



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-13HM
47-051-02450-00-00

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-13HM
Farm Name: ANDREW C WHITLATCH ET AL
U.S. WELL NUMBER: 47-051-02450-00-00
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.

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API Number: _____

PERMIT CONDITIONS

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

07/01/2022

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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-13HM 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 6,819' - 6,869', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 6,969' RECEIVED Office of Oil and Gas _____

9) Formation at Total Vertical Depth: Onondaga JUN 15 2022 _____

10) Proposed Total Measured Depth: 15,110'

11) Proposed Horizontal Leg Length: 7,419.21' WV Department of Environmental Protection _____

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.

WW-6B
(04/15)

4705102450
 API NO. 47- 051 -
 OPERATOR WELL NO. Heaven Hill 3N-13HM
 Well Pad Name: Heaven Hill 3

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	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#	2,943'	2,943'	980FT^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,110'	15,110'	3,859FT^3(CTS)
Tubing	2 3/8"	NEW	P110	4.7#		6,792'	
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							

PACKERS

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Kind:	N/A			MAY 17 2022
Sizes:	N/A			WV Department of Environmental Protection
Depths Set:	N/A			

WW-6B
(10/14)

4705102450
API NO. 47-051 -
OPERATOR WELL NO. Heaven Hill 3N-13HM
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 (6,292'). 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 18,600,000 lb proppant and 340,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

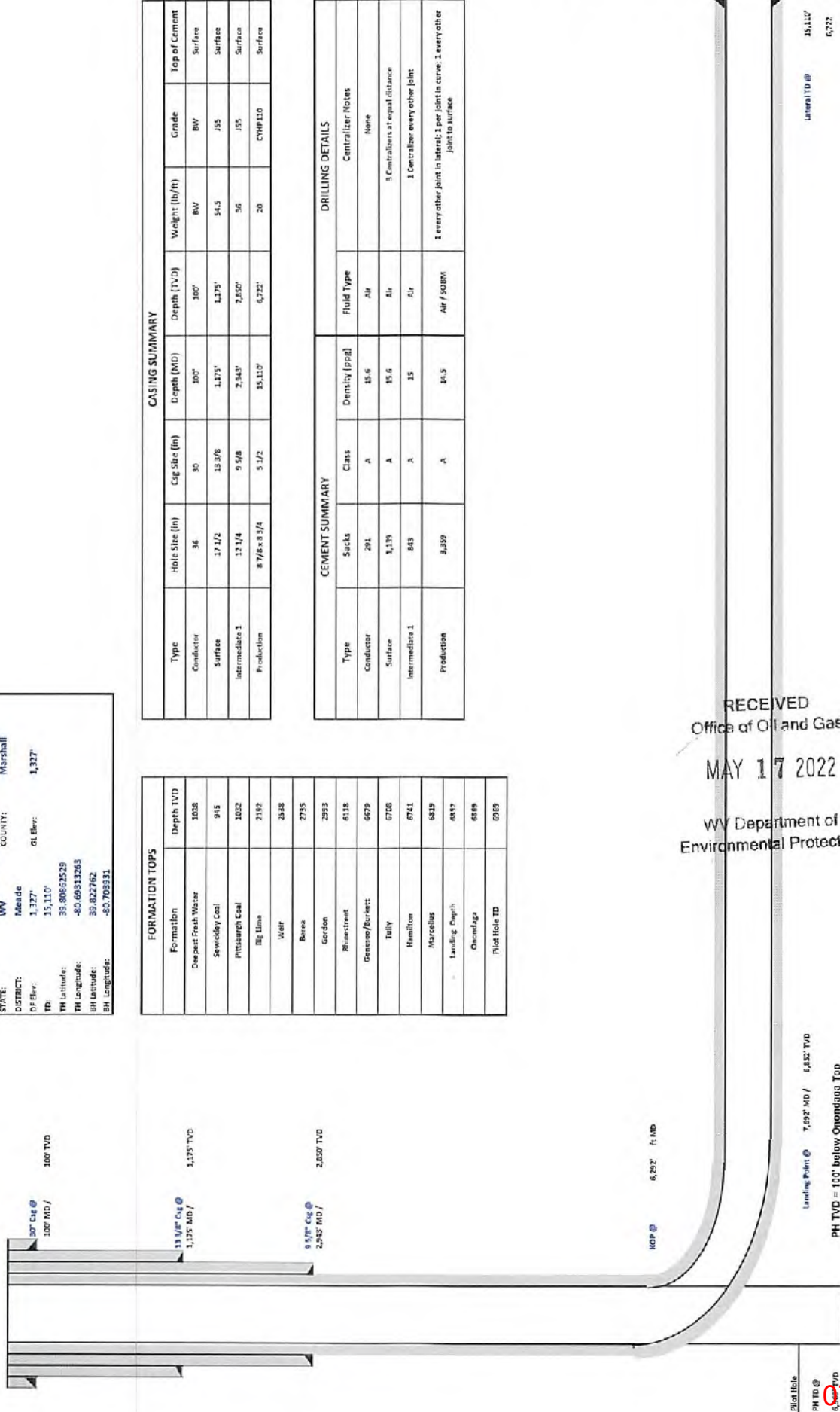
Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

*Note: Attach additional sheets as needed.

4705102450



WELL NAME: Heaven Hill 3 N-13HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade
 OF Elev: 1,327' dt Elev: 1,327'
 TD: 15,110'
 TH Latitude: 39.80862529
 TH Longitude: -80.69312663
 BH Latitude: 39.822762
 BH Longitude: -80.709331



FORMATION TOPS

Formation	Depth TVD
Deepest Fresh Water	1038
Sewickley Coal	915
Pittsburgh Coal	1022
Big Lime	2192
Wair	2538
Berea	2755
Gordon	2923
Rhinestreet	6116
Genesee/Barnett	6679
Tully	6708
Hamilton	6741
Marcellus	6829
Landing Depth	6857
Onondaga	6869
Plot Hole TD	6909

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	8W	Surface
Surface	17 1/2	13 3/8	1,175'	1,175'	54.3	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,545'	2,550'	36	J55	Surface
Production	8 7/8 x 8 9/16	5 1/2	15,110'	6,722'	20	CWPP10	Surface

CEMENT SUMMARY

Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	291	A	15.6	Air	None
Surface	1,139	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	843	A	15	Air	1 Centralizer every other joint
Production	3,389	A	14.5	Air / SOBVI	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface

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Plot Hole PH TD @ 6,722' MD / 6,722' TVD
 Landing Point @ 7,592' MD / 6,832' TVD
 PH TD = 100' below Onondaga Top
 Lat: 80.709331
 Long: 39.822762

07/01/2022

4705102450



Tug Hill Operating, LLC Casing and Cement Program

Heaven Hill 3 N-13HM

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"	2,943'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	15,110'	CTS

Cement

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

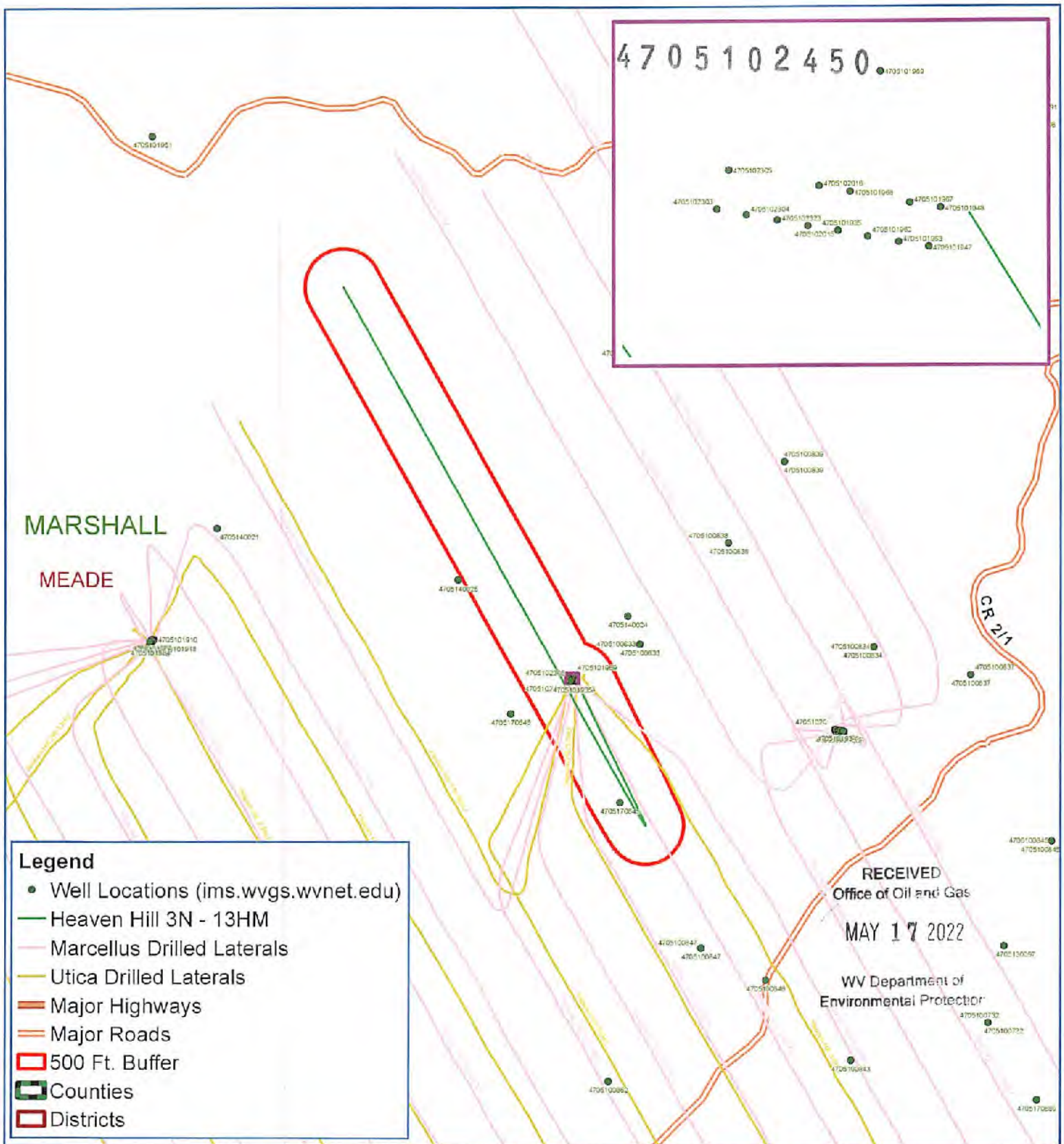
Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.38

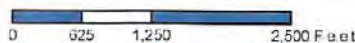
Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug

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

07/01/2022



Heaven Hill 3N - 13HM Meade District Marshall County, WV



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

Map Prepared by:
PS
07/01/2022
LAND SERVICES

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

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Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
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-13HM.
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-13HM.
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-13HM.
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-13HM.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
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-13HM.
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-13HM.
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-13HM.
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-13HM.
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-13HM.

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API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
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-13HM.
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.

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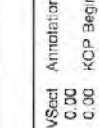
API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
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-13HM.
4705170645	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Marcellus well. Well is plugged.	State records are incomplete.

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Well: Heaven Hill 3 N-13 HM (Q)
Site: Heaven Hill 3
Project: Marshall County, West Virginia.
Design: rev3
Rig:

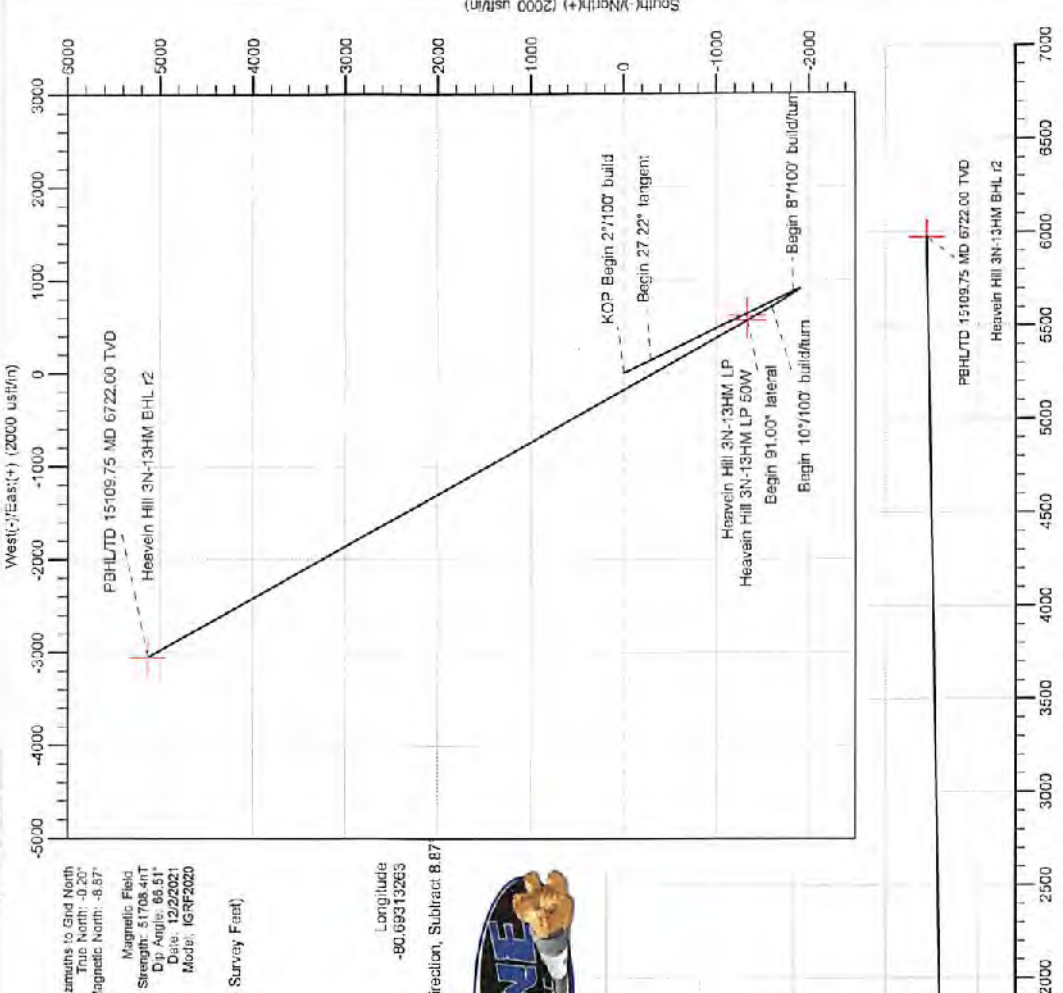


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Diag	VFace	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	KOP Begin 27'100' build
3	2560.77	27.22	154.28	2510.17	-285.74	137.51	2.00	0.00	Begin 27.22' tangent
4	5292.40	27.22	154.28	5228.99	-1823.33	878.11	0.00	0.00	Begin 87'100' buildturn
5	7381.69	60.00	329.71	6775.28	-1594.50	715.70	8.00	0.00	Begin 107'100' buildturn
6	7891.50	91.00	330.80	6952.00	-1336.87	568.68	10.00	0.00	Begin 91.00' lateral
7	15109.75	91.00	330.80	6722.00	5137.38	-3049.56	0.00	0.00	PBHLTD 15109.75 MD 6722.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
Heaven Hill 3N-13HM BHL r2	6722.00	5137.38	-3049.56	14462332.49	1723545.11	39.82276200	-80.70393100
- plan hits target center							
Heaven Hill 3N-13HM LP	6852.00	-1336.90	616.70	14455858.22	1727213.37	39.80434800	-80.69094600
- plan misses target center by 43.63m (143.13ft)							
Heaven Hill 3N-13HM LP 50W	6852.00	-1336.90	566.70	14455858.22	1727153.37	39.80434847	-80.69112403
- plan hits target center							



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.87°
 Magnetic Field
 Strength: 51708.4 nT
 Dip Angle: 66.51°
 Date: 12/22/2021
 Model: IGRF2020

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

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

Northing: 14457155.11
 Easting: -1726554.67
 Latitude: 39.808892529
 Longitude: -80.69313263

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



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 MAY 17 2022
 WV Department of
 Environmental Protection

Vertical Section at 329.31° (1000 usft/m)



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-13 HM (Q)
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-13 HM (Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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

Site	Heaven Hill 3				
Site Position:		Northing:	14,457,178.77 usft	Latitude:	39.80858060
From:	Lat/Long	Easting:	1,726,571.98 usft	Longitude:	-80.69321360
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Heaven Hill 3 N-13 HM (Q)					
Well Position	+N/-S	0.00 usft	Northing:	14,457,195.12 usft	Latitude:	39.80862529
	+E/-W	0.00 usft	Easting:	1,726,594.67 usft	Longitude:	-80.69313263
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	1,327.00 usft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	12/2/2021	-8.67	66.51	51,708.35874529

Design	rev3			
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	329.31

Plan Survey Tool Program	Date			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,109.75	rev3	(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	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,560.77	27.22	154.28	2,510.17	-285.74	137.81	2.00	2.00	0.00	154.28	
6,292.40	27.22	154.28	5,828.69	-1,823.33	878.11	0.00	0.00	0.00	0.00	
7,381.89	60.00	329.71	6,775.28	-1,594.56	715.70	8.00	3.01	16.10	176.03	
7,691.90	91.00	330.80	6,852.00	-1,338.87	568.88	10.00	9.99	0.35	2.12	
15,109.75	91.00	330.80	6,722.00	5,137.38	-3,049.56	0.00	0.00	0.00	0.00	Heavein Hill 3N-13HM



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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-13 HM (Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
100.00	0.00	0.00	100.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
200.00	0.00	0.00	200.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
300.00	0.00	0.00	300.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
400.00	0.00	0.00	400.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
500.00	0.00	0.00	500.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
600.00	0.00	0.00	600.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
700.00	0.00	0.00	700.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
800.00	0.00	0.00	800.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
900.00	0.00	0.00	900.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,195.12	1,726,594.67	39.80862529	-80.69313263	
KOP Begin 2°/100' build										
1,300.00	2.00	154.28	1,299.98	-1.57	0.76	14,457,193.54	1,726,595.42	39.80862097	-80.69312995	
1,400.00	4.00	154.28	1,399.84	-6.29	3.03	14,457,188.83	1,726,597.89	39.80860800	-80.69312193	
1,500.00	6.00	154.28	1,499.45	-14.14	6.81	14,457,180.98	1,726,601.48	39.80858640	-80.69310856	
1,600.00	8.00	154.28	1,598.70	-25.12	12.10	14,457,170.00	1,726,606.76	39.80855620	-80.69308986	
1,700.00	10.00	154.28	1,697.47	-39.21	18.88	14,457,155.90	1,726,613.55	39.80851743	-80.69306597	
1,800.00	12.00	154.28	1,795.62	-56.40	27.16	14,457,138.71	1,726,621.83	39.80847014	-80.69303660	
1,900.00	14.00	154.28	1,893.06	-76.67	36.92	14,457,118.45	1,726,631.59	39.80841439	-80.69300209	
2,000.00	16.00	154.28	1,989.64	-99.99	48.15	14,457,095.13	1,726,642.82	39.80835025	-80.69296239	
2,100.00	18.00	154.28	2,085.27	-126.33	60.84	14,457,068.79	1,726,655.50	39.80827780	-80.69291754	
2,200.00	20.00	154.28	2,179.82	-155.66	74.96	14,457,039.46	1,726,669.63	39.80819711	-80.69286760	
2,300.00	22.00	154.28	2,273.17	-187.94	90.51	14,457,007.17	1,726,685.18	39.80810830	-80.69281263	
2,400.00	24.00	154.26	2,365.21	-223.14	107.47	14,456,971.97	1,726,702.13	39.80801147	-80.69275269	
2,500.00	26.00	154.28	2,455.84	-261.22	125.80	14,456,933.90	1,726,720.47	39.80790674	-80.69268787	
2,560.77	27.22	154.26	2,510.17	-285.74	137.61	14,456,909.38	1,726,732.28	39.80783929	-80.69264612	
Begin 27.22° tangent										
2,600.00	27.22	154.28	2,545.06	-301.90	145.40	14,456,893.21	1,726,740.06	39.80779482	-80.69261859	
2,700.00	27.22	154.28	2,633.99	-343.11	165.24	14,456,852.01	1,726,759.91	39.80768147	-80.69254844	
2,800.00	27.22	154.26	2,722.92	-384.31	185.08	14,456,810.80	1,726,779.75	39.80756813	-80.69247828	
2,900.00	27.22	154.28	2,811.85	-425.52	204.93	14,456,769.60	1,726,799.59	39.80745479	-80.69240813	
3,000.00	27.22	154.28	2,900.78	-466.72	224.77	14,456,728.40	1,726,819.44	39.80734144	-80.69233797	
3,100.00	27.22	154.28	2,989.71	-507.93	244.62	14,456,687.19	1,726,839.28	39.80722810	-80.69226782	
3,200.00	27.22	154.28	3,078.64	-549.13	264.46	14,456,645.99	1,726,859.13	39.80711475	-80.69219767	
3,300.00	27.22	154.28	3,167.57	-590.33	284.30	14,456,604.78	1,726,878.97	39.80700141	-80.69212751	
3,400.00	27.22	154.28	3,256.50	-631.54	304.15	14,456,563.58	1,726,898.81	39.80688806	-80.69205736	
3,500.00	27.22	154.28	3,345.43	-672.74	323.99	14,456,522.37	1,726,918.66	39.80677472	-80.69198721	
3,600.00	27.22	154.28	3,434.36	-713.95	343.83	14,456,481.17	1,726,938.50	39.80666138	-80.69191705	
3,700.00	27.22	154.28	3,523.28	-755.15	363.68	14,456,439.97	1,726,958.34	39.80654803	-80.69184690	
3,800.00	27.22	154.28	3,612.21	-796.35	383.52	14,456,398.76	1,726,978.19	39.80643469	-80.69177675	
3,900.00	27.22	154.28	3,701.14	-837.56	403.37	14,456,357.56	1,726,998.03	39.80632134	-80.69170660	
4,000.00	27.22	154.28	3,790.07	-878.76	423.21	14,456,316.35	1,727,017.88	39.80620800	-80.69163644	
4,100.00	27.22	154.28	3,879.00	-919.97	443.05	14,456,275.15	1,727,037.72	39.80609465	-80.69156629	
4,200.00	27.22	154.28	3,967.93	-961.17	462.90	14,456,233.95	1,727,057.56	39.80598131	-80.69149614	
4,300.00	27.22	154.28	4,056.86	-1,002.38	482.74	14,456,192.74	1,727,077.41	39.80586796	-80.69142599	
4,400.00	27.22	154.28	4,145.79	-1,043.58	502.59	14,456,151.54	1,727,097.25	39.80575462	-80.69135584	
4,500.00	27.22	154.28	4,234.72	-1,084.78	522.43	14,456,110.33	1,727,117.10	39.80564128	-80.69128569	
4,600.00	27.22	154.20	4,323.65	-1,125.99	542.27	14,456,069.13	1,727,136.94	39.80552793	-80.69121554	
4,700.00	27.22	154.28	4,412.58	-1,167.19	562.12	14,456,027.93	1,727,156.78	39.80541459	-80.69114539	
4,800.00	27.22	154.28	4,501.51	-1,208.40	581.96	14,455,986.72	1,727,176.63	39.80530124	-80.69107524	
4,900.00	27.22	154.28	4,590.44	-1,249.60	601.80	14,455,945.52	1,727,196.47	39.80518790	-80.69100509	
5,000.00	27.22	154.28	4,679.37	-1,290.80	621.65	14,455,904.31	1,727,216.31	39.80507455	-80.69093494	



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Well:	Heaven Hill 3 N-13 HM (Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	27.22	154.28	4,768.30	-1,332.01	641.49	14,455,863.11	1,727,236.16	39.80496121	-80.69086479	
5,200.00	27.22	154.28	4,857.23	-1,373.21	661.34	14,455,821.90	1,727,256.00	39.80484786	-80.69079464	
5,300.00	27.22	154.28	4,946.16	-1,414.42	681.18	14,455,780.70	1,727,275.85	39.80473452	-80.69072449	
5,400.00	27.22	154.28	5,035.08	-1,455.62	701.02	14,455,739.50	1,727,295.69	39.80462117	-80.69065434	
5,500.00	27.22	154.28	5,124.01	-1,496.83	720.87	14,455,698.29	1,727,315.53	39.80450783	-80.69058419	
5,600.00	27.22	154.28	5,212.94	-1,538.03	740.71	14,455,657.09	1,727,335.38	39.80439448	-80.69051404	
5,700.00	27.22	154.28	5,301.87	-1,579.23	760.55	14,455,615.88	1,727,355.22	39.80428114	-80.69044389	
5,800.00	27.22	154.28	5,390.80	-1,620.44	780.40	14,455,574.68	1,727,375.06	39.80416779	-80.69037375	
5,900.00	27.22	154.28	5,479.73	-1,661.64	800.24	14,455,533.48	1,727,394.91	39.80405445	-80.69030360	
6,000.00	27.22	154.28	5,568.66	-1,702.85	820.09	14,455,492.27	1,727,414.75	39.80394110	-80.69023345	
6,100.00	27.22	154.28	5,657.59	-1,744.05	839.93	14,455,451.07	1,727,434.60	39.80382775	-80.69016330	
6,200.00	27.22	154.28	5,746.52	-1,785.25	859.77	14,455,409.86	1,727,454.44	39.80371441	-80.69009316	
6,292.40	27.22	154.28	5,828.60	-1,823.33	878.11	14,455,371.79	1,727,472.78	39.80360968	-80.69002834	
Begin 8°/100' build/tum										
6,300.00	28.81	154.38	5,835.47	-1,826.43	879.60	14,455,368.69	1,727,474.27	39.80360115	-80.69002307	
6,350.00	22.62	155.11	5,880.92	-1,845.25	888.49	14,455,349.86	1,727,483.16	39.80354936	-80.68999164	
6,400.00	18.84	155.14	5,927.70	-1,861.29	895.77	14,455,333.83	1,727,490.44	39.80350525	-80.68996592	
6,450.00	14.66	157.70	5,975.59	-1,874.46	901.41	14,455,320.66	1,727,496.07	39.80346904	-80.68994602	
6,500.00	10.70	160.39	6,024.37	-1,884.69	905.37	14,455,310.43	1,727,500.03	39.80344090	-80.68993204	
6,550.00	6.80	166.15	6,073.77	-1,891.94	907.63	14,455,303.18	1,727,502.30	39.80342097	-80.68992406	
6,600.00	3.13	186.12	6,123.58	-1,896.17	908.20	14,455,298.95	1,727,502.86	39.80340935	-80.68992211	
6,650.00	2.32	279.40	6,173.54	-1,897.36	907.05	14,455,297.75	1,727,501.72	39.80340608	-80.68992620	
6,700.00	5.74	312.41	6,223.42	-1,895.51	904.21	14,455,299.61	1,727,498.87	39.80341120	-80.68993631	
6,750.00	9.62	320.00	6,272.96	-1,890.62	899.67	14,455,304.50	1,727,494.34	39.80342467	-80.68995239	
6,800.00	13.57	323.22	6,321.93	-1,882.72	893.47	14,455,312.40	1,727,488.14	39.80344642	-80.68997437	
6,850.00	17.54	325.01	6,370.09	-1,871.85	885.64	14,455,323.27	1,727,480.31	39.80347636	-80.69000213	
6,900.00	21.52	326.15	6,417.21	-1,858.05	876.21	14,455,337.07	1,727,470.87	39.80351434	-80.69003554	
6,950.00	25.51	326.95	6,463.04	-1,841.40	865.22	14,455,353.71	1,727,459.89	39.80356016	-80.69007444	
7,000.00	29.50	327.55	6,507.39	-1,821.98	852.74	14,455,373.14	1,727,447.41	39.80361381	-80.69011864	
7,050.00	33.49	328.02	6,550.01	-1,799.88	838.82	14,455,395.23	1,727,433.49	39.80367443	-80.69016793	
7,100.00	37.49	328.39	6,590.71	-1,775.21	823.54	14,455,419.90	1,727,418.20	39.80374232	-80.69022206	
7,150.00	41.48	328.71	6,629.30	-1,748.10	806.95	14,455,447.02	1,727,401.62	39.80381696	-80.69028076	
7,200.00	45.48	328.97	6,665.57	-1,718.66	789.16	14,455,476.46	1,727,383.83	39.80389796	-80.69034376	
7,250.00	49.47	329.21	6,699.35	-1,687.05	770.24	14,455,508.07	1,727,364.90	39.80398495	-80.69041075	
7,300.00	53.47	329.41	6,730.50	-1,653.42	750.28	14,455,541.70	1,727,344.94	39.80407750	-80.69048140	
7,350.00	57.47	329.60	6,758.84	-1,617.93	729.38	14,455,577.18	1,727,324.05	39.80417516	-80.69055538	
7,381.69	60.00	329.71	6,775.28	-1,594.56	715.70	14,455,600.55	1,727,310.37	39.80423947	-80.69060379	
Begin 10°/100' build/tum										
7,400.00	61.83	329.79	6,784.18	-1,580.74	707.64	14,455,614.38	1,727,302.30	39.80427751	-80.69063233	
7,450.00	66.83	329.98	6,805.84	-1,541.77	685.04	14,455,653.35	1,727,279.70	39.80438475	-80.69071232	
7,500.00	71.82	330.17	6,823.48	-1,501.23	661.71	14,455,693.88	1,727,256.37	39.80449628	-80.69079469	
7,550.00	78.82	330.34	6,836.99	-1,459.45	637.83	14,455,735.67	1,727,232.50	39.80461125	-80.69087939	
7,600.00	81.82	330.50	6,846.25	-1,418.73	613.59	14,455,778.38	1,727,208.25	39.80472890	-80.69096519	
7,650.00	88.82	330.67	6,851.20	-1,373.41	589.16	14,455,821.71	1,727,183.82	39.80484801	-80.69105164	
7,691.50	91.00	330.80	6,852.00	-1,336.87	568.68	14,455,858.25	1,727,163.35	39.80494855	-80.69112410	
Begin 91.00° lateral										
7,700.00	91.00	330.80	6,851.86	-1,329.80	564.73	14,455,865.32	1,727,159.40	39.80496800	-80.69113807	
7,800.00	91.00	330.80	6,850.10	-1,242.52	515.95	14,455,952.60	1,727,110.62	39.80520815	-80.69131088	
7,900.00	91.00	330.80	6,848.35	-1,155.24	467.18	14,456,039.88	1,727,061.84	39.80544831	-80.69148329	
8,000.00	91.00	330.80	6,846.60	-1,067.96	418.40	14,456,127.16	1,727,013.07	39.80568846	-80.69165589	
8,100.00	91.00	330.80	6,844.85	-980.68	369.62	14,456,214.43	1,726,964.29	39.80592861	-80.69182850	
8,200.00	91.00	330.80	6,843.09	-893.40	320.84	14,456,301.71	1,726,915.51	39.80616878	-80.69200112	
8,300.00	91.00	330.80	6,841.34	-806.12	272.07	14,456,388.99	1,726,866.73	39.80640891	-80.69217373	
8,400.00	91.00	330.80	6,839.59	-718.84	223.29	14,456,476.27	1,726,817.96	39.80664906	-80.69234634	

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Project:	Marshall County, West Virginia.	MD Reference:	CL @ 1327.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3 N-13 HM (Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	330.80	6,837.84	-631.56	174.51	14,456,563.55	1,726,769.18	39.80688922	-80.89251896	
8,600.00	91.00	330.80	6,836.06	-544.29	125.73	14,456,650.83	1,726,720.40	39.80712937	-80.89269157	
8,700.00	91.00	330.80	6,834.33	-457.01	76.96	14,456,738.11	1,726,671.62	39.80736952	-80.89286419	
8,800.00	91.00	330.80	6,832.56	-369.73	28.18	14,456,825.39	1,726,622.85	39.80760967	-80.89303681	
8,900.00	91.00	330.80	6,830.83	-282.45	-20.60	14,456,912.67	1,726,574.07	39.80784982	-80.89320943	
9,000.00	91.00	330.80	6,829.07	-195.17	-69.36	14,456,999.95	1,726,525.29	39.80808997	-80.89338205	
9,100.00	91.00	330.80	6,827.32	-107.89	-118.15	14,457,087.23	1,726,476.51	39.80833011	-80.89355467	
9,200.00	91.00	330.80	6,825.57	-20.61	-166.93	14,457,174.51	1,726,427.74	39.80857026	-80.89372729	
9,300.00	91.00	330.80	6,823.82	65.67	-215.71	14,457,261.79	1,726,378.96	39.80881041	-80.89389991	
9,400.00	91.00	330.80	6,822.06	153.95	-264.49	14,457,349.07	1,726,330.18	39.80905056	-80.89407254	
9,500.00	91.00	330.80	6,820.31	241.23	-313.26	14,457,436.35	1,726,281.40	39.80929071	-80.89424517	
9,600.00	91.00	330.80	6,818.56	328.51	-362.04	14,457,523.62	1,726,232.63	39.80953086	-80.89441779	
9,700.00	91.00	330.80	6,816.81	415.79	-410.82	14,457,610.90	1,726,183.85	39.80977101	-80.89459042	
9,800.00	91.00	330.80	6,815.05	503.07	-459.60	14,457,698.18	1,726,135.07	39.81001115	-80.89476305	
9,900.00	91.00	330.80	6,813.30	590.35	-508.37	14,457,785.46	1,726,086.29	39.81025130	-80.89493569	
10,000.00	91.00	330.80	6,811.55	677.63	-557.15	14,457,872.74	1,726,037.52	39.81049145	-80.89510832	
10,100.00	91.00	330.80	6,809.80	764.90	-605.93	14,457,960.02	1,725,988.74	39.81073159	-80.89528095	
10,200.00	91.00	330.80	6,808.04	852.18	-654.71	14,458,047.30	1,725,939.96	39.81097174	-80.89545359	
10,300.00	91.00	330.80	6,806.29	939.46	-703.46	14,458,134.58	1,725,891.18	39.81121189	-80.89562622	
10,400.00	91.00	330.80	6,804.54	1,026.74	-752.26	14,458,221.86	1,725,842.41	39.81145203	-80.89579886	
10,500.00	91.00	330.80	6,802.79	1,114.02	-801.04	14,458,309.14	1,725,793.63	39.81169218	-80.89597150	
10,600.00	91.00	330.80	6,801.03	1,201.30	-849.82	14,458,396.42	1,725,744.85	39.81193232	-80.89614414	
10,700.00	91.00	330.80	6,799.28	1,288.58	-898.59	14,458,483.70	1,725,696.07	39.81217247	-80.89631678	
10,800.00	91.00	330.80	6,797.53	1,375.86	-947.37	14,458,570.98	1,725,647.30	39.81241261	-80.89648942	
10,900.00	91.00	330.80	6,795.78	1,463.14	-996.15	14,458,658.26	1,725,598.52	39.81265276	-80.89666206	
11,000.00	91.00	330.80	6,794.02	1,550.42	-1,044.93	14,458,745.54	1,725,549.74	39.81289290	-80.89683471	
11,100.00	91.00	330.80	6,792.27	1,637.70	-1,093.70	14,458,832.82	1,725,500.96	39.81313305	-80.89700735	
11,200.00	91.00	330.80	6,790.52	1,724.96	-1,142.48	14,458,920.09	1,725,452.19	39.81337319	-80.89718000	
11,300.00	91.00	330.80	6,788.77	1,812.26	-1,191.26	14,459,007.37	1,725,403.41	39.81361333	-80.89735265	
11,400.00	91.00	330.80	6,787.01	1,899.54	-1,240.04	14,459,094.65	1,725,354.63	39.81385348	-80.89752530	
11,500.00	91.00	330.80	6,785.26	1,986.82	-1,288.81	14,459,181.93	1,725,305.85	39.81409362	-80.89769795	
11,600.00	91.00	330.80	6,783.51	2,074.09	-1,337.59	14,459,269.21	1,725,257.08	39.81433376	-80.89787060	
11,700.00	91.00	330.80	6,781.76	2,161.37	-1,386.37	14,459,356.49	1,725,208.30	39.81457390	-80.89804325	
11,800.00	91.00	330.80	6,780.00	2,248.65	-1,435.15	14,459,443.77	1,725,159.52	39.81481405	-80.89821591	
11,900.00	91.00	330.80	6,778.25	2,335.93	-1,483.92	14,459,531.05	1,725,110.74	39.81505419	-80.89838856	
12,000.00	91.00	330.80	6,776.50	2,423.21	-1,532.70	14,459,618.33	1,725,061.97	39.81529433	-80.89856122	
12,100.00	91.00	330.80	6,774.75	2,510.49	-1,581.48	14,459,705.61	1,725,013.19	39.81553447	-80.89873388	
12,200.00	91.00	330.80	6,772.99	2,597.77	-1,630.26	14,459,792.89	1,724,964.41	39.81577461	-80.89890654	
12,300.00	91.00	330.80	6,771.24	2,685.05	-1,679.03	14,459,880.17	1,724,915.63	39.81601475	-80.89907920	
12,400.00	91.00	330.80	6,769.49	2,772.33	-1,727.81	14,459,967.45	1,724,866.86	39.81625489	-80.89925186	
12,500.00	91.00	330.80	6,767.74	2,859.61	-1,776.59	14,460,054.73	1,724,818.08	39.81649503	-80.89942452	
12,600.00	91.00	330.80	6,765.98	2,946.89	-1,825.37	14,460,142.01	1,724,769.30	39.81673517	-80.89959718	
12,700.00	91.00	330.80	6,764.23	3,034.17	-1,874.14	14,460,229.29	1,724,720.52	39.81697531	-80.89976985	
12,800.00	91.00	330.80	6,762.48	3,121.45	-1,922.92	14,460,316.56	1,724,671.75	39.81721545	-80.89994251	
12,900.00	91.00	330.80	6,760.73	3,208.73	-1,971.70	14,460,403.84	1,724,622.97	39.81745559	-80.70011516	
13,000.00	91.00	330.80	6,758.97	3,296.01	-2,020.48	14,460,491.12	1,724,574.19	39.81769573	-80.70028785	
13,100.00	91.00	330.80	6,757.22	3,383.29	-2,069.25	14,460,578.40	1,724,525.41	39.81793587	-80.70046052	
13,200.00	91.00	330.80	6,755.47	3,470.56	-2,118.03	14,460,665.68	1,724,476.64	39.81817601	-80.70063319	
13,300.00	91.00	330.80	6,753.72	3,557.84	-2,166.81	14,460,752.96	1,724,427.86	39.81841615	-80.70080586	
13,400.00	91.00	330.80	6,751.96	3,645.12	-2,215.59	14,460,840.24	1,724,379.08	39.81865629	-80.70097854	
13,500.00	91.00	330.80	6,750.21	3,732.40	-2,264.36	14,460,927.52	1,724,330.30	39.81889642	-80.70115121	
13,600.00	91.00	330.80	6,748.46	3,819.68	-2,313.14	14,461,014.80	1,724,281.53	39.81913656	-80.70132389	
13,700.00	91.00	330.80	6,746.71	3,906.96	-2,361.92	14,461,102.08	1,724,232.75	39.81937670	-80.70149656	
13,800.00	91.00	330.80	6,744.95	3,994.24	-2,410.70	14,461,189.36	1,724,183.97	39.81961684	-80.70166924	
13,900.00	91.00	330.80	6,743.20	4,081.52	-2,459.47	14,461,276.64	1,724,135.19	39.81985697	-80.70184192	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Heaven Hill 3 N-13 HM (Q)
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-13 HM (Q)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	330.80	6,741.45	4,168.80	-2,508.25	14,461,363.92	1,724,086.42	39.82009711	-80.70201460
14,100.00	91.00	330.80	6,739.70	4,258.08	-2,557.03	14,461,451.20	1,724,037.64	39.82033724	-80.70218728
14,200.00	91.00	330.80	6,737.94	4,343.36	-2,605.81	14,461,538.47	1,723,988.86	39.82057738	-80.70235997
14,300.00	91.00	330.80	6,736.19	4,430.64	-2,654.58	14,461,625.75	1,723,940.08	39.82081752	-80.70253265
14,400.00	91.00	330.80	6,734.44	4,517.92	-2,703.36	14,461,713.03	1,723,891.31	39.82105765	-80.70270533
14,500.00	91.00	330.80	6,732.69	4,605.20	-2,752.14	14,461,800.31	1,723,842.53	39.82129779	-80.70287802
14,600.00	91.00	330.80	6,730.93	4,692.48	-2,800.92	14,461,887.59	1,723,793.75	39.82153792	-80.70305071
14,700.00	91.00	330.80	6,729.18	4,779.75	-2,849.69	14,461,974.87	1,723,744.97	39.82177806	-80.70322340
14,800.00	91.00	330.80	6,727.43	4,867.03	-2,898.47	14,462,062.15	1,723,696.20	39.82201819	-80.70339609
14,900.00	91.00	330.80	6,725.68	4,954.31	-2,947.25	14,462,149.43	1,723,647.42	39.82225832	-80.70356878
15,000.00	91.00	330.80	6,723.92	5,041.59	-2,996.03	14,462,236.71	1,723,598.64	39.82249846	-80.70374147
15,109.75	91.00	330.80	6,722.00	5,137.38	-3,049.56	14,462,322.50	1,723,545.11	39.82276200	-80.70393100
PBHL/TD 15109.75 MD 6722.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Heavein Hill 3N-13HM B - hit/miss target - Shape - Point	0.00	0.00	6,722.00	5,137.38	-3,049.56	14,462,332.50	1,723,545.11	39.82276200	-80.70393100
Heavein Hill 3N-13HM L - plan hits target center - Point	0.00	0.00	6,852.00	-1,336.90	568.70	14,455,658.22	1,727,163.37	39.80494848	-80.69112403
Heavein Hill 3N-13HM L - plan misses target center by 43.63usft at 7667.42usft MD (6851.91 TVD, -1358.22 N, 580.64 E) - Point	0.00	0.00	6,852.00	-1,336.90	618.70	14,455,658.22	1,727,213.37	39.80494800	-80.69094600

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
15,121.11		20" Casing	20	24

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,200.00	1,200.00	0.00	0.00	KOP Begin 2"/100' build
2,560.77	2,510.17	-285.74	137.61	Begin 27.22" tangent
6,292.40	5,626.69	-1,823.33	878.11	Begin 8"/100' build/turn
7,381.69	6,775.28	-1,594.56	715.70	Begin 10"/100' build/turn
7,691.90	6,852.00	-1,336.87	568.68	Begin 91.00" lateral
15,109.75	6,722.00	5,137.38	-3,049.56	PBHL/TD 15109.75 MD 6722.00 TVD

WW-9
(4/16)

4705102450

API Number 47 - 051 -
Operator's Well No. Heaven Hill 3N-13HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0106155) and Westwoodland Sanitary Landfill, LLC (SAN1405 / PA DEP ECR1386420), Chesapeake Valley Landfill (100419)

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

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

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

Company Official Signature Jim Pancake
Company Official (Typed Name) Jim Pancake
Company Official Title Vice President - Geosciences

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

Subscribed and sworn before me this 4th day of May, 20 22
Susanne Deliere Notary Public

My commission expires 1/15/2025

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

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 18.43 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Spring Oats	96

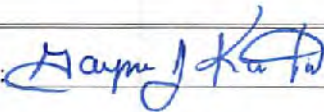
Seed Type	lbs/acre
Orchard Grass	12
Ladino	3
White Clover	2

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:



Comments:

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WV Department of
Environmental Protection

Title: Oil and Gas Inspector

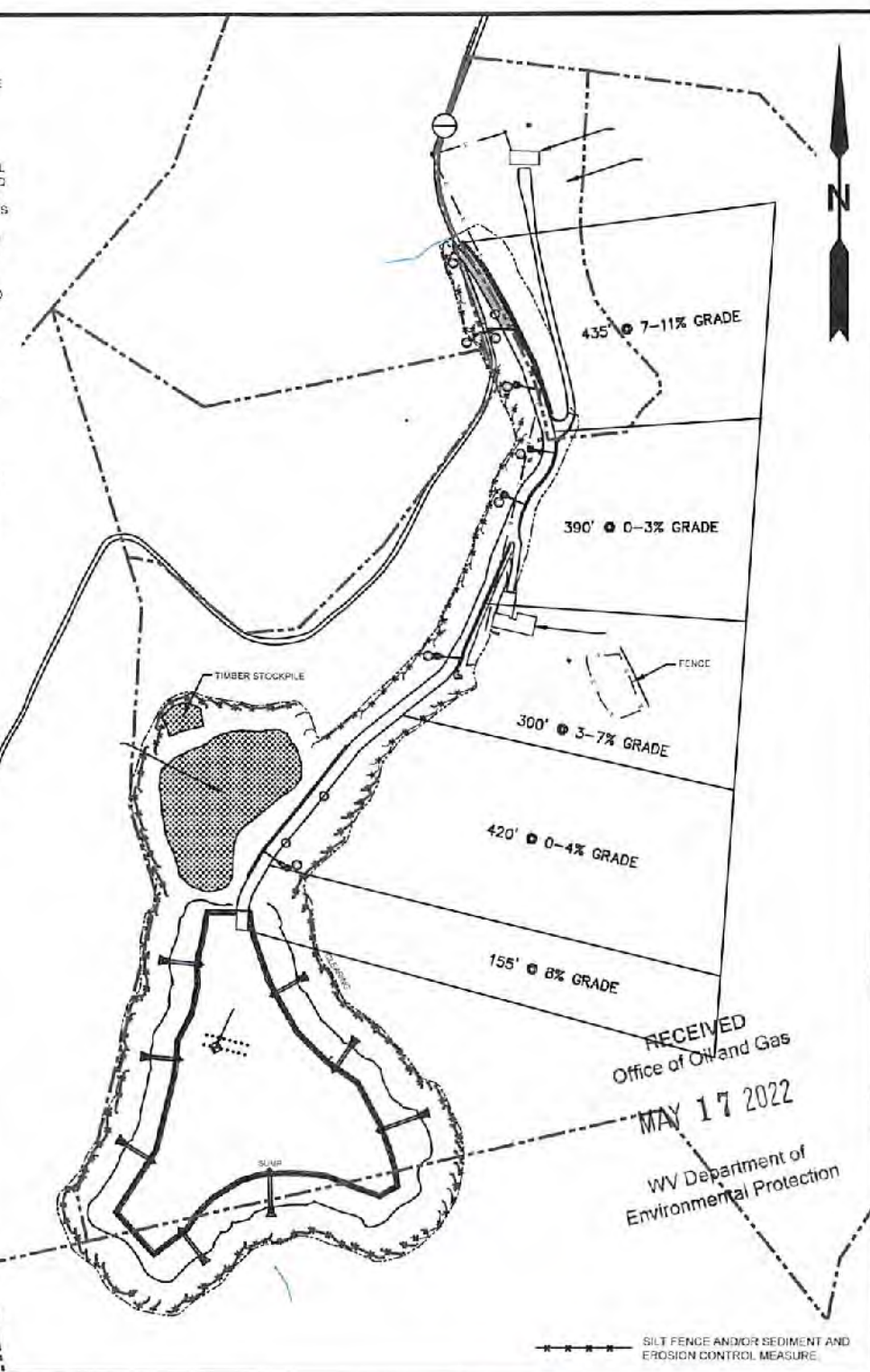
Date: 1/19/2022

Field Reviewed? () Yes () No

PROPOSED HEAVEN HILL 3N - 13HM

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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SILT FENCE AND/OR SEDIMENT AND EROSION CONTROL MEASURE.



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www.slsurvey.com

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



**TUG HILL
OPERATING**

07/01/2022

4705102450



TUG HILL
OPERATING

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

Well Name: Heaven Hill 3N-13HM

Pad Name: Heaven Hill 3

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,406,561.88

Easting: 526,267.11

Haym J. King
4/19/2022

**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)

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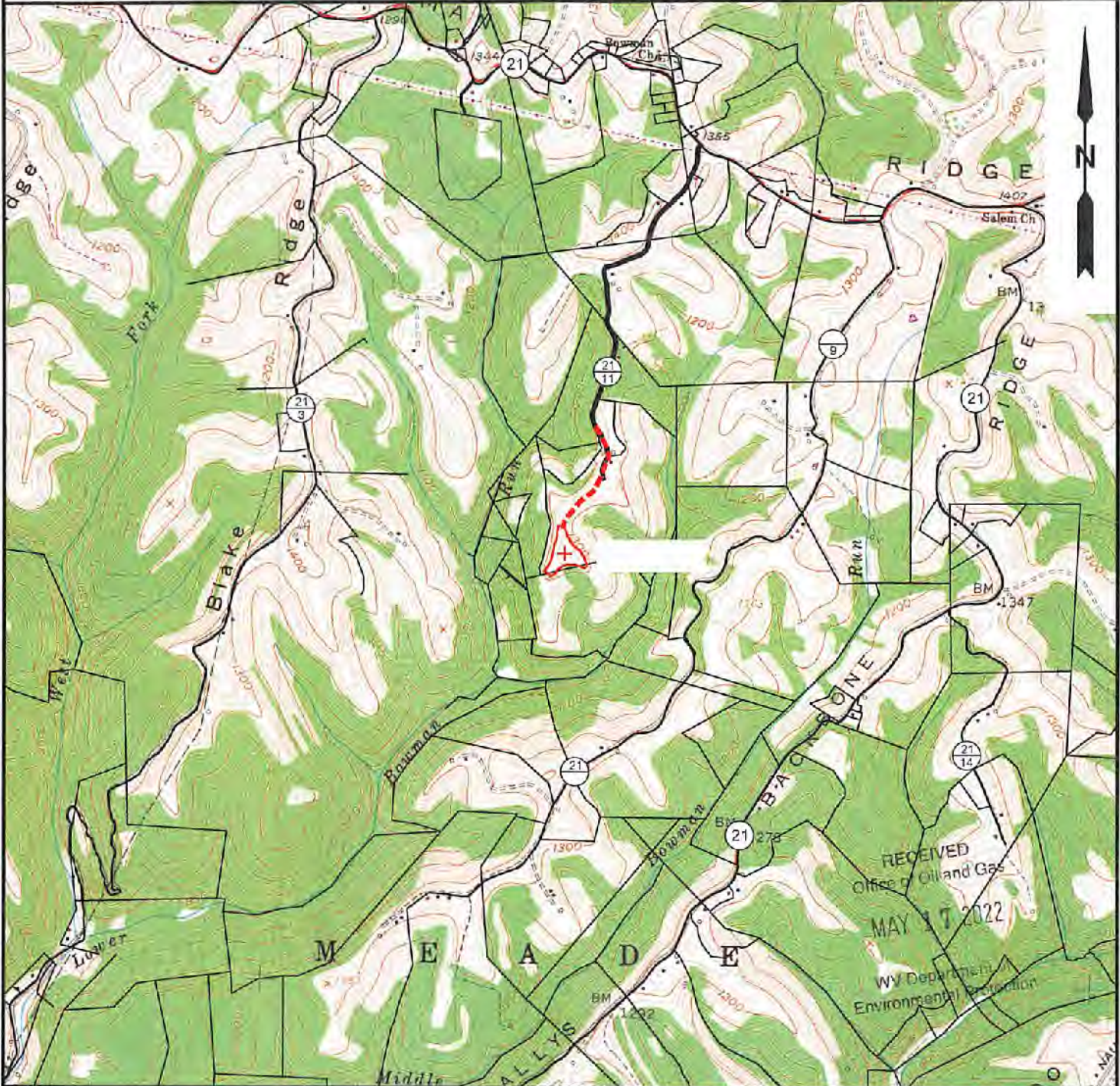
WV Department of
Environmental Protection

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

07/01/2022

PROPOSED HEAVEN HILL 3N - 13HM



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

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

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www.slsurveys.com

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

TUG HILL
OPERATING

07/01/2022

10,466' B.H.

7,435' T.H.

HEAVEN HILL 3N
WELL 13HM
TUG HILL OPERATING

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

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

NAD'83 S.P.C.(FT) N. 478,668.32 E. 1,633,326.09
NAD'83 GEO. LAT-(N) 39.808253 LONG-(W) 80.693133
NAD'83 UTM (M) N. 4,406,561.88 E. 526,267.11

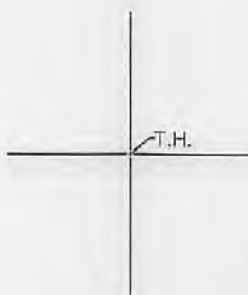
LANDING POINT

NAD'83 S.P.C.(FT) N. 477,621.7 E. 1,633,871.5
NAD'83 GEO. LAT-(N) 39.804949 LONG-(W) 80.691124
NAD'83 UTM (M) N. 4,406,154.4 E. 526,440.4

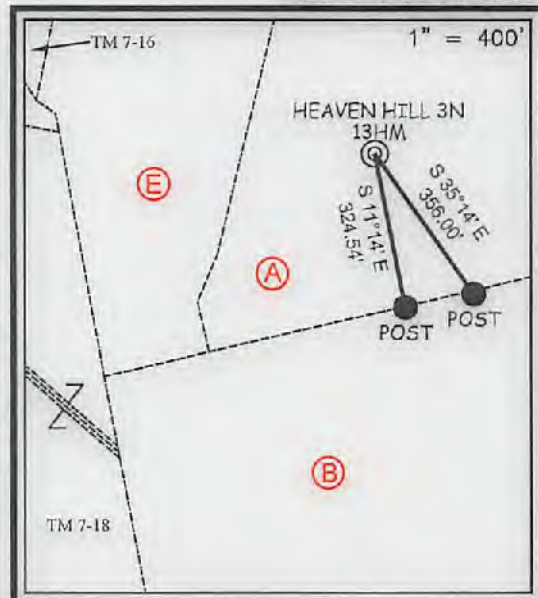
BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 484,057.7 E. 1,630,360.8
NAD'83 GEO. LAT-(N) 39.822762 LONG-(W) 80.703931
NAD'83 UTM (M) N. 4,408,127.8 E. 525,837.6

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"
3,851' B.H.



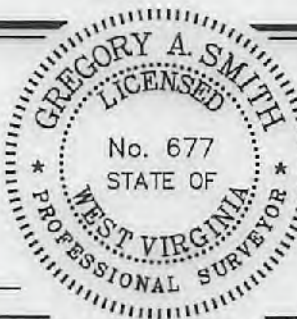
REFERENCES



12 Vanhorn Drive | R.D. Box 130 | Glenville, WV 26031 | 304.462.5534
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
234 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsw.com

NOTES ON SURVEY

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



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. 849 *Gregory A. Smith*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE AUGUST 30, 20 19
REVISED NOVEMBER 5, 2019 & MAY 13, 2022
OPERATORS WELL NO. HEAVEN HILL 3N-13HM
API WELL NO. 47 — 051 — 02450
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8654P13HMR2.dwg
HEAVEN HILL 3-13HM REV3
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: 6,969' / TMD: 15,110'

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

COUNTY NAME
PERMIT

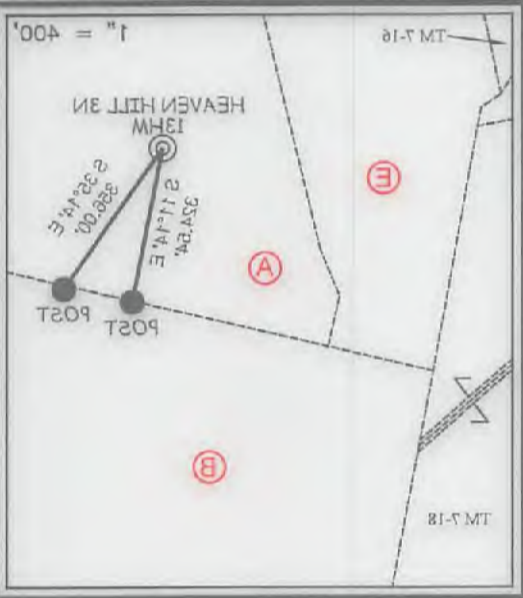
07/01/2022

TUG HILL OPERATING WELL 13HM HEAVEN HILL 3N

BOTTOM HOLE	
NAD83 UTM (M)	N. 408,157.8 E. 852,937.8
NAD83 GEO.	LAT-(N) 30.852782 LONG-(W) 90.703931
NAD83 S.P.C.(FT)	N. 484,087.7 E. 1,030,980.8
LANDING POINT	
NAD83 UTM (M)	N. 406,154.4 E. 852,440.4
NAD83 GEO.	LAT-(N) 30.804949 LONG-(W) 90.691154
NAD83 S.P.C.(FT)	N. 477,521.7 E. 1,033,871.8
(S.P.C. NORTH ZONE) UTM(M) ZONE 17 NORTH	
NAD83 UTM (M)	N. 406,881.88 E. 852,587.11
NAD83 GEO.	LAT-(N) 30.808523 LONG-(W) 90.693133
NAD83 S.P.C.(FT)	N. 478,888.82 E. 1,033,825.09



REFERENCES



NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL NO AGRICULTURAL BUILDINGS ≤ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 858' OF THE CENTER OF PROPOSED WELL PAD.
 2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



254 East Beckley bypass | Beckley, WV 26001 | 204.252.5298
 1413 Canaway Boulevard East | Charleston, WV 25301 | 204.240.2925
 15 Vashon Drive | P.O. Box 150 | Glenville, WV 26021 | 204.483.2834
 slc.com

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

Gregory A. Smith
 P. 2. 849



NO. 47 - STATE PERMIT
 WELL 13HM - COUNTY
 OPERATORS WELL NO. HEAVEN HILL 3N-13HM
 REVISED NOVEMBER 5, 2019 & MAY 13, 2022
 DATE AUGUST 30, 2022
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

OFFICE OF OIL AND GAS DIVISION OF ENVIRONMENTAL PROTECTION STATE OF WEST VIRGINIA
 FILE NO. 8854P13HMRS.dwg
 HEAVEN HILL 3-13HM REV3
 SCALE 1" = 2000'
 CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
 HORIZONTAL & VERTICAL OF ACCURACY 1:2500
 MINIMUM DEGREE

WELL TYPE: OIL GAS LIQUID WASTE INJECTION DISPOSAL "GAS" PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1,328.00' WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)

DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7 S.
 SURFACE OWNER ANDREW C. WHITLATCH ET UX
 RICKY L. WHITLATCH, ET AL
 ACRES 75.85±
 ACRES 75.85±
 LEASE NO. SEE WW-6A1
 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: 8,999' TMD: 15,110'
 PERMIT

WELL OPERATOR TUG HILL OPERATING, LLC
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
 FORT WORTH, TX 76107
 DESIGNATED AGENT DARREN BROWN
 CT CORPORATION
 ADDRESS 6088 WASHINGTON ST. W. STE 407
 CHARLESTON, WV 25313-1581

07/01/2022

B.H. COORDINATE 80°40'00.00"
 T.H. COORDINATE 80°40'00.00"
 B.H. COORDINATE 80°40'00.00"
 T.H. COORDINATE 80°40'00.00"

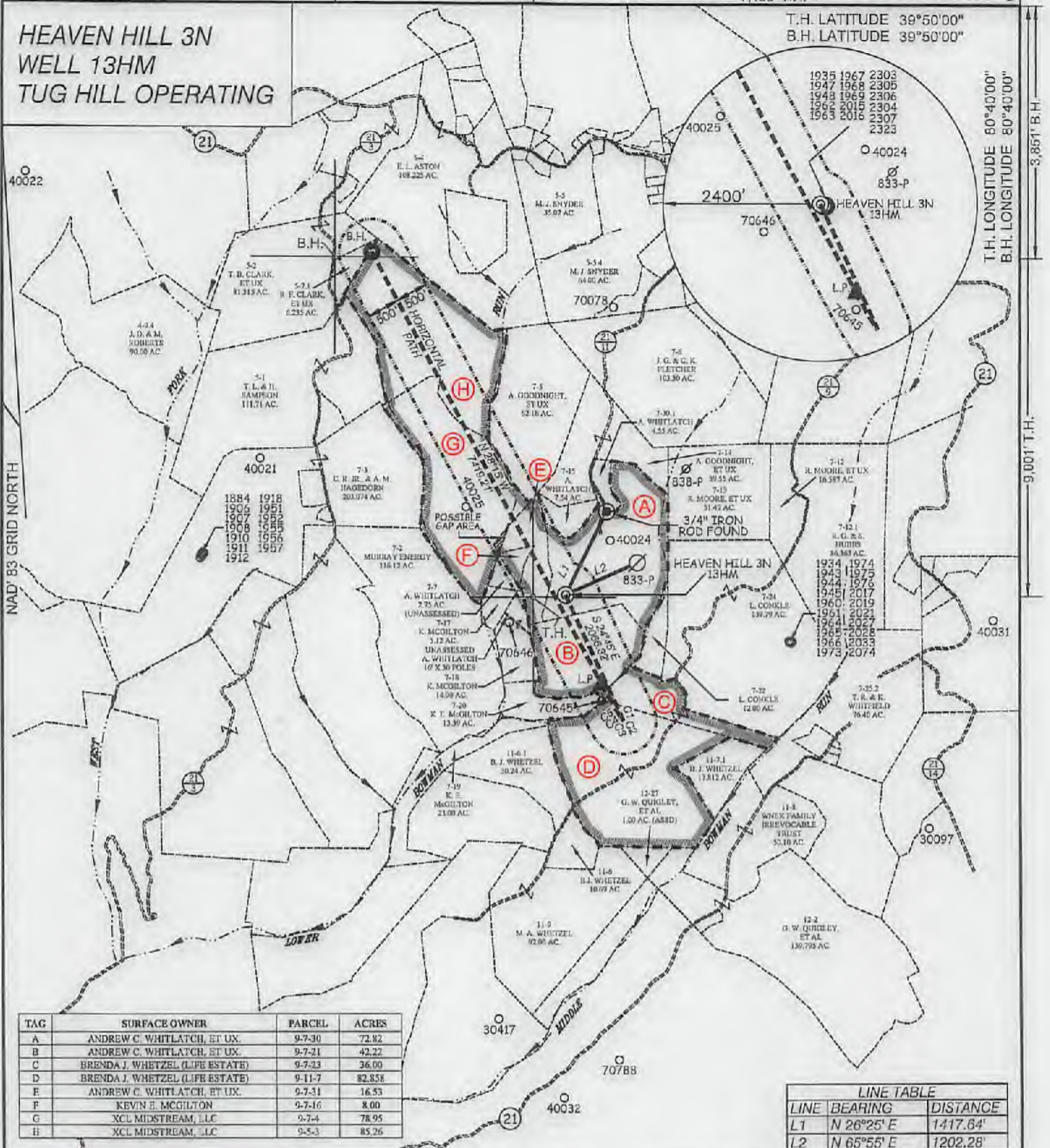
10,466' B.H.

7,435' T.H.

**HEAVEN HILL 3N
WELL 13HM
TUG HILL OPERATING**

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

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



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	BRENDA J. WHETZEL (LIFE ESTATE)	9-7-23	36.00
D	BRENDA J. WHETZEL (LIFE ESTATE)	9-11-7	82.858
E	ANDREW C. WHITLATCH, ET UX.	9-7-31	16.53
F	KEVIN E. MCGILTON	9-7-16	8.00
G	XCL MIDSTREAM, LLC	9-7-4	78.95
H	XCL MIDSTREAM, LLC	9-5-3	85.26

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 26°25' E	1417.64'
L2	N 65°55' E	1202.28'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	32.89'	263.82'	S 20°12' E	32.87'
C2	5.56'	8.46'	S 07°04' W	5.46'
C3	10.10'	20.46'	N 46°38' W	10.00'
C4	60.14'	467.52'	N 34°02' W	60.10'
C5	585.52'	9873.19'	N 29°29' W	585.43'



12 Vashon Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3252
 254 East Seckley Bypass | Beckley, WV 26001 | 304.255.3286
 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)	A
LEASE # (SEE WW-8A1)	

SCALE 1" = 2000' FILE NO. 8654P13HMR2.dwg
 HEAVEN HILL 3-13HM REV3
 DATE AUGUST 30, 2019
 REVISED NOVEMBER 5, 2019 & MAY 13, 2022
 OPERATORS WELL NO. HEAVEN HILL 3N-13HM
 API WELL NO. 47-051-02450
 STATE COUNTY PERMIT

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

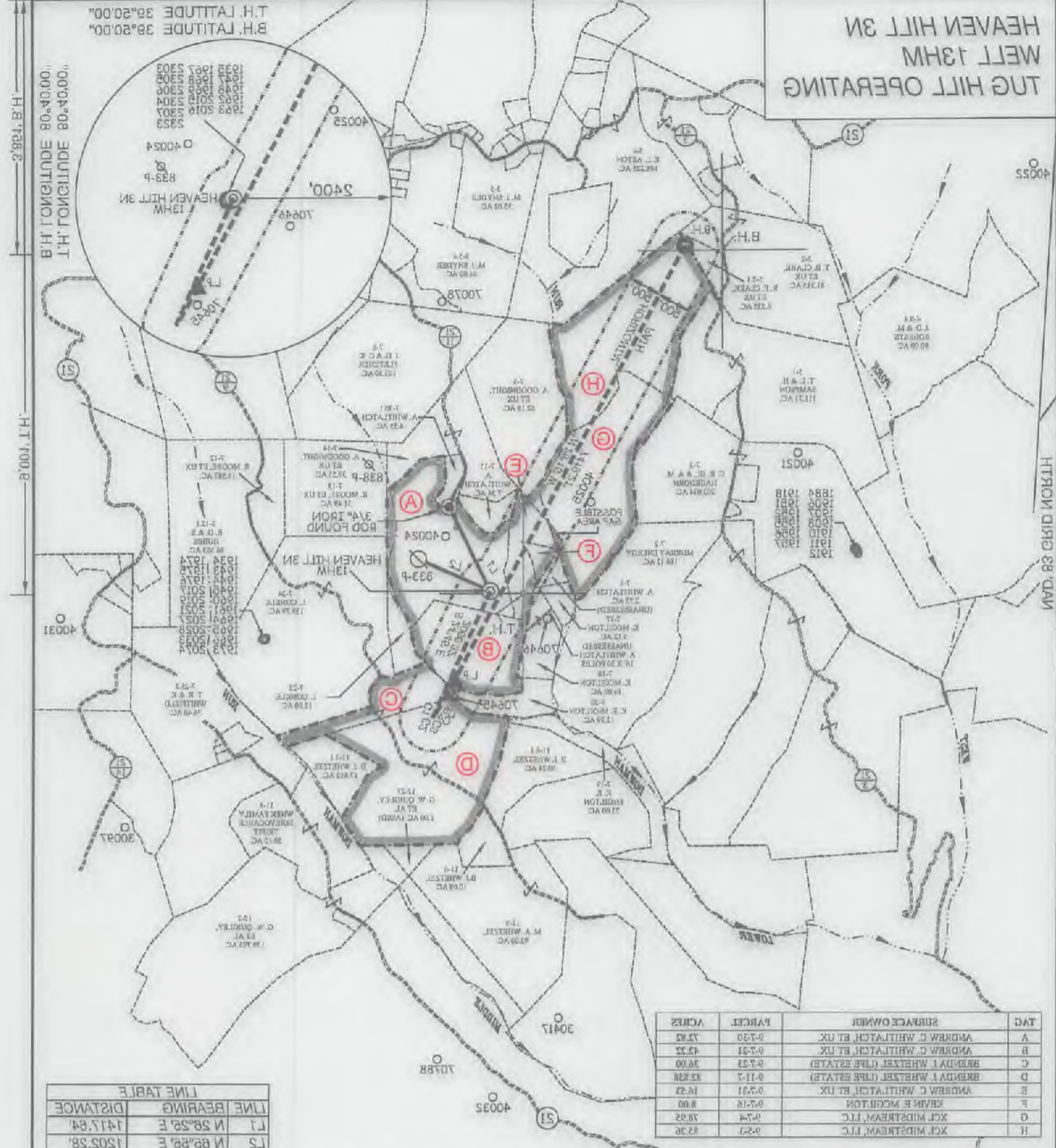
DARREN BROWN
 CT CORPORATION
 ADDRESS 5098 WASHINGTON ST. W, STE 407
 CHARLESTON, WV 25313-1561

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

COUNTY NAME PERMIT

07/01/2022

**HEAVEN HILL 3N
WELL 13HM
TUG HILL OPERATING**



TAG	SURFACE OWNER	PARCEL	ACRES
A	ANDREW C. WHITATCH, ET UX	0-1-30	27.83
B	ANDREW C. WHITATCH, ET UX	0-1-31	43.33
C	BRENDAL WHITZEL (THE ESTATE)	0-1-32	36.00
D	BRENDAL WHITZEL (THE ESTATE)	0-1-17	33.33
E	ANDREW C. WHITATCH, ET UX	0-1-31	43.33
F	KEVIN R. MCGILTON	0-1-18	8.00
G	KCI MIDSTREAM, LLC	0-1-4	18.92
H	KCI MIDSTREAM, LLC	0-1-2	42.36

LINE TABLE

LINE BEARING	DISTANCE
L1 N 88°25' E	1417.84
L2 N 88°58' E	1505.28

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	35.88	508.85	S 20°15' E	35.87
C2	8.58	8.46	S 07°04' W	8.48
C3	10.10	50.48	N 48°38' W	10.00
C4	60.14	487.25	N 34°05' W	60.10
C5	88.85	987.19	N 28°29' W	88.43

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- 00-00
- LEASE # (SEE WW-691)
- SURFACE OWNER (SEE TABLE)
- (A)

DESIGNATED AGENT
DARREN BROWN
CT CORPORATION
Address 5038 WASHINGTON ST. W. STE 407
CHARLESTON, WV 25313-1581

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

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

WELL OPERATOR TUG HILL OPERATING, LLC
Address 1350 SOUTH UNIVERSITY DRIVE, SUITE 600
FORT WORTH, TX 76107

NO. STATE COUNTY PERMIT
47 - 021 - 05450

OPERATORS WELL NO. HEAVEN HILL 3N-13HM
REVISED NOVEMBER 5, 2019 & MAY 13, 2022
DATE AUGUST 30, 2019

HEAVEN HILL 3-13HM REV3
FILE NO. 8864R13HMRS2.9wd
0706172022

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_76	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101935	Marshall	1935	Meade	Glen Easton	Cameron	39.0086	-80.653321	526251	4406559

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101935	1 As Drilled	527724.7	4402595.8	-80.676272	39.772643
4705101935	1 As Proposed	527726.5	4402595.6	-80.676251	39.772843

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101935	10/28/2019		Drilld Ogrnl Loc	Completed	Ricky L. Whitatch		3-1HM	Heaven Hill	Ricky L. Whitatch et al	Tug Hill Operating, LLC		6676	Marcellus Fm

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEFF	G_AFT	O_BEFF
4705101935	10/28/2019	2/15/2018	1326	Ground Level	Unnamed	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acid+Frac	6998	19500	19500	7366			0

PayShow/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
4705101935	10/28/2019	Water	Fresh Water	Deviated			697	Pennsylvanian System					
4705101935	10/28/2019	Water	Salt Water	Deviated			1595	Salt Sands (undrif)					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8497	Marcellus Fm	8940	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8662	Marcellus Fm	8915	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	8837	Marcellus Fm	8900	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9012	Marcellus Fm	9165	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9197	Marcellus Fm	9340	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9362	Marcellus Fm	9515	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9537	Marcellus Fm	9690	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9712	Marcellus Fm	9865	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	9887	Marcellus Fm	10040	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10062	Marcellus Fm	10215	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10237	Marcellus Fm	10390	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10412	Marcellus Fm	10565	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10587	Marcellus Fm	10740	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10762	Marcellus Fm	10915	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	10937	Marcellus Fm	11090	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11112	Marcellus Fm	11265	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11287	Marcellus Fm	11440	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11462	Marcellus Fm	11615	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11637	Marcellus Fm	11790	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11812	Marcellus Fm	11965	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	11987	Marcellus Fm	12140	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12162	Marcellus Fm	12315	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12337	Marcellus Fm	12490	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12512	Marcellus Fm	12665	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12687	Marcellus Fm	12840	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	12862	Marcellus Fm	13015	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13037	Marcellus Fm	13190	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13212	Marcellus Fm	13365	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13387	Marcellus Fm	13540	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13562	Marcellus Fm	13715	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13737	Marcellus Fm	13890	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	13912	Marcellus Fm	14065	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14087	Marcellus Fm	14240	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14262	Marcellus Fm	14415	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14437	Marcellus Fm	14590	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14612	Marcellus Fm	14765	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14787	Marcellus Fm	14940	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	14962	Marcellus Fm	15115	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15137	Marcellus Fm	15290	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15312	Marcellus Fm	15465	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15487	Marcellus Fm	15640	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15662	Marcellus Fm	15815	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	15837	Marcellus Fm	15990	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16012	Marcellus Fm	16165	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16187	Marcellus Fm	16340	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16362	Marcellus Fm	16515	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16537	Marcellus Fm	16690	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16712	Marcellus Fm	16865	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	16887	Marcellus Fm	17040	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17062	Marcellus Fm	17215	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17237	Marcellus Fm	17390	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17412	Marcellus Fm	17565	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17587	Marcellus Fm	17740	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17762	Marcellus Fm	17915	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	17937	Marcellus Fm	18090	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18112	Marcellus Fm	18265	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18287	Marcellus Fm	18440	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18462	Marcellus Fm	18615	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18637	Marcellus Fm	18790	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18812	Marcellus Fm	18965	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	18987	Marcellus Fm	19140	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	19162	Marcellus Fm	19315	Marcellus Fm					
4705101935	10/28/2019	Pay	Oil & Gas	Deviated	19385	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	8,004	133,453	315,033
4705101935	Tug Hill Operating, LLC	2020	3,004,659	326,591	293,363	303,265	258,144	269,736	212,967	133,906	242,303	338,580	220,997	205,993	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_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101947	Marshall	1947	Meade	Glen Easton	Cameron	39.888577	-80.693191	526262.1	4406556.5

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101947	As Drilled	526127.3	4403271.6	-80.671542	39.77892
4705101947	As Proposed	526197.7	4403272.6	-80.67072	39.778929

Owner Information:

API	CMP_DT	SUFFX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101947	10/26/2019	Divd Crnrl Loc	Completed	Ricky L Whitatch	3-41M	Heaven Hill	3-41M	Heaven Hill	Ricky L Whitatch et al	Tug Hill Operating, LLC	6875	Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEFF	G_AFT_O
4705101947	10/26/2019	3/15/2018	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Acidized	6911	17867	17067	6634		

Comment: 10/26/2019 Plat Missing date

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_QNTRY
4705101947	10/26/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System					
4705101947	10/26/2019	Water	Salt Water	Vertical			1505	Salt Sands (undiff)					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	7497	Marcellus Fm	7643	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	7873	Marcellus Fm	7816	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	7849	Marcellus Fm	7894	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8023	Marcellus Fm	8169	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8150	Marcellus Fm	8344	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8373	Marcellus Fm	8519	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8549	Marcellus Fm	8685	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8724	Marcellus Fm	8870	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	8999	Marcellus Fm	9045	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9074	Marcellus Fm	9220	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9249	Marcellus Fm	9395	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9425	Marcellus Fm	9571	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9600	Marcellus Fm	9746	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9775	Marcellus Fm	9921	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	9950	Marcellus Fm	10296	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	10125	Marcellus Fm	10271	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	10301	Marcellus Fm	10447	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	10476	Marcellus Fm	10622	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	10651	Marcellus Fm	10797	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	10826	Marcellus Fm	10972	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11001	Marcellus Fm	11147	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11177	Marcellus Fm	11323	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11352	Marcellus Fm	11498	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11527	Marcellus Fm	11673	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11702	Marcellus Fm	11848	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	11977	Marcellus Fm	12023	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12053	Marcellus Fm	12199	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12228	Marcellus Fm	12374	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12403	Marcellus Fm	12549	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12570	Marcellus Fm	12724	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12753	Marcellus Fm	12899	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	12929	Marcellus Fm	13075	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13104	Marcellus Fm	13250	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13279	Marcellus Fm	13425	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13600	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13629	Marcellus Fm	13775	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13951	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	13980	Marcellus Fm	14125	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	14155	Marcellus Fm	14301	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	14330	Marcellus Fm	14478	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	14505	Marcellus Fm	14651	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	14681	Marcellus Fm	14827	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	14856	Marcellus Fm	15002	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15031	Marcellus Fm	15177	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15206	Marcellus Fm	15382	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15381	Marcellus Fm	15527	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15557	Marcellus Fm	15703	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15732	Marcellus Fm	15878	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	15907	Marcellus Fm	16053	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16082	Marcellus Fm	16228	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16257	Marcellus Fm	16403	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16433	Marcellus Fm	16579	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16608	Marcellus Fm	16754	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16783	Marcellus Fm	16929	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	16958	Marcellus Fm	17104	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	17133	Marcellus Fm	17279	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	17308	Marcellus Fm	17455	Marcellus Fm					
4705101947	10/26/2019	Pay	Oil & Gas	Deviated	17484	Marcellus Fm	17630	Marcellus Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101947	Tug Hill Operating, LLC	2019	442,741	0	0	0	0	0	0	0	0	0	0	136,848	295,854
4705101947	Tug Hill Operating, LLC	2020	2,647,154	275,383	251,477	286,751	230,753	245,080	191,056	120,033	213,753	298,319	187,855	179,640	170,442

WV Geological & Economic Survey

Well: County = 51 Permit = 01948

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705101948	Marshall	1948	Meddie	Glen Easton	Cameron	39.632832	-80.692941	526283.5	4406592.7

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101948	1	As Drilled	526334.7	4403376.9	-80.669116
4705101948	1	As Proposed	526336.6	4403373	-80.692449

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705101948	10/28/2019	Drld Orgnl Loc	Completed	Ricky L Whitatch			3-SHM Heaven Hill		Ricky L Whitatch et al	Tug Hill Operating, LLC	6978	Marcellus Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O
4705101948	10/28/2019	10/28/2019	1526	Ground Level	Cameron-Gamer	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Oil and Gas	Rotary	Add-Frac	6925	19957	15967	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 (undrift)					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7633	Marcellus Fm	7795	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7866	Marcellus Fm	7958	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	7980	Marcellus Fm	8132	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8154	Marcellus Fm	8308	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	8328	Marcellus Fm	8490	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	9698	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9718	Marcellus Fm	9870	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	9892	Marcellus Fm	10044	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10066	Marcellus Fm	10218	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10240	Marcellus Fm	10392	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10413	Marcellus Fm	10565	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10587	Marcellus Fm	10738	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10761	Marcellus Fm	10913	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	10935	Marcellus Fm	11087	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	11109	Marcellus Fm	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	11608	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	12847	Marcellus Fm	12999	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13020	Marcellus Fm	13172	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13194	Marcellus Fm	13346	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13368	Marcellus Fm	13520	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13542	Marcellus Fm	13694	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	13716	Marcellus Fm	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	13910	Marcellus Fm	14170	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14063	Marcellus Fm	14215	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14237	Marcellus Fm	14388	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14411	Marcellus Fm	14583	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14585	Marcellus Fm	14737	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14758	Marcellus Fm	14910	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	14932	Marcellus Fm	15054	Marcellus Fm					
4705101948	10/28/2019	Pay	Oil & Gas	Deviated	15106	Marcellus Fm	15255	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	16496	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	411,073	0	0	0	0	0	0	0	0	0	10,272	104,822	296,979
4705101948	Tug Hill Operating, LLC	2020	2,580,101	268,951	252,973	261,895	223,361	223,397	175,237	117,917	212,852	292,348	188,939	179,850	166,573

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_15	LAT_DD	LON_DD	UTME	UTMN
4705101963	Marshall	1963	Meade	Green Easton	Cameron	39.605594	-80.693234	529258	4 4403557.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101963	1 As Drilled	527975.8	4403076.1	-80.67332	39.777182
4705101963	1 As Proposed	527977.5	4403076.8	-80.6733	39.777182

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101963	10/28/2019	Divd Orgnl Loc	Completed	Ricky L Whitlatch	3-SHM	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_FMI	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705101963	10/28/2019	3/7/2018	1306	Ground Level	Cameron-Garner	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	10/28/2019	Water	Fresh Water	Vertical			70	Pennsylvanian System					
4705101963	10/28/2019	Water	Salt Water	Vertical			2137	Big Lime					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	7683	Marcellus Fm	7817	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	7839	Marcellus Fm	7992	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8014	Marcellus Fm	8168	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8130	Marcellus Fm	8343	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8365	Marcellus Fm	8519	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8541	Marcellus Fm	8694	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8716	Marcellus Fm	8870	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	8892	Marcellus Fm	9045	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9067	Marcellus Fm	9221	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9242	Marcellus Fm	9366	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9418	Marcellus Fm	9572	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9593	Marcellus Fm	9747	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9769	Marcellus Fm	9923	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	9944	Marcellus Fm	10056	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10120	Marcellus Fm	10274	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10295	Marcellus Fm	10449	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10471	Marcellus Fm	10624	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10646	Marcellus Fm	10800	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10822	Marcellus Fm	10975	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	10997	Marcellus Fm	11151	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	11173	Marcellus Fm	11326	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	11348	Marcellus Fm	11502	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	11524	Marcellus Fm	11677	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	11699	Marcellus Fm	11853	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	11875	Marcellus Fm	12028	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12050	Marcellus Fm	12204	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12226	Marcellus Fm	12379	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12401	Marcellus Fm	12555	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12577	Marcellus Fm	12730	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12752	Marcellus Fm	12906	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	12928	Marcellus Fm	13081	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13103	Marcellus Fm	13257	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13275	Marcellus Fm	13432	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13454	Marcellus Fm	13606	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13630	Marcellus Fm	13783	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13805	Marcellus Fm	13959	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	13981	Marcellus Fm	14134	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	14156	Marcellus Fm	14310	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	14332	Marcellus Fm	14485	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	14507	Marcellus Fm	14661	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	14683	Marcellus Fm	14836	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	14858	Marcellus Fm	15012	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15034	Marcellus Fm	15187	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15209	Marcellus Fm	15363	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15385	Marcellus Fm	15538	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15560	Marcellus Fm	15714	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15736	Marcellus Fm	15889	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	15911	Marcellus Fm	16065	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16087	Marcellus Fm	16240	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16262	Marcellus Fm	16416	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16438	Marcellus Fm	16591	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16613	Marcellus Fm	16767	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16789	Marcellus Fm	16942	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	16964	Marcellus Fm	17118	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	17140	Marcellus Fm	17293	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	17315	Marcellus Fm	17469	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	17491	Marcellus Fm	17644	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	17666	Marcellus Fm	17820	Marcellus Fm					
4705101963	10/28/2019	Pay	Oil & Gas	Deviated	17842	Marcellus Fm	17995	Marcellus Fm					

Production Gas Information (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM	
4705101963	Tug Hill Operating, LLC	2019	437,799	0	0	0	0	0	0	0	0	0	0	2,954	131,175	297,670
4705101963	Tug Hill Operating, LLC	2020	2,761,998	296,576	269,266	291,341	242,016	251,555	195,881	125,743	221,437	306,996	199,457	108,040	175,893	

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

Well: County = 51 Permit = 01967

WV Geological & Economic Survey

Location Information: [View Map](#)
 API COUNTY PERMIT TAX_DISTRICT QUAD_75 QUAD_15 LAT_DD LOW_DD UTMN UTMN
 4705101967 Marshall 1657 Meade Glen Easton Cameron 39.830864 -80.693218 526259.8 4406563.5

Bottom Hole Location Information:
 API EP_FLAG UTMN LOW_DD LAT_DD
 4705101967 1 AS Proposed 527720.2 4404542.7 -80.678182 39.726783
 4705101967 1 AS Dried 528190.9 4409437.5 -80.670792 39.726413

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 David Origin Loc. Completed Ricky L.Vidwathch 3-3HU Heaven Hill 22395 22395 Pt Pleasant Fm 118239 Pt Pleasant Fm

Completion Information:
 API CMP_DT SPUD_DT ELEV DATUM FIELD DEEPEST_FM UCEPEST_FM INITIAL_CLASS FINAL_CLASSES TYPE RIG CMP_MTHD TVD TMD NEW_FTG KOD G_BEF G_AFT O_BEF
 4705101967 10/28/2019 4/2/2018 1358 Ground Level Cameron-Gamer Trenton Group Pt Pleasant Fm Development Well Gas Robary Acid-Frac 22395 22395 Pt Pleasant Fm

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_ONTY
4705101967	10/28/2019	Water	Fresh Water	Vertical				1064	Pennsylvanian System					
4705101967	10/28/2019	Water	Salt Water	Vertical				1595	Salt Sands (unconf)					
4705101967	10/28/2019	Pay	Gas	Deviated	12390	Pt Pleasant Fm		12535	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12554	Pt Pleasant Fm		12709	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12739	Pt Pleasant Fm		12884	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	12813	Pt Pleasant Fm		13058	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13085	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		13502	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	13705	Pt Pleasant Fm		13831	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	13850	Pt Pleasant Fm		14105	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14135	Pt Pleasant Fm		14260	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	14308	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	15162	Pt Pleasant Fm		15327	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15356	Pt Pleasant Fm		15501	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	15531	Pt Pleasant Fm		15676	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	20768	Pt Pleasant Fm		20911	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	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	21269	Pt Pleasant Fm		21434	Pt Pleasant Fm					
4705101967	10/28/2019	Pay	Gas	Deviated	21454	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	21939	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	DEC
4705101967	Tug Hill Operating, LLC	2019	643,959	0	0	0	0	0	0	0	0	0	0	68,536	139,145
4705101967	Tug Hill Operating, LLC	2020	4,740,538	465,522	447,408	492,692	450,765	472,547	452,617	389,736	373,315	344,073	335,092	250,657	271,076

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

Well: County = 51 Permit = 01968

WV Geological & Economic Survey

Location Information: [View Map](#)
 API: COUNTY PERMIT TAX DISTRICT QUAD 7.5 QUAD 15 LAT DD LON DD UTM E UTM N
 4705101968 Marshall 1950 Meade Glen Easton Cameron 39.8006556 -80.0333004 526252.4 44205995.2

Bottom Hole Location Information:
 API EP FLAG UTM UTMN LON DD LAT DD
 4705101968 1 A4 Drilled 527715.5 4402751.7 -80.037373 36.77425
 4705101968 1 A3 Proposed 527075.6 4403663 -80.053799 36.794203

Owner Information:
 API CMP DT SUFTIN STATUS SURFACE OWNER WELL_NUM CO_NUM LEASE LEASE_NUM MINERAL_OWN OPERATOR_AT_COMPLETION PROP_NO PROP_TRGT_FM IFM_EST_PR
 4705101968 10/26/2019 Dtdl Omgp Loc. Completed Risty L. Whitnatch 3-8HU Heaven Hill 11829 Pt Pleasant Fm

Completion Information:
 API CMP DT ELEV DATUM FIELD DEEPEST_FM DEEPEST_FMI INITIAL_CLASS FINAL_CLASS TYPE RIG CMP_MTHD TVO TMO NEW_FTG KOOD G_BEF G_AFT Q_B
 4705101968 10/26/2019 32022019 1326 Ground Level Cameron-Gamer Trenton Group Pt Pleasant Fm Development Well Gas Rotary Acc+rac 11895 23869 23069 10997

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	Q_BEF	Q_AFT	WATER_QNTY
4705101968	10/26/2019	Water	Fresh Water	Vertical	13553	Pt Pleasant Fm	1054	Pennsylvanian System					
4705101968	10/26/2019	Water	Sea Water	Vertical	13555	Pt Pleasant Fm	1595	Salt Shales (undif)					
4705101968	10/26/2019	Gas	Devalued	Devalued	13764	Pt Pleasant Fm	15260	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	13804	Pt Pleasant Fm	15260	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	13195	Pt Pleasant Fm	13360	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	13185	Pt Pleasant Fm	13561	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	13586	Pt Pleasant Fm	13761	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	13766	Pt Pleasant Fm	13962	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	14197	Pt Pleasant Fm	14162	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	14298	Pt Pleasant Fm	14583	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	14500	Pt Pleasant Fm	14764	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	14589	Pt Pleasant Fm	14854	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	14830	Pt Pleasant Fm	15193	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	15300	Pt Pleasant Fm	15683	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	15590	Pt Pleasant Fm	15768	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	15791	Pt Pleasant Fm	15987	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	16192	Pt Pleasant Fm	16368	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	16393	Pt Pleasant Fm	16568	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	16593	Pt Pleasant Fm	16769	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	16794	Pt Pleasant Fm	16989	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	16994	Pt Pleasant Fm	17170	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	17195	Pt Pleasant Fm	17370	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	17395	Pt Pleasant Fm	17571	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	17596	Pt Pleasant Fm	17792	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	17797	Pt Pleasant Fm	18002	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	17997	Pt Pleasant Fm	18212	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	18197	Pt Pleasant Fm	18423	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	18396	Pt Pleasant Fm	18633	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	18596	Pt Pleasant Fm	18844	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	18799	Pt Pleasant Fm	19054	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	19200	Pt Pleasant Fm	19475	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	19400	Pt Pleasant Fm	19876	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	19601	Pt Pleasant Fm	20077	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	19802	Pt Pleasant Fm	20278	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	20002	Pt Pleasant Fm	20479	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	20202	Pt Pleasant Fm	20680	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	20402	Pt Pleasant Fm	20881	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	20602	Pt Pleasant Fm	21082	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	20802	Pt Pleasant Fm	21283	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	21002	Pt Pleasant Fm	21484	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	21202	Pt Pleasant Fm	21685	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	21402	Pt Pleasant Fm	21886	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	21602	Pt Pleasant Fm	22087	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	21802	Pt Pleasant Fm	22288	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	22002	Pt Pleasant Fm	22489	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	22202	Pt Pleasant Fm	22690	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	22402	Pt Pleasant Fm	22891	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	22602	Pt Pleasant Fm	23092	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	22802	Pt Pleasant Fm	23293	Pt Pleasant Fm					
4705101968	10/26/2019	Gas	Devalued	Devalued	23002	Pt Pleasant Fm	23494	Pt Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PHD_YEAR	ANW_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101968	Tug Hill Operating, LLC	2019	1,076,627												
4705101968	Tug Hill Operating, LLC	2020	5,293,004	540,001	481,650	497,232	482,774	516,773	473,660	455,502	444,396	402,717	412,099	266,197	320,003

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

Well: County = 51 Permit = 02015

WV Geological & Economic Survey

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	QUAD	T5	QUAD	T5	LAT_DD	LONG_DD	UTIME	UTMIN
4705102015	Marshall	2015	Meade	Glen Euston	Cameron	39	808507	-80.693364	526247.3	4406559.8	

Bottom Hole Location Information:

API	EP FLAG	UTIME	UTMIN	LONG_DD	LAT_DD
4705102015	1	As Drilled	5248144	4407664.3	-80.710062
4705102015	1	As Proposed	5248111	4407566	-80.710104

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		Completed	Ricky L Whitlatch	3H-SHM	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	TVD	TMD	NEW_FTG_KOD	G_BEF	G_AFT	O
4705102015	10/28/2019	-26/2018	1326	Ground Level	Cameron-Garner	Marcellus Fm	Marcellus Fm	Development Well	Oil and Gas	Rotary	Acid-Frac	6886	15275	6886	15275	15275	6739

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOTTOM	FM_BOTTOM	G_BEF	G_AFT	O_BEF	O_AFT	WATER	ONTY
4705102015	10/28/2019	Water	Fresh Water	Vertical			1064	Pennsylvanian System						
4705102015	10/28/2019	Water	Salt Water	Vertical			1595	Salt Sands (undrf)						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8344	Marcellus Fm	8497	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8519	Marcellus Fm	8672	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8694	Marcellus Fm	8847	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	8859	Marcellus Fm	9022	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9044	Marcellus Fm	9197	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9219	Marcellus Fm	9372	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9394	Marcellus Fm	9547	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9569	Marcellus Fm	9722	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9744	Marcellus Fm	9897	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	9919	Marcellus Fm	10072	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10094	Marcellus Fm	10247	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10269	Marcellus Fm	10422	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10444	Marcellus Fm	10597	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10619	Marcellus Fm	10772	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10794	Marcellus Fm	10947	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	10969	Marcellus Fm	11122	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11144	Marcellus Fm	11297	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11319	Marcellus Fm	11472	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11494	Marcellus Fm	11647	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11669	Marcellus Fm	11822	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	11844	Marcellus Fm	11997	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12019	Marcellus Fm	12172	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12194	Marcellus Fm	12347	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12369	Marcellus Fm	12522	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12544	Marcellus Fm	12697	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12719	Marcellus Fm	12872	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	12894	Marcellus Fm	13047	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13069	Marcellus Fm	13222	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13244	Marcellus Fm	13397	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13419	Marcellus Fm	13572	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13594	Marcellus Fm	13747	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13769	Marcellus Fm	13922	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	13944	Marcellus Fm	14097	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14119	Marcellus Fm	14272	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14294	Marcellus Fm	14447	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14469	Marcellus Fm	14622	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14644	Marcellus Fm	14797	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	14819	Marcellus Fm	14972	Marcellus Fm						
4705102015	10/28/2019	Pay	Oil & Gas	Deviated	15042	Marcellus Fm	15095	Marcellus Fm						

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102015	Tug Hill Operating, LLC	2019	275,685												
4705102015	Tug Hill Operating, LLC	2020	1,591,527	177,397	165,396	167,991	141,491	143,341	111,951	74,195	113,364	173,970	113,265	106,576	102,866

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

Well: County = 51 Permit = 02016

WV Geological & Economic Survey

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705102016	Marshall	2016	Meade	Glen Edison	Cameron	39.808684	-80.693348	526248.7	4408966.1

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705102016	1	As Proposed	524924	4407593.6	-80.708785
4705102016	1	As Drilled	524925.3	4407592	-80.708789

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		Completed	Ricky L. Whittatch	3N-10HU	Heaven Hill			Ricky L. Whittatch et al.	Tug Hill Operating, LLC	11896	PI Pleasant Fm	500

Completion Information:

API	CMP_DT	SPUD_DT	ELEV_DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMO	NEW_FTG	KOD	G_BEF	G_AFT	O_BE
4705102016	10/28/2019	7/4/2018	1326	Ground Level	Cameron-Garnet	Traction Group	PI Pleasant Fm	Development Well	Gas	Rotary	Acid-Frac	11701	19300	19300				500

Pay/Show/Well 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
4705102016	10/28/2019	Water	Fresh Water	Vertical	12724	PI Pleasant Fm	1064	Pennsylvanian System					
4705102016	10/28/2019	Water	Salt Water	Vertical	12922	PI Pleasant Fm	1595	Salt Sands (undiff)					
4705102016	10/28/2019	Pay	Gas	Deviated	13071	PI Pleasant Fm	12073	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13420	PI Pleasant Fm	13071	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13318	PI Pleasant Fm	13069	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13516	PI Pleasant Fm	13467	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13714	PI Pleasant Fm	13665	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	13912	PI Pleasant Fm	13663	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14110	PI Pleasant Fm	14061	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14308	PI Pleasant Fm	14259	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14506	PI Pleasant Fm	14457	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14704	PI Pleasant Fm	14655	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	14902	PI Pleasant Fm	14853	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15100	PI Pleasant Fm	15051	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15298	PI Pleasant Fm	15249	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15496	PI Pleasant Fm	15447	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15694	PI Pleasant Fm	15645	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	15892	PI Pleasant Fm	15843	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16090	PI Pleasant Fm	16041	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16288	PI Pleasant Fm	16239	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16486	PI Pleasant Fm	16437	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16684	PI Pleasant Fm	16635	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	16882	PI Pleasant Fm	16833	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17080	PI Pleasant Fm	17031	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17278	PI Pleasant Fm	17229	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17476	PI Pleasant Fm	17427	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17674	PI Pleasant Fm	17625	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	17872	PI Pleasant Fm	17823	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18070	PI Pleasant Fm	18021	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18268	PI Pleasant Fm	18219	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18466	PI Pleasant Fm	18417	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18664	PI Pleasant Fm	18615	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	18862	PI Pleasant Fm	18813	PI Pleasant Fm					
4705102016	10/28/2019	Pay	Gas	Deviated	19060	PI Pleasant Fm	19011	PI Pleasant Fm					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705102016	Tug Hill Operating, LLC	2019	913.548	0	0	0	0	0	0	0	0	0	65.949	368.659	478.900
4705102016	Tug Hill Operating, LLC	2020	3.760.795	471.095	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_16	LAT_DD	LONG_DD	UTME	UTMN
4705102303	Marshall	2303	Meade	Glen Easton	39.808631	-80.693495	526236.1	4406562.4

Bottom Hole Location Information:

API	EP FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705102303	1	As Proposed	525041.3	-80.707409	39.619122

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	-/-		David Orngl Loc	Permitted	Ricky L Whitlatch	3N-11HM	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	N
4705102303	-/-	-/-	1330	Ground Level																	

WV Geological & Economic Survey:

Well: County = 51 Permit = 02304

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

Location Information: [View Map](#)

API	COUNTY PERMIT	TAX DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705102304	Marshall	2304	Meade	Glen Easton	39.808623	-80.693453	526239.7	4406561.5

Bottom Hole Location Information:

API	EP FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705102304	1	As Proposed	525205.7	-80.705481	39.620687

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	-/-		David Orngl 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
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	LONG_DD	UTME	UTMN
4705102305	Marshall	2305	Meade	Glen Easton	Cameron	39.808637	-80.693478	526237.5	4406568.6

Bottom Hole Location Information:

API	EP_FLAG	UTIME	UTMN	LONG_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	-/-		David Orgnl Loc	Permitted	Ricky L Whittlatch	3N-14HM	Heaven Hill	6969	Marcellus Fm	R.L Whittlatch et al	Tug Hill Operating, LLC		

Completion Information:

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

WV Geological & Economic Survey:

Well: County = 51 Permit = 02323

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_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	UTIME	UTMN	LONG_DD	LAT_DD
4705102323	1	As Proposed	525337.6	4408127.8	-80.703931
					39.022762

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	-/-		David Orgnl Loc	Permitted	Ricky L Whittlatch	3N-13HM	Heaven Hill	6969	Marcellus Fm	R.L Whittlatch et al	Tug Hill Operating, LLC		

Completion Information:

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

WV Geological & Economic Survey:

Well: County = 51 Permit = 02306

Report Time: Wednesday, January 12, 2022 10:55:39 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705102306	Marshall	2306	Meade	Glen Easton	Cameron	-80.693434	526241.3	4405567.8	

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	11584	PIPleasant Fm	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705102306	-/-	-/-	1925	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_16	LAT_DD	LONG_DD	UTME	UTMN
4705102307	Marshall	2307	Meade	Glen Easton	Cameron	-80.693391	526245	4405566.9	

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	PIPleasant Fm	

Completion Information:

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

WV Geological & Economic Survey:

Well: County = 51 Permit = 70645

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705170645	Marshall	70645	Meade	Glen Easton	Cameron	39.804238	-80.691104	528442.5	4403075.5

There is no Bottom Hole Location data for this well

Owner Information:

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

Completion Information:

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

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
----------------------	-----------------------	-----------------------	---------	-----------

*See attached pages

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

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

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

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

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

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

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC	GRANTEE, LESSEE, ETC	ROYALTY	DEED BOOK/PAGE	Assignment	Assignment	Assignment	Assignment
10*15557	9-7-30	A	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	N/A	Chevron USA Inc to 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	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15746	9-7-23	C	BRUCE D SCHURR	TH EXPLORATION LLC	1/8+	921 478	N/A	N/A	N/A	N/A
10*16021	9-7-23	C	TOMMY BONAR AND TANYA S BONAR	TH EXPLORATION LLC	1/8+	925 325	N/A	N/A	N/A	N/A
10*16115	9-7-23	C	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	N/A	N/A	N/A
10*16121	9-7-23	C	ISAIAH BENNETT	TH EXPLORATION LLC	1/8+	933 105	N/A	N/A	N/A	N/A
10*16247	9-7-23	C	CAROL RIGGLE AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925 327	N/A	N/A	N/A	N/A
10*17415	9-7-23	C	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 241	N/A	N/A	N/A	N/A
10*17506	9-7-23	C	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919 239	N/A	N/A	N/A	N/A
10*17507	9-7-23	C	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A	N/A	N/A
10*47051.256.1	9-7-23	C	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A	N/A
10*47051.256.7	9-7-23	C	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905 29	N/A	N/A	N/A	N/A
10*47051.256.8	9-7-23	C	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905 31	N/A	N/A	N/A	N/A
10*47051.256.9	9-7-23	C	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905 33	N/A	N/A	N/A	N/A
10*47051.256.10	9-7-23	C	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905 35	N/A	N/A	N/A	N/A
10*47051.256.11	9-7-23	C	JOHN L MASON	TH EXPLORATION LLC	1/8+	905 37	N/A	N/A	N/A	N/A
10*47051.256.12	9-7-23	C	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905 39	N/A	N/A	N/A	N/A
10*47051.256.13	9-7-23	C	WILLIAM W CRAIG	TH EXPLORATION LLC	1/8+	905 41	N/A	N/A	N/A	N/A
10*47051.256.14	9-7-23	C	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905 43	N/A	N/A	N/A	N/A
10*47051.256.15	9-7-23	C	ROY E AND CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904 455	N/A	N/A	N/A	N/A
10*47051.256.16	9-7-23	C	CHARLOTTE B HUIMMELL	TH EXPLORATION LLC	1/8+	905 45	N/A	N/A	N/A	N/A
10*47051.256.17	9-7-23	C	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904 457	N/A	N/A	N/A	N/A
10*47051.256.18	9-7-23	C	JOHN WILLIAM AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A	N/A
10*47051.256.19	9-7-23	C	MICHAEL DAVID AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907 207	N/A	N/A	N/A	N/A
10*47051.256.20	9-7-23	C	JEFFREY THOMAS AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907 209	N/A	N/A	N/A	N/A
10*47051.256.21	9-7-23	C	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904 626	N/A	N/A	N/A	N/A
10*47051.256.22	9-7-23	C	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913 581	N/A	N/A	N/A	N/A
10*47051.256.23	9-7-23	C	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913 556	N/A	N/A	N/A	N/A
10*47051.256.24	9-7-23	C	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904 628	N/A	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	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	N/A
10*16115	9-11-7	D	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	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	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	N/A
10*17415	9-11-7	D	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 241	N/A	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	N/A
10*17507	9-11-7	D	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A	N/A	N/A

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MAY 17 2022

Office of Oil and Gas
WV Department of Environmental Protection

07/01/2022

LEASE ID	TMP	TAG	GRANTOR, LESSOR, ETC	GRANTEE, LESSEE, ETC	ROYALTY	DEED BOOK/PAGE	Assignment	Assignment	Assignment	Assignment
10*47051.256.1	9-11-7	D	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A	N/A
10*47051.256.7	9-11-7	D	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.8	9-11-7	D	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.9	9-11-7	D	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.10	9-11-7	D	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.11	9-11-7	D	JOHN L MASON	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.12	9-11-7	D	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.13	9-11-7	D	WILLIAM W CRAIG	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.14	9-11-7	D	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905	N/A	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	N/A	N/A	N/A	N/A
10*47051.256.16	9-11-7	D	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A	N/A
10*47051.256.17	9-11-7	D	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A	N/A
10*47051.256.18	9-11-7	D	JOHN WILLIAM AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913	N/A	N/A	N/A	N/A
10*47051.256.19	9-11-7	D	MICHAEL DAVID AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A	N/A
10*47051.256.20	9-11-7	D	JEFFREY THOMAS AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907	N/A	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	N/A	N/A	N/A	N/A
10*47051.256.22	9-11-7	D	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913	N/A	N/A	N/A	N/A
10*47051.256.23	9-11-7	D	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913	N/A	N/A	N/A	N/A
10*47051.256.24	9-11-7	D	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A	N/A
10*15557	9-7-31	E	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*15667	9-7-16	F	KEVIN E AND TERESA E MCGILTON	CHEVRON USA INC	1/8+	850	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 36/148
10*21593	9-7-4	G	HELEN R. PAYNE	CHEVRON USA INC	1/8+	791	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 42/435
10*21588	9-5-3	H	LAWRENCE ALLEN WAYT	CHESAPEAKE APPALACHIA LLC	1/8+	687	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/646	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to TH Exploration LLC: 42/435
10*21591	9-5-3	H	BEATRICE ANN KIDD	CHESAPEAKE APPALACHIA LLC	1/8+	687	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/646	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to TH Exploration LLC: 42/435

07/01/2022

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COPY

STATE OF WEST VIRGINIA

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COUNTY OF MARSHALL

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 7
Recording Cost \$ 13.00

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Office of Oil and Gas

MAY 17 2022

WV Department of
Environmental Protection



TUG HILL

4705102450

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-13HM

Subject: Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC (THO) will not be crossing any County Routes in the area of the Heaven Hill 3N-12HM well plat.

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

Sincerely,

Amy L. Morris
Permitting Specialist
Appalachia Region

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

**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-13HM

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>526,267.11</u>
County: <u>Marshall</u>	UTM NAD 83 Northing: <u>4,406,561.88</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. Whittatch</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		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
RECEIVED Office of Oil and Gas MAY 17 2022 WV Department of Environmental Protection		

Required Attachments:

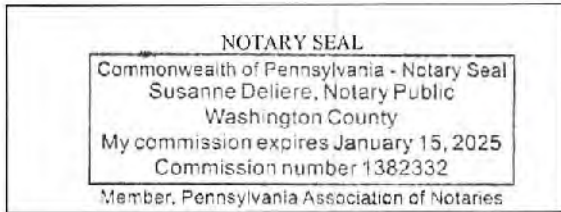
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 16th day of May 2022
Susanne Deliere Notary Public
 My Commission Expires 1/15/2025

Oil and Gas Privacy Notice:

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

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

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(9-13)

4705102450
API NO. 47- 051 -
OPERATOR WELL NO. Heaven Hill 3N-13HM
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

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

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

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

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

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

SURFACE OWNER(s)

Name: Ricky L. Whitlatch

Address: 1044 Yeater Lane
Glen Easton, WV 26039

Name: None

Address: _____

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

Name: Andrew Whitlatch

Address: 942 Yeater Lane
Glen Easton, WV 26039

Name: Arnie Goodnight, et ux

Address: 102 Goodnight Lane
Moundsville, WV 26041

SURFACE OWNER(s) (Impoundments or Pits)

Name: None

Address: _____

COAL OWNER OR LESSEE

Name: Marshall County Coal Resources, Inc.

Address: 46226 National Road
St. Clairsville, OH 43950

COAL OPERATOR

Name: Same as above coal owner

Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: *See supplement page 1A attached

Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: None

Address: _____

*Please attach additional forms if necessary

07/01/2022

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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API NO. 47-051
OPERATOR WELL NO. Heaven Hill 3N-13HM
Well Pad Name: Heaven Hill 3

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.**

07/01/2022

4705102450

API NO. 47-051 -
OPERATOR WELL NO. Heaven Hill 3N-13HM
Well Pad Name: Heaven Hill 3WW-6A
(8-13)**Time Limits and Methods for Filing Comments.**

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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Office of Oil and Gas

MAY 17 2022

WV Department of
Environmental Protection

07/01/2022

WW-6A
(8-13)

API NO. 47-051 **4705102450**
OPERATOR WELL NO. Heaven Hill 3N-13HM
Well Pad Name: Heaven Hill 3

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-9388
Email: amorris@tug-hill-op.com *amorris*

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

Oil and Gas Privacy Notice:

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

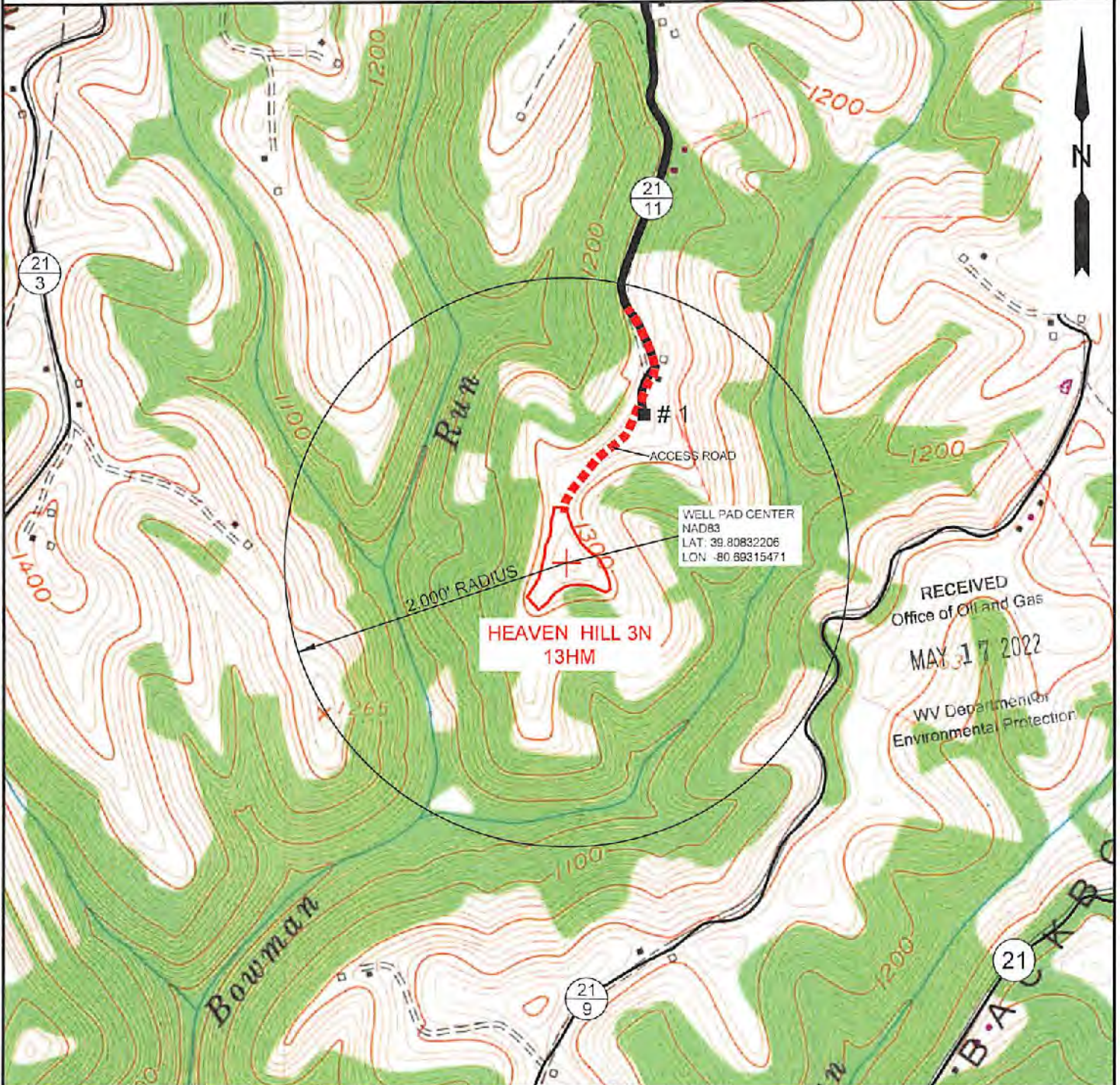
Commonwealth of Pennsylvania - Notary Seal
SEAN COTTER - Notary Public
Washington County
My Commission Expires Jan 2, 2024
Commission Number 1264582

Subscribed and sworn before me this 13 day of May 2022.
[Signature] Notary Public
My Commission Expires 1/2/2024

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WV Department of
Environmental Protection

07/01/2022

PROPOSED HEAVEN HILL 3N - 13HM



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

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 482-8634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/21/2019	1" = 1000'

**TUG HILL
OPERATING**

07/01/2022

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 – 13HM
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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Office of Oil and Gas
MAY 17 2022
WV Department of
Environmental Protection

4705102450

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. RECEIVED
Date of Notice: 03/18/2022 Date Permit Application Filed: 03/28/2022 Office of Oil and Gas

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

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

Notice is hereby given:

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

State: West Virginia UTM NAD 83 Easting: 526,267.11
County: Marshall Northing: 4,406,561.88
District: Meade Public Road Access: Yeater Lane CR 21/11
Quadrangle: Glen Easton 7.5' Generally used farm name: Ricky L. Whittatch
Watershed: Fish Creek

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Telephone: 724-749-8388
Email: amorris@tug-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.

4705102450

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

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

RECEIVED
Office of Oil and Gas

MAY 17 2022

WV Department of
Environmental Protection

07/01/2022

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

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 05/13/2022 **Date Permit Application Filed:** 05/15/2022

RECEIVED
Office of Oil and Gas
MAY 17 2022

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

CERTIFIED MAIL **HAND**
RETURN RECEIPT REQUESTED **DELIVERY**

WV Department of
Environmental Protection

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

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

Notice is hereby given:

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>526,267.11</u>
County: <u>Marshall</u>	Northing: <u>4,406,561.88</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. Whittatch</u>
Watershed: <u>(HUC 10) Fish Creek</u>	

This Notice Shall Include:

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

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

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

Oil and Gas Privacy Notice:

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4705102450

Operator Well No. Heaven Hill Unit 3N-13HM

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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WV Department of
Environmental Protection



4705102450

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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MAY 17 2022

WV Department of
Environmental Protection

Subject: DOH Permit for the Heaven Hill 3 Pad, Marshall County
Heaven Hill 3N-13HM 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



TUG HILL

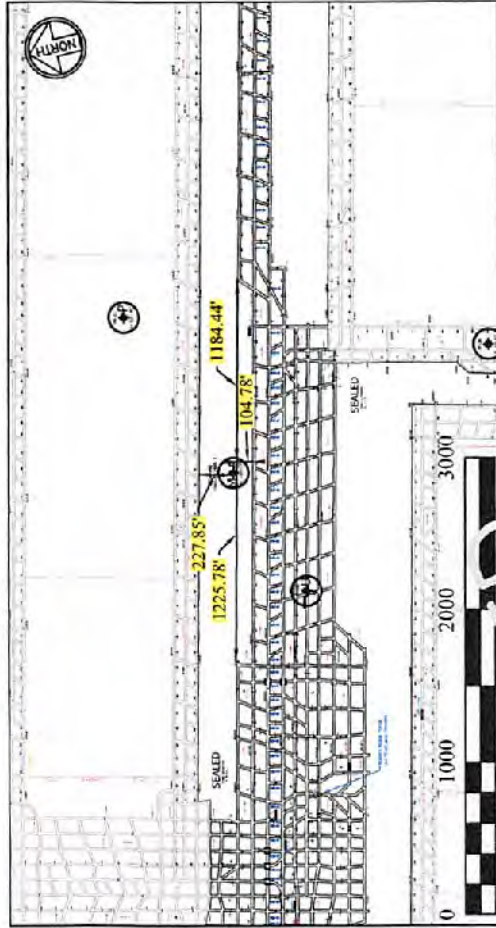
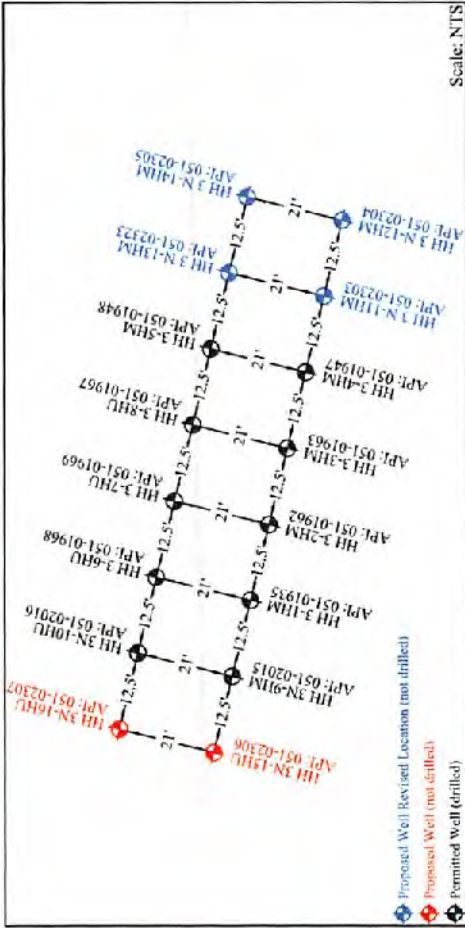
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Office of Oil and Gas

MAY 17 2022

WV Department of
Environmental ProtectionPLANNED 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



General Note:
 All dimensions related to coal location (existing and/or proposed) are based on information provided by Murray Energy Corporation. This information may not be current with mining plans. Any questions or concerns pertaining to the location of coal should be directed to Murray Energy Corporation.
 Note: Drawing was created on 8.5x14 inch paper.

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 Office of Oil and Gas
 JUN 15 2022
 WV Department of
 Environmental Protection



07/01/2022

HH 3-8HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478874.117
E: 1633301.527
Lat.: 39°48'31.105"
Lon.: -80°41'35.580"
NAD 27 - WV North Ft
N: 478877.375
E: 1644738.270
Lat.: 39°48'30.826"
Lon.: -80°41'36.274"
Marshall County Mine
N: -79102.292
E: 59109.708
UTM Zone 17 NAD 83
Meters
N: 4406563.529
E: 526259.899

HH 3-7HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478877.332
E: 1633289.641
Lat.: 39°48'31.135"
Lon.: -80°41'35.733"
NAD 27 - WV North Ft
N: 478840.589
E: 1664726.300
Lat.: 39°48'30.856"
Lon.: -80°41'36.427"
Marshall County Mine
N: -79099.238
E: 59297.780
UTM Zone 17 NAD 83
Meters
N: 4406564.448
E: 526256.261

HH 3-6HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478880.340
E: 1633277.216
Lat.: 39°48'31.164"
Lon.: -80°41'35.893"
NAD 27 - WV North Ft
N: 478843.598
E: 1664715.966
Lat.: 39°48'30.884"
Lon.: -80°41'36.580"
Marshall County Mine
N: -79096.704
E: 59285.320
UTM Zone 17 NAD 83
Meters
N: 4406565.301
E: 526252.461

HH 3-5HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478870.951
E: 1633313.93
Lat.: 39°48'31.076"
Lon.: -80°41'35.421"
NAD 27 - WV North Ft
N: 478834.208
E: 1664750.679
Lat.: 39°48'30.796"
Lon.: -80°41'36.114"
Marshall County Mine
N: -79105.289
E: 59322.153
UTM Zone 17 NAD 83
Meters
N: 4406562.628
E: 526203.693

HH 3-4HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478850.935
E: 1633308.285
Lat.: 39°48'30.877"
Lon.: -80°41'35.490"
NAD 27 - WV North Ft
N: 478814.101
E: 1664745.034
Lat.: 39°48'30.597"
Lon.: -80°41'36.183"
Marshall County Mine
N: -79125.580
E: 59316.780
UTM Zone 17 NAD 83
Meters
N: 4406556.501
E: 526267.076

HH 3-3HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478852.945
E: 1633329.462
Lat.: 39°48'30.895"
Lon.: -80°41'35.642"
NAD 27 - WV North Ft
N: 478816.202
E: 1664733.211
Lat.: 39°48'30.616"
Lon.: -80°41'36.315"
Marshall County Mine
N: -79123.530
E: 59304.931
UTM Zone 17 NAD 83
Meters
N: 4406557.053
E: 526258.463

HH 3-2HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478857.076
E: 1633383.775
Lat.: 39°48'30.935"
Lon.: -80°41'35.805"
NAD 27 - WV North Ft
N: 478820.334
E: 1664720.499
Lat.: 39°48'30.655"
Lon.: -80°41'36.499"
Marshall County Mine
N: -79110.571
E: 59292.165
UTM Zone 17 NAD 83
Meters
N: 4406559.247
E: 526234.570

HH 3-1HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478859.038
E: 1633271.434
Lat.: 39°48'30.961"
Lon.: -80°41'35.954"
NAD 27 - WV North Ft
N: 478823.486
E: 1664708.184
Lat.: 39°48'30.682"
Lon.: -80°41'36.657"
Marshall County Mine
N: -79116.876
E: 59279.811
UTM Zone 17 NAD 83
Meters
N: 4406559.056
E: 526250.803

HH 3-N-16HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478886.064
E: 1633252.734
Lat.: 39°48'31.217"
Lon.: -80°41'36.208"
NAD 27 - WV North Ft
N: 478949.322
E: 1664689.484
Lat.: 39°48'30.937"
Lon.: -80°41'36.901"
Marshall County Mine
N: -79091.006
E: 59260.759
UTM Zone 17 NAD 83
Meters
N: 4406566.921
E: 526244.973

HH 3-N-15HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478865.668
E: 1633247.733
Lat.: 39°48'31.015"
Lon.: -80°41'36.268"
NAD 27 - WV North Ft
N: 478828.926
E: 1664684.484
Lat.: 39°48'30.735"
Lon.: -80°41'36.962"
Marshall County Mine
N: -79111.468
E: 59256.035
UTM Zone 17 NAD 83
Meters
N: 4406560.681
E: 526243.553

HH 3-N-14HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478865.466
E: 1633336.746
Lat.: 39°48'31.024"
Lon.: -80°41'35.128"
NAD 27 - WV North Ft
N: 478838.722
E: 1664733.494
Lat.: 39°48'30.745"
Lon.: -80°41'35.821"
Marshall County Mine
N: -79110.463
E: 59345.042
UTM Zone 17 NAD 83
Meters
N: 4406561.073
E: 526270.672

HH 3-N-13HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478868.323
E: 1633325.091
Lat.: 39°48'31.051"
Lon.: -80°41'35.278"
NAD 27 - WV North Ft
N: 478831.580
E: 1664761.839
Lat.: 39°48'30.772"
Lon.: -80°41'35.971"
Marshall County Mine
N: -79107.705
E: 59333.249
UTM Zone 17 NAD 83
Meters
N: 4406561.884
E: 526267.107

HH 3-N-12HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478845.070
E: 1633331.743
Lat.: 39°48'30.822"
Lon.: -80°41'35.188"
NAD 27 - WV North Ft
N: 478808.326
E: 1664768.493
Lat.: 39°48'30.543"
Lon.: -80°41'35.882"
Marshall County Mine
N: -79130.926
E: 59340.318
UTM Zone 17 NAD 83
Meters
N: 4406554.834
E: 526269.253

HH 3-N-11HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478847.927
E: 1633320.409
Lat.: 39°48'30.849"
Lon.: -80°41'35.338"
NAD 27 - WV North Ft
N: 478811.084
E: 1664756.839
Lat.: 39°48'30.569"
Lon.: -80°41'36.032"
Marshall County Mine
N: -79128.227
E: 59128.626
UTM Zone 17 NAD 83
Meters
N: 4406555.645
E: 526265.087

HH 3-N-10HU
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478883.387
E: 1633264.931
Lat.: 39°48'31.192"
Lon.: -80°41'36.051"
NAD 27 - WV North Ft
N: 478846.645
E: 1664701.680
Lat.: 39°48'30.912"
Lon.: -80°41'36.744"
Marshall County Mine
N: -79093.518
E: 59272.991
UTM Zone 17 NAD 83
Meters
N: 4406566.167
E: 526248.702

HH 3-N-9HM
County: Marshall
District: Meade
NAD 83 - WV North Ft
N: 478863.305
E: 1633259.836
Lat.: 39°48'30.903"
Lon.: -80°41'36.113"
NAD 27 - WV North Ft
N: 478826.563
E: 1664696.596
Lat.: 39°48'30.713"
Lon.: -80°41'36.806"
Marshall County Mine
N: -79113.667
E: 59268.179
UTM Zone 17 NAD 83
Meters
N: 4406560.923
E: 526247.255

RECEIVED
 Office of Oil and Gas
 JUN 15 2022
 WV Department of
 Environmental Protection

07/01/2022



WVDEP 006
ACCEPTED AS-BUILT
WVDEP 6/13/2022

Heaven Hill 3 Site
 Site Design, Construction Plan, &
 Erosion and Sediment Control Plans
 Tug Hill Operating
 Marshall County
 Meade District
 Latitude -39.80832206°
 Longitude -80.69315471°
 Middle Fish Creek Watershed

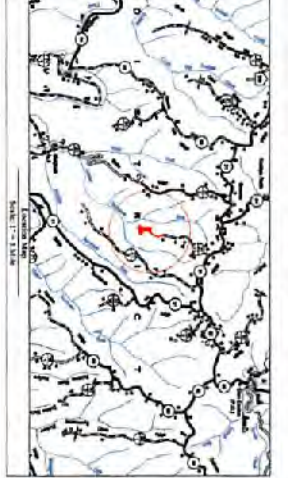
Exhibit A: As-Built



Scale	Horizontal	Vertical
1" = 100'	1" = 100'	1" = 100'
1" = 200'	1" = 200'	1" = 200'
1" = 400'	1" = 400'	1" = 400'

Project Name	Project Location
HEAVEN HILL 3 SITE	MARSHALL COUNTY, WV
WVDEP 006	ACCEPTED AS-BUILT
DATE	6/13/2022

As-Built Information
 The following information was obtained from the contractor's as-built drawings and field notes. It is the responsibility of the contractor to ensure that the information is accurate and complete. The Engineer's Office has reviewed the information and found it to be satisfactory for the purposes of this report.



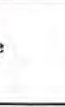
Perennial Site Information
 Heaven Hill 3 Site
 Emergency Number: 412-843-1020
 Address: 10000 Marshall County, WV
 W. Virginia Dept. of Environmental Protection
 Tug Hill Complex Number: 1417-013400

Category	Item	Value
General Information	Project Name	HEAVEN HILL 3 SITE
	Project Location	MARSHALL COUNTY, WV
	Project Number	WVDEP 006
	Project Date	6/13/2022
Site Information	Site Area	100.00
	Site Elevation	1000.00
	Site Slope	10.00%
	Site Orientation	N 10.00° E
Erosion Control	Erosion Control Type	Vegetative
	Erosion Control Material	Grass Seed
	Erosion Control Installation Date	6/13/2022
	Erosion Control Maintenance Date	6/13/2022

Station	Description	Value
1+00	Start of Slope	1000.00
1+50	End of Slope	1000.00
2+00	Start of Slope	1000.00
2+50	End of Slope	1000.00
3+00	Start of Slope	1000.00
3+50	End of Slope	1000.00
4+00	Start of Slope	1000.00
4+50	End of Slope	1000.00
5+00	Start of Slope	1000.00
5+50	End of Slope	1000.00
6+00	Start of Slope	1000.00
6+50	End of Slope	1000.00
7+00	Start of Slope	1000.00
7+50	End of Slope	1000.00
8+00	Start of Slope	1000.00
8+50	End of Slope	1000.00
9+00	Start of Slope	1000.00
9+50	End of Slope	1000.00
10+00	Start of Slope	1000.00
10+50	End of Slope	1000.00

Notes:
 1. The information shown on this plan was obtained from the contractor's as-built drawings and field notes. It is the responsibility of the contractor to ensure that the information is accurate and complete.
 2. The Engineer's Office has reviewed the information and found it to be satisfactory for the purposes of this report.
 3. The information shown on this plan is for informational purposes only and does not constitute a warranty of any kind.
 4. The information shown on this plan is subject to change without notice.
 5. The information shown on this plan is the property of the Engineer's Office and is not to be reproduced or used in any way without the written consent of the Engineer's Office.

Heaven Hill 3 Site
 Meade District
 Marshall County, WV



TUG HILL OPERATING

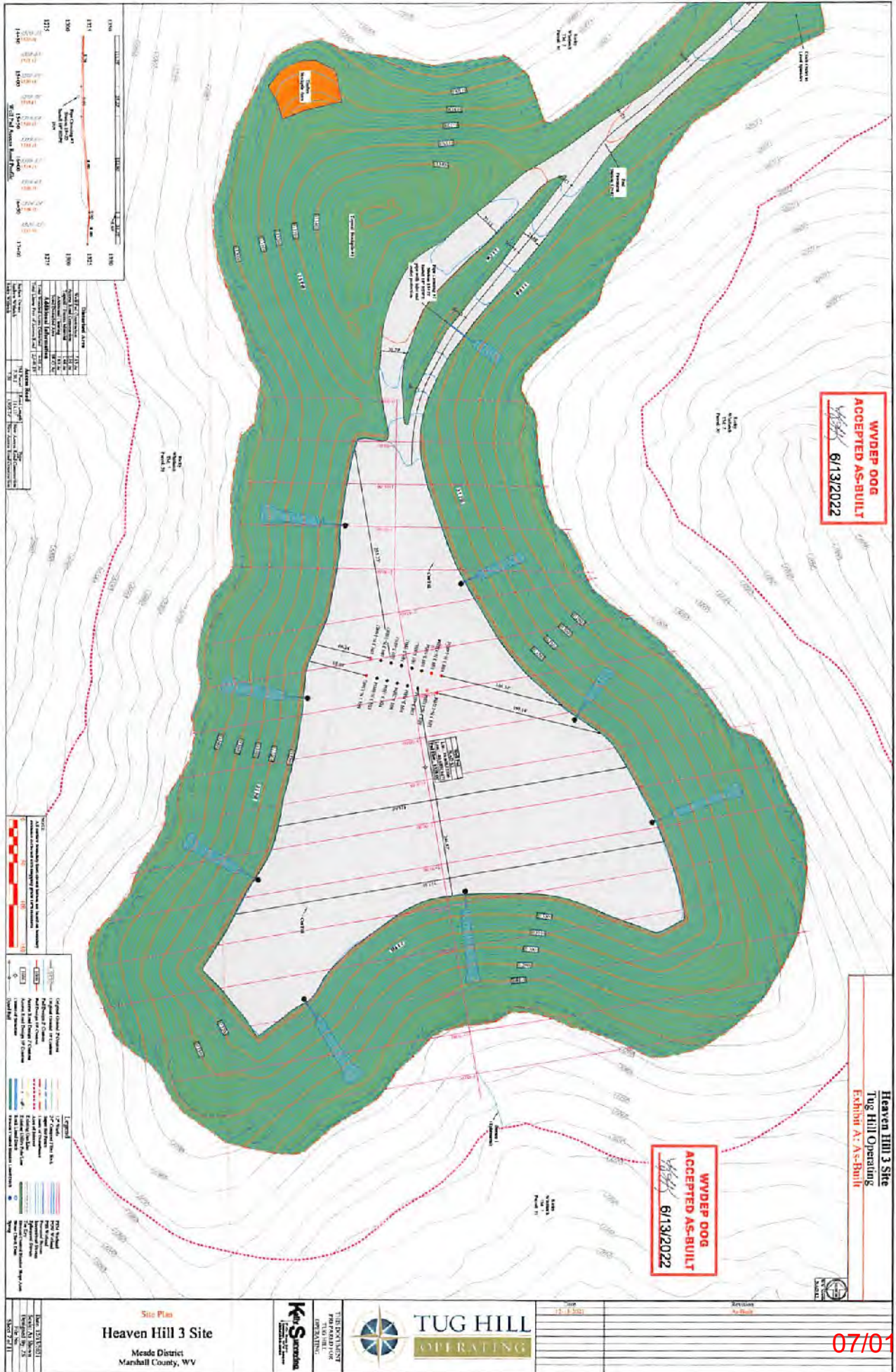
THE DESIGNER
 TUG HILL OPERATING
 10000 MARSHALL COUNTY, WV

K&S CONSULTING
 10000 MARSHALL COUNTY, WV

DATE
 6/13/2022

REVISION
 07/01/2022

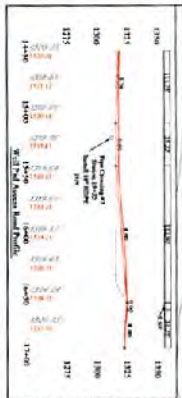
07/01/2022



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

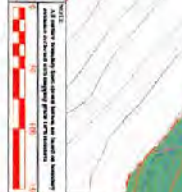
WVDEP O&G
ACCEPTED AS-BUILT
6/13/2022

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



Horizontal Area	
Original Area	1,125,000 sq. ft.
Proposed Area	1,125,000 sq. ft.
Remaining Area	1,125,000 sq. ft.

Vertical Area	
Original Area	1,125,000 sq. ft.
Proposed Area	1,125,000 sq. ft.
Remaining Area	1,125,000 sq. ft.



Legend	
[Symbol]	Proposed Building
[Symbol]	Proposed Road
[Symbol]	Proposed Utility
[Symbol]	Proposed Structure
[Symbol]	Proposed Foundation
[Symbol]	Proposed Driveway
[Symbol]	Proposed Parking
[Symbol]	Proposed Fencing
[Symbol]	Proposed Site
[Symbol]	Proposed Area
[Symbol]	Proposed Structure
[Symbol]	Proposed Foundation
[Symbol]	Proposed Driveway
[Symbol]	Proposed Parking
[Symbol]	Proposed Fencing
[Symbol]	Proposed Site
[Symbol]	Proposed Area

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



TUG HILL
OPERATING

07/01/2022