



west virginia department of environmental protection

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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, October 23, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
550 BAILEY AVENUE, SUITE 510

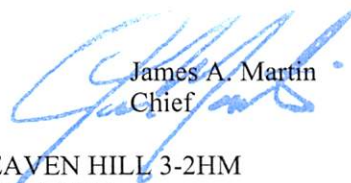
FORT WORTH, TX 76107

Re: Permit approval for HEAVEN HILL 3-2HM
47-051-01962-00-00

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 3-2HM
Farm Name: RICKY L. WHITLATCH
U.S. WELL NUMBER: 47-051-01962-00-00
Horizontal 6A / New Drill
Date Issued: 10/23/2017

Promoting a healthy environment.

10/27/2017

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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

WW-6B
(04/15)

API NO. 47-051 -
OPERATOR WELL NO. Heaven Hill 3-2HM
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 3-2HM Well Pad Name: Heaven Hill 3

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

4) Elevation, current ground: 1341' Elevation, proposed post-construction: 1326'

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No No

JL
7/5/17

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6724 - 6776' thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,876'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 19,298'

11) Proposed Horizontal Leg Length: 11,788'

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 No _____

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(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine
Depth: 1031' TVD and 310' subsea level
Seam: Pittsburgh #8
Owner: Murray Energy / Consolidated Coal Co.

WW-6B
(04/15)API NO. 47- 051 -
OPERATOR WELL NO. Heaven Hill 3-2HM
Well Pad Name: Heaven Hill 3

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	125'	120'	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	1,130'	1,120'	1128ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,130'	1,120'	1128ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,815'	2,805'	919ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	19,298'	19,288'	4921ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,918'	
Liners							

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7/5/17

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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Environmental Protection

WW-6B
(10/14)

API NO. 47-051 -
OPERATOR WELL NO. Heaven Hill 3-2HM
Well Pad Name: Heaven Hill 3

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7/2/17

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 29,470,000 lb proppant and 455,628 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

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25) Proposed borehole conditioning procedures:

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

*Note: Attach additional sheets as needed.

WW-6B Attachment to #24

Conductor, Coal and Fresh Water Casing Cement:

Premium NE-1 + 2% CaCl

- Premium NE-1 – Class A Portland API Spec
- CaCl – Calcium Chloride

Intermediate Casing:

Premium NE-1 + 2% bwoc CaCl₂ + 46.5% Fresh Water

- Premium NE-1 – Class A Portland API spec
- CaCl₂ – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

Kick Off Plug:

Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L + 38% Fresh Water

- Class H – Increased Compressive Strength Cement
- Sodium Metasilicate – Free Water Control; Early Strength Additive
- R-3 – Cement Retarder
- FP-13L – Anti-Foaming Agent
- CaCl₂ – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

Production Casing Cement:

Lead: *50:50 (Poz:Premium NE-1) + .2% R-3 + .2% MPA-170 + .75 gal/100sk FP-13L*

Tail: *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*

- Poz – Fly Ash
- Premium NE-1 – Class A Portland API spec
- R-3 – Cement Retarder
- MPA-170 – Gelling Agent
- FP-13L – Anti-Foaming Agent
- ASA-301 – Free Water Control Agent
- BA-10A – Bonding Agent
- ASCA-1 – Solubility Additive

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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 DPS GIS (12/19/2016) 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

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Permit well - Heaven Hill 3-2HM

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
4705100862	Consolidation Coal Co	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be a shallow producing well that has since been plugged	Well was plugged 11/14/2001. A field survey was conducted to locate this well and it was found plugged at the location shown on the well plat.
4705100856	Hope Natural Gas	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be a shallow producing well that has since been plugged	State records are incomplete. Plug date 12/5/2000. A field survey was conducted to locate this well and it was found plugged at the location shown on the well plat.
4705170685	Hope Natural Gas	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be an old shallow producing well	Old well, records are incomplete. A field survey was conducted to locate this well and no evidence of this well was found.

WV Geological & Economic Survey. Well: County = 51 Permit = 00856 Report Time: Thursday, June 08, 21

Well Reassignment Information: Reassigned From
 OLD_COUNTY OLD_PERMIT NEW_COUNTY NEW_PERMIT
 51 12299 51 856

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705100856	Marshall	856	Meade	Queen Easton	Cameron	30.790203	-80.659639	626868.6	4404429.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLET
4705100856	12/8/2000		Plugging	Kannah & Delores McCasle	M-90				McElroy Coal Co	McElroy Coal Company
4705100856	JUL		Unknown	Proty Map	Samuel Riggs		571			Hope Natural Gas Company

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD
4705100856	12/8/2000	11/14/2000					unclassified	unclassified	not available	unknown	unknown	
4705100856	JUL	JUL							not available	unknown	unknown	

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Stratigraphy data for this well

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100856	12/8/2000	0

There is no Sample data for this well

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5.11. Area of Review-- The permittee shall review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation, a report of which the permittee shall provide to the Office with the application for well work. All existing active, plugged, abandoned, and undocumented wells within a five hundred feet (500') radius of the surface location of the well that is the subject of the new application and within a five hundred feet (500') radius of the lateral section of the wellbore shall be considered for the potential of unintended fracture propagation. The report shall detail those wells that are known or reasonably expected to penetrate a depth that could be within the range of the fracture propagation. The detail shall include at a minimum the API number, operator name, total depth, perforated formation(s) and producing zones not perforated.

WVGES
"Pipeline"

Select County: (051) Marshall
Enter Permit #: 0070685
Get Data Reset

Select datatypes: (Check All)
 Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/ShowWater Logs Blm Hole Loc

Table Descriptions
[County Code Translations](#)
[Permit Numbering Series](#)
[Lease Index](#)
[Contact Information](#)
[Disclaimer](#)
[WVGIS Map](#)
["Loading..." New](#)

WV Geological & Economic Survey: **Well: County = 51 Permit = 0070685** Report Time: Thursday, June 0

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705170585	Marshall	70685	Meade	Glen Easton	Camern	39.77540	-80.575587	527773.7	4402899.8

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AY	COMPLETION
4705170585	unknown	Prpy Map	Jerry May		285			Hope Natural Gas Company	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMY	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TY
4705170585

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 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

WVGES
"Pipeline"

Select County: (051) Marshall
Enter Permit #: 00862
Get Data Reset

Select datatypes: (Check All)
 Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/ShowWater Logs Blm Hole Loc

Table Descriptions
[County Code Translations](#)
[Permit Numbering Series](#)
[Lease Index](#)
[Contact Information](#)
[Disclaimer](#)
[WVGIS Map](#)
["Loading..." New](#)

WV Geological & Economic Survey: **Well: County = 51 Permit = 00862**

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70685	51	00862

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705100862	Marshall	00862	Meade	Glen Easton	Camern	39.78524	-80.691665	526397.9	4454953.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AY	COMPLETION	PROP_VO	PROP_TI
4705100862	11/14/2001	..	Completed	Eric A. Winzel	M-242		74		Consolidation Coal Co	Consolidation Coal Co			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMY	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	YMD	NEW_FYD	Q_BEP
4705100862

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100862	11/14/2001	0

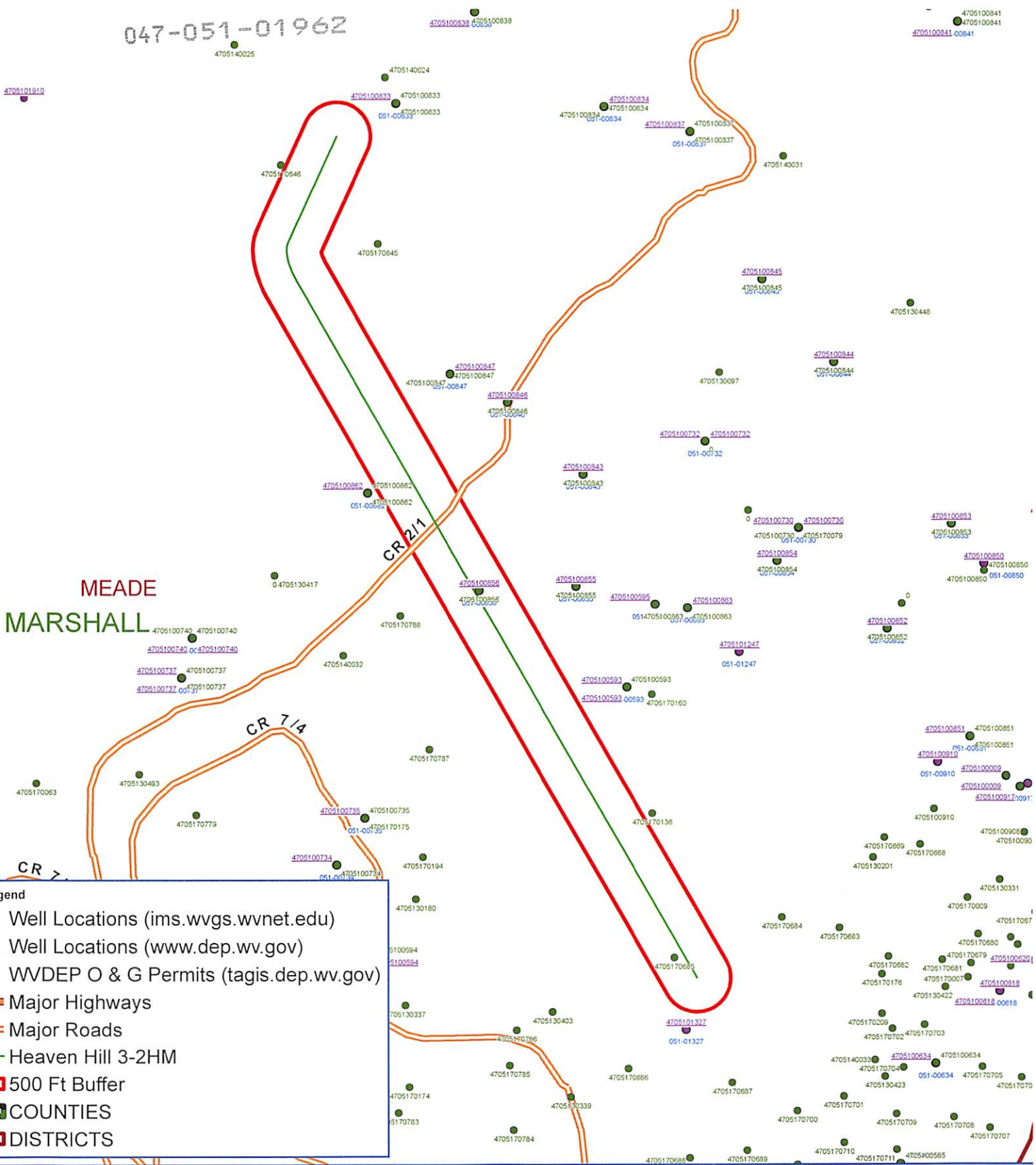
There is no Sample data for this well

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Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Well Locations (www.dep.wv.gov)
- WVDEP O & G Permits (tagis.dep.wv.gov)
- Major Highways
- Major Roads
- Heaven Hill 3-2HM
- 500 Ft Buffer
- COUNTIES
- DISTRICTS



Heaven Hill 3-2HM Meade District Marshall County, WV

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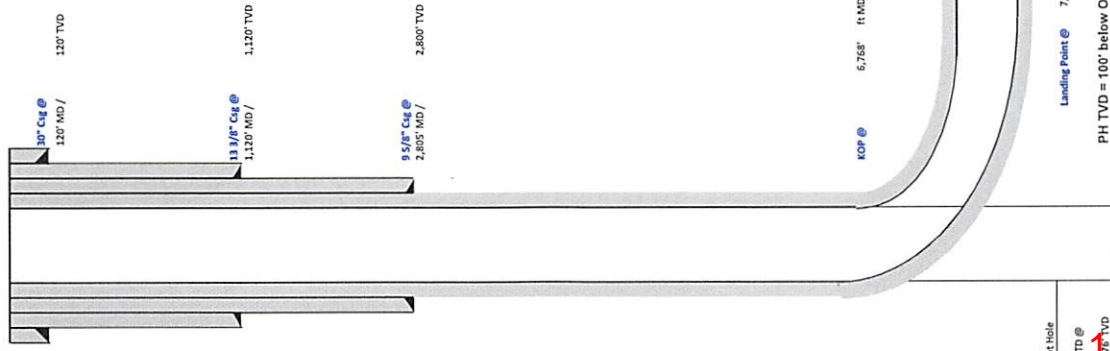
Map Created: May 31, 2017
Map Current As Of: May 31, 2017

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





WELL NAME: Heaven Hill 3-2HM
 STATE: West Virginia COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 1,326' GL Elev: 1,326'
 TD: 19,288'
 TH Latitude: 39.80859199
 TH Longitude: -80.69327779
 BH Latitude: 39.77468932
 BH Longitude: -80.67452011



Formation	Depth TVD
Deepest Fresh Water	1038
Sewickley Coal	946
Pittsburgh Coal	1031
Big Lime	2060
Weir	2486
Berea	2684
Gordon	2946
Rhinestreet	6068
Genesee/Burkett	6586
Tully	6617
Hamilton	6650
Marcellus	6724
Landing Depth	6771
Onondaga	6776
Pilot Hole Depth	6876

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,120'	1,120'	48	H40	Surface
Intermediate 1	12.1/4	9 5/8	2,805'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	19,288'	6,977'	30	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Sacks	Class	Density	Fluid Type	Centralizer Notes	
338	A	15.6	Air	None	
1,142	A	15.6	Air	3 Centralizers at equal distance	
897	A	15	Air	1 Centralizer every other ft	
4,343	A	14.5	Air / SOBMA	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to s/c	

Handwritten signature and date: 7/5/17

Lateral TD @ 19,288' ft MD
6,977 ft TVD

Landing Point @ 7,500' MD / 6,771' TVD
PH TVD = 100' below Onondaga Top

Pilot Hole PH TD @ 6,876' TVD

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01/27/2017

Well: Heaven Hill 3-2 HM
Site: Heaven Hill 3
Project: Marshall County, West Virginia
Design: rev2



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.00	
2	1400.00	5.00	204.37	1649.69	-9.93	0.50	2.00	0.00	0.00	KOP Begin 2'100' build
3	2903.09	5.00	204.37	2900.00	-109.57	-49.63	2.00	204.37	7.34	KOP Begin 5.00' tangent
4	4052.99	5.00	204.37	3999.04	-184.33	2.00	0.00	0.00	80.99	Begin 2'100' build
5	4052.99	28.09	204.37	3999.04	-184.33	2.00	0.00	0.00	300.74	Begin 28.09' tangent
6	6767.98	28.09	204.37	6388.66	-1568.52	-710.49	2.00	0.00	1159.21	Begin 10'100' build/turn
7	7499.63	89.00	150.00	6771.27	-2119.10	-580.50	10.00	-58.11	1716.28	Begin 89.00' lateral section
8	19287.71	89.00	150.00	6977.00	-12326.32	5312.64	0.00	0.00	3422.45	PBHL/TD



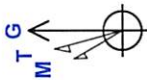
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

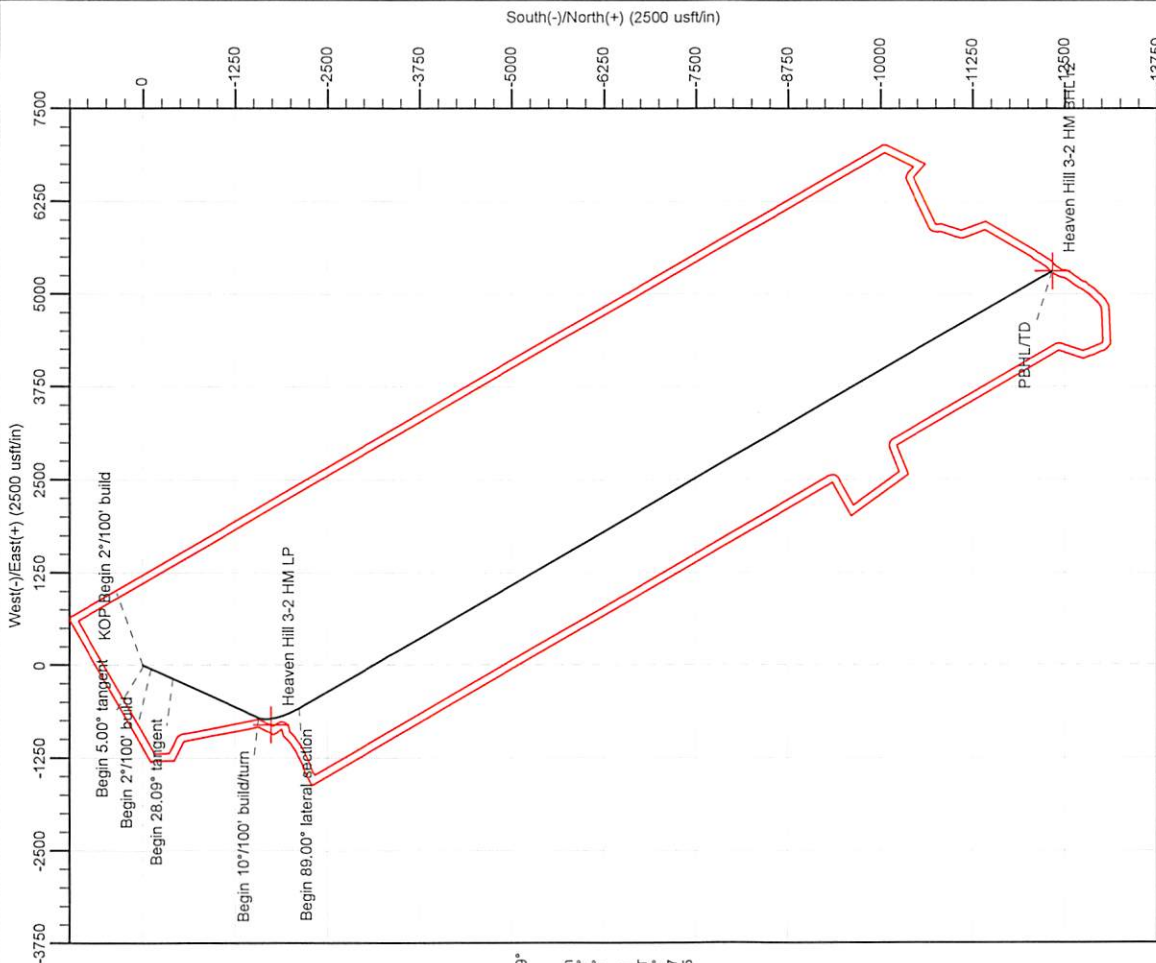
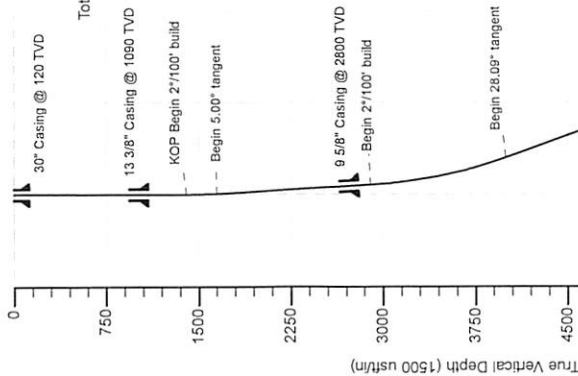
Depth Reference: GL=1325 @ 1326.00usft

Northing: 144457182.85
 Easting: 1726553.94
 Latitude: 39.80859199
 Longitude: -80.69327779

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.89°



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.89°
 Magnetic Field
 Strength: 52225.1nT
 Dip Angle: 67.00°
 Date: 2/3/2017
 Model: IGRF2015



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 Heaven Hill 3-2 HM LP
 Begin 10'100' build/turn
 Begin 28.09' tangent section

10/27/2017



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-2 HM
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-2 HM	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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:	0.20 °

Well	Heaven Hill 3-2 HM					
Well Position	+N/-S	0.00 usft	Northing:	14,457,182.85 usft	Latitude:	39.80859199
	+E/-W	0.00 usft	Easting:	1,726,553.94 usft	Longitude:	-80.69327779
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,326.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/3/2017	-8.69	67.00	52,225.07695610

Design	rev2			
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	156.68

Plan Survey Tool Program	Date	5/17/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,287.71 rev2 (Original Hole)	MWD	MWD - Standard

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Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,650.00	5.00	204.37	1,649.68	-9.93	-4.50	2.00	2.00	0.00	204.37	
2,905.09	5.00	204.37	2,900.00	-109.57	-49.63	0.00	0.00	0.00	0.00	
4,059.39	28.09	204.37	3,999.04	-406.94	-184.33	2.00	2.00	0.00	0.00	
6,767.98	28.09	204.37	6,388.68	-1,568.52	-710.49	0.00	0.00	0.00	0.00	
7,499.63	89.00	150.00	6,771.27	-2,119.10	-580.50	10.00	8.33	-7.43	-58.11	
19,287.71	89.00	150.00	6,977.00	-12,326.32	5,312.64	0.00	0.00	0.00	0.00	Heaven Hill 3-2 HM B



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-2 HM
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-2 HM	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Environmental Protection

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	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
100.00	0.00	0.00	100.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
200.00	0.00	0.00	200.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
300.00	0.00	0.00	300.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
400.00	0.00	0.00	400.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
500.00	0.00	0.00	500.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
600.00	0.00	0.00	600.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
700.00	0.00	0.00	700.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
800.00	0.00	0.00	800.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
900.00	0.00	0.00	900.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,457,182.85	1,726,553.94	39.80859199	-80.69327779
KOP Begin 2°/100' build									
1,500.00	2.00	204.37	1,499.98	-1.59	-0.72	14,457,181.26	1,726,553.22	39.80858763	-80.69328037
1,600.00	4.00	204.37	1,599.84	-6.36	-2.88	14,457,176.50	1,726,551.06	39.80857456	-80.69328812
1,650.00	5.00	204.37	1,649.68	-9.93	-4.50	14,457,172.92	1,726,549.44	39.80856476	-80.69329393
Begin 5.00° tangent									
1,700.00	5.00	204.37	1,699.49	-13.90	-6.30	14,457,168.95	1,726,547.65	39.80855388	-80.69330038
1,800.00	5.00	204.37	1,799.11	-21.84	-9.89	14,457,161.01	1,726,544.05	39.80853211	-80.69331328
1,900.00	5.00	204.37	1,898.73	-29.78	-13.49	14,457,153.07	1,726,540.45	39.80851034	-80.69332619
2,000.00	5.00	204.37	1,998.35	-37.72	-17.09	14,457,145.14	1,726,536.86	39.80848857	-80.69333909
2,100.00	5.00	204.37	2,097.97	-45.66	-20.68	14,457,137.20	1,726,533.26	39.80846681	-80.69335199
2,200.00	5.00	204.37	2,197.59	-53.59	-24.28	14,457,129.26	1,726,529.66	39.80844504	-80.69336489
2,300.00	5.00	204.37	2,297.21	-61.53	-27.87	14,457,121.32	1,726,526.07	39.80842327	-80.69337780
2,400.00	5.00	204.37	2,396.83	-69.47	-31.47	14,457,113.38	1,726,522.47	39.80840150	-80.69339070
2,500.00	5.00	204.37	2,496.45	-77.41	-35.07	14,457,105.44	1,726,518.88	39.80837973	-80.69340360
2,600.00	5.00	204.37	2,596.07	-85.35	-38.66	14,457,097.50	1,726,515.28	39.80835796	-80.69341650
2,700.00	5.00	204.37	2,695.69	-93.29	-42.26	14,457,089.56	1,726,511.68	39.80833619	-80.69342941
2,800.00	5.00	204.37	2,795.31	-101.23	-45.86	14,457,081.62	1,726,508.09	39.80831442	-80.69344231
2,900.00	5.00	204.37	2,894.93	-109.17	-49.45	14,457,073.68	1,726,504.49	39.80829266	-80.69345521
2,905.09	5.00	204.37	2,900.00	-109.57	-49.63	14,457,073.28	1,726,504.31	39.80829155	-80.69345587
Begin 2°/100' build									
3,000.00	6.90	204.37	2,994.39	-118.53	-53.69	14,457,064.32	1,726,500.25	39.80826698	-80.69347043
3,100.00	8.90	204.37	3,093.44	-131.05	-59.36	14,457,051.80	1,726,494.58	39.80823266	-80.69349077
3,200.00	10.90	204.37	3,191.94	-146.71	-66.46	14,457,036.15	1,726,487.49	39.80818973	-80.69351621
3,300.00	12.90	204.37	3,289.79	-165.48	-74.96	14,457,017.37	1,726,478.98	39.80813823	-80.69354673
3,400.00	14.90	204.37	3,386.86	-187.36	-84.87	14,456,995.49	1,726,469.07	39.80807824	-80.69358229
3,500.00	16.90	204.37	3,483.03	-212.31	-96.17	14,456,970.54	1,726,457.77	39.80800983	-80.69362284
3,600.00	18.90	204.37	3,578.18	-240.31	-108.85	14,456,942.54	1,726,445.09	39.80793307	-80.69366833
3,700.00	20.90	204.37	3,672.21	-271.31	-122.90	14,456,911.54	1,726,431.05	39.80784807	-80.69371871
3,800.00	22.90	204.37	3,764.99	-305.28	-138.28	14,456,877.57	1,726,415.66	39.80775492	-80.69377391
3,900.00	24.90	204.37	3,856.41	-342.18	-155.00	14,456,840.67	1,726,398.94	39.80765374	-80.69383388
4,000.00	26.90	204.37	3,946.36	-381.96	-173.02	14,456,800.89	1,726,380.92	39.80754465	-80.69389853
4,059.39	28.09	204.37	3,999.05	-406.94	-184.33	14,456,775.91	1,726,369.61	39.80747618	-80.69393911
Begin 28.09° tangent									
4,100.00	28.09	204.37	4,034.87	-424.35	-192.22	14,456,758.50	1,726,361.72	39.80742842	-80.69396742
4,200.00	28.09	204.37	4,123.10	-467.24	-211.65	14,456,715.61	1,726,342.30	39.80731083	-80.69403711
4,300.00	28.09	204.37	4,211.32	-510.12	-231.07	14,456,672.73	1,726,322.87	39.80719324	-80.69410680
4,400.00	28.09	204.37	4,299.55	-553.01	-250.50	14,456,629.84	1,726,303.45	39.80707565	-80.69417649
4,500.00	28.09	204.37	4,387.77	-595.89	-269.92	14,456,586.96	1,726,284.02	39.80695806	-80.69424618
4,600.00	28.09	204.37	4,476.00	-638.78	-289.35	14,456,544.07	1,726,264.60	39.80684047	-80.69431587



047-051-01962

Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Heaven Hill 3
 Well: Heaven Hill 3-2 HM
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Heaven Hill 3-2 HM
 TVD Reference: GL=1326 @ 1326.00usft
 MD Reference: GL=1326 @ 1326.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,700.00	28.09	204.37	4,564.22	-681.66	-308.77	14,456,501.19	1,726,245.17	39.80672288	-80.69438556
4,800.00	28.09	204.37	4,652.44	-724.55	-328.20	14,456,458.30	1,726,225.74	39.80660529	-80.69445525
4,900.00	28.09	204.37	4,740.67	-767.43	-347.62	14,456,415.42	1,726,206.32	39.80648770	-80.69452494
5,000.00	28.09	204.37	4,828.89	-810.32	-367.05	14,456,372.53	1,726,186.89	39.80637011	-80.69459463
5,100.00	28.09	204.37	4,917.12	-853.20	-386.47	14,456,329.65	1,726,167.47	39.80625252	-80.69466431
5,200.00	28.09	204.37	5,005.34	-896.09	-405.90	14,456,286.76	1,726,148.04	39.80613493	-80.69473400
5,300.00	28.09	204.37	5,093.57	-938.97	-425.32	14,456,243.88	1,726,128.62	39.80601733	-80.69480369
5,400.00	28.09	204.37	5,181.79	-981.86	-444.75	14,456,200.99	1,726,109.19	39.80589974	-80.69487338
5,500.00	28.09	204.37	5,270.01	-1,024.74	-464.18	14,456,158.11	1,726,089.77	39.80578215	-80.69494307
5,600.00	28.09	204.37	5,358.24	-1,067.63	-483.60	14,456,115.22	1,726,070.34	39.80566456	-80.69501275
5,700.00	28.09	204.37	5,446.46	-1,110.51	-503.03	14,456,072.34	1,726,050.92	39.80554697	-80.69508244
5,800.00	28.09	204.37	5,534.69	-1,153.40	-522.45	14,456,029.45	1,726,031.49	39.80542938	-80.69515213
5,900.00	28.09	204.37	5,622.91	-1,196.28	-541.88	14,455,986.57	1,726,012.07	39.80531179	-80.69522181
6,000.00	28.09	204.37	5,711.14	-1,239.17	-561.30	14,455,943.68	1,725,992.64	39.80519420	-80.69529150
6,100.00	28.09	204.37	5,799.36	-1,282.05	-580.73	14,455,900.80	1,725,973.22	39.80507661	-80.69536119
6,200.00	28.09	204.37	5,887.59	-1,324.94	-600.15	14,455,857.91	1,725,953.79	39.80495901	-80.69543087
6,300.00	28.09	204.37	5,975.81	-1,367.82	-619.58	14,455,815.03	1,725,934.36	39.80484142	-80.69550056
6,400.00	28.09	204.37	6,064.03	-1,410.71	-639.00	14,455,772.14	1,725,914.94	39.80472383	-80.69557025
6,500.00	28.09	204.37	6,152.26	-1,453.59	-658.43	14,455,729.26	1,725,895.51	39.80460624	-80.69563993
6,600.00	28.09	204.37	6,240.48	-1,496.48	-677.85	14,455,686.37	1,725,876.09	39.80448865	-80.69570962
6,700.00	28.09	204.37	6,328.71	-1,539.36	-697.28	14,455,643.49	1,725,856.66	39.80437106	-80.69577930
6,767.98	28.09	204.37	6,388.68	-1,568.52	-710.49	14,455,614.34	1,725,843.46	39.80429112	-80.69582667
Begin 10°/100' build/turn									
6,800.00	29.89	198.91	6,416.69	-1,582.93	-716.18	14,455,599.92	1,725,837.76	39.80425158	-80.69584713
6,900.00	36.67	185.42	6,500.36	-1,636.37	-727.10	14,455,546.48	1,725,826.84	39.80410494	-80.69588667
7,000.00	44.53	175.88	6,576.30	-1,701.23	-727.41	14,455,481.62	1,725,826.54	39.80392681	-80.69588853
7,100.00	52.99	168.76	6,642.22	-1,775.55	-717.08	14,455,407.30	1,725,836.86	39.80372262	-80.69585265
7,200.00	61.78	163.10	6,696.10	-1,857.07	-696.43	14,455,325.78	1,725,857.51	39.80349855	-80.69578013
7,300.00	70.77	158.31	6,736.31	-1,943.31	-666.10	14,455,239.54	1,725,887.84	39.80326142	-80.69567317
7,400.00	79.88	154.03	6,761.62	-2,031.66	-627.00	14,455,151.20	1,725,926.95	39.80301844	-80.69553501
7,499.63	89.00	150.00	6,771.27	-2,119.10	-580.50	14,455,063.75	1,725,973.44	39.80277787	-80.69537052
Begin 89.00° lateral section									
7,500.00	89.00	150.00	6,771.28	-2,119.42	-580.31	14,455,063.43	1,725,973.63	39.80277699	-80.69536987
7,600.00	89.00	150.00	6,773.02	-2,206.01	-530.32	14,454,976.84	1,726,023.62	39.80253873	-80.69519292
7,700.00	89.00	150.00	6,774.77	-2,292.60	-480.33	14,454,890.25	1,726,073.61	39.80230046	-80.69501597
7,800.00	89.00	150.00	6,776.51	-2,379.19	-430.34	14,454,803.66	1,726,123.60	39.80206220	-80.69483903
7,900.00	89.00	150.00	6,778.26	-2,465.78	-380.35	14,454,717.08	1,726,173.60	39.80182393	-80.69466208
8,000.00	89.00	150.00	6,780.00	-2,552.37	-330.35	14,454,630.49	1,726,223.59	39.80158567	-80.69448514
8,100.00	89.00	150.00	6,781.75	-2,638.95	-280.36	14,454,543.90	1,726,273.58	39.80134740	-80.69430820
8,200.00	89.00	150.00	6,783.49	-2,725.54	-230.37	14,454,457.31	1,726,323.57	39.80110914	-80.69413125
8,300.00	89.00	150.00	6,785.24	-2,812.13	-180.38	14,454,370.72	1,726,373.57	39.80087087	-80.69395431
8,400.00	89.00	150.00	6,786.98	-2,898.72	-130.38	14,454,284.13	1,726,423.56	39.80063261	-80.69377738
8,500.00	89.00	150.00	6,788.73	-2,985.31	-80.39	14,454,197.54	1,726,473.55	39.80039434	-80.69360044
8,600.00	89.00	150.00	6,790.47	-3,071.90	-30.40	14,454,110.95	1,726,523.54	39.80015608	-80.69342350
8,700.00	89.00	150.00	6,792.22	-3,158.49	19.59	14,454,024.36	1,726,573.54	39.79991781	-80.69324657
8,800.00	89.00	150.00	6,793.96	-3,245.08	69.59	14,453,937.77	1,726,623.53	39.79967954	-80.69306963
8,900.00	89.00	150.00	6,795.71	-3,331.67	119.58	14,453,851.18	1,726,673.52	39.79944128	-80.69289270
9,000.00	89.00	150.00	6,797.45	-3,418.26	169.57	14,453,764.59	1,726,723.51	39.79920301	-80.69271577
9,100.00	89.00	150.00	6,799.20	-3,504.85	219.56	14,453,678.00	1,726,773.51	39.79896474	-80.69253884
9,200.00	89.00	150.00	6,800.95	-3,591.44	269.56	14,453,591.41	1,726,823.50	39.79872648	-80.69236191
9,300.00	89.00	150.00	6,802.69	-3,678.03	319.55	14,453,504.82	1,726,873.49	39.79848821	-80.69218498
9,400.00	89.00	150.00	6,804.44	-3,764.62	369.54	14,453,418.24	1,726,923.48	39.79824994	-80.69200806
9,500.00	89.00	150.00	6,806.18	-3,851.21	419.53	14,453,331.65	1,726,973.48	39.79801167	-80.69183113
9,600.00	89.00	150.00	6,807.93	-3,937.80	469.53	14,453,245.06	1,727,023.47	39.79777340	-80.69165421



Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Heaven Hill 3
 Well: Heaven Hill 3-2 HM
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Heaven Hill 3-2 HM
 TVD Reference: GL=1326 @ 1326.00usft
 MD Reference: GL=1326 @ 1326.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,700.00	89.00	150.00	6,809.67	-4,024.38	519.52	14,453,158.47	1,727,073.46	39.79753513	-80.69147729	
9,800.00	89.00	150.00	6,811.42	-4,110.97	569.51	14,453,071.88	1,727,123.45	39.79729686	-80.69130036	
9,900.00	89.00	150.00	6,813.16	-4,197.56	619.50	14,452,985.29	1,727,173.44	39.79705859	-80.69112344	
10,000.00	89.00	150.00	6,814.91	-4,284.15	669.49	14,452,898.70	1,727,223.44	39.79682032	-80.69094653	
10,100.00	89.00	150.00	6,816.65	-4,370.74	719.49	14,452,812.11	1,727,273.43	39.79658205	-80.69076961	
10,200.00	89.00	150.00	6,818.40	-4,457.33	769.48	14,452,725.52	1,727,323.42	39.79634378	-80.69059269	
10,300.00	89.00	150.00	6,820.14	-4,543.92	819.47	14,452,638.93	1,727,373.41	39.79610551	-80.69041578	
10,400.00	89.00	150.00	6,821.89	-4,630.51	869.46	14,452,552.34	1,727,423.41	39.79586724	-80.69023886	
10,500.00	89.00	150.00	6,823.63	-4,717.10	919.46	14,452,465.75	1,727,473.40	39.79562897	-80.69006195	
10,600.00	89.00	150.00	6,825.38	-4,803.69	969.45	14,452,379.16	1,727,523.39	39.79539070	-80.68988504	
10,700.00	89.00	150.00	6,827.12	-4,890.28	1,019.44	14,452,292.57	1,727,573.38	39.79515243	-80.68970813	
10,800.00	89.00	150.00	6,828.87	-4,976.87	1,069.43	14,452,205.98	1,727,623.38	39.79491416	-80.68953122	
10,900.00	89.00	150.00	6,830.61	-5,063.46	1,119.43	14,452,119.39	1,727,673.37	39.79467588	-80.68935431	
11,000.00	89.00	150.00	6,832.36	-5,150.05	1,169.42	14,452,032.81	1,727,723.36	39.79443761	-80.68917740	
11,100.00	89.00	150.00	6,834.10	-5,236.64	1,219.41	14,451,946.22	1,727,773.35	39.79419934	-80.68900050	
11,200.00	89.00	150.00	6,835.85	-5,323.22	1,269.40	14,451,859.63	1,727,823.35	39.79396106	-80.68882359	
11,300.00	89.00	150.00	6,837.60	-5,409.81	1,319.40	14,451,773.04	1,727,873.34	39.79372279	-80.68864669	
11,400.00	89.00	150.00	6,839.34	-5,496.40	1,369.39	14,451,686.45	1,727,923.33	39.79348452	-80.68846979	
11,500.00	89.00	150.00	6,841.09	-5,582.99	1,419.38	14,451,599.86	1,727,973.32	39.79324624	-80.68829289	
11,600.00	89.00	150.00	6,842.83	-5,669.58	1,469.37	14,451,513.27	1,728,023.32	39.79300797	-80.68811599	
11,700.00	89.00	150.00	6,844.58	-5,756.17	1,519.37	14,451,426.68	1,728,073.31	39.79276969	-80.68793909	
11,800.00	89.00	150.00	6,846.32	-5,842.76	1,569.36	14,451,340.09	1,728,123.30	39.79253142	-80.68776219	
11,900.00	89.00	150.00	6,848.07	-5,929.35	1,619.35	14,451,253.50	1,728,173.29	39.79229314	-80.68758530	
12,000.00	89.00	150.00	6,849.81	-6,015.94	1,669.34	14,451,166.91	1,728,223.29	39.79205487	-80.68740840	
12,100.00	89.00	150.00	6,851.56	-6,102.53	1,719.33	14,451,080.32	1,728,273.28	39.79181659	-80.68723151	
12,200.00	89.00	150.00	6,853.30	-6,189.12	1,769.33	14,450,993.73	1,728,323.27	39.79157832	-80.68705461	
12,300.00	89.00	150.00	6,855.05	-6,275.71	1,819.32	14,450,907.14	1,728,373.26	39.79134004	-80.68687772	
12,400.00	89.00	150.00	6,856.79	-6,362.30	1,869.31	14,450,820.55	1,728,423.25	39.79110177	-80.68670083	
12,500.00	89.00	150.00	6,858.54	-6,448.89	1,919.30	14,450,733.97	1,728,473.25	39.79086349	-80.68652395	
12,600.00	89.00	150.00	6,860.28	-6,535.48	1,969.30	14,450,647.38	1,728,523.24	39.79062521	-80.68634706	
12,700.00	89.00	150.00	6,862.03	-6,622.07	2,019.29	14,450,560.79	1,728,573.23	39.79038693	-80.68617017	
12,800.00	89.00	150.00	6,863.77	-6,708.65	2,069.28	14,450,474.20	1,728,623.22	39.79014866	-80.68599329	
12,900.00	89.00	150.00	6,865.52	-6,795.24	2,119.27	14,450,387.61	1,728,673.22	39.78991038	-80.68581640	
13,000.00	89.00	150.00	6,867.26	-6,881.83	2,169.27	14,450,301.02	1,728,723.21	39.78967210	-80.68563952	
13,100.00	89.00	150.00	6,869.01	-6,968.42	2,219.26	14,450,214.43	1,728,773.20	39.78943382	-80.68546264	
13,200.00	89.00	150.00	6,870.76	-7,055.01	2,269.25	14,450,127.84	1,728,823.19	39.78919554	-80.68528576	
13,300.00	89.00	150.00	6,872.50	-7,141.60	2,319.24	14,450,041.25	1,728,873.19	39.78895726	-80.68510888	
13,400.00	89.00	150.00	6,874.25	-7,228.19	2,369.24	14,449,954.66	1,728,923.18	39.78871899	-80.68493200	
13,500.00	89.00	150.00	6,875.99	-7,314.78	2,419.23	14,449,868.07	1,728,973.17	39.78848071	-80.68475513	
13,600.00	89.00	150.00	6,877.74	-7,401.37	2,469.22	14,449,781.48	1,729,023.16	39.78824243	-80.68457825	
13,700.00	89.00	150.00	6,879.48	-7,487.96	2,519.21	14,449,694.89	1,729,073.16	39.78800415	-80.68440138	
13,800.00	89.00	150.00	6,881.23	-7,574.55	2,569.21	14,449,608.30	1,729,123.15	39.78776587	-80.68422450	
13,900.00	89.00	150.00	6,882.97	-7,661.14	2,619.20	14,449,521.71	1,729,173.14	39.78752759	-80.68404763	
14,000.00	89.00	150.00	6,884.72	-7,747.73	2,669.19	14,449,435.13	1,729,223.13	39.78728930	-80.68387076	
14,100.00	89.00	150.00	6,886.46	-7,834.32	2,719.18	14,449,348.54	1,729,273.13	39.78705102	-80.68369389	
14,200.00	89.00	150.00	6,888.21	-7,920.91	2,769.18	14,449,261.95	1,729,323.12	39.78681274	-80.68351703	
14,300.00	89.00	150.00	6,889.95	-8,007.49	2,819.17	14,449,175.36	1,729,373.11	39.78657446	-80.68334016	
14,400.00	89.00	150.00	6,891.70	-8,094.08	2,869.16	14,449,088.77	1,729,423.10	39.78633618	-80.68316329	
14,500.00	89.00	150.00	6,893.44	-8,180.67	2,919.15	14,449,002.18	1,729,473.09	39.78609790	-80.68298643	
14,600.00	89.00	150.00	6,895.19	-8,267.26	2,969.14	14,448,915.59	1,729,523.09	39.78585961	-80.68280957	
14,700.00	89.00	150.00	6,896.93	-8,353.85	3,019.14	14,448,829.00	1,729,573.08	39.78562133	-80.68263270	
14,800.00	89.00	150.00	6,898.68	-8,440.44	3,069.13	14,448,742.41	1,729,623.07	39.78538305	-80.68245584	
14,900.00	89.00	150.00	6,900.42	-8,527.03	3,119.12	14,448,655.82	1,729,673.06	39.78514476	-80.68227898	
15,000.00	89.00	150.00	6,902.17	-8,613.62	3,169.11	14,448,569.23	1,729,723.06	39.78490648	-80.68210213	
15,100.00	89.00	150.00	6,903.91	-8,700.21	3,219.11	14,448,482.64	1,729,773.05	39.78466820	-80.68192527	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-2 HM
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-2 HM	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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WV Department of
Environmental Protection

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,200.00	89.00	150.00	6,905.66	-8,786.80	3,269.10	14,448,396.05	1,729,823.04	39.78442991	-80.68174841	
15,300.00	89.00	150.00	6,907.41	-8,873.39	3,319.09	14,448,309.46	1,729,873.03	39.78419163	-80.68157156	
15,400.00	89.00	150.00	6,909.15	-8,959.98	3,369.08	14,448,222.87	1,729,923.03	39.78395334	-80.68139471	
15,500.00	89.00	150.00	6,910.90	-9,046.57	3,419.08	14,448,136.28	1,729,973.02	39.78371506	-80.68121785	
15,600.00	89.00	150.00	6,912.64	-9,133.16	3,469.07	14,448,049.70	1,730,023.01	39.78347677	-80.68104100	
15,700.00	89.00	150.00	6,914.39	-9,219.75	3,519.06	14,447,963.11	1,730,073.00	39.78323849	-80.68086415	
15,800.00	89.00	150.00	6,916.13	-9,306.34	3,569.05	14,447,876.52	1,730,123.00	39.78300020	-80.68068730	
15,900.00	89.00	150.00	6,917.88	-9,392.92	3,619.05	14,447,789.93	1,730,172.99	39.78276192	-80.68051046	
16,000.00	89.00	150.00	6,919.62	-9,479.51	3,669.04	14,447,703.34	1,730,222.98	39.78252363	-80.68033361	
16,100.00	89.00	150.00	6,921.37	-9,566.10	3,719.03	14,447,616.75	1,730,272.97	39.78228534	-80.68015677	
16,200.00	89.00	150.00	6,923.11	-9,652.69	3,769.02	14,447,530.16	1,730,322.97	39.78204706	-80.67997992	
16,300.00	89.00	150.00	6,924.86	-9,739.28	3,819.02	14,447,443.57	1,730,372.96	39.78180877	-80.67980308	
16,400.00	89.00	150.00	6,926.60	-9,825.87	3,869.01	14,447,356.98	1,730,422.95	39.78157048	-80.67962624	
16,500.00	89.00	150.00	6,928.35	-9,912.46	3,919.00	14,447,270.39	1,730,472.94	39.78133219	-80.67944940	
16,600.00	89.00	150.00	6,930.09	-9,999.05	3,968.99	14,447,183.80	1,730,522.93	39.78109391	-80.67927256	
16,700.00	89.00	150.00	6,931.84	-10,085.64	4,018.98	14,447,097.21	1,730,572.93	39.78085562	-80.67909572	
16,800.00	89.00	150.00	6,933.58	-10,172.23	4,068.98	14,447,010.62	1,730,622.92	39.78061733	-80.67891889	
16,900.00	89.00	150.00	6,935.33	-10,258.82	4,118.97	14,446,924.03	1,730,672.91	39.78037904	-80.67874205	
17,000.00	89.00	150.00	6,937.07	-10,345.41	4,168.96	14,446,837.44	1,730,722.90	39.78014075	-80.67856522	
17,100.00	89.00	150.00	6,938.82	-10,432.00	4,218.95	14,446,750.86	1,730,772.90	39.77990246	-80.67838838	
17,200.00	89.00	150.00	6,940.56	-10,518.59	4,268.95	14,446,664.27	1,730,822.89	39.77966417	-80.67821155	
17,300.00	89.00	150.00	6,942.31	-10,605.18	4,318.94	14,446,577.68	1,730,872.88	39.77942588	-80.67803472	
17,400.00	89.00	150.00	6,944.06	-10,691.76	4,368.93	14,446,491.09	1,730,922.87	39.77918759	-80.67785789	
17,500.00	89.00	150.00	6,945.80	-10,778.35	4,418.92	14,446,404.50	1,730,972.87	39.77894930	-80.67768107	
17,600.00	89.00	150.00	6,947.55	-10,864.94	4,468.92	14,446,317.91	1,731,022.86	39.77871101	-80.67750424	
17,700.00	89.00	150.00	6,949.29	-10,951.53	4,518.91	14,446,231.32	1,731,072.85	39.77847272	-80.67732741	
17,800.00	89.00	150.00	6,951.04	-11,038.12	4,568.90	14,446,144.73	1,731,122.84	39.77823443	-80.67715059	
17,900.00	89.00	150.00	6,952.78	-11,124.71	4,618.89	14,446,058.14	1,731,172.84	39.77799614	-80.67697377	
18,000.00	89.00	150.00	6,954.53	-11,211.30	4,668.89	14,445,971.55	1,731,222.83	39.77775785	-80.67679695	
18,100.00	89.00	150.00	6,956.27	-11,297.89	4,718.88	14,445,884.96	1,731,272.82	39.77751955	-80.67662013	
18,200.00	89.00	150.00	6,958.02	-11,384.48	4,768.87	14,445,798.37	1,731,322.81	39.77728126	-80.67644331	
18,300.00	89.00	150.00	6,959.76	-11,471.07	4,818.86	14,445,711.78	1,731,372.81	39.77704297	-80.67626649	
18,400.00	89.00	150.00	6,961.51	-11,557.66	4,868.86	14,445,625.19	1,731,422.80	39.77680468	-80.67608967	
18,500.00	89.00	150.00	6,963.25	-11,644.25	4,918.85	14,445,538.60	1,731,472.79	39.77656638	-80.67591286	
18,600.00	89.00	150.00	6,965.00	-11,730.84	4,968.84	14,445,452.01	1,731,522.78	39.77632809	-80.67573604	
18,700.00	89.00	150.00	6,966.74	-11,817.43	5,018.83	14,445,365.43	1,731,572.77	39.77608979	-80.67555923	
18,800.00	89.00	150.00	6,968.49	-11,904.02	5,068.82	14,445,278.84	1,731,622.77	39.77585150	-80.67538242	
18,900.00	89.00	150.00	6,970.23	-11,990.61	5,118.82	14,445,192.25	1,731,672.76	39.77561321	-80.67520561	
19,000.00	89.00	150.00	6,971.98	-12,077.19	5,168.81	14,445,105.66	1,731,722.75	39.77537491	-80.67502880	
19,100.00	89.00	150.00	6,973.72	-12,163.78	5,218.80	14,445,019.07	1,731,772.74	39.77513662	-80.67485199	
19,200.00	89.00	150.00	6,975.47	-12,250.37	5,268.79	14,444,932.48	1,731,822.74	39.77489832	-80.67467518	
19,287.71	89.00	150.00	6,977.00	-12,326.32	5,312.64	14,444,856.53	1,731,866.58	39.77468932	-80.67452011	
PBHL/TD										



Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-2 HM
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-2 HM	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
- Shape										
Heaven Hill 3-2 HM LP	0.00	0.00	6,764.00	-1,735.82	-801.87	14,455,447.03	1,725,752.07	39.80383250	-80.69615409	
- plan misses target center by 151.65usft at 7115.77usft MD (6651.56 TVD, -1787.98 N, -714.50 E)										
- Point										
Heaven Hill 3-2 HM BHL	0.00	0.00	6,977.00	-12,326.32	5,312.64	14,444,856.53	1,731,866.58	39.77468932	-80.67452011	
- plan hits target center										
- Point										

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
120.00	120.00	30" Casing @ 120 TVD	30	36	
1,090.00	1,090.00	13 3/8" Casing @ 1090 TVD	13-3/8	17-1/2	
2,804.71	2,800.00	9 5/8" Casing @ 2800 TVD	9-5/8	12-1/4	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
1,400.00	1,400.00	0.00	0.00	KOP Begin 2°/100' build	
1,650.00	1,649.68	-9.93	-4.50	Begin 5.00° tangent	
2,905.09	2,900.00	-109.57	-49.63	Begin 2°/100' build	
4,059.39	3,999.05	-406.94	-184.33	Begin 28.09° tangent	
6,767.98	6,388.68	-1,568.52	-710.49	Begin 10°/100' build/turn	
7,499.63	6,771.27	-2,119.10	-580.50	Begin 89.00° lateral section	
19,287.71	6,977.00	-12,326.32	5,312.64	PBHL/TD	

RECEIVED
Office of Oil and Gas
AUG 25 2017
WV Department of
Environmental Protection

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Heaven Hill 3-2HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WW0109185) 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 _____

Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

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Office of Oil and Gas
AUG 25 2017
WV Department of
Environmental Protection

Subscribed and sworn before me this 8th day of June, 20 17

Jennifer Lupi Notary Public

My commission expires March 12, 2018

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Jennifer Lupi, Notary Public
Cecil Twp., Washington County
My Commission Expires March 12, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 18.43 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Spring Oats	96

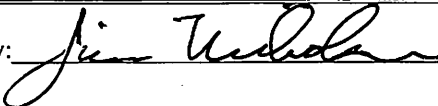
Seed Type	lbs/acre
Orchard Grass	12
Ladino	3
White Clover	2

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____



Comments: _____

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AUG 25 2017

WV Department of
Environmental Protection

Title: Oil + Gas Inspector

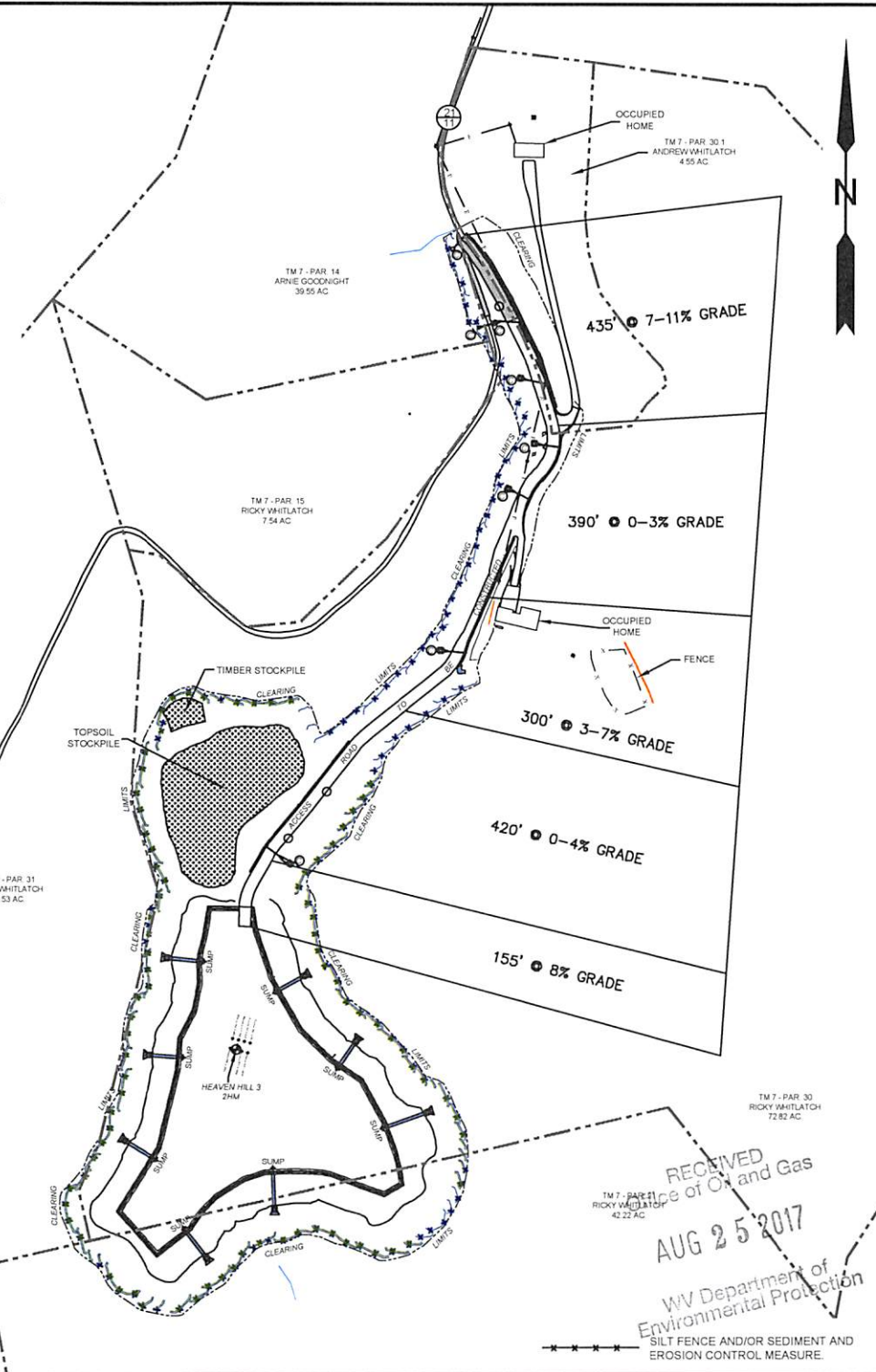
Date: 7/5/17

Field Reviewed? Yes No

PROPOSED HEAVEN HILL 3 - 2HM

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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AUG 25 2017
WV Department of
Environmental Protection

SILT FENCE AND/OR SEDIMENT AND
EROSION CONTROL MEASURE

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 #12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPPOINT BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/29/2017	NONE

TUG HILL
OPERATING

10/27/2017



Well Site Safety Plan

Tug Hill Operating, LLC

ju
7/5/17

Well Name: Heaven Hill 3-2HM

Pad Location: Heaven Hill 3

Marshall County, West Virginia

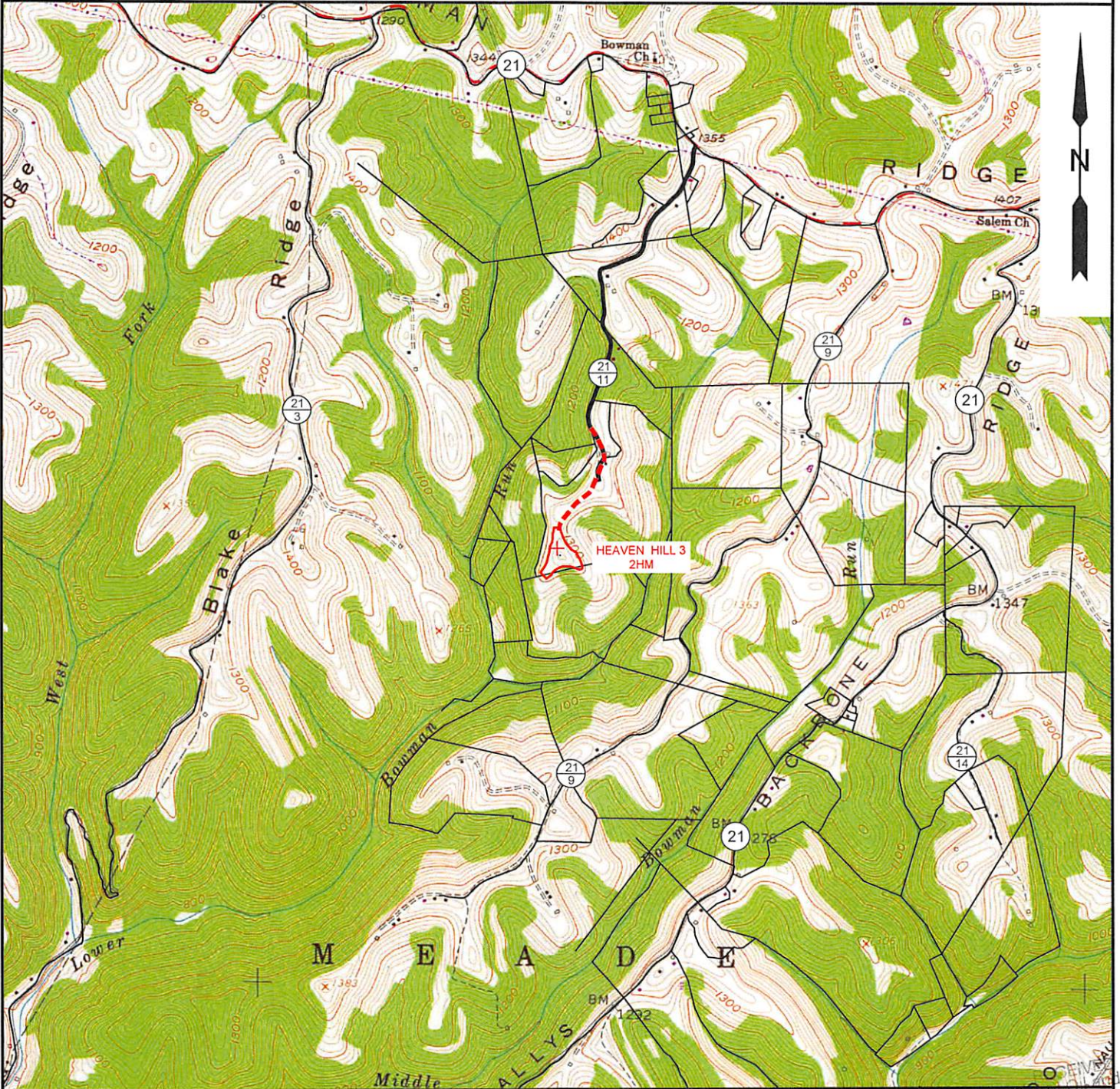
UTM (meters), NAD83, Zone 17:
Northing-4,406,558.15
Easting -526,254.70

July 2017

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Office of Oil and Gas
AUG 25 2017
WV Department of
Environmental Protection

10/27/2017

PROPOSED HEAVEN HILL 3 - 2HM



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT
PROCTOR, WV

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 47°57'55" W AT 50,802' FROM HEAVEN HILL 3 - 2HM SURFACE LOCATION

Handwritten signature
2/3/17
AUG 25 2017

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveys.com

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		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/29/2017	1" = 2000'



**TUG HILL
OPERATING**

WV Department of Environmental Protection

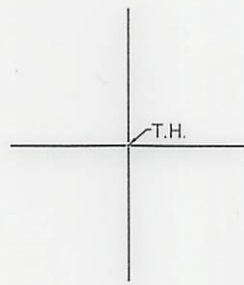
10/27/2017

**HEAVEN HILL 3 LEASE
WELL 2HM
TUG HILL OPERATING**

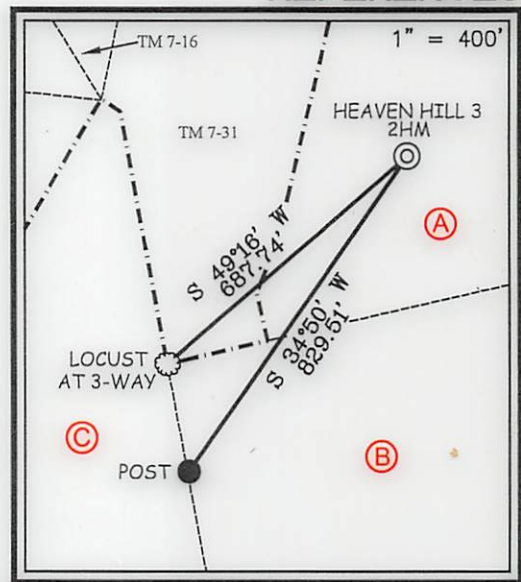
T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°47'30"

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

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,856.74	E. 1,633,284.15
NAD'83 GEO.	LAT-(N) 39.808592	LONG-(W) 80.693278
NAD'83 UTM (M)	N. 4,406,558.15	E. 526,254.70
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 476,746.9	E. 1,632,668.1
NAD'83 GEO.	LAT-(N) 39.802778	LONG-(W) 80.695371
NAD'83 UTM (M)	N. 4,405,912.2	E. 526,077.8
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 466,439.2	E. 1,638,391.8
NAD'83 GEO.	LAT-(N) 39.774689	LONG-(W) 80.674520
NAD'83 UTM (M)	N. 4,402,801.1	E. 527,874.0



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'



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.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 30, 20 17
 REVISED _____, 20 _____
 OPERATORS WELL NO. HEAVEN HILL 3-2HM
 API WELL NO. 47 - 051 - 01962
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P2HM.dwg
 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 X INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION X STORAGE _____ DEEP _____ SHALLOW X

LOCATION: ELEVATION GROUND = 1,341.3' 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 - SEE PGS. 3, 4 & 5 ACREAGE 72.82±

PROPOSED WORK: DRILL X CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE X 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: 6,876' / TMD: 19,298'

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

10/27/2017

HEAVEN HILL 3 LEASE
WELL 2HM
TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owners	Deed Book/Page
1	10*15557	A	9-7-30	RICKY L WHITLATCH ET AL	780 226
2	10*15557	B	9-7-21	RICKY L WHITLATCH ET AL	780 226
3	10*16289	C	9-7-18	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	905 468
4	10*16051	C	9-7-18	DONNA JEAN SNIDER AND DAVID SNIDER	905 462
5	10*16412	C	9-7-18	ELIZABETH ANN BLAZER AND PAUL R BLAZER	905 452
6	10*16053	C	9-7-18	GARY D HINERMAN AND JUDY ANN HINERMAN	905 466
7	10*15720	C	9-7-18	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	905 458
8	10*15667	C	9-7-18	KEVIN E MCGILTON ET UX	850 351
9	10*15698	C	9-7-18	ROBERT A EDGE AND SHERRIE N EDGE	900 363
10	10*16413	C	9-7-18	RONALD H EDGE JR	905 454
11	10*16028	C	9-7-18	ROSEMARY PARKINS AND STEPHEN PARKINS	905 460
12	10*16020	C	9-7-18	SHARON HINERMAN MAY & DANIEL G MAY	905 464
13	10*15721	C	9-7-18	TINA L EDGE MONTI AND THOMAS MONTI	905 456
14	10*16289	D	9-7-20	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	905 468
15	10*16051	D	9-7-20	DONNA JEAN SNIDER AND DAVID SNIDER	905 462
16	10*16412	D	9-7-20	ELIZABETH ANN BLAZER AND PAUL R BLAZER	905 452
17	10*16053	D	9-7-20	GARY D HINERMAN AND JUDY ANN HINERMAN	905 466
18	10*15720	D	9-7-20	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	905 458
19	10*15667	D	9-7-20	KEVIN E MCGILTON ET UX	850 351
20	10*15698	D	9-7-20	ROBERT A EDGE AND SHERRIE N EDGE	900 363
21	10*16413	D	9-7-20	RONALD H EDGE JR	905 454
22	10*16028	D	9-7-20	ROSEMARY PARKINS AND STEPHEN PARKINS	905 460
23	10*16020	D	9-7-20	SHARON HINERMAN MAY & DANIEL G MAY	905 464
24	10*15721	D	9-7-20	TINA L EDGE MONTI AND THOMAS MONTI	905 456
25	10*15667	E	9-7-19	KEVIN E MCGILTON ET UX	850 351
26	10*47051.256.1	F	9-11-6.1	BRENDA J WHETZEL	881 145
27	10*47051.256.3	F	9-11-6.1	BRENDA S DYKHOUSE	881 148
28	10*47051.256.2	F	9-11-6.1	CAROLJEAN ANDERSON	879 299
29	10*15669	F	9-11-6.1	EMMA ANDERSON	861 586
30	10*15670	F	9-11-6.1	GARY M BONAR AND ELLEN L BONAR	861 577
31	10*47051.256.4	F	9-11-6.1	GLEN A BONAR	881 151
32	10*47051.256.5	F	9-11-6.1	JERRY W ZIEN AND KATHLEEN E ZIEN	882 530
33	10*15671	F	9-11-6.1	JUDALENE K COLLUMS	861 571
34	10*15672	F	9-11-6.1	NAOMI HUPP	861 604
35	10*47051.256.1	G	9-11-6	BRENDA J WHETZEL	881 145
36	10*47051.256.3	G	9-11-6	BRENDA S DYKHOUSE	881 148
37	10*47051.256.2	G	9-11-6	CAROLJEAN ANDERSON	879 299
38	10*47051.256.4	G	9-11-6	GLEN A BONAR	881 151
39	10*47051.256.5	G	9-11-6	JERRY W ZIEN AND KATHLEEN E ZIEN	882 530
40	10*15669	G	9-11-6	EMMA ANDERSON	861 586
41	10*15670	G	9-11-6	GARY M BONAR AND ELLEN L BONAR	861 577
42	10*15671	G	9-11-6	JUDALENE K COLLUMS	861 571
43	10*15672	G	9-11-6	NAOMI HUPP	861 604
44	10*47051.108.1	H	9-11-9	MICHAEL A WHETZEL	885 51
45	10*15582	I	9-11-10	ROBERT L CLARK	685 239
46	10*15559	J	9-11-11	KENNETH M MCCARDLE ET UX REV LT	816 499
47	10*17555	K	9-14-18	AARON AND JANA K PARRY	924 113
48	10*17452	K	9-14-18	ALAN H & MARY K DEGARMO	924 164
49	10*17139	K	9-14-18	ALICE G WEINER AND GERALD S WEINER	915 131
50	10*16183	K	9-14-18	ALLEN R L DAVIS AND DIANA LEE PATTERSON	906 285
51	10*17436	K	9-14-18	ANDREW M HOOVER AND DINAH R HOOVER	924 156
52	10*16239	K	9-14-18	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	906 287
53	10*17880	K	9-14-18	ANNA M WRIGHT	924 586
54	10*16443	K	9-14-18	BARBARA BROWN CHAMBERS	924 621
55	10*16018	K	9-14-18	BARBARA MCFADDEN ALBRIGHT	906 262
56	10*17708	K	9-14-18	BETTY LOU NOBLE	923 127
57	10*17612	K	9-14-18	BEVERLY A LEDBETTER	923 480
58	10*16340	K	9-14-18	BONNIE SUE PATTERSON SWISHER	906 289
59	10*17830	K	9-14-18	BRIAN AND MELINDA MASTERS	925 319
60	10*16031	K	9-14-18	CARL J CHMIELEWSKI AND KATHLEEN A CHMIELEWSKI	906 266
61	10*17613	K	9-14-18	CARLTON DOBBS JR AND MIKHAIL PROKOPENKO	924 120
62	10*16444	K	9-14-18	CATHERINE ELLEN CHAMBERS	924 623
63	10*16083	K	9-14-18	CECIL HARRY LILLY, III AND PAMELA KAY KNIGHT LILLY	912 47
64	10*17771	K	9-14-18	CHARLES AND LISA WARRICK	923 477
65	10*16535	K	9-14-18	CHARLES E CARSON AND MARY KAY CARSON	906 420
66	10*17396	K	9-14-18	CHRISTINE L KIDD	924 158
67	10*16486	K	9-14-18	DAVID ALAN WILKINSON AND PATRICIA LYNN WILKINSON	924 180
68	10*17614	K	9-14-18	DAVID DOBBS	923 489
69	10*17528	K	9-14-18	DEAN E GARRISON	923 535
70	10*17487	K	9-14-18	DEBORAH R MOKOSH	924 166
71	10*17711	K	9-14-18	DEBRA A WENNEMAN AND KURT J WENNEMAN	923 520
72	10*16995	K	9-14-18	DIANE ELSIE RAMSEY	924 146
73	10*17579	K	9-14-18	DON COFFIELD & GLENDA DOBBS	923 525
74	10*17563	K	9-14-18	DONALD L WOOD	923 523
75	10*16953	K	9-14-18	DONALD T AND JEAN K HOGAN	924 140
76	10*16582	K	9-14-18	DORA BROCK BRAMMER	907 429
77	10*16445	K	9-14-18	DOUGLAS C AND GIWENDLYN D LEWTON	925 123
78	10*16511	K	9-14-18	DOUGLAS R BOWEN	906 475
79	10*17766	K	9-14-18	EDWARD S & NANCY A ROSENTHAL	923 495
80	10*16131	K	9-14-18	ERIC S DOBBS	902 68
81	10*16835	K	9-14-18	ERNEST CARL AUGUSTINE JR	924 188
82	10*16182	K	9-14-18	FIRST CHRISTIAN CHURCH OF MOUNDSVILLE BY ROGER FRANCIS AND ROBERT ALBERT TRUSTEES	906 283
83	10*16017	K	9-14-18	FLOYD A MCFADDEN	906 260
84	10*15730	K	9-14-18	FRANCES V CARPENTER	906 256
85	10*16442	K	9-14-18	FRED T AND JERRY L CHAMBERS	924 174
86	10*17448	K	9-14-18	FREDERICK L HERVEY AND CATHY J HERVEY	924 162
87	10*16948	K	9-14-18	FREDERICK M LEWTON	924 136
88	10*17209	K	9-14-18	GAYLE S SHANNON	924 168
89	10*16441	K	9-14-18	GEORGE FRANKLIN AND NANCY ANN REED	924 619
90	10*17515	K	9-14-18	GLADYS E DOBBS	923 541
91	10*17769	K	9-14-18	GLADYS FRAZIER KING	923 492
92	10*17504	K	9-14-18	GREGG ALAN MILLER AND BETH ANN MILLER	924 118
93	10*17675	K	9-14-18	GREGORY D & CAROLYN J WIBLE	923 507
94	10*16580	K	9-14-18	HAROLD C MCFADDEN	907 480
95	10*17289	K	9-14-18	HAROLD R HUNT JR AND ELIZABETH A HUNT	924 170
96	10*17879	K	9-14-18	HARRY R WRIGHT JR	924 588
97	10*16681	K	9-14-18	HELEN L SCHILLING	907 489
98	10*17674	K	9-14-18	HOWARD L & BETH E WOOD	923 505
99	10*16540	K	9-14-18	JAMES A WINTER AND CONNIE G WINTER	924 184
100	10*17676	K	9-14-18	JAMES C & DEIDRE G DORIA	923 513

FILE NO. 8654P2HM.dwg

DATE JUNE 30, 20 17

REVISED _____, 20 _____

OPERATORS WELL NO. HEAVEN HILL 3-2HM

API WELL NO. 47 — 051 — 01962
STATE COUNTY PERMIT



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



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 CT CORPORATION SYSTEM
5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

HEAVEN HILL 3 LEASE
WELL 2HM
TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owner - Continued	Deed Book/Page
101	10*47051.325.4	K	9-14-18	JAMES H WHITE AND RITA FRANKS WHITE	906 230
102	10*17731	K	9-14-18	JAMES J MCGHEE AND JEANNINE CHAMBERS MCGHEE	914 519
103	10*17671	K	9-14-18	JAMES L STOUT	923 484
104	10*16882	K	9-14-18	JAMES LEROY AND DARLENE DOBBS OWENS	924 190
105	10*16569	K	9-14-18	JANICE C BALE	907 425
106	10*17503	K	9-14-18	JANICE L KUHN	924 122
107	10*16950	K	9-14-18	JAY E AND CECILIA E LEWTON	924 134
108	10*16532	K	9-14-18	JEAN ANN MCFADDEN	906 459
109	10*16285	K	9-14-18	JOHN A SHUTZ AND CYNTHIA J SHUTZ	906 291
110	10*16483	K	9-14-18	JOHN C AND BARBARA H WINTER	924 178
111	10*16966	K	9-14-18	JOHN GILLETTE AND BARBARA GILLETTE	913 377
112	10*17885	K	9-14-18	JOHN RUSSELL BECKER	924 540
113	10*17582	K	9-14-18	JOHN THOMAS ERAZMUS AND JEAN R ERAZMUS	924 124
114	10*16030	K	9-14-18	JOSEPH F CHMIELEWSKI AND SANDRA CHMIELEWSKI	906 264
115	10*47051.325.1	K	9-14-18	JUDITH A LEWANDOSKY AND ALAN E LEWANDOSKY	906 225
116	10*16993	K	9-14-18	JULIA HOOVER	924 150
117	10*17517	K	9-14-18	JULIO ENRIQUE & DEBRA K TORRES	923 537
118	10*16085	K	9-14-18	KATHARYN ANNETTE LILLY LAING AND FREDDIE JOE LAING	912 43
119	10*16086	K	9-14-18	KATHARYN DAY LILLY	906 272
120	10*16531	K	9-14-18	KATHY DOBBS WELLS	906 472
121	10*17668	K	9-14-18	KENNETH R DOBBS	923 503
122	10*16537	K	9-14-18	KIM D BOWEN AND MADONNA M BOWEN	907 415
123	10*15752	K	9-14-18	KIM O CHAMBERS AND DEBRA CHAMBERS	906 258
124	10*16180	K	9-14-18	LARRY L CHAMBERS	906 280
125	10*17131	K	9-14-18	LAURA E TOTTEN AND LONNIE R TOTTEN	924 154
126	10*16726	K	9-14-18	LESLEY K WHITE	924 182
127	10*16576	K	9-14-18	LINDA A MINER AND MICHAEL W MINER	907 484
128	10*16992	K	9-14-18	LINDA C ABRAHAM	924 148
129	10*17520	K	9-14-18	LUCY P SULLIVAN	923 533
130	10*17559	K	9-14-18	MARVIN JERRY BLAKE AND LINDA D BLAKE	923 528
131	10*16087	K	9-14-18	MARY PENELOPE LILLY MURPHY	912 41
132	10*17516	K	9-14-18	MARY V DOBBS	923 539
133	10*17505	K	9-14-18	MICHAEL R & LEANNE DOBBS	924 116
134	10*47051.325.3	K	9-14-18	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	906 228
135	10*16181	K	9-14-18	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	906 281
136	10*16144	K	9-14-18	PATTIE S MADRID	906 278
137	10*17580	K	9-14-18	PAUL CRAIG CUNNINGHAM	923 530
138	10*17615	K	9-14-18	PAULA JO WRIGHT	923 482
139	10*17581	K	9-14-18	PAULA WEIRES	923 486
140	10*47051.325.8	K	9-14-18	RICK PAVLIK	906 239
141	10*16570	K	9-14-18	ROBERT D BOWEN AND MARCIA M R BOWEN	907 420
142	10*17878	K	9-14-18	ROBERT E & SARAH M ROUSH	924 590
143	10*17413	K	9-14-18	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	924 160
144	10*17129	K	9-14-18	ROBERTA JANE PARKINSON	924 142
145	10*17700	K	9-14-18	ROGER L & MARILYN L GARRISON	923 472
146	10*17616	K	9-14-18	RONALD & ELIZABETH DOBBS	924 107
147	10*15477	K	9-14-18	RONALD A WYCINSKI	906 241
148	10*16680	K	9-14-18	RONALD J AND JENNIFER CHAMBERS FICCA	924 186
149	10*16990	K	9-14-18	ROSEMARY H BEAVERS	924 152
150	10*17664	K	9-14-18	RUDOLPH H PARSONS	923 511
151	10*16952	K	9-14-18	RUSSELL D HERVEY	924 132
152	10*47051.325.5	K	9-14-18	SAMUEL ALAN MCCORD AND WINIFRED A MCKEE	906 232
153	10*16733	K	9-14-18	SARAH L BISHOP	924 172
154	10*47051.325.7	K	9-14-18	SHERON JONES	906 237
155	10*16533	K	9-14-18	SHIRLEY ANN DOBBS	906 469
156	10*17703	K	9-14-18	SHIRLEY N COX	923 498
157	10*16949	K	9-14-18	STEVEN R AND BRIANNE L UTT	924 138
158	10*17701	K	9-14-18	SUE ANN WORD	923 470
159	10*17702	K	9-14-18	TAMMY BETH RAMSEY	925 500
160	10*16967	K	9-14-18	TARA JEANNE MINOR AND JENNIFER A KNAPP	914 612
161	10*16534	K	9-14-18	TERRY LEE LASAVAGE	906 443
162	10*17667	K	9-14-18	THOMAS BRIAN WARRICK	923 509
163	10*47051.325.6	K	9-14-18	THOMAS O MCCORD	906 235
164	10*47051.325.2	K	9-14-18	TIMMY LEE STOUT AND DOROTHY MARIE STOUT	906 222
165	10*17560	K	9-14-18	TREVOR HOOKS	924 110
166	10*17134	K	9-14-18	UNITED CHRISTIAN MISSIONARY SOCIETY	924 144
167	10*17617	K	9-14-18	UNITED DISCIPLES OF CHRIST CHURCH	924 129
168	10*17881	K	9-14-18	WAYLON L & ANGELA J MURPHEE	924 555
169	10*16490	K	9-14-18	WILLIAM H AND MERRY C COTTON	924 176
170	10*17767	K	9-14-18	WILLIAM K & LINDA J MERRITT	923 474
171	10*16965	K	9-14-18	WILLIAM L WRIGHT AND CAROLINA WRIGHT	914 524
172	10*17452	L	9-15-3	ALAN H & MARY K DEGARMO	924 164
173	10*17436	L	9-15-3	ANDREW M HOOVER AND DINAH R HOOVER	924 156
174	10*16239	L	9-15-3	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	906 287
175	10*16443	L	9-15-3	BARBARA BROWN CHAMBERS	924 621
176	10*16018	L	9-15-3	BARBARA MCFADDEN ALBRIGHT	906 262
177	10*16444	L	9-15-3	CATHERINE ELLEN CHAMBERS	924 623
178	10*16535	L	9-15-3	CHARLES E CARSON AND MARY KAY CARSON	906 420
179	10*17396	L	9-15-3	CHRISTINE L KIDD	924 158
180	10*16486	L	9-15-3	DAVID ALAN WILKINSON AND PATRICIA LYNN WILKINSON	924 180
181	10*17487	L	9-15-3	DEBORAH R MOKOSH	924 166
182	10*16995	L	9-15-3	DIANE ELSIE RAMSEY	924 146
183	10*17563	L	9-15-3	DONALD L WOOD	923 523
184	10*16953	L	9-15-3	DONALD T AND JEAN K HOGAN	924 140
185	10*16582	L	9-15-3	DORA BROCK BRAMMER	907 429
186	10*16445	L	9-15-3	DOUGLAS C AND GWENDLYN D LEWTON	925 123
187	10*16511	L	9-15-3	DOUGLAS R BOWEN	906 475
188	10*16835	L	9-15-3	ERNEST CARLAUGUSTINE JR	924 188
189	10*16182	L	9-15-3	FIRST CHRISTIAN CHURCH OF MOUNDSVILLE BY ROGER FRANCIS AND ROBERT ALBERT TRUSTEES	906 283
190	10*16017	L	9-15-3	FLOYD A MCFADDEN	906 260
191	10*16442	L	9-15-3	FRED T AND JERRY L CHAMBERS	924 174
192	10*17448	L	9-15-3	FREDERICK L HERVEY AND CATHY J HERVEY	924 162
193	10*16948	L	9-15-3	FREDERICK M LEWTON	924 136
194	10*17209	L	9-15-3	GAYLE S SHANNON	924 168
195	10*16441	L	9-15-3	GEORGE FRANKLIN AND NANCY ANN REED	924 619
196	10*17675	L	9-15-3	GREGORY D & CAROLYN J WIBLE	923 507
197	10*16580	L	9-15-3	HAROLD C MCFADDEN	907 480
198	10*17289	L	9-15-3	HAROLD R HUNT JR AND ELIZABETH A HUNT	924 170
199	10*16581	L	9-15-3	HELEN L SCHILLING	907 489
200	10*17674	L	9-15-3	HOWARD L & BETH E WOOD	923 505

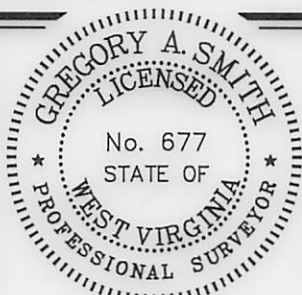
FILE NO. 8654P2HM.dwg

DATE JUNE 30, 20 17

REVISED _____, 20 _____

OPERATORS WELL NO. HEAVEN HILL 3-2HM

API WELL NO. 47 STATE 051 COUNTY 01962 PERMIT



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



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 CT CORPORATION SYSTEM 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

10/27/2017

HEAVEN HILL 3 LEASE
WELL 2HM
TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owner - Continued	Deed Book/Page
201	10*16540	L	9-15-3	JAMES A WINTER AND CONNIE G WINTER	924 184
202	10*47051.325.4	L	9-15-3	JAMES H WHITE AND RITA FRANKS WHITE	906 230
203	10*17731	L	9-15-3	JAMES J MCGHEE AND JEANNINE CHAMBERS MCGHEE	914 519
204	10*16569	L	9-15-3	JANICE C BALE	907 425
205	10*16950	L	9-15-3	JAY E AND CECILIA E LEWTON	924 134
206	10*16532	L	9-15-3	JEAN ANN MCFADDEN	906 459
207	10*16285	L	9-15-3	JOHN A SHUTZ AND CYNTHIA J SHUTZ	906 291
208	10*16483	L	9-15-3	JOHN C AND BARBARA H WINTER	924 178
209	10*47051.325.1	L	9-15-3	JUDITH A LEWANDOSKY AND ALAN E LEWANDOSKY	906 225
210	10*16993	L	9-15-3	JULIA HOOVER	924 150
211	10*16537	L	9-15-3	KIM D BOWEN AND MADONNA M BOWEN	907 415
212	10*15752	L	9-15-3	KIM O CHAMBERS AND DEBRA CHAMBERS	906 258
213	10*16180	L	9-15-3	LARRY L CHAMBERS	906 280
214	10*17131	L	9-15-3	LAURA E TOTTEN AND LONNIE R TOTTEN	924 154
215	10*16726	L	9-15-3	LESLY K WHITE	924 182
216	10*16576	L	9-15-3	LINDA A MINER AND MICHAEL W MINER	907 484
217	10*16992	L	9-15-3	LINDA C ABRAHAM	924 148
218	10*47051.325.3	L	9-15-3	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	906 228
219	10*16181	L	9-15-3	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	906 281
220	10*16144	L	9-15-3	PATTIE S MADRID	906 278
221	10*47051.325.8	L	9-15-3	RICK PAVLIK	906 239
222	10*16570	L	9-15-3	ROBERT D BOWEN AND MARCIA M R BOWEN	907 420
223	10*17413	L	9-15-3	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	924 160
224	10*17129	L	9-15-3	ROBERTA JANE PARKINSON	924 142
225	10*16680	L	9-15-3	RONALD J AND JENNIFER CHAMBERS FICCA	924 186
226	10*16990	L	9-15-3	ROSEMARY H BEAVERS	924 152
227	10*16952	L	9-15-3	RUSSELL D HERVEY	924 132
228	10*47051.325.5	L	9-15-3	SAMUEL ALAN MCCORD AND WINIFRED A MCKEE	906 232
229	10*16733	L	9-15-3	SARAH L BISHOP	924 172
230	10*47051.325.7	L	9-15-3	SHERON JONES	906 237
231	10*16949	L	9-15-3	STEVEN R AND BRIANNE LUTT	924 138
232	10*17701	L	9-15-3	SUE ANN WORD	923 470
233	10*17702	L	9-15-3	TAMMY BETH RAMSEY	925 500
234	10*16534	L	9-15-3	TERRY LEE LASAVAGE	906 443
235	10*47051.325.6	L	9-15-3	THOMAS O MCCORD	906 235
236	10*17134	L	9-15-3	UNITED CHRISTIAN MISSIONARY SOCIETY	924 144
237	10*17617	L	9-15-3	UNITED DISCIPLES OF CHRIST CHURCH	924 129
238	10*16490	L	9-15-3	WILLIAM H AND MERRY C COTTON	924 176
239	10*17164	M	9-15-1	BETTY D VEST	925 141
240	10*17163	M	9-15-1	HOLLY JILL COHAGAN	925 130
241	10*17293	M	9-15-1	JANICE L PIETERSE	925 149
242	10*16480	M	9-15-1	JOHN D HAYES AND LYNDA SIGMON HAYES	925 164
243	10*16518	M	9-15-1	JOHN P AND ROSE HOWELL RICKEY	925 146
244	10*17165	M	9-15-1	LAURA A PETTIGREW	925 151
245	10*16739	M	9-15-1	MARK M BASSETT	911 78
246	10*16519	M	9-15-1	NORMAN B AND JO ELLEN KAUBLE	925 156
247	10*17132	M	9-15-1	OTTO J N AND LAUREL ANN KUNST	925 153
248	10*16246	M	9-15-1	R RICK HYRE	925 162
249	10*17168	M	9-15-1	RANDY K AND ALICE E BOWER	925 135
250	10*16848	M	9-15-1	RICHARD W DOUTHITT	925 128
251	10*16482	M	9-15-1	SAMUEL J RICKEY	925 143
252	10*17768	M	9-15-1	SHERI L LEVRAETS	925 125
253	10*17332	M	9-15-1	TODD W BULLARD AND BETH H BULLARD	925 132
254	10*17621	M	9-15-1	WILLIAM M BECKER AND KATHARINE B BECKER	925 138
255	10*16897	M	9-15-1	WILLIAM W AND NOREEN M HYRE	925 159
256	10*15818	N	9-14-19	ELIZABETH ANN STRAUSBAUGH	703 578
257	10*15815	N	9-14-19	FORREST M THOMAS	694 516
258	10*15819	N	9-14-19	JANET LEA BLANKENSHIP	708 114
259	10*15814	N	9-14-19	MARY E BASSETT	694 499
260	10*15813	N	9-14-19	ROBERT B THOMAS	692 235
261	10*15817	N	9-14-19	RUTH MEADOWS	703 583
262	10*15816	N	9-14-19	SALLY CYNTHIA HOPKINS	697 116
263	10*15818	O	9-15-16	ELIZABETH ANN STRAUSBAUGH	703 578
264	10*15815	O	9-15-16	FORREST M THOMAS	694 516
265	10*15819	O	9-15-16	JANET LEA BLANKENSHIP	708 114
266	10*15814	O	9-15-16	MARY E BASSETT	694 499
267	10*15813	O	9-15-16	ROBERT B THOMAS	692 235
268	10*15817	O	9-15-16	RUTH MEADOWS	703 583
269	10*15816	O	9-15-16	SALLY CYNTHIA HOPKINS	697 116
270		P	9-15-15	LEONARD F DAVIS SR AND LINDA K DAVIS	668 605

FILE NO. 8654P2HM.dwg
 DATE JUNE 30, 20 17
 REVISED _____, 20 _____
 OPERATORS WELL NO. HEAVEN HILL 3-2HM
 API WELL NO. 47 — STATE 051 — COUNTY 01962 — PERMIT



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



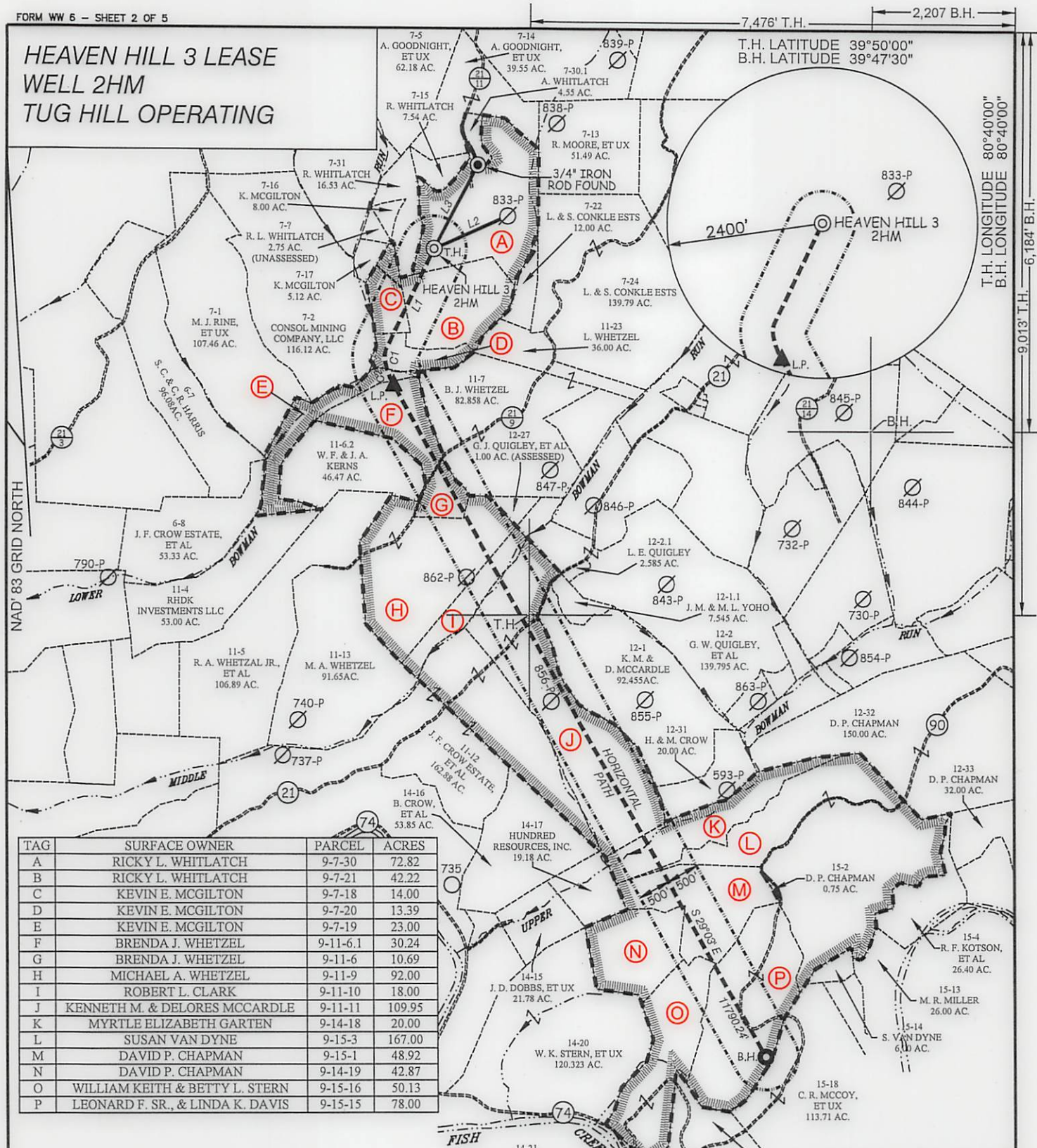
10/27/2017

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 CT CORPORATION SYSTEM
 5400 D BIG TYLER ROAD
 CHARLESTON, WV 25313

**HEAVEN HILL 3 LEASE
WELL 2HM
TUG HILL OPERATING**



TAG	SURFACE OWNER	PARCEL	ACRES
A	RICKY L. WHITLATCH	9-7-30	72.82
B	RICKY L. WHITLATCH	9-7-21	42.22
C	KEVIN E. MCGILTON	9-7-18	14.00
D	KEVIN E. MCGILTON	9-7-20	13.39
E	KEVIN E. MCGILTON	9-7-19	23.00
F	BRENDA J. WHETZEL	9-11-6.1	30.24
G	BRENDA J. WHETZEL	9-11-6	10.69
H	MICHAEL A. WHETZEL	9-11-9	92.00
I	ROBERT L. CLARK	9-11-10	18.00
J	KENNETH M. & DELORES MCCARDLE	9-11-11	109.95
K	MYRTLE ELIZABETH GARTEN	9-14-18	20.00
L	SUSAN VAN DYNE	9-15-3	167.00
M	DAVID P. CHAPMAN	9-15-1	48.92
N	DAVID P. CHAPMAN	9-14-19	42.87
O	WILLIAM KEITH & BETTY L. STERN	9-15-16	50.13
P	LEONARD F. SR., & LINDA K. DAVIS	9-15-15	78.00

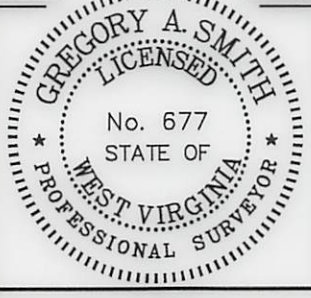
LINE	BEARING	DISTANCE
L1	S 25°20' W	1722.51'
L2	N 66°12' E	1244.40'
L3	N 27°40' E	1446.57'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	190.68'	343.96'	S 03°57' W	188.25'
C2	390.7'	1144.12'	S 20°08' E	388.81'

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveys.com

ju
7/5/17

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 478,856.74 E. 1,633,284.15
 NAD'83 GEO. LAT-(N) 39.808592 LONG-(W) 80.693278
 NAD'83 UTM (M) N. 4,406,558.15 E. 526,254.70
LANDING POINT
 NAD'83 S.P.C.(FT) N. 476,746.9 E. 1,632,668.1
 NAD'83 GEO. LAT-(N) 39.802778 LONG-(W) 80.695371
 NAD'83 UTM (M) N. 4,405,912.2 E. 526,077.8
BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 466,439.2 E. 1,638,391.8
 NAD'83 GEO. LAT-(N) 39.774689 LONG-(W) 80.674520
 NAD'83 UTM (M) N. 4,402,801.1 E. 527,874.0



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

SCALE 1" = 2000' FILE NO. 8654P2HM.dwg
 DATE JUNE 30, 2017
 REVISED _____, 20____
 OPERATORS WELL NO. HEAVEN HILL 3-2HM
 API WELL NO. 47-051-01962
 STATE COUNTY PERMIT

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

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- LEASE # (SEE PGS. 3,4,5)
- SURFACE OWNER (SEE TABLE)

10/27/2017

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

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

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

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

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

**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

RECEIVED
Office of Oil and Gas
AUG 25 2017
WV Department of
Environmental Protection

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
 Its: Permit Specialist - Appalachia Region

WW-6A1 Supplement

Operator's Well No. Heaven Hill 3 - 2HM

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15557	A	9-7-30	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	Chevron to Tug Hill: 35/148
10*15557	B	9-7-21	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	Chevron to Tug Hill: 36/148
10*16289	C	9-7-18	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905 468	N/A	N/A	N/A
10*16051	C	9-7-18	DONNA JEAN SNIDER AND DAVID SNIDER	TH EXPLORATION LLC	1/8+	905 462	N/A	N/A	N/A
10*16412	C	9-7-18	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905 452	N/A	N/A	N/A
10*16053	C	9-7-18	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905 466	N/A	N/A	N/A
10*15720	C	9-7-18	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905 458	N/A	N/A	N/A
10*15667	C	9-7-18	KEVIN E MCGILTON ET UX	CHEVRON USA INC	1/8+	850 351	N/A	N/A	Chevron to Tug Hill: 35/148
10*15698	C	9-7-18	ROBERT A EDGE AND SHERRIE N EDGE	TH EXPLORATION LLC	1/8+	900 363	N/A	N/A	N/A
10*16413	C	9-7-18	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905 454	N/A	N/A	N/A
10*16028	C	9-7-18	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905 460	N/A	N/A	N/A
10*16020	C	9-7-18	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905 464	N/A	N/A	N/A
10*15721	C	9-7-18	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905 456	N/A	N/A	N/A
10*16289	D	9-7-20	BRENDA HINERMAN WILLIAMSON AND BRIAN K WILLIAMSON	TH EXPLORATION LLC	1/8+	905 468	N/A	N/A	N/A
10*16051	D	9-7-20	DONNA JEAN SNIDER AND DAVID SNIDER	TH EXPLORATION LLC	1/8+	905 462	N/A	N/A	N/A
10*16412	D	9-7-20	ELIZABETH ANN BLAZER AND PAUL R BLAZER	TH EXPLORATION LLC	1/8+	905 452	N/A	N/A	N/A
10*16053	D	9-7-20	GARY D HINERMAN AND JUDY ANN HINERMAN	TH EXPLORATION LLC	1/8+	905 466	N/A	N/A	N/A
10*15720	D	9-7-20	KAREN L GREATHOUSE AND FLOYD GREATHOUSE	TH EXPLORATION LLC	1/8+	905 458	N/A	N/A	N/A
10*15667	D	9-7-20	KEVIN E MCGILTON ET UX	CHEVRON USA INC	1/8+	850 351	N/A	N/A	Chevron to Tug Hill: 35/148
10*15698	D	9-7-20	ROBERT A EDGE AND SHERRIE N EDGE	TH EXPLORATION LLC	1/8+	900 363	N/A	N/A	N/A
10*16413	D	9-7-20	RONALD H EDGE JR	TH EXPLORATION LLC	1/8+	905 454	N/A	N/A	N/A
10*16028	D	9-7-20	ROSEMARY PARKINS AND STEPHEN PARKINS	TH EXPLORATION LLC	1/8+	905 460	N/A	N/A	N/A
10*16020	D	9-7-20	SHARON HINERMAN MAY & DANIEL G MAY	TH EXPLORATION LLC	1/8+	905 464	N/A	N/A	N/A
10*15721	D	9-7-20	TINA L EDGE MONTI AND THOMAS MONTI	TH EXPLORATION LLC	1/8+	905 456	N/A	N/A	N/A
10*15667	E	9-7-19	KEVIN E MCGILTON ET UX	CHEVRON USA INC	1/8+	850 351	N/A	N/A	Chevron to Tug Hill: 35/148
10*47051.256.1	F	9-11-6.1	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A
10*47051.256.3	F	9-11-6.1	BRENDA S DYKHOUSE	TH EXPLORATION LLC	1/8+	881 148	N/A	N/A	N/A
10*47051.256.2	F	9-11-6.1	CAROL JEAN ANDERSON	TH EXPLORATION LLC	1/8+	879 299	N/A	N/A	N/A
10*15669	F	9-11-6.1	EMMA ANDERSON	CHEVRON USA INC	1/8+	861 586	N/A	N/A	Chevron to Tug Hill: 35/148
10*15670	F	9-11-6.1	GARY M BONAR AND ELLEN L BONAR	CHEVRON USA INC	1/8+	861 577	N/A	N/A	Chevron to Tug Hill: 36/148
10*47051.256.4	F	9-11-6.1	GLEN A BONAR	TH EXPLORATION LLC	1/8+	881 151	N/A	N/A	N/A
10*47051.256.5	F	9-11-6.1	JERRY W ZIEN AND KATHLEEN E ZIEN	TH EXPLORATION LLC	1/8+	882 530	N/A	N/A	N/A
10*15671	F	9-11-6.1	JUDALENE K COLLUMS	CHEVRON USA INC	1/8+	861 571	N/A	N/A	Chevron to Tug Hill: 35/148
10*15672	F	9-11-6.1	NAOMI HUPP	CHEVRON USA INC	1/8+	861 604	N/A	N/A	Chevron to Tug Hill: 36/148
10*47051.256.1	G	9-11-6	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A
10*47051.256.3	G	9-11-6	BRENDA S DYKHOUSE	TH EXPLORATION LLC	1/8+	881 148	N/A	N/A	N/A
10*47051.256.2	G	9-11-6	CAROL JEAN ANDERSON	TH EXPLORATION LLC	1/8+	879 299	N/A	N/A	N/A
10*47051.256.4	G	9-11-6	GLEN A BONAR	TH EXPLORATION LLC	1/8+	881 151	N/A	N/A	N/A
10*47051.256.5	G	9-11-6	JERRY W ZIEN AND KATHLEEN E ZIEN	TH EXPLORATION LLC	1/8+	882 530	N/A	N/A	N/A
10*15669	G	9-11-6	EMMA ANDERSON	CHEVRON USA INC	1/8+	861 586	N/A	N/A	Chevron to Tug Hill: 35/148
10*15670	G	9-11-6	GARY M BONAR AND ELLEN L BONAR	CHEVRON USA INC	1/8+	861 577	N/A	N/A	Chevron to Tug Hill: 36/148
10*15671	G	9-11-6	JUDALENE K COLLUMS	CHEVRON USA INC	1/8+	861 571	N/A	N/A	Chevron to Tug Hill: 35/148
10*15672	G	9-11-6	NAOMI HUPP	CHEVRON USA INC	1/8+	861 604	N/A	N/A	Chevron to Tug Hill: 36/148
10*47051.103.1	H	9-11-9	MICHAEL A WHETZEL	TH EXPLORATION LLC	1/8+	885 51	N/A	N/A	N/A
10*15582	I	9-11-10	ROBERT L CLARK	CHESAPEAKE APPALACHIA LLC	1/8+	685 239	N/A	Chesapeake to Chevron: 50/461	Chevron to Tug Hill: 35/148
10*15539	J	9-11-11	KENNETH M MCCARDLE ET UX REV LT	CHEVRON USA INC	1/8+	816 499	N/A	N/A	Chevron to Tug Hill: 36/148
10*17555	K	9-14-18	AARON AND JANA K PARRY	TH EXPLORATION LLC	1/8+	924 113	N/A	N/A	N/A
10*17452	K	9-14-18	ALAN H & MARY K DEGARMO	TH EXPLORATION, LLC	1/8+	924 164	N/A	N/A	N/A
10*17139	K	9-14-18	ALICE G WEINER AND GERALD S WEINER	TH EXPLORATION LLC	1/8+	915 131	N/A	N/A	N/A
10*16183	K	9-14-18	ALLEN R L DAVIS AND DIANA LEE PATTERSON	TH EXPLORATION LLC	1/8+	906 285	N/A	N/A	N/A
10*17486	K	9-14-18	ANDREW M HOOVER AND DINAH R HOOVER	TH EXPLORATION LLC	1/8+	924 156	N/A	N/A	N/A
10*16289	K	9-14-18	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	TH EXPLORATION LLC	1/8+	906 287	N/A	N/A	N/A
10*17880	K	9-14-18	ANNA M WRIGHT	TH EXPLORATION, LLC	1/8+	924 586	N/A	N/A	N/A
10*16443	K	9-14-18	BARBARA BROWN CHAMBERS	TH EXPLORATION LLC	1/8+	924 621	N/A	N/A	N/A
10*16018	K	9-14-18	BARBARA MCFADDEN ALBRIGHT	TH EXPLORATION LLC	1/8+	906 262	N/A	N/A	N/A
10*17708	K	9-14-18	BETTY LOU NOBLE	TH EXPLORATION LLC	1/8+	923 127	N/A	N/A	N/A
10*17612	K	9-14-18	BEVERLY A LEDBETTER	TH EXPLORATION, LLC	1/8+	923 480	N/A	N/A	N/A
10*16240	K	9-14-18	BONNIE SUE PATTERSON SWISHER	TH EXPLORATION LLC	1/8+	906 289	N/A	N/A	N/A

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Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Decd Book/Page	Assignment	Assignment	Assignment
10*17517	K	9-14-18	JULIO ENRIQUE & DEBRA K TORRES	TH EXPLORATION, LLC	1/8+	923 537	N/A	N/A	N/A
10*16025	K	9-14-18	KATHARYN ANNETTE LILLY LAING AND FREDDIE JOE LAING	TH EXPLORATION LLC	1/8+	912 43	N/A	N/A	N/A
10*16086	K	9-14-18	KATHARYN DAY LILLY	TH EXPLORATION LLC	1/8+	906 272	N/A	N/A	N/A
10*16531	K	9-14-18	KATHY DOBBS WELLS	TH EXPLORATION LLC	1/8+	906 472	N/A	N/A	N/A
10*17668	K	9-14-18	KENNETH R DOBBS	TH EXPLORATION, LLC	1/8+	923 503	N/A	N/A	N/A
10*16597	K	9-14-18	KIM D BOWEN AND MADONNA M BOWEN	TH EXPLORATION LLC	1/8+	907 415	N/A	N/A	N/A
10*15752	K	9-14-18	KIM O CHAMBERS AND DEBRA CHAMBERS	TH EXPLORATION LLC	1/8+	906 258	N/A	N/A	N/A
10*16180	X	9-14-18	LARRY L CHAMBERS	TH EXPLORATION LLC	1/8+	906 280	N/A	N/A	N/A
10*17131	K	9-14-18	LAURA E TOTTEN AND LONNIE R TOTTEN	TH EXPLORATION LLC	1/8+	924 154	N/A	N/A	N/A
10*16726	K	9-14-18	LESLY K WHITE	TH EXPLORATION LLC	1/8+	924 182	N/A	N/A	N/A
10*16576	K	9-14-18	LINDA A MINER AND MICHAEL W MINER	TH EXPLORATION LLC	1/8+	907 484	N/A	N/A	N/A
10*16992	K	9-14-18	LINDA C ABRAHAM	TH EXPLORATION LLC	1/8+	924 148	N/A	N/A	N/A
10*17520	K	9-14-18	LUCY P SULLIVAN	TH EXPLORATION LLC	1/8+	923 539	N/A	N/A	N/A
10*17559	K	9-14-18	MARVIN JERRY BLAKE AND LINDA D BLAKE	TH EXPLORATION LLC	1/8+	923 528	N/A	N/A	N/A
10*16087	K	9-14-18	MARY PENELOPE LILLY MURPHY	TH EXPLORATION LLC	1/8+	912 41	N/A	N/A	N/A
10*17516	K	9-14-18	MARY V DOBBS	TH EXPLORATION LLC	1/8+	923 539	N/A	N/A	N/A
10*17505	K	9-14-18	MICHAEL R & LEANNE DOBBS	TH EXPLORATION, LLC	1/8+	924 116	N/A	N/A	N/A
10*47051.325.3	K	9-14-18	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	TH EXPLORATION LLC	1/8+	906 228	N/A	N/A	N/A
10*16181	K	9-14-18	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	TH EXPLORATION LLC	1/8+	906 281	N/A	N/A	N/A
10*16144	K	9-14-18	PATTIE S MADRID	TH EXPLORATION LLC	1/8+	906 278	N/A	N/A	N/A
10*17580	K	9-14-18	PAUL CRAIG CUNNINGHAM	TH EXPLORATION LLC	1/8+	923 530	N/A	N/A	N/A
10*17615	K	9-14-18	PAULA JO WRIGHT	TH EXPLORATION, LLC	1/8+	923 482	N/A	N/A	N/A
10*17581	K	9-14-18	PAULA WEIRES	TH EXPLORATION LLC	1/8+	923 485	N/A	N/A	N/A
10*47051.325.8	K	9-14-18	RICK PAVLIK	TH EXPLORATION LLC	1/8+	906 239	N/A	N/A	N/A
10*16570	K	9-14-18	ROBERT D BOWEN AND MARCIA M R BOWEN	TH EXPLORATION LLC	1/8+	907 420	N/A	N/A	N/A
10*17878	K	9-14-18	ROBERT E & SARAH M ROUSH	TH EXPLORATION, LLC	1/8+	924 390	N/A	N/A	N/A
10*17419	K	9-14-18	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	TH EXPLORATION LLC	1/8+	924 160	N/A	N/A	N/A
10*17129	K	9-14-18	ROBERTA JANE PARKINSON	TH EXPLORATION LLC	1/8+	924 142	N/A	N/A	N/A
10*17700	K	9-14-18	ROGER L & MARILYN L GARRISON	TH EXPLORATION, LLC	1/8+	923 472	N/A	N/A	N/A
10*17616	K	9-14-18	RONALD & ELIZABETH DOBBS	TH EXPLORATION, LLC	1/8+	924 107	N/A	N/A	N/A
10*15477	K	9-14-18	RONALD A WYCINSKI	TH EXPLORATION LLC	1/8+	906 241	N/A	N/A	N/A
10*16680	K	9-14-18	RONALD J AND JENNIFER CHAMBERS RICCA	TH EXPLORATION LLC	1/8+	924 188	N/A	N/A	N/A
10*16990	K	9-14-18	ROSEMARY H BEAVERS	TH EXPLORATION LLC	1/8+	924 152	N/A	N/A	N/A
10*17664	K	9-14-18	RUDOLPH H PARSONS	TH EXPLORATION, LLC	1/8+	923 511	N/A	N/A	N/A
10*16952	K	9-14-18	RUSSELL D HERVEY	TH EXPLORATION LLC	1/8+	924 132	N/A	N/A	N/A
10*47051.325.5	K	9-14-18	SAMUEL ALAN MCCORD AND WINIFRED A MCKEE	TH EXPLORATION LLC	1/8+	906 232	N/A	N/A	N/A
10*16733	K	9-14-18	SARAH L BISHOP	TH EXPLORATION LLC	1/8+	924 172	N/A	N/A	N/A
10*47051.325.7	K	9-14-18	SHERON JONES	TH EXPLORATION LLC	1/8+	906 237	N/A	N/A	N/A
10*16933	K	9-14-18	SHIRLEY ANN DOBBS	TH EXPLORATION LLC	1/8+	906 469	N/A	N/A	N/A
10*17703	K	9-14-18	SHIRLEY N COX	TH EXPLORATION, LLC	1/8+	923 498	N/A	N/A	N/A
10*16949	K	9-14-18	STEVEN R AND BRIANNE L UTT	TH EXPLORATION LLC	1/8+	924 138	N/A	N/A	N/A
10*17701	K	9-14-18	SUE ANN WORD	TH EXPLORATION, LLC	1/8+	923 470	N/A	N/A	N/A
10*17702	K	9-14-18	TAMMY BETH RAMSEY	TH EXPLORATION, LLC	1/8+	925 500	N/A	N/A	N/A
10*16967	K	9-14-18	TARA JEANNE MINOR AND JENNIFER A KNAPP	TH EXPLORATION LLC	1/8+	914 612	N/A	N/A	N/A
10*16594	K	9-14-18	TERRY LEE LASAVAGE	TH EXPLORATION LLC	1/8+	906 443	N/A	N/A	N/A
10*17667	K	9-14-18	THOMAS BRIAN WARRICK	TH EXPLORATION, LLC	1/8+	923 509	N/A	N/A	N/A
10*47051.325.6	K	9-14-18	THOMAS O MCCORD	TH EXPLORATION LLC	1/8+	906 235	N/A	N/A	N/A
10*47051.325.2	X	9-14-18	TIMMY LEE STOUT AND DOROTHY MARIE STOUT	TH EXPLORATION LLC	1/8+	906 222	N/A	N/A	N/A
10*17560	K	9-14-18	TREVOR HOOKS	TH EXPLORATION LLC	1/8+	924 110	N/A	N/A	N/A
10*17134	K	9-14-18	UNITED CHRISTIAN MISSIONARY SOCIETY	TH EXPLORATION LLC	1/8+	924 144	N/A	N/A	N/A
10*17617	K	9-14-18	UNITED DISCIPLES OF CHRIST CHURCH	TH EXPLORATION LLC	1/8+	924 129	N/A	N/A	N/A
10*17881	K	9-14-18	WAYLON L & ANGELA J MURPHEE	TH EXPLORATION, LLC	1/8+	924 335	N/A	N/A	N/A
10*16490	K	9-14-18	WILLIAM H AND MERRY C COTTON	TH EXPLORATION LLC	1/8+	924 176	N/A	N/A	N/A
10*17767	K	9-14-18	WILLIAM K & LINDA J MERRITT	TH EXPLORATION, LLC	1/8+	923 474	N/A	N/A	N/A
10*16965	K	9-14-18	WILLIAM L WRIGHT AND CAROLINA WRIGHT	TH EXPLORATION LLC	1/8+	914 524	N/A	N/A	N/A
10*17452	L	9-15-3	ALAN H & MARY K DEGARMO	TH EXPLORATION, LLC	1/8+	924 184	N/A	N/A	N/A
10*17436	L	9-15-3	ANDREW M HOOVER AND DINAH R HOOVER	TH EXPLORATION LLC	1/8+	924 156	N/A	N/A	N/A
10*16239	L	9-15-3	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	TH EXPLORATION LLC	1/8+	906 287	N/A	N/A	N/A

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10*16443	L	9-15-3	BARBARA BROWN CHAMBERS	TH EXPLORATION LLC	1/8+	924 621	N/A	N/A	N/A
10*16018	L	9-15-3	BARBARA MCFADDEN ALBRIGHT	TH EXPLORATION LLC	1/8+	906 262	N/A	N/A	N/A
10*16444	L	9-15-3	CATHERINE ELLEN CHAMBERS	TH EXPLORATION LLC	1/8+	924 623	N/A	N/A	N/A
10*16535	L	9-15-3	CHARLES E CARSON AND MARY KAY CARSON	TH EXPLORATION LLC	1/8+	906 420	N/A	N/A	N/A
10*17396	L	9-15-3	CHRISTINE L KIDD	TH EXPLORATION LLC	1/8+	924 158	N/A	N/A	N/A
10*16486	L	9-15-3	DAVID ALAN WILKINSON AND PATRICIA LYNN WILKINSON	TH EXPLORATION LLC	1/8+	924 180	N/A	N/A	N/A
10*17487	L	9-15-3	DEBORAH R MOKOSH	TH EXPLORATION LLC	1/8+	924 166	N/A	N/A	N/A
10*16995	L	9-15-3	DIANE ELSIE RAMSEY	TH EXPLORATION LLC	1/8+	924 146	N/A	N/A	N/A
10*17563	L	9-15-3	DONALD L WOOD	TH EXPLORATION LLC	1/8+	923 523	N/A	N/A	N/A
10*16953	L	9-15-3	DONALD T AND JEAN K HOGAN	TH EXPLORATION LLC	1/8+	924 140	N/A	N/A	N/A
10*16582	L	9-15-3	DORA BROCK BRAMMER	TH EXPLORATION LLC	1/8+	907 423	N/A	N/A	N/A
10*16445	L	9-15-3	DOUGLAS C AND GWENDLYN D LEWTON	TH EXPLORATION LLC	1/8+	925 123	N/A	N/A	N/A
10*16511	L	9-15-3	DOUGLAS R BOWEN	TH EXPLORATION LLC	1/8+	906 475	N/A	N/A	N/A
10*16835	L	9-15-3	ERNEST CARL AUGUSTINE JR	TH EXPLORATION LLC	1/8+	924 188	N/A	N/A	N/A
10*16182	L	9-15-3	FIRST CHRISTIAN CHURCH OF MOUNDSVILLE BY ROGER FRANCIS AND ROBERT ALBERT TRUSTEES	TH EXPLORATION LLC	1/8+	906 283	N/A	N/A	N/A
10*16017	L	9-15-3	FLOYD A MCFADDEN	TH EXPLORATION LLC	1/8+	906 260	N/A	N/A	N/A
10*16442	L	9-15-3	FRED T AND JERRY L CHAMBERS	TH EXPLORATION LLC	1/8+	924 174	N/A	N/A	N/A
10*17448	L	9-15-3	FREDERICK L HERVEY AND CATHY J HERVEY	TH EXPLORATION LLC	1/8+	924 162	N/A	N/A	N/A
10*16948	L	9-15-3	FREDERICK M LEWTON	TH EXPLORATION LLC	1/8+	924 136	N/A	N/A	N/A
10*17209	L	9-15-3	GAYLE S SHANNON	TH EXPLORATION LLC	1/8+	924 168	N/A	N/A	N/A
10*16441	L	9-15-3	GEORGE FRANKLIN AND NANCY ANN REED	TH EXPLORATION LLC	1/8+	924 619	N/A	N/A	N/A
10*17675	L	9-15-3	GREGORY D & CAROLYN J WISLE	TH EXPLORATION, LLC	1/8+	923 507	N/A	N/A	N/A
10*16580	L	9-15-3	HAROLD C MCFADDEN	TH EXPLORATION LLC	1/8+	907 480	N/A	N/A	N/A
10*17289	L	9-15-3	HAROLD R HUNT JR AND ELIZABETH A HUNT	TH EXPLORATION LLC	1/8+	924 170	N/A	N/A	N/A
10*16581	L	9-15-3	HELEN L SCHILLING	TH EXPLORATION LLC	1/8+	907 489	N/A	N/A	N/A
10*17674	L	9-15-3	HOWARD L & BETH E WOOD	TH EXPLORATION, LLC	1/8+	923 505	N/A	N/A	N/A
10*16540	L	9-15-3	JAMES A WINTER AND CONNIE G WINTER	TH EXPLORATION LLC	1/8+	924 184	N/A	N/A	N/A
10*47051.325.4	L	9-15-3	JAMES H WHITE AND RITA FRANKS WHITE	TH EXPLORATION LLC	1/8+	906 230	N/A	N/A	N/A
10*17731	L	9-15-3	JAMES J MCGHEE AND JEANNINE CHAMBERS MCGHEE	TH EXPLORATION LLC	1/8+	914 519	N/A	N/A	N/A
10*16569	L	9-15-3	JANICE C BALE	TH EXPLORATION LLC	1/8+	907 425	N/A	N/A	N/A
10*16950	L	9-15-3	JAY E AND CECILIA E LEWTON	TH EXPLORATION LLC	1/8+	924 134	N/A	N/A	N/A
10*16532	L	9-15-3	JEAN ANN MCFADDEN	TH EXPLORATION LLC	1/8+	906 459	N/A	N/A	N/A
10*16265	L	9-15-3	JOHN A SHUTZ AND CYNTHIA J SHUTZ	TH EXPLORATION LLC	1/8+	906 291	N/A	N/A	N/A
10*16483	L	9-15-3	JOHN C AND BARBARA H WINTER	TH EXPLORATION LLC	1/8+	924 178	N/A	N/A	N/A
10*47051.325.1	L	9-15-3	JUDITH A LEWANDOSKY AND ALAN E LEWANDOSKY	TH EXPLORATION LLC	1/8+	906 225	N/A	N/A	N/A
10*16993	L	9-15-3	JULIA HOOVER	TH EXPLORATION LLC	1/8+	924 150	N/A	N/A	N/A
10*16537	L	9-15-3	KIM D BOWEN AND MADONNA M BOWEN	TH EXPLORATION LLC	1/8+	907 415	N/A	N/A	N/A
10*15752	L	9-15-3	KIM O CHAMBERS AND DEBRA CHAMBERS	TH EXPLORATION LLC	1/8+	906 258	N/A	N/A	N/A
10*16180	L	9-15-3	LARRY L CHAMBERS	TH EXPLORATION LLC	1/8+	906 280	N/A	N/A	N/A
10*17131	L	9-15-3	LAURA E TOTTEN AND LONNIE R TOTTEN	TH EXPLORATION LLC	1/8+	924 154	N/A	N/A	N/A
10*16726	L	9-15-3	LESLEY K WHITE	TH EXPLORATION LLC	1/8+	924 182	N/A	N/A	N/A
10*16576	L	9-15-3	LINDA A MINER AND MICHAEL W MINER	TH EXPLORATION LLC	1/8+	907 484	N/A	N/A	N/A
10*16992	L	9-15-3	LINDA C ABRAHAM	TH EXPLORATION LLC	1/8+	924 148	N/A	N/A	N/A
10*47051.325.3	L	9-15-3	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	TH EXPLORATION LLC	1/8+	906 228	N/A	N/A	N/A
10*16181	L	9-15-3	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	TH EXPLORATION LLC	1/8+	906 281	N/A	N/A	N/A
10*16144	L	9-15-3	PATTIE S MADRID	TH EXPLORATION LLC	1/8+	906 278	N/A	N/A	N/A
10*47051.325.8	L	9-15-3	RICK PAVLIK	TH EXPLORATION LLC	1/8+	906 239	N/A	N/A	N/A
10*16570	L	9-15-3	ROBERT D BOWEN AND MARCIA M R BOWEN	TH EXPLORATION LLC	1/8+	907 420	N/A	N/A	N/A
10*17413	L	9-15-3	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	TH EXPLORATION LLC	1/8+	924 160	N/A	N/A	N/A
10*17129	L	9-15-3	ROBERTA JANE PARKINSON	TH EXPLORATION LLC	1/8+	924 142	N/A	N/A	N/A
10*16680	L	9-15-3	RONALD J AND JENNIFER CHAMBERS ROCA	TH EXPLORATION LLC	1/8+	924 185	N/A	N/A	N/A
10*16990	L	9-15-3	ROSEMARY H BEAVERS	TH EXPLORATION LLC	1/8+	924 152	N/A	N/A	N/A
10*16952	L	9-15-3	RUSSELL D HERVEY	TH EXPLORATION LLC	1/8+	924 132	N/A	N/A	N/A
10*47051.325.5	L	9-15-3	SAMUEL ALAN MCCOORD AND WINIFRED A MCKEE	TH EXPLORATION LLC	1/8+	906 232	N/A	N/A	N/A
10*16733	L	9-15-3	SARAH L BISHOP	TH EXPLORATION LLC	1/8+	924 172	N/A	N/A	N/A
10*47051.325.7	L	9-15-3	SHERON JONES	TH EXPLORATION LLC	1/8+	906 237	N/A	N/A	N/A
10*16949	L	9-15-3	STEVEN R AND BRIANNE L UTT	TH EXPLORATION LLC	1/8+	924 138	N/A	N/A	N/A
10*17701	L	9-15-3	SUE ANN WORD	TH EXPLORATION, LLC	1/8+	923 470	N/A	N/A	N/A

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Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17702	L	9-15-3	TAMMY BETH RAMSEY	TH EXPLORATION, LLC	1/8+	925 500	N/A	N/A	N/A
10*16394	L	9-15-3	TERRY LEE LASAVAGE	TH EXPLORATION LLC	1/8+	906 443	N/A	N/A	N/A
10*47051.325.6	L	9-15-3	THOMAS O MCCOORD	TH EXPLORATION LLC	1/8+	906 235	N/A	N/A	N/A
10*17194	L	9-15-3	UNITED CHRISTIAN MISSIONARY SOCIETY	TH EXPLORATION LLC	1/8+	924 144	N/A	N/A	N/A
10*17617	L	9-15-3	UNITED DISCIPLES OF CHRIST CHURCH	TH EXPLORATION LLC	1/8+	924 129	N/A	N/A	N/A
10*16490	L	9-15-3	WILLIAM H AND MERRY C COTTON	TH EXPLORATION LLC	1/8+	924 176	N/A	N/A	N/A
10*17164	M	9-15-1	BETTY D VEST	TH EXPLORATION LLC	1/8+	925 141	N/A	N/A	N/A
10*17163	M	9-15-1	HOLLY JILL COHAGAN	TH EXPLORATION LLC	1/8+	925 190	N/A	N/A	N/A
10*17293	M	9-15-1	JANICE L PIETERSE	TH EXPLORATION LLC	1/8+	925 149	N/A	N/A	N/A
10*16480	M	9-15-1	JOHN D HAYES AND LYNDA SIGMON HAYES	TH EXPLORATION LLC	1/8+	925 184	N/A	N/A	N/A
10*16518	M	9-15-1	JOHN P AND ROSE HOWELL RICKY	TH EXPLORATION LLC	1/8+	925 146	N/A	N/A	N/A
10*17165	M	9-15-1	LAURA A PETTINGREW	TH EXPLORATION LLC	1/8+	925 151	N/A	N/A	N/A
10*16739	M	9-15-1	MARK M BASSETT	TH EXPLORATION LLC	1/8+	911 78	N/A	N/A	N/A
10*16519	M	9-15-1	NORMAN B AND JO ELLEN KAUBLE	TH EXPLORATION LLC	1/8+	925 156	N/A	N/A	N/A
10*17132	M	9-15-1	OTTO J N AND LAUREL ANN KUNST	TH EXPLORATION LLC	1/8+	925 153	N/A	N/A	N/A
10*16246	M	9-15-1	R RICK HYRE	TH EXPLORATION LLC	1/8+	925 162	N/A	N/A	N/A
10*17168	M	9-15-1	RANDY K AND ALICE E BOWER	TH EXPLORATION LLC	1/8+	925 135	N/A	N/A	N/A
10*16848	M	9-15-1	RICHARD W DOUTHITT	TH EXPLORATION LLC	1/8+	925 128	N/A	N/A	N/A
10*16482	M	9-15-1	SAMUEL J RICKY	TH EXPLORATION LLC	1/8+	925 143	N/A	N/A	N/A
10*17768	M	9-15-1	SHERI L EVRAETS	TH EXPLORATION, LLC	1/8+	925 125	N/A	N/A	N/A
10*17382	M	9-15-1	TODD W BULLARD AND BETH H BULLARD	TH EXPLORATION LLC	1/8+	925 132	N/A	N/A	N/A
10*17621	M	9-15-1	WILLIAM M BECKER AND KATHARINE B BECKER	TH EXPLORATION LLC	1/8+	925 188	N/A	N/A	N/A
10*16897	M	9-15-1	WILLIAM W AND NOREEN M HYRE	TH EXPLORATION LLC	1/8+	925 159	N/A	N/A	N/A
10*15818	N	9-14-19	ELIZABETH ANN STRAUSBAUGH	CHESAPEAKE APPALACHIA LLC	1/8+	703 578	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15815	N	9-14-19	FORREST M THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	694 516	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15819	N	9-14-19	JANET LEA BLANKENSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	708 114	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15814	N	9-14-19	MARY E BASSETT	CHESAPEAKE APPALACHIA LLC	1/8+	694 499	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15813	N	9-14-19	ROBERT B THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	692 235	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15817	N	9-14-19	RUTH MEADOWS	CHESAPEAKE APPALACHIA LLC	1/8+	703 583	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15816	N	9-14-19	SALLY CYNTHIA HOPKINS	CHESAPEAKE APPALACHIA LLC	1/8+	697 116	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15818	O	9-15-16	ELIZABETH ANN STRAUSBAUGH	CHESAPEAKE APPALACHIA LLC	1/8+	703 578	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15815	O	9-15-16	FORREST M THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	694 516	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15819	O	9-15-16	JANET LEA BLANKENSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	708 114	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15814	O	9-15-16	MARY E BASSETT	CHESAPEAKE APPALACHIA LLC	1/8+	694 499	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15813	O	9-15-16	ROBERT B THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	692 235	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15817	O	9-15-16	RUTH MEADOWS	CHESAPEAKE APPALACHIA LLC	1/8+	703 583	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
10*15816	O	9-15-16	SALLY CYNTHIA HOPKINS	CHESAPEAKE APPALACHIA LLC	1/8+	697 116	N/A	Chesapeake to SWN: 33/110	SWN Prod To Tug Hill: 36/431
	P	9-15-15	LEONARD F DAVIS SR AND LINDA K DAVIS	CENTRAL MICHIGAM EXPLORATION LLC - SEE ATTACHED LETTER	1/8+	668 605	N/A	Central Michigan to Stone Energy: 21/283	Stone Energy to EQT: 38/75

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Assignor represents and warrants that Assignor has paid any and all bonuses, rentals, royalties, overriding royalties, and other payments required by the Leases which were due for the period in which Assignor held its interests in the Leases, and that Assignor has fully performed all conditions necessary to maintain the Leases in full force and effect during such period, free and clear of all Encumbrances, except for and subject only to Permitted Encumbrances.

3. Successors and Assigns. The terms of this Assignment shall be binding upon and inure to the benefit of the parties hereto and each of their respective successors and assigns, and such terms shall be covenants running with the land, and with each subsequent transfer or assignment thereof.

4. Further Assurances. Assignor and Assignee hereby agree to take all actions and execute, acknowledge, and deliver all such instruments as are necessary or advisable to effectuate the purposes of this Assignment.

5. Counterparts; Recordation. This Assignment may be executed in any number of counterparts, each of which will be deemed an original instrument, but all of which shall collectively constitute one and the same instrument; provided that none of the parties will be bound to this Assignment unless and until all parties have executed a counterpart. For recording purposes, the signature and/or acknowledgment pages from multiple counterparts may be combined with one or more other counterparts without affecting the effect or validity of this Assignment. Assignee will be responsible for recording this Assignment in the appropriate public record, and will bear any costs associated with such recording.

6. Drafting. Preparation of this Assignment has been a joint effort of the parties and the resulting Assignment must not be construed more severely against any of the parties than against any other.

7. Incorporation. This Assignment is subject to and expressly incorporates the terms of the Acreage Trade Agreement by and between Assignor and Assignee. The Acreage Trade Agreement will govern to the extent of any conflict between the terms of this Assignment and the Acreage Trade Agreement.

(The remainder of this page intentionally left blank, signature pages to follow)

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IN WITNESS WHEREOF, and intending to be legally bound hereby, Assignor and Assignee have caused this Assignment to be duly executed the day and year first above written.

ASSIGNOR:

CHEVRON U.S.A. INC.

By: Marc Tate
Name: Marc Tate
Title: Attorney-In-Fact

ASSIGNEE:

TH EXPLORATION, LLC

By: _____
Name: _____
Title: _____

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IN WITNESS WHEREOF, and intending to be legally bound hereby, Assignor and Assignee have caused this Assignment to be duly executed the day and year first above written.

ASSIGNOR:

CHEVRON U.S.A. INC.

By: _____
Name: Marc Tate
Title: Attorney-In-Fact

ASSIGNEE:

TH EXPLORATION, LLC

By: David D. Kalish
Name: David D. Kalish
Title: VP-Land

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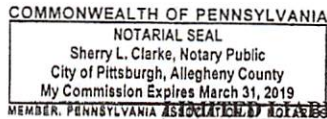
CORPORATE ACKNOWLEDGEMENT

STATE/Commonwealth of PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this the 16th day of May, 2016, before me, SHERRY L. CLARKE the undersigned authority, personally appeared Marc Tate, who acknowledged himself to be the Attorney-In-Fact of CHEVRON U.S.A. INC., a Pennsylvania corporation, and that he as such Attorney-In-Fact, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as Attorney-In-Fact.

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

MY COMMISSION EXPIRES: March 31, 2019



Sherry L. Clarke
Notary Public

MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES LIMITED LIABILITY COMPANY ACKNOWLEDGEMENT

STATE/Commonwealth of _____)
) SS:
COUNTY OF _____)

On this the _____ day of _____, 2016, before me, _____ the undersigned authority, personally appeared _____, who acknowledged himself to be a _____, a limited liability company and that he as such _____, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited liability company by himself as _____.

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

MY COMMISSION EXPIRES:

Notary Public

Prepared by:

CHEVRON U.S.A. INC.
Attn: Land Department
700 Cherrington Parkway,
Coraopolis, PA 15108

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CORPORATE ACKNOWLEDGEMENT

STATE/Commonwealth of PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this the ____ day of _____, 2016, before me, _____
the undersigned authority, personally appeared Marc Tate, who acknowledged himself to
be the Attorney-In-Fact of CHEVRON U.S.A. INC., a Pennsylvania corporation, and that he as such
Attorney-In-Fact, being authorized to do so, executed the foregoing instrument for the purposes therein
contained by signing the name of the corporation by himself as Attorney-In-Fact.

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

MY COMMISSION EXPIRES:

Notary Public

LIMITED LIABILITY COMPANY ACKNOWLEDGEMENT

STATE/Commonwealth of Texas)
) SS:
COUNTY OF Tarrant)

On this the 17th day of May, 2016, before me,
Jennifer McHugh the undersigned authority, personally appeared David D. Kalish, who
acknowledged himself to be Vice President Land of TH Exploration, a limited liability
company and that he as such Vice President Land, being authorized to do so, executed the
foregoing instrument for the purposes therein contained by signing the name of the limited liability
company by himself as Vice President Land.

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

MY COMMISSION EXPIRES: 1-26-2019

Jennifer McHugh
Notary Public

Prepared by:

CHEVRON U.S.A. INC.
Attn: Land Department
700 Cherrington Parkway,
Coraopolis, PA 15108



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EXHIBIT A - LEASES TO BE ASSIGNED TO TH EXPLORATION, LLC
MARSHALL COUNTY, WEST VIRGINIA

Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC

ID	AGMIT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
876481	ANDERSON CAROL J ET AL	CHEVRON USA INC	1/23/2012	BK 772 PG 226	INST 1327661	ALL	92.50	09-0007-0027-0000-0000; 09-0007-0029-0000-0000; 09-0007-0029-0001-0000	54.45 GROSS AC OF 09-0007-0027-0000-0000, 09-0007-0029-0000-0000, & 09-0007-0029-0001- 0000 (AS DEPICTED ON EXHIBIT A-1)
938387	ANDERSON EMMA - SFX	CHEVRON USA INC	3/26/2015	BK 861 PG 586	INST 1378408	UPP	87.40	09-0011-0006-0000-0000; 09-0011-0006-0001-0000; 09-0011-0006-0002-0000	
938586	ASTON DIANE B - SFX	CHEVRON USA INC	2/5/2015	BK 864 PG 595	INST 1380296	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934693	ASTON DONALD - SFX	CHEVRON USA INC	8/31/2014	BK 848 PG 274	INST 1371515	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934733	ASTON HENRY W - SFX	CHEVRON USA INC	8/19/2014	BK 847 PG 138	INST 1370856	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
936946	ASTON ISAAC R - SFX	CHEVRON USA INC	2/13/2015	BK 886 PG 136	INST 1396358	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934692	ASTON JOSEPH JR AIF MELVIN J ASTON - SFX	CHEVRON USA INC	9/4/2014	BK 848 PG 280	INST 1371518	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
939812	ASTON MARY MARGARET - SFX	CHEVRON USA INC	3/4/2015	BK 868 PG 283	INST 1382307	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934694	ASTON PAUL J - SFX	CHEVRON USA INC	8/31/2014	BK 848 PG 277	INST 1371517	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
936943	ASTON THOMAS G - SFX	CHEVRON USA INC	12/15/2014	BK 860 PG O83	INST 1377843	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934570	BETTINAZZI ELLEN L - SFX	CHEVRON USA INC	8/19/2014	BK 847 BK 496	INST 1371048	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
938388	BONAR GARY M ET UX - SFX	CHEVRON USA INC	3/25/2015	BK 861 PG 577	INST 1378405	UPP	87.40	09-0011-0006-0000-0000; 09-0011-0006-0001-0000; 09-0011-0006-0002-0000	
917507	BOREN JAMIE C - SFX	CHEVRON USA INC	5/13/2013	BK 797 PG 331	INST 1344700	ALL	53.33	09-0006-0008-0000-0000	
934696	BURKEY DELLA M - SFX	CHEVRON USA INC	8/31/2014	BK 848 PG 435	INST 1371671	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
904336	BURNS CYNTHIA GAY - SFX	CHEVRON USA INC	10/12/2012	BK 782 PG 114	INST 1334035	ALL	53.33	09-0006-0008-0000-0000	
913307	CHERRY VICKI J ET VIR - SFX	CHEVRON USA INC	3/11/2013	BK 793 PG 318	INST 1342015	ALL	60.00	09-0006-0012-0000-0000	
933712	CHESTNUT HOLDINGS LLC	REPUBLIC ENERGY VENTURES LLC	6/17/2014	BK 839 PG 170	INST 1366448	ALL	126.89	09-0004-0018-0000-0000; 09-0006-0005-0000-0000	89.16 GROSS AC OF 09-0004-0018-0000-0000 & 09-0006-0005-0000-0000 (AS DEPICTED ON EXHIBIT A-2)
921543	CHK-MAC LLC	CHESAPEAKE APPALACHIA LLC	4/1/2013	BK 798 PG 150	INST 1345205	ALL	142.38	09-0012-0002-0000-0000	

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MARSHALL COUNTY, WEST VIRGINIA

Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC

ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
935623	CIRONE JUDITH A - SFX	CHEVRON USA INC	9/26/2014	BK 848 PG 428	INST 1371665	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
920633	CLARK ROBERT L - SFX	CHESAPEAKE APPALACHIA LLC	6/25/2009	BK 685 PG 239	INST 1274143	ALL	110.00	09-0011-0009-0000-0000; 09-0011-0010-0000-0000	
867835	COFFEY FRANCES - SFX	TRIENERGY HOLDINGS, LLC	9/1/2010	BK 718 PG 378	INST 1297328	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
938389	COLLUMS JUDALENE K - SFX	CHEVRON USA INC	3/26/2015	BK 861 PG 571	INST 1378403	UPP	87.40	09-0011-0006-0000-0000; 09-0011-0006-0001-0000; 09-0011-0006-0002-0000	
935270	CONKLE LARRY LEE - SFX	CHEVRON USA INC	11/10/2014	BK 863 PG 354	INST 1379401	MCLS	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935274	CONKLE ROY A - SFX	CHEVRON USA INC	11/10/2014	BK 863 PG 311	INST 1379391	MCLS	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
904443	CRADDOCK FLOY CARLEEN - SFX	CHEVRON USA INC	10/20/2012	BK 782 PG 348	INST 1334306	ALL	53.33	09-0006-0008-0000-0000	
936607	CRAWFORD MARTHA - SFX	CHEVRON USA INC	11/21/2014	BK 863 PG 542	INST 1379760	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
868163	CROW CARLA S	TRIENERGY HOLDINGS, LLC	12/16/2010	BK 728 PG 412	INST 1302558	ALL	6.34	09-0005-0017-0000-0000	
867834	CROW DAVID E - SFX	TRIENERGY HOLDINGS, LLC	10/12/2010	BK 718 PG 376	INST 1297352	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
867845	CROW DESIRE L - SFX	TRIENERGY HOLDINGS, LLC	9/8/2010	BK 718 PG 334	INST 1297332	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
921537	CROW ISAIC ET UX	CHESAPEAKE APPALACHIA LLC	12/25/1900	BK 74 PG 394	NA	ALL	30.00	09-0014-0024-0000-0000	

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EXHIBIT A - LEASES TO BE ASSIGNED TO TH EXPLORATION, LLC MARSHALL COUNTY, WEST VIRGINIA Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC									
ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
868090	CROW JOHN - SFX	TRIENERGY HOLDINGS, LLC	3/9/2011	BK 726 PG 580	INST 1301672	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
867844	CROW L PAUL - SFX	TRIENERGY HOLDINGS, LLC	9/9/2010	BK718 PG 336	INST 1297333	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
868091	CROW TIMOTHY - SFX	TRIENERGY HOLDINGS, LLC	3/9/2011	BK 726 PG 582	INST 1301673	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
920825	DAKAN JOSEPH D - SFX	CHESAPEAKE APPALACHIA LLC	11/18/2009	BK 695 PG 519	INST 1282558	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
936819	DANIEL MARY JANE - SFX	CHEVRON USA INC	12/8/2014	BK 858 PG 028	INST 1376640	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934698	DAVIS EMMA JANE - SFX	CHEVRON USA INC	8/31/2014	BK 848 PG 271	INST 1371513	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934363	DAYTON JAMES W - SFX	CHEVRON USA INC	7/28/2014	BK 847 PG 567	INST 1371084	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935254	DAYTON KENNETH L - SFX	CHEVRON USA INC	11/4/2014	BK 852 PG 366	INST 1374060	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
940301	DAYTON WILLIAM E AIF CONNIE L DAYTON - SFX	CHEVRON USA INC	4/1/2015	BK 871 PG 190	INST 1384613	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
904731	DENMAN WILLIAM RIAL - SFX	CHEVRON USA INC	10/15/2012	BK 782 PG 109	INST 1334034	ALL	53.33	09-0006-0008-0000-0000	
920799	DOBBS GARY LEE - SFX	CHESAPEAKE APPALACHIA LLC	11/17/2009	BK 693 PG 289	INST 1280321	ALL	21.78	09-0014-0015-0000-0000	

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ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
920798	DOBBS JOHN DANIEL - SFX	CHESAPEAKE APPALACHIA LLC	11/17/2009	BK 694 PG 125	INST 1280977	ALL	21.78	09-0014-0015-0000-0000	
920597	DOBBS WARREN J - SFX	CHESAPEAKE APPALACHIA LLC	7/7/2009	BK 686 PG 321	INST 1275436	ALL	91.00	09-0012-0020-0000-0000	
938584	EMERSON ANNA - SFX	CHEVRON USA INC	2/4/2015	BK 864 PG 603	INST 1380299	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
866416	FLETCHER JERRY ET UX - SFX	TRIENERGY, INC	5/22/2007	BK 661 PG 154	INST 117384	ALL	103.30	09-0007-0006-0000-0000	5.007 GROSS AC OF 09-0007-0006-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
904339	FROHNAPFEL MARY RUTH - SFX	CHEVRON USA INC	10/10/2012	BK 781 PG 312	INST 1333615	ALL	60.00	09-0006-0012-0000-0000	
904744	FROWEN SANDRA - SFX	CHEVRON USA INC	10/10/2012	BK 781 PG 307	INST 1333614	ALL	60.00	09-0006-0012-0000-0000	
920827	GAST KAREN S - SFX	CHESAPEAKE APPALACHIA LLC	12/4/2009	BK 694 PG 534	INST 1281603	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
923484	GATTS YVONNE S - SFX	CHEVRON USA INC	6/10/2014	BK 835 PG 035	INST 1364246	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
867879	GELLNER DIANNE ET VIR - SFX	TRIENERGY HOLDINGS, LLC	9/13/2010	BK 718 PG 345	INST 1297334	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
920828	GONTA ADA HAZEL - SFX	CHESAPEAKE APPALACHIA LLC	12/15/2009	BK 695 PG 183	INST 1281936	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
907366	GOODNIGHT ARNIE ET UX	CHEVRON USA INC	8/23/2012	BK 777 PG 059	INST 1330837	ALL	101.73	09-0007-0005-0000-0000; 09-0007-0014-0000-0000	44.11 GROSS AC OF 09-0007-0005-0000-0000 & 09-0007-0014-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
920824	GORBY IVAN F - SFX	CHESAPEAKE APPALACHIA LLC	11/23/2009	BK 695 PG 527	INST 1282565	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
920826	GORBY JOHN E - SFX	CHESAPEAKE APPALACHIA LLC	11/24/2009	BK 695 PG 523	INST 1282562	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
904623	GROVES FLOYDENE S - SFX	CHEVRON USA INC	10/31/2012	BK 783 PG 619	INST 1335464	ALL	53.33	09-0006-0008-0000-0000	

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ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
921585	HAGEDORN CHARLES R JR ET UX - SFX	CHEVRON USA INC	12/12/2013	BK 816 PG 423	INST 1355767	ALL	206.89	09-0007-0003-0000-0000; 09-0007-0003-0001-0000	61.39 GROSS AC OF 09-0007-0003-0000-0000 & 09-0007-0003-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
913313	HAMAR JEFFIE - SFX	CHEVRON USA INC	2/21/2013	BK 792 PG 213	INST 1341258	ALL	53.33	09-0006-0008-0000-0000	
866788	HARTZELL RAY C ET UX	AB RESOURCES LLC	10/20/2009	BK 689 PG 162	INST 1277848	ALL	34.50	09-0006-0013-0000-0000	
868227	HARVETH RICHARD L ET UX	TRIENERGY HOLDINGS, LLC	1/3/2011	BK 729 PG 638	INST 1303323	ALL	1.65	09-0014-0054-0000-0000	
917603	HAVINS WILLIAM K - SFX	CHEVRON USA INC	5/29/2013	BK 800 PG 144	INST 1346383	ALL	53.33	09-0006-0008-0000-0000	
921295	HAYHURST A FLORIDA COMPANY	CHESAPEAKE APPALACHIA LLC	11/12/2010	BK 724 PG 008	INST 1300160	MCLS	91.65	09-0011-0013-0000-0000	
921292	HAYHURST A FLORIDA COMPANY - SFX	CHESAPEAKE APPALACHIA LLC	11/12/2010	BK 724 PG 009	INST 1300161	MCLS	94.36	09-0014-0001-0000-0000; 09-0014-0001-0001-0000; 09-0014-0002-0000-0000; 09-0014-0003-0000-0000; 09-0014-0004-0000-0000; 09-0014-0005-0000-0000; 09-0014-0006-0000-0000; 09-0014-0007-0000-0000; 09-0014-0008-0000-0000; 09-0014-0009-0000-0000; 09-0014-0010-0000-0000	
921293	HAYHURST COMPANY - SFX	CHESAPEAKE APPALACHIA LLC	11/12/2010	BK 727 PG 253	INST 1301999	ALL	5.00	09-0012-0031-0000-0000	
920634	HAYHURST COMPANY A FLORIDA COMPANY - SFX	CHESAPEAKE APPALACHIA LLC	5/5/2010	BK 715 PG 442	INST 1296144	ALL	110.00	09-0011-0009-0000-0000; 09-0011-0010-0000-0000	
923477	HEINZEROTH DAVID - SFX	CHEVRON USA INC	6/16/2014	BK 836 PG 219	INST 13650150	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923465	HELPER JANE L - SFX	CHEVRON USA INC	6/19/2014	BK 836 PG 342	INST 1365241	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
940302	HENCEROTH DOUGLAS PAUL AIF EMILY M HENCEROTH - SFX	CHEVRON USA INC	3/28/2015	BK 871 PG 193	INST 1384615	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
937573	HENCEROTH EMILY M - SFX	CHEVRON USA INC	1/8/2015	BK 862 PG 574	INST 1379327	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
937574	HENNIGER GEORGE E - SFX	CHEVRON USA INC	1/6/2015	BK 863 PG 612	INST 1379787	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	

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867883	HOLLIDAY JACQUELINE ET VIR - SFX	TRIENERGY HOLDINGS, LLC	9/18/2010	BK 718 PG 347	INST 1297336	MCLS	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
866651	HUBBS ROBERT ET AL	CHIEF EXPLORATION & DEVELOPMENT LLC	9/8/2008	BK 677 PG 521	INST 1265447	ALL	108.61	09-0007-0007-0000-0000	102.669 GROSS AC OF 09-0007-0007-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
935291	HUGHES TERESA ANNE - SFX	CHEVRON USA INC	11/10/2014	BK 863 PG 343	INST 1379398	MCLS	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
938390	HUPP NAOMI - SFX	CHEVRON USA INC	3/27/2015	BK 861 PG 604	INST 1378413	UPP	87.40	09-0011-0006-0000-0000; 09-0011-0006-0001-0000; 09-0011-0006-0002-0000	
904435	JARMON JOYCE HOPE - SFX	CHEVRON USA INC	10/17/2012	BK 782 PG 329	INST 1334301	ALL	53.33	09-0006-0008-0000-0000	
935256	JOHNSON NORMAN G - SFX	CHEVRON USA INC	9/30/2014	BK 848 PG 363	INST 1371653	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923479	JONES MARIAN D - SFX	CHEVRON USA INC	6/10/2014	BK 835 PG 038	INST 1364247	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
904727	KAY ALTA BELL - SFX	CHEVRON USA INC	10/15/2012	BK 782 PG 089	INST 1334031	ALL	53.33	09-0006-0008-0000-0000	
867329	KELLEY DONALD B ET UX - SFX	TRIENERGY HOLDINGS, LLC	3/17/2010	BK 704 PG 348	INST 1288929	ALL	48.05	9999-0000-4470-0900	
920436	KERNS WILLIAM F ET UX	CHESAPEAKE APPALACHIA LLC	1/16/2009	BK 677 PG 561	INST 1265702	ALL	87.40	09-0011-0006-0000-0000; 09-0011-0006-0001-0000; 09-0011-0006-0002-0000	
867836	KEYES KAY - SFX	TRIENERGY HOLDINGS, LLC	9/2/2010	BK 718 PG 330	INST 1297329	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	

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867855	KIELGCZEWSKI ROSE MARIE - SFX	TRIENERGY HOLDINGS, LLC	9/9/2010	BK 718 PG 354	INST 1297338	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
936942	KUHN MARY GLADYS BY AIF CONNIE LYONS - SFX	CHEVRON USA INC	12/15/2014	BK 860 PG 089	INST 1377845	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
940181	LAUGHTON GLEN MATTHEW - SFX	CHEVRON USA INC	5/14/2015	BK 873 PG 324	INST 1386674	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935259	LAUGHTON RONALD BEN - SFX	CHEVRON USA INC	11/1/2014	BK 852 PG 360	INST 1374057	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
944097	LEACH DONALD E ET AL	CHEVRON USA INC	10/14/2015	BK 882 PG 209	INST 1393778	ALL	12.73	09-0005-0018-0000-0000; 09-0005-0020-0000-0000	
918258	LEVESQUE REBECCA BELL - SFX	CHEVRON USA INC	6/10/2013	BK 800 PG 515	INST 1346808	ALL	53.33	09-0006-0008-0000-0000	
904791	LEWIS MERRIET E - SFX	CHEVRON USA INC	10/11/2012	BK 782 PG 125	INST 1334057	ALL	53.33	09-0006-0008-0000-0000	
904540	LITTLEFIELD JO ANN - SFX	CHEVRON USA INC	10/23/2012	BK 783 PG 141	INST 1334954	ALL	53.33	09-0006-0008-0000-0000	
913328	LOWRY CHARLOTTE L - SFX	CHEVRON USA INC	2/22/2013	BK 792 PG 208	INST 1341257	ALL	53.33	09-0006-0008-0000-0000	
904528	MADISON ANN - SFX	CHEVRON USA INC	10/25/2012	BK 783 PG 176	INST 1334966	ALL	53.33	09-0006-0008-0000-0000	
866663	MASON JAMES ET AL	AB RESOURCES LLC	9/30/2009	BK 692 PG 461	INST 1279606	ALL	180.99	09-0010-0004-0000-0000; 09-0010-0005-0000-0000; 09-0010-0006-0000-0000; 09-0006-0014-0000-0000	ALL OF 09-0010-0004-0000-0000 (OR 67.29 GROSS AC AS DEPICTED ON EXHIBIT A-2)
894583	MASON RONALD KEITH ET UX - SFX	CHEVRON USA INC	5/21/2012	BK 772 PG 445	INST 1327926	ALL	60.00	09-0006-0012-0000-0000	
920491	MASON VICKIE - SFX	CHESAPEAKE APPALACHIA LLC	4/14/2009	BK 680 PG 413	INST 1268757	ALL	33.33	09-0011-0003-0000-0000	
920504	MASON VICKIE - SFX	CHESAPEAKE APPALACHIA LLC	4/14/2009	BK 680 PG 405	INST 1268754	ALL	36.51	09-0010-0012-0000-0000	
920498	MASON VICKIE FKA CROW VICKIE J - SFX	CHESAPEAKE APPALACHIA LLC	4/14/2009	BK 680 PG 409	INST 1268755	ALL	71.12	09-0010-0013-0000-0000	
920636	MASON VICKIE J AKA CROW VICKIE J - SFX	CHESAPEAKE APPALACHIA LLC	6/22/2009	BK 686 PG 239	INST 1275410	ALL	106.89	09-0011-0005-0000-0000	
920279	MCCARDLE KENNETH M ET UX REV LIVING TRST	CHEVRON USA INC	12/18/2013	BK 816 PG 499	INST 1355787	ALL	109.95	09-0011-0011-0000-0000	
921162	MCCONNELL WILLIAM D	CHESAPEAKE APPALACHIA LLC	5/8/2010	BK 715 PG 447	INST 1296148	ALL	15.00	09-0010-0014-0000-0000	

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937840	MCGILTON KEVIN E ET UX - SFX	CHEVRON USA INC	1/5/2015	BK 850 PG 351	INST 1372504	MCLS	63.51	09-0007-0016-0000-0000; 09-0007-0017-0000-0000; 09-0007-0018-0000-0000; 09-0007-0019-0000-0000; 09-0007-0020-0000-0000	22.9 GROSS AC OF 09-0007-0016-0000-0000, 09-0007-0017-0000-0000 & 09-0007-0018-0000- 0000 (AS DEPICTED ON EXHIBIT A-1)
920644	MEADE ORVILLE JACKSON - SFX	CHESAPEAKE APPALACHIA LLC	8/14/2009	BK 687 PG 144	INST 1277086	ALL	47.25	09-0013-0022-0000-0000	
921558	MONEY FOR MINERALS LLC - SFX	CHEVRON USA INC	12/6/2013	BK 817 PG 424	INST 1356188	ALL	103.21	09-0015-0018-0000-0000	
866498	MOORE, RONALD AND EDNA	TRIENERGY, INC	6/4/2007	BK 661 PG 449	INST 1316895	ALL	154.44	09-0007-0012-0000-0000; 09-0007-0012-0001-0000; 09-0007-0013-0000-0000	38.37 GROSS AC OF 09-0007-0012-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
904730	MORGAN LAURA L - SFX	CHEVRON USA INC	10/11/2012	BK 782 PG 119	INST 1334038	ALL	53.33	09-0006-0008-0000-0000	
938587	MYERS PATTY L - SFX	CHEVRON USA INC	2/10/2015	BK 867 PG 100	INST 1381450	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935261	OLDFIELD KAREN KAY - SFX	CHEVRON USA INC	10/14/2014	BK 854 PG 111	INST 1375382	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
936443	OLDFIELD KENNETH WENDELL - SRX	CHEVRON USA INC	11/7/2014	BK 861 PG 589	INST 1378409	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
866771	OTT BETTY R	TRIENERGY HOLDINGS, LLC	10/12/2009	BK 687 PG 604	INST 1276968	ALL	11.43	09-0005-0014-0004-0000; 09-0005-0019-0000-0000	7.33 GROSS AC OF 09-0005-0014-0004-0000 (AS DEPICTED ON EXHIBIT A-1)
906791	PATRELLA VINCENT ET UX - SFX	CHEVRON USA INC	12/20/2012	BK 789 PG 446	INST 1339783	ALL	162.69	09-0006-0003-0000-0000; 09-0010-0003-0000-0000	ALL OF 09-0006-0003-0000-0000 (OR 96.937 GROSS AC AS DEPICTED ON EXHIBIT A-2)
867833	PHELPS ELAINE ET VIR - SFX	TRIENERGY HOLDINGS, LLC	9/1/2010	BK 718 PG 326	INST 1297327	ALL	486.46	09-0006-0009-0000-0000; 09-0006-0010-0000-0000; 09-0006-0011-0000-0000; 09-0006-0015-0000-0000; 09-0010-0009-0000-0000; 09-0010-0011-0000-0000; 09-0011-0012-0000-0000	
904539	PRICKETT CHARLOTTE - SFX	CHEVRON USA INC	10/25/2012	BK 783 PG 191	INST 1334969	ALL	53.33	09-0006-0008-0000-0000	
920833	RAJU PATSY JO - SFX	CHESAPEAKE APPALACHIA LLC	12/11/2009	BK 694 PG 561	INST 1281612	ALL	131.00	09-0005-0004-0000-0000; 09-0005-0004-0001-0000	109 GROSS AC OF 09-0005-0004-0000-0000 & 09-0005-0004-0001-0000 (AS DEPICTED ON EXHIBIT A-1)
923481	REYNOLDS SHARON M - SFX	CHEVRON USA INC	6/18/2014	BK 840 PG 322	INST 1367225	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923480	RINE CHARLES A - SFX	CHEVRON USA INC	6/10/2014	BK 835 PG 022	INST 1364242	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	

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936941	RINE DANIEL L - SFX	CHEVRON USA INC	12/15/2014	BK 860 PG 086	INST 1377844	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923467	RINE DAVID F - SFX	CHEVRON USA INC	6/19/2014	BK 837 PG 130	INST 1365603	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923478	RINE GLADYS M - SFX	CHEVRON USA INC	6/18/2014	BK 836 PG 329	INST 1365236	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
934362	RINE JAY LEROY - SFX	CHEVRON USA INC	7/31/2014	BK 840 PG 319	INST 1367240	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935383	RINE MICHAEL J ET UX	CENTRAL MICHIGAN EXPLORATION LLC	3/13/2008	BK 668 PG 147	INST 1252027	ALL	107.46	09-0007-0001-0000-0000	
923470	RINE PAUL WAYNE - SFX	CHEVRON USA INC	7/22/2014	BK 837 PG 133	INST 1365607	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923476	RINE PHILLIP C - SFX	CHEVRON USA INC	6/18/2014	BK 836 PG 332	INST 1365238	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
906416	ROUPE CHRISTOPHER A ET UX - SFX	CHEVRON USA INC	12/20/2012	BK 789 PG 439	INST 1339782	ALL	162.69	09-0006-0003-0000-0000; 09-0010-0003-0000-0000	ALL OF 09-0006-0003-0000-0000 (OR 96.937 GROSS AC AS DEPICTED ON EXHIBIT A-2)
906599	ROUPE WILLIAM B - SFX	CHEVRON USA INC	12/20/2012	BK 789 PG 430	INST 1339781	ALL	162.69	09-0006-0003-0000-0000; 09-0010-0003-0000-0000	ALL OF 09-0006-0003-0000-0000 (OR 96.937 GROSS AC AS DEPICTED ON EXHIBIT A-2)
906598	ROUPE WILLIAM N ET UX - SFX	CHEVRON USA INC	12/20/2012	BK 789 PG 415	INST 1339776	ALL	162.69	09-0006-0003-0000-0000; 09-0010-0003-0000-0000	ALL OF 09-0006-0003-0000-0000 (OR 96.937 GROSS AC AS DEPICTED ON EXHIBIT A-2)
923482	RUCKMAN GLADYS - SFX	CHEVRON USA INC	6/16/2014	BK 840 PG 319	INST 1367224	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
920599	SAMPSON RUTH NAOMI BY AIF SAMPSON H CARL - SFX	CHESAPEAKE APPALACHIA LLC	7/15/2009	BK 686 PG 284	INST 1275425	ALL	91.00	09-0012-0020-0000-0000	
936448	SEAVER JENNIFER - SFX	CHEVRON USA INC	11/10/2014	BK 853 PG 272	INST 1374550	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
936350	SEAVER PAULA R	CHEVRON USA INC	11/1/2014	BK 853 PG 483	INST 1374550	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935264	SEAVER ROBERT J - SFX	CHEVRON USA INC	10/9/2014	BK 854 PG 077	INST 1375364	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
913324	SIBURT ALAN K ET UX - SFX	CHEVRON USA INC	3/11/2013	BK 793 PG 325	INST 1342017	ALL	60.00	09-0006-0012-0000-0000	
913322	SIBURT JAMES B ET UX - SFX	CHEVRON USA INC	3/11/2013	BK 793 PG 332	INST 1342018	ALL	60.00	09-0006-0012-0000-0000	
904346	SIBURT KENNETH D - SFX	CHEVRON USA INC	10/10/2012	BK 781 PG 218	INST 1333354	ALL	60.00	09-0006-0012-0000-0000	
913327	SIBURT RODNEY L - SFX	CHEVRON USA INC	3/12/2013	BK 793 PG 346	INST 1342020	ALL	60.00	09-0006-0012-0000-0000	

BOOK 0036 PAGE 0162

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EXHIBIT A - LEASES TO BE ASSIGNED TO TH EXPLORATION, LLC
MARSHALL COUNTY, WEST VIRGINIA

Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC

ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
938219	SNYDER MICHAEL J	CHEVRON USA INC	1/16/2015	BK 865 PG 186	INST 1380389	MCLS	99.02	09-0005-0005-0000-0000; 09-0005-0005-0001-0000; 09-0005-0005-0002-0000; 09-0005-0005-0003-0000; 09-0005-0005-0004-0000; 09-0005-0021-0000-0000; 09-0005-0022-0000-0000; 09-0005-0023-0000-0000; 09-0005-0024-0000-0000	50 GROSS AC OF 09-0005-0005-0000-0000, 09-0005-0005-0001-0000, 09-0005-0005-0002-0000, 09-0005-0005-0003-0000, 09-0005-0005-0004-0000, 09-0005-0021-0000-0000, 09-0005-0022-0000-0000 & 09-0005-0024-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
920645	SNYDER TAMALA JANE - SFX	CHESAPEAKE APPALACHIA LLC	8/14/2009	BK 687 PG 151	INST 1277088	ALL	47.25	09-0013-0022-0000-0000	
920492	SOUTH MARY A - SFX	CHESAPEAKE APPALACHIA LLC	4/18/2009	BK 682 PG 231	INST 1270057	ALL	33.33	09-0011-0003-0000-0000	
920499	SOUTH MARY A - SFX	CHESAPEAKE APPALACHIA LLC	4/18/2009	BK 681 PG 410	INST 1269482	ALL	71.12	09-0010-0013-0000-0000	
920506	SOUTH MARY A - SFX	CHESAPEAKE APPALACHIA LLC	4/18/2009	BK 681 PG 414	INST 1269483	ALL	36.51	09-0010-0012-0000-0000	
920638	SOUTH MARY A - SFX	CHESAPEAKE APPALACHIA LLC	9/11/2009	BK 690 PG 615	INST 1278434	ALL	106.89	09-0011-0005-0000-0000	
923483	STALNAKER KATHERINE A	CHEVRON USA INC	6/12/2014	BK 840 PG 325	INST 1367227	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
867769	STERN WILLIAM K ET UX	NPAR, LLC	9/6/2010	BK 718 PG 320	INST 1297324	ALL	121.85	09-0014-0020-0000-0000; 09-0014-0020-0002-0000	
923074	STEVENS SARAH - SFX	CHEVRON USA INC	5/8/2014	BK 834 PG 432	INST 1364045	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923341	STEVENS THOMAS L - SFX	CHEVRON USA INC	5/26/2014	BK 836 PG 290	INST 1365221	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
935249	STIRLING LAWRENCE W - SFX	CHEVRON USA INC	11/3/2014	BK 852 PG 384	INST 1374067	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
904726	STURMAN CRAIG - SFX	CHEVRON USA INC	10/12/2012	BK 782 PG 130	INST 1334059	ALL	53.33	09-0006-0008-0000-0000	
904747	STURMAN JANIE E	CHEVRON USA INC	10/10/2012	BK 782 PG 140	INST 1334062	ALL	53.33	09-0006-0008-0000-0000	
904728	STURMAN JOHN FRANK - SFX	CHEVRON USA INC	10/12/2012	BK 782 PG 135	INST 1334060	ALL	53.33	09-0006-0008-0000-0000	
904723	STURMAN WILLIAM H - SFX	CHEVRON USA INC	10/10/2012	BK 782 PG 145	INST 1334063	ALL	53.33	09-0006-0008-0000-0000	
868107	VENANGO 21ST CENTURY ENERGY INC - SFX	TRIENERGY HOLDINGS, LLC	8/24/2010	BK 722 PG 281	INST 1299176	ALL	206.89	09-0007-0003-0000-0000	56.9 GROSS AC OF 09-0007-0003-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
920598	WADE SHARON KAY - SFX	CHESAPEAKE APPALACHIA LLC	7/7/2009	BK 686 PG 262	INST 1275417	ALL	91.00	09-0012-0020-0000-0000	

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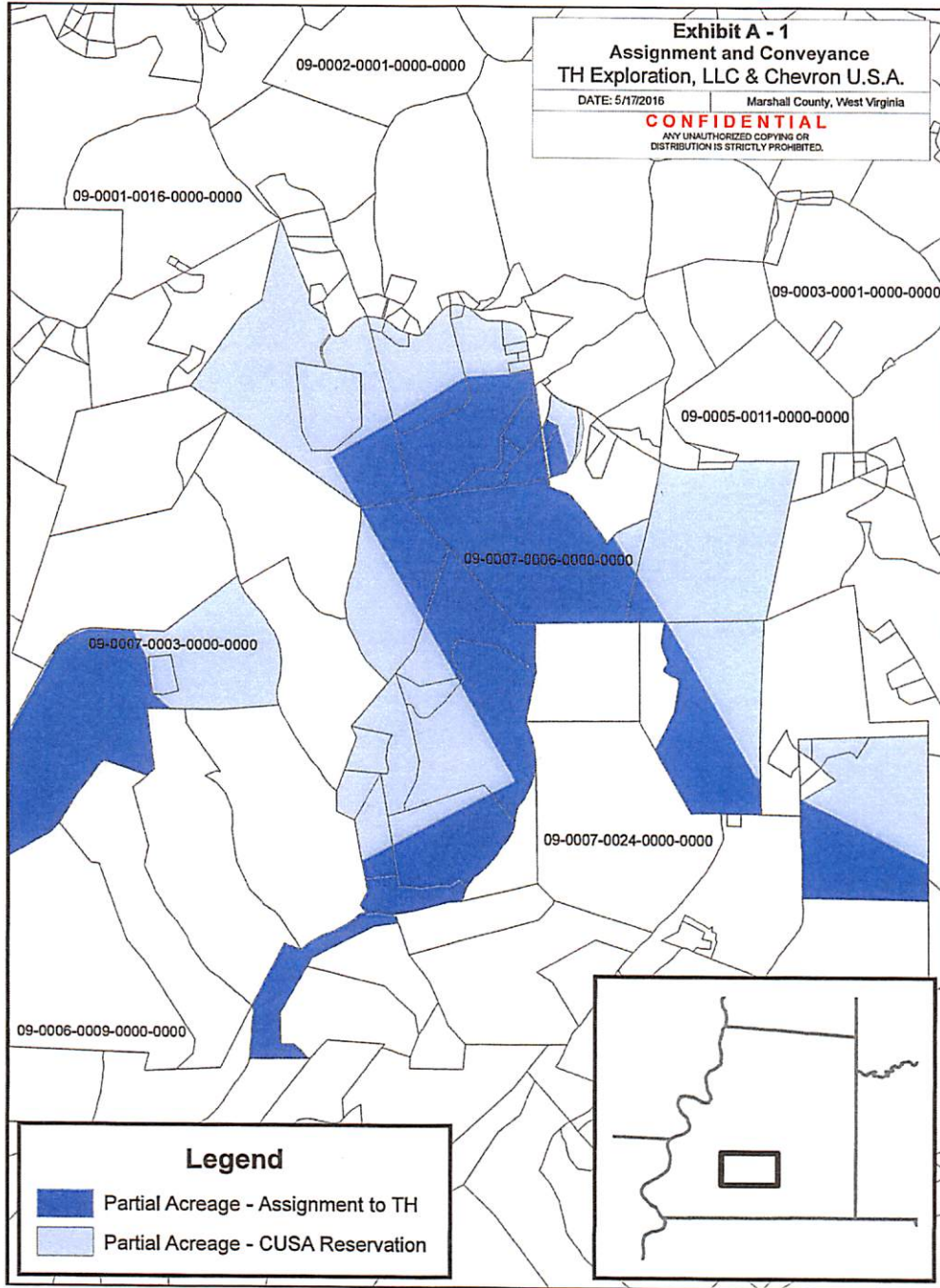
Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC

ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
866754	WELLMAN RALPH E - SFX	TRIENERGY HOLDINGS, LLC	7/29/2009	BK 686 PG 412	INST 1275614	ALL	206.89	09-0007-0003-0000-0000 09-0007-0003-0001-0000	61.39 GROSS AC OF 09-0007-0003-0000-0000 & 09-0007-0003-0001 (AS DEPICTED ON EXHIBIT A-1)
934438	WHEELER SUSAN JANE - SFX	CHEVRON USA INC	8/6/2014	BK 847 PG 473	INST 1371041	ALL	151.79	09-0007-0022-0000-0000, 09-0007-0024-0000-0000	
920493	WHETZAL MARK L - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 682 PG 544	INST 1270655	ALL	33.33	09-0011-0003-0000-0000	
920500	WHETZAL MARK L - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 682 PG 560	INST 1270659	ALL	71.12	09-0010-0013-0000-0000	
920507	WHETZAL MARK L - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 683 PG 073	INST 1271009	ALL	36.51	09-0010-0012-0000-0000	
920641	WHETZAL MARK L - SFX	CHESAPEAKE APPALACHIA LLC	11/12/2009	BK 693 PG 576	INST 1280826	ALL	106.89	09-0011-0005-0000-0000	
920494	WHETZAL RAY A JR - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 682 PG 548	INST 1270656	ALL	33.33	09-0011-0003-0000-0000	
920501	WHETZAL RAY A JR - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 682 PG 584	INST 1270661	ALL	71.12	09-0010-0013-0000-0000	
920508	WHETZAL RAY A JR - SFX	CHESAPEAKE APPALACHIA LLC	5/7/2009	BK 683 PG 069	INST 1271008	ALL	36.51	09-0010-0012-0000-0000	
920640	WHETZAL RAY A JR - SFX	CHESAPEAKE APPALACHIA LLC	11/12/2009	BK 693 PG 571	INST 1280825	ALL	106.89	09-0011-0005-0000-0000	
920496	WHETZAL ROBERT L - SFX	CHESAPEAKE APPALACHIA LLC	5/12/2009	BK 682 PG 552	INST 1270657	ALL	33.33	09-0011-0003-0000-0000	
920503	WHETZAL ROBERT L - SFX	CHESAPEAKE APPALACHIA LLC	5/12/2009	BK 682 PG 500	INST 1270641	ALL	71.12	09-0010-0013-0000-0000	
920509	WHETZAL ROBERT L - SFX	CHESAPEAKE APPALACHIA LLC	5/12/2009	BK 682 PG 536	INST 1270653	ALL	36.51	09-0010-0012-0000-0000	
920639	WHETZAL ROBERT L - SFX	CHESAPEAKE APPALACHIA LLC	10/9/2009	BK 690 PG 559	INST 1278415	ALL	106.89	09-0011-0005-0000-0000	
920497	WHETZAL SHARON L - SFX	CHESAPEAKE APPALACHIA LLC	5/20/2009	BK 682 PG 556	INST 1270658	ALL	33.33	09-0011-0003-0000-0000	
920502	WHETZAL SHARON L - SFX	CHESAPEAKE APPALACHIA LLC	5/20/2009	BK 682 PG 568	INST 1270663	ALL	71.12	09-0010-0013-0000-0000	
920510	WHETZAL SHARON L - SFX	CHESAPEAKE APPALACHIA LLC	5/20/2009	BK 682 PG 540	INST 1270654	ALL	36.51	09-0010-0012-0000-0000	
920637	WHETZAL SHARON L - SFX	CHESAPEAKE APPALACHIA LLC	8/13/2009	BK 687 PG 147	INST 1277087	ALL	106.89	09-0011-0005-0000-0000	
936506	WHETZEL BRENDA JOYCE - SFX	CHEVRON USA INC	11/10/2014	BK 863 PG 635	INST 1379799	MCLS	151.79	09-0007-0022-0000-0000, 09-0007-0024-0000-0000	

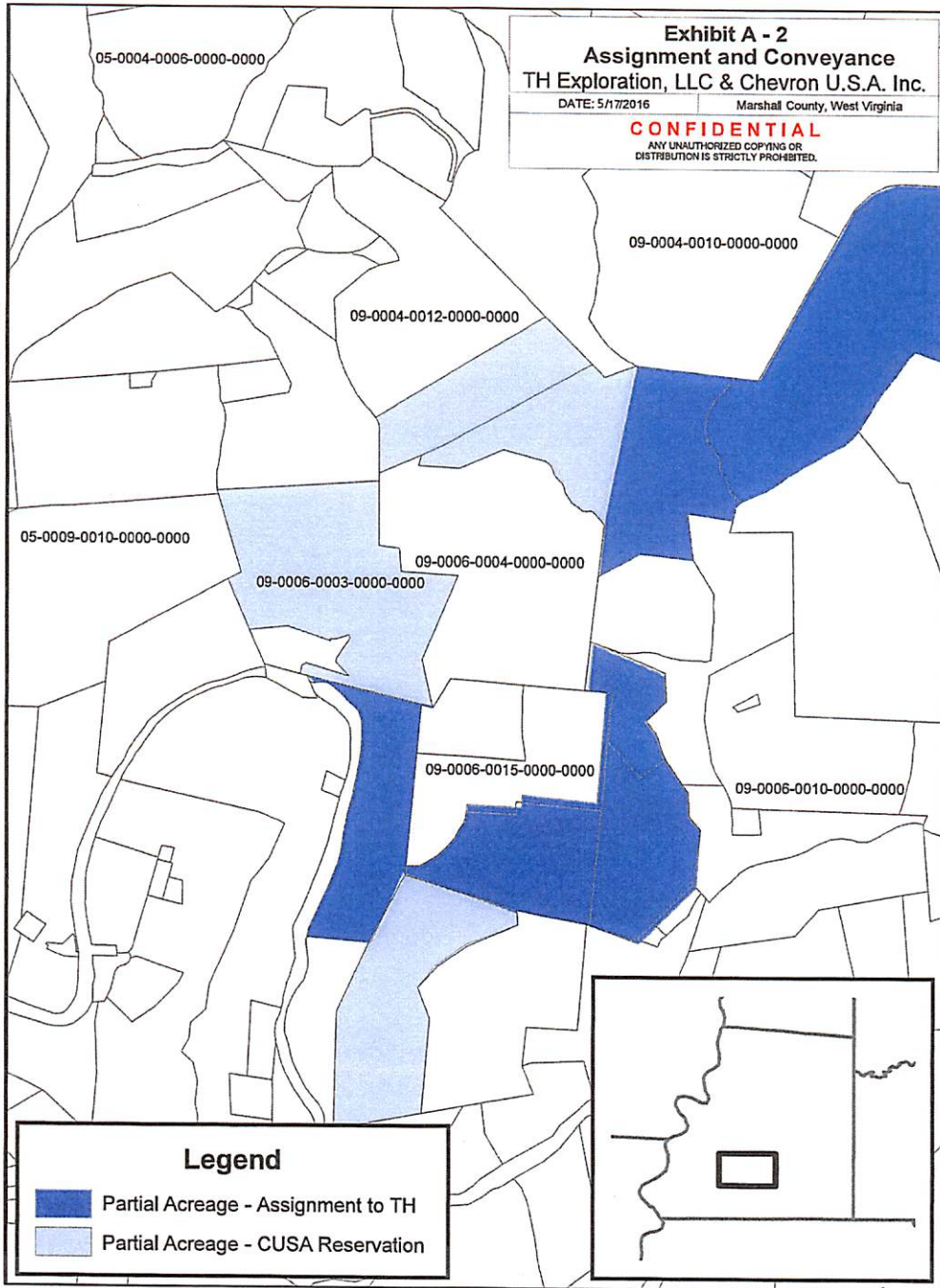
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EXHIBIT A - LEASES TO BE ASSIGNED TO TH EXPLORATION, LLC MARSHALL COUNTY, WEST VIRGINIA Attached to and made a part of that certain Assignment and Conveyance effective May 17, 2016 between Chevron U.S.A. Inc. and TH Exploration, LLC									
ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
906502	WHITLATCH RICKY L ET AL	CHEVRON USA INC	9/15/2012	BK 780 PG 226	INST 1333035	ALL	143.66	09-0007-0015-0000-0000; 09-0007-0021-0000-0000; 09-0007-0030-0000-0000; 09-0007-0031-0000-0000	73.28 GROSS AC OF 09-0007-0015-0000-0000, 09-0007-0021-0000-0000, 09-0007-0030-0000- 0000 & 09-0007-0031-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
923073	WILHELM MICHELLE R - SFX	CHEVRON USA INC	5/12/2014	BK 834 PG 456	INST 1364057	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923108	WORKMAN ARTHUR R ET UX - SFX	CHEVRON USA INC	5/20/2014	BK 837 PG 361	INST 1365803	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
866564	YEATER SHERWOOD - SFX	TRIENERGY, INC	5/29/2007	BK 748 PG 268	INST 117736	ALL	103.30	09-0007-0006-0000-0000	5.007 GROSS AC OF 09-0007-0006-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
934697	ZEHNDER RONALD A - SFX	CHEVRON USA INC	8/27/2014	BK 847 PG 213	INST 1370895	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	
923076	ZHENDER ROBERT S - SFX	CHEVRON USA INC	5/9/2014	BK 834 PG 437	INST 1364046	ALL	151.79	09-0007-0022-0000-0000; 09-0007-0024-0000-0000	



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STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 2nd day of May, 2016, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 20th day of May, 2016 at 12:43 o'clock P.M.

CPS 5M 4/16

TESTE: Jan Pest Clerk RECEIVED Office of Oil and Gas

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WV Department of Environmental Protection

10/27/2017

COPY

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MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is entered into this 17 day of August, 2017, between **Tug Hill Operating, LLC (THQ)**, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, TX 76107, and **EQT Production Company (EQT)**, a Pennsylvania company, whose address is 625 Liberty Avenue, Suite 1700, Pittsburgh, PA 15222.

PARTIES AND AGREEMENT REFERENCE: THQ and EQT entered into a letter agreement ("Letter Agreement") dated August 17, 2017 (the "Commencement Date") outlining their intent to pursue definitive agreements allowing, among other things, THQ to develop those certain oil and gas leases controlled by EQT in the Meade District of Marshall County, West Virginia, dated March 15, 2008 and April 1, 2008 and of record in Book 668, Page 605 and Book 673, Page 431, respectively, in the Office of the Clerk of the County Commission of the aforesaid County and State, and granting THQ the right to proceed with permitting certain horizontal wells through such EQT oil and gas lease.

Parcel Numbers: 9-15-15 & 9-15-3

1. **TERM:** The well permitting rights granted to THQ in the Letter Agreement will terminate upon the earlier of (i) one hundred eighty (180) days from the Commencement Date, or (ii) the parties entering into the definitive agreement(s) described in the Letter Agreement.

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

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

Tug Hill Operating, LLC

[Signature] *[Initials]*

By: SEAN WILLIS

Its: VICE PRESIDENT

EQT Production Company

[Signature]

By: Erin R. Centofanti
Senior Vice President

Its: Development

Marshall County
Jan Pest, Clerk
Instrument 1428633
08/22/2017 @ 03:37:00 PM
AGREEMENT
Book 936 @ Page 589
Pages Recorded 3
Recording Cost \$ 11.0

Prepared by Tug Hill Operating, LLC
1320 S. University Dr., Ste 500, Fort Worth, TX 76107

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10/27/2017

STATE OF Texas ;
COUNTY OF Tarrant :

Before me, Kaitlin McCawley, a Notary Public, on this day personally appeared Sean Willis, known to me to be the Vice President of Engineering & Development manager - AP region, subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this 21 day of August, 2017. My Commission expires: 05/08/2021.

[SEAL]



Kaitlin McCawley
Notary Public

STATE OF _____ ;
COUNTY OF _____ :

Before me, _____, a Notary Public, on this day personally appeared _____, known to me to be the _____ of _____, subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this _____ day of _____, _____. My Commission expires: _____.

[SEAL]

Notary Public

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STATE OF _____;

COUNTY OF _____:

Before me, _____, a Notary Public, on this day personally appeared _____, known to me to be the _____ of _____, subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this ____ day of _____, _____. My Commission expires: _____.

[SEAL]


Notary Public

COMMONWEALTH OF PENNSYLVANIA;

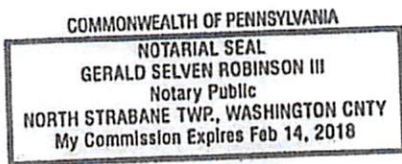
COUNTY OF ALLEGHENY:

Before me, Gerald Selven Robinson, III, a Notary Public, on this day personally appeared Erin Centofanti, known to me to be the Senior Vice President of Asset Development of EQT Production Company, subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this 17th day of August, 2017. My Commission expires: February 14, 2018.

[SEAL]



Notary Public



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June 28, 2017

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



RE: Heaven Hill 3-2HM

Subject: Marshall County Route 21/9 and 21 Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 21/9 and 21 in the area reflected on the Heaven Hill 3-2HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

Amy Miller
Permit Specialist – Appalachia Region
Cell 304-376-0111
Email: amiller@tug-hilop.com

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

Date of Notice Certification: 08/24/2017

API No. 47- 051 - _____

Operator's Well No. Heaven Hill 3-2HM

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>526,254.70</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,558.15</u>
District:	<u>Meade</u>	Public Road Access:	<u>Yeater Lane (Co. Rt. 21/11)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Ricky L. Whitlatch</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><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</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p style="text-align: center;">OOG OFFICE USE ONLY</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</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 notified 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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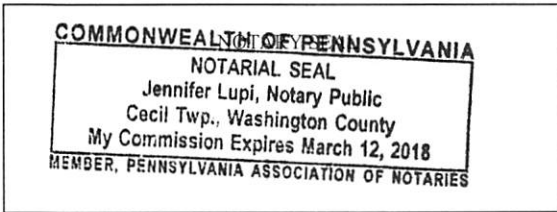
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Certification of Notice is hereby given:

THEREFORE, I Amy Miller *Amy 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 Miller</u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - 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 24th day of Aug 2017.
Jennifer Lupi Notary Public
 My Commission Expires March 12, 2018

Oil and Gas Privacy Notice:

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

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**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: 8/22/2017 **Date Permit Application Filed:** 8/24/2017

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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WW-6A
(8-13)

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API NO. 47- 051 -
OPERATOR WELL NO. Heaven Hill 3-2HM
Well Pad Name: Heaven Hill 3

WV Department of
Environmental Protection

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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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.**

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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- 051 047-051-01962
OPERATOR WELL NO. Heaven Hill 3-2HM
Well Pad Name: Heaven Hill 3

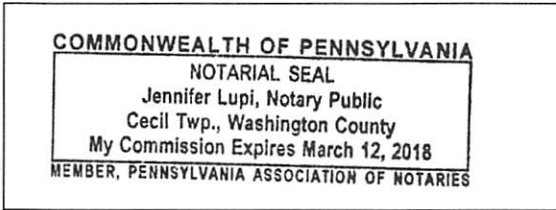
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: jwhite@tug-hilltop.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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 22nd day of Aug, 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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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 3 - 2HM
 District: Meade (House #'s 1 & 2)
 State: WV

There are two (2) residences, no businesses, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

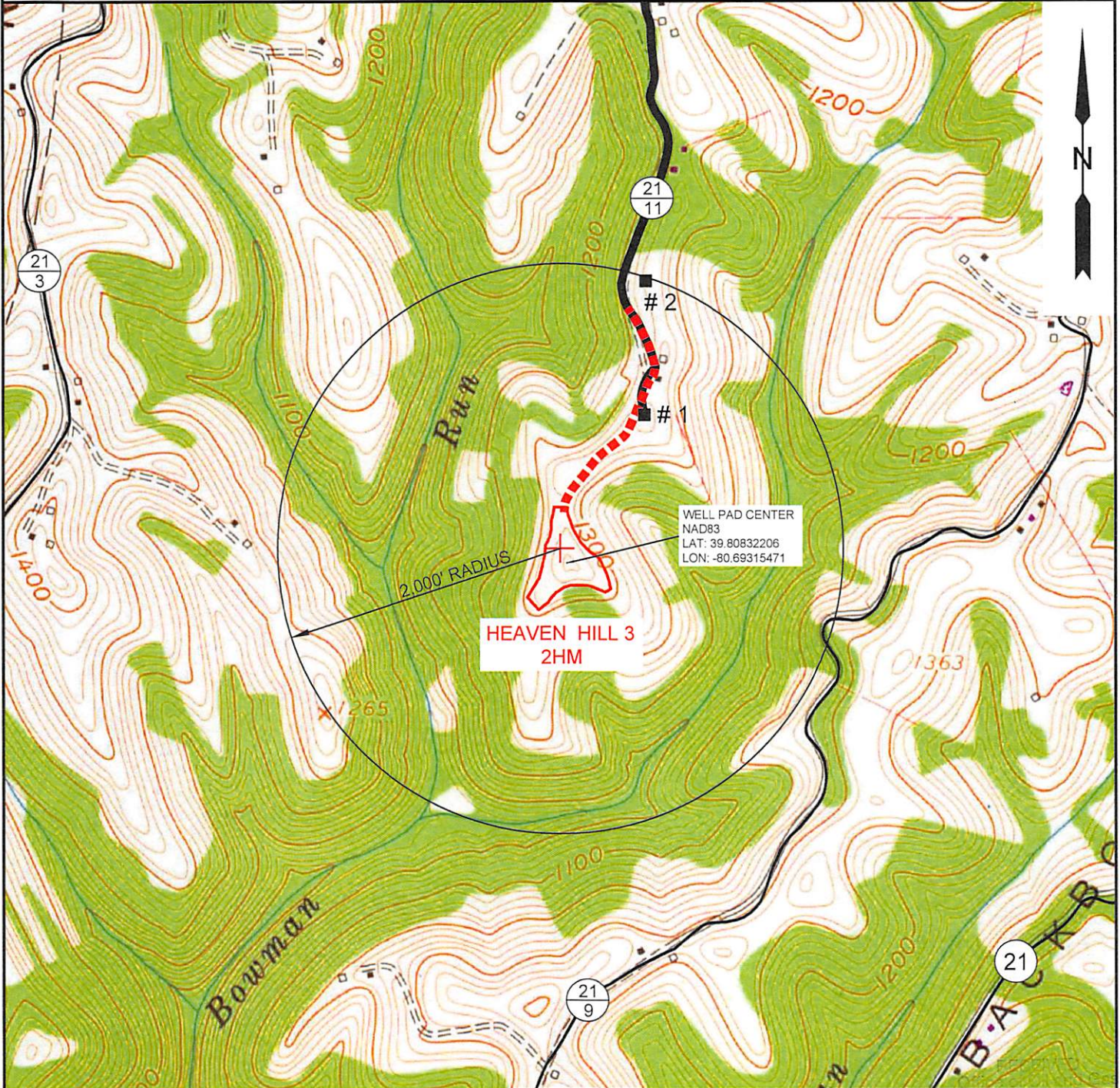
House 1 TM 7 Pcl. 30 Ricky L. Whitlatch Phone: 304-843-1168 Physical Address: 1044 Yeater Ln. Glen Easton, WV 26039 Tax Address: Same	House 2 TM 7 Pcl. 30.1 Andrew Corey Whitlatch Phone: 304-845-9605 Physical Address: 942 Yeater Ln. Glen Easton, WV 26039 Tax Address: Same
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PROPOSED HEAVEN HILL 3 - 2HM



NOTE: THERE APPEARS TO BE TWO (2) POSSIBLE WATER SOURCES WITHIN 2,000'.

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SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8654	06/29/2017	1" = 1000'

WV Department of
Environmental Protection

**TUG HILL
OPERATING**

10/27/2017

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: December 5, 2016 **Date of Planned Entry:** December 16, 2016

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

Name: Andrew Whittlatch
Address: 942 Yeater Lane
Glen Easton, WV 26039

Name: Armie 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. Whittlatch
Address: 1044 Yeater Lane
Glen Easton, WV 26039 ****SEE SUPPLEMENT PAGE****

**please attach additional forms if necessary*

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. Whittlatch</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 57th 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.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-0749-8388
Email: jwhite@tug-hillop.com

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

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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.

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047-051-01962

Operator Well No. Heaven Hill Unit 3-2HM

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
942 Yeater Lane
Glen Easton, WV 26039

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

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

Date of Notice: 06/30/2017 **Date Permit Application Filed:** 07/07/2017

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

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

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

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>526,254.70</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,558.15</u>
District:	<u>Meade</u>	Public Road Access:	<u>Yeater Lane (Co. Rt. 21/11)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>Ricky L. Whittlatch</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

This Notice Shall Include:

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

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

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

Oil and Gas Privacy Notice:

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

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Operator Well No. Heaven Hill Unit 3-2HM

WW-6A5 Notice of Planned Operation..... Attachment 1 of 1

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

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

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Jim Justice
 Governor

Thomas J. Smith, P. E.
 Secretary of Transportation/
 Commissioner of Highways

May 16, 2017

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

Subject: DOH Permit for the Heaven Hills Unit 3 Pad, Marshall County
 Heaven Hills Unit 3-2HM Well site

47-051-01962

Dear Mr. Martin,

This well site will be accessed from a DOH permits #06-2016-0284 & 0287 which have been issued to Tug Hill Operating, LLC for access to the State Road for a well site located off of Marshall County Route 21/3 SLS.

The 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 January 3, 2012.

Very Truly Yours,

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

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

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10/27/2017



047-051-01962

TUG HILL

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Heaven Hill 3-2HM

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

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