



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

Friday, September 22, 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 2W-11HM
47-051-01956-00-00

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 2W-11HM
Farm Name: C.R. JR. & A.H. HAGEDORN
U.S. WELL NUMBER: 47-051-01956-00-00
Horizontal 6A / New Drill
Date Issued: 9/22/2017

Promoting a healthy environment.

PERMIT CONDITIONS

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

CONDITIONS

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 2W-11HM
Well Pad Name: Heaven Hill Unit 2

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 2W-11HM Well Pad Name: Heaven Hill Unit 2

3) Farm Name/Surface Owner: Charles R. Hagedorn, Jr., et ux Public Road Access: Blake Ridge Rd (Co. Rt. 21/3)

4) Elevation, current ground: 1350' Elevation, proposed post-construction: 1331'

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

Other _____

(b) If Gas Shallow X Deep _____

Horizontal X _____

JM
8/4/17

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6727' - 6779', thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,879'

9) Formation at Total Vertical Depth: Onondoga

10) Proposed Total Measured Depth: 17,164'

11) Proposed Horizontal Leg Length: 8,450'

12) Approximate Fresh Water Strata Depths: 70', 1068'

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: 2167'

15) Approximate Coal Seam Depths: Sewickly Coal - 969' and Pittsburgh Coal - 1059'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes X No _____

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(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine
Depth: 1059' TVD and 300' subsea level
Seam: Pittsburgh #8
Owner: Murray Energy / Consolidated Coal Co.

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	J55	54.5#	1,130'	1,120'	1128ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	1,130'	1,120'	1128ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,818'	2,808'	935ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	17,164'	17,154'	4439ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,885'	
Liners	N/A						

8/7/17

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	8960		
Liners	N/A						

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PACKERS

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

WW-6B
(10/14)

API NO. 47- 051 - 01956
OPERATOR WELL NO. Heaven Hill 2W-11HM
Well Pad Name: Heaven Hill Unit 2

JS
8/4/17

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 21,125,000 lb proppant and 326,608 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 32.98

22) Area to be disturbed for well pad only, less access road (acres): 4.57

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 Attached

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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

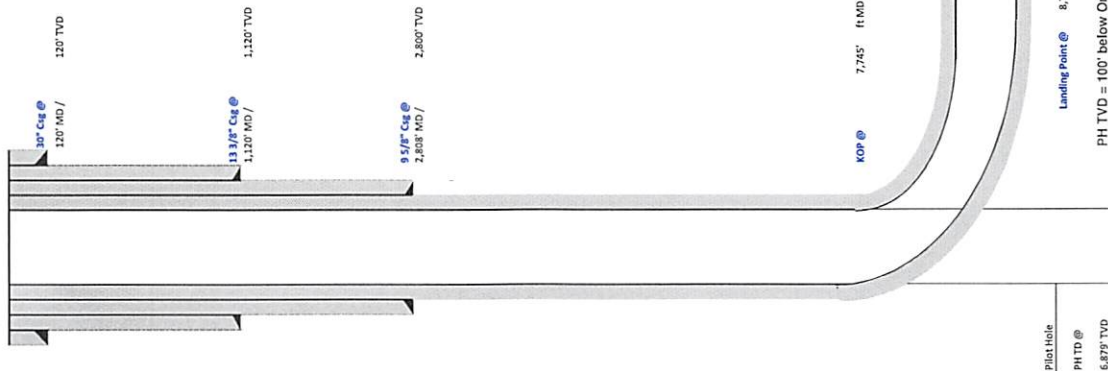
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WELL NAME: Heaven Hill 2W-11HM
STATE: West Virginia **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 1,359' **GL Elev:** 1,331'
TD: 17,154'
TH Latitude: 39.81007436
TH Longitude: -80.71298161
BH Latitude: 39.78457521
BH Longitude: -80.70956241



Formation	Depth TVD
Deepcut/Fresh Water	1068
Sewickley Coal	969
Pittsburgh Coal	1059
Big Lime	2063
Weir	2489
Berea	2687
Gordon	2949
Rhinestreet	6071
Genesee/Burkett	6615
Tully	6620
Hamilton	6653
Marcellus	6727
Landing Depth	6715
Onondaga	6779
Pilot Hole Depth	6879

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'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,808'	2,808'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	17,154'	6,862'	20	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Sacks	Class	Density	Fluid Type	Centralizer	Notes
338	A	15.6	Air		None
1,143	A	15.6	Air		3 Centralizers at equal distance
911	A	15	Air		1 Centralizer every other ft
3,920	A	14.5	Air / SOBAM		1 every other joint in lateral; 1 per joint in curve; 1 every other ft to s/c

Handwritten signature and date: 8/8/17

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Landing Point @ 8,704' MD / 6,715' TVD
 PH TVD = 100' below Onondaga Top
 Pilot Hole
 PH TD @ 6,879 TVD
 Lateral TD @ 17,154' ft MD
 6,862' ft TVD



Well: Heaven Hill 2W-11 HM (slot L)
 Site: Heaven Hill 2
 Project: Marshall County, West Virginia
 Design: rev4
 SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1850.00	7.00	250.00	1849.13	-7.30	-20.07	2.00	250.00	5.15	Begin 7.00° tangent
4	2908.76	7.00	250.00	2900.00	-51.43	-141.32	0.00	0.00	36.29	Begin 2°/100' build/turn
5	5259.11	54.00	248.02	4868.82	-480.63	-1218.67	2.00	-2.19	349.78	Begin 54.00° tangent
6	7745.35	54.00	248.02	6330.11	-1233.50	-3083.93	0.00	0.00	902.28	Begin 10°/100' build/turn
7	8704.32	89.00	149.99	6714.53	-1975.79	-3242.82	10.00	-95.55	1623.73	Begin 89.00° lateral section
8	17154.32	89.00	149.99	6862.00	-9291.85	-982.81	0.00	0.00	9343.68	PBHL/TD 17154.31 MD/6862.00 TVD

Azimuths to Grid North
 True North: -0.18°
 Magnetic North: -8.87°

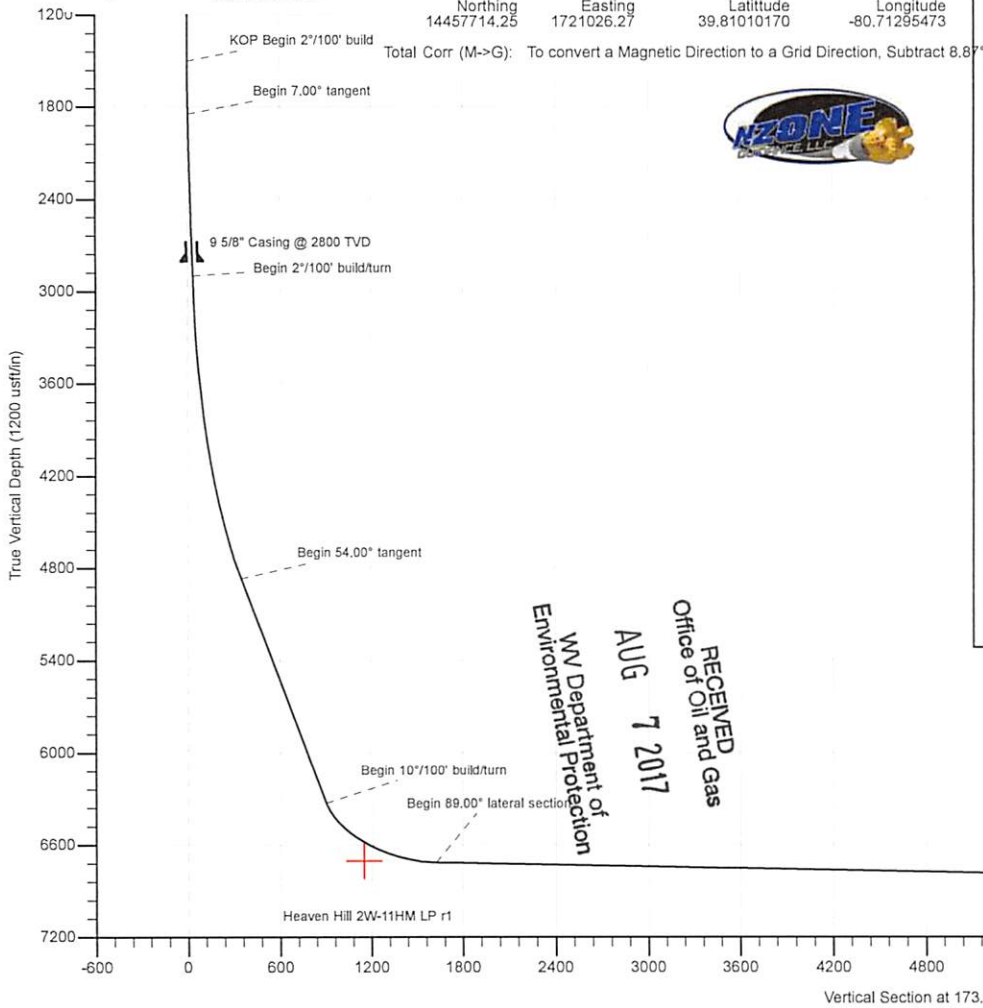
Magnetic Field
 Strength: 52205.9snT
 Dip Angle: 66.99°
 Date: 4/13/2017
 Model: IGRF2015

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: RKB=1331+33 @ 1364.00usft (Nabors X08)

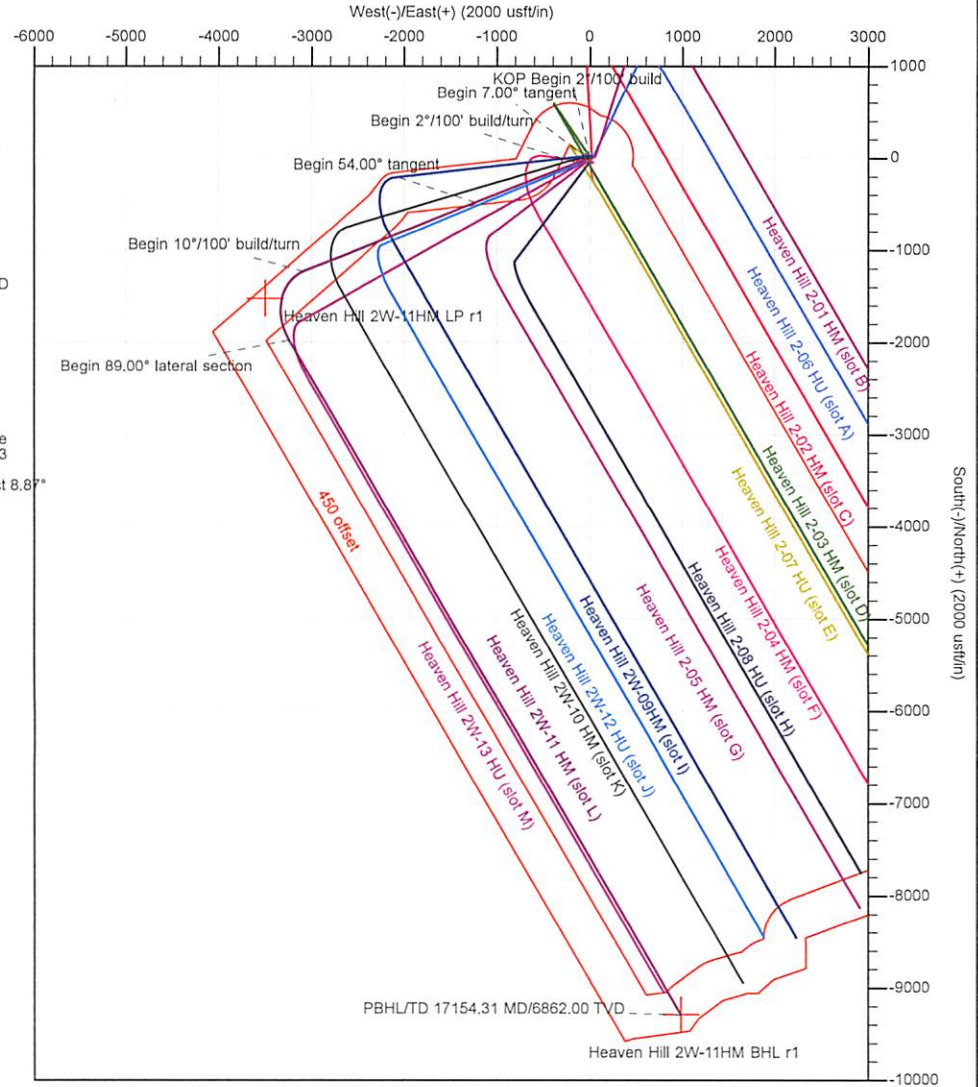
Northing: 14457714.25 Easting: 1721026.27 Latitude: 39.81010170 Longitude: -80.71295473

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



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Vertical Section at 173.96° (1200 usft/in)



S1-01954



Planning Report - Geographic



Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 2W-11 HM (slot L)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2W-11 HM (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

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

Site	Heaven Hill 2				
Site Position:		Northing:	14,457,660.30 usft	Latitude:	39.80995400
From:	Lat/Long	Easting:	1,720,974.97 usft	Longitude:	-80.71313800
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	Heaven Hill 2W-11 HM (slot L)					
Well Position	+N/-S	0.00 usft	Northing:	14,457,714.25 usft	Latitude:	39.81010170
	+E/-W	0.00 usft	Easting:	1,721,026.26 usft	Longitude:	-80.71295473
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	1,331.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/13/2017	-8.68	66.99	52,205.94292247

Design	rev4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	173.96

Plan Survey Tool Program	Date	7/14/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,154.32 rev4 (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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,850.00	7.00	250.00	1,849.13	-7.30	-20.07	2.00	2.00	0.00	250.00	
2,908.76	7.00	250.00	2,900.00	-51.43	-141.32	0.00	0.00	0.00	0.00	
5,259.11	54.00	248.02	4,868.82	-480.63	-1,218.67	2.00	2.00	-0.08	-2.19	
7,745.35	54.00	248.02	6,330.11	-1,233.50	-3,083.93	0.00	0.00	0.00	0.00	
8,704.32	89.00	149.99	6,714.53	-1,975.79	-3,242.82	10.00	3.65	-10.22	-95.55	
17,154.32	89.00	149.99	6,862.00	-9,291.85	982.81	0.00	0.00	0.00	0.00	Heaven Hill 2W-11HM



Planning Report - Geographic



Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 2W-11 HM (slot L)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2W-11 HM (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,200.00	89.00	149.99	6,827.89	-7,599.79	5.51	14,450,114.46	1,721,031.77	39.78923070	-80.71302189	
15,300.00	89.00	149.99	6,829.64	-7,686.37	55.51	14,450,027.88	1,721,081.78	39.78899249	-80.71284486	
15,400.00	89.00	149.99	6,831.38	-7,772.95	105.52	14,449,941.30	1,721,131.78	39.78875427	-80.71266783	
15,500.00	89.00	149.99	6,833.13	-7,859.53	155.53	14,449,854.72	1,721,181.79	39.78851606	-80.71249081	
15,600.00	89.00	149.99	6,834.87	-7,946.11	205.54	14,449,768.14	1,721,231.80	39.78827784	-80.71231378	
15,700.00	89.00	149.99	6,836.62	-8,032.69	255.54	14,449,681.56	1,721,281.81	39.78803963	-80.71213676	
15,800.00	89.00	149.99	6,838.36	-8,119.27	305.55	14,449,594.98	1,721,331.81	39.78780142	-80.71195974	
15,900.00	89.00	149.99	6,840.11	-8,205.85	355.56	14,449,508.39	1,721,381.82	39.78756320	-80.71178271	
16,000.00	89.00	149.99	6,841.85	-8,292.44	405.57	14,449,421.81	1,721,431.83	39.78732499	-80.71160569	
16,100.00	89.00	149.99	6,843.60	-8,379.02	455.57	14,449,335.23	1,721,481.84	39.78708677	-80.71142868	
16,200.00	89.00	149.99	6,845.35	-8,465.60	505.58	14,449,248.65	1,721,531.84	39.78684855	-80.71125166	
16,300.00	89.00	149.99	6,847.09	-8,552.18	555.59	14,449,162.07	1,721,581.85	39.78661034	-80.71107464	
16,400.00	89.00	149.99	6,848.84	-8,638.76	605.60	14,449,075.49	1,721,631.86	39.78637212	-80.71089763	
16,500.00	89.00	149.99	6,850.58	-8,725.34	655.60	14,448,988.91	1,721,681.87	39.78613391	-80.71072061	
16,600.00	89.00	149.99	6,852.33	-8,811.92	705.61	14,448,902.33	1,721,731.87	39.78589569	-80.71054360	
16,700.00	89.00	149.99	6,854.07	-8,898.50	755.62	14,448,815.75	1,721,781.88	39.78565747	-80.71036659	
16,800.00	89.00	149.99	6,855.82	-8,985.08	805.63	14,448,729.17	1,721,831.89	39.78541925	-80.71018958	
16,900.00	89.00	149.99	6,857.56	-9,071.66	855.63	14,448,642.59	1,721,881.90	39.78518104	-80.71001257	
17,000.00	89.00	149.99	6,859.31	-9,158.24	905.64	14,448,556.01	1,721,931.90	39.78494282	-80.70983556	
17,100.00	89.00	149.99	6,861.05	-9,244.82	955.65	14,448,469.43	1,721,981.91	39.78470460	-80.70965855	
17,154.31	89.00	149.99	6,862.00	-9,291.84	982.81	14,448,422.41	1,722,009.07	39.78457522	-80.70956242	
PBHL/TD 17154.31 MD/6862.00 TVD										
17,154.32	89.00	149.99	6,862.00	-9,291.85	982.81	14,448,422.40	1,722,009.07	39.78457521	-80.70956241	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Heaven Hill 2W-11HM LI - hit/miss target - Shape - Point	0.00	0.01	6,706.00	-1,527.96	-3,501.69	14,456,186.29	1,717,524.57	39.80593572	-80.72544057	
- plan misses target center by 199.80usft at 8295.51usft MD (6625.15 TVD, -1596.07 N, -3332.16 E)										
Heaven Hill 2W-11HM B - plan hits target center - Point	0.00	0.00	6,862.00	-9,291.85	982.81	14,448,422.40	1,722,009.07	39.78457521	-80.70956241	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,125.00	1,125.00	13 3/8" Casing @ 1120 TVD	13-3/8	17		
2,813.05	2,805.00	9 5/8" Casing @ 2800 TVD	9-5/8	12-1/4		

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Planning Report - Geographic



Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 2W-11 HM (slot L)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+33 @ 1364.00usft (Nabors X08)
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2W-11 HM (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev4		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build
1,850.00	1,849.13	-7.30	-20.07	Begin 7.00° tangent
2,908.76	2,900.00	-51.43	-141.31	Begin 2°/100' build/turn
5,259.11	4,868.82	-480.63	-1,218.67	Begin 54.00° tangent
7,745.35	6,330.11	-1,233.50	-3,083.93	Begin 10°/100' build/turn
8,704.32	6,714.53	-1,975.79	-3,242.82	Begin 89.00° lateral section
17,154.31	6,862.00	-9,291.84	982.81	PBHL/TD 17154.31 MD/6862.00 TVD

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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 2W-11HM

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
4705101918	Tug Hill Operating	6879' TVD proposed	Marcellus proposed	None	Yes. The well is planned to be drilled into the Marcellus Shale. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Marcellus wells	Tug Hill Operating permitted offset Marcellus well. Not yet drilled
4705101906	Tug Hill Operating	6879' TVD proposed	Marcellus proposed	None	Yes. The well is planned to be drilled into the Marcellus Shale. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Marcellus wells	Tug Hill Operating permitted offset Marcellus well. Not yet drilled
4705101907	Tug Hill Operating	6879' TVD proposed	Marcellus proposed	None	Yes. The well is planned to be drilled into the Marcellus Shale. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Marcellus wells	Tug Hill Operating permitted offset Marcellus well. Not yet drilled
4705101908	Tug Hill Operating	6879' TVD proposed	Marcellus proposed	None	Yes. The well is planned to be drilled into the Marcellus Shale. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Marcellus wells	Tug Hill Operating permitted offset Marcellus well. Not yet drilled
4705101884	Tug Hill Operating	6879' TVD proposed	Marcellus proposed	None	Yes. The well is planned to be drilled into the Marcellus Shale. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Marcellus wells	Tug Hill Operating permitted offset Marcellus well. Not yet drilled

51-01954

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
4705101910	Tug Hill Operating	11784' TVD Proposed	Utica Proposed	None	Yes. The well is planned to be drilled into the Point Pleasant Formation. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Point Pleasant wells	Tug Hill Operating permitted offset Point Pleasant well. Not yet drilled
4705101911	Tug Hill Operating	11784' TVD Proposed	Utica Proposed	None	Yes. The well is planned to be drilled into the Point Pleasant Formation. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Point Pleasant wells	Tug Hill Operating permitted offset Point Pleasant well. Not yet drilled
4705101912	Tug Hill Operating	11784' TVD Proposed	Utica Proposed	None	Yes. The well is planned to be drilled into the Point Pleasant Formation. However, proper casing and cementing should prevent this well from being a conduit to surface for offset Point Pleasant wells	Tug Hill Operating permitted offset Point Pleasant well. Not yet drilled

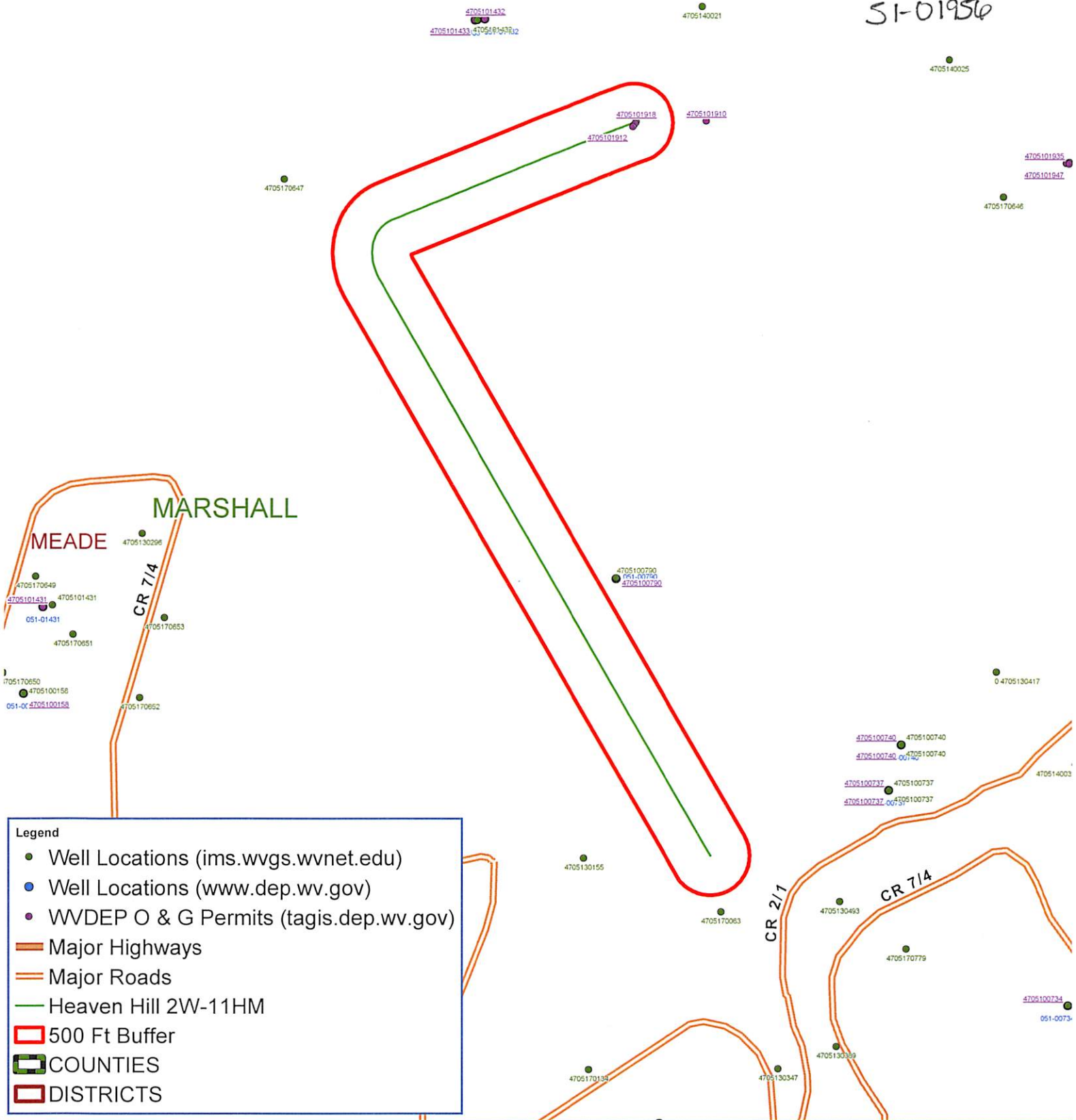
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5.11. Area of Review-- The permittee shall review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation, a report of which the permittee shall provide to the Office with the 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.

SI-01956

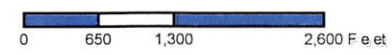


Legend

- 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 2W-11HM
- 500 Ft Buffer
- COUNTIES
- DISTRICTS



Heaven Hill 2W-11HM
 Meade District
 Marshall County, WV



Map Created: July 24, 2017
 Map Current As Of: July 24, 2017

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

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Map Prepared by:



WW-9
(4/16)

API Number 47 - 051 - 01956
Operator's Well No. Heaven Hill 2W-11HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

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

Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

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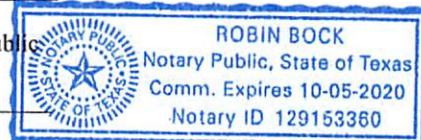
WV Department of
Environmental Protection

Subscribed and sworn before me this 1st day of August, 20 17

Robin Bock

Notary Public

My commission expires 10-05-2020



51-01956

Form WW-9

Operator's Well No. Heaven Hill 2W-11HM

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 32.98 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	10
		Ladino Clover	3

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: *Jim Nicholson*

Comments: _____

Title: DEP Inspector

Date: 8/4/2017

Field Reviewed? Yes No

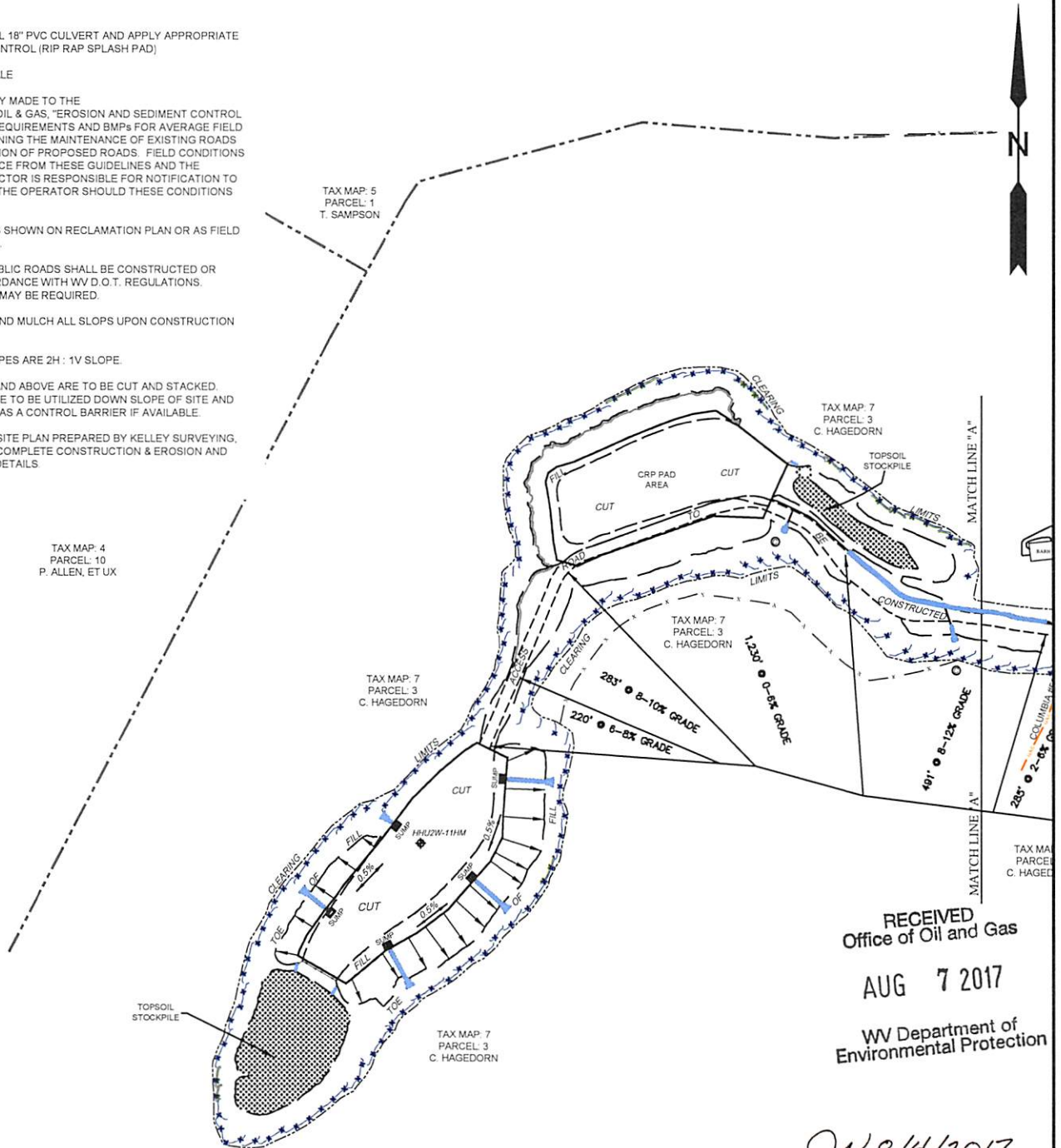
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Environmental Protection

51-01956

PROPOSED HEAVEN HILL 2W - 11HM

NOTES:

1. -- DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.
8. ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE HEAVEN HILL 2W SITE PLAN PREPARED BY KELLEY SURVEYING, DATED 4/27/2017 FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS



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--- SILT FENCE AND/OR SEDIMENT AND EROSION CONTROL MEASURE.

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Land & Energy Development
Solutions from the ground up.
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www.slsurveyors.com

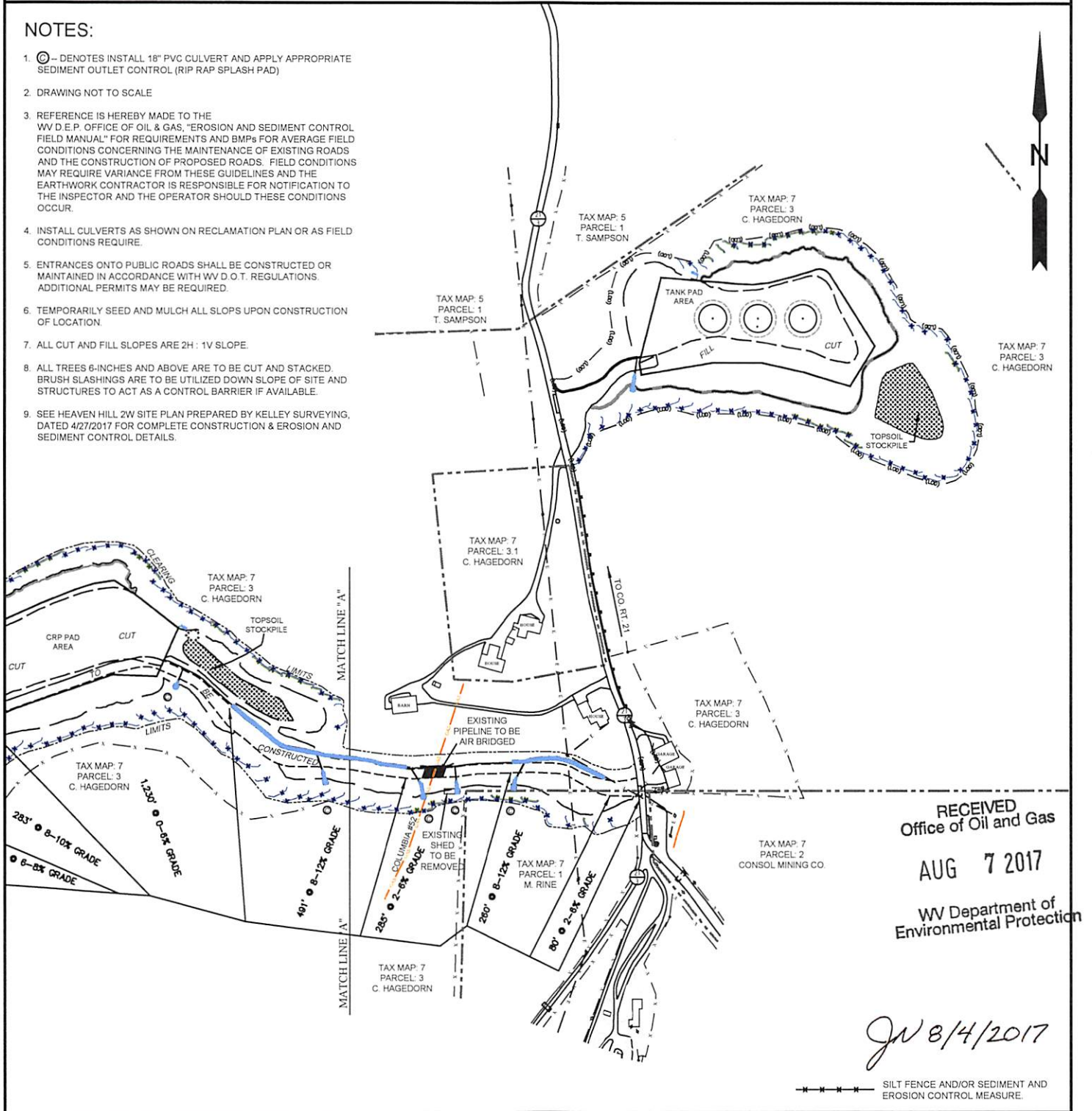
TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8703	07/27/2017	NONE

TUG HILL
OPERATING

PROPOSED HEAVEN HILL 2W - 11HM

NOTES:

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MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8703	07/27/2017	NONE

TUG HILL
OPERATING



Well Site Safety Plan

Tug Hill Operating, LLC
for 8/4/17

Well Name: Heaven Hill Unit 2W-11HM Pad

Name: Heaven Hill Unit 2 Marshall County,

West Virginia

UTM (meters), NAD83, Zone 17:
Northing: 4,406,717.07
Easting: 524,567.56

August 2017

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AUG 7 2017

WV Department of
Environmental Protection

WW-9

WV Department of Environmental Protection SUPPLEMENT PG. 2

PROPOSED HEAVEN HILL 2W - 11HM



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

LAT: 39.7137712
 LON: -80.8258327
 LOCATED: S 42°57'59" W AT 47,250' FROM HEAVEN HILL 2W - 11HM SURFACE LOCATION

JN 8/4/2017

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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.	8703	07/27/2017	1" = 2000'

TUG HILL
 OPERATING

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

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

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

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

*See attached pages

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WV Department of
Environmental Protection

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

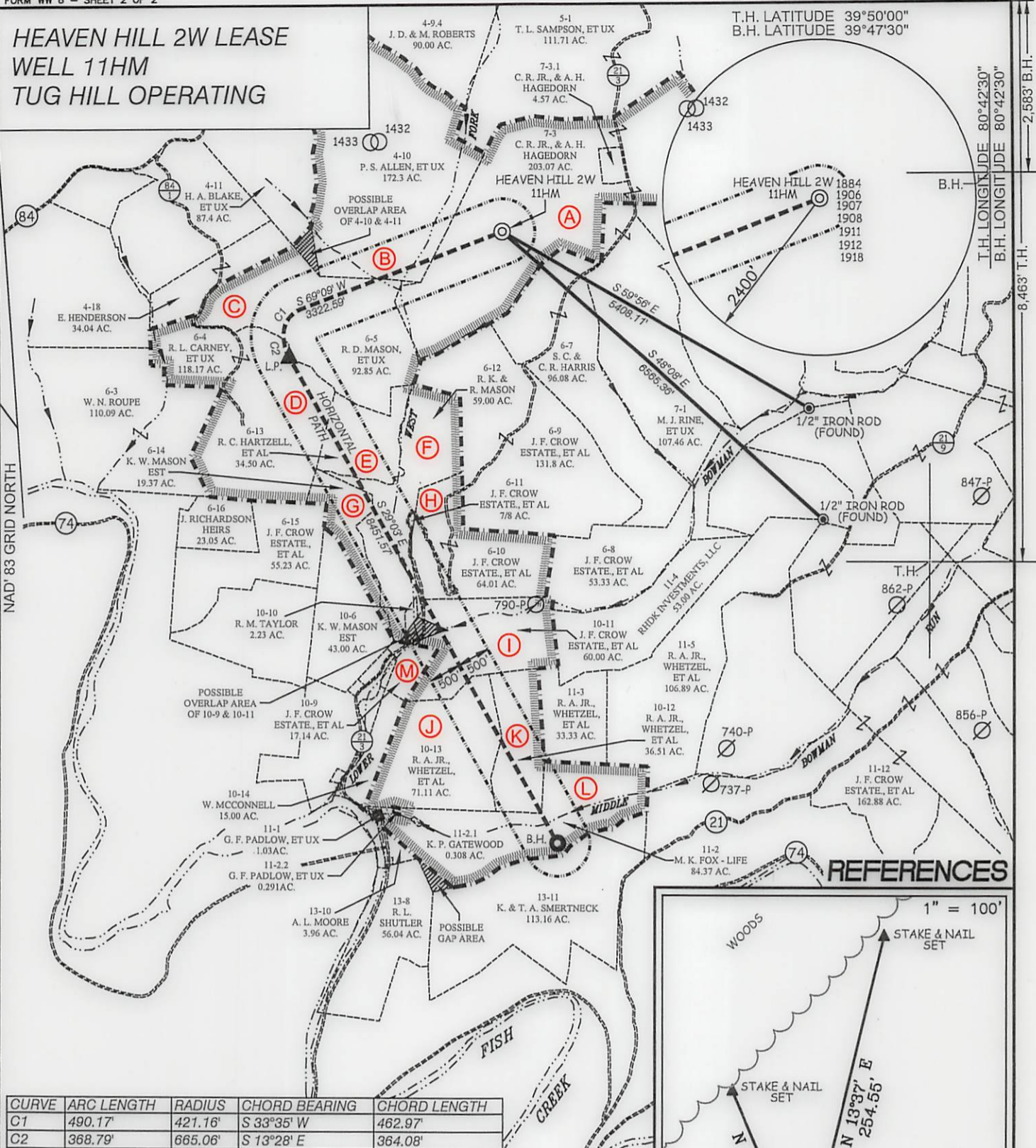
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

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

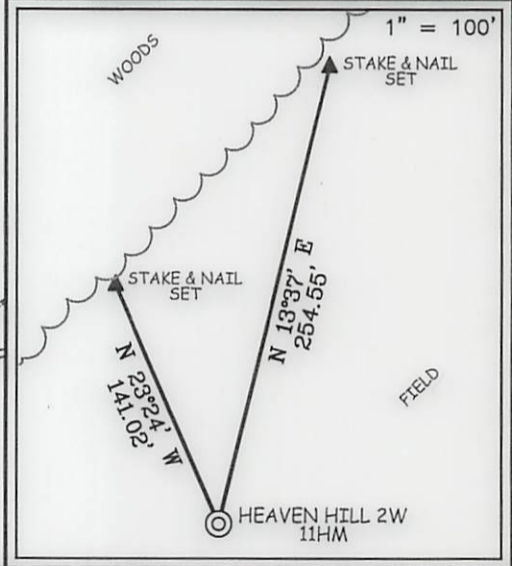
The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity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

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

**HEAVEN HILL 2W LEASE
WELL 11HM
TUG HILL OPERATING**



REFERENCES



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	490.17'	421.16'	S 33°35' W	462.97'
C2	368.79'	665.06'	S 13°28' E	364.08'

Handwritten signature and date: 8/14/17

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

NAD'83 S.P.C.(FT)	N. 479,480.63	E. 1,627,764.26
NAD'83 GEO.	LAT-(N) 39.810102	LONG-(W) 80.712955
NAD'83 UTM (M)	N. 4,406,720.12	E. 524,569.86

LANDING POINT

NAD'83 S.P.C.(FT)	N. 477,558.7	E. 1,624,487.8
NAD'83 GEO.	LAT-(N) 39.804704	LONG-(W) 80.724524
NAD'83 UTM (M)	N. 4,406,117.9	E. 523,581.4

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 470,170.5	E. 1,628,592.0
NAD'83 GEO.	LAT-(N) 39.784575	LONG-(W) 80.709562
NAD'83 UTM (M)	N. 4,403,888.0	E. 524,869.4

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

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

SCALE 1" = 2000' FILE NO. 8703P11HM.dwg

DATE JULY 27, 20 17

REVISED _____, 20 _____

OPERATORS WELL NO. HEAVEN HILL 2W-11HM

API WELL NO. 47 — 051 — 01956H6A

NO. 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 PAGE 1)

00-00 (A)

Glenn Easton

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

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

COUNTY NAME PERMIT

HEAVEN HILL 2W LEASE
WELL 11HM
TUG HILL OPERATING

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

T.H. LONGITUDE 80°42'30"
B.H. LONGITUDE 80°42'30"
2,563' B.H.
8,463' T.H.

Table with 6 columns: No., Lease Name or No., Tag, Parcel, Grantor, Lessor, etc., Deed Book/Page. Contains lease details for various parcels and owners.

Table with 6 columns: No., Lease Name or No., Tag, Parcel, Grantor, Lessor, etc., Deed Book/Page. Continuation of lease details from the previous table.



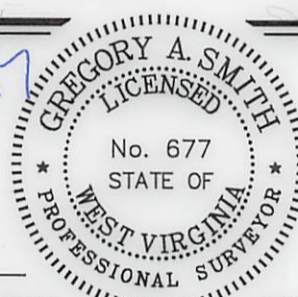
NOTES ON SURVEY

- 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'

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'83 S.P.C.(FT) N. 479,480.63 E. 1,627,764.26
NAD'83 GEO. LAT.(-N) 39.810102 LONG.(-W) 80.712955
NAD'83 UTM (M) N. 4,406,720.12 E. 524,569.86
LANDING POINT
NAD'83 S.P.C.(FT) N. 477,558.7 E. 1,624,487.8
NAD'83 GEO. LAT.(-N) 39.804704 LONG.(-W) 80.724524
NAD'83 UTM (M) N. 4,406,117.9 E. 523,581.4
BOTTOM HOLE
NAD'83 S.P.C.(FT) N. 470,170.5 E. 1,628,592.0
NAD'83 GEO. LAT.(-N) 39.784575 LONG.(-W) 80.709562
NAD'83 UTM (M) N. 4,403,888.0 E. 524,869.4

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

P.S. 677 Gregory A. Smith



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. DATE JULY 27, 20 17

REVISED, OPERATORS WELL NO. HEAVEN HILL 2W-11HM, API WELL NO. 47-051-01956, STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8703P11HM.dwg HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORNS 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: GROUND = 1,350.0' ELEVATION PROPOSED = 1,331.26' WATERSHED WEST FORK OF LOWER BOWMAN RUN OF FISH CREEK (HUC 10) DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5' SURFACE OWNER C.R. JR. & A.H. HAGEDORN ACREAGE 203.07± ROYALTY OWNER C.R. JR. & A.H. HAGEDORN ET AL. (SEE ABOVE) ACREAGE 203.07± 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: 6,879' / TMD: 17,164'

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

51-01954

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15521	A	9-7-3	VENANGO 21ST CENTURY ENERGY INC	TRIENERGY HOLDINGS, LLC	1/8+	722 281	TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15608	A	9-7-3	CHARLES R HAGEDORN JR	CHEVRON U.S.A. INC.	1/8+	816 423	N/A	N/A	Chevron to Tug Hill: 36/148
10*47051.073.1	A	9-7-3	VENANGO 21ST CENTURY ENERGY INC	TH EXPLORATION LLC	1/8+	888 618	N/A	N/A	N/A
10*47051.073.2	A	9-7-3	PATRIOT RESTORATIONS LLC	TH EXPLORATION LLC	1/8+	908 541	N/A	N/A	N/A
10*47051.073.3	A	9-7-3	TRIENERGY HOLDINGS, LLC	TH EXPLORATION LLC	1/8+	878 330	N/A	N/A	N/A
10*17229	B	9-4-10	STEPHEN MENENDEZ	TH EXPLORATION LLC	1/8+	913 66	N/A	N/A	N/A
10*15661	C	9-6-5	CHESTNUT HOLDINGS LLC	REPUBLIC ENERGY VENTURES LLC	1/8+	839 170	N/A	Republic to Chevron: 32/415	Chevron to Tug Hill: 36/148
				CHESAPEAKE APPALACHIA LLC - SEE			Chesapeake to Statoil:		
	D	9-6-4	ROBERT LEE CARNEY AND BONNIE ANNE CARNEY	ATTACHED LETTER	1/8+	682 255	22/671	Chesapeake to Chevron: 30/392	Statoil to Chevron: 30/404
10*15507	E	9-6-13	RAY C. HARTZELL AND CAROL J. HARTZELL, HUSBAND AND WIFE	AB RESOURCES LLC	1/8+	689 162	AB Res. to Chief: 24/382	Chief to Chevron: 25/1	Chevron to Tug Hill: 36/148
10*15525	F	9-6-12	RONALD KEITH MASON ET UX	CHEVRON U.S.A. INC.	1/8+	772 445	N/A	N/A	Chevron to Tug Hill: 36/148
10*15541	F	9-6-12	MARY RUTH FROHNAPFEL	CHEVRON U.S.A. INC.	1/8+	781 312	N/A	N/A	Chevron to Tug Hill: 36/148
10*15542	F	9-6-12	KENNETH D SIBURT	CHEVRON U.S.A. INC.	1/8+	781 218	N/A	N/A	Chevron to Tug Hill: 36/148
10*15543	F	9-6-12	SANDRA FROWEN	CHEVRON U.S.A. INC.	1/8+	781 307	N/A	N/A	Chevron to Tug Hill: 36/148
10*15544	F	9-6-12	VICKI J CHERRY A/K/A VICKIE L CHERRY	CHEVRON U.S.A. INC.	1/8+	793 318	N/A	N/A	Chevron to Tug Hill: 36/148
10*15545	F	9-6-12	JAMES B SIBURT ET UX	CHEVRON U.S.A. INC.	1/8+	793 332	N/A	N/A	Chevron to Tug Hill: 36/148
10*15546	F	9-6-12	ALAN K SIBURT ET UX	CHEVRON U.S.A. INC.	1/8+	793 325	N/A	N/A	Chevron to Tug Hill: 36/148
10*15547	F	9-6-12	RODNEY L SIBURT	CHEVRON U.S.A. INC.	1/8+	793 346	N/A	N/A	Chevron to Tug Hill: 36/148
10*15504	G	9-6-14	JAMES MASON ET AL	AB RESOURCES	1/8+	692 461	AB Res. to Chief: 24/382	Chief to Chevron: 25/1	Chevron to Tug Hill: 36/148
10*15510	H	9-6-10	ELAINE PHELPS ET VIR	TRIENERGY HOLDINGS LLC	1/8+	718 326	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15511	H	9-6-10	DAVID E CROW	TRIENERGY HOLDINGS LLC	1/8+	718 376	TriEnergy to NPAR: 25/463	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15512	H	9-6-10	FRANCES COFFEY	TRIENERGY HOLDINGS LLC	1/8+	718 378	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15513	H	9-6-10	KAY KEYES	TRIENERGY HOLDINGS LLC	1/8+	718 330	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15514	H	9-6-10	L PAUL CROW	TRIENERGY HOLDINGS LLC	1/8+	718 336	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15515	H	9-6-10	DESIRE L CROW	TRIENERGY HOLDINGS LLC	1/8+	718 334	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15516	H	9-6-10	ROSE MARIE KIELGCZEWSKI	TRIENERGY HOLDINGS LLC	1/8+	718 354	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15517	H	9-6-10	DIANNE GELLNER & GARY GELLNER	TRIENERGY HOLDINGS LLC	1/8+	718 345	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15518	H	9-6-10	JAMES P HOLLIDAY AND JACQUELINE HOLLIDAY	TRIENERGY HOLDINGS LLC	1/8+	718 347	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15519	H	9-6-10	JOHN CROW	TRIENERGY HOLDINGS LLC	1/8+	726 580	TriEnergy to NPAR: 25/449	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15520	H	9-6-10	TIMOTHY CROW	TRIENERGY HOLDINGS LLC	1/8+	726 582	TriEnergy to NPAR: 25/449	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*47051.123.1	H	9-6-10	LLOYD G BAKER	TH EXPLORATION LLC	1/8+	865 389	N/A	N/A	N/A
10*47051.123.2	H	9-6-10	JAMES P HOLLIDAY AND JACQUELINE HOLLIDAY	TH EXPLORATION LLC	1/8+	873 143	N/A	N/A	N/A
10*15510	I	9-10-11	ELAINE PHELPS ET VIR	TRIENERGY HOLDINGS LLC	1/8+	718 326	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15511	I	9-10-11	DAVID E CROW	TRIENERGY HOLDINGS LLC	1/8+	718 376	TriEnergy to NPAR: 25/463	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15512	I	9-10-11	FRANCES COFFEY	TRIENERGY HOLDINGS LLC	1/8+	718 378	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15513	I	9-10-11	KAY KEYES	TRIENERGY HOLDINGS LLC	1/8+	718 330	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15514	I	9-10-11	L PAUL CROW	TRIENERGY HOLDINGS LLC	1/8+	718 336	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15515	I	9-10-11	DESIRE L CROW	TRIENERGY HOLDINGS LLC	1/8+	718 334	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15516	I	9-10-11	ROSE MARIE KIELGCZEWSKI	TRIENERGY HOLDINGS LLC	1/8+	718 354	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15517	I	9-10-11	DIANNE GELLNER & GARY GELLNER	TRIENERGY HOLDINGS LLC	1/8+	718 345	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15518	I	9-10-11	JAMES P HOLLIDAY AND JACQUELINE HOLLIDAY	TRIENERGY HOLDINGS LLC	1/8+	718 347	TriEnergy to NPAR: 24/430	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15519	I	9-10-11	JOHN CROW	TRIENERGY HOLDINGS LLC	1/8+	726 580	TriEnergy to NPAR: 25/449	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*15520	I	9-10-11	TIMOTHY CROW	TRIENERGY HOLDINGS LLC	1/8+	726 582	TriEnergy to NPAR: 25/449	NPAR to Chevron: 28/356	Chevron to Tug Hill: 36/148
10*47051.123.1	I	9-10-11	LLOYD G BAKER	TH EXPLORATION LLC	1/8+	865 389	N/A	N/A	N/A
10*47051.123.2	I	9-10-11	JAMES P HOLLIDAY AND JACQUELINE HOLLIDAY	TH EXPLORATION LLC	1/8+	873 143	N/A	N/A	N/A
10*15567	J	9-10-13	VICKIE MASON	CHEVRON U.S.A. INC.	1/8+	680 409	N/A	N/A	Chevron to Tug Hill: 36/148
10*15568	J	9-10-13	MARY A SOUTH	CHESAPEAKE APPALACHIA LLC	1/8+	681 410	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15569	J	9-10-13	MARK L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	682 560	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15570	J	9-10-13	RAY A WHETZAL JR	CHESAPEAKE APPALACHIA LLC	1/8+	682 584	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15571	J	9-10-13	SHARON L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	682 568	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15572	J	9-10-13	ROBERT L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	682 500	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148

RECEIVED
 Office of Oil and Gas
 AUG 7 2017
 WV Department of
 Environmental Protection

WW-6A1 Supplement

Operator's Well No. Heaven Hill 2W - 11HM

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15724	J	9-10-13	JAMES RODNEY BRIGGS	TH EXPLORATION LLC	1/8+	901 325	N/A	N/A	N/A
10*15725	J	9-10-13	ROGER JACOB BRIGGS	TH EXPLORATION LLC	1/8+	901 318	N/A	N/A	N/A
10*15726	J	9-10-13	JOHN DEAN BRIGGS AND PATTY KAY BRIGGS	TH EXPLORATION LLC	1/8+	901 321	N/A	N/A	N/A
10*16079	J	9-10-13	LORI ASTON DIXON	TH EXPLORATION LLC	1/8+	904 565	N/A	N/A	N/A
10*16236	J	9-10-13	FRANCIS Y RIGGLE	TH EXPLORATION LLC	1/8+	907 156	N/A	N/A	N/A
10*16237	J	9-10-13	GREGORY J ASTON AND TAMMY E ASTON	TH EXPLORATION LLC	1/8+	907 149	N/A	N/A	N/A
10*16275	J	9-10-13	JEFFREY A ASTON	TH EXPLORATION LLC	1/8+	907 153	N/A	N/A	N/A
10*47051.108.1	J	9-10-13	MICHAEL A WHETZEL	TH EXPLORATION LLC	1/8+	885 51	N/A	N/A	N/A
10*47051.108.29	J	9-10-13	PATRICIA ANN MCDUGAL	TH EXPLORATION LLC	1/8+	901 306	N/A	N/A	N/A
10*47051.108.30	J	9-10-13	STEVEN L ASTON	TH EXPLORATION LLC	1/8+	901 308	N/A	N/A	N/A
10*47051.108.31	J	9-10-13	FRED T KERNS	TH EXPLORATION LLC	1/8+	901 298	N/A	N/A	N/A
10*47051.108.36	J	9-10-13	YVONNE K BOGERT	TH EXPLORATION LLC	1/8+	901 300	N/A	N/A	N/A
10*47051.108.37	J	9-10-13	CARL E ASTON	TH EXPLORATION LLC	1/8+	901 304	N/A	N/A	N/A
10*47051.108.38	J	9-10-13	CAROLYN SUE WELLS	TH EXPLORATION LLC	1/8+	901 310	N/A	N/A	N/A
10*47051.108.41	J	9-10-13	ELMER ASTON	TH EXPLORATION LLC	1/8+	901 296	N/A	N/A	N/A
10*47051.108.48	J	9-10-13	WILLIAM ASTON	TH EXPLORATION LLC	1/8+	901 312	N/A	N/A	N/A
10*47051.108.5	J	9-10-13	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	885 55	N/A	N/A	N/A
10*47051.108.50	J	9-10-13	DAVID U ASTON ESTATE BY EXECUTOR DAWN R MARKS	TH EXPLORATION LLC	1/8+	901 314	N/A	N/A	N/A
10*47051.108.52	J	9-10-13	CONNIE N ASTON	TH EXPLORATION LLC	1/8+	901 316	N/A	N/A	N/A
10*47051.108.53	J	9-10-13	MARY JANE KYLE	TH EXPLORATION LLC	1/8+	901 339	N/A	N/A	N/A
10*47051.108.56	J	9-10-13	PAULA HUNDL	TH EXPLORATION LLC	1/8+	901 347	N/A	N/A	N/A
10*47051.108.57	J	9-10-13	ROBERT B KERNS	TH EXPLORATION LLC	1/8+	901 349	N/A	N/A	N/A
10*47051.108.58	J	9-10-13	RONALD W KERNS	TH EXPLORATION LLC	1/8+	901 341	N/A	N/A	N/A
10*47051.108.59	J	9-10-13	PAUL ULYSSES KERNS ESTATE SALVATORE P PUGLISI, EXECUTOR	TH EXPLORATION LLC	1/8+	901 343	N/A	N/A	N/A
10*47051.108.6	J	9-10-13	TERRI MCCARDLE	TH EXPLORATION LLC	1/8+	895 23	N/A	N/A	N/A
10*47051.108.61	J	9-10-13	AMANDA FEIGH	TH EXPLORATION LLC	1/8+	901 345	N/A	N/A	N/A
10*47051.108.7	J	9-10-13	GARY FRANCIS WHETZAL	TH EXPLORATION LLC	1/8+	895 26	N/A	N/A	N/A
10*47051.108.73	J	9-10-13	JOHN ASTON JR	TH EXPLORATION LLC	1/8+	901 351	N/A	N/A	N/A
10*47051.108.77	J	9-10-13	SHONDA WOOD	TH EXPLORATION LLC	1/8+	901 356	N/A	N/A	N/A
10*47051.108.78	J	9-10-13	DONNA WOODS MOODY	TH EXPLORATION LLC	1/8+	901 354	N/A	N/A	N/A
10*47051.108.79	J	9-10-13	MARK A ASTON	TH EXPLORATION LLC	1/8+	901 358	N/A	N/A	N/A
10*47051.108.M1	J	9-10-13	KENNETH CHIPPS	TH EXPLORATION LLC	1/8+	899 20	N/A	N/A	N/A
10*15573	K	9-10-12	VICKIE MASON	CHEVRON U.S.A. INC.	1/8+	680 405	N/A	N/A	Chevron to Tug Hill: 36/148
10*15574	K	9-10-12	MARY A SOUTH	CHESAPEAKE APPALACHIA LLC	1/8+	681 414	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15575	K	9-10-12	MARK L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	683 73	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15576	K	9-10-12	RAY A WHETZAL JR	CHESAPEAKE APPALACHIA LLC	1/8+	683 69	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15577	K	9-10-12	ROBERT L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	682 536	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15578	K	9-10-12	SHARON L WHETZAL	CHESAPEAKE APPALACHIA LLC	1/8+	682 540	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*15724	K	9-10-12	JAMES RODNEY BRIGGS	TH EXPLORATION LLC	1/8+	901 325	N/A	N/A	N/A
10*15725	K	9-10-12	ROGER JACOB BRIGGS	TH EXPLORATION LLC	1/8+	901 318	N/A	N/A	N/A
10*15726	K	9-10-12	JOHN DEAN BRIGGS AND PATTY KAY BRIGGS	TH EXPLORATION LLC	1/8+	901 321	N/A	N/A	N/A
10*16079	K	9-10-12	LORI ASTON DIXON	TH EXPLORATION LLC	1/8+	904 565	N/A	N/A	N/A
10*16236	K	9-10-12	FRANCIS Y RIGGLE	TH EXPLORATION LLC	1/8+	907 156	N/A	N/A	N/A
10*16237	K	9-10-12	GREGORY J ASTON AND TAMMY E ASTON	TH EXPLORATION LLC	1/8+	907 149	N/A	N/A	N/A
10*16275	K	9-10-12	JEFFREY A ASTON	TH EXPLORATION LLC	1/8+	907 153	N/A	N/A	N/A
10*47051.108.1	K	9-10-12	MICHAEL A WHETZEL	TH EXPLORATION LLC	1/8+	885 51	N/A	N/A	N/A
10*47051.108.29	K	9-10-12	PATRICIA ANN MCDUGAL	TH EXPLORATION LLC	1/8+	901 306	N/A	N/A	N/A
10*47051.108.30	K	9-10-12	STEVEN L ASTON	TH EXPLORATION LLC	1/8+	901 308	N/A	N/A	N/A
10*47051.108.31	K	9-10-12	FRED T KERNS	TH EXPLORATION LLC	1/8+	901 298	N/A	N/A	N/A
10*47051.108.36	K	9-10-12	YVONNE K BOGERT	TH EXPLORATION LLC	1/8+	901 300	N/A	N/A	N/A
10*47051.108.37	K	9-10-12	CARL E ASTON	TH EXPLORATION LLC	1/8+	901 304	N/A	N/A	N/A

51-01954

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*47051.108.38	K	9-10-12	CAROLYN SUE WELLS	TH EXPLORATION LLC	1/8+	901 310	N/A	N/A	N/A
10*47051.108.41	K	9-10-12	ELMER ASTON	TH EXPLORATION LLC	1/8+	901 296	N/A	N/A	N/A
10*47051.108.48	K	9-10-12	WILLIAM ASTON	TH EXPLORATION LLC	1/8+	901 312	N/A	N/A	N/A
10*47051.108.5	K	9-10-12	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	885 55	N/A	N/A	N/A
10*47051.108.50	K	9-10-12	DAVID U ASTON ESTATE BY EXECUTOR DAWN R MARKS	TH EXPLORATION LLC	1/8+	901 314	N/A	N/A	N/A
10*47051.108.52	K	9-10-12	CONNIE N ASTON	TH EXPLORATION LLC	1/8+	901 316	N/A	N/A	N/A
10*47051.108.53	K	9-10-12	MARY JANE KYLE	TH EXPLORATION LLC	1/8+	901 339	N/A	N/A	N/A
10*47051.108.56	K	9-10-12	PAULA HUNDL	TH EXPLORATION LLC	1/8+	901 347	N/A	N/A	N/A
10*47051.108.57	K	9-10-12	ROBERT B KERNS	TH EXPLORATION LLC	1/8+	901 349	N/A	N/A	N/A
10*47051.108.58	K	9-10-12	RONALD W KERNS	TH EXPLORATION LLC	1/8+	901 341	N/A	N/A	N/A
10*47051.108.59	K	9-10-12	PAUL ULYSSES KERNS ESTATE SALVATORE P PUGLISI, EXECUTOR	TH EXPLORATION LLC	1/8+	901 343	N/A	N/A	N/A
10*47051.108.6	K	9-10-12	TERRI MCCARDLE	TH EXPLORATION LLC	1/8+	895 23	N/A	N/A	N/A
10*47051.108.61	K	9-10-12	AMANDA FEIGH	TH EXPLORATION LLC	1/8+	901 345	N/A	N/A	N/A
10*47051.108.7	K	9-10-12	GARY FRANCIS WHETZAL	TH EXPLORATION LLC	1/8+	895 26	N/A	N/A	N/A
10*47051.108.73	K	9-10-12	JOHN ASTON JR	TH EXPLORATION LLC	1/8+	901 351	N/A	N/A	N/A
10*47051.108.77	K	9-10-12	SHONDA WOOD	TH EXPLORATION LLC	1/8+	901 356	N/A	N/A	N/A
10*47051.108.78	K	9-10-12	DONNA WOODS MOODY	TH EXPLORATION LLC	1/8+	901 354	N/A	N/A	N/A
10*47051.108.79	K	9-10-12	MARK A ASTON	TH EXPLORATION LLC	1/8+	901 358	N/A	N/A	N/A
10*47051.108.M1	K	9-10-12	KENNETH CHIPPS	TH EXPLORATION LLC	1/8+	899 20	N/A	N/A	N/A
10*47051.243.1	L	9-11-2	MARY A FOX	TH EXPLORATION LLC	1/8+	879 332	N/A	N/A	N/A
10*47051.243.2	L	9-11-2	PAUL G FOX	TH EXPLORATION LLC	1/8+	879 335	N/A	N/A	N/A
10*47051.243.3	L	9-11-2	MARK H FOX	TH EXPLORATION LLC	1/8+	879 338	N/A	N/A	N/A
10*47051.243.4	L	9-11-2	DAVID E FOX	TH EXPLORATION LLC	1/8+	876 55	N/A	N/A	N/A
10*47051.243.5	L	9-11-2	LOUIS T FOX	TH EXPLORATION LLC	1/8+	876 58	N/A	N/A	N/A
10*47051.243.6	L	9-11-2	THOMAS J FOX	TH EXPLORATION LLC	1/8+	876 61	N/A	N/A	N/A

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STATE OF TEXAS §
COUNTY OF TARRANT §

On this 18th day of October, 2016, before me, the undersigned authority, personally appeared David D. Kalish ("Affiant") who being first duly sworn under oath, deposes and saith:

- 1. TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC are wholly owned subsidiaries of THQ Appalachia I, LLC.
2. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under an Operating Services Agreement dated July 23, 2014.
3. David D. Kalish, the Affiant, is the Vice President of Tug Hill Operating, LLC, THQ Appalachia I, LLC, TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC, and;
3. Tug Hill Operating, LLC is authorized to operate and maintain the assets owned by THQ Appalachia I, LLC, including, as referenced above, TH Exploration, LLC, TH Exploration II, LLC, and TH Exploration III, LLC, including oil and gas leases, wells, pipelines, surface facilities, and other all other assets that support the business of THQ Appalachia I, LLC, and;
4. Specifically, Tug Hill Operating, LLC is authorized to submit and obtain well work permits and carry out all activities pursuant to such work permits for assets owned by TH Exploration, LLC, TH Exploration II, LLC, TH Exploration III, LLC.

FURTHER, AFFIANT SAITH NOT.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18th day of October, 2016.

David D. Kalish
Affiant: David D. Kalish

JURAT

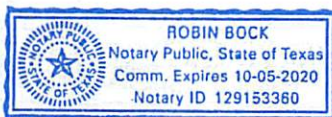
STATE OF TEXAS §
COUNTY OF TARRANT §

Carroll S Haught
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Date Recorded 10/20/2016
Document Type AFFID
Pages Recorded 1
Book-Page 119-291
Recording Fee \$5.00
Additional \$6.00

Sworn and subscribed to (or affirmed) before me on this, the 18th day of October, 2016, by David D. Kalish.

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

My Commission Expires: 10-05-2020
Signature/Notary Public: Robin Bock
Name/Notary Public (Print): Robin Bock



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STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

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

ASSIGNMENT AND CONVEYANCE

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

WITNESSETH:

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

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

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

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

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

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

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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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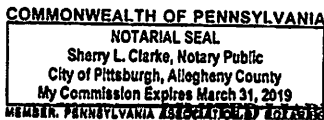
CORPORATE ACKNOWLEDGEMENT

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 A. 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.

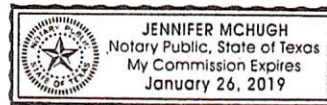
IN WITNESS WHEREOF, I hereto set my hand and official seal.

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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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
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 083	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	

EXHIBIT A - LEASES TO BE ASSIGNED TO THE EXPLORATION, LLC
 MARSHALL COUNTY, WEST VIRGINIA
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ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRES	APN	LESS & EXCEPT
93623	CRONE 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 683 PG 239	INST 1274143	ALL	110.00	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	COLLINS 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 CARLAS	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	09-0006-0010-0000-0000; 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 ISAAC 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 THE EXPLORATION, LLC
 MARSHALL COUNTY, WEST VIRGINIA
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ID	AGENT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS AGRS	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	BK 718 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	
933254	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 A/JF 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	DENNAN 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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BOOK 0036 PAGE 0157

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	AGNT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRES	APN	LESS & EXCEPT
920798	DOBBS JOHN DANIEL - SFX	CHESAPEAKE APPALACHIA LLC	11/17/2009	BK 694 PG 123	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 117284	ALL	103.30	09-0007-0006-0000-0000	\$ 007 GROSS AC OF 09-0007-0006-0000-0000 (AS DEPICTED ON EXHIBIT A-1)
904339	FROHNAPPEL MARY RUTH - SFX	CHEVRON USA INC	10/10/2012	BK 781 PG 312	INST 133615	ALL	60.00	09-0006-0012-0000-0000	
904744	FROWEN SANDRA - SFX	CHEVRON USA INC	10/10/2012	BK 781 PG 307	INST 133614	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; 09-0006-0011-0000-0000; 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	GORBRY 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	GORBRY 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 ACRES	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	HARVEY 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 APPLICHIA 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 APPLICHIA 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 APPLICHIA 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 APPLICHIA LLC	5/5/2010	BK 715 PG 442	INST 1296144	ALL	110.00	09-0011-0009-0000-0000; 09-0011-0010-0000-0000	
923477	HEINZROTH 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	HENGEROTH DOUGLAS PAUL AIF EMILY M HENGEROTH - 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	HENGEROTH 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	HENNINGER 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	UHP	87.40	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 BEL - 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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ID	AGMT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRS	APN	LESS & EXCEPT
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 PG125	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 830 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 834 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 1397833	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; 09-0007-0022-0000-0000; 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	09-0007-0024-0000-0000	

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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	

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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, 09-0005-0023-0000-0000 & 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 335	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	
933249	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	TRINENERGY 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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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
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	

BOOK 0036 PAGE 0165

EXHIBIT A - LEASES TO BE ASSIGNED TO THE 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 THE Exploration, LLC

ID	AGENT NAME	LESSEE	EFF DT	BK - PG	INSTRUMENT NO.	DEPTH	GROSS ACRES	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 (AS DEPICTED ON EXHIBIT A-1)	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; 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; 09-0007-0024-0000-0000	
866564	YEATER SHERWOOD - SFX	TRIENERGY, INC	5/29/2007	BK 748 PG 268	INST 117736	ALL	103.30	09-0007-0022-0000-0000; 09-0007-0024-0000-0000; 09-0007-0024-0000-0000	5.007 GROSS AC OF 09-0007-0022-0000-0000 (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; 09-0007-0024-0000-0000	
923076	ZEHNDER 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; 09-0007-0024-0000-0000	

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August 4, 2017

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

RE: Heaven Hill Unit 2W-11HM

Subject: County Route 21/3 and County Route 21/9 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 21/3 and County Route 21/9 in the area reflected on the Heaven Hill Unit 2W-11HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Route 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-hillop.com.

Sincerely,

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

Amy L. Miller
Permitting Specialist— Appalachia Region

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

Date of Notice Certification: 08/04/2017

API No. 47- 051 - 01956
Operator's Well No. Heaven Hill Unit 2W-11HM
Well Pad Name: Heaven Hill Unit 2

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>524,567.56</u>
County: <u>Marshall</u>		Northing: <u>4,406,717.07</u>
District: <u>Meade</u>	Public Road Access: <u>Blake Ridge Road (Co. Rt. 21/3)</u>	
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Charles R. Hagedorn, Jr., et ux</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>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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Required Attachments:

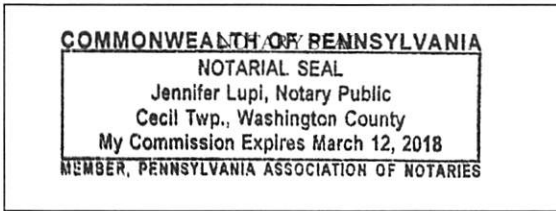
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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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>724-338-2026</u>	Email:	<u>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 4th 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 depprivacyofficer@wv.gov.

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Environmental Protection

WW-6A
(9-13)

API NO. 47- 051 - 01954
OPERATOR WELL NO. Heaven Hill Unit 2W-11HM
Well Pad Name: Heaven Hill Unit 2

**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: 8/4/2017 **Date Permit Application Filed:** 8/7/2017

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: Charles R. Hagedorn, Jr., ex ux
Address: 78 Hagedorn Drive
Glen Easton, WV 26039

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Michael J. Rine, et ux
Address: 1466 Blake Ridge Road
Glen Easton, WV 26039

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

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

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: _____
Address: _____

*See supplement page 1A attached

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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API NO. 47- 051 - 01956
OPERATOR WELL NO. Heaven Hill Unit 2W-11HM
Well Pad Name: Heaven Hill Unit 2

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

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 with the secretary 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.**

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 - 01956
OPERATOR WELL NO. Heaven Hill Unit 2W-11HM
Well Pad Name: Heaven Hill Unit 2

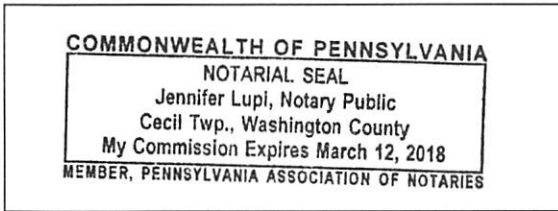
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-338-2026
Email: amiller@tug-hillop.com

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 4th day of Aug., 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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Environmental Protection

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')

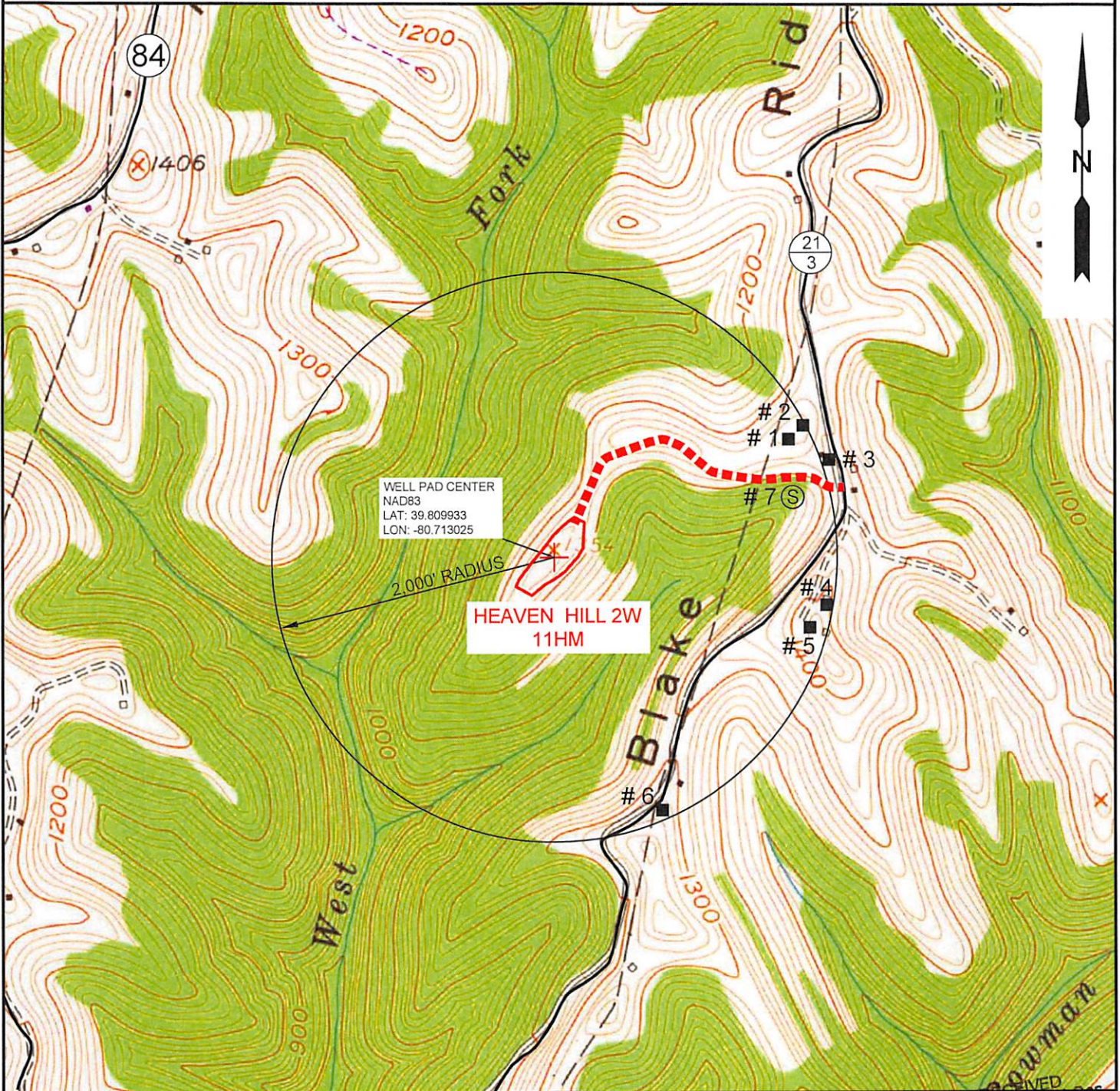
Well: Heaven Hill 2W - 11HM
 District: Meade (House #'s 1, 2, 3, 4, 5 & 6)
 State: WV

There are six (6) 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. 3.1 Charles R. Hagedorn Jr., Et Ux Phone: 304-845-7332 Physical Address: 102 Hagedorn Dr. Glen Easton, WV 26039 Tax Address: 78 Hagedorn Dr. Glen Easton, WV 26039	House 2 TM 7 Pcl. 3.1 Charles R. Hagedorn Jr., Et Ux Phone: 304-845-7332 Physical Address: 78 Hagedorn Dr. Glen Easton, WV 26039 Tax Address: 78 Hagedorn Dr. Glen Easton, WV 26039
House 3 TM 7 Pcl. 3 Charles R. Jr., & Annemarie H. Hagedorn Phone: 304-845-7332 Physical Address: 1367 Blake Ridge Rd. Glen Easton, WV 26039 Tax Address: 78 Hagedorn Dr. Glen Easton, WV 26039	House 4 TM 7 Pcl. 1 Michael J. Rine, Et Ux Phone: None Found Physical Address: UNKNOWN Tax Address: 1466 Blake Ridge Rd. Glen Easton, WV 26039
House 5 TM 7 Pcl. 1 Michael J. Rine, Et Ux Phone: None Found Physical Address: 1466 Blake Ridge Rd. Glen Easton, WV 26039 Tax Address: Same	House 6 TM 6 Pcl. 7 Scott C. & Carolyn R. Harris Phone: None Found Physical Address: 1944 Blake Ridge Rd. Glen Easton, WV 26039 Tax Address: Same

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PROPOSED HEAVEN HILL 2W - 11HM



NOTE: THERE APPEARS TO BE SEVEN (7) POSSIBLE WATER SOURCES WITHIN 2,000'.

LEGEND: (S) = SPRING ■ = RESIDENCE

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<p>SLS Land & Energy Development <i>Solutions from the ground up.</i> P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634 www.slsurveys.com</p>	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.	8703	07/27/2017	1" = 1000'	

WV Department of Environmental Protection
TUG HILL OPERATING

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: April 06, 2017 **Date of Planned Entry:** April 13, 2017

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: Charles R. Hagedorn, Jr., et ux

Address: 78 Hagedorn Drive
Glen Easton, WV 26039

Name: Michael J. Rine

Address: 1466 Blake Ridge Road
Glen Easton, WV 26039

Name: None

Address: _____

COAL OWNER OR LESSEE

Name: Murray Energy Corporation

Address: 46226 National Road
St. Clairsville, OH 43950

MINERAL OWNER(s)

Name: JMK Irrevocable Trust

Address: 600 Texas Street, Suite 101
Fort Worth, TX 76102

*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: 39.8099328, LON: -80.7130249</u>
County: <u>Marshall</u>	Public Road Access: <u>Blake Ridge Road (Co. Rt. 21/3)</u>
District: <u>Meade</u>	Watershed: <u>HUC-10 Fish Creek</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Charles R. Hagedorn</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: 724-749-8388

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.

Operator Well No. Heaven Hill 2W-11HM**WW-6A3 Notice of Entry for Plat Survey****Attachment 1 of 1****Mineral Owner(s):**

Name: Marcellus TX Minerals Partners, LTD
Address: 307 W 7th St.
Fort Worth, TX 76102

Name: Purpleburgh Ventures, LLC
Address: 306 W 7th St.
Fort Worth, TX 76102

Name: Charles R. Hagedorn, Jr., et ux
Address: 78 Hagedorn Drive
Glen Easton, WV 26039

Name: Venango 21st Century
Address: 301 Moon Clinton Road
Moon Township, PA 15108

Name: TriEnergy Holdings, LLC
Address: 412 Beaver Street, 2nd Floor
Sewickley, PA 15143

Name: Patriot Restoration
Address: 713 Sycamore Road Extension
Sewickley, PA 15143

Name: Ralph E. Wellman
Address: 2209 Bowman Ridge Rd.
Glen Easton, WV 26039

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WW-6A5
(1/12)

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: 08/02/2017 **Date Permit Application Filed:** 08/04/2017

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: Charles R. Hagedorn, Jr., et ux

Address: 78 Hagedorn Drive

Glen Easton, WV 26039

Name: Michael J. Rine, et ux

Address: 1466 Blake Ridge Road

Glen Easton, WV 26039

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>524,567.56</u>
County: <u>Marshall</u>		Northing: <u>4,406,717.07</u>
District: <u>Meade</u>	Public Road Access: <u>Blake Ridge Road (Co. Rt. 21/3)</u>	
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>Charles R. Hagedorn, Jr., et ux</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: 724-338-2026

Email: amilfer@tug-hill.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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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

April 10, 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 2 Pad, Marshall County
 Heaven Hills Unit 2W-11HM Well site
 47-051-01956

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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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Heaven Hill Unit 2W-11HM

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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APPROVED
WVDEP OOG
11/2/2016

Heaven Hill 2 Site

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Meade District
Latitude 39.809933°
Longitude -80.713025°
Middle Fish Creek Watershed

Pertinent Site Information
Heaven Hill 2 Site
Emergency Number: 304-845-1920
Marshall County Emergency 911 (Moundsville, WV)
Meade District, Marshall County, WV
Watershed: Middle Fish Creek

Exhibit A: Final Design: Issue for Permitting

Well Pad Site Entrance

WV NAD 83 E: 1429796.37	WV NAD 83 E: 1429796.37
WV NAD 83 E: 479892.53	WV NAD 83 E: 479892.53
WV NAD 83 E: 1462217.19	WV NAD 83 E: 1462217.19
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
UTM 17 NAD 83 E: 4004849.99	UTM 17 NAD 83 E: 4004849.99
UTM 17 NAD 83 E: 522188.45	UTM 17 NAD 83 E: 522188.45

Center of Crisp Pad

WV NAD 83 E: 1429796.37	WV NAD 83 E: 1429796.37
WV NAD 83 E: 479892.53	WV NAD 83 E: 479892.53
WV NAD 83 E: 1462217.19	WV NAD 83 E: 1462217.19
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
UTM 17 NAD 83 E: 4004849.99	UTM 17 NAD 83 E: 4004849.99
UTM 17 NAD 83 E: 522188.45	UTM 17 NAD 83 E: 522188.45

Center of Hill Pad

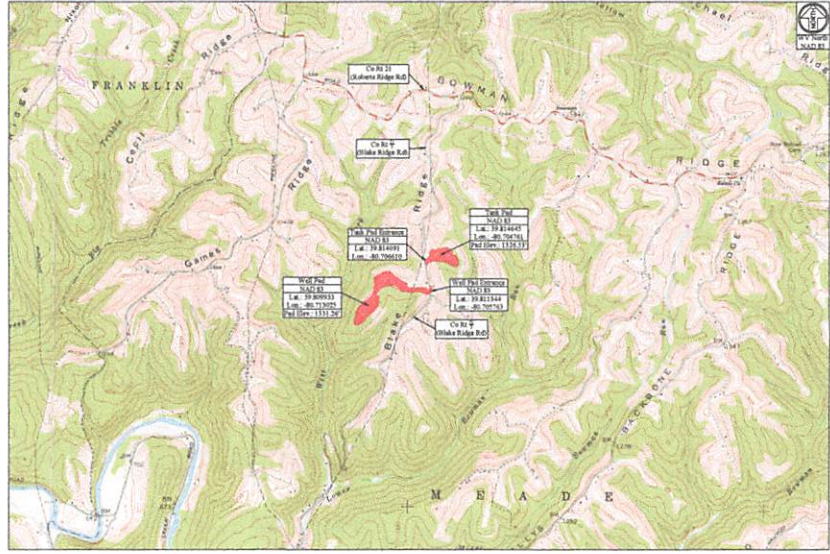
WV NAD 83 E: 1429796.37	WV NAD 83 E: 1429796.37
WV NAD 83 E: 479892.53	WV NAD 83 E: 479892.53
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WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
UTM 17 NAD 83 E: 4004849.99	UTM 17 NAD 83 E: 4004849.99
UTM 17 NAD 83 E: 522188.45	UTM 17 NAD 83 E: 522188.45

Well Pad Site Entrance

WV NAD 83 E: 1429796.37	WV NAD 83 E: 1429796.37
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WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
UTM 17 NAD 83 E: 4004849.99	UTM 17 NAD 83 E: 4004849.99
UTM 17 NAD 83 E: 522188.45	UTM 17 NAD 83 E: 522188.45

Center of Tank Pad

WV NAD 83 E: 1429796.37	WV NAD 83 E: 1429796.37
WV NAD 83 E: 479892.53	WV NAD 83 E: 479892.53
WV NAD 83 E: 1462217.19	WV NAD 83 E: 1462217.19
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
WV NAD 83 E: 487023.88	WV NAD 83 E: 487023.88
UTM 17 NAD 83 E: 4004849.99	UTM 17 NAD 83 E: 4004849.99
UTM 17 NAD 83 E: 522188.45	UTM 17 NAD 83 E: 522188.45



Property Owner Information - Heaven Hill 2 Site

Owner	TM Parcel	Well Pad	Crp Pad	Access Road	Gravel Storage	ADR	Clearing	Total Disturbed
C. Haglund	7-3	678	415	7-01	7-51	7-10	7-10	7-10
Total	7-3	678	415	7-01	7-51	7-10	7-10	7-10

Access Road

Surface Owner	TM Parcel	Well Pad	Crp Pad	Access Road	Gravel Storage	ADR	Clearing	Total Disturbed
C. Haglund	7-3	2309.19	7-51	7-10	7-10	7-10	7-10	7-10
C. Haglund	7-3	2309.19	7-51	7-10	7-10	7-10	7-10	7-10

Disturbed Area

Well Pad Construction	Crp Pad Construction	Access Road Construction	Gravel Storage Construction	ADR Construction	Total Disturbed Area
2.17 AC	2.17 AC	2.17 AC	2.17 AC	2.17 AC	10.85 AC

Heaven Hill 2 Site Quantities

Construction	Well Pad	Crp Pad	Access Road	Gravel Storage	ADR	Total
Volume (cu yd)	11,025.00	11,025.00	11,025.00	11,025.00	11,025.00	45,100.00
Length of Pipe	N/A	N/A	N/A	N/A	N/A	N/A

Project Contacts

The Hill Operating
Joshua White - Regulatory Analyst
724-483-2095 OE, 304-484-4754 CV
Chris Fisher - VP Production
811-412-3200 OE

Marshall County
Kawan Kirby
304-484-4754 OE

Geotechnical Engineer
Jameson Chemical, Inc.
Karl Paal
304-484-4757 OE

Environmental Consultant
Allstate Ecology
484-221-2014

MISS UTILITY OF WEST VIRGINIA
1-800-243-4848
West Virginia State Line
Marshall County, WV
Know where below. Call before you dig.

Approach Routes:
From Moundsville, WV
Head South on State Rt 2. Turn Left onto State Rt 2 Ah (Round Bottom Hill Road) approximately 4 miles south of Moundsville, WV. Follow State Rt 2 Ah for 1.5 mi. Turn Right onto Co R1 (Lansley Lane). Follow Co R1 for 1.8 mi. Turn Right onto Co R2 (Roberta Ridge Rd). Follow Co R2 for 1.4 mi. Turn Right onto Co R3 (Olkate Ridge Rd). Follow Co R3 for 1.4 mi. The site entrance will be on the right (West) side of the road.

Floodplain Conditions

Is this construction activity located in a floodplain?	NO
Is this construction activity located in a floodplain?	NO
Is this construction activity located in a floodplain?	NO
Is this construction activity located in a floodplain?	NO
Is this construction activity located in a floodplain?	NO
Is this construction activity located in a floodplain?	NO

WVDEP Website Files
WVDEP Website Files show that there are no active and/or abandoned gas wells within the ACE.

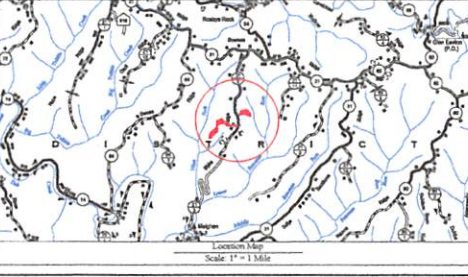


Site Locations (NAD 27)

Station	Latitude (NAD 27)	Longitude (NAD 27)
Center of Hill Pad	39.81095	-80.71302
Center of Tank Pad	39.81095	-80.71302

Site Locations (NAD 83)

Station	Latitude (NAD 83)	Longitude (NAD 83)
Center of Hill Pad	39.81095	-80.71302
Center of Tank Pad	39.81095	-80.71302



Well Location Restrictions
All pad construction complies with the following restrictions:
*250' from an existing well or developed spring used for human or domestic animals.
*250' from an occupied dwelling or been greater than 1,500 SF used for poultry or dairy measured from the center of the pad.
*100' from the edge of disturbance to a naturally reproducing wet stream.
*100' from the edge of disturbance to a naturally reproducing wet stream.
*100' of a surface or ground water leads to public water supply.

Well Location Restrictions of WV Code 22-6A-12

Engineering Certification
The drawings, construction notes and reference attached hereto have been prepared in accordance with the West Virginia Code of this State. Division of Environmental Protection, Office of Oil and Gas (22-6A-12).
All Plans, Notes, and/or Reference Drawings submitted to this design contractor are copies of plans. A complete set of plans is submitted to the State of West Virginia.
Date: 08/20/2016
John P. See 899 4011
Civil Engineer No. 12101
Civil License No. 12101

As-Built Certification
This as-built certification certifies that the plan and utility and was constructed in accordance with the approved plans and specifications. The plan and utility and was constructed in accordance with the approved plans and specifications. The plan and utility and was constructed in accordance with the approved plans and specifications.
Date: 08/20/2016
John P. See 899 4011

Sheet	Description
1	Cover Sheet
1-1	Schedule of Quantities
N1-N3	Site Notes
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-9	E&S Plan View
10	The Key Exhibit
11-14	Plan View
15-16	Cross Sections - Well Pad
17	Cross Sections - Central Receiving Pad
18-19	Cross Sections - Tank Pad
20-21	Cross Sections - Well Pad Access Road
22	Cross Sections - Tank Pad Access Road
G1-G2	Geotechnical Details
L1	Landowner Disturbed Area Exhibit
S1-S2	Site Reclamation
M1-M2	Production Details
D1-D2	Erosion and Sediment Control Details
R1	Access Road Details
PA	Pad Details

THIS DOCUMENT PREPARED FOR:
TUG HILL OPERATING

Heaven Hill 2 Site
Meade District
Marshall County, WV

Scale: As Shown
Designed by: ZS
Checked by: JCS
Sheet 1 of 23