



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

Friday, June 24, 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-11HM
47-051-02448-00-00

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

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

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


James A. Martin
Chief

Operator's Well Number: HEAVEN HILL 3N-11HM
Farm Name: ANDREW C WHITLATCH ET AL
U.S. WELL NUMBER: 47-051-02448-00-00
Horizontal 6A New Drill
Date Issued: 6/24/2022

Promoting a healthy environment.

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.

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.

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-11HM Well Pad Name: Heaven Hill 3

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

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

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Marcellus is the target formation at a depth of 6,816' - 6,866', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 6,966'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 14,639'

11) Proposed Horizontal Leg Length: 6,754.24'

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 - 1,032' and subsea level - 295'

Seam: Pittsburgh #8

Owner: Marshall County Coal Resources, Inc.

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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	100'	100'	259FT^3(CTS)
Fresh Water/Coal	13 3/8"	NEW	J55	54.5#	1,175'	1,175'	1,108FT^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	3,014'	3,014'	1,002FT^3(CTS)
Production	5 1/2"	NEW	P110	20#	14,639'	14,639'	3,742FT^3(CTS)
Tubing	2 3/8"	NEW	P110	4.7#		7,027'	
Liners							

MJK 1/19/2022

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water/Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

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PACKERS

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

WW-6B
(10/14)

4705102448
API NO. 47-051 -
OPERATOR WELL NO. Heaven Hill 3N-11HM
Well Pad Name: Heaven Hill 3

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP (6,527'). Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well to be completed with approximately 16,900,000 lb proppant and 310,000 bbl of water. Max rate = 80 bpm; 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 will have 1 centralizer every other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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

Sfc - Premium NE-1 + 2% CaCl; Int1 - Premium NE-1 + 1.5% CaCL + Flake; Int2 - Lead: Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170 Tail: Premium NE-1 + .1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 +.2% ASA-301 + .6% Sodium Metasilicate; Kick Plug - Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L; Prod - Lead: 50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

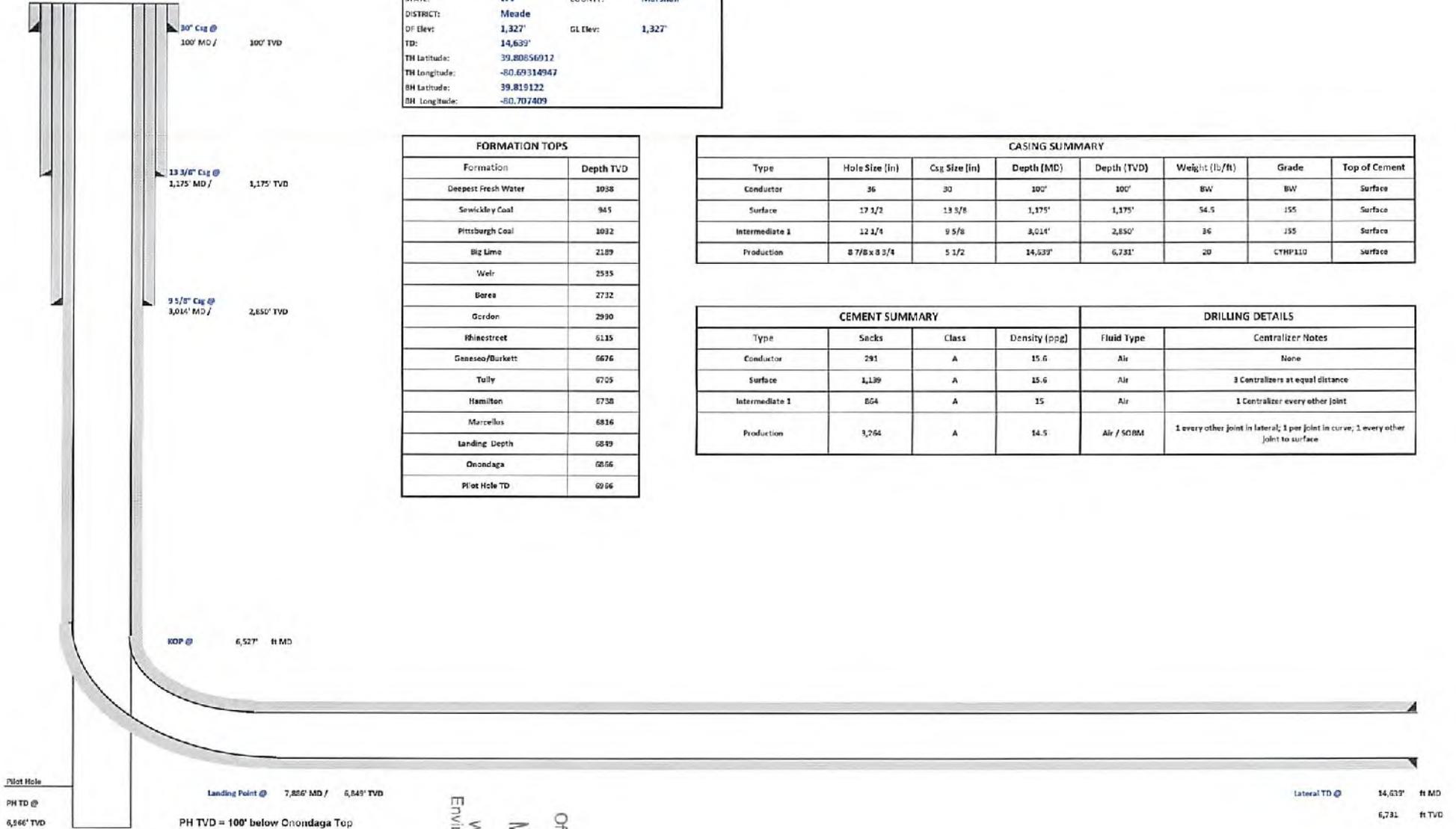


WELL NAME: Heaven Hill 3 N-11HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 1,327' **GL Elev:** 1,327'
TD: 14,633'
TH Latitude: 39.80856912
TH Longitude: -80.69314947
BH Latitude: 39.819122
BH Longitude: -80.707409

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1038
Sewickley Coal	945
Pittsburgh Coal	1032
Big Lime	2189
Weir	2535
Berea	2732
Gordon	2990
Rhinestreet	6135
Genesee/Burkett	6676
Tully	6705
Hamilton	6738
Marcellus	6816
Landing Depth	6849
Onondaga	6856
Pilot Hole TD	6956

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	100'	100'	8W	BW	Surface
Surface	17 1/2	13 5/8	1,175'	1,175'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	3,014'	2,850'	26	J55	Surface
Production	8 7/8 x 8 5/4	5 1/2	14,633'	6,731'	20	CYHP310	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	281	A	15.6	Air	None
Surface	1,139	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	664	A	15	Air	1 Centralizer every other joint
Production	3,264	A	14.5	Air / SOBIM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface



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Tug Hill Operating, LLC Casing and Cement Program

Heaven Hill 3 N-11HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	100'	CTS
Surface	13 3/8"	J55	17 1/2"	1,175'	CTS
Intermediate	9 5/8"	J55	12 1/4"	3,014'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	14,639'	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: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.38

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 14.5 ppg, Y = 1.3

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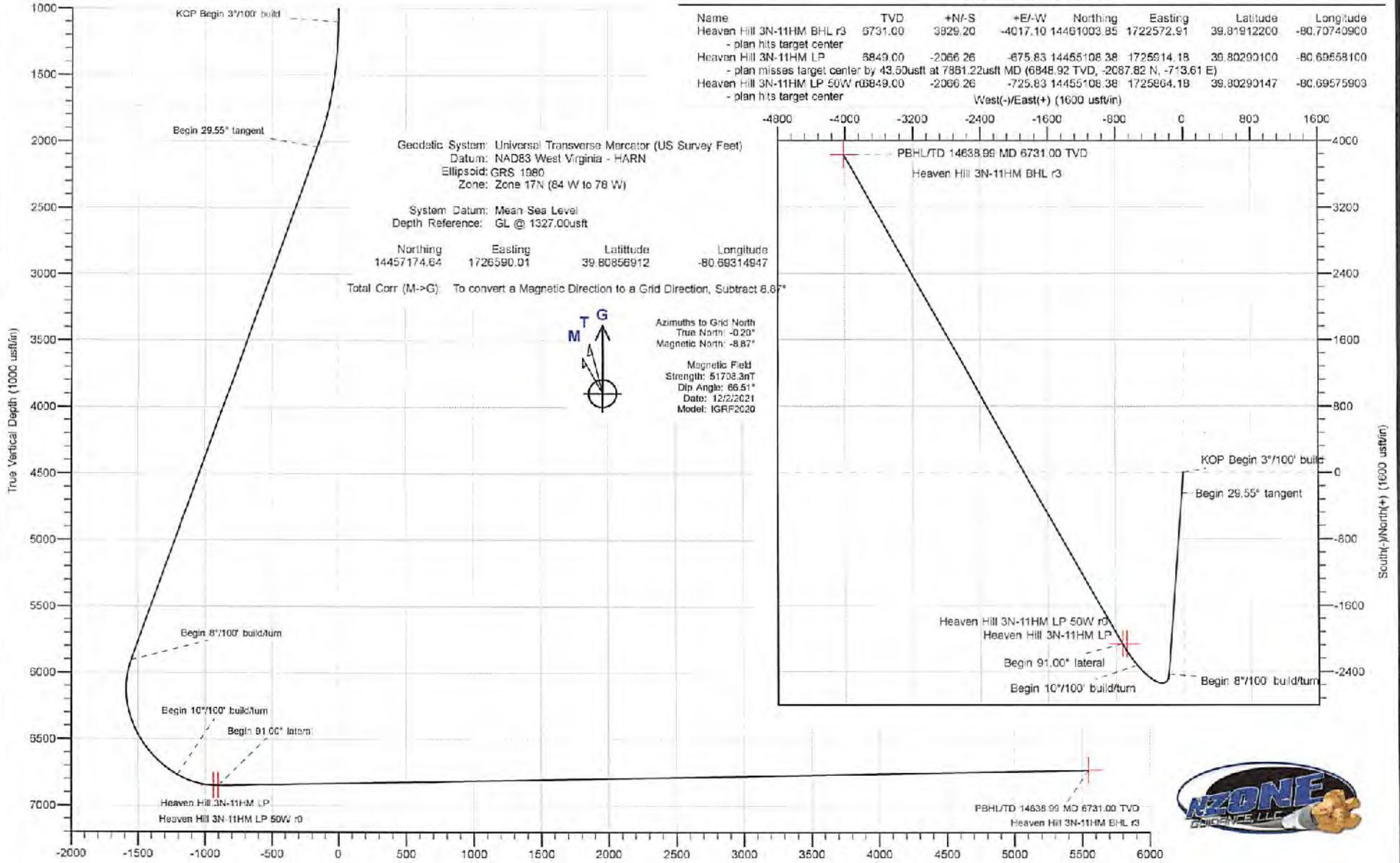
Well: Heaven Hill 3 N-11 HM (S)
 Site: Heaven Hill 3
 Project: Marshall County, West Virginia.
 Design: rev4
 Rig:

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 3"/100' build
3	2095.16	29.55	184.19	2042.05	-247.84	-18.16	3.00	164.19	-157.85	Begin 29.55° tangent
4	6526.58	29.55	184.19	5905.57	-2432.74	-178.30	0.00	0.00	-1549.47	Begin 8"/100' build/turn
5	7559.52	60.00	320.09	6768.03	-2324.23	-550.81	8.00	142.58	-1204.97	Begin 10"/100' build/turn
6	7866.01	91.00	330.83	6849.00	-2066.26	-725.83	10.00	20.20	-900.29	Begin 91.00° lateral
7	14638.99	91.00	330.83	6731.00	3829.20	-4017.10	0.00	0.00	5549.76	PBHLTD 14638.99 MD 6731.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Heaven Hill 3N-11HM BHL r3	6731.00	3829.20	-4017.10	14461003.85	1722572.91	39.81912200	-80.70740900
- plan hits target center							
Heaven Hill 3N-11HM LP	6849.00	-2066.26	-675.83	14455108.38	1725914.18	39.80290100	-80.69558100
- plan misses target center by 43.50usft at 7851.22usft MD (6848.92 TVD, -2087.82 N, -713.61 E)							
Heaven Hill 3N-11HM LP 50W r0	6849.00	-2066.26	-725.83	14455108.38	1725864.18	39.80290147	-80.69575903
- plan hits target center							



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

System Datum: Mean Sea Level
 Depth Reference: GL @ 1327.00usft

Northing: 14457174.64 Easting: 1726590.01 Latitude: 39.80856912 Longitude: -80.69314847

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.67°



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.67°

Magnetic Field
 Strength: 51738.3nT
 Dip Angle: 66.51°
 Date: 12/2/2021
 Model: IGRF2020





Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-11 HM (S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-11 HM (S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

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

Site	Heaven Hill 3		
Site Position:		Northing:	14,457,178.77 usft
From:	Lat/Long	Easting:	1,726,571.98 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	39.80859060
		Longitude:	-80.69321360

Well	Heaven Hill 3 N-11 HM (S)		
Well Position	+N/-S	0.00 usft	Northing: 14,457,174.65 usft
	+E/-W	0.00 usft	Easting: 1,726,590.01 usft
Position Uncertainty	0.00 usft		Wellhead Elevation: usft
Grid Convergence:			Latitude: 39.80856912
			Longitude: -80.69314947
			Ground Level: 1,327.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (")	Dip Angle (")	Field Strength (nT)
	IGRF2020	12/2/2021	-8.67	66.51	51,708.32352640

Design	rev4			
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	313.63

Plan Survey Tool Program	Date			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	14,638.95	rev4 (Original Hole)	

Plan Sections										
Measured Depth (usft)	Inclination (")	Azimuth (")	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate ("/100usft)	Build Rate ("/100usft)	Turn Rate ("/100usft)	TFO (")	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,085.16	29.55	184.19	2,042.05	-247.84	-18.16	3.00	3.00	0.00	184.19	
6,526.58	29.55	184.19	5,905.57	-2,432.74	-178.30	0.00	0.00	0.00	0.00	
7,559.52	60.00	320.09	6,788.03	-2,324.23	-550.81	8.00	2.95	13.16	142.58	
7,886.01	91.00	330.83	6,849.00	-2,066.26	-725.83	10.00	9.50	3.29	20.20	
14,639.00	91.00	330.83	6,731.00	3,829.20	-4,017.10	0.00	0.00	0.00	0.00	Heaven Hill 3N-11HM



Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-11 HM (S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-11 HM (S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

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	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
100.00	0.00	0.00	100.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
200.00	0.00	0.00	200.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
300.00	0.00	0.00	300.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
400.00	0.00	0.00	400.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
500.00	0.00	0.00	500.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
600.00	0.00	0.00	600.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
700.00	0.00	0.00	700.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
800.00	0.00	0.00	800.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
900.00	0.00	0.00	900.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,174.65	1,726,590.01	39.80856912	-80.69314947	
KOP Begin 3°/100' build										
1,200.00	3.00	184.19	1,199.95	-2.61	-0.19	14,457,172.04	1,726,589.82	39.80856195	-80.69315018	
1,300.00	6.00	184.19	1,299.63	-10.43	-0.76	14,457,164.21	1,726,589.24	39.80854047	-80.69315232	
1,400.00	9.00	184.19	1,398.77	-23.45	-1.72	14,457,151.20	1,726,588.29	39.80850474	-80.69315588	
1,500.00	12.00	184.19	1,497.08	-41.62	-3.05	14,457,135.02	1,726,588.96	39.80845464	-80.69316084	
1,600.00	15.00	184.19	1,594.31	-64.90	-4.76	14,457,109.74	1,726,585.25	39.80839093	-80.69316720	
1,700.00	18.00	184.19	1,690.18	-93.23	-6.83	14,457,081.42	1,726,583.17	39.80831317	-80.69317494	
1,800.00	21.00	184.19	1,784.43	-126.51	-9.27	14,457,048.13	1,726,560.74	39.80822177	-80.69318403	
1,900.00	24.00	184.19	1,878.81	-164.67	-12.07	14,457,009.97	1,726,577.94	39.80811700	-80.69319446	
2,000.00	27.00	184.19	1,967.06	-207.61	-15.22	14,456,967.04	1,726,574.79	39.80799913	-80.69320618	
2,085.16	29.55	184.19	2,042.05	-247.84	-18.16	14,456,926.81	1,726,571.84	39.80788867	-80.69321717	
Begin 29.55° tangent										
2,100.00	29.55	184.19	2,054.96	-255.14	-18.70	14,456,919.51	1,726,571.31	39.80786863	-80.69321917	
2,200.00	29.55	184.19	2,141.95	-304.33	-22.30	14,456,870.32	1,726,567.70	39.80773356	-80.69323261	
2,300.00	29.55	184.19	2,228.94	-353.53	-25.91	14,456,821.12	1,726,564.10	39.80759850	-80.69324605	
2,400.00	29.55	184.19	2,315.92	-402.72	-29.52	14,456,771.93	1,726,560.49	39.80746343	-80.69325948	
2,500.00	29.55	184.19	2,402.91	-451.91	-33.12	14,456,722.73	1,726,556.89	39.80732837	-80.69327292	
2,600.00	29.55	184.19	2,489.90	-501.11	-36.73	14,456,673.54	1,726,553.28	39.80719331	-80.69328636	
2,700.00	29.55	184.19	2,576.89	-550.30	-40.33	14,456,624.35	1,726,549.68	39.80705824	-80.69329980	
2,800.00	29.55	184.19	2,663.88	-599.49	-43.94	14,456,575.15	1,726,546.07	39.80692318	-80.69331324	
2,900.00	29.55	184.19	2,750.87	-648.69	-47.54	14,456,525.96	1,726,542.46	39.80678811	-80.69332668	
3,000.00	29.55	184.19	2,837.85	-697.88	-51.15	14,456,476.77	1,726,538.86	39.80665305	-80.69334011	
3,100.00	29.55	184.19	2,924.84	-747.08	-54.75	14,456,427.57	1,726,535.25	39.80651799	-80.69335355	
3,200.00	29.55	184.19	3,011.83	-796.27	-58.36	14,456,378.38	1,726,531.65	39.80638292	-80.69336699	
3,300.00	29.55	184.19	3,098.82	-845.46	-61.96	14,456,329.18	1,726,528.04	39.80624786	-80.69338043	
3,400.00	29.55	184.19	3,185.81	-894.66	-65.57	14,456,279.99	1,726,524.44	39.80611279	-80.69339387	
3,500.00	29.55	184.19	3,272.80	-943.85	-69.18	14,456,230.80	1,726,520.83	39.80597773	-80.69340730	
3,600.00	29.55	184.19	3,359.78	-993.04	-72.78	14,456,181.60	1,726,517.23	39.80584266	-80.69342074	
3,700.00	29.55	184.19	3,446.77	-1,042.24	-76.39	14,456,132.41	1,726,513.62	39.80570760	-80.69343418	
3,800.00	29.55	184.19	3,533.76	-1,091.43	-79.99	14,456,083.22	1,726,510.02	39.80557254	-80.69344762	
3,900.00	29.55	184.19	3,620.75	-1,140.62	-83.60	14,456,034.02	1,726,506.41	39.80543747	-80.69346105	
4,000.00	29.55	184.19	3,707.74	-1,189.82	-87.20	14,455,984.83	1,726,502.81	39.80530241	-80.69347449	
4,100.00	29.55	184.19	3,794.73	-1,239.01	-90.81	14,455,935.64	1,726,499.20	39.80516734	-80.69348793	
4,200.00	29.55	184.19	3,881.71	-1,288.21	-94.41	14,455,886.44	1,726,495.59	39.80503226	-80.69350137	
4,300.00	29.55	184.19	3,968.70	-1,337.40	-98.02	14,455,837.25	1,726,491.99	39.80489722	-80.69351480	
4,400.00	29.55	184.19	4,055.69	-1,386.59	-101.62	14,455,788.05	1,726,488.38	39.80476215	-80.69352824	
4,500.00	29.55	184.19	4,142.68	-1,435.79	-105.23	14,455,738.86	1,726,484.78	39.80462708	-80.69354168	
4,600.00	29.55	184.19	4,229.67	-1,484.98	-108.83	14,455,689.67	1,726,481.17	39.80449202	-80.69355512	
4,700.00	29.55	184.19	4,316.66	-1,534.17	-112.44	14,455,640.47	1,726,477.57	39.80435696	-80.69356855	
4,800.00	29.55	184.19	4,403.64	-1,583.37	-116.05	14,455,591.28	1,726,473.96	39.80422190	-80.69358199	
4,900.00	29.55	184.19	4,490.63	-1,632.56	-119.65	14,455,542.09	1,726,470.36	39.80408683	-80.69359543	
5,000.00	29.55	184.19	4,577.62	-1,681.76	-123.26	14,455,492.89	1,726,466.75	39.80395177	-80.69360886	



Planning Report - Geographic

4705102448

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-11 HM (S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-11 HM (S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,100.00	29.55	184.19	4,664.61	-1,730.95	-126.86	14,455,443.70	1,726,463.15	39.80381670	-80.69362230	
5,200.00	29.55	184.19	4,751.80	-1,780.14	-130.47	14,455,394.50	1,726,459.54	39.80368164	-80.69363574	
5,300.00	29.55	184.19	4,838.59	-1,829.34	-134.07	14,455,345.31	1,726,455.93	39.80354857	-80.69364917	
5,400.00	29.55	184.19	4,925.58	-1,878.53	-137.88	14,455,296.12	1,726,452.33	39.80341151	-80.69366261	
5,500.00	29.55	184.19	5,012.56	-1,927.72	-141.28	14,455,246.92	1,726,448.72	39.80327645	-80.69367605	
5,600.00	29.55	184.19	5,099.55	-1,976.92	-144.89	14,455,197.73	1,726,445.12	39.80314138	-80.69368949	
5,700.00	29.55	184.19	5,186.54	-2,026.11	-148.49	14,455,148.54	1,726,441.51	39.80300632	-80.69370292	
5,800.00	29.55	184.19	5,273.53	-2,075.31	-152.10	14,455,099.34	1,726,437.91	39.80287125	-80.69371636	
5,900.00	29.55	184.19	5,360.52	-2,124.50	-155.71	14,455,050.15	1,726,434.30	39.80273619	-80.69372979	
6,000.00	29.55	184.19	5,447.51	-2,173.69	-159.31	14,455,000.95	1,726,430.70	39.80260112	-80.69374323	
6,100.00	29.55	184.19	5,534.49	-2,222.89	-162.92	14,454,951.76	1,726,427.09	39.80246606	-80.69375667	
6,200.00	29.55	184.19	5,621.48	-2,272.08	-166.52	14,454,902.57	1,726,423.49	39.80233100	-80.69377010	
6,300.00	29.55	184.19	5,708.47	-2,321.27	-170.13	14,454,853.37	1,726,419.88	39.80219593	-80.69378354	
6,400.00	29.55	184.19	5,795.46	-2,370.47	-173.73	14,454,804.18	1,726,416.27	39.80206087	-80.69379698	
6,500.00	29.55	184.19	5,882.45	-2,419.66	-177.34	14,454,754.99	1,726,412.67	39.80192580	-80.69381041	
6,526.58	29.55	184.19	5,905.57	-2,432.74	-178.30	14,454,741.91	1,726,411.71	39.80188990	-80.69381388	
Begin 8°/100' build/turn										
6,550.00	28.09	186.61	5,926.09	-2,443.98	-179.35	14,454,730.67	1,726,410.65	39.80185905	-80.69381788	
6,600.00	25.12	192.61	5,970.80	-2,466.03	-183.03	14,454,709.61	1,726,406.98	39.80179850	-80.69383124	
6,650.00	22.46	200.02	6,016.55	-2,485.37	-188.62	14,454,689.28	1,726,401.39	39.80174545	-80.69385137	
6,700.00	20.21	209.14	6,063.14	-2,501.90	-196.10	14,454,672.75	1,726,393.91	39.80170015	-80.69387820	
6,750.00	18.54	220.12	6,110.32	-2,515.52	-205.43	14,454,659.13	1,726,384.58	39.80166281	-80.69389159	
6,800.00	17.60	232.68	6,157.87	-2,526.19	-216.56	14,454,648.46	1,726,373.45	39.80163363	-80.69395137	
6,850.00	17.52	245.97	6,205.56	-2,533.84	-229.45	14,454,640.81	1,726,360.56	39.80161274	-80.69398735	
6,900.00	18.30	258.75	6,253.16	-2,538.43	-244.03	14,454,636.21	1,726,345.98	39.80160025	-80.69404931	
6,950.00	19.85	270.05	6,300.43	-2,539.96	-260.23	14,454,634.69	1,726,329.78	39.80159621	-80.69410689	
7,000.00	22.01	279.51	6,347.14	-2,538.40	-277.96	14,454,636.25	1,726,312.05	39.80160066	-80.69417012	
7,050.00	24.60	287.22	6,393.07	-2,533.77	-297.15	14,454,640.88	1,726,292.86	39.80161355	-80.69423839	
7,100.00	27.52	293.46	6,437.99	-2,528.09	-317.70	14,454,648.56	1,726,272.31	39.80163484	-80.69431145	
7,150.00	30.67	298.54	6,481.68	-2,515.39	-339.51	14,454,659.25	1,726,250.50	39.80166442	-80.69438867	
7,200.00	33.88	302.75	6,523.93	-2,501.74	-362.47	14,454,672.91	1,726,227.54	39.80170214	-80.69447055	
7,250.00	37.41	306.28	6,564.54	-2,485.18	-386.47	14,454,689.46	1,726,203.54	39.80174782	-80.69455581	
7,300.00	40.93	309.29	6,603.30	-2,465.82	-411.40	14,454,708.83	1,726,178.61	39.80180124	-80.69464433	
7,350.00	44.51	311.90	6,640.03	-2,443.73	-437.13	14,454,730.92	1,726,152.88	39.80186214	-80.69473567	
7,400.00	48.15	314.20	6,674.55	-2,419.03	-463.53	14,454,755.62	1,726,126.47	39.80193022	-80.69482939	
7,450.00	51.83	316.24	6,706.69	-2,391.84	-490.49	14,454,782.81	1,726,099.52	39.80200515	-80.69492504	
7,500.00	55.55	318.09	6,736.29	-2,362.29	-517.86	14,454,812.36	1,726,072.14	39.80208656	-80.69502214	
7,550.00	59.29	319.78	6,763.22	-2,330.52	-545.52	14,454,844.13	1,726,044.49	39.80217406	-80.69512023	
7,559.52	60.00	320.09	6,768.03	-2,324.23	-550.81	14,454,850.42	1,726,039.20	39.80219136	-80.69513899	
Begin 10°/100' build/turn										
7,600.00	63.81	321.65	6,787.09	-2,296.53	-573.33	14,454,878.11	1,726,016.67	39.80226765	-80.69521884	
7,650.00	68.53	323.43	6,807.29	-2,260.23	-601.13	14,454,914.42	1,725,986.88	39.80236761	-80.69531738	
7,700.00	73.28	325.11	6,823.64	-2,221.88	-628.70	14,454,952.77	1,725,961.30	39.80247318	-80.69541509	
7,750.00	78.03	326.70	6,836.03	-2,181.78	-655.84	14,454,992.87	1,725,934.17	39.80258358	-80.69551122	
7,800.00	82.80	328.24	6,844.35	-2,140.22	-682.34	14,455,034.43	1,725,907.67	39.80269795	-80.69560506	
7,850.00	87.57	329.75	6,848.55	-2,097.53	-707.99	14,455,077.12	1,725,882.02	39.80281544	-80.69569589	
7,866.01	91.00	330.83	6,849.00	-2,066.26	-725.83	14,455,108.39	1,725,864.17	39.80290147	-80.69575903	
Begin 91.00° lateral										
7,900.00	91.00	330.83	6,848.76	-2,054.04	-732.65	14,455,120.60	1,725,857.35	39.80293508	-80.69578317	
8,000.00	91.00	330.83	6,847.01	-1,986.74	-781.39	14,455,207.91	1,725,806.62	39.80317529	-80.69595564	
8,100.00	91.00	330.83	6,845.26	-1,879.44	-830.13	14,455,295.21	1,725,759.88	39.80341546	-80.69612812	
8,200.00	91.00	330.83	6,843.51	-1,792.14	-878.87	14,455,382.51	1,725,711.14	39.80365570	-80.69630060	
8,300.00	91.00	330.83	6,841.77	-1,704.84	-927.61	14,455,469.81	1,725,662.40	39.80389580	-80.69647308	
8,400.00	91.00	330.83	6,840.02	-1,617.54	-976.34	14,455,557.11	1,725,613.66	39.80413611	-80.69664556	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-11 HM (S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-11 HM (S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,500.00	91.00	330.83	8,838.27	-1,530.23	-1,025.08	14,455,644.41	1,725,564.93	39.80437631	-80.69681804	
8,600.00	91.00	330.83	8,836.53	-1,442.93	-1,073.82	14,455,731.71	1,725,516.19	39.80461652	-80.69699053	
8,700.00	91.00	330.83	8,834.78	-1,355.63	-1,122.56	14,455,818.02	1,725,467.45	39.80485672	-80.69716301	
8,800.00	91.00	330.83	8,833.03	-1,268.33	-1,171.29	14,455,906.32	1,725,418.71	39.80509693	-80.69733550	
8,900.00	91.00	330.83	8,831.28	-1,181.03	-1,220.03	14,455,993.62	1,725,369.97	39.80533713	-80.69750798	
9,000.00	91.00	330.83	8,829.54	-1,093.73	-1,268.77	14,456,080.92	1,725,321.24	39.80557734	-80.69768047	
9,100.00	91.00	330.83	8,827.79	-1,006.43	-1,317.51	14,456,168.22	1,725,272.50	39.80581754	-80.69785296	
9,200.00	91.00	330.83	8,826.04	-919.12	-1,366.25	14,456,255.52	1,725,223.76	39.80605774	-80.69802545	
9,300.00	91.00	330.83	8,824.29	-831.82	-1,414.98	14,456,342.83	1,725,175.02	39.80629795	-80.69819794	
9,400.00	91.00	330.83	8,822.55	-744.52	-1,463.72	14,456,430.13	1,725,126.29	39.80653815	-80.69837044	
9,500.00	91.00	330.83	8,820.80	-657.22	-1,512.46	14,456,517.43	1,725,077.55	39.80677835	-80.69854293	
9,600.00	91.00	330.83	8,819.05	-569.92	-1,561.20	14,456,604.73	1,725,028.81	39.80701856	-80.69871542	
9,700.00	91.00	330.83	8,817.30	-482.62	-1,609.94	14,456,692.03	1,724,980.07	39.80725876	-80.69888792	
9,800.00	91.00	330.83	8,815.56	-395.31	-1,658.67	14,456,779.33	1,724,931.33	39.80749896	-80.69906042	
9,900.00	91.00	330.83	8,813.81	-308.01	-1,707.41	14,456,866.63	1,724,882.60	39.80773916	-80.69923292	
10,000.00	91.00	330.83	8,812.06	-220.71	-1,756.15	14,456,953.94	1,724,833.86	39.80797936	-80.69940542	
10,100.00	91.00	330.83	8,810.31	-133.41	-1,804.89	14,457,041.24	1,724,785.12	39.80821956	-80.69957792	
10,200.00	91.00	330.83	8,808.57	-46.11	-1,853.63	14,457,128.54	1,724,736.38	39.80845976	-80.69975042	
10,300.00	91.00	330.83	8,806.82	41.19	-1,902.36	14,457,215.84	1,724,687.64	39.80869996	-80.69992292	
10,400.00	91.00	330.83	8,805.07	128.50	-1,951.10	14,457,303.14	1,724,638.91	39.80894017	-80.70009543	
10,500.00	91.00	330.83	8,803.32	215.80	-1,999.84	14,457,390.44	1,724,590.17	39.80918037	-80.70026794	
10,600.00	91.00	330.83	8,801.58	303.10	-2,048.58	14,457,477.75	1,724,541.43	39.80942057	-80.70044044	
10,700.00	91.00	330.83	8,799.83	390.40	-2,097.31	14,457,565.05	1,724,492.69	39.80966076	-80.70061295	
10,800.00	91.00	330.83	8,798.08	477.70	-2,146.05	14,457,652.35	1,724,443.95	39.80990096	-80.70078546	
10,900.00	91.00	330.83	8,796.34	565.00	-2,194.79	14,457,739.65	1,724,395.22	39.81014116	-80.70095797	
11,000.00	91.00	330.83	8,794.59	652.30	-2,243.53	14,457,826.95	1,724,346.48	39.81038136	-80.70113048	
11,100.00	91.00	330.83	8,792.84	739.61	-2,292.27	14,457,914.25	1,724,297.74	39.81062156	-80.70130300	
11,200.00	91.00	330.83	8,791.09	826.91	-2,341.00	14,458,001.56	1,724,249.00	39.81086176	-80.70147551	
11,300.00	91.00	330.83	8,789.35	914.21	-2,389.74	14,458,088.86	1,724,200.27	39.81110196	-80.70164803	
11,400.00	91.00	330.83	8,787.60	1,001.51	-2,438.48	14,458,176.16	1,724,151.53	39.81134215	-80.70182054	
11,500.00	91.00	330.83	8,785.85	1,088.81	-2,487.22	14,458,263.46	1,724,102.79	39.81158235	-80.70199306	
11,600.00	91.00	330.83	8,784.10	1,176.11	-2,535.96	14,458,350.76	1,724,054.05	39.81182255	-80.70216558	
11,700.00	91.00	330.83	8,782.36	1,263.42	-2,584.69	14,458,438.06	1,724,005.31	39.81206275	-80.70233810	
11,800.00	91.00	330.83	8,780.61	1,350.72	-2,633.43	14,458,525.36	1,723,956.58	39.81230295	-80.70251062	
11,900.00	91.00	330.83	8,778.86	1,438.02	-2,682.17	14,458,612.67	1,723,907.84	39.81254314	-80.70268315	
12,000.00	91.00	330.83	8,777.11	1,525.32	-2,730.91	14,458,699.97	1,723,859.10	39.81278333	-80.70285567	
12,100.00	91.00	330.83	8,775.37	1,612.62	-2,779.65	14,458,787.27	1,723,810.36	39.81302353	-80.70302819	
12,200.00	91.00	330.83	8,773.62	1,699.92	-2,828.38	14,458,874.57	1,723,761.62	39.81326373	-80.70320072	
12,300.00	91.00	330.83	8,771.87	1,787.22	-2,877.12	14,458,961.87	1,723,712.89	39.81350392	-80.70337325	
12,400.00	91.00	330.83	8,770.12	1,874.53	-2,925.86	14,459,049.17	1,723,664.15	39.81374412	-80.70354578	
12,500.00	91.00	330.83	8,768.38	1,961.83	-2,974.60	14,459,136.48	1,723,615.41	39.81398431	-80.70371831	
12,600.00	91.00	330.83	8,766.63	2,049.13	-3,023.34	14,459,223.78	1,723,566.67	39.81422451	-80.70389084	
12,700.00	91.00	330.83	8,764.88	2,136.43	-3,072.07	14,459,311.08	1,723,517.93	39.81446470	-80.70406337	
12,800.00	91.00	330.83	8,763.13	2,223.73	-3,120.81	14,459,398.38	1,723,469.20	39.81470489	-80.70423590	
12,900.00	91.00	330.83	8,761.39	2,311.03	-3,169.55	14,459,485.68	1,723,420.46	39.81494509	-80.70440844	
13,000.00	91.00	330.83	8,759.64	2,398.34	-3,218.29	14,459,572.98	1,723,371.72	39.81518528	-80.70458097	
13,100.00	91.00	330.83	8,757.89	2,485.64	-3,267.02	14,459,660.29	1,723,322.98	39.81542547	-80.70475351	
13,200.00	91.00	330.83	8,756.15	2,572.94	-3,315.76	14,459,747.59	1,723,274.24	39.81566567	-80.70492605	
13,300.00	91.00	330.83	8,754.40	2,660.24	-3,364.50	14,459,834.89	1,723,225.51	39.81590586	-80.70509859	
13,400.00	91.00	330.83	8,752.65	2,747.54	-3,413.24	14,459,922.19	1,723,176.77	39.81614605	-80.70527113	
13,500.00	91.00	330.83	8,750.90	2,834.84	-3,461.98	14,460,009.49	1,723,128.03	39.81638624	-80.70544367	
13,600.00	91.00	330.83	8,749.16	2,922.15	-3,510.71	14,460,096.79	1,723,079.29	39.81662644	-80.70561622	
13,700.00	91.00	330.83	8,747.41	3,009.45	-3,559.45	14,460,184.09	1,723,030.56	39.81686663	-80.70578876	
13,800.00	91.00	330.83	8,745.66	3,098.75	-3,608.19	14,460,271.40	1,722,981.82	39.81710682	-80.70596131	
13,900.00	91.00	330.83	8,743.91	3,188.05	-3,656.93	14,460,358.70	1,722,933.08	39.81734701	-80.70613385	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-11 HM (S)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1327.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-11 HM (S)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,000.00	91.00	330.83	6,742.17	3,271.35	-3,705.67	14,460,446.00	1,722,884.34	39.81758720	-80.70630640
14,100.00	91.00	330.83	6,740.42	3,356.65	-3,754.40	14,460,533.30	1,722,835.60	39.81782739	-80.70647895
14,200.00	91.00	330.83	6,738.67	3,445.95	-3,803.14	14,460,620.60	1,722,786.87	39.81806758	-80.70665150
14,300.00	91.00	330.83	6,736.92	3,533.26	-3,851.88	14,460,707.90	1,722,738.13	39.81830777	-80.70682405
14,400.00	91.00	330.83	6,735.18	3,620.56	-3,900.62	14,460,795.21	1,722,689.39	39.81854796	-80.70699660
14,500.00	91.00	330.83	6,733.43	3,707.86	-3,949.36	14,460,882.51	1,722,640.65	39.81878815	-80.70716916
14,600.00	91.00	330.83	6,731.68	3,795.16	-3,998.09	14,460,969.81	1,722,591.91	39.81902834	-80.70734171
14,639.00	91.00	330.83	6,731.00	3,829.20	-4,017.10	14,461,003.85	1,722,572.91	39.81912200	-80.70740900
PBHL/TD 14638.99 MD 6731.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Heaven Hill 3N-11HM BI - hit/miss target - Shape - Point	0.00	0.01	6,731.00	3,829.20	-4,017.10	14,461,003.85	1,722,572.91	39.81912200	-80.70740900
Heaven Hill 3N-11HM LF - plan hits target center - Point	0.00	0.00	6,849.00	-2,066.26	-725.83	14,455,108.39	1,725,864.17	39.80290147	-80.69575903
Heaven Hill 3N-11HM LF - plan misses target center by 43.50usft at 7861.22usft MD (6848.92 TVD, -2087.82 N, -713.61 E) - Point	0.00	0.00	6,849.00	-2,066.26	-675.83	14,455,108.39	1,725,914.18	39.80290100	-80.69558100

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
14,749.25		20" Casing	20	24	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
1,100.00	1,100.00	0.00	0.00	KOP Begin 3°/100' build	
2,085.16	2,042.05	-247.84	-18.16	Begin 29.55° tangent	
6,526.58	5,905.57	-2,432.74	-178.30	Begin 8°/100' build/turn	
7,559.52	6,768.03	-2,324.23	-550.81	Begin 10°/100' build/turn	
7,886.01	6,849.00	-2,066.26	-725.83	Begin 91.00° lateral	
14,639.00	6,731.00	3,829.20	-4,017.10	PBHL/TD 14638.99 MD 6731.00 TVD	

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: *Harvey J Knott*

Comments: _____

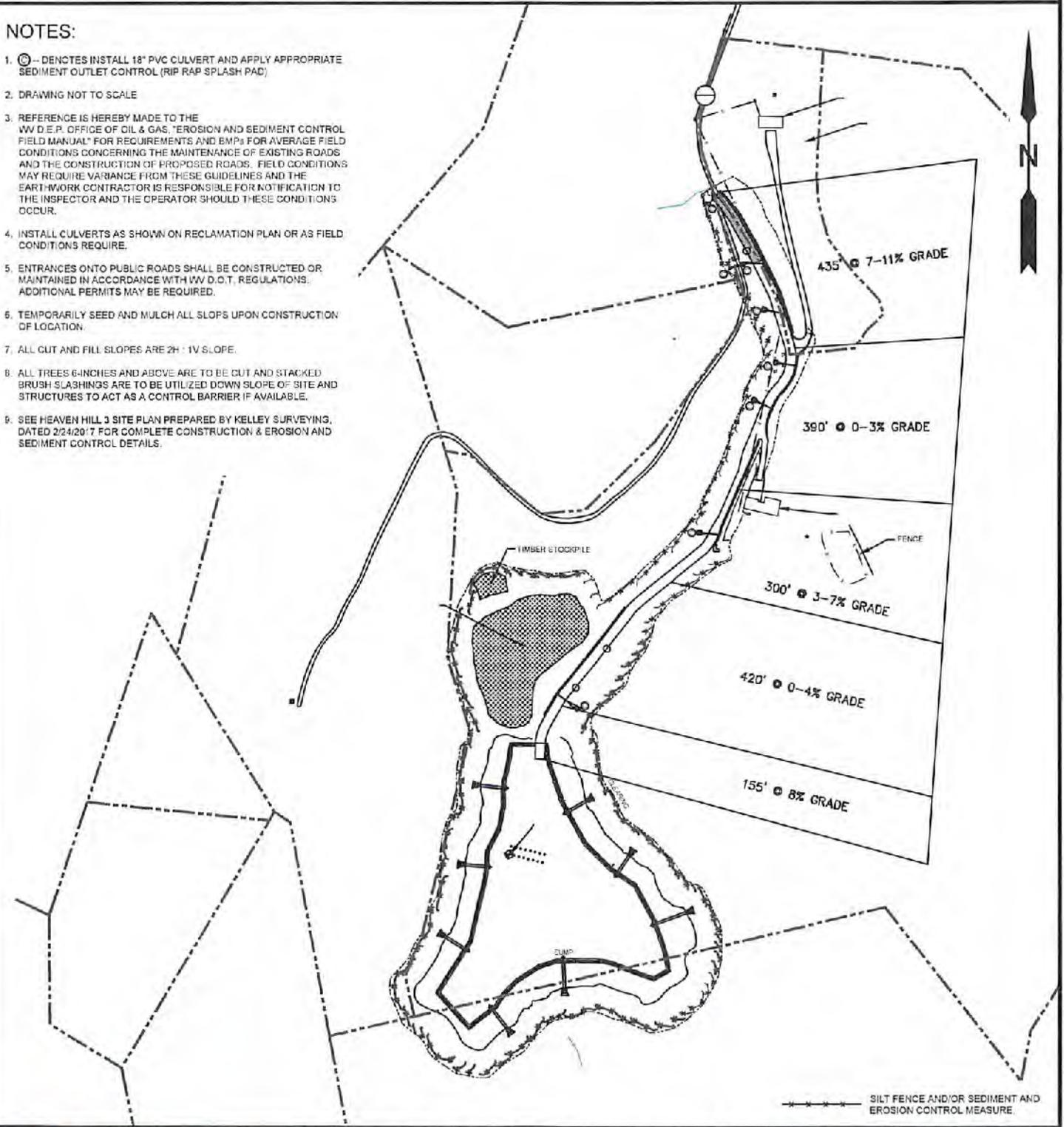
Title: Oil and Gas Inspector Date: 1/19/2022

Field Reviewed? () Yes () No

PROPOSED HEAVEN HILL 3N - 11HM

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

TUG HILL
OPERATING

07/01/2022

Area of Review

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

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

Data Sources Reviewed:

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

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

Request maps for:

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

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

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

Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101935	Tug Hill Operating, LLC.	19555' MD / 6968' TVD	Marcellus	none	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101947	Tug Hill Operating, LLC.	17877' MD / 6912' TVD	Marcellus	none	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101948	Tug Hill Operating, LLC.	17936' MD / 6928' TVD	Marcellus	none	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101962	Tug Hill Operating, LLC.	19057' MD / 6923' TVD	Marcellus	none	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.

4705102448

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	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101967	Tug Hill Operating, LLC.	22395' MD / 11920' TVD	Point Pleasant	none	No, this is a producing well in the Point Pleasant. This well is too deep to be within the expected fracture propagation from the proposed Marcellus stimulation.	Producing Point Pleasant well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101968	Tug Hill Operating, LLC.	23854' MD / 11898' TVD	Point Pleasant	none	No, this is a producing well in the Point Pleasant. This well is too deep to be within the expected fracture propagation from the proposed Marcellus stimulation.	Producing Point Pleasant well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705101969	Tug Hill Operating, LLC.	22722' MD / 11865' TVD	Point Pleasant	none	No, this is a producing well in the Point Pleasant. This well is too deep to be within the expected fracture propagation from the proposed Marcellus stimulation.	Producing Point Pleasant well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705102015	Tug Hill Operating, LLC.	15224' MD / 6762' TVD	Marcellus	none	Yes, this is a producing well in the Marcellus. This well is within the expected fracture propagation from the proposed Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.

4705102448

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
4705102016	Tug Hill Operating, LLC.	19300' MD / 11612' TVD	Point Pleasant	none	No, this is a producing well in the Point Pleasant. This well is too deep to be within the expected fracture propagation from the proposed Marcellus stimulation.	Producing Point Pleasant well, operated by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.
4705102303	Tug Hill Operating, LLC.	6966' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102304	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102305	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102323	Tug Hill Operating, LLC.	6969' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.

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
4705102306	Tug Hill Operating, LLC.	11684' TVD (proposed)	none	none	No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit.	Permit canceled by Tug Hill Operating, LLC.
4705102307	Tug Hill Operating, LLC.	11701' TVD (proposed)	none	none	No, this is a permitted well in the Point Pleasant. This well is too deep to be within the expected fracture propagation from the proposed Marcellus stimulation.	Permitted Point Pleasant well by Tug Hill Operating, LLC., located on same well pad as proposed Heaven Hill 3 N-11HM.

4705102448

WV Geological & Economic Survey

Well: County = 51 Permit = 01935

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101935	Marshall	1935	Meace	Glen Easton	Cameron	39.6038	-80.693321	528251	4408558

Bottom Hole Location Information:

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

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101935	10/25/2019	Dvtd Orgrl 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	O_AFT
4705101935	10/25/2019	2/15/2018	1325	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6958	19500	19500	7266				0

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101935	10/25/2019	Water	Fresh Water	Deviated			257	Pennsylvanian System					
4705101935	10/25/2019	Water	Salt Water	Deviated			1565	Salt Sands (undif)					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	8407	Marcellus Fm	8640	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	8662	Marcellus Fm	8815	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	8837	Marcellus Fm	8990	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9012	Marcellus Fm	9165	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9187	Marcellus Fm	9340	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9362	Marcellus Fm	9515	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9537	Marcellus Fm	9690	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9712	Marcellus Fm	9865	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	9887	Marcellus Fm	10040	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10062	Marcellus Fm	10215	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10237	Marcellus Fm	10390	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10412	Marcellus Fm	10565	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10587	Marcellus Fm	10740	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10762	Marcellus Fm	10915	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	10937	Marcellus Fm	11090	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11112	Marcellus Fm	11265	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11287	Marcellus Fm	11440	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11462	Marcellus Fm	11615	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11637	Marcellus Fm	11790	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11812	Marcellus Fm	11965	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	11987	Marcellus Fm	12140	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	12162	Marcellus Fm	12315	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	12337	Marcellus Fm	12490	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	12512	Marcellus Fm	12665	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	12687	Marcellus Fm	12840	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	12862	Marcellus Fm	13015	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13037	Marcellus Fm	13190	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13212	Marcellus Fm	13365	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13387	Marcellus Fm	13540	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13562	Marcellus Fm	13715	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13737	Marcellus Fm	13890	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	13912	Marcellus Fm	14065	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14087	Marcellus Fm	14240	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14262	Marcellus Fm	14415	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14437	Marcellus Fm	14590	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14612	Marcellus Fm	14765	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14787	Marcellus Fm	14940	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	14962	Marcellus Fm	15115	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	15137	Marcellus Fm	15290	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	15312	Marcellus Fm	15465	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	15487	Marcellus Fm	15640	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	15662	Marcellus Fm	15815	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	15837	Marcellus Fm	15990	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16012	Marcellus Fm	16165	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16187	Marcellus Fm	16340	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16362	Marcellus Fm	16515	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16537	Marcellus Fm	16690	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16712	Marcellus Fm	16865	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	16887	Marcellus Fm	17040	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17062	Marcellus Fm	17215	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17237	Marcellus Fm	17390	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17412	Marcellus Fm	17565	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17587	Marcellus Fm	17740	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17762	Marcellus Fm	17915	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	17937	Marcellus Fm	18090	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18112	Marcellus Fm	18265	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18287	Marcellus Fm	18440	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18462	Marcellus Fm	18615	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18637	Marcellus Fm	18790	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18812	Marcellus Fm	18965	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	18987	Marcellus Fm	19140	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	19162	Marcellus Fm	19315	Marcellus Fm					
4705101935	10/25/2019	Pay	Oil & Gas	Deviated	19337	Marcellus Fm	19440	Marcellus Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101935	Tug Hill Operating, LLC	2019	456,540	0	0	0	0	0	0	0	0	0	8,064	133,453	315,083
4705101935	Tug Hill Operating, LLC	2020	3,004,859	326,581	290,303	303,268	256,144	269,736	212,967	133,905	242,383	358,580	220,897	208,990	200,721

WV Geological & Economic Survey

Well: County = 51 Permit = 01947

Report Time: Wednesday January 12, 2022 9:15:55 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	QUAD 76	QUAD 16	LAT_DD	LONG_DD	UTME	UTMN
4705101947	Marshall	1947	Meade	Glen Easton	Cameron	39.008577	-80.693191	526362.1	4406556.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD	
4705101947	1	As Drilled	526127.3	4403271.5	-80.671542	39.77692
4705101947	1	As Proposed	526197.7	4403272.5	-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	10/29/2019	Divd Origi Loc	Completed	Ricky L Whitlatch	3-4HM	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating, LLC	8876	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
4705101947	10/29/2019	3/15/2019	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acidized	6911	17867	17667	8634	

Comment: 10/29/2019 Plat Missing data

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101947	10/29/2019	Water	Fresh Water	Vertical			1064						Pennsylvanian System
4705101947	10/29/2019	Water	Salt Water	Vertical			1595						Salt Sands (Undiff)
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	7497	Marcellus Fm	7543	Marcellus Fm	7543	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	7673	Marcellus Fm	7819	Marcellus Fm	7819	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	7940	Marcellus Fm	7994	Marcellus Fm	7994	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8023	Marcellus Fm	8169	Marcellus Fm	8169	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8198	Marcellus Fm	8344	Marcellus Fm	8344	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8373	Marcellus Fm	8519	Marcellus Fm	8519	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8549	Marcellus Fm	8685	Marcellus Fm	8685	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8724	Marcellus Fm	8870	Marcellus Fm	8870	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	8899	Marcellus Fm	9045	Marcellus Fm	9045	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9074	Marcellus Fm	9220	Marcellus Fm	9220	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9249	Marcellus Fm	9395	Marcellus Fm	9395	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9425	Marcellus Fm	9571	Marcellus Fm	9571	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9600	Marcellus Fm	9746	Marcellus Fm	9746	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9775	Marcellus Fm	9921	Marcellus Fm	9921	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	9950	Marcellus Fm	10096	Marcellus Fm	10096	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	10125	Marcellus Fm	10271	Marcellus Fm	10271	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	10301	Marcellus Fm	10447	Marcellus Fm	10447	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	10476	Marcellus Fm	10622	Marcellus Fm	10622	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	10651	Marcellus Fm	10797	Marcellus Fm	10797	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	10826	Marcellus Fm	10972	Marcellus Fm	10972	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11001	Marcellus Fm	11147	Marcellus Fm	11147	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11177	Marcellus Fm	11323	Marcellus Fm	11323	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11352	Marcellus Fm	11498	Marcellus Fm	11498	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11527	Marcellus Fm	11673	Marcellus Fm	11673	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11702	Marcellus Fm	11848	Marcellus Fm	11848	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	11877	Marcellus Fm	12023	Marcellus Fm	12023	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12053	Marcellus Fm	12199	Marcellus Fm	12199	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12228	Marcellus Fm	12374	Marcellus Fm	12374	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12403	Marcellus Fm	12549	Marcellus Fm	12549	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12578	Marcellus Fm	12724	Marcellus Fm	12724	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12753	Marcellus Fm	12899	Marcellus Fm	12899	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	12929	Marcellus Fm	13075	Marcellus Fm	13075	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13104	Marcellus Fm	13250	Marcellus Fm	13250	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13279	Marcellus Fm	13425	Marcellus Fm	13425	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13600	Marcellus Fm	13600	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13629	Marcellus Fm	13775	Marcellus Fm	13775	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13951	Marcellus Fm	13951	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	13980	Marcellus Fm	14126	Marcellus Fm	14126	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	14155	Marcellus Fm	14301	Marcellus Fm	14301	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	14330	Marcellus Fm	14476	Marcellus Fm	14476	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	14505	Marcellus Fm	14651	Marcellus Fm	14651	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	14681	Marcellus Fm	14827	Marcellus Fm	14827	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	14858	Marcellus Fm	15002	Marcellus Fm	15002	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15031	Marcellus Fm	15177	Marcellus Fm	15177	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15206	Marcellus Fm	15352	Marcellus Fm	15352	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15301	Marcellus Fm	15427	Marcellus Fm	15427	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15557	Marcellus Fm	15703	Marcellus Fm	15703	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15732	Marcellus Fm	15878	Marcellus Fm	15878	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	15907	Marcellus Fm	16053	Marcellus Fm	16053	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16002	Marcellus Fm	16228	Marcellus Fm	16228	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16257	Marcellus Fm	16403	Marcellus Fm	16403	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16433	Marcellus Fm	16579	Marcellus Fm	16579	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16609	Marcellus Fm	16754	Marcellus Fm	16754	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16793	Marcellus Fm	16929	Marcellus Fm	16929	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	16959	Marcellus Fm	17104	Marcellus Fm	17104	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	17133	Marcellus Fm	17279	Marcellus Fm	17279	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	17309	Marcellus Fm	17455	Marcellus Fm	17455	Marcellus Fm			
4705101947	10/29/2019	Pay	Oil & Gas	Deviated	17484	Marcellus Fm	17630	Marcellus Fm	17630	Marcellus Fm			

Production Gas Information (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101947	Tug Hill Operating, LLC	2019	442,741	0	0	0	0	0	0	0	0	0	10,039	136,848	295,854
4705101947	Tug Hill Operating, LLC	2020	2,647,154	275,383	251,477	286,751	230,753	245,080	191,068	120,033	213,753	296,319	197,055	179,040	170,442

WV Geological & Economic Survey

Well: County = 51 Permit = 01948

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX	DISTRICT	QUAD 75	QUAD 15	LAT_DD	LONG_DD	UTME	UTMN
4705101948	Marshall	1948	Meade		Glen Easton	Cameron	39.808632	-80.692941	528283.5	4406862.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101948	1 As Drilled	528334.7	4403379.9	-80.669115	39.779862
4705101948	1 As Proposed	528336.6	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 Oron Loc	Completed	Ricky L Whitlatch			3-5HM Heaven Hill		Ricky L Whitlatch et al	Tug Hill Operating, LLC		6378	Marcellus Fm

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	IVD	TMD	NEW_FIG	KOD	G_BEF	G_AFT	O
4705101948	10/28/2019	3/28/2018	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6025	10967	19967	6729		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101948	10/28/2019	Water	Fresh Water	Vertical					70				Pennsylvanian System
4705101948	10/28/2019	Water	Salt Water	Vertical					2167				Salt Sands (undiff)
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7633	Marcellus Fm			7765				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7806	Marcellus Fm			7950				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7980	Marcellus Fm			8132				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8154	Marcellus Fm			8306				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8320	Marcellus Fm			8460				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8502	Marcellus Fm			8654				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8675	Marcellus Fm			8827				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8849	Marcellus Fm			9001				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9023	Marcellus Fm			9175				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9197	Marcellus Fm			9349				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9371	Marcellus Fm			9523				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9544	Marcellus Fm			9696				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9718	Marcellus Fm			9870				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9892	Marcellus Fm			10044				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10066	Marcellus Fm			10218				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10240	Marcellus Fm			10392				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10413	Marcellus Fm			10565				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10587	Marcellus Fm			10739				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10761	Marcellus Fm			10913				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10935	Marcellus Fm			11087				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11109	Marcellus Fm			11281				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11282	Marcellus Fm			11434				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11456	Marcellus Fm			11606				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11630	Marcellus Fm			11782				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11804	Marcellus Fm			11956				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11978	Marcellus Fm			12130				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12151	Marcellus Fm			12303				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12325	Marcellus Fm			12477				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12499	Marcellus Fm			12651				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12673	Marcellus Fm			12825				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	12947	Marcellus Fm			12989				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13020	Marcellus Fm			13172				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13194	Marcellus Fm			13346				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13368	Marcellus Fm			13520				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13542	Marcellus Fm			13694				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13716	Marcellus Fm			13868				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13889	Marcellus Fm			14041				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13913	Marcellus Fm			14170				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14063	Marcellus Fm			14215				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14237	Marcellus Fm			14369				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14411	Marcellus Fm			14563				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14585	Marcellus Fm			14737				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14759	Marcellus Fm			14910				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14932	Marcellus Fm			15084				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15106	Marcellus Fm			15258				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15280	Marcellus Fm			15432				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15454	Marcellus Fm			15605				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15627	Marcellus Fm			15779				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15801	Marcellus Fm			15953				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15975	Marcellus Fm			16127				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16149	Marcellus Fm			16301				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16323	Marcellus Fm			16475				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16498	Marcellus Fm			16648				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16670	Marcellus Fm			16822				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	16844	Marcellus Fm			16996				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17192	Marcellus Fm			17344				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17365	Marcellus Fm			17517				Marcellus Fm
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	17539	Marcellus Fm			17691				Marcellus Fm

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101948	Tug Hill Operating, LLC	2019	471,073	0	0	0	0	0	0	0	0	0	10,272	104,822	295,978
4705101948	Tug Hill Operating, LLC	2020	2,550,181	269,851	252,973	281,895	223,381	223,387	173,237	117,917	212,652	292,346	188,939	176,850	166,573

WV Geological & Economic Survey

Well: County = 51 Permit = 01962

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

Location Information [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101962	Marshall	1962	Meade	Glen Easton	Cameron	39 808502	-80 593278	526254.7	4406550.2

Bottom Hole Location Information:

API	EP FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101962	1 As Drilled	527672.2	4402800.7	-80 674541	39 774686
4705101962	1 As Proposed	527674	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	10/25/2019	DvM Crpt Loc	Completed	Ricky L Whitlatch			3-2HM 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_BFF	G_AFT	C
4705101962	10/25/2019	2/23/2018	1326	Ground Level	Cameron-Gainer	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Free	6923	19053	15063	6589		0

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101962	10/28/2018	Water	Fresh Water	Vertical			1064		Pennsylvanian System				
4705101962	10/28/2019	Water	Salt Water	Vertical			1595		Salt Sands (undrf)				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	7751	Marcellus Fm	7955		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	7957	Marcellus Fm	8110		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	8132	Marcellus Fm	8286		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	8309	Marcellus Fm	8461		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	8493	Marcellus Fm	8637		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	8658	Marcellus Fm	8812		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	8834	Marcellus Fm	8967		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9009	Marcellus Fm	9163		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9165	Marcellus Fm	9336		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9360	Marcellus Fm	9514		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9536	Marcellus Fm	9689		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9711	Marcellus Fm	9865		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	9887	Marcellus Fm	10040		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10082	Marcellus Fm	10216		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10237	Marcellus Fm	10391		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10413	Marcellus Fm	10566		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10588	Marcellus Fm	10742		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10784	Marcellus Fm	10917		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	10939	Marcellus Fm	11093		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11115	Marcellus Fm	11260		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11290	Marcellus Fm	11444		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11456	Marcellus Fm	11619		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11841	Marcellus Fm	11794		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11916	Marcellus Fm	11970		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	11992	Marcellus Fm	12145		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12167	Marcellus Fm	12321		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12343	Marcellus Fm	12496		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12518	Marcellus Fm	12672		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12694	Marcellus Fm	12847		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	12869	Marcellus Fm	13023		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13044	Marcellus Fm	13190		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13220	Marcellus Fm	13373		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13395	Marcellus Fm	13549		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13571	Marcellus Fm	13724		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13746	Marcellus Fm	13900		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	13922	Marcellus Fm	14075		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14097	Marcellus Fm	14241		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14273	Marcellus Fm	14426		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14448	Marcellus Fm	14602		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14623	Marcellus Fm	14777		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14799	Marcellus Fm	14952		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	14974	Marcellus Fm	15128		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15150	Marcellus Fm	15303		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15325	Marcellus Fm	15479		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15501	Marcellus Fm	15654		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15676	Marcellus Fm	15830		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	15852	Marcellus Fm	16005		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16027	Marcellus Fm	16180		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16202	Marcellus Fm	16356		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16378	Marcellus Fm	16531		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16553	Marcellus Fm	16707		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16729	Marcellus Fm	16880		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	16904	Marcellus Fm	17055		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17080	Marcellus Fm	17233		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17255	Marcellus Fm	17409		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17430	Marcellus Fm	17584		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17606	Marcellus Fm	17759		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17781	Marcellus Fm	17935		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	17957	Marcellus Fm	18110		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18132	Marcellus Fm	18286		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18308	Marcellus Fm	18461		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18483	Marcellus Fm	18637		Marcellus Fm				
4705101962	10/28/2019	Pay	Oil & Gas	Deviated	18659	Marcellus Fm	18812		Marcellus Fm				

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101962	Tug Hill Operating LLC	2019	455.275	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	265.711	299.846	249.589	259.937	202.582	133.439	226.979	317.415	202.370	193.443	185.120

WV Geological & Economic Survey

Well: County = 51 Permit = 01963

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101963	Marshall	1963	Meade	Glen Easton	Cameron	39.809584	-80.693234	526258.4	4406557.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101963	1	As Drilled	527975.8	4403078.1	-80.67332
4705101963	1	As Proposed	527977.5	4403078.0	-80.67333

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	10/23/2019	D/Ad Drgnt Loc	Completed	Ricky L Whitatch	3-SHM	Heaven Hill	Ricky L Whitatch 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_FIG	KOD	G_BEF	G_AFT
4705101963	10/23/2019	3/7/2018	1329	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid-Frac	6904	18261	18261	6523		

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101963	10/23/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705101963	10/23/2019	Water	Salt Water	Vertical			2137	Elg Lime					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	7653	Marcellus Fm	7617	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	7839	Marcellus Fm	7992	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8014	Marcellus Fm	8168	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8190	Marcellus Fm	8343	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8355	Marcellus Fm	8519	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8541	Marcellus Fm	8694	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8716	Marcellus Fm	8870	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8892	Marcellus Fm	9045	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	8957	Marcellus Fm	9221	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	9242	Marcellus Fm	9396	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	9418	Marcellus Fm	9572	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	9593	Marcellus Fm	9747	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	9769	Marcellus Fm	9923	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	9944	Marcellus Fm	10088	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10120	Marcellus Fm	10274	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10295	Marcellus Fm	10449	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10471	Marcellus Fm	10624	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10848	Marcellus Fm	10880	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10922	Marcellus Fm	10975	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	10997	Marcellus Fm	11151	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	11173	Marcellus Fm	11326	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	11348	Marcellus Fm	11502	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	11524	Marcellus Fm	11677	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	11699	Marcellus Fm	11853	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	11875	Marcellus Fm	12028	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12050	Marcellus Fm	12204	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12226	Marcellus Fm	12379	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12401	Marcellus Fm	12555	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12577	Marcellus Fm	12730	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12752	Marcellus Fm	12906	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	12928	Marcellus Fm	13081	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13103	Marcellus Fm	13257	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13279	Marcellus Fm	13432	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13608	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13630	Marcellus Fm	13783	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13959	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	13981	Marcellus Fm	14134	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	14156	Marcellus Fm	14310	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	14332	Marcellus Fm	14486	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	14507	Marcellus Fm	14661	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	14683	Marcellus Fm	14836	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	14858	Marcellus Fm	15012	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15034	Marcellus Fm	15167	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15209	Marcellus Fm	15363	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15385	Marcellus Fm	15538	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15560	Marcellus Fm	15714	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15736	Marcellus Fm	15889	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	15911	Marcellus Fm	16065	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16087	Marcellus Fm	16240	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16262	Marcellus Fm	16416	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16438	Marcellus Fm	16581	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16613	Marcellus Fm	16767	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16789	Marcellus Fm	16942	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	16964	Marcellus Fm	17118	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	17140	Marcellus Fm	17293	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	17315	Marcellus Fm	17469	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	17491	Marcellus Fm	17644	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	17666	Marcellus Fm	17820	Marcellus Fm					
4705101963	10/23/2019	Pay	Oil & Gas	Deviated	17842	Marcellus Fm	17985	Marcellus Fm					

Production Gas Information (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101963	Tug Hill Operating, LLC	2019	437,799	0	0	0	0	0	0	0	0	0	8,954	131,175	297,670
4705101963	Tug Hill Operating, LLC	2020	2,761,966	296,576	269,266	291,341	242,016	251,555	199,881	125,743	321,437	306,996	189,457	106,040	175,888

WV Geological & Economic Survey

Well: County = 51 Permit = 01967

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	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	Dvld 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_BEF
4705101967	10/28/2019	4/4/2018	1326	Ground Level	Cameron-Garner	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Relay	Acid+Frac	22395	22395	10708			

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

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705101967	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101967	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705101967	10/28/2019	Pay	Gas	Deviated	12390	Pt Pleasant Fm	12535	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12564	Pt Pleasant Fm	12705	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12739	Pt Pleasant Fm	12884	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12913	Pt Pleasant Fm	13058	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13088	Pt Pleasant Fm	13233	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13262	Pt Pleasant Fm	13407	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13437	Pt Pleasant Fm	13582	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13611	Pt Pleasant Fm	13756	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13786	Pt Pleasant Fm	13931	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13960	Pt Pleasant Fm	14105	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14135	Pt Pleasant Fm	14280	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14309	Pt Pleasant Fm	14454	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14484	Pt Pleasant Fm	14629	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14658	Pt Pleasant Fm	14803	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14833	Pt Pleasant Fm	14978	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15007	Pt Pleasant Fm	15152	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15182	Pt Pleasant Fm	15327	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15356	Pt Pleasant Fm	15501	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15531	Pt Pleasant Fm	15676	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	20766	Pt Pleasant Fm	20911	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	20940	Pt Pleasant Fm	21085	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21115	Pt Pleasant Fm	21260	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21289	Pt Pleasant Fm	21434	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21464	Pt Pleasant Fm	21609	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21639	Pt Pleasant Fm	21784	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21813	Pt Pleasant Fm	21958	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21988	Pt Pleasant Fm	22133	Pt Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101967	Tug Hill Operating, LLC	2019	1,043,659	0	0	0	0	0	0	0	0	0	89,536	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	363,738	373,315	344,073	336,032	220,857	271,076

WV Geological & Economic Survey

Well: County = 51 Permit = 01968

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101968	Marshall	1968	Meade	Glen Easton	Cameron	39.000559	-80.693364	526252.4	4408565.2

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101968	1	As Drilled	527715.5	4402751.7	-80.676373
4705101968	1	As Proposed	527075.6	4403863	-80.603799

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	Drill Orig Loc	Completed	Ricky L Whitlatch	3-6HJ	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_BEFF	G_AFT	O_B
4705101968	10/28/2019	5/20/2018	1326	Ground Level	Cameron-Garner	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	11855	23868	23868	10967		500

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFF	G_AFT	O_BEFF	O_AFT	WATER_QNTY
4705101968	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101968	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705101968	10/28/2019	Pay	Gas	Deviated	12583	Pt Pleasant Fm	12759	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	12784	Pt Pleasant Fm	12959	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	12884	Pt Pleasant Fm	13160	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13185	Pt Pleasant Fm	13360	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13385	Pt Pleasant Fm	13561	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13586	Pt Pleasant Fm	13761	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13786	Pt Pleasant Fm	13962	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	13987	Pt Pleasant Fm	14162	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14187	Pt Pleasant Fm	14363	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14388	Pt Pleasant Fm	14563	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14508	Pt Pleasant Fm	14764	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14789	Pt Pleasant Fm	14964	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	14989	Pt Pleasant Fm	15165	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15190	Pt Pleasant Fm	15365	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15390	Pt Pleasant Fm	15566	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15591	Pt Pleasant Fm	15766	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15791	Pt Pleasant Fm	15967	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	15992	Pt Pleasant Fm	16167	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16192	Pt Pleasant Fm	16368	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16393	Pt Pleasant Fm	16566	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16593	Pt Pleasant Fm	16769	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16794	Pt Pleasant Fm	16969	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	16994	Pt Pleasant Fm	17170	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17195	Pt Pleasant Fm	17370	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17395	Pt Pleasant Fm	17571	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17595	Pt Pleasant Fm	17771	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17796	Pt Pleasant Fm	17972	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	17997	Pt Pleasant Fm	18172	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18197	Pt Pleasant Fm	18373	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18398	Pt Pleasant Fm	18573	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18598	Pt Pleasant Fm	18774	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18799	Pt Pleasant Fm	18974	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	18999	Pt Pleasant Fm	19175	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19200	Pt Pleasant Fm	19375	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19400	Pt Pleasant Fm	19576	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19601	Pt Pleasant Fm	19776	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	19801	Pt Pleasant Fm	19977	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20002	Pt Pleasant Fm	20177	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20202	Pt Pleasant Fm	20376	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20403	Pt Pleasant Fm	20578	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20603	Pt Pleasant Fm	20779	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	20804	Pt Pleasant Fm	20979	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21004	Pt Pleasant Fm	21180	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21205	Pt Pleasant Fm	21380	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21405	Pt Pleasant Fm	21581	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21605	Pt Pleasant Fm	21781	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	21805	Pt Pleasant Fm	21982	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22007	Pt Pleasant Fm	22182	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22207	Pt Pleasant Fm	22383	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22408	Pt Pleasant Fm	22583	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22608	Pt Pleasant Fm	22784	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	22809	Pt Pleasant Fm	22984	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23010	Pt Pleasant Fm	23185	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23210	Pt Pleasant Fm	23386	Pt Pleasant Fm					
4705101968	10/28/2019	Pay	Gas	Deviated	23411	Pt Pleasant Fm	23586	Pt Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101968	Tug Hill Operating LLC	2019	1,028,627	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	452,774	516,773	473,660	455,502	444,395	402,717	412,199	266,197	320,103

WV Geological & Economic Survey

Well: County = 51 Permit = 01969

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101969	Marshall	1969	Meade	Glen Eastern	Cameron	39.633948	-80.693251	526296.1	4408594.4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101969	1	As Drilled	527904.9	-103167.7	-80.674144
4705101969	1	As Proposed	527400.6	-4404847.6	-80.879998

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	D/rd Orig/Loc	Completed	Ricky L Whitlatch	3-7HU	Heaven Hill	Ricky L Whitlatch et al	Tug Hill Operating LLC	Gas	11829	Pt Pleasant Fm		

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FTM	INITIAL_CLASS	FINAL_CLASS	TYPE RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BE
4705101969	10/28/2019	4/27/2016	1326	Ground Level	Cameron-Gamer	Pt Pleasant Fm	Pt Pleasant Fm	Development Well	Gas	Rotary	Acid-Frac	11895	22736	22736	11677		500

Pay/Show/Water Information

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_ONTY
4705101969	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101969	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undiff)					
4705101969	10/28/2019	Pay	Gas	Deviated	12458	Pt Pleasant Fm	12633	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	12558	Pt Pleasant Fm	12834	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	12859	Pt Pleasant Fm	13034	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13059	Pt Pleasant Fm	13255	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13280	Pt Pleasant Fm	13455	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13480	Pt Pleasant Fm	13636	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13681	Pt Pleasant Fm	13836	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	13881	Pt Pleasant Fm	14037	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14082	Pt Pleasant Fm	14237	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14282	Pt Pleasant Fm	14438	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14483	Pt Pleasant Fm	14638	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14683	Pt Pleasant Fm	14839	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	14884	Pt Pleasant Fm	15039	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15084	Pt Pleasant Fm	15240	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15285	Pt Pleasant Fm	15440	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15485	Pt Pleasant Fm	15641	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15686	Pt Pleasant Fm	15841	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	15886	Pt Pleasant Fm	16042	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16087	Pt Pleasant Fm	16242	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16287	Pt Pleasant Fm	16443	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16488	Pt Pleasant Fm	16643	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16688	Pt Pleasant Fm	16844	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	16889	Pt Pleasant Fm	17044	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17089	Pt Pleasant Fm	17245	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17270	Pt Pleasant Fm	17445	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17470	Pt Pleasant Fm	17646	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17671	Pt Pleasant Fm	17847	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	17871	Pt Pleasant Fm	18047	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18072	Pt Pleasant Fm	18247	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18272	Pt Pleasant Fm	18448	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18473	Pt Pleasant Fm	18648	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18673	Pt Pleasant Fm	18849	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	18874	Pt Pleasant Fm	19049	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19074	Pt Pleasant Fm	19250	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19275	Pt Pleasant Fm	19450	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19475	Pt Pleasant Fm	19651	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19676	Pt Pleasant Fm	19851	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	19876	Pt Pleasant Fm	20052	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20077	Pt Pleasant Fm	20252	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20277	Pt Pleasant Fm	20453	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20478	Pt Pleasant Fm	20653	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20678	Pt Pleasant Fm	20854	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	20879	Pt Pleasant Fm	21054	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21079	Pt Pleasant Fm	21255	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21200	Pt Pleasant Fm	21455	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21400	Pt Pleasant Fm	21656	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21601	Pt Pleasant Fm	21857	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	21802	Pt Pleasant Fm	22057	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	22002	Pt Pleasant Fm	22258	Pt Pleasant Fm					
4705101969	10/28/2019	Pay	Gas	Deviated	22203	Pt Pleasant Fm	22458	Pt Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	OCM
4705101969	Tug Hill Operating, LLC	2019	1,928,727	0	0	0	0	0	0	0	0	0	72,074	427,502	529,151
4705101969	Tug Hill Operating, LLC	2020	4,599,352	502,639	439,245	403,113	459,546	400,964	435,261	400,538	362,601	296,675	297,994	213,120	227,581

WV Geological & Economic Survey

Well: County = 51 Permit = 02016

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102015	Marshall	2015	Meade	Glen Easton	Cameron	39.806607	-80.693364	526247.3	4406559.8

Bottom Hole Location Information:

API	EP FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102015	1 As Drilled	524614.4	4407664.3	-80.710062	39.818502
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 Orgnl 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_BEF	G_AFT	O
4705102015	10/28/2019	10/28/2019	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6866	15275	15275	6739		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705102015	10/28/2019	Water	Fresh Water	Vertical			1064						
4705102015	10/28/2019	Water	Salt Water	Vertical			1595						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8344	Marcellus Fm	8497	Marcellus Fm					
4705102015	10/29/2019	Pay	Oil & Gas	Deviated	8519	Marcellus Fm	8672	Marcellus Fm					
4705102015	10/29/2019	Pay	Oil & Gas	Deviated	8694	Marcellus Fm	8847	Marcellus Fm					
4705102015	10/29/2019	Pay	Oil & Gas	Deviated	8869	Marcellus Fm	9022	Marcellus Fm					
4705102015	10/29/2019	Pay	Oil & Gas	Deviated	9044	Marcellus Fm	9197	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9219	Marcellus Fm	9372	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9394	Marcellus Fm	9547	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9568	Marcellus Fm	9722	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9744	Marcellus Fm	9897	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9919	Marcellus Fm	10072	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10094	Marcellus Fm	10247	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10269	Marcellus Fm	10422	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10444	Marcellus Fm	10597	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10619	Marcellus Fm	10772	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10794	Marcellus Fm	10947	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10969	Marcellus Fm	11122	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11144	Marcellus Fm	11297	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11319	Marcellus Fm	11472	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11494	Marcellus Fm	11647	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11669	Marcellus Fm	11822	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11844	Marcellus Fm	11997	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12019	Marcellus Fm	12172	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12194	Marcellus Fm	12347	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12369	Marcellus Fm	12522	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12544	Marcellus Fm	12697	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12719	Marcellus Fm	12872	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12894	Marcellus Fm	13047	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13069	Marcellus Fm	13222	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13244	Marcellus Fm	13397	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13419	Marcellus Fm	13572	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13594	Marcellus Fm	13747	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13769	Marcellus Fm	13922	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13944	Marcellus Fm	14097	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14119	Marcellus Fm	14272	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14294	Marcellus Fm	14447	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14469	Marcellus Fm	14622	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14644	Marcellus Fm	14797	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14819	Marcellus Fm	14972	Marcellus Fm					
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	15042	Marcellus Fm	15095	Marcellus Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102015	Tug Hill Operating, LLC	2019	275.865	0	0	0	0	0	0	0	0	0	8.563	85.145	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

WV Geological & Economic Survey

Well: County = 51 Permit = 02016

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	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	4407533.6	-80.708785	39.817871
4705102016	1 As Drilled	524925.3	4407592	-80.708769	39.817947

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102016	10/28/2019	Dvtd Orqnl Loc	Completed	Ricky L Whillatch		3N-10HU	Heaven Hill		Ricky L Whillatch 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_BE
4705102016	10/28/2019	7/4/2018	1326 Ground Level	Cameron-Garner	Trenton Group	Pt Pleasant Fm	Development Well	Development Well	Gas	Rotary	Acid+Frac	11701	19300	19300	11200			500

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705102016	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705102016	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (und/ff)					
4705102016	10/28/2019	Pay	Gas	Deviated	12724	Pt Pleasant Fm	12873	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	12922	Pt Pleasant Fm	13071	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13120	Pt Pleasant Fm	13269	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13318	Pt Pleasant Fm	13467	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13516	Pt Pleasant Fm	13665	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13714	Pt Pleasant Fm	13863	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13912	Pt Pleasant Fm	14061	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14110	Pt Pleasant Fm	14259	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14308	Pt Pleasant Fm	14457	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14506	Pt Pleasant Fm	14655	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14704	Pt Pleasant Fm	14853	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14902	Pt Pleasant Fm	15051	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15100	Pt Pleasant Fm	15249	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15298	Pt Pleasant Fm	15447	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15496	Pt Pleasant Fm	15645	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15694	Pt Pleasant Fm	15843	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15892	Pt Pleasant Fm	16041	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16090	Pt Pleasant Fm	16239	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16288	Pt Pleasant Fm	16437	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16486	Pt Pleasant Fm	16635	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16684	Pt Pleasant Fm	16833	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16882	Pt Pleasant Fm	17031	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17080	Pt Pleasant Fm	17229	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17278	Pt Pleasant Fm	17427	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17476	Pt Pleasant Fm	17625	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17674	Pt Pleasant Fm	17823	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17872	Pt Pleasant Fm	18021	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18070	Pt Pleasant Fm	18219	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18268	Pt Pleasant Fm	18417	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18466	Pt Pleasant Fm	18615	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18664	Pt Pleasant Fm	18813	Pt Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18862	Pt Pleasant Fm	19011	Pt Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102016	Tug Hill Operating, LLC	2019	913,548	0	0	0	0	0	0	0	0	0	65,949	368,699	478,900
4705102016	Tug Hill Operating, LLC	2020	3,760,795	471,088	424,437	476,515	442,726	435,171	329,071	266,387	243,834	194,240	184,792	142,449	150,087

WV Geological & Economic Survey:

Well: County = 51 Permit = 02303

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_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 Orqnl Loc Permitted	Ricky L Whitlatch	3N-11HM		Heaven Hill		R L Whitlatch 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	NGL_AFT	
4705102303	-/-	-/-	1330	Ground Level																			

WV Geological & Economic Survey:

Well: County = 51 Permit = 02304

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102304	Marshall	2304	Meade	Glen Easton	Cameron	39.808623	-80.693453	526239.7	4406561.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705102304	1 As Proposed	525205.7	4407897	-80.705481	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 Orqnl Loc Permitted	Ricky L Whitlatch	3N-12HM		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	NGL_AFT	
4705102304	-/-	-/-	1333	Ground Level																			

WV Geological & Economic Survey:

Well: County = 51 Permit = 02305

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102305	Marshall	2305	Meade	Glen Easton	Cameron	39.808667	-80.693478	526237.5	4406566.6

Bottom Hole Location Information:

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

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102305	-/-	Dvtd Orgnl Loc	Permitted	Ricky L Whillatch			3N-14HM Heaven Hill		R L Whillatch et al	Tug Hill Operating, LLC		6969 Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102305	-/-	-/-	1330	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02323

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705102323	Marshall	2323	Meade	Glen Easton	Cameron	39.808615	-80.693408	526243.5	4406560.7

Bottom Hole Location Information:

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

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102323	-/-	Dvtd Orgnl Loc	Permitted	Ricky L Whillatch			3N-13HM Heaven Hill		R L Whillatch et al	Tug Hill Operating, LLC		6969 Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	
4705102323	-/-	-/-	1336	Ground Level																		

WV Geological & Economic Survey:

Well: County = 51 Permit = 02306

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102306	Marshall	2306	Meade	Glen Easton	Cameron	39.808679	-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 Orgnl Loc	Permitted	Ricky L Whitlatch	3	3N-15HU				Tug Hill Operating, LLC	11884	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_BEFO	O_AFT
4705102306	-/-	-/-	1326	Ground Level							not available	unknown	unknown							

WV Geological & Economic Survey:

Well: County = 51 Permit = 02307

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705102307	Marshall	2307	Meade	Glen Easton	Cameron	39.808671	-80.693391	526245	4406566.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705102307	-/-	Dvtd Orgnl Loc	Permitted	Ricky L Whitlatch	3	3N-16HU				Tug Hill Operating, LLC	11701	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_BEFO	O_AFT
4705102307	-/-	-/-	1326	Ground Level							not available	unknown	unknown							

4705102448



TUG HILL
OPERATING

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

Well Name: Heaven Hill 3N-11HM

Pad Name: Heaven Hill 3

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,406,555.65

Easting: 526,265.69

Younis K. King
1/19/2022

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

Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

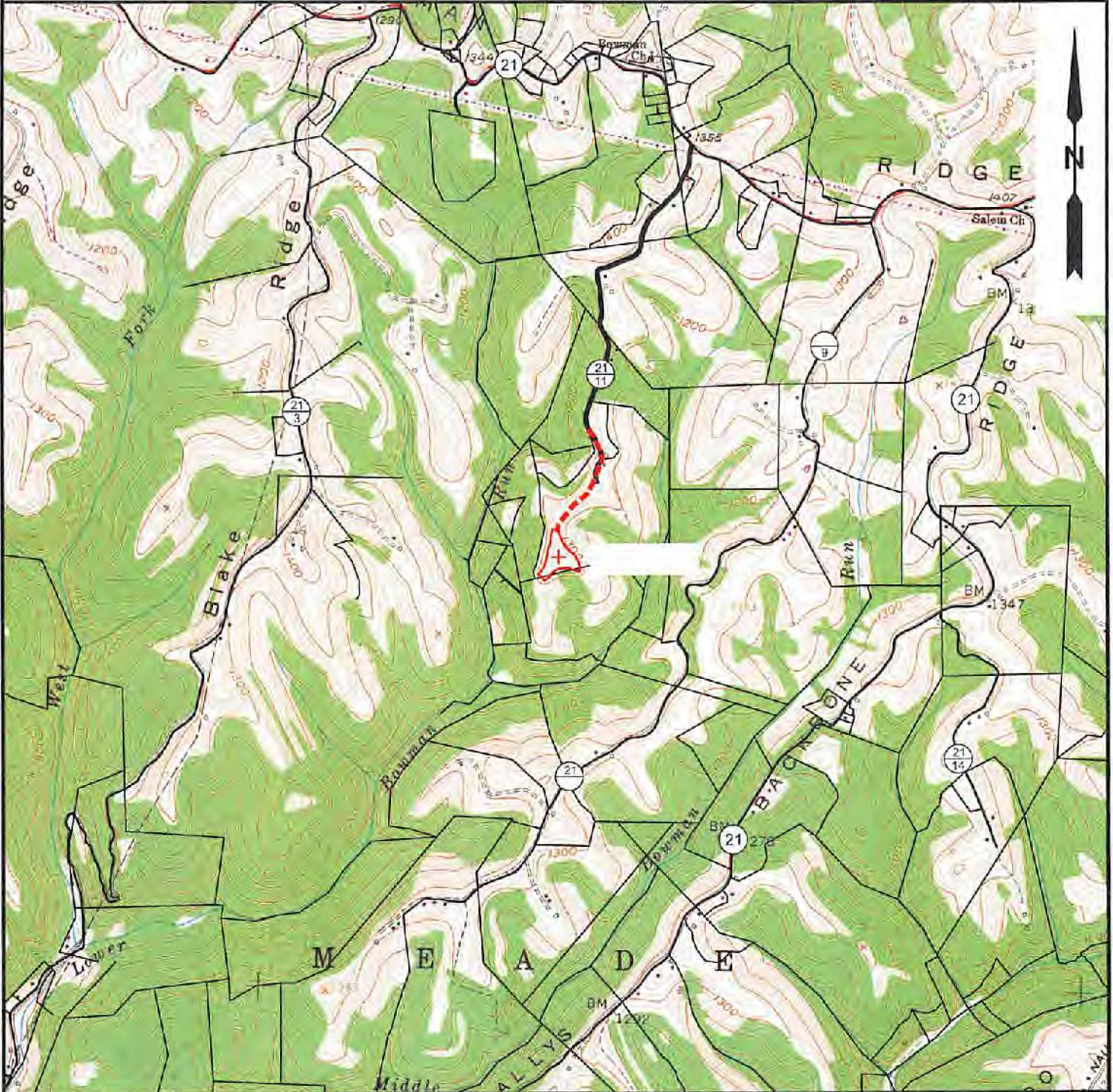
RECEIVED
Office of Oil and Gas

MAY 17 2022

WV Department of
Environmental Protection

07/01/2022

PROPOSED HEAVEN HILL 3N - 11HM



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

LAT: 39.829865
LON: -80.573724
LOCATED: N 77°33'23" E AT 34,451.51' FROM THE CENTER OF HEAVEN HILL 3N WELL PAD LOCATION.

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 17 Vanhook Drive • Cravensville, WV 25351 • (304) 462-5534
www.slsurveys.com

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

TUG HILL
OPERATING

07/01/2022

11,444' B.H.

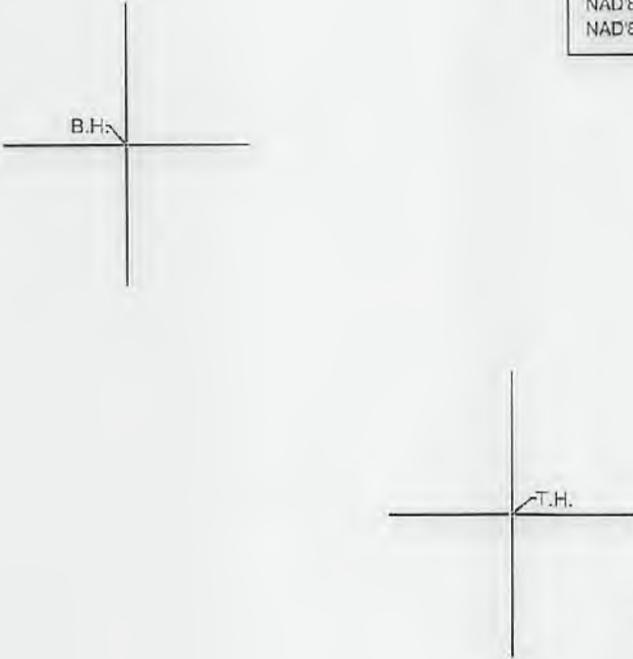
7,440' T.H.

HEAVEN HILL 3N
WELL 11HM
TUG HILL OPERATING

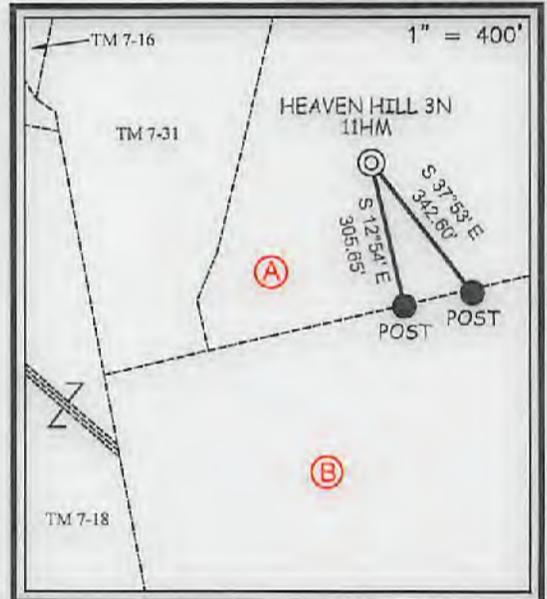
T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°50'00"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 476,847.93	E. 1,633,320.09
NAD'83 GEO.	LAT-(N) 39.808569	LONG-(W) 80.698149
NAD'83 UTM (M)	N. 4,406,555.65	E. 526,265.69
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 476,793.4	E. 1,632,559.6
NAD'83 GEO.	LAT-(N) 39.802901	LONG-(W) 80.695759
NAD'83 UTM (M)	N. 4,405,925.8	E. 526,044.4
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 482,745.0	E. 1,629,365.2
NAD'83 GEO.	LAT-(N) 39.819122	LONG-(W) 80.707409
NAD'83 UTM (M)	N. 4,407,722.8	E. 525,041.3

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"
5,177' B.H.
9,021' T.H.



REFERENCES



NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL, NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOP MARK SCALE IS 1"=2000'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsvv.com

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

P.S. 677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE AUGUST 30, 20 19
REVISED 11-05-2019, 05-13-2022
OPERATORS WELL NO. HEAVEN HILL 3N-11HM
API WELL NO. 47 — 051 — 02448
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8654P11HMR2.dwg
HEAVEN HILL 3-11HM REV4
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

WELL TYPE: OIL GAS 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 ACREAGE 72.82±

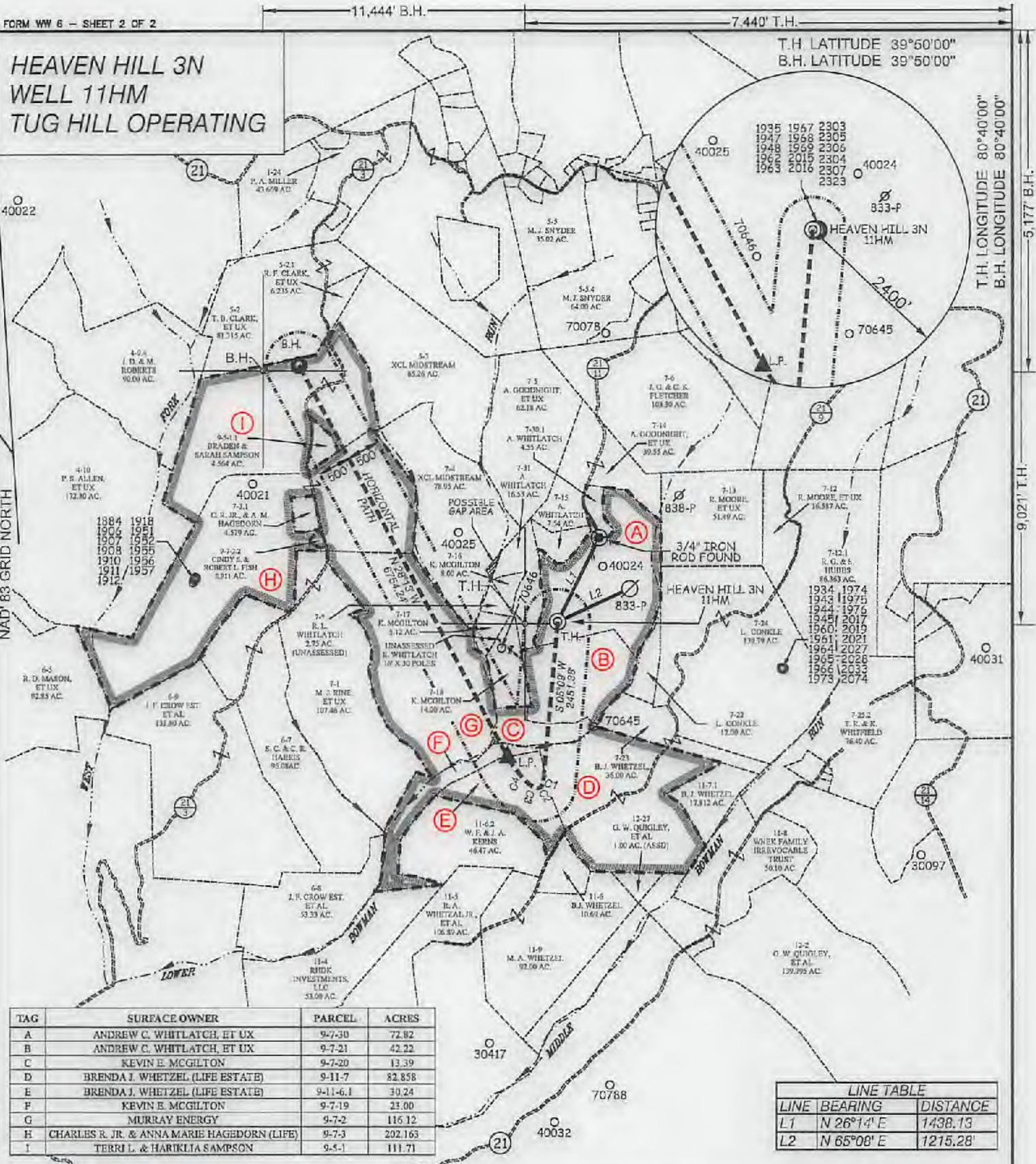
PROPOSED WORK:
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD: 6,966' / TMD: 14,639'

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

COUNTY NAME PERMIT

07/01/2022

**HEAVEN HILL 3N
WELL 11HM
TUG HILL OPERATING**



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	KEVIN E. MCGILTON	9-7-20	13.39
D	BRENDA J. WHETZEL (LIFE ESTATE)	9-11-7	82.858
E	BRENDA J. WHETZEL (LIFE ESTATE)	9-11-6.1	30.24
F	KEVIN E. MCGILTON	9-7-19	23.00
G	MURRAY ENERGY	9-7-2	116.12
H	CHARLES R. JR. & ANNA MARIE HAGEDORN (LIFE)	9-7-3	202.163
I	TERRI L. & HARILIA SAMPSON	9-5-1	111.71

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 26°14' E	1438.13
L2	N 65°08' E	1215.28'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	92.45'	122.31'	S 25°19' W	90.27'
C2	83.99'	90.00'	S 85°35' W	80.97'
C3	148.10'	388.77'	N 57°20' W	147.21'
C4	496.80'	1481.30'	N 36°55' W	494.47'



12 Vanhorn Drive | P.O. Box 150 | Glasgow, WV 26031 | 304.462.5534
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3592
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5295
 slsw.com



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

P.S. 849 *Gregory A. Smith*

LEGEND	
LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	00-00
SURFACE OWNER (SEE TABLE)	
LEASE # (SEE WW-6A1)	

SCALE 1" = 2000' FILE NO. 8854P11HMR2.dwg
 HEAVEN HILL 3-11HM REV4
 DATE AUGUST 30, 2019
 REVISED 11-05-2019, 05-13-2022
 OPERATORS WELL NO. HEAVEN HILL 3N-11HM
 API WELL NO. 47
 STATE COUNTY PERMIT

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

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

07/01/2022

COUNTY NAME PERMIT

WW-6A1
(5/13)

Operator's Well No. Heaven Hill 3N-11HM

**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
10*15557	9-7-30	A	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780	226	N/A	N/A	Chevron USA Inc to Tug Hill 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	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15667	9-7-20	C	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850	351	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15720	9-7-20	C	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905	458	N/A	N/A	N/A
10*15721	9-7-20	C	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905	456	N/A	N/A	N/A
10*16020	9-7-20	C	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905	464	N/A	N/A	N/A
10*16028	9-7-20	C	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905	460	N/A	N/A	N/A
10*16051	9-7-20	C	DONNA JEAN SNIDER	TH EXPLORATION LLC	1/8+	905	462	N/A	N/A	N/A
10*16053	9-7-20	C	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905	466	N/A	N/A	N/A
10*16289	9-7-20	C	BRENDA HINERMAN AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905	468	N/A	N/A	N/A
10*16412	9-7-20	C	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905	452	N/A	N/A	N/A
10*16413	9-7-20	C	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905	454	N/A	N/A	N/A
10*16852	9-7-20	C	KEVIN R DURBIN AND KRISTA A DURBIN	TH EXPLORATION LLC	1/8+	929	312	N/A	N/A	N/A
10*17622	9-7-20	C	DAVID E HINERMAN JR AN INCARCERATED PER	TH EXPLORATION LLC	1/8+	929	314	N/A	N/A	N/A
10*27947	9-7-20	C	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568	N/A	N/A	N/A
10*15746	9-11-7	D	BRUCE D SCHURR	TH EXPLORATION LLC	1/8+	921	478	N/A	N/A	N/A
10*16021	9-11-7	D	TOMMY BONAR AND TANYA S BONAR	TH EXPLORATION LLC	1/8+	925	325	N/A	N/A	N/A
10*16115	9-11-7	D	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925	329	N/A	N/A	N/A
10*16121	9-11-7	D	ISAIAH BENNETT	TH EXPLORATION LLC	1/8+	933	105	N/A	N/A	N/A
10*16247	9-11-7	D	CAROL RIGGLE AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925	327	N/A	N/A	N/A
10*17415	9-11-7	D	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919	241	N/A	N/A	N/A
10*17506	9-11-7	D	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919	239	N/A	N/A	N/A
10*17507	9-11-7	D	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919	235	N/A	N/A	N/A
10*47051.256.1	9-11-7	D	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881	145	N/A	N/A	N/A
10*47051.256.7	9-11-7	D	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905	29	N/A	N/A	N/A
10*47051.256.8	9-11-7	D	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905	31	N/A	N/A	N/A
10*47051.256.9	9-11-7	D	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905	33	N/A	N/A	N/A
10*47051.256.10	9-11-7	D	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905	35	N/A	N/A	N/A
10*47051.256.11	9-11-7	D	JOHN L MASON	TH EXPLORATION LLC	1/8+	905	37	N/A	N/A	N/A
10*47051.256.12	9-11-7	D	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905	39	N/A	N/A	N/A
10*47051.256.13	9-11-7	D	WILLIAM W CRAIG	TH EXPLORATION LLC	1/8+	905	41	N/A	N/A	N/A
10*47051.256.14	9-11-7	D	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905	43	N/A	N/A	N/A
10*47051.256.15	9-11-7	D	ROY E AND CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904	455	N/A	N/A	N/A

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Operator's Well No. Heaven Hill 3N - 11HM

10*47051.256.16	9-11-7	D	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905	45	N/A	N/A	N/A
10*47051.256.17	9-11-7	D	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904	457	N/A	N/A	N/A
10*47051.256.18	9-11-7	D	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913	522	N/A	N/A	N/A
10*47051.256.19	9-11-7	D	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907	207	N/A	N/A	N/A
10*47051.256.20	9-11-7	D	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907	209	N/A	N/A	N/A
10*47051.256.21	9-11-7	D	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904	626	N/A	N/A	N/A
10*47051.256.22	9-11-7	D	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913	581	N/A	N/A	N/A
10*47051.256.23	9-11-7	D	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913	556	N/A	N/A	N/A
10*47051.256.24	9-11-7	D	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904	628	N/A	N/A	N/A
10*15669	9-11-6.1	E	EMMA CATHERINE ANDERSON	CHEVRON U.S.A. INC.	1/8+	861	586	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15670	9-11-6.1	E	GARY M BONAR AND ELLEN L BONAR	CHEVRON U.S.A. INC.	1/8+	861	577	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15671	9-11-6.1	E	JUDALENE K COLLUMS	CHEVRON U.S.A. INC.	1/8+	861	571	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15672	9-11-6.1	E	NAOMI HUPP	CHEVRON USA INC	1/8+	861	604	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*47051.256.1	9-11-6.1	E	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881	145	N/A	N/A	N/A
10*47051.256.2	9-11-6.1	E	CAROL JEAN ANDERSON	TH EXPLORATION LLC	1/8+	879	299	N/A	N/A	N/A
10*47051.256.3	9-11-6.1	E	BRENDA S DYKHOUSE	TH EXPLORATION LLC	1/8+	881	148	N/A	N/A	N/A
10*47051.256.4	9-11-6.1	E	GLEN A BONAR	TH EXPLORATION LLC	1/8+	881	151	N/A	N/A	N/A
10*47051.256.5	9-11-6.1	E	KATHLEEN E ZIEN	TH EXPLORATION LLC	1/8+	882	530	N/A	N/A	N/A
10*15667	9-7-19	F	KEVIN E MCGILTON AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850	351	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*23272	9-7-2	G	HG ENERGY II APPALACHIA LLC	TH EXPLORATION LLC	1/8+	961	644	N/A	N/A	N/A
10*15521	9-7-3	H	VENANGO 21ST CENTURY ENERGY INC	TRIENERGY HOLDINGS, LLC	1/8+	722	281	TriEnergy Holdings LLC to NPAR LLC: 24/196	NPAR LLC to Chevron USA Inc: 756/332	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15608	9-7-3	H	CHARLES R HAGEDORN JR	CHEVRON U.S.A. INC.	1/8+	816	423	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*47051.073.1	9-7-3	H	VENANGO 21ST CENTURY ENERGY INC	TH EXPLORATION LLC	1/8+	888	618	N/A	N/A	N/A
10*47051.073.2	9-7-3	H	PATRIOT RESTORATIONS LLC	TH EXPLORATION LLC	1/8+	908	541	N/A	N/A	N/A
10*47051.073.3	9-7-3	H	TRIENERGY HOLDINGS, LLC	TH EXPLORATION LLC	1/8+	878	330	N/A	N/A	N/A
10*15521	9-7-3.2	I	VENANGO 21ST CENTURY ENERGY INC	TRIENERGY HOLDINGS, LLC	1/8+	722	281	TriEnergy Holdings LLC to NPAR LLC: 24/196	NPAR LLC to Chevron USA Inc: 756/332	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15608	9-7-3.2	I	CHARLES R HAGEDORN JR	CHEVRON U.S.A. INC.	1/8+	816	423	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*47051.073.1	9-7-3.2	I	VENANGO 21ST CENTURY ENERGY INC	TH EXPLORATION LLC	1/8+	888	618	N/A	N/A	N/A

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Operator's Well No. Heaven Hill 3N - 11HM

10*47051.073.2	9-7-3.2	I	PATRIOT RESTORATIONS LLC	TH EXPLORATION LLC	1/8+	908	541	N/A	N/A	N/A
10*47051.073.3	9-7-3.2	I	TRIENERGY HOLDINGS, LLC	TH EXPLORATION LLC	1/8+	878	330	N/A	N/A	N/A
10*21585	9-5-1	J	TERRY LAND HARIKIA HEIDI SAMPSON	CHEVRON USA INC	1/8+	852	351	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 42/435

STATE OF WEST VIRGINIA
COUNTY OF MARSHALL

§
§
§

COPY
4705102448

MEMORANDUM OF ASSIGNMENT OF OIL AND GAS LEASES

This **MEMORANDUM OF ASSIGNMENT OF OIL AND GAS LEASES** ("**Memorandum**") dated as of September 7th, 2018 (the "**Effective Date**"), is made by and between **Chevron U.S.A. Inc.**, a Pennsylvania corporation, with an address at 700 Cherrington Parkway, Coraopolis, PA 15108 ("**Chevron**" or "**Assignor**") and **TH Exploration, LLC**, Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 ("**Assignee**"). **Chevron** and **Assignee** are each referred to herein as a "**Party**" and collectively as the "**Parties**." Capitalized terms used but not defined herein shall have the meaning ascribed to those terms in that certain Assignment of Oil and Gas Leases between the Parties dated September 7th, 2018 ("**Assignment**").

- A. Notice is hereby given that the Parties have entered into the Assignment, pursuant to which **Chevron** assigned to **Assignee** all of **Assignor's** right, title, and interest in and to those certain Leases situated in Marshall County, West Virginia, less and except certain identified portions, as described in Exhibit "A", attached hereto and made a part hereof.
- B. **Chevron** does covenant, promise and agree, to and with the **Assignee**, its respective successors and assigns, to forever specially warrant and defend the title to the Leases or portions thereof included under the Assignment and this Memorandum, unto the **Assignee** and its respective successors and assigns, against the lawful claims of **Chevron**, and all persons claiming, or to claim, the same or any part thereof, by, through or under **Chevron**.
- C. Preparation of this Memorandum has been a joint effort of the Parties and it must not be construed more severely against any of the Parties than against any other.
- D. This Memorandum is subject to and expressly incorporates the terms of the Assignment. The Assignment will govern to the extent of any conflict between the terms of this Memorandum and the Assignment.
- E. In consideration of the mutual promises set out in this Assignment, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree to be bound by the terms of this Assignment.

IN WITNESS WHEREOF, this Memorandum is executed this 7th day of September, 2018.

Marshall County
Jan Pest, Clerk
Instrument 1445509
09/11/2018 @ 02:17:18 PM
ASSIGNMENTS
Book 42 @ Page 435
Pages Recorded ?
Recording Cost \$ 13.00



4705102448

May 16, 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-11HM

Subject: Marshall County Route 21/3 Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 21/3 in the area reflected on the Heaven Hill 3N-11HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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: 05/16/2022

API No. 47- 051 - _____

Operator's Well No. Heaven Hill 3N-11HM

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>526,265.69</u>
County: <u>Marshall</u>		Northing: <u>4,406,555.65</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>		

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		RECEIVED Office of Oil and Gas MAY 17 2022 WV Department of Environmental Protection	OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED <input checked="" type="checkbox"/> RECEIVED <input checked="" type="checkbox"/> RECEIVED <input checked="" type="checkbox"/> RECEIVED
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Required Attachments:

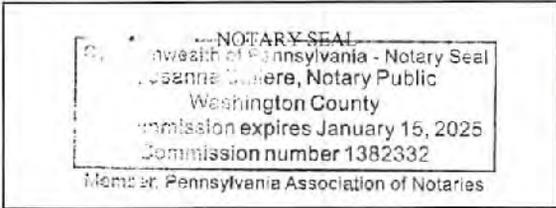
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

WW-6AC
(1/12)

Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 14th day of May, 2022
Susanna Deleere Notary Public
 My Commission Expires 1/15/2025

Oil and Gas Privacy Notice:

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

RECEIVED
 Office of Oil and Gas
 MAY 17 2022
 WV Department of
 Environmental Protection

WW-6A
(9-13)

API NO. 47- 051
OPERATOR WELL NO. Heaven Hill 3N-11HM
Well Pad Name: Heaven Hill 3

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: 5/13/2022 Date Permit Application Filed: 5/15/2022

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. Whillatch
 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: _____

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Environmental Protection

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

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

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

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: None
 Address: _____

*Please attach additional forms if necessary

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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

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(8-13)

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)

4705102448
API NO. 47-051
OPERATOR WELL NO. Heaven Hill 3N-11HM
Well Pad Name: Heaven Hill 3

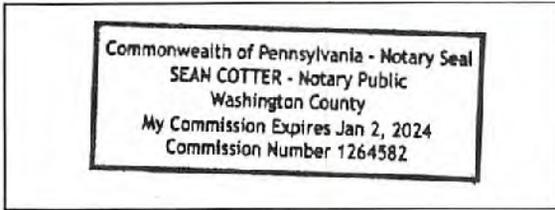
Notice is hereby given by:

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

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 13 day of May, 2022.
[Signature] Notary Public
My Commission Expires 1/2/2024

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MAY 17 2022
WV Department of
Environmental Protection

07/01/2022

4705102448

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 – 11HM
District: Meade (Residence #1)
State: WV

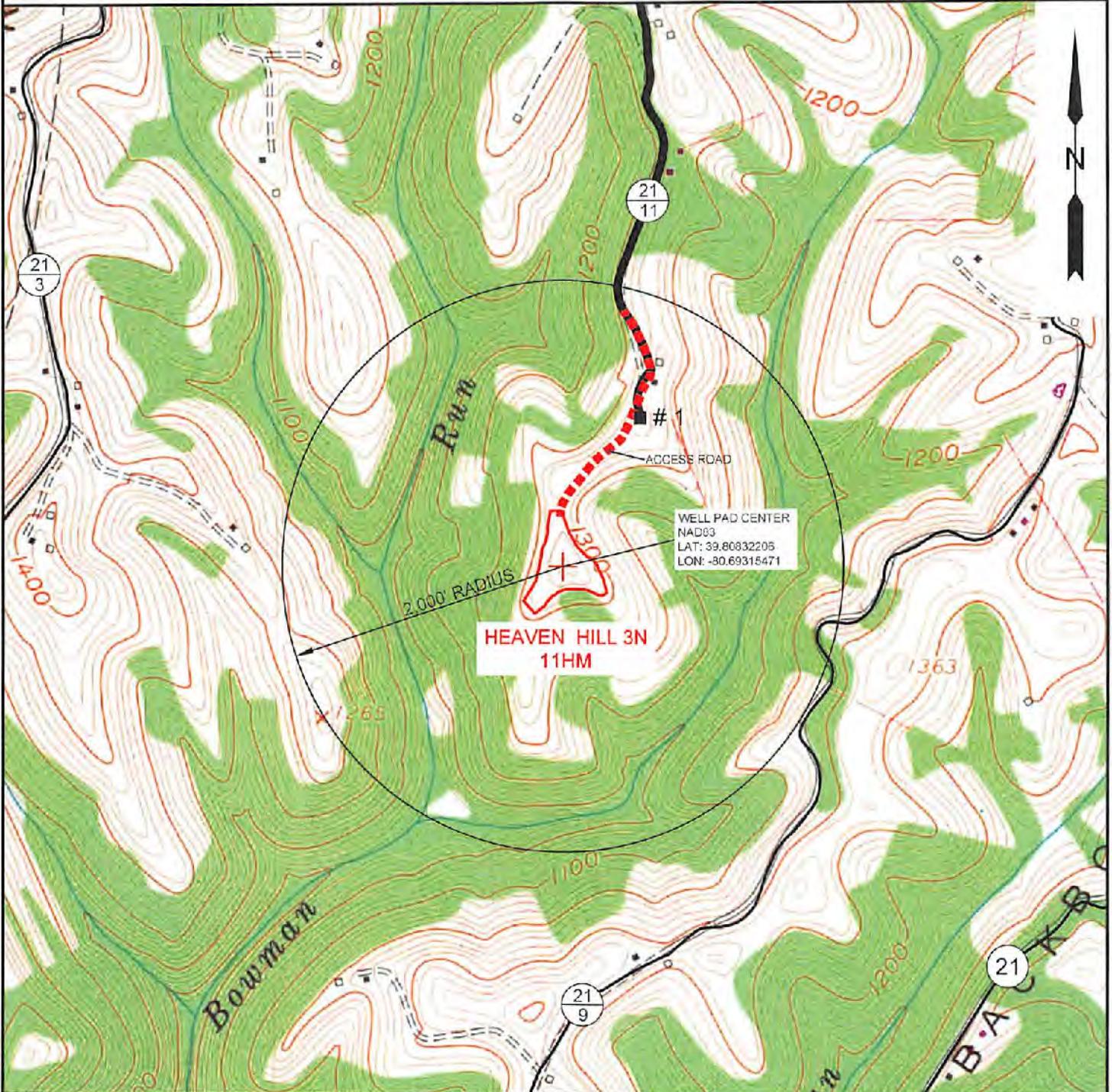
There is one (1) residence, no business or commercial sites, no churches, no schools or emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<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>

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07/01/2022

PROPOSED
HEAVEN HILL 3N - 11HM 705102448



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 • 112 Vanhorn Drive • Glenville, WV 26351 • (304) 492-5834
 www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
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: 03/28/2022

Date Permit Application Filed: 03/28/2022

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MAY 17 2022

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

HAND DELIVERY
 CERTIFIED MAIL
RETURN RECEIPT REQUESTED

WV Department of
Environmental Protection

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. Whillatch
Address: 1044 Yeater Lane
Glen Easton, WV 26039

Name: Andrew Whillatch
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
County: Marshall
District: Meade
Quadrangle: Glen Easton 7.5'
Watershed: Fish Creek
UTM NAD 83 Easting: 526,265.69
Northing: 4,406,555.65
Public Road Access: Yeater Lane CR 21/11
Generally used farm name: Ricky L. Whillatch

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: 724-749-6388
Email: amorris@tug-hillop.com
Facsimile:

Authorized Representative: Darren Brown
Address: 5098 Washington Street W, Suite 407
Charleston, WV 25313-1561
Telephone: 877-467-3525
Email: ci-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.

07/01/2022

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

4705102448

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

07/01/2022

4705102448

WW-6A5
(1/12)

Operator Well No. Heaven Hill 3N-11HM

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: 05/13/2022 **Date Permit Application Filed:** 05/15/2022

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**

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MAY 17 2022
WV Department of
Environmental Protection

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>526,265.69</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,555.65</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: 724-749-9388
Email: amorris@tug-hillop.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.

07/01/2022

Operator Well No. Heaven Hill Unit 3N-11HM

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

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

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

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

January 24, 2022

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

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 Office of Oil and Gas

MAY 17 2022

WV Department of
 Environmental Protection

Subject: DOH Permit for the Heaven Hill 3 Pad, Marshall County
 Heaven Hill 3N-11HM 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,

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

RECEIVED
Office of Oil and Gas

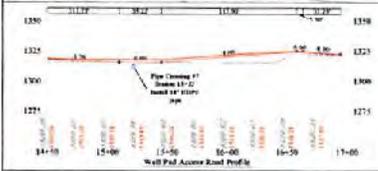
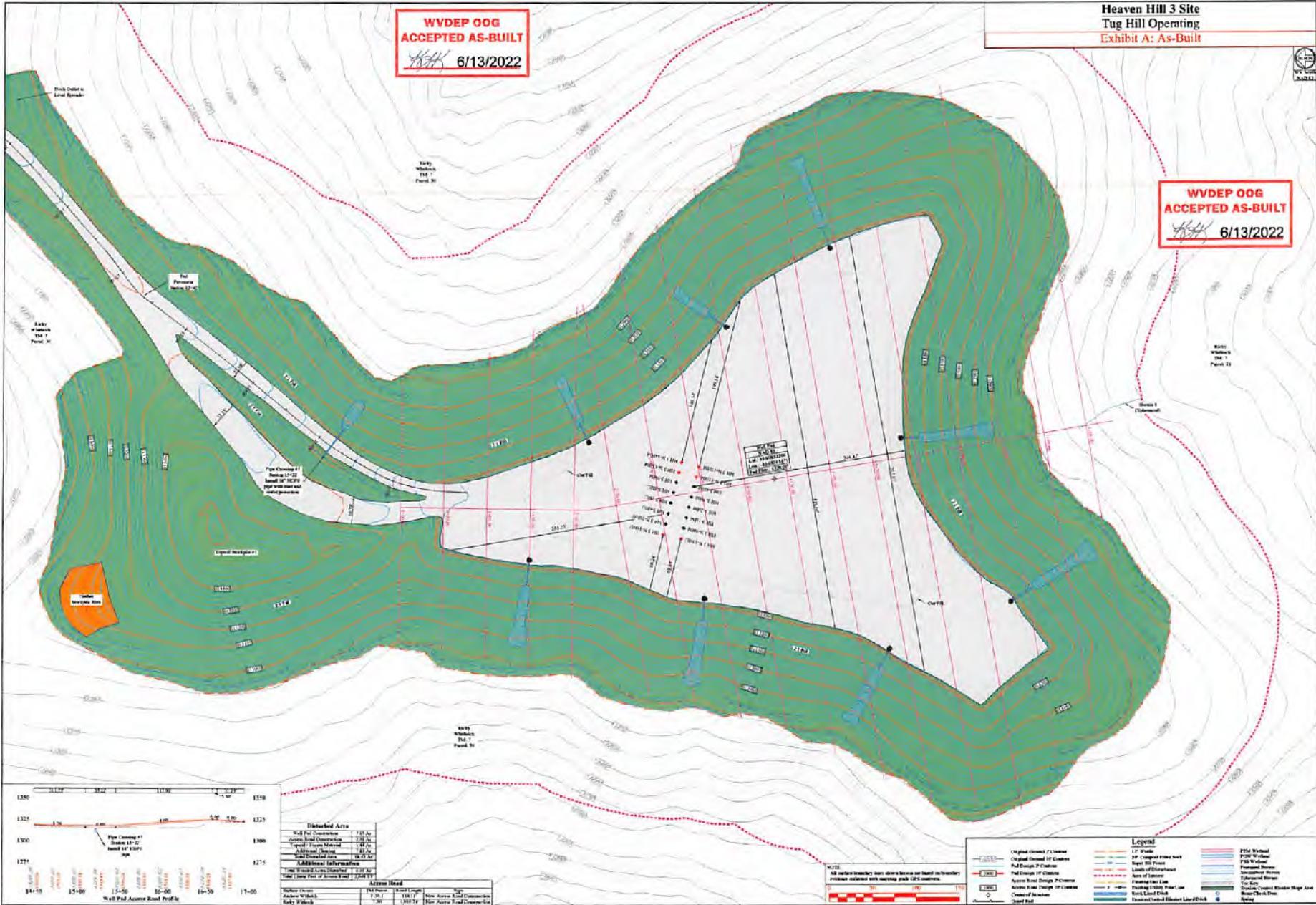
MAY 17 2022

WV Department of
Environmental Protection

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

WVDEP O&G
ACCEPTED AS-BUILT
[Signature] 6/13/2022

WVDEP O&G
ACCEPTED AS-BUILT
[Signature] 6/13/2022



Disturbed Area	
Well Pad Construction	1.18 AC
Access Road Construction	2.28 AC
Gravel / Fertilizer Material	14.00 AC
1' Gravel / Gravel	1.00 AC
Well Drilling Area	18.00 AC
Total Disturbed Area	36.46 AC

Additional Information	
Time (New Year of Access Road)	1/20/21

Station	Well Pad	Well Depth	Well
14+10	14-10	114.17'	New Access Road Construction
14+50	14-50	114.17'	New Access Road Construction
15+50	15-50	114.17'	New Access Road Construction
16+50	16-50	114.17'	New Access Road Construction
17+00	17-00	114.17'	New Access Road Construction

Legend		
Original Contour 2' Contour	2' Contour	2' Contour
Original Contour 10' Contour	10' Contour	10' Contour
Original Contour 20' Contour	20' Contour	20' Contour
Original Contour 30' Contour	30' Contour	30' Contour
Original Contour 40' Contour	40' Contour	40' Contour
Original Contour 50' Contour	50' Contour	50' Contour
Original Contour 60' Contour	60' Contour	60' Contour
Original Contour 70' Contour	70' Contour	70' Contour
Original Contour 80' Contour	80' Contour	80' Contour
Original Contour 90' Contour	90' Contour	90' Contour
Original Contour 100' Contour	100' Contour	100' Contour
Original Contour 110' Contour	110' Contour	110' Contour
Original Contour 120' Contour	120' Contour	120' Contour
Original Contour 130' Contour	130' Contour	130' Contour
Original Contour 140' Contour	140' Contour	140' Contour
Original Contour 150' Contour	150' Contour	150' Contour
Original Contour 160' Contour	160' Contour	160' Contour
Original Contour 170' Contour	170' Contour	170' Contour
Original Contour 180' Contour	180' Contour	180' Contour
Original Contour 190' Contour	190' Contour	190' Contour
Original Contour 200' Contour	200' Contour	200' Contour
Original Contour 210' Contour	210' Contour	210' Contour
Original Contour 220' Contour	220' Contour	220' Contour
Original Contour 230' Contour	230' Contour	230' Contour
Original Contour 240' Contour	240' Contour	240' Contour
Original Contour 250' Contour	250' Contour	250' Contour
Original Contour 260' Contour	260' Contour	260' Contour
Original Contour 270' Contour	270' Contour	270' Contour
Original Contour 280' Contour	280' Contour	280' Contour
Original Contour 290' Contour	290' Contour	290' Contour
Original Contour 300' Contour	300' Contour	300' Contour
Original Contour 310' Contour	310' Contour	310' Contour
Original Contour 320' Contour	320' Contour	320' Contour
Original Contour 330' Contour	330' Contour	330' Contour
Original Contour 340' Contour	340' Contour	340' Contour
Original Contour 350' Contour	350' Contour	350' Contour
Original Contour 360' Contour	360' Contour	360' Contour
Original Contour 370' Contour	370' Contour	370' Contour
Original Contour 380' Contour	380' Contour	380' Contour
Original Contour 390' Contour	390' Contour	390' Contour
Original Contour 400' Contour	400' Contour	400' Contour
Original Contour 410' Contour	410' Contour	410' Contour
Original Contour 420' Contour	420' Contour	420' Contour
Original Contour 430' Contour	430' Contour	430' Contour
Original Contour 440' Contour	440' Contour	440' Contour
Original Contour 450' Contour	450' Contour	450' Contour
Original Contour 460' Contour	460' Contour	460' Contour
Original Contour 470' Contour	470' Contour	470' Contour
Original Contour 480' Contour	480' Contour	480' Contour
Original Contour 490' Contour	490' Contour	490' Contour
Original Contour 500' Contour	500' Contour	500' Contour
Original Contour 510' Contour	510' Contour	510' Contour
Original Contour 520' Contour	520' Contour	520' Contour
Original Contour 530' Contour	530' Contour	530' Contour
Original Contour 540' Contour	540' Contour	540' Contour
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Original Contour 560' Contour	560' Contour	560' Contour
Original Contour 570' Contour	570' Contour	570' Contour
Original Contour 580' Contour	580' Contour	580' Contour
Original Contour 590' Contour	590' Contour	590' Contour
Original Contour 600' Contour	600' Contour	600' Contour
Original Contour 610' Contour	610' Contour	610' Contour
Original Contour 620' Contour	620' Contour	620' Contour
Original Contour 630' Contour	630' Contour	630' Contour
Original Contour 640' Contour	640' Contour	640' Contour
Original Contour 650' Contour	650' Contour	650' Contour
Original Contour 660' Contour	660' Contour	660' Contour
Original Contour 670' Contour	670' Contour	670' Contour
Original Contour 680' Contour	680' Contour	680' Contour
Original Contour 690' Contour	690' Contour	690' Contour
Original Contour 700' Contour	700' Contour	700' Contour
Original Contour 710' Contour	710' Contour	710' Contour
Original Contour 720' Contour	720' Contour	720' Contour
Original Contour 730' Contour	730' Contour	730' Contour
Original Contour 740' Contour	740' Contour	740' Contour
Original Contour 750' Contour	750' Contour	750' Contour
Original Contour 760' Contour	760' Contour	760' Contour
Original Contour 770' Contour	770' Contour	770' Contour
Original Contour 780' Contour	780' Contour	780' Contour
Original Contour 790' Contour	790' Contour	790' Contour
Original Contour 800' Contour	800' Contour	800' Contour
Original Contour 810' Contour	810' Contour	810' Contour
Original Contour 820' Contour	820' Contour	820' Contour
Original Contour 830' Contour	830' Contour	830' Contour
Original Contour 840' Contour	840' Contour	840' Contour
Original Contour 850' Contour	850' Contour	850' Contour
Original Contour 860' Contour	860' Contour	860' Contour
Original Contour 870' Contour	870' Contour	870' Contour
Original Contour 880' Contour	880' Contour	880' Contour
Original Contour 890' Contour	890' Contour	890' Contour
Original Contour 900' Contour	900' Contour	900' Contour
Original Contour 910' Contour	910' Contour	910' Contour
Original Contour 920' Contour	920' Contour	920' Contour
Original Contour 930' Contour	930' Contour	930' Contour
Original Contour 940' Contour	940' Contour	940' Contour
Original Contour 950' Contour	950' Contour	950' Contour
Original Contour 960' Contour	960' Contour	960' Contour
Original Contour 970' Contour	970' Contour	970' Contour
Original Contour 980' Contour	980' Contour	980' Contour
Original Contour 990' Contour	990' Contour	990' Contour
Original Contour 1000' Contour	1000' Contour	1000' Contour

Scale: 1" = 100'

North Arrow

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

K&S Consulting

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

Date: 12/15/2021
Scale: As Shown
Designed By: JTS
FWS
Sheet 7 of 11