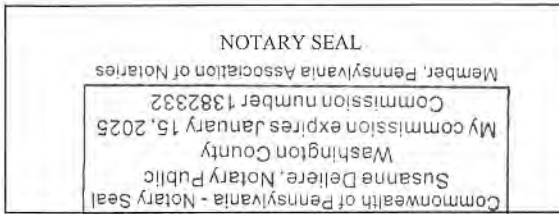
Required Attachments:

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.

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-hilop.com</u>



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

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.

**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. Whitlatch
 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 Whitlatch
 Address: 942 Yeater Lane
Glen Easton, WV 26039
 Name: Arnie 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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting 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 57th St. SE
Charleston, WV 25304
(304) 926-0450

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

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-16HU
Well Pad Name: Heaven Hill 3

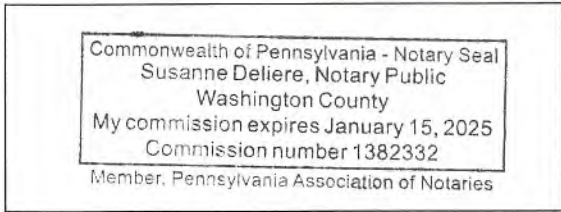
Notice is hereby given by:

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

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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 23rd 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

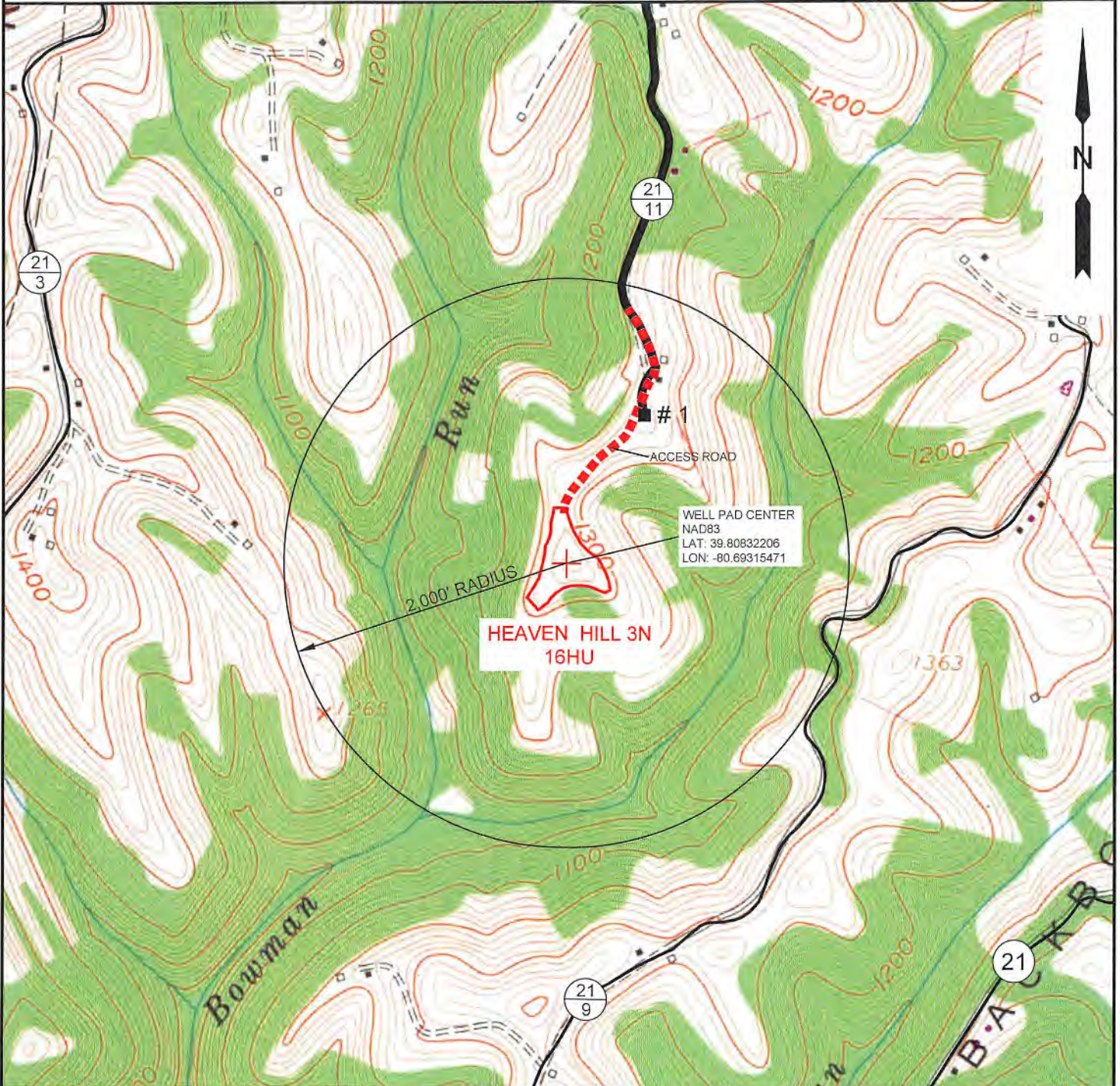
Residences within Two-Thousand Feet (2,000')

Well: Heaven Hill 3N – 16HU
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>Residence (#1) TM 7 Pcl. 30 Ricky L. Whitlatch Phone: 304-843-1168 Physical Address: 1044 Yeater Ln. Glen Easton, WV 26039 Tax Address: Same</p>

PROPOSED HEAVEN HILL 3N - 16HU



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 Vanhorn Drive • Glenville, WV 25951 • (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	1" = 1000'

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: 05/11/2022 **Date Permit Application Filed:** 05/21/2022

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: West Virginia UTM NAD 83 Easting: 526,244.97
County: Marshall Northing: 4,406,566.92
District: Meade Public Road Access: Yeater Lane CR 21/11
Quadrangle: Glen Easton 7.5' Generally used farm name: Ricky L. Whitlatch
Watershed: Fish Creek

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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting 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-hill.com
Facsimile: _____

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

Oil and Gas Privacy Notice:

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

**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>526,244.97</u>
County: <u>Marshall</u>		Northing: <u>4,406,566.92</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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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

Address: 380 Southpointe 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.

Operator Well No. Heaven Hill Unit 3N-16HU

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

May 24, 2022 ✓

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

Subject: DOH Permit for the Heaven Hill 3 Pad, Marshall County
Heaven Hill 3N-16HU 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



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 O&G
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: 304-843-1929
Meade District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Tug Hill Contact Number: 1-817-632-3400

Exhibit A: As-Built



Site Easements

WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41	Center of Road Pad WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41 WV N 30AD 81 E 140319.41
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Site Locations (NAD 83)

Station	Latitude (DD)	Longitude (DD)	Station	Latitude (DD)	Longitude (DD)
WV N 30AD 81 E 140319.41	39.80832206	-80.69315471	WV N 30AD 81 E 140319.41	39.80832206	-80.69315471

WV Site Plan Coordinate System
North Zone, NAD 83
Elevation Based on NAVD83
Established by Survey Grade GPS
and GPS Post Processing

Property Owner Information - Heaven Hill 3 Site

Owner	Acres	WV Parcel Number	Parcel Area (Acres)	Original Area (Acres)	Add. Change (Acres)	Field Contested
Andrew Wilcox	1.01	0-00-00-0000	1.00	0.00	0.00	0.00
Ricky Wilcox	0.10	0-00-00-0000	0.10	0.10	0.00	0.00
Alex Wilcox	0.10	0-00-00-0000	0.10	0.10	0.00	0.00
Ricky Wilcox	0.10	0-00-00-0000	0.10	0.10	0.00	0.00
Ricky Wilcox	0.10	0-00-00-0000	0.10	0.10	0.00	0.00
Ricky Wilcox	0.10	0-00-00-0000	0.10	0.10	0.00	0.00
Total	2.51		2.51	2.51	0.00	0.00

Access Road

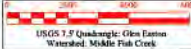
Site Name	WV Parcel	Acres	Year
Andrew Wilcox	0-00-00-0000	1.01	2010
Ricky Wilcox	0-00-00-0000	0.10	2010
Total		1.11	

Disturbed Area

WV Parcel	Acres
0-00-00-0000	2.51
0-00-00-0000	2.51
0-00-00-0000	2.51
Total	7.53

Heaven Hill 3 Site Quantities

Description	Volume (CY)	Area (Sq Ft)	Length (L)	Width (W)	Height (H)
Topsoil	2,000	10,000	100	10	2
Subsoil	2,000	10,000	100	10	2
Fill	2,000	10,000	100	10	2
Gravel	2,000	10,000	100	10	2
Crushed Stone	2,000	10,000	100	10	2
Concrete	2,000	10,000	100	10	2
Rebar	2,000	10,000	100	10	2
Formwork	2,000	10,000	100	10	2
Asphalt	2,000	10,000	100	10	2
Gravel	2,000	10,000	100	10	2
Crushed Stone	2,000	10,000	100	10	2
Concrete	2,000	10,000	100	10	2
Rebar	2,000	10,000	100	10	2
Formwork	2,000	10,000	100	10	2
Asphalt	2,000	10,000	100	10	2
Total	20,000	100,000	1,000	100	20



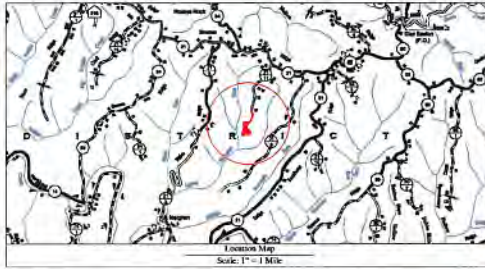
Project Contacts

Role	Name	Contact Info
Project Manager	[Name]	[Phone/Email]
Site Engineer	[Name]	[Phone/Email]
Construction Manager	[Name]	[Phone/Email]
Geotechnical Engineer	[Name]	[Phone/Email]
Environmental Engineer	[Name]	[Phone/Email]

Approach Route:
From the intersection of 12th Street and WV Rt 2 in Mountsville, WV. Follow WV Rt 2 for 3.5 mi. Turn Left onto WV Rt 2. Follow WV Rt 2 for 1.0 mi. Turn Right onto Co Rd 211 (Robbers Ridge). Follow Co Rd 211 for 1.0 mi. Turn Right onto Co Rd 211. Follow Co Rd 211 for 1.0 mi. The site entrance will be at the end of the road.

Site Locations (NAD 83)

Station	Latitude (DD)	Longitude (DD)	Station	Latitude (DD)	Longitude (DD)
WV N 30AD 81 E 140319.41	39.80832206	-80.69315471	WV N 30AD 81 E 140319.41	39.80832206	-80.69315471



Well Location Restrictions:

- All pad construction shall be developed in accordance with the following restrictions:
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.
- All pads shall be constructed on a firm surface.



Sheet Description

Sheet	Description
1	Cover Sheet
2	Schedule of Quantities
3	Site Notes
4	Pre-Construction Site Conditions
5	Site Soil Map
6	Clearing Exhibit
7	Overall Plan View
8	Plan View
9	Cross Sections - Access Road
10	Cross Sections - Additional Access Roads
11	Geotechnical
12	Landowner Disturbed Area Exhibit
13	Site Reclamation
14	Production Exhibit
15	Erosion and Sediment Control Details
16	Access Road Details
17	Pad Details

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

K&S SURVEYING & CONSULTING

Heaven Hill 3 Site
Meade District
Marshall County, WV

Date: 12/15/2021
Scale: As Shown
Designed By: ZS
File No:
Sheet 1 of 11

Heaven Hill 3 Site
Tug Hill Operating
Exhibit A: As-Built

WVDEP OOG
ACCEPTED AS-BUILT
6/13/2022

DATE: 12/13/2021

BY: JESSELL

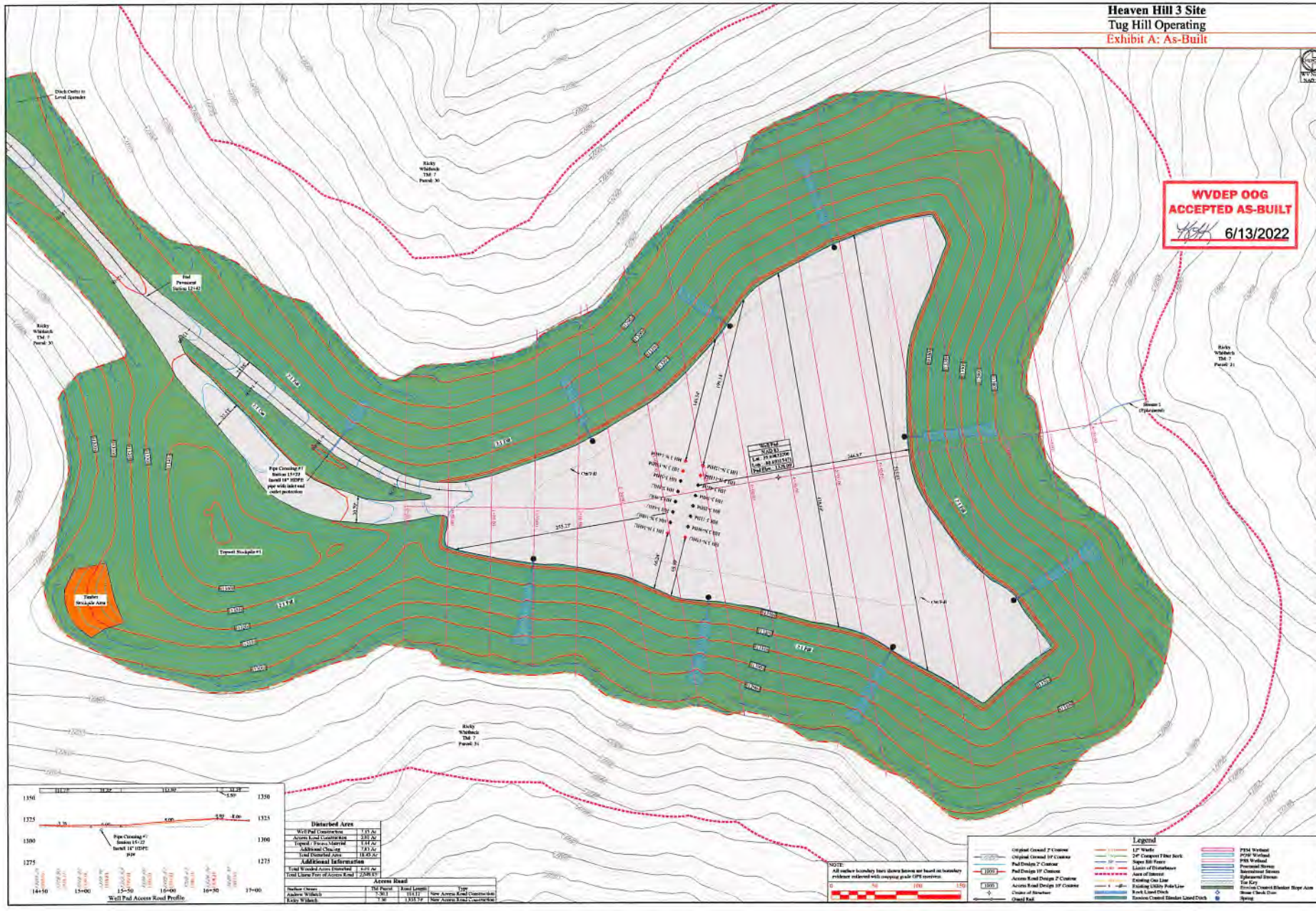
TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

K&S CONSULTANTS

Site Plan
Heaven Hill 3 Site
Meadow District
Marshall County, WV

DATE: 12/13/2021
SCALE: AS SHOWN
DESIGNED BY: JS
FILE NO:
SHEET 7 OF 11



Disturbed Area		
Well Pad Construction	7.15 AC	
Access Road Construction	238.52	
Impervious Surface Material	1.14 AC	
Additional Changes	1.11 AC	
Total Disturbed Area	247.92 AC	
Additional Information		
Total Non-forested Area Disturbed	247.92 AC	
Total Linear Feet of Access Road	2298.00	
Access Road		
Number of Access Roads	5	
Number of Paved Access Roads	1	
Number of Gravel Access Roads	4	
Number of New Access Road Construction	1	
Number of Existing Access Road Construction	4	

NOTE: All utility boundary lines shown herein are based on boundary evidence indicated with surveying grade (GPS) receivers.

Legend

Original Contour 7' Contour	Original Contour 10' Contour	Original Contour 15' Contour	Original Contour 20' Contour	Original Contour 25' Contour	Original Contour 30' Contour	Original Contour 35' Contour	Original Contour 40' Contour	Original Contour 45' Contour	Original Contour 50' Contour	Original Contour 55' Contour	Original Contour 60' Contour	Original Contour 65' Contour	Original Contour 70' Contour	Original Contour 75' Contour	Original Contour 80' Contour	Original Contour 85' Contour	Original Contour 90' Contour	Original Contour 95' Contour	Original Contour 100' Contour	Original Contour 105' Contour	Original Contour 110' Contour	Original Contour 115' Contour	Original Contour 120' Contour	Original Contour 125' Contour	Original Contour 130' Contour	Original Contour 135' Contour	Original Contour 140' Contour	Original Contour 145' Contour	Original Contour 150' Contour	Original Contour 155' Contour	Original Contour 160' Contour	Original Contour 165' Contour	Original Contour 170' Contour	Original Contour 175' Contour	Original Contour 180' Contour	Original Contour 185' Contour	Original Contour 190' Contour	Original Contour 195' Contour	Original Contour 200' Contour	Original Contour 205' Contour	Original Contour 210' Contour	Original Contour 215' Contour	Original Contour 220' Contour	Original Contour 225' Contour	Original Contour 230' Contour	Original Contour 235' Contour	Original Contour 240' Contour	Original Contour 245' Contour	Original Contour 250' Contour	Original Contour 255' Contour	Original Contour 260' Contour	Original Contour 265' Contour	Original Contour 270' Contour	Original Contour 275' Contour	Original Contour 280' Contour	Original Contour 285' Contour	Original Contour 290' Contour	Original Contour 295' Contour	Original Contour 300' Contour	Original Contour 305' Contour	Original Contour 310' Contour	Original Contour 315' Contour	Original Contour 320' Contour	Original Contour 325' Contour	Original Contour 330' Contour	Original Contour 335' Contour	Original Contour 340' Contour	Original Contour 345' Contour	Original Contour 350' Contour	Original Contour 355' Contour	Original Contour 360' Contour	Original Contour 365' Contour	Original Contour 370' Contour	Original Contour 375' Contour	Original Contour 380' Contour	Original Contour 385' Contour	Original Contour 390' Contour	Original Contour 395' Contour	Original Contour 400' Contour	Original Contour 405' Contour	Original Contour 410' Contour	Original Contour 415' Contour	Original Contour 420' Contour	Original Contour 425' Contour	Original Contour 430' Contour	Original Contour 435' Contour	Original Contour 440' Contour	Original Contour 445' Contour	Original Contour 450' Contour	Original Contour 455' Contour	Original Contour 460' Contour	Original Contour 465' Contour	Original Contour 470' Contour	Original Contour 475' Contour	Original Contour 480' Contour	Original Contour 485' Contour	Original Contour 490' Contour	Original Contour 495' Contour	Original Contour 500' Contour
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