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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, March 20, 2020  
WELL WORK PERMIT  
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC  
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for HEAVEN HILL 3N-14HM  
47-051-02305-00-00

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-14HM  
Farm Name: RICKY L. WHITLATCH  
U.S. WELL NUMBER: 47-051-02305-00-00  
Horizontal 6A New Drill  
Date Issued: 3/20/2020

Promoting a healthy environment.

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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

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

# PERMIT CONDITIONS

4705102305

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

WW-6B  
(04/15)

4705 02305  
API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
Well Pad Name: Heaven Hill 3

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-14HM Well Pad Name: Heaven Hill 3

3) Farm Name/Surface Owner: Ricky L. Whitlatch Public Road Access: Yeater Lane CR 21/11

4) Elevation, current ground: 1326' Elevation, proposed post-construction: 1326'

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

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

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 6817' - 6869' thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,969'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,427'

11) Proposed Horizontal Leg Length: 8,472.23'

12) Approximate Fresh Water Strata Depths: 70', 1038'

13) Method to Determine Fresh Water Depths: Offset well reports or noticeable flow at the flowline or when need to start soaping

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 946' and Pittsburgh Coal - 1031'

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 X No \_\_\_\_\_

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine  
Depth: 1031' TVD and 311' subsea level  
Seam: Pittsburgh #8  
Owner: Murray Energy / Consolidated Coal Co.

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18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	100'	100'	216FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	1,130'	1,130'	1077ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,130'	1,130'	1077ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,855'	2,855'	935ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	16,427'	16,427'	4205ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,890'	
Liners							

*g*  
11/7/19

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	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	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

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

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WW-6B  
(10/14)

4705 02305  
API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
Well Pad Name: Heaven Hill 3

*Handwritten signature and date: 11/17/19*

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. 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 21,177,500 lb prop and approximately 327,420 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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

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:

\*See Attachment

25) Proposed borehole conditioning procedures:

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

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\*Note: Attach additional sheets as needed.

NOV 14 2020



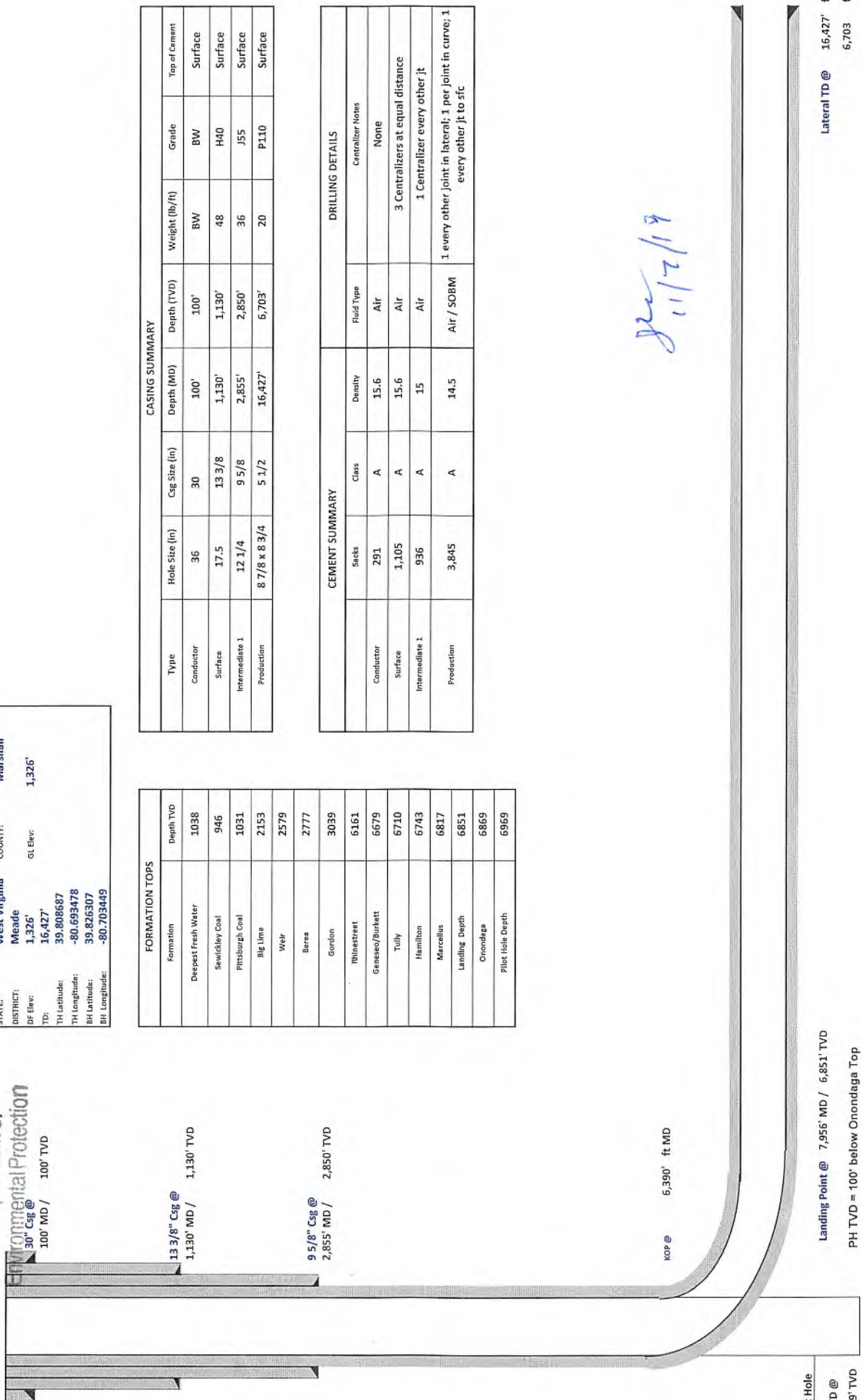
WELL NAME: Heaven Hill 3N-14HM  
 STATE: West Virginia COUNTY: Marshall  
 DISTRICT: Meade  
 DF Elev: 1,326' GI Elev: 1,326'  
 TD: 16,427'  
 TH Latitude: 39.808687  
 TH Longitude: -80.693478  
 BH Latitude: 39.826307  
 BH Longitude: -80.703449

FORMATION TOPS	Depth TVD
Deepest Fresh Water	1038
Sawickley Coal	946
Pittsburgh Coal	1031
Big Lime	2153
Weir	2579
Barra	2777
Gordon	3039
Rhinestreet	6161
Genesee/Burkett	6679
Tully	6710
Hamilton	6743
Marcellus	6817
Landing Depth	6851
Onondaga	6869
Pilot Hole Depth	6969

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'	BW	BW	Surface
Surface	17.5	13 3/8	1,130'	1,130'	48	H40	Surface
Intermediate 1	12 1/4	9 5/8	2,855'	2,850'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,427'	6,703'	20	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Stacks	Class	Density	Fluid Type	Centralizer Notes	
Conductor	A	15.6	Air	None	
Surface	A	15.6	Air	3 Centralizers at equal distance	
Intermediate 1	A	15	Air	1 Centralizer every other jt	
Production	A	14.5	Air / SORM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc	

*Jac*  
11/2/19



Pilot Hole  
PH TD @  
6,969' TVD

Landing Point @ 7,955' MD / 6,851' TVD  
PH TVD = 100' below Onondaga Top

Lateral TD @ 16,427' ft MD  
6,703' ft TVD

47 05 02305





## Tug Hill Operating, LLC Casing and Cement Program

### Heaven Hill 3N-14HM

#### Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	100'	CTS
Surface	13 3/8"	H40	17 1/2"	1,130'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,855'	CTS
Production	5 1/2"	P110	8 7/8 x 8 3/4"	16,427'	CTS

#### Cement

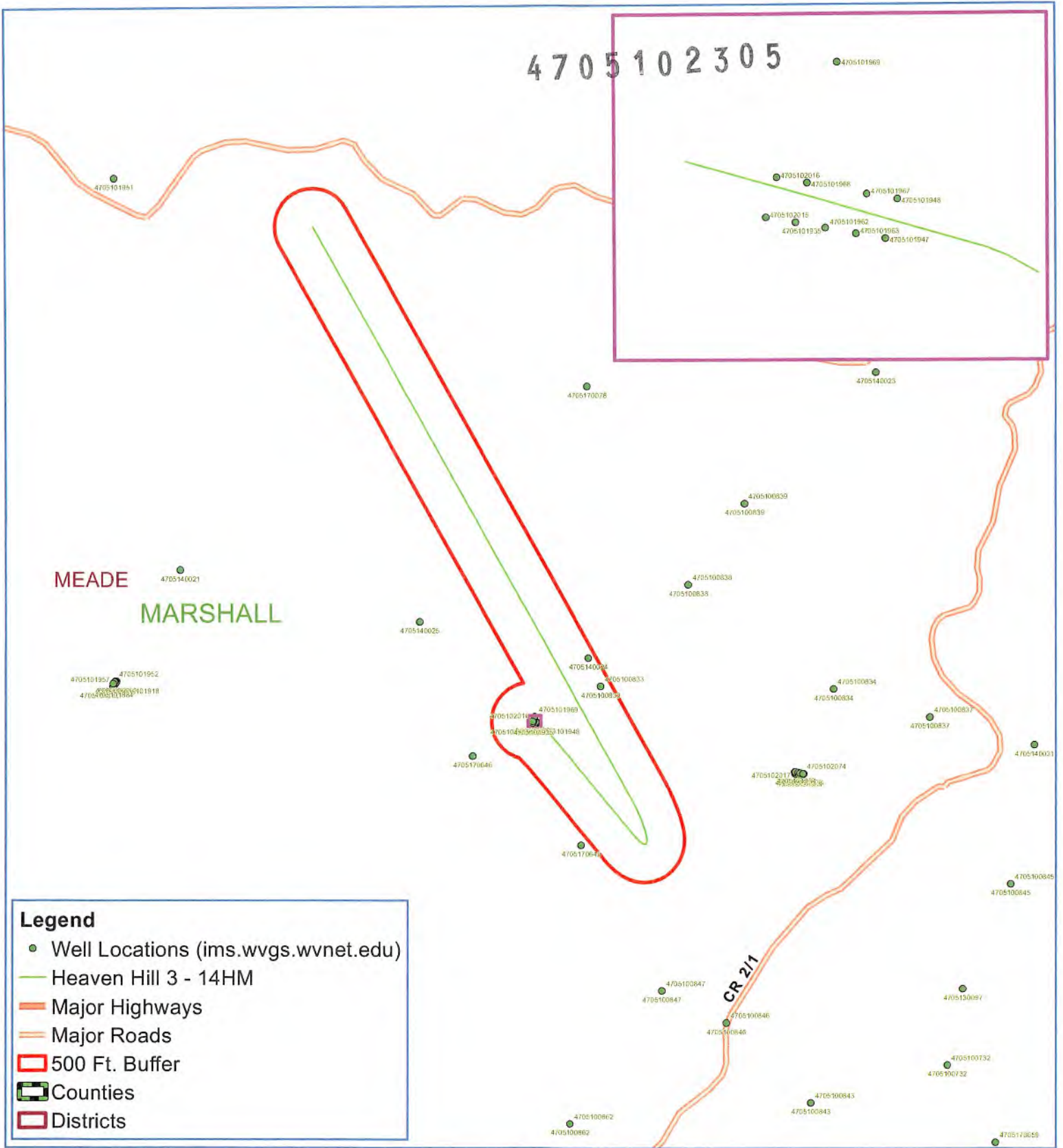
Conductor:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
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 15.2ppg, Y = 1.19

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**Legend**

- Well Locations (ims.wvgs.wvnet.edu)
- Heaven Hill 3 - 14HM
- Major Highways
- Major Roads
- 500 Ft. Buffer
- ▭ Counties
- ▭ Districts



# Heaven Hill 3 - 14HM

## Meade District

### Marshall County, WV



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



Map Created: October 8, 2019  
Map Current As Of: October 8, 2019

### 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. IHS 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 Devin Ducoeur 724-705-0444, [dducoeur@dpslandservices.com](mailto:dducoeur@dpslandservices.com) DPS GIS (08/15/2019) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

#### Request maps for:

1. Wellbore with IHS 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

## Permit well - Heaven Hill 3N-14HM

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map (page 3) 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	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101947	Tug Hill	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101948	Tug Hill	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101962	Tug Hill	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101963	Tug Hill	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101967	Tug Hill	11,829' TVD	No	No	No, existing Point Pleasant drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101968	Tug Hill	11,829' TVD	No	No	No, existing Point Pleasant drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705101969	Tug Hill	11,829' TVD	No	No	No, existing Point Pleasant drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705102015	Tug Hill	6,876' TVD	No	No	Yes, existing Marcellus drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705102016	Tug Hill	11,898' TVD	No	No	No, existing Point Pleasant drilled well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Drilled not completed
4705100833	McElroy Coal Company	2,978' TVD	Gordon Sandstone	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. The well is plugged	Well was plugged 7/22/1998
4705140024	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete



WV Geological & Economic Survey Well: County = 51 Permit = 01936

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	SQUAD_NO	SQUAD_IS	LAT_DD	LONG_DD	UTM_E	UTM_N
6204101936	Wayne	1236	Wayne	04	04	39.8255	-82.8219	622221	450882

Bottom Hole Location Information:

API	EP	FLGS	UTM_E	UTM_N	LONG_DD	LAT_DD
6204101936	1	04	39.8255	450882	-82.8219	39.8255

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_A1	COMPLETION	PROP_VO	PROP_TWD_YM	YFM_EST_PR
6204101936	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Completion Information:

API	COMP_ID	TRCD	ELEV	DATUM	FIELD	DEEPEST_FTH	DEEPEST_FHT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TWD	NEW_FTH	RSD	G_BEF	G_AFT	G_BEF	G_AFT	NGL_BEF	NGL_AFT	
6204101936	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey Well: County = 51 Permit = 01947

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	SQUAD_NO	SQUAD_IS	LAT_DD	LONG_DD	UTM_E	UTM_N
6204101947	Wayne	1247	Wayne	04	04	39.8247	-82.8219	622221	450882

Bottom Hole Location Information:

API	EP	FLGS	UTM_E	UTM_N	LONG_DD	LAT_DD
6204101947	1	04	39.8247	450882	-82.8219	39.8247

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_A1	COMPLETION	PROP_VO	PROP_TWD_YM	YFM_EST_PR
6204101947	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Completion Information:

API	COMP_ID	TRCD	ELEV	DATUM	FIELD	DEEPEST_FTH	DEEPEST_FHT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TWD	NEW_FTH	RSD	G_BEF	G_AFT	G_BEF	G_AFT	NGL_BEF	NGL_AFT	
6204101947	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Comment: -/- Plat Missing data

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey Well: County = 51 Permit = 01948

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	SQUAD_NO	SQUAD_IS	LAT_DD	LONG_DD	UTM_E	UTM_N
6204101948	Wayne	1248	Wayne	04	04	39.8248	-82.8219	622221	450882

Bottom Hole Location Information:

API	EP	FLGS	UTM_E	UTM_N	LONG_DD	LAT_DD
6204101948	1	04	39.8248	450882	-82.8219	39.8248

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_A1	COMPLETION	PROP_VO	PROP_TWD_YM	YFM_EST_PR
6204101948	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Completion Information:

API	COMP_ID	TRCD	ELEV	DATUM	FIELD	DEEPEST_FTH	DEEPEST_FHT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TWD	NEW_FTH	RSD	G_BEF	G_AFT	G_BEF	G_AFT	NGL_BEF	NGL_AFT	
6204101948	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well





WV Geological & Economic Survey **Well: County = 51 Permit = 02016**

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_7E	QUAD_1E	LAY_CD	LOH_CD	UTMR	UTBN
470510216	Wayne	5216	Wayne	041	041	0000	00	0000	00000000

Bottom Hole Location Information:

API	SP	FLD	UTMR	LOH_CD	LAY_CD
470510216	1	041	0000	00	0000

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	ACT_COMP	PROF_VO	PROP_TYD	FM_TYD	EST_PN
470510216	000		0	041	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Completion Information:

API	COMP_ID	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_PMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TYD	NEW_FTO	RCD	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BCF
470510216	000																			

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey **Well: County = 51 Permit = 02016**

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_7E	QUAD_1E	LAY_CD	LOH_CD	UTMR	UTBN
470510216	Wayne	5216	Wayne	041	041	0000	00	0000	00000000

Bottom Hole Location Information:

API	SP	FLD	UTMR	LOH_CD	LAY_CD
470510216	1	041	0000	00	0000

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	ACT_COMP	PROF_VO	PROP_TYD	FM_TYD	EST_PN
470510216	000		0	041	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Completion Information:

API	COMP_ID	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_PMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TYD	NEW_FTO	RCD	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BCF
470510216	000																			

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey **Well: County = 51 Permit = 00833**

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	0000	51	0000

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_7E	QUAD_1E	LAY_CD	LOH_CD	UTMR	UTBN
470510213	Wayne	5216	Wayne	041	041	0000	00	0000	00000000

There is no Bottom Hole Location data for this well

Owner Information:

API	COMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	ACT_COMP	PROF_VO	PROP_TYD	FM_TYD	EST_PN
470510213	000		0	041	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Completion Information:

API	COMP_ID	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_PMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	COMP_MTHD	TYD	NEW_FTO	RCD	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BCF
470510213	000																			

Pay/Show/Water Information:

API	COMP_ID	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	DEPTH_BOT	FM_BOT	O_BEF	O_AFT	O_BEF	O_AFT	WATER_QTY
470510213	000	0	0	0	0	0	0	0	0	0	0	0

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

Plugging Information:

API	PLUG_DT	DEPTH_PMT
470510213	0	0

There is no Sample data for this well

WV Geological & Economic Survey **Well: County = 51 Permit = 40024**

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_7E	QUAD_1E	LAY_CD	LOH_CD	UTMR	UTBN
470510204	Wayne	5204	Wayne	041	041	0000	00	0000	00000000

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	QUALITY	DEPTH_TOP	DEPTH_BOTTOM	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
470510204	000	0	0	0	0	0	0	0	0

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

There is no Plugging data for this well

There is no Sample data for this well





Well: Heaven Hill 3N-14 HM (A)

Site: Heaven Hill 3

Project: Marshall County, West Virginia.

Design: rev4

Geodetic System: Universal Transverse Mercator (US Survey Feet)

Datum: NAD83 West Virginia - HARN

Ellipsoid: GRS 1980

Zone: Zone 17N (84 W to 78 W)

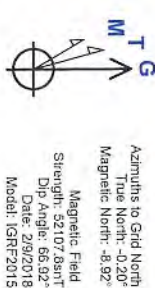
System Datum: Mean Sea Level

Depth Reference: GL @ 1326.00usft

Northing 14457217.25 Easting 39,80868700

Latitude 39.80868700 Longitude -80.69347800

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.917°

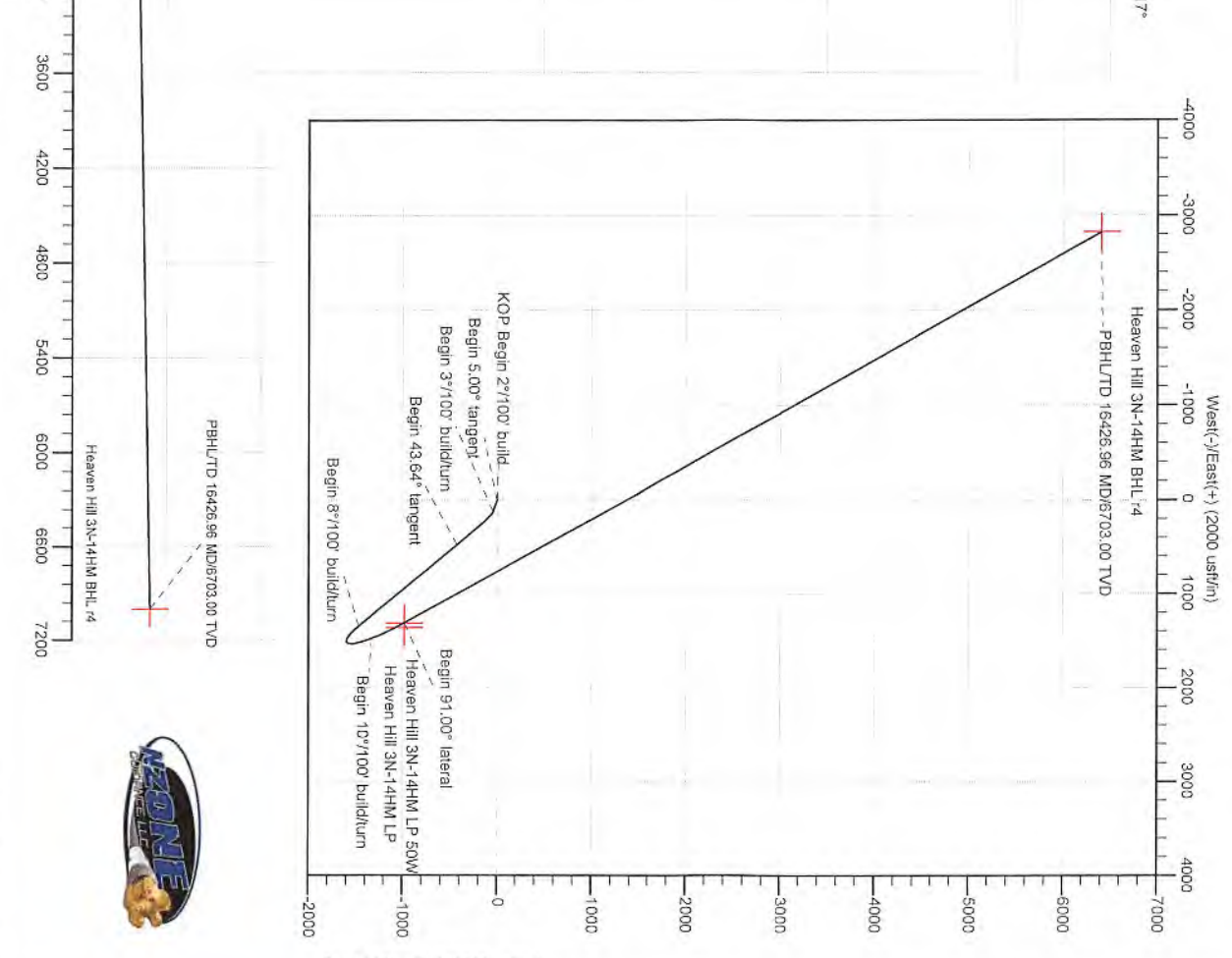
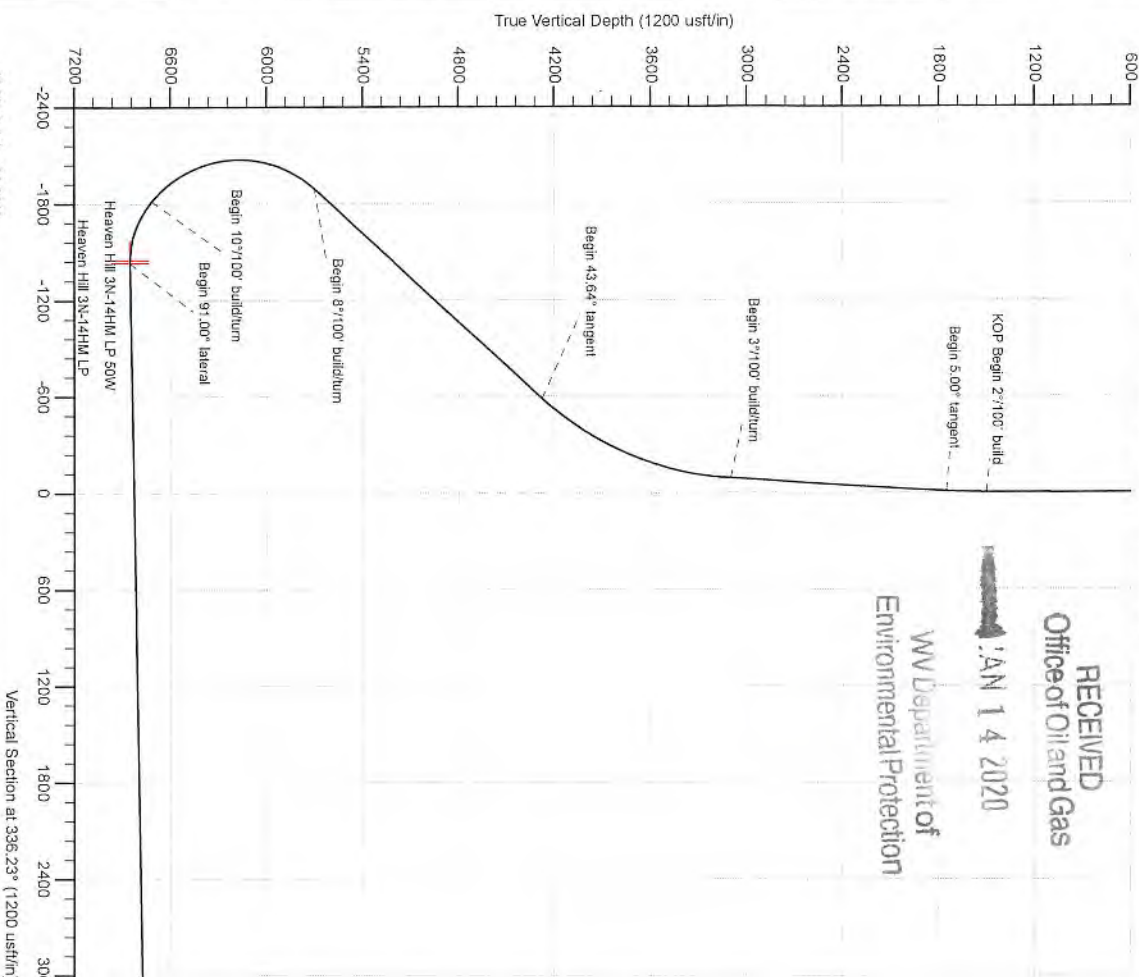


Azimuths to Grid North  
True North: -0.20°  
Magnetic North: -8.92°  
Magnetic Field Strength: 52.1073aBT  
Dip Angle: 66.69°  
Date: 29/2018  
Model: IGRF2015

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SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-/S	+E/W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°11'00" build
3	1750.00	5.00	110.00	1749.68	-3.73	10.24	2.00	110.000	-7.54	Begin 5.00° tangent
4	3105.48	5.00	110.00	3100.00	-4.43	121.26	0.00	0.000	-89.26	Begin 3°11'00" buildturn
5	4418.15	43.64	140.11	4275.46	-226.43	479.71	3.00	33.074	-583.61	Begin 43.64° tangent
6	6389.54	43.64	140.11	5702.10	-1470.38	1352.20	0.00	0.000	-1890.66	Begin 8°11'00" buildturn
7	7538.69	50.00	339.44	6714.33	-1331.34	1480.76	8.00	-185.305	-1815.23	Begin 10°11'00" buildturn
8	7996.30	91.00	330.75	6851.00	-983.88	1315.22	10.00	-13.090	-1430.52	Begin 91.00° lateral
9	16426.96	91.00	330.75	6703.00	6408.53	-2821.44	0.00	0.000	7000.30	PBHL/TD 16426.96 MD/6703.00 TVD



4705 02305





Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-14 HM (A)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-14 HM (A)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

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

Site	Heaven Hill 3				
Site Position:		Northing:	14,457,178.77 usft	Latitude:	39.80858060
From:	Lat/Long	Easting:	1,726,571.98 usft	Longitude:	-80.69321360
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.196 °

Well	Heaven Hill 3N-14 HM (A)					
Well Position	+N/-S	0.00 usft	Northing:	14,457,217.26 usft	Latitude:	39.80868700
	+E/-W	0.00 usft	Easting:	1,726,497.60 usft	Longitude:	-80.69347800
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	1,326.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/9/2018	-8.721	66.918	52,107.79055732

Design	rev4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	336.23

Plan Survey Tool Program	Date	10/26/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,426.96 rev4 (Original Hole)	MWD	MWD - Standard

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 WV Department of  
 Environmental Protection

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	0.000	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,750.00	5.00	110.00	1,749.68	-3.73	10.24	2.00	2.00	0.00	110.000	
3,105.48	5.00	110.00	3,100.00	-44.13	121.26	0.00	0.00	0.00	0.000	
4,418.15	43.64	140.11	4,275.46	-426.43	479.71	3.00	2.94	2.29	33.074	
6,389.54	43.64	140.11	5,702.10	-1,470.38	1,352.20	0.00	0.00	0.00	0.000	
7,538.69	50.00	339.44	6,714.33	-1,331.34	1,480.76	8.00	0.55	-13.98	-165.305	
7,956.30	91.00	330.76	6,851.00	-983.88	1,315.22	10.00	9.82	-2.08	-13.090	
16,426.96	91.00	330.76	6,703.00	6,406.53	-2,821.44	0.00	0.00	0.00	0.000	Heaven Hill 3N-14HM





Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-14 HM (A)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-14 HM (A)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
100.00	0.00	0.00	100.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
200.00	0.00	0.00	200.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
300.00	0.00	0.00	300.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
400.00	0.00	0.00	400.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
500.00	0.00	0.00	500.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
600.00	0.00	0.00	600.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
700.00	0.00	0.00	700.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
800.00	0.00	0.00	800.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
900.00	0.00	0.00	900.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,457,217.26	1,726,497.60	39.80868700	-80.69347800	
<b>KOP Begin 2°/100' build</b>										
1,600.00	2.00	110.00	1,599.98	-0.60	1.64	14,457,216.66	1,726,499.24	39.80868535	-80.69347217	
1,700.00	4.00	110.00	1,699.83	-2.39	6.56	14,457,214.87	1,726,504.16	39.80868039	-80.69345468	
1,750.00	5.00	110.00	1,749.68	-3.73	10.24	14,457,213.53	1,726,507.84	39.80867667	-80.69344157	
<b>Begin 5.00° tangent</b>										
1,800.00	5.00	110.00	1,799.49	-5.22	14.34	14,457,212.04	1,726,511.94	39.80867253	-80.69342701	
1,900.00	5.00	110.00	1,899.11	-8.20	22.53	14,457,209.06	1,726,520.13	39.80866427	-80.69339788	
2,000.00	5.00	110.00	1,998.73	-11.18	30.72	14,457,206.07	1,726,528.32	39.80865601	-80.69336875	
2,100.00	5.00	110.00	2,098.35	-14.16	38.91	14,457,203.09	1,726,536.51	39.80864774	-80.69333963	
2,200.00	5.00	110.00	2,197.97	-17.14	47.10	14,457,200.11	1,726,544.70	39.80863948	-80.69331050	
2,300.00	5.00	110.00	2,297.59	-20.12	55.29	14,457,197.13	1,726,552.89	39.80863122	-80.69328137	
2,400.00	5.00	110.00	2,397.20	-23.10	63.48	14,457,194.15	1,726,561.08	39.80862295	-80.69325225	
2,500.00	5.00	110.00	2,496.82	-26.09	71.67	14,457,191.17	1,726,569.27	39.80861469	-80.69322312	
2,599.99	5.00	110.00	2,596.44	-29.07	79.86	14,457,188.19	1,726,577.46	39.80860643	-80.69319400	
2,699.99	5.00	110.00	2,696.06	-32.05	88.05	14,457,185.21	1,726,585.65	39.80859816	-80.69316487	
2,799.99	5.00	110.00	2,795.68	-35.03	96.24	14,457,182.23	1,726,593.84	39.80858990	-80.69313574	
2,899.99	5.00	110.00	2,895.30	-38.01	104.43	14,457,179.25	1,726,602.03	39.80858164	-80.69310662	
2,999.99	5.00	110.00	2,994.92	-40.99	112.62	14,457,176.27	1,726,610.22	39.80857337	-80.69307749	
3,099.99	5.00	110.00	3,094.54	-43.97	120.81	14,457,173.28	1,726,618.41	39.80856511	-80.69304836	
3,105.48	5.00	110.00	3,100.00	-44.13	121.26	14,457,173.12	1,726,618.86	39.80856466	-80.69304677	
<b>Begin 3°/100' build/turn</b>										
3,199.99	7.54	121.88	3,193.95	-48.82	130.39	14,457,168.44	1,726,627.99	39.80855171	-80.69301429	
3,299.99	10.39	127.92	3,292.72	-57.82	143.08	14,457,159.43	1,726,640.68	39.80852686	-80.69296924	
3,399.99	13.31	131.36	3,390.58	-70.97	158.83	14,457,146.28	1,726,656.43	39.80849060	-80.69291330	
3,499.99	16.25	133.57	3,487.26	-88.22	177.61	14,457,129.03	1,726,675.21	39.80844304	-80.69284664	
3,599.99	19.22	135.12	3,582.50	-109.54	199.36	14,457,107.72	1,726,696.96	39.80838431	-80.69276944	
3,699.99	22.19	136.27	3,676.03	-134.85	224.03	14,457,082.41	1,726,721.63	39.80831457	-80.69268191	
3,799.99	25.17	137.16	3,767.60	-164.09	251.55	14,457,053.17	1,726,749.15	39.80823400	-80.69258428	
3,899.99	28.15	137.87	3,856.96	-197.18	281.84	14,457,020.07	1,726,779.44	39.80814284	-80.69247683	
3,999.99	31.14	138.45	3,943.87	-234.03	314.82	14,456,983.22	1,726,812.42	39.80804132	-80.69235985	
4,099.99	34.12	138.95	4,028.07	-274.54	350.40	14,456,942.71	1,726,848.00	39.80792973	-80.69223367	
4,199.99	37.11	139.37	4,109.36	-318.60	388.48	14,456,898.65	1,726,886.07	39.80780838	-80.69209862	
4,299.99	40.11	139.73	4,187.49	-366.09	428.95	14,456,851.17	1,726,926.55	39.80767759	-80.69195508	
4,399.99	43.10	140.06	4,262.26	-416.87	471.71	14,456,800.39	1,726,969.31	39.80753773	-80.69180344	
4,418.15	43.64	140.11	4,275.46	-426.43	479.71	14,456,790.82	1,726,977.31	39.80751139	-80.69177507	
<b>Begin 43.64° tangent</b>										
4,499.99	43.64	140.11	4,334.68	-469.77	515.93	14,456,747.48	1,727,013.53	39.80739203	-80.69164662	
4,599.99	43.64	140.11	4,407.05	-522.73	560.19	14,456,694.53	1,727,057.79	39.80724618	-80.69148968	





Planning Report - Geographic

<b>Database:</b>	DB_Aug1919_v14	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3N-14 HM (A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1326.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3N-14 HM (A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,699.99	43.64	140.11	4,479.42	-575.68	604.45	14,456,641.57	1,727,102.05	39.80710034	-80.69133275	
4,799.99	43.64	140.11	4,551.78	-628.64	648.71	14,456,588.62	1,727,146.30	39.80695449	-80.69117581	
4,899.99	43.64	140.11	4,624.15	-681.59	692.96	14,456,535.66	1,727,190.56	39.80680864	-80.69101887	
4,999.99	43.64	140.11	4,696.52	-734.55	737.22	14,456,482.71	1,727,234.82	39.80666280	-80.69086193	
5,099.99	43.64	140.11	4,768.89	-787.50	781.48	14,456,429.75	1,727,279.08	39.80651695	-80.69070500	
5,199.99	43.64	140.11	4,841.25	-840.46	825.74	14,456,376.80	1,727,323.33	39.80637110	-80.69054806	
5,299.99	43.64	140.11	4,913.62	-893.41	869.99	14,456,323.85	1,727,367.59	39.80622525	-80.69039113	
5,399.99	43.64	140.11	4,985.99	-946.36	914.25	14,456,270.89	1,727,411.85	39.80607941	-80.69023419	
5,499.99	43.64	140.11	5,058.36	-999.32	958.51	14,456,217.94	1,727,456.11	39.80593356	-80.69007726	
5,599.99	43.64	140.11	5,130.72	-1,052.27	1,002.76	14,456,164.98	1,727,500.36	39.80578771	-80.68992033	
5,699.99	43.64	140.11	5,203.09	-1,105.23	1,047.02	14,456,112.03	1,727,544.62	39.80564186	-80.68976340	
5,799.99	43.64	140.11	5,275.46	-1,158.18	1,091.28	14,456,059.07	1,727,588.88	39.80549601	-80.68960647	
5,899.99	43.64	140.11	5,347.83	-1,211.14	1,135.54	14,456,006.12	1,727,633.14	39.80535017	-80.68944954	
5,999.99	43.64	140.11	5,420.19	-1,264.09	1,179.79	14,455,953.16	1,727,677.39	39.80520432	-80.68929261	
6,099.99	43.64	140.11	5,492.56	-1,317.05	1,224.05	14,455,900.21	1,727,721.65	39.80505847	-80.68913568	
6,199.99	43.64	140.11	5,564.93	-1,370.00	1,268.31	14,455,847.25	1,727,765.91	39.80491262	-80.68897875	
6,299.99	43.64	140.11	5,637.29	-1,422.96	1,312.57	14,455,794.30	1,727,810.16	39.80476677	-80.68882182	
6,389.54	43.64	140.11	5,702.10	-1,470.38	1,352.20	14,455,746.87	1,727,849.80	39.80463615	-80.68868128	
<b>Begin 8°/100' build/turn</b>										
6,399.99	42.83	139.80	5,709.71	-1,475.86	1,356.80	14,455,741.39	1,727,854.40	39.80462107	-80.68866496	
6,499.99	35.15	136.23	5,787.39	-1,522.69	1,398.73	14,455,694.57	1,727,896.33	39.80449206	-80.68851627	
6,599.99	27.62	131.00	5,872.71	-1,558.75	1,436.20	14,455,658.51	1,727,933.80	39.80439268	-80.68838329	
6,699.99	20.42	122.33	5,964.01	-1,583.33	1,468.49	14,455,633.93	1,727,966.09	39.80432487	-80.68826861	
6,799.99	14.06	105.64	6,059.52	-1,595.95	1,494.98	14,455,621.30	1,727,992.58	39.80428994	-80.68817447	
6,899.99	10.25	71.34	6,157.39	-1,596.38	1,515.14	14,455,620.87	1,728,012.74	39.80428857	-80.68810268	
6,999.99	11.79	29.27	6,255.69	-1,584.60	1,528.59	14,455,632.65	1,728,026.19	39.80432079	-80.68805465	
7,099.99	17.31	5.65	6,352.53	-1,560.85	1,535.06	14,455,656.41	1,728,032.66	39.80438597	-80.68803132	
7,199.99	24.23	354.14	6,446.01	-1,525.57	1,534.43	14,455,691.68	1,728,032.02	39.80448284	-80.68803314	
7,299.99	31.64	347.64	6,534.32	-1,479.47	1,526.70	14,455,737.78	1,728,024.30	39.80460952	-80.68806007	
7,399.99	39.26	343.43	6,615.74	-1,423.44	1,512.04	14,455,793.82	1,728,009.63	39.80476355	-80.68811160	
7,499.99	46.99	340.41	6,688.68	-1,358.56	1,490.71	14,455,858.69	1,727,988.31	39.80494192	-80.68818670	
7,538.69	50.00	339.44	6,714.33	-1,331.34	1,480.76	14,455,885.92	1,727,978.36	39.80501677	-80.68822181	
<b>Begin 10°/100' build/turn</b>										
7,599.98	55.98	337.77	6,751.21	-1,285.80	1,462.89	14,455,931.45	1,727,960.49	39.80514199	-80.68828488	
7,699.98	65.78	335.48	6,799.81	-1,205.75	1,428.20	14,456,011.51	1,727,925.80	39.80536217	-80.68840741	
7,799.98	75.61	333.53	6,832.83	-1,120.69	1,387.59	14,456,096.56	1,727,885.18	39.80559616	-80.68855096	
7,899.98	85.45	331.74	6,849.26	-1,033.21	1,342.29	14,456,184.04	1,727,839.88	39.80583683	-80.68871117	
7,956.30	91.00	330.76	6,851.00	-983.88	1,315.22	14,456,233.37	1,727,812.82	39.80597256	-80.68880692	
<b>Begin 91.00° lateral</b>										
7,999.98	91.00	330.76	6,850.24	-945.77	1,293.89	14,456,271.49	1,727,791.49	39.80607743	-80.68888241	
8,099.98	91.00	330.76	6,848.49	-858.52	1,245.06	14,456,358.73	1,727,742.65	39.80631750	-80.68905522	
8,199.98	91.00	330.76	6,846.75	-771.27	1,196.22	14,456,445.98	1,727,693.82	39.80655757	-80.68922803	
8,299.98	91.00	330.76	6,845.00	-684.03	1,147.39	14,456,533.23	1,727,644.98	39.80679763	-80.68940083	
8,399.98	91.00	330.76	6,843.25	-596.78	1,098.55	14,456,620.48	1,727,596.15	39.80703770	-80.68957364	
8,499.98	91.00	330.76	6,841.50	-509.53	1,049.71	14,456,707.72	1,727,547.31	39.80727777	-80.68974646	
8,599.98	91.00	330.76	6,839.76	-422.29	1,000.88	14,456,794.97	1,727,498.48	39.80751783	-80.68991927	
8,699.98	91.00	330.76	6,838.01	-335.04	952.04	14,456,882.22	1,727,449.64	39.80775790	-80.69009208	
8,799.98	91.00	330.76	6,836.26	-247.79	903.21	14,456,969.46	1,727,400.81	39.80799797	-80.69026490	
8,899.98	91.00	330.76	6,834.52	-160.54	854.37	14,457,056.71	1,727,351.97	39.80823803	-80.69043771	
8,999.98	91.00	330.76	6,832.77	-73.30	805.54	14,457,143.96	1,727,303.14	39.80847810	-80.69061053	
9,099.98	91.00	330.76	6,831.02	13.95	756.70	14,457,231.20	1,727,254.30	39.80871816	-80.69078335	
9,199.98	91.00	330.76	6,829.27	101.20	707.87	14,457,318.45	1,727,205.47	39.80895823	-80.69095617	
9,299.98	91.00	330.76	6,827.53	188.44	659.03	14,457,405.70	1,727,156.63	39.80919829	-80.69112899	
9,399.98	91.00	330.76	6,825.78	275.69	610.20	14,457,492.95	1,727,107.80	39.80943836	-80.69130181	





Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Heaven Hill 3N-14 HM (A)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1326.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3N-14 HM (A)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,499.98	91.00	330.76	6,824.03	362.94	561.36	14,457,580.19	1,727,058.96	39.80967842	-80.69147463	
9,599.98	91.00	330.76	6,822.28	450.18	512.53	14,457,667.44	1,727,010.13	39.80991848	-80.69164746	
9,699.98	91.00	330.76	6,820.54	537.43	463.69	14,457,754.69	1,726,961.29	39.81015855	-80.69182028	
9,799.98	91.00	330.76	6,818.79	624.68	414.86	14,457,841.93	1,726,912.46	39.81039861	-80.69199311	
9,899.98	91.00	330.76	6,817.04	711.93	366.02	14,457,929.18	1,726,863.62	39.81063867	-80.69216594	
9,999.98	91.00	330.76	6,815.30	799.17	317.19	14,458,016.43	1,726,814.79	39.81087874	-80.69233877	
10,099.98	91.00	330.76	6,813.55	886.42	268.35	14,458,103.67	1,726,765.95	39.81111880	-80.69251160	
10,199.98	91.00	330.76	6,811.80	973.67	219.52	14,458,190.92	1,726,717.12	39.81135886	-80.69268443	
10,299.98	91.00	330.76	6,810.05	1,060.91	170.68	14,458,278.17	1,726,668.28	39.81159892	-80.69285726	
10,399.98	91.00	330.76	6,808.31	1,148.16	121.85	14,458,365.42	1,726,619.45	39.81183899	-80.69303010	
10,499.98	91.00	330.76	6,806.56	1,235.41	73.01	14,458,452.66	1,726,570.61	39.81207905	-80.69320293	
10,599.98	91.00	330.76	6,804.81	1,322.66	24.18	14,458,539.91	1,726,521.78	39.81231911	-80.69337577	
10,699.98	91.00	330.76	6,803.06	1,409.90	-24.66	14,458,627.16	1,726,472.94	39.81255917	-80.69354861	
10,799.98	91.00	330.76	6,801.32	1,497.15	-73.49	14,458,714.40	1,726,424.11	39.81279923	-80.69372144	
10,899.98	91.00	330.76	6,799.57	1,584.40	-122.33	14,458,801.65	1,726,375.27	39.81303929	-80.69389428	
10,999.98	91.00	330.76	6,797.82	1,671.64	-171.16	14,458,888.90	1,726,326.44	39.81327935	-80.69406713	
11,099.98	91.00	330.76	6,796.08	1,758.89	-220.00	14,458,976.15	1,726,277.60	39.81351941	-80.69423997	
11,199.98	91.00	330.76	6,794.33	1,846.14	-268.83	14,459,063.39	1,726,228.77	39.81375947	-80.69441281	
11,299.98	91.00	330.76	6,792.58	1,933.38	-317.67	14,459,150.64	1,726,179.93	39.81399953	-80.69458566	
11,399.98	91.00	330.76	6,790.83	2,020.63	-366.50	14,459,237.89	1,726,131.10	39.81423959	-80.69475850	
11,499.98	91.00	330.76	6,789.09	2,107.88	-415.34	14,459,325.13	1,726,082.26	39.81447965	-80.69493135	
11,599.98	91.00	330.76	6,787.34	2,195.13	-464.17	14,459,412.38	1,726,033.43	39.81471971	-80.69510420	
11,699.98	91.00	330.76	6,785.59	2,282.37	-513.01	14,459,499.63	1,725,984.59	39.81495976	-80.69527705	
11,799.98	91.00	330.76	6,783.85	2,369.62	-561.84	14,459,586.87	1,725,935.76	39.81519982	-80.69544990	
11,899.98	91.00	330.76	6,782.10	2,456.87	-610.68	14,459,674.12	1,725,886.92	39.81543988	-80.69562275	
11,999.98	91.00	330.76	6,780.35	2,544.11	-659.51	14,459,761.37	1,725,838.09	39.81567994	-80.69579560	
12,099.98	91.00	330.76	6,778.60	2,631.36	-708.35	14,459,848.62	1,725,789.25	39.81591999	-80.69596846	
12,199.98	91.00	330.76	6,776.86	2,718.61	-757.18	14,459,935.86	1,725,740.42	39.81616005	-80.69614131	
12,299.98	91.00	330.76	6,775.11	2,805.85	-806.02	14,460,023.11	1,725,691.58	39.81640011	-80.69631417	
12,399.98	91.00	330.76	6,773.36	2,893.10	-854.85	14,460,110.36	1,725,642.75	39.81664016	-80.69648703	
12,499.98	91.00	330.76	6,771.61	2,980.35	-903.69	14,460,197.60	1,725,593.91	39.81688022	-80.69665989	
12,599.98	91.00	330.76	6,769.87	3,067.60	-952.52	14,460,284.85	1,725,545.08	39.81712028	-80.69683275	
12,699.97	91.00	330.76	6,768.12	3,154.84	-1,001.36	14,460,372.10	1,725,496.24	39.81736033	-80.69700561	
12,799.97	91.00	330.76	6,766.37	3,242.09	-1,050.19	14,460,459.34	1,725,447.41	39.81760039	-80.69717847	
12,899.97	91.00	330.76	6,764.63	3,329.34	-1,099.03	14,460,546.59	1,725,398.57	39.81784044	-80.69735134	
12,999.97	91.00	330.76	6,762.88	3,416.58	-1,147.86	14,460,633.84	1,725,349.74	39.81808050	-80.69752420	
13,099.97	91.00	330.76	6,761.13	3,503.83	-1,196.70	14,460,721.09	1,725,300.90	39.81832055	-80.69769707	
13,199.97	91.00	330.76	6,759.38	3,591.08	-1,245.53	14,460,808.33	1,725,252.07	39.81856061	-80.69786993	
13,299.97	91.00	330.76	6,757.64	3,678.32	-1,294.37	14,460,895.58	1,725,203.23	39.81880066	-80.69804280	
13,399.97	91.00	330.76	6,755.89	3,765.57	-1,343.20	14,460,982.83	1,725,154.40	39.81904072	-80.69821567	
13,499.97	91.00	330.76	6,754.14	3,852.82	-1,392.04	14,461,070.07	1,725,105.56	39.81928077	-80.69838854	
13,599.97	91.00	330.76	6,752.39	3,940.07	-1,440.87	14,461,157.32	1,725,056.73	39.81952082	-80.69856142	
13,699.97	91.00	330.76	6,750.65	4,027.31	-1,489.71	14,461,244.57	1,725,007.89	39.81976088	-80.69873429	
13,799.97	91.00	330.76	6,748.90	4,114.56	-1,538.54	14,461,331.81	1,724,959.06	39.82000093	-80.69890716	
13,899.97	91.00	330.76	6,747.15	4,201.81	-1,587.38	14,461,419.06	1,724,910.22	39.82024098	-80.69908004	
13,999.97	91.00	330.76	6,745.41	4,289.05	-1,636.21	14,461,506.31	1,724,861.38	39.82048103	-80.69925292	
14,099.97	91.00	330.76	6,743.66	4,376.30	-1,685.05	14,461,593.56	1,724,812.55	39.82072109	-80.69942580	
14,199.97	91.00	330.76	6,741.91	4,463.55	-1,733.88	14,461,680.80	1,724,763.71	39.82096114	-80.69959868	
14,299.97	91.00	330.76	6,740.16	4,550.80	-1,782.72	14,461,768.05	1,724,714.88	39.82120119	-80.69977156	
14,399.97	91.00	330.76	6,738.42	4,638.04	-1,831.55	14,461,855.30	1,724,666.04	39.82144124	-80.69994444	
14,499.97	91.00	330.76	6,736.67	4,725.29	-1,880.39	14,461,942.54	1,724,617.21	39.82168129	-80.70011732	
14,599.97	91.00	330.76	6,734.92	4,812.54	-1,929.22	14,462,029.79	1,724,568.37	39.82192134	-80.70029021	
14,699.97	91.00	330.76	6,733.18	4,899.78	-1,978.06	14,462,117.04	1,724,519.54	39.82216139	-80.70046309	
14,799.97	91.00	330.76	6,731.43	4,987.03	-2,026.89	14,462,204.29	1,724,470.70	39.82240144	-80.70063598	
14,899.97	91.00	330.76	6,729.68	5,074.28	-2,075.73	14,462,291.53	1,724,421.87	39.82264149	-80.70080887	





Planning Report - Geographic

<b>Database:</b>	DB_Aug1919_v14	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3N-14 HM (A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1326.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1326.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3N-14 HM (A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
14,999.97	91.00	330.76	6,727.93	5,161.52	-2,124.56	14,462,378.78	1,724,373.03	39.82288154	-80.70098176	
15,099.97	91.00	330.76	6,726.19	5,248.77	-2,173.40	14,462,466.03	1,724,324.20	39.82312159	-80.70115465	
15,199.97	91.00	330.76	6,724.44	5,336.02	-2,222.23	14,462,553.27	1,724,275.36	39.82336164	-80.70132754	
15,299.97	91.00	330.76	6,722.69	5,423.27	-2,271.07	14,462,640.52	1,724,226.53	39.82360169	-80.70150043	
15,399.97	91.00	330.76	6,720.94	5,510.51	-2,319.90	14,462,727.77	1,724,177.69	39.82384174	-80.70167332	
15,499.97	91.00	330.76	6,719.20	5,597.76	-2,368.74	14,462,815.01	1,724,128.86	39.82408179	-80.70184622	
15,599.97	91.00	330.76	6,717.45	5,685.01	-2,417.57	14,462,902.26	1,724,080.02	39.82432183	-80.70201912	
15,699.97	91.00	330.76	6,715.70	5,772.25	-2,466.41	14,462,989.51	1,724,031.19	39.82456188	-80.70219201	
15,799.97	91.00	330.76	6,713.96	5,859.50	-2,515.24	14,463,076.76	1,723,982.35	39.82480193	-80.70236491	
15,899.97	91.00	330.76	6,712.21	5,946.75	-2,564.08	14,463,164.00	1,723,933.52	39.82504198	-80.70253781	
15,999.97	91.00	330.76	6,710.46	6,033.99	-2,612.92	14,463,251.25	1,723,884.68	39.82528202	-80.70271071	
16,099.97	91.00	330.76	6,708.71	6,121.24	-2,661.75	14,463,338.50	1,723,835.85	39.82552207	-80.70288362	
16,199.97	91.00	330.76	6,706.97	6,208.49	-2,710.59	14,463,425.74	1,723,787.01	39.82576212	-80.70305652	
16,299.97	91.00	330.76	6,705.22	6,295.74	-2,759.42	14,463,512.99	1,723,738.18	39.82600216	-80.70322942	
16,399.97	91.00	330.76	6,703.47	6,382.98	-2,808.26	14,463,600.24	1,723,689.34	39.82624221	-80.70340233	
16,426.96	91.00	330.76	6,703.00	6,406.53	-2,821.44	14,463,623.79	1,723,676.16	39.82630700	-80.70344900	

PBHL/TD 16426.96 MD/6703.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Heaven Hill 3N-14HM BI - hit/miss target - Shape - Point	0.00	0.00	6,703.00	6,406.53	-2,821.44	14,463,623.79	1,723,676.16	39.82630700	-80.70344900	
Heaven Hill 3N-14HM LF - plan misses target center by 0.04usft at 7956.29usft MD (6851.00 TVD, -983.89 N, 1315.23 E) - Point	0.00	0.01	6,851.00	-983.91	1,315.19	14,456,233.35	1,727,812.79	39.80597248	-80.68880704	
Heaven Hill 3N-14HM LF - plan misses target center by 43.68usft at 7932.24usft MD (6850.93 TVD, -1004.91 N, 1326.90 E) - Point	0.00	0.00	6,851.00	-983.91	1,365.19	14,456,233.35	1,727,862.79	39.80597200	-80.68862900	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build	
1,750.00	1,749.68	-3.73	10.24	Begin 5.00° tangent	
3,105.48	3,100.00	-44.13	121.26	Begin 3°/100' build/turn	
4,418.15	4,275.46	-426.43	479.71	Begin 43.64° tangent	
6,389.54	5,702.10	-1,470.38	1,352.20	Begin 8°/100' build/turn	
7,538.69	6,714.33	-1,331.34	1,480.76	Begin 10°/100' build/turn	
7,956.30	6,851.00	-983.88	1,315.22	Begin 91.00° lateral	
16,426.96	6,703.00	6,406.53	-2,821.44	PBHL/TD 16426.96 MD/6703.00 TVD	

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 Office of Oil and Gas  
 JAN 14 2020  
 WV Department of  
 Environmental Protection



4705 02305

WW-9  
(4/16)

API Number 47 - 051 - \_\_\_\_\_  
Operator's Well No. Heaven Hill 3N-14HM

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

**FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN**

Operator Name Tug Hill Operating, LLC OP Code 494510851  
Watershed (HUC 10) Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes  No

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

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

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

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

Company Official Signature Jim Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President, Geoscience

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JAN 14 2020

WV Department of  
Environmental Protection

Subscribed and sworn before me this 18 day of DECEMBER, 20 19

Maureen A Stead

Notary Public

My commission expires 1/28/23

Commonwealth of Pennsylvania - Notary Seal  
MAUREEN A STEAD - Notary Public  
Washington County  
My Commission Expires Jan 28, 2023  
Commission Number 1259926



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 18.43 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jan Unloden*

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

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JAN 14 2020

WV Department of  
Environmental Protection

Title: Oil and Gas Inspector

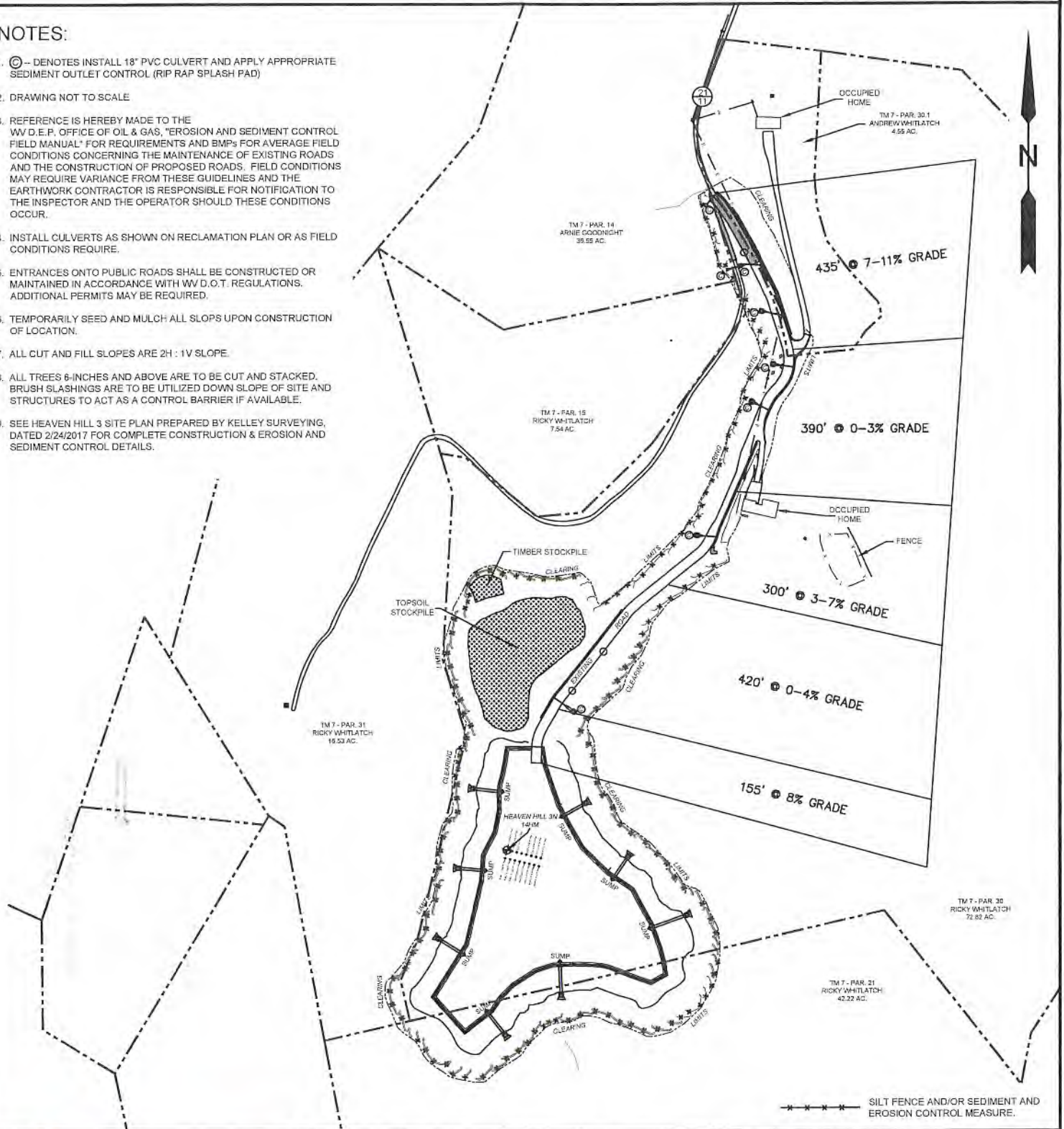
Date: 11/7/19

Field Reviewed? (  ) Yes (  ) No

# PROPOSED HEAVEN HILL 3N - 14HM

**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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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	DATE	SCALE
MARSHALL	MEADE	06/21/2019	NONE
DRAWN BY	JOB NO.		
K.G.M.	8654		

**TUG HILL**  
OPERATING





# Well Site Safety Plan

## Tug Hill Operating, LLC

*11/7/19*

Well Name: Heaven Hill 3N-14HM

Pad Location: Heaven Hill 3

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing-4,406,568.61

Easting -526,237.55

October 2019

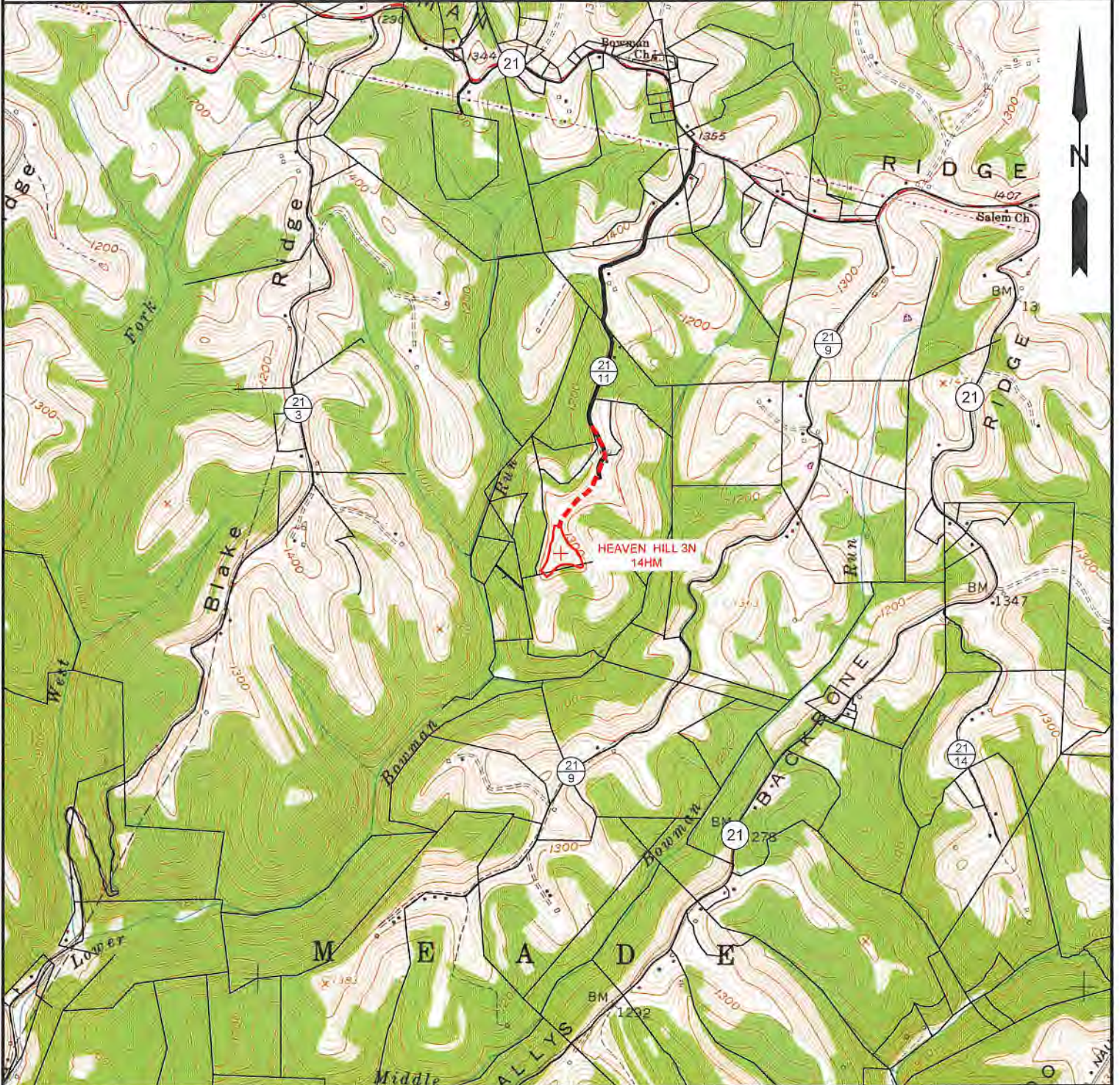
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WV Department of  
Environmental Protection



# PROPOSED HEAVEN HILL 3N - 14HM



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

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



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



**TUG HILL**  
OPERATING

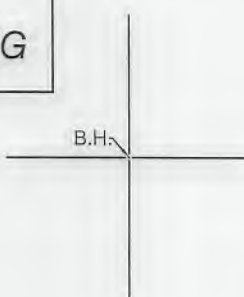


10,331' B.H.

7,532' T.H.

HEAVEN HILL 3N  
WELL 14HM  
TUG HILL OPERATING

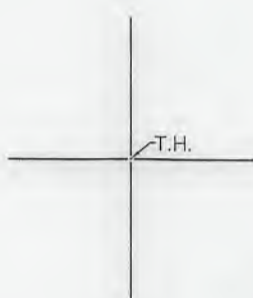
T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°50'00"



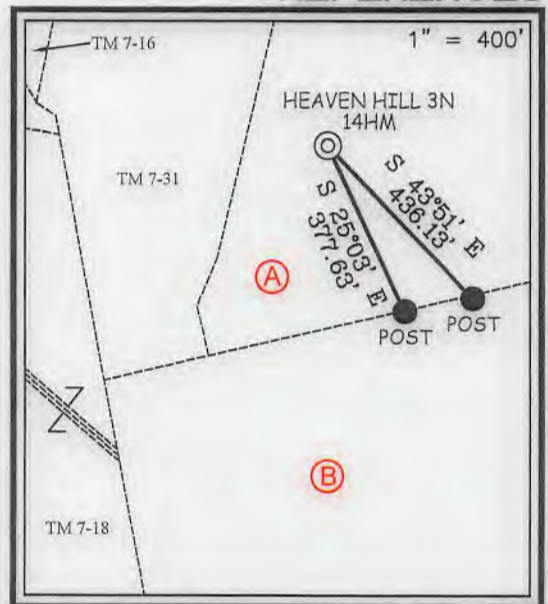
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 478,892.09	E. 1,633,228.37
NAD'83 GEO.	LAT-(N) 39.808687	LONG-(W) 80.693478
NAD'83 UTM (M)	N. 4,406,568.63	E. 526,237.52
<u>LANDING POINT</u>		
NAD'83 S.P.C.(FT)	N. 477,886.0	E. 1,634,527.4
NAD'83 GEO.	LAT-(N) 39.805973	LONG-(W) 80.688807
NAD'83 UTM (M)	N. 4,406,268.7	E. 526,638.4
<u>BOTTOM HOLE</u>		
NAD'83 S.P.C.(FT)	N. 485,347.0	E. 1,630,513.5
NAD'83 GEO.	LAT-(N) 39.826307	LONG-(W) 80.703449
NAD'83 UTM (M)	N. 4,408,521.3	E. 525,377.5

T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"  
2,560' B.H.  
8,978' T.H.



REFERENCES



NOTES ON SURVEY

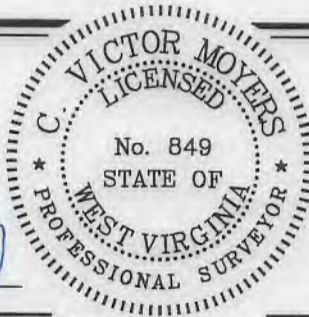
1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'

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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

*C. Victor Moyers*



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

DATE AUGUST 30, 20 19  
REVISED NOVEMBER 5, 20 19  
OPERATORS WELL NO. HEAVEN HILL 3N-14HM  
API WELL NO. 47 - 051 - 02305  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P14HMR2.dwg  
HEAVEN HILL 3-14HM REV4  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION GROUND = 1,329.80' PROPOSED = 1,326.35' WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)  
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

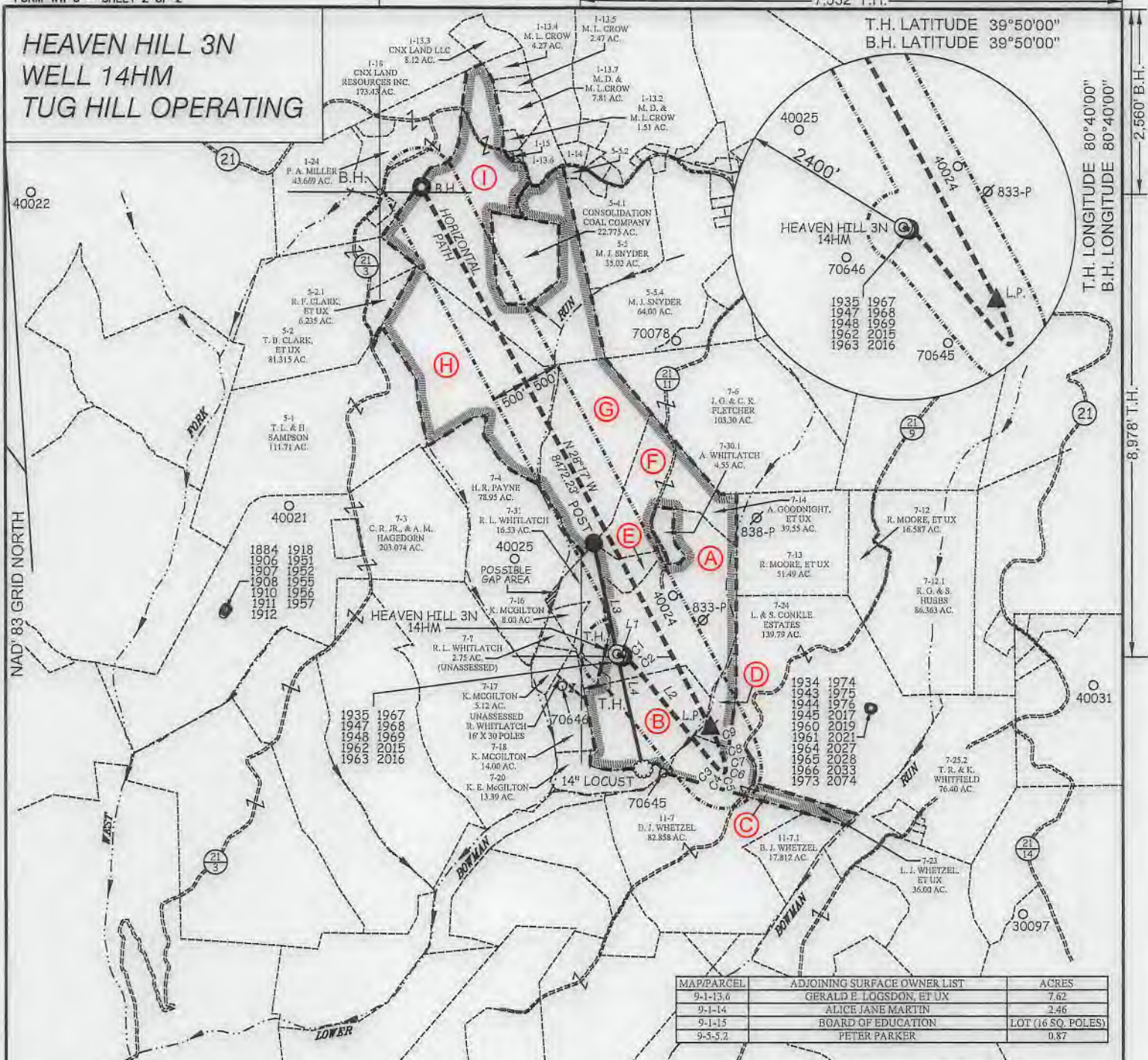
SURFACE OWNER RICKY L. WHITLATCH ACREAGE 72.82±  
ROYALTY OWNER RICKY L. WHITLATCH, ET AL ACREAGE 72.82±  
PROPOSED WORK: LEASE NO. SEE WW-6A1  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH TVD: 6,969' / TMD: 16,427'

COUNTY NAME  
PERMIT

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

DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 5400 D BIG TYLER ROAD  
CHARLESTON, WV 25313





TAG	SURFACE OWNER	PARCEL	ACRES
A	RICKY L. WHITLATCH	9-7-30	72.82
B	RICKY L. WHITLATCH	9-7-21	42.22
C	LARRY J. WHETZEL, ET UX	9-7-23	36.00
D	LAWRENCE & SHIRLEY CONKLE ESTS.	9-7-22	12.00
E	RICKY L. WHITLATCH	9-7-15	7.54
F	ARNIE GOODNIGHT, ET UX	9-7-14	39.55
G	ARNIE GOODNIGHT, ET UX	9-7-5	62.18
H	HELEN ROBERTSON PAYNE	9-5-3	85.26
I	ELMER L. ASTON	9-5-4	108.225

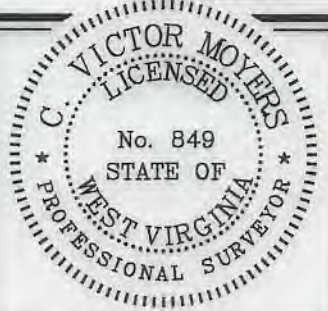
MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-1-13.6	GERALD E. LOGSDON, ET UX	7.62
9-1-14	ALICE JANE MARTIN	2.46
9-1-15	BOARD OF EDUCATION	LOT (16 SQ. POLES)
9-5-5.2	PETER PARKER	0.87

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 69°03' E	129.08'
L2	S 38°56' E	1368.16'
L3	N 11°59' W	1564.05'
L4	S 12°55' E	1617.67'

CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	102.22'	380.31'	S 49°06' E	101.91'
C2	423.34'	5544.83'	S 40°32' E	423.24'
C3	136.65'	699.18'	S 43°55' E	136.43'
C4	48.27'	152.47'	S 59°51' E	48.06'
C5	29.03'	31.72'	N 82°52' E	28.03'
C6	34.12'	52.91'	N 22°33' E	33.53'
C7	57.27'	256.05'	N 02°40' W	57.15'
C8	229.01'	1148.77'	N 16°30' W	228.63'
C9	336.39'	2895.10'	N 25°06' W	336.20'

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(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
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**BOTTOM HOLE**  
 NAD'83 S.P.C.(FT) N. 485,347.0 E. 1,630,513.5  
 NAD'83 GEO. LAT-(N) 39.826307 LONG-(W) 80.703449  
 NAD'83 UTM (M) N. 4,408,521.3 E. 525,377.5



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

P.S. 849 *C. Victor Moyers*

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

SCALE 1" = 2000' FILE NO. 8654P14HMR2.dwg  
 HEAVEN HILL 3-14HM REV4  
 DATE AUGUST 30, 20 19  
 REVISED NOVEMBER 5, 20 19  
 OPERATORS WELL NO. HEAVEN HILL 3N-14HM  
 API WELL NO. 47  
 STATE COUNTY PERMIT

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

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD  
 FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME PERMIT



WW-6A1  
(5/13)

Operator's Well No. Heaven Hill 3N-14HM

**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

**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. Miller *Amy Miller*  
 Its: Permitting Specialist - Appalachia Region

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APR 14 2020

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15557	9-7-30	A	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780	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	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	N/A	N/A	Exploration LLC: 36/148
10*16021	9-7-23	C	TOMMY BONAR AND TANYA S BONAR	TH EXPLORATION LLC	1/8+	925	N/A	N/A	Exploration LLC: 36/148
10*16115	9-7-23	C	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925	N/A	N/A	Exploration LLC: 36/148
10*16121	9-7-23	C	ISAIAH BENNETT	TH EXPLORATION LLC	1/8+	933	N/A	N/A	Exploration LLC: 36/148
10*16247	9-7-23	C	CAROL RIGGLE PARSLEY AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925	N/A	N/A	Exploration LLC: 36/148
10*17415	9-7-23	C	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919	N/A	N/A	Exploration LLC: 36/148
10*17506	9-7-23	C	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919	N/A	N/A	Exploration LLC: 36/148
10*17507	9-7-23	C	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919	N/A	N/A	Exploration LLC: 36/148
10*47051.256.1	9-7-23	C	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881	N/A	N/A	Exploration LLC: 36/148
10*47051.256.7	9-7-23	C	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.8	9-7-23	C	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.9	9-7-23	C	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.10	9-7-23	C	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.11	9-7-23	C	JOHN L MASON	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.12	9-7-23	C	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.13	9-7-23	C	WILLIAM W CRAIG	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.14	9-7-23	C	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.15	9-7-23	C	ROY E AND CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904	N/A	N/A	Exploration LLC: 36/148
10*47051.256.16	9-7-23	C	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*47051.256.17	9-7-23	C	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904	N/A	N/A	Exploration LLC: 36/148
10*47051.256.18	9-7-23	C	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913	N/A	N/A	Exploration LLC: 36/148
10*47051.256.19	9-7-23	C	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907	N/A	N/A	Exploration LLC: 36/148
10*47051.256.20	9-7-23	C	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907	N/A	N/A	Exploration LLC: 36/148
10*47051.256.21	9-7-23	C	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904	N/A	N/A	Exploration LLC: 36/148
10*47051.256.22	9-7-23	C	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913	N/A	N/A	Exploration LLC: 36/148
10*47051.256.23	9-7-23	C	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913	N/A	N/A	Exploration LLC: 36/148
10*47051.256.24	9-7-23	C	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	913	N/A	N/A	Exploration LLC: 36/148
10*15486	9-7-22	D	RICHARD NEAL NORRIS AND CAROL NORRIS	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*15487	9-7-22	D	WILLIAM C RUTAN	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*15489	9-7-22	D	DONALD T SNOODGRASS AND LILA F SNOODGRASS	TH EXPLORATION LLC	1/8+	915	N/A	N/A	Exploration LLC: 36/148
10*15492	9-7-22	D	HEATHER WHORTON STILLION AND CHRISTOPHER STILLION	TH EXPLORATION LLC	1/8+	905	N/A	N/A	Exploration LLC: 36/148
10*15609	9-7-22	D	MICHELLE R WILHELM	CHEVRON USA INC	1/8+	834	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15610	9-7-22	D	SARAH STEVENS	CHEVRON USA INC	1/8+	834	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15611	9-7-22	D	ROBERT S ZEHNDER	CHEVRON USA INC	1/8+	834	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15612	9-7-22	D	VERA SHIRLENE & ARTHUR WORKMAN	CHEVRON USA INC	1/8+	837	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15613	9-7-22	D	THOMAS L STEVENS	CHEVRON USA INC	1/8+	836	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15614	9-7-22	D	DAVID F RINE	CHEVRON USA INC	1/8+	837	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15615	9-7-22	D	PAUL WAYNE RINE	CHEVRON USA INC	1/8+	837 133	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15616	9-7-22	D	PHILLIP C RINE	CHEVRON USA INC	1/8+	836 332	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15617	9-7-22	D	GLADYS M RINE	CHEVRON USA INC	1/8+	836 329	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15618	9-7-22	D	CHARLES A RINE	CHEVRON USA INC	1/8+	835 22	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15619	9-7-22	D	SHARON M REYNOLDS	CHEVRON USA INC	1/8+	840 322	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15620	9-7-22	D	GLADYS RUCKMAN	CHEVRON USA INC	1/8+	840 319	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15621	9-7-22	D	KATHERINE A STALNAKER	CHEVRON USA INC	1/8+	840 325	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15622	9-7-22	D	JAY LEROY RINE	CHEVRON USA INC	1/8+	840 351	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15623	9-7-22	D	SUSAN JANE WHEELER	CHEVRON USA INC	1/8+	847 473	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15624	9-7-22	D	RONALD A ZEHNDER	CHEVRON USA INC	1/8+	847 213	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15625	9-7-22	D	LAWRENCE W STIRLING	CHEVRON USA INC	1/8+	852 384	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15626	9-7-22	D	ROBERT J SEAVER	CHEVRON USA INC	1/8+	854 77	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15627	9-7-22	D	PAULA R SEAVER	CHEVRON USA INC	1/8+	853 483	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15628	9-7-22	D	JENNIFER SEAVER	CHEVRON USA INC	1/8+	853 272	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15629	9-7-22	D	DANIEL L RINE	CHEVRON USA INC	1/8+	860 86	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15630	9-7-22	D	JANE L HELFER	CHEVRON USA INC	1/8+	836 342	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15631	9-7-22	D	DAVID HEINZEROTH	CHEVRON USA INC	1/8+	836 219	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15632	9-7-22	D	MARIAN D JONES	CHEVRON USA INC	1/8+	835 38	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15633	9-7-22	D	ROGER W GATTS	CHEVRON USA INC	1/8+	835 35	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15634	9-7-22	D	JAMES W DAYTON	CHEVRON USA INC	1/8+	847 567	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15635	9-7-22	D	ELLEN L BETTINAZZI	CHEVRON USA INC	1/8+	847 496	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15636	9-7-22	D	JOSEPH ASTON JR BY HIS ATTORNEY-IN-FACT MELVIN J. ASTON	CHEVRON USA INC	1/8+	848 280	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15637	9-7-22	D	DONALD ASTON	CHEVRON USA INC	1/8+	848 274	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15638	9-7-22	D	PAUL J ASTON A/K/A JACK ASTON	CHEVRON USA INC	1/8+	848 277	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148

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10*15639	9-7-22	D	DELLA M BURKEY A/K/A MAXINE ASTON	CHEVRON USA INC	1/8+	848	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15640	9-7-22	D	EMMA JANE DAVIS A/K/A EMA ASTON	CHEVRON USA INC	1/8+	848	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15641	9-7-22	D	HENRY W ASTON	CHEVRON USA INC	1/8+	847	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15642	9-7-22	D	KENNETH L DAYTON	CHEVRON USA INC	1/8+	852	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15643	9-7-22	D	NORMAN G JOHNSON	CHEVRON USA INC	1/8+	848	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15644	9-7-22	D	RONALD BEN LAUGHTON	CHEVRON USA INC	1/8+	852	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15645	9-7-22	D	KAREN K OLDFIELD	CHEVRON USA INC	1/8+	854	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15646	9-7-22	D	JUDITH A CIRONE	CHEVRON USA INC	1/8+	848	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15647	9-7-22	D	KENNETH WENDELL OLDFIELD	CHEVRON USA INC	1/8+	861	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15648	9-7-22	D	MARTHA CRAWFORD	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15649	9-7-22	D	MARY JANE DANIEL	CHEVRON USA INC	1/8+	858	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15650	9-7-22	D	MARY GLADYS KUHN BY ATTORNEY IN FACT CONNIE LYONS	CHEVRON USA INC	1/8+	860	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15651	9-7-22	D	THOMAS G ASTON	CHEVRON USA INC	1/8+	860	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15652	9-7-22	D	ISAAC R ASTON A/K/A IKE ASTON	CHEVRON USA INC	1/8+	886	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15653	9-7-22	D	EMILY M HENCEROOTH	CHEVRON USA INC	1/8+	862	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15654	9-7-22	D	GEORGE E HENNINGER	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15655	9-7-22	D	ANNA EMERSON A/K/A ANNIE ASTON	CHEVRON USA INC	1/8+	864	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15656	9-7-22	D	PATTY L MYERS	CHEVRON USA INC	1/8+	867	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15657	9-7-22	D	MARY MARGARET ASTON	CHEVRON USA INC	1/8+	868	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15658	9-7-22	D	GLEN MATTHEW LAUGHTON	CHEVRON USA INC	1/8+	873	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15659	9-7-22	D	WILLIAM E DAYTON BY HIS AIF	CHEVRON USA INC	1/8+	871	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15660	9-7-22	D	DOUGLAS PAUL HENCEROOTH BY HIS AIF	CHEVRON USA INC	1/8+	871	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15662	9-7-22	D	LARRY LEE CONKLE	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15663	9-7-22	D	ROY A CONKLE SR AND LORIE A CONKLE	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148

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10*15664	9-7-22	D	TERESA A. HUGHES	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15666	9-7-22	D	BRENDA J WHEZEL	CHEVRON USA INC	1/8+	863	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15673	9-7-22	D	DIANE B ASTON	CHEVRON USA INC	1/8+	864	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15679	9-7-22	D	CARA BONAR FRIESE AND GEORGE H FRIESE	TH EXPLORATION LLC	1/8+	905	481	N/A	N/A
10*15680	9-7-22	D	ROBERTA JANE CLAYTON	TH EXPLORATION LLC	1/8+	905	485	N/A	N/A
10*15688	9-7-22	D	JOSH GARY AND CHRISTINA M GARY	TH EXPLORATION LLC	1/8+	905	487	N/A	N/A
10*15689	9-7-22	D	JOHN LEROY BAKER AND CYNTHIA A BAKER	TH EXPLORATION LLC	1/8+	905	491	N/A	N/A
10*15690	9-7-22	D	ROBERT WHORTON AND LINDSAY WHORTON	TH EXPLORATION LLC	1/8+	905	489	N/A	N/A
10*15728	9-7-22	D	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	TH EXPLORATION LLC	1/8+	905	483	N/A	N/A
10*15729	9-7-22	D	DONNA KAY ALLEN AND ROGER ALLEN	TH EXPLORATION LLC	1/8+	905	493	N/A	N/A
10*15747	9-7-22	D	WILLIAM H BAKER	TH EXPLORATION LLC	1/8+	905	499	N/A	N/A
10*15748	9-7-22	D	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	905	495	N/A	N/A
10*15749	9-7-22	D	DIANA SMITH KNIGHT	TH EXPLORATION LLC	1/8+	905	497	N/A	N/A
10*16019	9-7-22	D	ROGER E GALLAGHER AND CONIE M GALLAGHER	TH EXPLORATION LLC	1/8+	905	503	N/A	N/A
10*16029	9-7-22	D	MARTHA ASHWORTH KNIGHT	TH EXPLORATION LLC	1/8+	905	505	N/A	N/A
10*16049	9-7-22	D	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905	518	N/A	N/A
10*16050	9-7-22	D	WILLIAM L GALLAGHER	TH EXPLORATION LLC	1/8+	905	512	N/A	N/A
10*16114	9-7-22	D	ROBERT SANDFORD BLACK AND JOAN BLACK	TH EXPLORATION LLC	1/8+	905	510	N/A	N/A
10*16123	9-7-22	D	PHYLLIS R GATTO	TH EXPLORATION LLC	1/8+	905	520	N/A	N/A
10*16138	9-7-22	D	LARRY W KUHN AND VICKIE B KUHN, HUSBAND AND WIFE	TH EXPLORATION LLC	1/8+	905	522	N/A	N/A
10*16139	9-7-22	D	HUBERT DEAN KUHN AND ANDREA KUHN	TH EXPLORATION LLC	1/8+	905	524	N/A	N/A
10*16140	9-7-22	D	HENDY PAUL KUHN	TH EXPLORATION LLC	1/8+	905	526	N/A	N/A
10*16141	9-7-22	D	HOWARD L KUHN AND MARY L KUHN	TH EXPLORATION LLC	1/8+	905	528	N/A	N/A
10*16177	9-7-22	D	JOSEPHINE BROWN	TH EXPLORATION LLC	1/8+	905	530	N/A	N/A
10*16179	9-7-22	D	DANA BERRY COPELAND	TH EXPLORATION LLC	1/8+	905	532	N/A	N/A
10*16287	9-7-22	D	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	905	534	N/A	N/A
10*16384	9-7-22	D	DANIELLE BONAR OSTER AND LOUIS MICHAEL OSTER	TH EXPLORATION LLC	1/8+	905	501	N/A	N/A
10*16389	9-7-22	D	CHARLES BERRY	TH EXPLORATION LLC	1/8+	905	508	N/A	N/A
10*16423	9-7-22	D	GAIL L VAUGHN AND LARRY VAUGHN	TH EXPLORATION LLC	1/8+	905	536	N/A	N/A
10*16426	9-7-22	D	RENE J RUTAN	TH EXPLORATION LLC	1/8+	905	538	N/A	N/A
10*16440	9-7-22	D	MELANIE C WILKINS AND ROBERT WILKINS	TH EXPLORATION LLC	1/8+	927	462	N/A	N/A
10*16513	9-7-22	D	LOWELL D AND JANICE L KNIGHT	TH EXPLORATION LLC	1/8+	927	458	N/A	N/A
10*16546	9-7-22	D	WALTER C RINE AND CHERYL A RINE	TH EXPLORATION LLC	1/8+	927	456	N/A	N/A
10*16558	9-7-22	D	PAUL BONAR KNIGHT AND SUZANNE L HOPKINS-KNIGHT	TH EXPLORATION LLC	1/8+	927	460	N/A	N/A
10*16820	9-7-22	D	ROBERTA ANN GIBB AND DAVID S GIBB	TH EXPLORATION LLC	1/8+	919	237	N/A	N/A
10*16844	9-7-22	D	HOLLY A LONGFELLOW	TH EXPLORATION LLC	1/8+	927	454	N/A	N/A
10*16845	9-7-22	D	TRACY L AND KEITH W BARNBY	TH EXPLORATION LLC	1/8+	927	452	N/A	N/A
10*16896	9-7-22	D	MARTHA J BLACK	TH EXPLORATION LLC	1/8+	927	450	N/A	N/A
10*17365	9-7-22	D	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927	468	N/A	N/A
10*17370	9-7-22	D	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927	470	N/A	N/A
10*17497	9-7-22	D	SUZANNA DOOLING AND MICHAEL DOOLING	TH EXPLORATION LLC	1/8+	927	464	N/A	N/A
10*17584	9-7-22	D	WILLIAM THOMAS BONAR AND MONICA BONAR	TH EXPLORATION LLC	1/8+	927	466	N/A	N/A
10*17625	9-7-22	D	CHARLES E BROWN	TH EXPLORATION LLC	1/8+	929	624	N/A	N/A
10*18256	9-7-22	D	JEFFREY STEPHEN GOODMAN	TH EXPLORATION LLC	1/8+	929	1	N/A	N/A
10*18415	9-7-22	D	CHAD LONGFELLOW	TH EXPLORATION LLC	1/8+	932	575	N/A	N/A

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10*18514	9-7-22	D	JOHN R BERRY	TH EXPLORATION LLC	1/8+	933	N/A	N/A	N/A
10*18522	9-7-22	D	MARTIN REED BROWN AND DOLORES BROWN	TH EXPLORATION LLC	1/8+	933	N/A	N/A	N/A
10*19391	9-7-22	D	JEFF BERRY AND AMY BERRY	TH EXPLORATION LLC	1/8+	940	N/A	N/A	N/A
10*19406	9-7-22	D	WILLIAM KENT BROWN AND KAYLEEN BROWN	TH EXPLORATION LLC	1/8+	939	N/A	N/A	N/A
10*21960	9-7-22	D	AKRON BAPTIST TEMPLE	TH EXPLORATION LLC	1/8+	960	N/A	N/A	N/A
10*47051.295.3	9-7-22	D	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.4	9-7-22	D	LLOYD D MOORE	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.5	9-7-22	D	DALE R MOORE	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.6	9-7-22	D	MARY BURKHART	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.7	9-7-22	D	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.9	9-7-22	D	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*47051.295.10	9-7-22	D	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A
10*47051.295.11	9-7-22	D	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A
10*47051.295.12	9-7-22	D	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905	N/A	N/A	N/A
10*47051.295.13	9-7-22	D	THE DOLLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE	TH EXPLORATION LLC	1/8+	904	N/A	N/A	N/A
10*15557	9-7-15	E	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15558	9-7-14	F	ARNIE AND BOBBIE B GOODNIGHT	CHEVRON USA INC	1/8+	777	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*15558	9-7-5	G	ARNIE AND BOBBIE B GOODNIGHT	CHEVRON USA INC	1/8+	777	N/A	N/A	Chevron USA Inc to Tug Hill Exploration LLC: 36/148
10*47051.223.9	9-7-5	G	LINDA DELBERT	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.10	9-7-5	G	ROBERT E GORBY AND NANCY GORBY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.11	9-7-5	G	ELIZABETH ESTEP	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.12	9-7-5	G	ALICE GORBY MARTIN	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.13	9-7-5	G	JAMES A GORBY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*21588	9-5-3	H	LAWRENCE ALLEN WAYT	CHESAPEAKE APPALACHIA LLC	1/8+	687	Statoil USA Onshore Properties Inc: 22/646	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	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	Chevron USA Inc to TH Exploration LLC: 42/435
10*15481	9-5-4	I	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*15482	9-5-4	I	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*15594	9-5-4	I	IVAN F GORBY	TH EXPLORATION LLC	1/8+	695	N/A	N/A	N/A
10*15595	9-5-4	I	JOSEPH D DAKAN	CHESAPEAKE APPALACHIA LLC	1/8+	695	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to Tug Hill Exploration LLC: 960/409
10*15596	9-5-4	I	JOHN E GORBY	CHESAPEAKE APPALACHIA LLC	1/8+	695	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to Tug Hill Exploration LLC: 960/409
10*15597	9-5-4	I	KAREN S GAST	CHESAPEAKE APPALACHIA LLC	1/8+	694	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to Tug Hill Exploration LLC: 960/409
10*15598	9-5-4	I	ADA HAZEL GONTA	CHESAPEAKE APPALACHIA LLC	1/8+	695	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to Tug Hill Exploration LLC: 960/409

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	
10*15599	9-5-4	I	PATSY JO RAJU	CHESAPEAKE APPALACHIA LLC	1/8+	694	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to Tug Hill Exploration LLC: 36/148	Chevron USA Inc to Tug Hill Exploration LLC: 960/409
10*15686	9-5-4	I	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*15750	9-5-4	I	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16058	9-5-4	I	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16118	9-5-4	I	RUBY RIDDLE JACKSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16383	9-5-4	I	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16414	9-5-4	I	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16415	9-5-4	I	TERENCE J ANDERSON AND NANCY J ANDERSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16416	9-5-4	I	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16424	9-5-4	I	ROBERT J RIGBY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16424	9-5-4	I	ROBERT J RIGBY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16448	9-5-4	I	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16478	9-5-4	I	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16514	9-5-4	I	ALEX R CAMPBELL & JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16515	9-5-4	I	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16516	9-5-4	I	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16545	9-5-4	I	ROBERT G FOUNDS AND ELLEN FOUNDS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16662	9-5-4	I	RICHARD THOMAS MIMS & VICKIE J MIMS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16666	9-5-4	I	MICHAEL P PYLE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16667	9-5-4	I	CHARLES F PYLE AND GAIL ANN PYLE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16668	9-5-4	I	JACK J PYLE AND MERRILEE ANN PYLE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16669	9-5-4	I	JOHN S DADO AND PATRICIA S DADO	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16686	9-5-4	I	CHERYLE M TRACEY	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A	N/A
10*16688	9-5-4	I	SHERRYL PYLE BAIR	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A	N/A
10*16689	9-5-4	I	JOHN C FOUNDS	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A	N/A
10*16689	9-5-4	I	JOHN C FOUNDS	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A	N/A
10*16690	9-5-4	I	RICARDO ORTIZ	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16720	9-5-4	I	DONNA ELAINE BRASKETT	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16738	9-5-4	I	CHARLES A RINE AND RUTH K RINE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A	N/A
10*16747	9-5-4	I	WILLIAM DALE BRASKETT	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16787	9-5-4	I	HERBERT B CAMPBELL & DONNA D CAMPBELL	TH EXPLORATION LLC	1/8+	942	N/A	N/A	N/A	N/A
10*16798	9-5-4	I	PATRICK A RANKIN AND ROBIN A RANKIN	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16800	9-5-4	I	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16802	9-5-4	I	CHRISTOPHER RICHARDSON AND TAMMY RICHARDSON	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16804	9-5-4	I	WILLIAM N TAYLOR AND SHERRY D TAYLOR	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16806	9-5-4	I	VIRGINIA WHITMAN TRUST DTD 7-25-1984 JON WHITMAN TRUSTEE	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16807	9-5-4	I	DAVID TULLER AND SUSAN STORTS TULLER	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16808	9-5-4	I	MICHAEL L ORTIZ	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16815	9-5-4	I	HAROLD W PYLE	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16819	9-5-4	I	TERESA ORTIZ BIGGS	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16821	9-5-4	I	SHEILA BRASKETT WEICHEY	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16836	9-5-4	I	RICK A STORTS AND LENORE A STORTS	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A
10*16837	9-5-4	I	TERRY L POFF AND THELMA A POFF	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A	N/A
10*16838	9-5-4	I	ROBERT G FUNARI	TH EXPLORATION LLC	1/8+	821	N/A	N/A	N/A	N/A
10*16839	9-5-4	I	JAMES B FOUNDS AND LYNN M MOWERY	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A	N/A

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10*16863	9-5-4	I	TINA MOORE	TH EXPLORATION LLC	1/8+	921 334	N/A	N/A	N/A
10*16868	9-5-4	I	MICHAEL W STORTS AND JESSICA M STORTS	TH EXPLORATION LLC	1/8+	921 504	N/A	N/A	N/A
10*16879	9-5-4	I	MARK E STORTS AND LESLEY A STORTS	TH EXPLORATION LLC	1/8+	921 501	N/A	N/A	N/A
10*16880	9-5-4	I	BEVERLY ANN STORTS	TH EXPLORATION LLC	1/8+	921 498	N/A	N/A	N/A
10*16902	9-5-4	I	MARY BARCAW DUKE	TH EXPLORATION LLC	1/8+	921 105	N/A	N/A	N/A
10*16962	9-5-4	I	DENNIS P FLORY AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921 70	N/A	N/A	N/A
10*16976	9-5-4	I	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921 343	N/A	N/A	N/A
10*16977	9-5-4	I	JEREMY COCHENOUR	TH EXPLORATION LLC	1/8+	921 102	N/A	N/A	N/A
10*16987	9-5-4	I	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921 355	N/A	N/A	N/A
10*16989	9-5-4	I	BRITTANY RICHARDSON	TH EXPLORATION LLC	1/8+	921 376	N/A	N/A	N/A
10*16991	9-5-4	I	MARYELLEN FOUNDS AND LAUREN FOUNDS	TH EXPLORATION LLC	1/8+	921 79	N/A	N/A	N/A
10*16996	9-5-4	I	THOMAS RANKIN	TH EXPLORATION LLC	1/8+	917 75	N/A	N/A	N/A
10*17130	9-5-4	I	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921 137	N/A	N/A	N/A
10*17155	9-5-4	I	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921 118	N/A	N/A	N/A
10*17156	9-5-4	I	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921 139	N/A	N/A	N/A
10*17157	9-5-4	I	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921 367	N/A	N/A	N/A
10*17198	9-5-4	I	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921 141	N/A	N/A	N/A
10*17205	9-5-4	I	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921 524	N/A	N/A	N/A
10*17208	9-5-4	I	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	TH EXPLORATION LLC	1/8+	921 86	N/A	N/A	N/A
10*17208	9-5-4	I	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	TH EXPLORATION LLC	1/8+	921 86	N/A	N/A	N/A
10*17274	9-5-4	I	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921 474	N/A	N/A	N/A
10*17275	9-5-4	I	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921 373	N/A	N/A	N/A
10*17276	9-5-4	I	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921 526	N/A	N/A	N/A
10*17278	9-5-4	I	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921 121	N/A	N/A	N/A
10*17339	9-5-4	I	JOSEPH W FOUNDS	TH EXPLORATION LLC	1/8+	921 76	N/A	N/A	N/A
10*17377	9-5-4	I	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921 123	N/A	N/A	N/A
10*17416	9-5-4	I	ANDREW M ORTIZ	TH EXPLORATION LLC	1/8+	921 346	N/A	N/A	N/A
10*17438	9-5-4	I	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921 476	N/A	N/A	N/A
10*17440	9-5-4	I	KENDRA WALISA	TH EXPLORATION LLC	1/8+	927 484	N/A	N/A	N/A
10*17441	9-5-4	I	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921 522	N/A	N/A	N/A
10*17442	9-5-4	I	SHAME ALLEN AND MENDY JEAN ALLEN	TH EXPLORATION LLC	1/8+	921 134	N/A	N/A	N/A
10*17443	9-5-4	I	MICHELLE MORROW-BACK	TH EXPLORATION LLC	1/8+	921 337	N/A	N/A	N/A
10*17444	9-5-4	I	KELLY FOUNDS CAMPBELL	TH EXPLORATION LLC	1/8+	921 99	N/A	N/A	N/A
10*17449	9-5-4	I	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921 150	N/A	N/A	N/A
10*17482	9-5-4	I	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927 487	N/A	N/A	N/A
10*17483	9-5-4	I	RICHARD I PYLE	TH EXPLORATION LLC	1/8+	921 359	N/A	N/A	N/A
10*17484	9-5-4	I	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921 330	N/A	N/A	N/A
10*17485	9-5-4	I	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921 91	N/A	N/A	N/A
10*17526	9-5-4	I	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921 370	N/A	N/A	N/A
10*17527	9-5-4	I	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921 111	N/A	N/A	N/A
10*17538	9-5-4	I	CHERYL RANKIN-KING	TH EXPLORATION LLC	1/8+	952 160	N/A	N/A	N/A
10*17552	9-5-4	I	JOHN BEVACQUA AND PATRICIA A BEVACQUA	TH EXPLORATION LLC	1/8+	921 144	N/A	N/A	N/A
10*17554	9-5-4	I	MICHAEL T RANKIN	TH EXPLORATION LLC	1/8+	921 361	N/A	N/A	N/A
10*17561	9-5-4	I	ROGER L TYRRELL AND KATHRYN L TYRRELL	TH EXPLORATION LLC	1/8+	927 24	N/A	N/A	N/A
10*17564	9-5-4	I	JAMES RONALD NICKOLSON AND TRACEY E NICKOLSON	TH EXPLORATION LLC	1/8+	921 340	N/A	N/A	N/A
10*17565	9-5-4	I	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921 327	N/A	N/A	N/A
10*17566	9-5-4	I	NATHAN P ERDOSSY AND BARBARA T ERDOSSY	TH EXPLORATION LLC	1/8+	921 108	N/A	N/A	N/A
10*17588	9-5-4	I	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921 325	N/A	N/A	N/A

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10*17589	9-5-4	I	MARY CHRISTINE MCKENNA	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A
10*17744	9-5-4	I	SAM PRESLEY EZELL DIVERSICARE OF PELL CITY	TH EXPLORATION LLC	1/8+	921	N/A	N/A	N/A
10*17983	9-5-4	I	HOLLY SUE CUTHBERT	TH EXPLORATION LLC	1/8+	925	N/A	N/A	N/A
10*18021	9-5-4	I	CHRISTOPHER A HANIFAN AND JACKIE F HANIFAN	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A
10*18022	9-5-4	I	DALE P WARD AND CYNTHIA J WARD THE ESTATE OF AGNES IRENE EZELL CLARK BY DAVID M EDWARDS, EXECUTOR	TH EXPLORATION LLC	1/8+	927	N/A	N/A	N/A
10*19524	9-5-4	I	KENDRA WALISA	TH EXPLORATION LLC	1/8+	942	N/A	N/A	N/A
10*19692	9-5-4	I	KENDRA WALISA	TH EXPLORATION LLC	1/8+	924	N/A	N/A	N/A
10*19692	9-5-4	I	KENDRA WALISA	TH EXPLORATION LLC	1/8+	924	N/A	N/A	N/A
10*19693	9-5-4	I	MARIO R FUNARI	TH EXPLORATION LLC	1/8+	936	N/A	N/A	N/A
10*19695	9-5-4	I	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION LLC	1/8+	944	N/A	N/A	N/A
10*19695.1	9-5-4	I	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION LLC	1/8+	944	N/A	N/A	N/A
10*19939	9-5-4	I	ROBERT J MILLS & SHERRA SUE MILLS AGENA FOUNDATION INC MORGAN STANLEY WEALTH MANAGEMENT	TH EXPLORATION LLC	1/8+	949	N/A	N/A	N/A
10*22630	9-5-4	I	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1025	N/A	N/A	N/A
10*25628	9-5-4	I	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1025	N/A	N/A	N/A
10*47051.223.1	9-5-4	I	JEAN ANNE GORBY STORCH AIF JOHN HERMAN STORCH	TH EXPLORATION LLC	1/8+	877	N/A	N/A	N/A
10*47051.223.2	9-5-4	I	STEPHANIE SCHIEFER AND GEOFFREY SCHIEFER	TH EXPLORATION LLC	1/8+	885	N/A	N/A	N/A
10*47051.223.3	9-5-4	I	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	885	N/A	N/A	N/A
10*47051.223.5	9-5-4	I	HAROLD S BROWN II AND MARIA A BROWN	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A
10*47051.223.6	9-5-4	I	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A
10*47051.223.7	9-5-4	I	JACK R WILSON JR AND JANE A WILSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.8	9-5-4	I	DAVID M WILSON	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A
10*47051.223.14	9-5-4	I	JUSTIN RINE AND BECKY RINE	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A
10*47051.223.15	9-5-4	I	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.16	9-5-4	I	WILLIAM K STERN AND BETTY L STERN	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.17	9-5-4	I	RALPH E HUNTER JR AND CHARLOTTE HUNTER	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.18	9-5-4	I	BRITNEY MENEAR	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.19	9-5-4	I	JASON RINE AND HEATHER RINE	TH EXPLORATION LLC	1/8+	907	N/A	N/A	N/A
10*47051.223.20	9-5-4	I	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.21	9-5-4	I	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.22	9-5-4	I	SALLY DAVIS COLE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.22	9-5-4	I	SALLY DAVIS COLE	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.23	9-5-4	I	RONALD S CRIM	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.23	9-5-4	I	RONALD S CRIM	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.24	9-5-4	I	JO DEE K DAVIS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.25	9-5-4	I	JOANNE WELCH	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.25	9-5-4	I	JOANNE WELCH	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.26	9-5-4	I	WENDY L SMARKEL	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.26	9-5-4	I	WENDY L SMARKEL	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.27	9-5-4	I	TIMI J HOBBS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.27	9-5-4	I	TIMI J HOBBS	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.28	9-5-4	I	KAREN S GAST	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.30	9-5-4	I	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A
10*47051.223.33	9-5-4	I	NANCY C HOUSLEY	TH EXPLORATION LLC	1/8+	908	N/A	N/A	N/A

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11/4/2020

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*47051.223.33	9-5-4	I	NANCY C HOUSLEY	TH EXPLORATION LLC	1/8+	908 187	N/A	N/A	N/A
10*47051.223.34	9-5-4	I	JOHN CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 170	N/A	N/A	N/A
10*47051.223.34	9-5-4	I	JOHN CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 170	N/A	N/A	N/A
10*47051.223.35	9-5-4	I	DEBRA L CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 192	N/A	N/A	N/A
10*47051.223.35	9-5-4	I	DEBRA L CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 192	N/A	N/A	N/A

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 WV Department of  
 Environmental Protection  
 1/20



DPS LAND SERVICE  
6000 TOWN CENTER BLVD STE 145  
DANBURG, PA 15317-5841

BOOK 0036 PAGE 0148

STATE OF WEST VIRGINIA §  
  §  
COUNTY OF MARSHALL §

Jan Post  
MARSHALL County 12:43:01 PM  
Instrument No 1404876  
Date Recorded 05/20/2016  
Document Type ABN  
Pages Recorded 20  
Book-Page 36-148  
Recording Fee \$20.00  
Additional \$8.00

**ASSIGNMENT AND CONVEYANCE**

**THIS ASSIGNMENT AND CONVEYANCE** (the "**Assignment**") is made and entered into this 17th day of May, 2016 (the "**Effective Date**"), by and between **CHEVRON U.S.A. INC.** (hereinafter "**Assignor**") and **TH EXPLORATION, LLC** (hereinafter "**Assignee**") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated May 2, 2016 (the "**Acreage Trade Agreement**"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

**WITNESSETH:**

**WHEREAS**, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in **Exhibit "A"**, and as depicted in **Exhibits "A-1"** and **"A-2"**, attached hereto and made a part hereof (hereinafter the "**Leases**"); and

**WHEREAS**, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

**NOW, THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

1. **Assignment.** Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon, except that Assignor accepts and reserves from this Assignment the Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia.

**TO HAVE AND TO HOLD** such right, title and interest in and to the Leases unto Assignee or its designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. **Special Warranty.** Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the Conveyed Interests since the time that Assignor obtained its interests in the Leases. Assignor 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 this Assignment, unto the Assignee and its respective successors and assigns, against the lawful claims of Assignor, and all persons claiming, or to claim, the same or any part thereof, by, through or under Assignor.

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WV Department of  
Environmental Protection

**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 7<sup>th</sup> day of September, 2018.

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

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WV Department of  
Environmental Protection



DPS LAND SERVICES CORP  
6000 TOWN CENTER BOULEVARD, SUITE 145  
CANDONSBURG PA 15317-5841

BOOK 960 PAGE 0409

**MEMORANDUM OF AGREEMENT**

This Memorandum of Agreement is entered into this 14<sup>th</sup> day of February, 2018, between **TUG HILL OPERATING, LLC (THQ)**, a Texas limited liability company, whose address is 1320 S. University Blvd., Suite 500, Fort Worth, TX 76107 and **CHEVRON U.S.A., INC. (Chevron)**, a Pennsylvania corporation, whose address is 700 Cherrington Parkway, Coraopolis, PA 15108.


**PARTIES AND AGREEMENT REFERENCE:** THQ and Chevron entered into a letter agreement ("Letter Agreement") dated February 14<sup>th</sup>, 2018 (the "Commencement Date") outlining pursuit of definitive agreements to allow THQ the right to permit, drill, extract, produce and market oil and gas from those certain oil and gas interests controlled by Chevron in the Meade District of Marshall County, West Virginia, as more fully described in Exhibit A attached hereto, made a part hereof, and incorporated herein by reference.

1. **TERM:** The rights granted in the Letter Agreement will terminate upon the earlier of (i) one hundred eighty (180) days from the Commencement Date, (ii) Chevron's revocation of the rights granted in the Letter Agreement, or (iii) the parties entering into the definitive agreement described in the Letter Agreement. Upon termination of the Letter Agreement under subsection (i) or (ii) of the immediately preceding sentence, THQ will record a surrender of this Memorandum and withdraw any related well work permit requests.

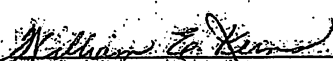
2. **MEMORANDUM FOR RECORDING PURPOSES ONLY:** This Memorandum is for recording purposes only and does not supplement or supersede the parties' respective rights set forth in the Letter Agreement or other agreements.

**IN WITNESS WHEREOF**, the parties have signed their names hereto as of the date first above written.

**Tug Hill Operating, LLC**

  
By: Sean Willis  
Its: VP, Engineering &  
Development Manager - Appalachia

**Chevron U.S.A., Inc.**

  
By: William E. Kerns  
Its: Attorney-in-Fact

Marshall County  
Jan Pest, Clerk  
Instrument 1436705  
02/16/2018 @ 02:16:57 PM  
AGREEMENT  
Book 960 @ Page 409  
Pages Recorded 2  
Recording Cost \$ 11.00

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JAN 14 2020

WV Department of  
Environmental Protection



January 7, 2020

WV Department of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
Attention: Laura Adkins

RE: Heaven Hill 3N-14HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Heaven Hill 3N-14HM 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 [amiller@tug-hilop.com](mailto:amiller@tug-hilop.com).

Sincerely,

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

Amy L. Miller  
Permitting Specialist – Appalachia Region

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(1/12)

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

**Date of Notice Certification:** 01/07/2020

**API No. 47-** 051 - \_\_\_\_\_

**Operator's Well No.** Heaven Hill 3N-14HM

**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>526,237.52</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,568.63</u>
District:	<u>Meade</u>	Public Road Access:	<u>Yeater Lane (Co. Rt. 21/11)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Ricky L. Whittlatch</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:  *PLEASE CHECK ALL THAT APPLY  <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED  <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED  <input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" 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		<p><b>OOG OFFICE USE ONLY</b></p> <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input checked="" type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input checked="" type="checkbox"/> RECEIVED  <input checked="" type="checkbox"/> RECEIVED  <input checked="" type="checkbox"/> RECEIVED
<p><b>RECEIVED</b> Office of Oil and Gas JAN 14 2020</p> <p>WV Department of Environmental Protection</p>		

**Required Attachments:**

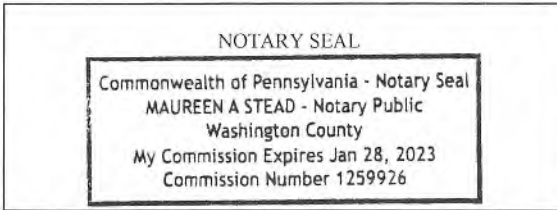
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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**Certification of Notice is hereby given:**

THEREFORE, I Amy L. Miller, 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. Miller <i>Amy Miller</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>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 7 day of JANUARY 2020  
*Maureen A Stead* Notary Public  
 My Commission Expires 1/28/23

**Oil and Gas Privacy Notice:**

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



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: 1/7/2020 Date Permit Application Filed: 1/8/2020

Notice of:

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

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

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

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

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

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

COAL OWNER OR LESSEE  
Name: Murray Energy Corporation  
Address: 46226 National Road  
St. Clairsville, OH 43950

COAL OPERATOR  
Name: Same as above coal owner  
Address:

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

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

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

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

\*Please attach additional forms if necessary

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WV Department of  
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WW-6A  
(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
Well Pad Name: Heaven Hill 3

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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



WW-6A  
(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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

4705 023-5

WW-6A  
(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
Well Pad Name: Heaven Hill 3

### **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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WW-6A  
(8-13)

API NO. 47-051 -  
OPERATOR WELL NO. Heaven Hill 3N-14HM  
Well Pad Name: Heaven Hill 3

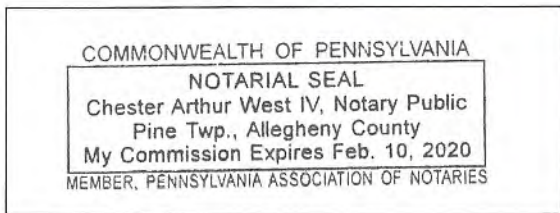
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amiller@tug-hillop.com *amy miller*

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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 31 day of DEC, 2019.

*[Signature]* Notary Public

My Commission Expires 2-10-2020

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**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 – 14HM  
District: Meade (Residence #1)  
State: WV

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

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

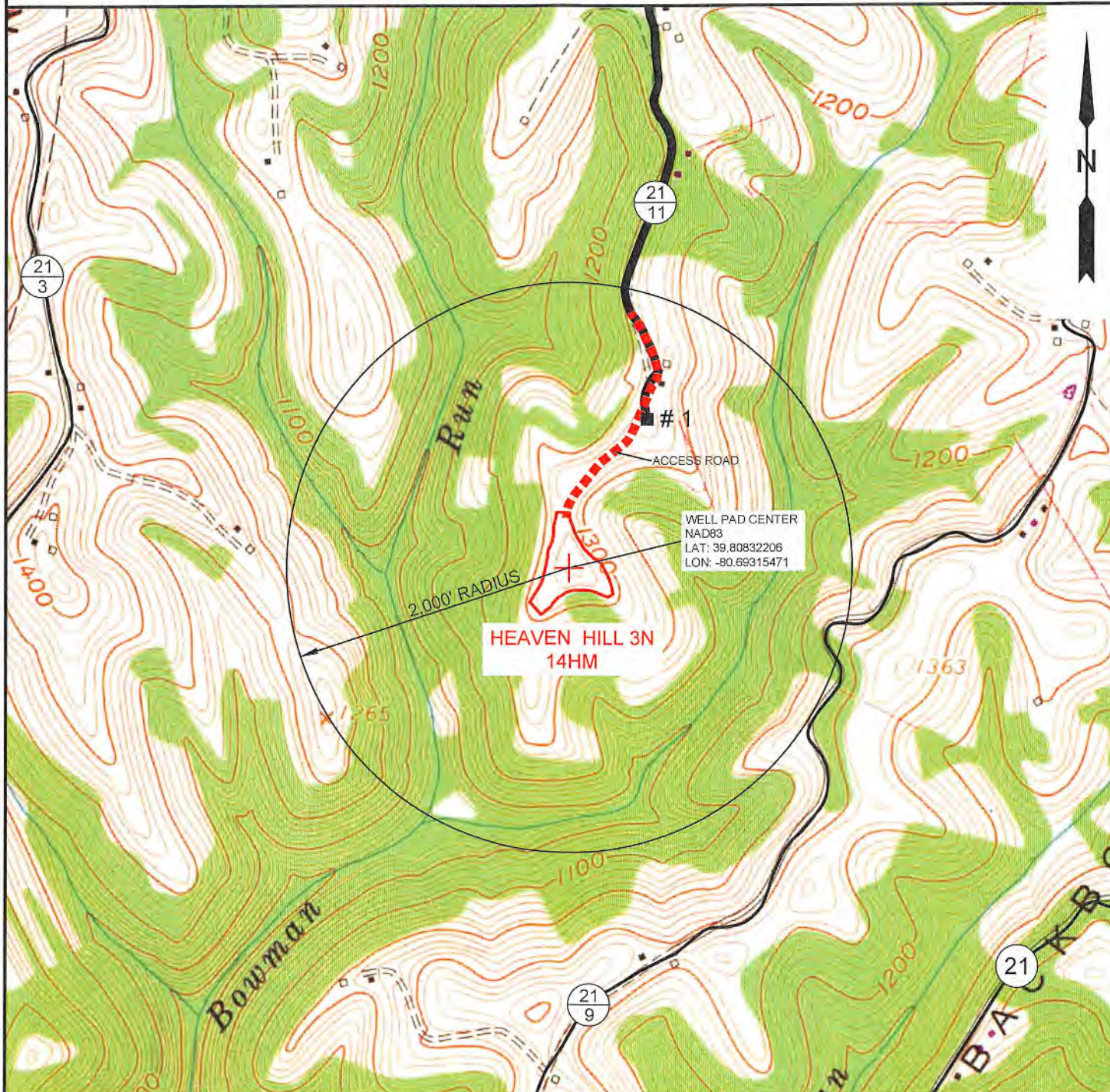
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# PROPOSED HEAVEN HILL 3N - 14HM



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) 462-5634  
www.slsurveys.com

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

**TUG HILL**  
OPERATING



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**Office of Oil and Gas**

**114 2020**

**WV Department of  
Environmental Protection**



**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF ENTRY FOR PLAT SURVEY**

**Notice Time Requirement:** Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

**Date of Notice:** 5/13/2019      **Date of Planned Entry:** 5/20/2019

**Delivery method pursuant to West Virginia Code § 22-6A-10a**

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

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

**Notice is hereby provided to:**

SURFACE OWNER(s)

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

Name: Andrew Whitlatch  
Address: 982 Yeater Lane  
Glen Easton, WV 26039

Name: Arnie Goodnight ET UX  
Address: 102 Goodnight Lane  
Moundsville, WV 26041

COAL OWNER OR LESSEE

Name: Murray Energy Corp.  
Address: 46226 National Road  
St. Clairsville, OH 43950

MINERAL OWNER(s)

Name: Ricky L. Whitlatch  
Address: 1044 Yeater Lane  
Glen Easton, WV 26039      **\*\*SEE SUPPLEMENT PAGE\*\***

*\*please attach additional forms if necessary*

**RECEIVED**  
**Office of Oil and Gas**  
**JAN 14 2020**  
**WV Department of Environmental Protection**

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>Lat: 39.8083194, Long: -80.6931660</u>
County: <u>Marshall</u>	Public Road Access: <u>Yeater Lane (CO. Rt. 21/11)</u>
District: <u>Meade</u>	Watershed: <u>HUC-10 Fish Creek</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Ricky L. Whitlatch</u>

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: <u>Tug Hill Operating, LLC</u>	Address: <u>380 Southpointe Blvd., Soutpointe Plaza II, Suite 200</u>
Telephone: <u>724-0749-8388</u>	<u>Canonsburg, PA 15317</u>
Email: <u>amiller@tug-hilop.com</u>	Facsimile: <u>724-338-2030</u>

**Oil and Gas Privacy Notice:**

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

Operator Well No. Heaven Hill Unit 3N-14HM

**WW-6A3 Notice of Entry for Plat Survey ..... Attachment 1 of 1**

**Mineral Owner(s):**

**Name:** Arnie Goodnight ET UX  
**Address:** 102 Goodnight Lane  
Moundsville, WV 26041

Bounty Minerals III Acquisitions, LLC  
777 Main Street – Suite 850  
Ft. Worth, TX 76102

Andrew Whitlatch  
982 Yeater Lane  
Glen Easton, WV 26039

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Operator Well No. Heaven Hill Unit 3N-14HM

**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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**JAN 14 2020**

**WV Department of**  
**Environmental Protection**





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

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

**Byrd E. White, III**  
Secretary of Transportation/  
Commissioner of Highways

**January 7, 2020**

**Jimmy Wriston, P. E.**  
Deputy Secretary/  
Deputy Commissioner

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

Subject: DOH Permit for the Heaven Hill Unit 3 Pad, Marshal County

Heaven Hill 3N-14HM Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2016-0126 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.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a STATEWIDE 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.

Very Truly Yours,

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

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Cc: Jonathan White  
Tug Hill Operating, LLC  
CH, OM, D-6  
File



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

**Well No. Heaven Hill 3N-14HM**

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

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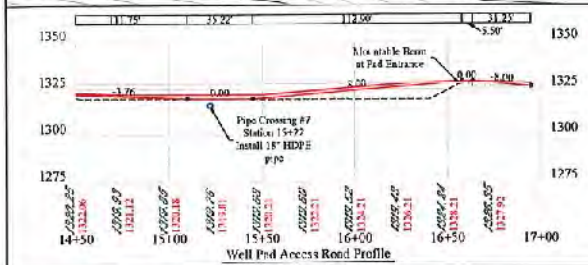
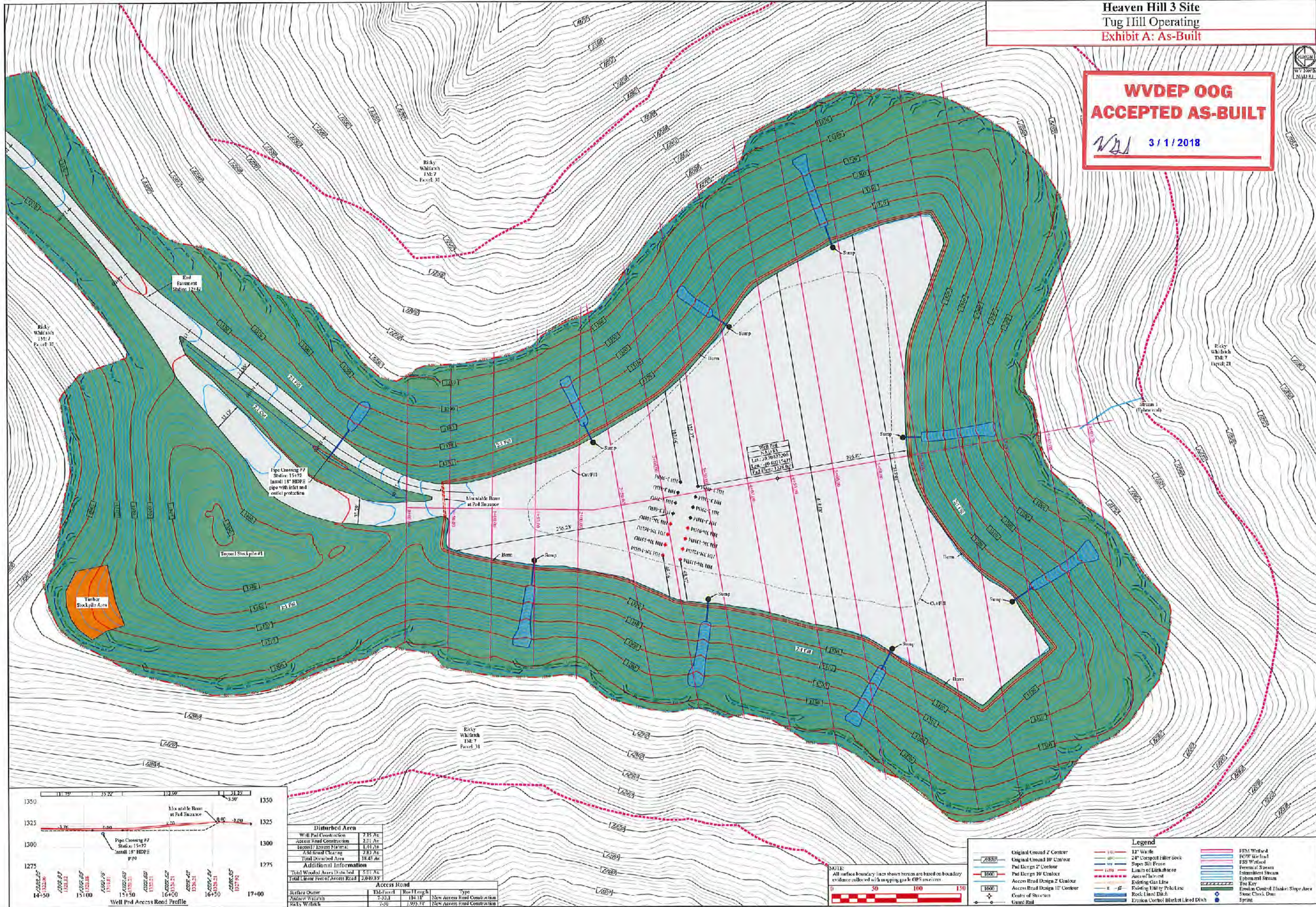






**WVDEP OOG  
ACCEPTED AS-BUILT**

WJL 3/1/2018



Disturbed Area	
Well Pad Construction	7.15 Ac
Access Road Construction	2.11 Ac
Access/Erosion Control	1.91 Ac
Additional Clearing	7.83 Ac
<b>Total Disturbed Area</b>	<b>19.00 Ac</b>

Additional Information	
Total Wooded Area Disturbed	7.01 Ac
Total Linear Foot of Access Road	2,800.15'

Access Road		
Stationer	EM-Panel	Box Height
Andrew Whitlock	7-22-1	18-11"
Ricky Whitlock	7-20	1-05-78"

NOTE: All surface boundary lines shown herein are based on boundary evidence collected with mapping grade GPS receivers.

Legend	
Original Ground 2' Contour	12" Wall
Original Ground 10' Contour	24" Corrugated Filter Rock
Pad Design 2' Contour	Slope 50% Footer
Pad Design 10' Contour	ESS Wall
Access Road Design 2' Contour	Perennial Stream
Access Road Design 10' Contour	Intermittent Stream
Center of Structure	Ephemeral Stream
Utility Pole	Tree Key
Existing Gas Line	Erosion Control Blanket Slope Area
Rock-lined Ditch	Shore Check Dam
Erosion Control Blanket-lined Ditch	Springs

Revision: Design Modification  
 Design: Access Road As-Built  
 Date: 02-28-2017  
 02-28-2017  
 02-29-2018

**TUG HILL OPERATING**

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

**Kelly Surveying**  
 1000 W. Main Street  
 Charleston, WV 25302  
 304.263.1111  
 www.kellysurveying.com

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

Date: 02/13/2018  
 Scale: As Shown  
 Designed By: ZS  
 File No:  
 Sheet 10 of 14