



west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Monday, March 15, 2021
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BOULEVARD, PLAZA II
SUITE 200
CANONSBURG, PA 15317

Re: Permit Modification Approval for KNOB CREEK S-9HM
47-051-02285-00-00

Lateral Extension

TUG HILL OPERATING, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A blue ink signature of James A. Martin is written over the text of his name and title.

James A. Martin
Chief

Operator's Well Number: KNOB CREEK S-9HM
Farm Name: DAVID LEE FRANKLIN
U.S. WELL NUMBER: 47-051-02285-00-00
Horizontal 6A New Drill
Date Modification Issued: 3/15/2021

Promoting a healthy environment.

03/19/2021



February 17, 2021

WADE STANSBERRY
WV DEP OFFICE OF OIL & GAS
601 57TH STREET SE
CHARLESTON, WV 25304-2345

VIA USPS

**RE: Knob Creek S-9HM API # 47-051-02285 (H6A Permit Modification)
Meade District, Marshall County, WV**

Dear Wade:

Tug Hill Operating, LLC is submitting a permit modification for its permitted well, Knob Creek S-9HM to add 7,945.75' to the lateral length. Therefore, enclosed please find the following:

- Modified WW-6B with changes highlighted in yellow
- Updated well plat
- Updated WW-6A1 information
- Updated Site Safety Plan (The only information that has changed is the contact information for the Inspector at the contact list at the end of the Plan).

If you have any questions or need any additional information, please do not hesitate to call me on (304) 376-0111. Thank you for attention to this matter, it is greatly appreciated.

Sincerely,

AMY MORRIS
PERMIT SPECIALIST-APPALACHIA REGION
TUG HILL OPERATING, LLC

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Enclosures

Modification

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: Knob Creek S-9HM Well Pad Name: Knob Creek

3) Farm Name/Surface Owner: David Lee Franklin Public Road Access: St. Joseph Road - CR 21

4) Elevation, current ground: 737' Elevation, proposed post-construction: 737'

5) Well Type (a) Gas Oil Underground Storage
Other _____
(b) If Gas Shallow Deep
Horizontal

JW
10/29/2020

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcollus is the target formation at a depth of 6209' - 6260', thickness of 51' and an anticipated approximate pressure of 3800 psi.

8) Proposed Total Vertical Depth: 6,360'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 17,418'

11) Proposed Horizontal Leg Length: 10,475.50'

12) Approximate Fresh Water Strata Depths: 70'; 380'

13) Method to Determine Fresh Water Depths: Use shallow offset wells to determine deepest freshwater, or determine using pre-drill tests, testing while drilling or petrophysical evaluation of resistivity.

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: Sewickley Coal - 292' and Pittsburgh Coal - 374'

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

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

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(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

WW-6B
(04/15)

API NO. 47- 051 - 02285
 OPERATOR WELL NO. Knob Creek S-9HM
 Well Pad Name: Knob Creek

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	120'	120'	259ft^3(CTS)
Fresh Water	13 3/8"	NEW	J55	54.5#	480'	480'	683ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	480'	480'	683ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,302'	2,302'	745ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	17,418'	17,418'	4,440ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#	6,059'		
Liners							

JW 10/29/2020

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"	17.5"	.33	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47-051 - 02285
OPERATOR WELL NO. Knob Creek S-9HM
Well Pad Name: Knob Creek

JW
10/29/2020

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

Drill through the Marcellus tagging less than 100' from the top of the Onondaga to get depths and log data. Plug back to proposed kick off point. Drill the horizontal section to planned and proposed TD. Run casing and cement to surface. Run Bond Log from app. 60 deg to surface. Make clean out run and stimulate.

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

Well to completed with approximately 26,000,000 lb. proppant and 470,000 barrels of water. Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 12.93 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.55 acres

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

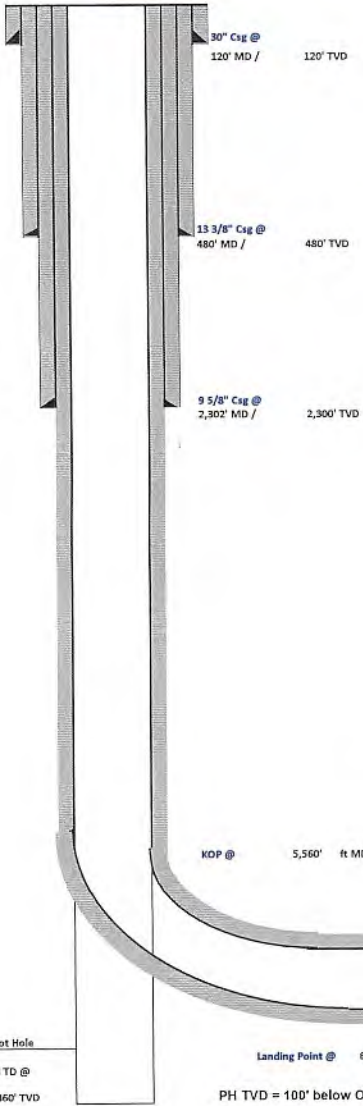
Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH.

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*Note: Attach additional sheets as needed.



WELL NAME: Knob Creek S-9HM
STATE: WV **CDUNTY:** Marshall
DISTRICT: Meade
DF Elev: 737' **GL Elev:** 737'
TD: 17,418'
TH Latitude: 39.77013409
TH Longitude: -80.70542372
BH Latitude: 39.74782315
BH Longitude: -80.68515039



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	380
Sewickley Coal	292
Pittsburgh Coal	374
Big Lime	1703
Weir	2004
Berea	2189
Gordon	2452
Rhinestreet	5566
Genesee/Burkett	6078
Tully	6107
Hamilton	6141
Marcellus	6209
Landing Depth	6244
Onondaga	6260
Pilot Hole Depth	6360

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'	8W	8W	Surface
Surface	17.5	13 3/8	480'	480'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,302'	2,300'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	17,418'	6,427'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	661	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	784	A	15	Air	1 Centralizer every other jt
Production	4,082	A	14.5	Air / SOBMs	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc

me 10/29/2020

Pilot Hole
PH TD @
6,360' TVD

Landing Point @ 6,944' MD / 6,244' TVD
PH TVD = 100' below Onondaga Top

Lateral TD @ 17,418' ft MD
6,427' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Knob Creek S-9HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	480'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,302'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	17,418'	CTS

Cement

- Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
- Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
- Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
- Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
- Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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03/19/2021



TUG HILL
OPERATING

Well: Knob Creek S-09HM (slot G)
Site: Knob Creek
Project: Marshall County, West Virginia.
Design: rev3

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1750.00	5.00	358.50	1749.68	10.90	-0.29	2.00	358.500	-9.07	Begin 5.00° tangent
4	3205.86	5.00	358.50	3200.00	137.74	-3.61	0.00	0.000	-114.58	Begin 2°/100' build
5	4168.55	33.88	355.91	4098.26	454.02	-24.27	3.00	-2.986	-384.83	Begin 33.88° tangent section
6	5559.92	30.88	355.91	5253.45	1227.57	-79.55	0.00	0.000	-1048.53	Begin 8°/100' build/turn
7	6528.90	50.00	133.96	6100.44	1241.49	214.67	8.00	148.365	-890.15	Begin 10°/100' build/turn
8	6944.39	89.00	149.72	6243.95	938.25	444.12	10.00	24.162	-510.09	Begin 89.00° lateral section
9	17417.97	89.00	149.72	6427.00	-8104.62	5725.12	0.00	0.000	9922.80	PBHL/TD 17417.96 MD 6427.00 TVD

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

System Datum: Mean Sea Level
Depth Reference: GL=737 @ 737.00usft

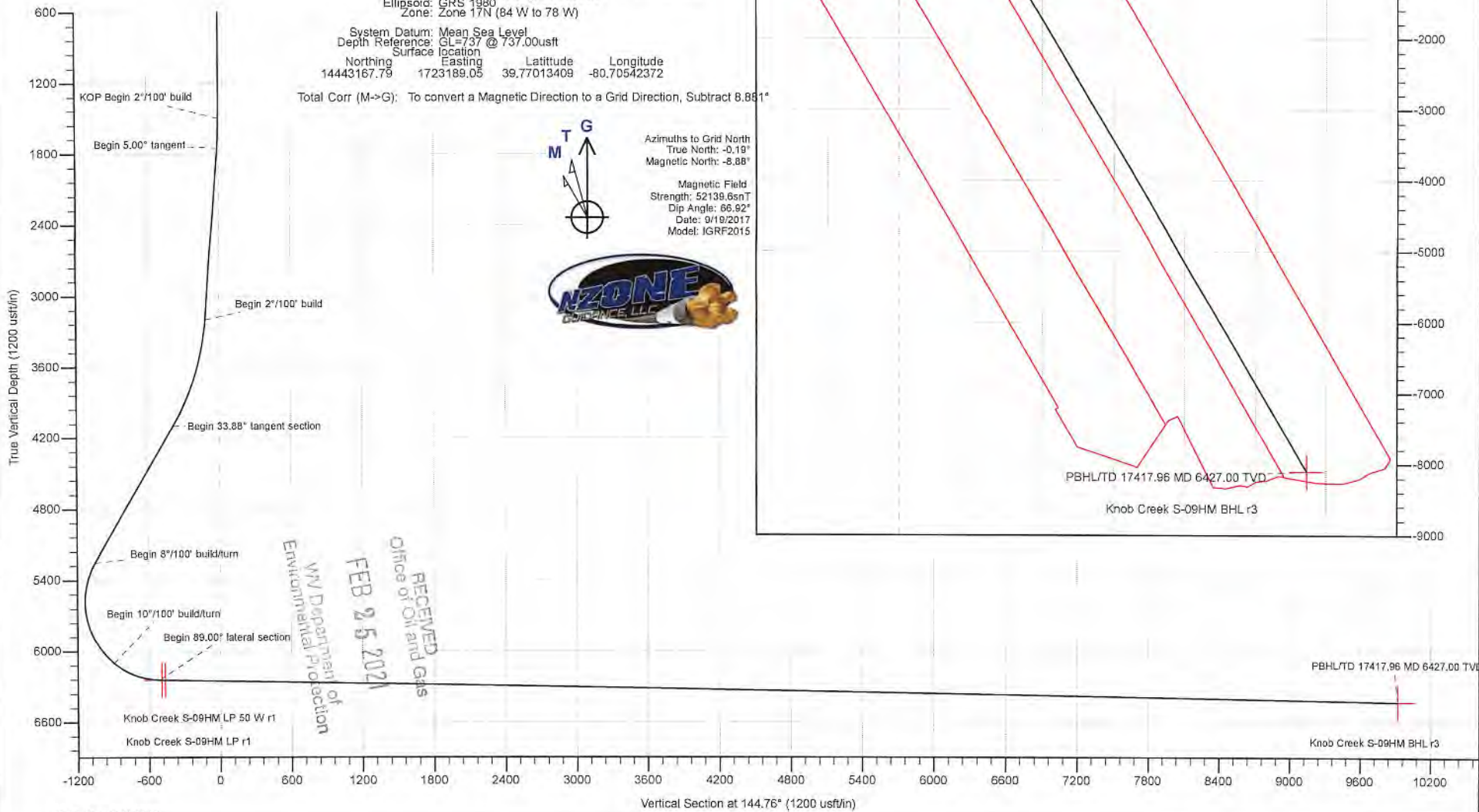
Surface Location: Northing: 14443167.79 Easting: 1723189.05 Latitude: 39.77013409 Longitude: -80.70542372

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.881°



Azimuths to Grid North
True North: -0.19°
Magnetic North: -8.88°

Magnetic Field
Strength: 52139.6snT
Dip Angle: 66.92°
Date: 9/19/2017
Model: IGRF2015



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Planning Report - Geographic

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-09HM (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-09HM (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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

Site	Knob Creek				
Site Position:		Northing:	14,443,053.74 usft	Latitude:	39.76982148
From:	Lat/Long	Easting:	1,723,120.29 usft	Longitude:	-80.70566975
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.188 °

Well	Knob Creek S-09HM (slot G)					
Well Position	+N/-S	0.00 usft	Northing:	14,443,167.79 usft	Latitude:	39.77013409
	+E/-W	0.00 usft	Easting:	1,723,189.05 usft	Longitude:	-80.70542372
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	737.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/19/2017	-8.693	66.922	52,139.64046999

Design	rev3				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	144.76	

Plan Survey Tool Program	Date	8/11/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,417.97 rev3 (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	0.000		
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,750.00	5.00	358.50	1,749.68	10.90	-0.29	2.00	2.00	0.00	358.500		
3,205.86	5.00	358.50	3,200.00	137.74	-3.61	0.00	0.00	0.00	0.000		
4,168.55	33.88	355.91	4,098.26	454.02	-24.27	3.00	3.00	-0.27	-2.986		
5,559.92	33.88	355.91	5,253.45	1,227.57	-79.55	0.00	0.00	0.00	0.000		
6,528.90	50.00	133.96	6,100.44	1,241.49	214.67	8.00	1.66	14.25	148.365		
6,944.39	89.00	149.72	6,243.95	938.25	444.12	10.00	9.39	3.79	24.162		
17,417.97	89.00	149.72	6,427.00	-8,104.62	5,725.12	0.00	0.00	0.00	0.000	Knob Creek S-09HM	

WV Department of Environmental Protection



Planning Report - Geographic

Database: DB_Jul2216dt_v14 lt
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Knob Creek
 Well: Knob Creek S-09HM (slot G)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Knob Creek S-09HM (slot G)
 TVD Reference: GL=737 @ 737.00usft
 MD Reference: GL=737 @ 737.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
100.00	0.00	0.00	100.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
200.00	0.00	0.00	200.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
300.00	0.00	0.00	300.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
400.00	0.00	0.00	400.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
500.00	0.00	0.00	500.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
600.00	0.00	0.00	600.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
700.00	0.00	0.00	700.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
800.00	0.00	0.00	800.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
900.00	0.00	0.00	900.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,443,167.79	1,723,189.05	39.77013409	-80.70542372
KOP Begin 2°/100' build									
1,600.00	2.00	358.50	1,599.98	1.74	-0.05	14,443,169.54	1,723,189.01	39.77013888	-80.70542386
1,700.00	4.00	358.50	1,699.84	6.98	-0.18	14,443,174.77	1,723,188.87	39.77015325	-80.70542429
1,750.00	5.00	358.50	1,749.68	10.90	-0.29	14,443,178.69	1,723,188.77	39.77016402	-80.70542461
Begin 5.00° tangent									
1,800.00	5.00	358.50	1,799.49	15.25	-0.40	14,443,183.05	1,723,188.65	39.77017599	-80.70542496
1,900.00	5.00	358.50	1,899.11	23.97	-0.83	14,443,191.76	1,723,188.42	39.77019992	-80.70542567
2,000.00	5.00	358.50	1,998.73	32.68	-0.86	14,443,200.47	1,723,188.20	39.77022384	-80.70542638
2,100.00	5.00	358.50	2,098.35	41.39	-1.08	14,443,209.18	1,723,187.97	39.77024777	-80.70542709
2,200.00	5.00	358.50	2,197.97	50.10	-1.31	14,443,217.90	1,723,187.74	39.77027170	-80.70542780
2,300.00	5.00	358.50	2,297.59	58.82	-1.54	14,443,226.61	1,723,187.51	39.77029563	-80.70542851
2,400.00	5.00	358.50	2,397.21	67.53	-1.77	14,443,235.32	1,723,187.28	39.77031956	-80.70542922
2,500.00	5.00	358.50	2,496.83	76.24	-2.00	14,443,244.04	1,723,187.06	39.77034349	-80.70542993
2,600.00	5.00	358.50	2,596.45	84.95	-2.22	14,443,252.75	1,723,186.83	39.77036742	-80.70543064
2,700.00	5.00	358.50	2,696.07	93.67	-2.45	14,443,261.46	1,723,186.60	39.77039135	-80.70543135
2,800.00	5.00	358.50	2,795.69	102.38	-2.68	14,443,270.17	1,723,186.37	39.77041528	-80.70543206
2,900.00	5.00	358.50	2,895.31	111.09	-2.91	14,443,278.89	1,723,186.14	39.77043921	-80.70543277
3,000.00	5.00	358.50	2,994.93	119.80	-3.14	14,443,287.60	1,723,185.92	39.77046314	-80.70543348
3,100.00	5.00	358.50	3,094.55	128.52	-3.37	14,443,296.31	1,723,185.69	39.77048707	-80.70543419
3,200.00	5.00	358.50	3,194.17	137.23	-3.59	14,443,305.02	1,723,185.46	39.77051099	-80.70543490
3,205.86	5.00	358.50	3,200.00	137.74	-3.61	14,443,305.53	1,723,185.45	39.77051240	-80.70543494
Begin 2°/100' build									
3,300.00	7.82	357.42	3,293.54	148.24	-4.00	14,443,316.04	1,723,185.05	39.77054124	-80.70543623
3,400.00	10.82	356.89	3,392.21	164.42	-4.82	14,443,332.21	1,723,184.23	39.77058567	-80.70543895
3,500.00	13.82	356.58	3,489.90	185.72	-6.04	14,443,353.51	1,723,183.01	39.77064418	-80.70544305
3,600.00	16.82	356.39	3,586.33	212.09	-7.67	14,443,379.88	1,723,181.39	39.77071660	-80.70544852
3,700.00	19.82	356.25	3,681.26	243.45	-9.69	14,443,411.24	1,723,179.36	39.77080275	-80.70545535
3,800.00	22.82	356.14	3,774.40	279.72	-12.10	14,443,447.51	1,723,176.95	39.77090238	-80.70546352
3,900.00	25.82	356.06	3,865.52	320.80	-14.90	14,443,488.59	1,723,174.15	39.77101523	-80.70547300
4,000.00	28.82	356.00	3,954.36	366.58	-18.08	14,443,534.37	1,723,170.97	39.77114098	-80.70548378
4,100.00	31.82	355.94	4,040.67	416.93	-21.63	14,443,584.72	1,723,167.42	39.77127929	-80.70549581
4,168.55	33.87	355.91	4,098.26	454.01	-24.27	14,443,621.81	1,723,164.78	39.77138116	-80.70550477
Begin 33.88° tangent section									
4,200.00	33.88	355.91	4,124.37	471.50	-25.52	14,443,639.29	1,723,163.53	39.77142919	-80.70550902
4,300.00	33.88	355.91	4,207.39	527.10	-29.49	14,443,694.89	1,723,159.56	39.77158190	-80.70552251
4,400.00	33.88	355.91	4,290.42	582.69	-33.46	14,443,750.49	1,723,155.59	39.77173462	-80.70553599
4,500.00	33.88	355.91	4,373.44	638.29	-37.44	14,443,806.08	1,723,151.62	39.77188734	-80.70554948
4,600.00	33.88	355.91	4,456.47	693.89	-41.41	14,443,861.68	1,723,147.64	39.77204006	-80.70556297



Planning Report - Geographic

Database: DB_Jul2216dt_v14 lt
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Knob Creek
 Well: Knob Creek S-09HM (slot G)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Knob Creek S-09HM (slot G)
 TVD Reference: GL=737 @ 737.00usft
 MD Reference: GL=737 @ 737.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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FEB 25 2021

WV Department of Environmental Protection

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,700.00	33.88	355.91	4,539.50	749.48	-45.38	14,443,917.28	1,723,143.67	39.77219278	-80.70557646
4,800.00	33.88	355.91	4,622.52	805.08	-49.36	14,443,972.87	1,723,139.70	39.77234550	-80.70558995
4,900.00	33.88	355.91	4,705.55	860.68	-53.33	14,444,028.47	1,723,135.72	39.77249822	-80.70560344
5,000.00	33.88	355.91	4,788.57	916.27	-57.30	14,444,084.07	1,723,131.75	39.77265094	-80.70561693
5,100.00	33.88	355.91	4,871.60	971.87	-61.27	14,444,139.66	1,723,127.78	39.77280365	-80.70563042
5,200.00	33.88	355.91	4,954.62	1,027.47	-65.25	14,444,195.26	1,723,123.80	39.77295637	-80.70564391
5,300.00	33.88	355.91	5,037.65	1,083.06	-69.22	14,444,250.85	1,723,119.83	39.77310909	-80.70565740
5,400.00	33.88	355.91	5,120.67	1,138.66	-73.19	14,444,306.45	1,723,115.86	39.77326181	-80.70567089
5,500.00	33.88	355.91	5,203.70	1,194.25	-77.17	14,444,362.05	1,723,111.89	39.77341453	-80.70568438
5,559.92	33.88	355.91	5,253.45	1,227.57	-79.55	14,444,395.36	1,723,109.51	39.77350604	-80.70569246
Begin 8°/100' build/turn									
5,600.00	31.19	359.16	5,287.24	1,249.09	-80.50	14,444,416.88	1,723,108.56	39.77356515	-80.70569558
5,700.00	24.95	9.89	5,375.49	1,295.83	-77.25	14,444,463.63	1,723,111.81	39.77369350	-80.70568347
5,800.00	19.92	26.34	5,467.98	1,331.94	-66.04	14,444,499.74	1,723,123.01	39.77379255	-80.70564318
5,900.00	17.18	50.18	5,562.91	1,356.71	-47.11	14,444,524.50	1,723,141.94	39.77386040	-80.70557550
6,000.00	17.83	76.91	5,658.43	1,369.66	-20.81	14,444,537.45	1,723,168.24	39.77389572	-80.70548176
6,100.00	21.56	98.12	5,752.69	1,370.53	12.34	14,444,538.32	1,723,201.39	39.77389782	-80.70536377
6,200.00	27.12	112.18	5,843.84	1,359.31	51.70	14,444,527.11	1,723,240.75	39.77386666	-80.70522382
6,300.00	33.62	121.45	5,930.12	1,336.22	96.49	14,444,504.02	1,723,285.55	39.77380285	-80.70506466
6,400.00	40.61	127.94	6,009.84	1,301.71	145.86	14,444,469.51	1,723,334.91	39.77370762	-80.70488936
6,500.00	47.87	132.77	6,081.46	1,256.45	198.84	14,444,424.24	1,723,387.89	39.77358284	-80.70470136
6,528.90	50.00	133.96	6,100.44	1,241.49	214.67	14,444,409.28	1,723,403.72	39.77354161	-80.70464517
Begin 10°/100' build/turn									
6,600.00	56.54	137.44	6,142.95	1,200.69	254.39	14,444,368.48	1,723,443.44	39.77342919	-80.70450431
6,700.00	65.88	141.54	6,191.07	1,134.06	311.12	14,444,301.85	1,723,500.18	39.77324569	-80.70430316
6,800.00	75.31	145.08	6,224.27	1,058.47	367.33	14,444,226.27	1,723,556.39	39.77303762	-80.70410400
6,900.00	84.78	148.32	6,241.55	976.24	421.31	14,444,144.03	1,723,610.36	39.77281126	-80.70391287
6,944.39	89.00	149.72	6,243.95	938.24	444.12	14,444,106.04	1,723,633.17	39.77270674	-80.70383213
Begin 89.00° lateral section									
7,000.00	89.00	149.72	6,244.92	890.23	472.16	14,444,058.02	1,723,661.21	39.77257462	-80.70373290
7,100.00	89.00	149.72	6,246.67	803.89	522.58	14,443,971.68	1,723,711.63	39.77233705	-80.70355447
7,200.00	89.00	149.72	6,248.42	717.55	573.00	14,443,885.34	1,723,762.06	39.77209948	-80.70337604
7,300.00	89.00	149.72	6,250.17	631.21	623.43	14,443,799.00	1,723,812.48	39.77186191	-80.70319761
7,400.00	89.00	149.72	6,251.92	544.87	673.85	14,443,712.66	1,723,862.90	39.77162434	-80.70301918
7,500.00	89.00	149.72	6,253.66	458.53	724.27	14,443,626.33	1,723,913.32	39.77138677	-80.70284075
7,600.00	89.00	149.72	6,255.41	372.19	774.69	14,443,539.99	1,723,963.75	39.77114920	-80.70266233
7,700.00	89.00	149.72	6,257.16	285.85	825.11	14,443,453.65	1,724,014.17	39.77091163	-80.70248390
7,800.00	89.00	149.72	6,258.91	199.51	875.54	14,443,367.31	1,724,064.59	39.77067406	-80.70230548
7,900.00	89.00	149.72	6,260.65	113.17	925.96	14,443,280.97	1,724,115.01	39.77043648	-80.70212705
8,000.00	89.00	149.72	6,262.40	26.83	976.38	14,443,194.63	1,724,165.43	39.77019891	-80.70194863
8,100.00	89.00	149.72	6,264.15	-59.51	1,026.80	14,443,108.29	1,724,215.86	39.76996134	-80.70177021
8,200.00	89.00	149.72	6,265.90	-145.85	1,077.23	14,443,021.95	1,724,266.28	39.76972377	-80.70159179
8,300.00	89.00	149.72	6,267.64	-232.19	1,127.65	14,442,935.61	1,724,316.70	39.76948619	-80.70141337
8,400.00	89.00	149.72	6,269.39	-318.53	1,178.07	14,442,849.27	1,724,367.12	39.76924862	-80.70123496
8,500.00	89.00	149.72	6,271.14	-404.87	1,228.49	14,442,762.93	1,724,417.54	39.76901104	-80.70105654
8,600.00	89.00	149.72	6,272.89	-491.21	1,278.91	14,442,676.59	1,724,467.97	39.76877347	-80.70087813
8,700.00	89.00	149.72	6,274.64	-577.55	1,329.34	14,442,590.25	1,724,518.39	39.76853590	-80.70069971
8,800.00	89.00	149.72	6,276.38	-663.88	1,379.76	14,442,503.91	1,724,568.81	39.76829832	-80.70052130
8,900.00	89.00	149.72	6,278.13	-750.22	1,430.18	14,442,417.57	1,724,619.23	39.76806075	-80.70034289
9,000.00	89.00	149.72	6,279.88	-836.56	1,480.60	14,442,331.23	1,724,669.66	39.76782317	-80.70016448
9,100.00	89.00	149.72	6,281.63	-922.90	1,531.03	14,442,244.89	1,724,720.08	39.76758560	-80.69998607
9,200.00	89.00	149.72	6,283.37	-1,009.24	1,581.45	14,442,158.55	1,724,770.50	39.76734802	-80.69980766
9,300.00	89.00	149.72	6,285.12	-1,095.58	1,631.87	14,442,072.21	1,724,820.92	39.76711044	-80.69962926
9,400.00	89.00	149.72	6,286.87	-1,181.92	1,682.29	14,441,985.87	1,724,871.34	39.76687287	-80.69945085

03/19/2021



Planning Report - Geographic

Database: DB_Jul2216dt_v14 lt
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia.
Site: Knob Creek
Well: Knob Creek S-09HM (slot G)
Wellbore: Original Hole
Design: rev3

Local Co-ordinate Reference: Well Knob Creek S-09HM (slot G)
TVD Reference: GL=737 @ 737.00usft
MD Reference: GL=737 @ 737.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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FEB 25 2021

West Virginia Department of Environmental Protection

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,500.00	89.00	149.72	6,288.62	-1,268.26	1,732.71	14,441,899.53	1,724,921.77	39.76663529	-80.69927245
9,600.00	89.00	149.72	6,290.36	-1,354.60	1,783.14	14,441,813.19	1,724,972.19	39.76639771	-80.69909405
9,700.00	89.00	149.72	6,292.11	-1,440.94	1,833.56	14,441,726.85	1,725,022.61	39.76616014	-80.69891565
9,800.00	89.00	149.72	6,293.86	-1,527.28	1,883.98	14,441,640.51	1,725,073.03	39.76592256	-80.69873725
9,900.00	89.00	149.72	6,295.61	-1,613.62	1,934.40	14,441,554.17	1,725,123.45	39.76568498	-80.69855885
10,000.00	89.00	149.72	6,297.36	-1,699.96	1,984.82	14,441,467.83	1,725,173.88	39.76544740	-80.69838045
10,100.00	89.00	149.72	6,299.10	-1,786.30	2,035.25	14,441,381.49	1,725,224.30	39.76520982	-80.69820205
10,200.00	89.00	149.72	6,300.85	-1,872.64	2,085.67	14,441,295.15	1,725,274.72	39.76497225	-80.69802366
10,300.00	89.00	149.72	6,302.60	-1,958.98	2,136.09	14,441,208.81	1,725,325.14	39.76473467	-80.69784526
10,400.00	89.00	149.72	6,304.35	-2,045.32	2,186.51	14,441,122.47	1,725,375.57	39.76449709	-80.69766687
10,500.00	89.00	149.72	6,306.09	-2,131.66	2,236.94	14,441,036.13	1,725,425.99	39.76425951	-80.69748848
10,600.00	89.00	149.72	6,307.84	-2,218.00	2,287.36	14,440,949.79	1,725,476.41	39.76402193	-80.69731009
10,700.00	89.00	149.72	6,309.59	-2,304.34	2,337.78	14,440,863.45	1,725,526.83	39.76378435	-80.69713170
10,800.00	89.00	149.72	6,311.34	-2,390.68	2,388.20	14,440,777.11	1,725,577.25	39.76354677	-80.69695331
10,900.00	89.00	149.72	6,313.09	-2,477.02	2,438.62	14,440,690.77	1,725,627.68	39.76330919	-80.69677493
11,000.00	89.00	149.72	6,314.83	-2,563.36	2,489.05	14,440,604.43	1,725,678.10	39.76307161	-80.69659654
11,100.00	89.00	149.72	6,316.58	-2,649.70	2,539.47	14,440,518.09	1,725,728.52	39.76283402	-80.69641816
11,200.00	89.00	149.72	6,318.33	-2,736.04	2,589.89	14,440,431.75	1,725,778.94	39.76259644	-80.69623978
11,300.00	89.00	149.72	6,320.08	-2,822.38	2,640.31	14,440,345.41	1,725,829.36	39.76235886	-80.69606139
11,400.00	89.00	149.72	6,321.82	-2,908.72	2,690.73	14,440,259.07	1,725,879.79	39.76212128	-80.69588301
11,500.00	89.00	149.72	6,323.57	-2,995.06	2,741.16	14,440,172.73	1,725,930.21	39.76188370	-80.69570463
11,600.00	89.00	149.72	6,325.32	-3,081.40	2,791.58	14,440,086.40	1,725,980.63	39.76164611	-80.69552626
11,700.00	89.00	149.72	6,327.07	-3,167.74	2,842.00	14,440,000.06	1,726,031.05	39.76140853	-80.69534788
11,800.00	89.00	149.72	6,328.81	-3,254.08	2,892.42	14,439,913.72	1,726,081.48	39.76117095	-80.69516950
11,900.00	89.00	149.72	6,330.56	-3,340.42	2,942.85	14,439,827.38	1,726,131.90	39.76093336	-80.69499113
12,000.00	89.00	149.72	6,332.31	-3,426.76	2,993.27	14,439,741.04	1,726,182.32	39.76069578	-80.69481276
12,100.00	89.00	149.72	6,334.06	-3,513.10	3,043.69	14,439,654.70	1,726,232.74	39.76045820	-80.69463439
12,200.00	89.00	149.72	6,335.81	-3,599.44	3,094.11	14,439,568.36	1,726,283.16	39.76022061	-80.69445602
12,300.00	89.00	149.72	6,337.55	-3,685.78	3,144.53	14,439,482.02	1,726,333.59	39.75998303	-80.69427765
12,400.00	89.00	149.72	6,339.30	-3,772.12	3,194.96	14,439,395.68	1,726,384.01	39.75974544	-80.69409928
12,500.00	89.00	149.72	6,341.05	-3,858.46	3,245.38	14,439,309.34	1,726,434.43	39.75950786	-80.69392091
12,600.00	89.00	149.72	6,342.80	-3,944.80	3,295.80	14,439,223.00	1,726,484.85	39.75927027	-80.69374255
12,700.00	89.00	149.72	6,344.54	-4,031.14	3,346.22	14,439,136.66	1,726,535.27	39.75903269	-80.69356418
12,800.00	89.00	149.72	6,346.29	-4,117.48	3,396.64	14,439,050.32	1,726,585.70	39.75879510	-80.69338582
12,900.00	89.00	149.72	6,348.04	-4,203.81	3,447.07	14,438,963.98	1,726,636.12	39.75855752	-80.69320746
13,000.00	89.00	149.72	6,349.79	-4,290.15	3,497.49	14,438,877.64	1,726,686.54	39.75831993	-80.69302909
13,100.00	89.00	149.72	6,351.53	-4,376.49	3,547.91	14,438,791.30	1,726,736.96	39.75808234	-80.69285074
13,200.00	89.00	149.72	6,353.28	-4,462.83	3,598.33	14,438,704.96	1,726,787.39	39.75784475	-80.69267238
13,300.00	89.00	149.72	6,355.03	-4,549.17	3,648.76	14,438,618.62	1,726,837.81	39.75760717	-80.69249402
13,400.00	89.00	149.72	6,356.78	-4,635.51	3,699.18	14,438,532.28	1,726,888.23	39.75736958	-80.69231566
13,500.00	89.00	149.72	6,358.53	-4,721.85	3,749.60	14,438,445.94	1,726,938.65	39.75713199	-80.69213731
13,600.00	89.00	149.72	6,360.27	-4,808.19	3,800.02	14,438,359.60	1,726,989.07	39.75689440	-80.69195896
13,700.00	89.00	149.72	6,362.02	-4,894.53	3,850.44	14,438,273.26	1,727,039.50	39.75665682	-80.69178060
13,800.00	89.00	149.72	6,363.77	-4,980.87	3,900.87	14,438,186.92	1,727,089.92	39.75641923	-80.69160225
13,900.00	89.00	149.72	6,365.52	-5,067.21	3,951.29	14,438,100.58	1,727,140.34	39.75618164	-80.69142390
14,000.00	89.00	149.72	6,367.26	-5,153.55	4,001.71	14,438,014.24	1,727,190.76	39.75594405	-80.69124555
14,100.00	89.00	149.72	6,369.01	-5,239.89	4,052.13	14,437,927.90	1,727,241.18	39.75570646	-80.69106721
14,200.00	89.00	149.72	6,370.76	-5,326.23	4,102.55	14,437,841.56	1,727,291.61	39.75546887	-80.69088886
14,300.00	89.00	149.72	6,372.51	-5,412.57	4,152.98	14,437,755.22	1,727,342.03	39.75523128	-80.69071052
14,400.00	89.00	149.72	6,374.25	-5,498.91	4,203.40	14,437,668.88	1,727,392.45	39.75499369	-80.69053217
14,500.00	89.00	149.72	6,376.00	-5,585.25	4,253.82	14,437,582.54	1,727,442.87	39.75475610	-80.69035383
14,600.00	89.00	149.72	6,377.75	-5,671.59	4,304.24	14,437,496.20	1,727,493.30	39.75451851	-80.69017549
14,700.00	89.00	149.72	6,379.50	-5,757.93	4,354.67	14,437,409.86	1,727,543.72	39.75428092	-80.68999715
14,800.00	89.00	149.72	6,381.25	-5,844.27	4,405.09	14,437,323.52	1,727,594.14	39.75404332	-80.68981881
14,900.00	89.00	149.72	6,382.99	-5,930.61	4,455.51	14,437,237.18	1,727,644.56	39.75380573	-80.68964047

03/19/2021



Planning Report - Geographic

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-09HM (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-09HM (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,000.00	89.00	149.72	6,384.74	-6,016.95	4,505.93	14,437,150.84	1,727,694.98	39.75356814	-80.68946214	
15,100.00	89.00	149.72	6,386.49	-6,103.29	4,556.35	14,437,064.50	1,727,745.41	39.75333055	-80.68928380	
15,200.00	89.00	149.72	6,388.24	-6,189.63	4,606.78	14,436,978.16	1,727,795.83	39.75309296	-80.68910547	
15,300.00	89.00	149.72	6,389.98	-6,275.97	4,657.20	14,436,891.82	1,727,846.25	39.75285536	-80.68892713	
15,400.00	89.00	149.72	6,391.73	-6,362.31	4,707.62	14,436,805.48	1,727,896.67	39.75261777	-80.68874880	
15,500.00	89.00	149.72	6,393.48	-6,448.65	4,758.04	14,436,719.14	1,727,947.10	39.75238018	-80.68857047	
15,600.00	89.00	149.72	6,395.23	-6,534.99	4,808.46	14,436,632.81	1,727,997.52	39.75214258	-80.68839214	
15,700.00	89.00	149.72	6,396.98	-6,621.33	4,858.89	14,436,546.47	1,728,047.94	39.75190499	-80.68821382	
15,800.00	89.00	149.72	6,398.72	-6,707.67	4,909.31	14,436,460.13	1,728,098.36	39.75166739	-80.68803549	
15,900.00	89.00	149.72	6,400.47	-6,794.01	4,959.73	14,436,373.79	1,728,148.78	39.75142980	-80.68785716	
16,000.00	89.00	149.72	6,402.22	-6,880.35	5,010.15	14,436,287.45	1,728,199.21	39.75119220	-80.68767884	
16,100.00	89.00	149.72	6,403.97	-6,966.69	5,060.58	14,436,201.11	1,728,249.63	39.75095461	-80.68750052	
16,200.00	89.00	149.72	6,405.71	-7,053.03	5,111.00	14,436,114.77	1,728,300.05	39.75071701	-80.68732220	
16,300.00	89.00	149.72	6,407.46	-7,139.37	5,161.42	14,436,028.43	1,728,350.47	39.75047942	-80.68714388	
16,400.00	89.00	149.72	6,409.21	-7,225.71	5,211.84	14,435,942.09	1,728,400.89	39.75024182	-80.68696556	
16,500.00	89.00	149.72	6,410.96	-7,312.05	5,262.26	14,435,855.75	1,728,451.32	39.75000423	-80.68678724	
16,600.00	89.00	149.72	6,412.70	-7,398.39	5,312.69	14,435,769.41	1,728,501.74	39.74976663	-80.68660892	
16,700.00	89.00	149.72	6,414.45	-7,484.73	5,363.11	14,435,683.07	1,728,552.16	39.74952903	-80.68643061	
16,800.00	89.00	149.72	6,416.20	-7,571.07	5,413.53	14,435,596.73	1,728,602.58	39.74929143	-80.68625229	
16,900.00	89.00	149.72	6,417.95	-7,657.40	5,463.95	14,435,510.39	1,728,653.01	39.74905384	-80.68607398	
17,000.00	89.00	149.72	6,419.70	-7,743.74	5,514.37	14,435,424.05	1,728,703.43	39.74881624	-80.68589567	
17,100.00	89.00	149.72	6,421.44	-7,830.08	5,564.80	14,435,337.71	1,728,753.85	39.74857864	-80.68571736	
17,200.00	89.00	149.72	6,423.19	-7,916.42	5,615.22	14,435,251.37	1,728,804.27	39.74834104	-80.68553905	
17,300.00	89.00	149.72	6,424.94	-8,002.76	5,665.64	14,435,165.03	1,728,854.69	39.74810345	-80.68536074	
17,400.00	89.00	149.72	6,426.69	-8,089.10	5,716.06	14,435,078.69	1,728,905.12	39.74786585	-80.68518243	
17,417.96	89.00	149.72	6,427.00	-8,104.61	5,725.12	14,435,063.18	1,728,914.17	39.74782317	-80.68515041	
PBHL/TD 17417.96 MD 6427.00 TVD										
17,417.97	89.00	149.72	6,427.00	-8,104.62	5,725.12	14,435,063.17	1,728,914.18	39.74782315	-80.68515039	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Knob Creek S-09HM LP - plan misses target center by 7.39usft at 6964.09usft MD (6244.30 TVD, 921.24 N, 454.05 E) - Point	0.00	0.01	6,244.00	924.96	460.43	14,444,092.75	1,723,649.48	39.77267010	-80.70377425	
Knob Creek S-09HM LP - plan misses target center by 50.56usft at 6989.30usft MD (6244.74 TVD, 899.47 N, 466.76 E) - Point	0.00	0.00	6,244.00	924.96	510.43	14,444,092.75	1,723,699.48	39.77266964	-80.70359630	
Knob Creek S-09HM BH - plan hits target center - Point	0.00	0.00	6,427.00	-8,104.62	5,725.12	14,435,063.17	1,728,914.18	39.74782315	-80.68515039	

RECEIVED
Office of Oil and Gas
FEB 25 2021
WV Department of
Environmental Protection



Planning Report - Geographic

Database:	DB_Jul2216dt_v14 It	Local Co-ordinate Reference:	Well Knob Creek S-09HM (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-09HM (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build
1,750.00	1,749.68	10.90	-0.29	Begin 5.00° tangent
3,205.86	3,200.00	137.74	-3.61	Begin 2°/100' build
4,168.55	4,098.26	454.01	-24.27	Begin 33.88° tangent section
5,559.92	5,253.45	1,227.57	-79.55	Begin 8°/100' build/turn
6,528.90	6,100.44	1,241.49	214.67	Begin 10°/100' build/turn
6,944.39	6,243.95	938.24	444.12	Begin 89.00° lateral section
17,417.96	6,427.00	-8,104.61	5,725.12	PBHL/TD 17417.96 MD 6427.00 TVD

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Office of Oil and Gas
FEB 25 2021
WV Department of
Environmental Protection



Well Site Safety Plan

Tug Hill Operating, LLC

juw 10/29/2020

Well Name: Knob Creek S-9HM

Pad Location: Knob Creek Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,402,286.35

Easting: 525,229.07

RECEIVED
Office of Oil and Gas

FEB 25 2021

October 2020

WV Department of
Environmental Protection

03/19/2021

**KNOB CREEK S LEASE
WELL 9HM
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°45'00"

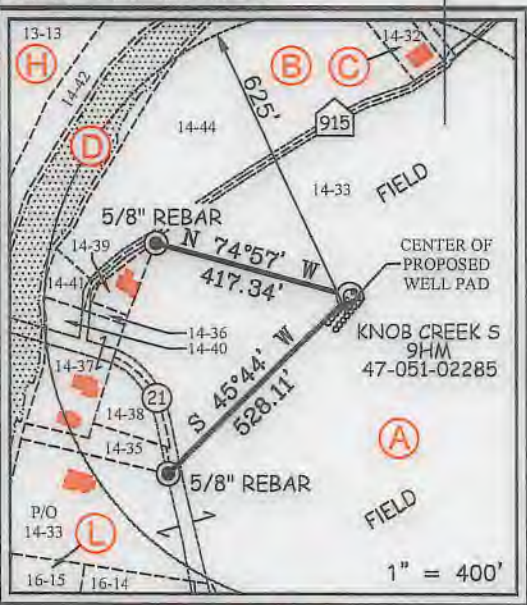
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 464,895.15	E. 1,629,684.36
NAD'83 GEO.	LAT-(N) 39.770134	LONG-(W) 80.705424
NAD'83 UTM (M)	N. 4,402,286.35	E. 525,229.07
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 465,826.2	E. 1,630,144.3
NAD'83 GEO.	LAT-(N) 39.772707	LONG-(W) 80.703832
NAD'83 UTM (M)	N. 4,402,572.3	E. 525,364.4
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 456,693.3	E. 1,635,275.2
NAD'83 GEO.	LAT-(N) 39.747823	LONG-(W) 80.685150
NAD'83 UTM (M)	N. 4,399,816.1	E. 526,974.1

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"
794' B.H.
7,843' T.H.

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-13-13.1	THOMAS JOHN FOX	0.827
9-13-14	MARGARET K. FOX - LIFE	3.00
9-14-28	CHARLES R. SCHELLHASE, ET UX	3.029
9-14-29	ANDREW FASOULETOS, ET UX	0.209
9-14-29.1	ANDREW FASOULETOS, ET UX	1.171
9-14-30	WILLIAM C. GROFF, ET UX	0.33
9-14-32.1	TWILA C. COFFIELD	0.184
9-14-33	PAUL G. FOX	0.338
9-14-36	MARGARET FOX - LIFE	1600 SQ. FT.
9-14-37	MARGARET FOX - LIFE	LOT (ASSD)
9-14-38	MARGARET FOX - LIFE	0.631
9-14-39	MARGARET FOX - LIFE	8675 SQ. FT.
9-14-40	MARGARET FOX - LIFE	19,560 SQ. FT.
9-14-41	MARGARET FOX - LIFE	9165 SQ. FT.
9-14-42	JOHN C. LAGOS, ET UX	1.87
9-14-43	JAMES G. FOX	0.66
9-14-45	GEORGE R. TAYLOR, ET UX	4.423
9-14-46.1	MARTHA JANE FAZZARO	1.512
9-14-47	MICHAEL L. & CHERYL J. ACREE	0.355
9-14-48	MICHAEL L. & CHERYL J. ACREE	0.475
9-14-49	MICHAEL L. & CHERYL J. ACREE	0.118
9-14-50	RONALD MARSH	0.707
9-14-53	JAMES F. PEELMAN	0.555
9-14-54	RICHARD L. HARVETH, ET UX	1.649
9-16-13.2	ELEANOR M. FOX EST.	1.370
9-16-13.4	JOHN FOX	0.533
9-16-14	LYNN CAMP METHODIST CHURCH	0.762
9-16-15.1	ERIC J. YOUNG	1.98
9-16-16	CLINTON B. WHITELATCH, SR., ET UX ESTS	1 AC. 5 6/10 PO.
9-16-17	ELEANOR M. FOX EST.	0.741
9-16-18.1	ROBIN D. & DAVID G. STEWART	3.333

REFERENCES

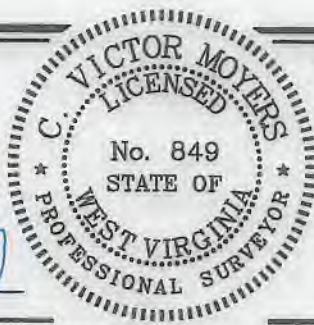


12 Vannorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kinawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
354 East Beckley Bypass | Beckley, WV 25801 | 304.355.5295
slsvw.com

NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- SEE REFERENCES FOR DWELLINGS LOCATED WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
- BASED ON WV DOT COUNTY ROUTE 74 IS A 40' STRIP OF LAND ACQUIRED IN NUMEROUS DEEDS.

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



P.S. 849 *C. Victor Moyers*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JULY 27, 20 18

REVISED 09-30-2019, 08-28-2020

OPERATORS WELL NO. KNOB CREEK S-9HM
API WELL NO. 47 - 051 - 02285
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8789P9HMR2.dwg
KNOB CREEK S-9HM-REV3
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

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

LOCATION: GROUND = 734.20' ELEVATION PROPOSED = 734.67' WATERSHED FISH CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE B.H. - WILEYVILLE 7.5' T.H. - GLEN EASTON 7.5'

SURFACE OWNER DAVID LEE FRANKLIN ACREAGE 65.824±
ROYALTY OWNER DAVID LEE FRANKLIN, ET AL - SEE WW-6A1 ACREAGE 03/19/2021

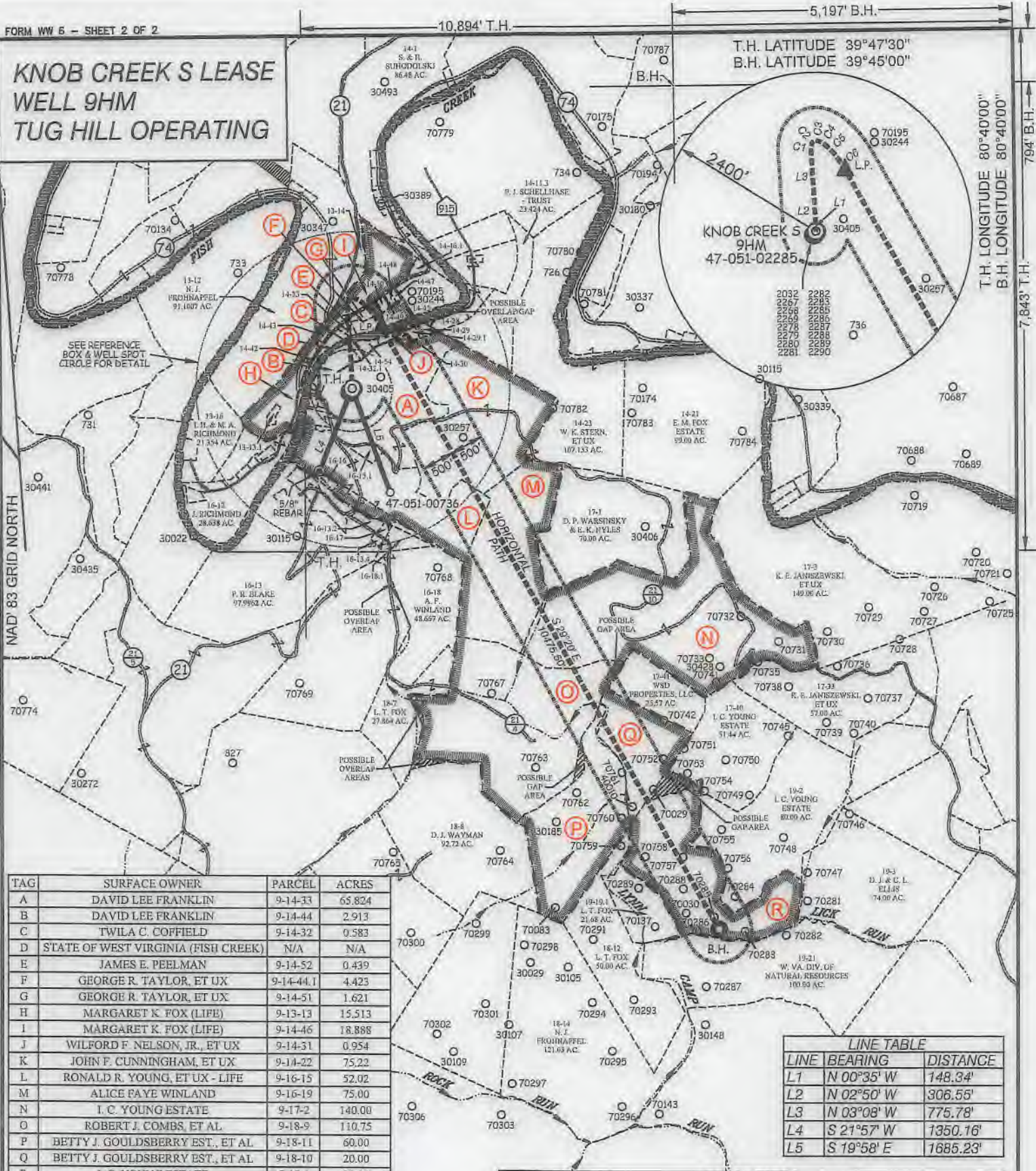
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH, TVD: 6,360' / TMD: 17,418'

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

COUNTY NAME
PERMIT

**KNOB CREEK S LEASE
WELL 9HM
TUG HILL OPERATING**



TAG	SURFACE OWNER	PARCEL	ACRES
A	DAVID LEE FRANKLIN	9-14-33	65.824
B	DAVID LEE FRANKLIN	9-14-44	2.913
C	TWILA C. COFFIELD	9-14-32	0.583
D	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
E	JAMES E. PEELMAN	9-14-52	0.439
F	GEORGE R. TAYLOR, ET UX	9-14-44.1	4.423
G	GEORGE R. TAYLOR, ET UX	9-14-51	1.621
H	MARGARET K. FOX (LIFE)	9-13-13	15.513
I	MARGARET K. FOX (LIFE)	9-14-46	18.888
J	WILFORD F. NELSON, JR., ET UX	9-14-31	0.954
K	JOHN F. CUNNINGHAM, ET UX	9-14-22	75.22
L	RONALD R. YOUNG, ET UX - LIFE	9-16-15	52.02
M	ALICE FAYE WINLAND	9-16-19	75.00
N	I. C. YOUNG ESTATE	9-17-2	140.00
O	ROBERT J. COMBS, ET AL.	9-18-9	110.75
P	BETTY J. GOULDSBERRY EST., ET AL.	9-18-11	60.00
Q	BETTY J. GOULDSBERRY EST., ET AL.	9-18-10	20.00
R	I. C. YOUNG ESTATE	9-19-1	80.00

LINE	BEARING	DISTANCE
L1	N 00°35' W	148.34'
L2	N 02°50' W	306.55'
L3	N 03°08' W	775.78'
L4	S 21°57' W	1350.16'
L5	S 19°58' E	1685.23'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	88.49'	243.38'	N 05°28' E	88.00'
C2	78.72'	74.88'	N 44°34' E	75.15'
C3	52.65'	118.14'	S 85°30' E	52.22'
C4	100.98'	329.77'	S 61°46' E	100.59'
C5	222.62'	918.31'	S 45°55' E	222.08'
C6	281.74'	1618.82'	S 34°04' E	281.38'



12 Vanlind Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3962
 254 East Buckley Bypass | Beckley, WV 25801 | 304.235.5296
 slsvv.com



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

P.S. *C. Victor Moyers*
 849

LEGEND

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

SCALE 1" = 2000' FILE NO. 8789P9HMR2.dwg
 DATE JULY 27, 2018
 REVISED 09-30-2019, 08-28-2020
 OPERATORS WELL NO. KNOB CREEK S-9HM
 API WELL NO. 47-051-02285
 STATE COUNTY PERMIT

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

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

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

COUNTY NAME PERMIT

**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

*Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.

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

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

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

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

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

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*22814	9-16-19	M	TERRY J SCOTT	TH EXPLORATION LLC	1/8+	972 23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-16-19	M	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15910	9-17-2	N	SHIRLEY KOONTZ	CHESAPEAKE APPALACHIA LLC	1/8+	701 303	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15911	9-17-2	N	ROBERT W. GRAY	CHESAPEAKE APPALACHIA LLC	1/8+	715 441	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15912	9-17-2	N	DELORES I RICHTER	CHESAPEAKE APPALACHIA LLC	1/8+	715 448	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15913	9-17-2	N	LILA MCGUIRE	CHESAPEAKE APPALACHIA LLC	1/8+	715 449	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15914	9-17-2	N	JUDY CALLOWAY	CHESAPEAKE APPALACHIA LLC	1/8+	715 450	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15915	9-17-2	N	JUDY WARNER	CHESAPEAKE APPALACHIA LLC	1/8+	715 451	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15916	9-17-2	N	CHRISTI LYNN CLAYTON	CHESAPEAKE APPALACHIA LLC	1/8+	715 452	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15917	9-17-2	N	CINDY LOU SMITH	CHESAPEAKE APPALACHIA LLC	1/8+	715 453	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15918	9-17-2	N	ARTHUR EMORY	CHESAPEAKE APPALACHIA LLC	1/8+	715 457	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/67	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15919	9-17-2	N	CAROLYN SUE HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	715 454	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*15920	9-17-2	N	DENNIS KOTKE	CHESAPEAKE APPALACHIA LLC	1/8+	715 458	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/67	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17233	9-17-2	N	TIMOTHY MCDOWELL	CHESAPEAKE APPALACHIA LLC	1/8+	713 355	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17234	9-17-2	N	GAREN P. MCDOWELL	CHESAPEAKE APPALACHIA LLC	1/8+	716 280	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17235	9-17-2	N	WINONA RIDDLE	CHESAPEAKE APPALACHIA LLC	1/8+	715 353	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17236	9-17-2	N	TEXYN L. MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	716 270	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17237	9-17-2	N	JENNIFER WHEATON	CHESAPEAKE APPALACHIA LLC	1/8+	715 610	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17238	9-17-2	N	LISA ANN MCDOWELL	CHESAPEAKE APPALACHIA LLC	1/8+	715 341	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17239	9-17-2	N	ANITA RAE MILLER	CHESAPEAKE APPALACHIA LLC	1/8+	715 336	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17240	9-17-2	N	BONNIE GRISELL	CHESAPEAKE APPALACHIA LLC	1/8+	715 331	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17241	9-17-2	N	BARBARA K BURLEY	CHESAPEAKE APPALACHIA LLC	1/8+	716 290	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/248	SWN Production Company LLC to TH Exploration LLC: 41/256

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10*21487	9-17-2	N	FLOYD D ANDERSON & CAROLYN SUE ANDERSON	TH EXPLORATION LLC	1/8+	957 294	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21842	9-17-2	N	JOSEPH NOKOVICH	TH EXPLORATION LLC	1/8+	959 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21844	9-17-2	N	ROBERTA YOUNG	TH EXPLORATION LLC	1/8+	959 629	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21927	9-17-2	N	BLACK GOLD GROUP LTD	TH EXPLORATION LLC	1/8+	964 474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21928	9-17-2	N	JOHN D COX AND CONNIE J COX	TH EXPLORATION LLC	1/8+	953 511	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21940	9-17-2	N	ALYSIA JORDAN & TERRY M JORDAN	TH EXPLORATION LLC	1/8+	953 346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21967	9-17-2	N	ROGER G ALLEN AND DONNA KAY ALLEN	TH EXPLORATION LLC	1/8+	960 571	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21970	9-17-2	N	CHRISTOPHER DAUGHERTY & JENNIFER R DAUGHERTY	TH EXPLORATION LLC	1/8+	960 578	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21971	9-17-2	N	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	TH EXPLORATION LLC	1/8+	960 580	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21975	9-17-2	N	RAYMOND A KUDERSKI AND KELLI J KUDERSKI	TH EXPLORATION LLC	1/8+	960 582	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21984	9-17-2	N	SANFORD METZ	TH EXPLORATION LLC	1/8+	960 576	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21986	9-17-2	N	RONALD D KOONTZ & BETH ANN KOONTZ	TH EXPLORATION LLC	1/8+	960 569	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22088	9-17-2	N	BRIANNEN DAUGHERTY	TH EXPLORATION LLC	1/8+	961 345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22154	9-17-2	N	DONALD EUGENE ANDERSON	TH EXPLORATION LLC	1/8+	953 509	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22599	9-17-2	N	BRYANT R SWIFT AND KATHY SWIFT	TH EXPLORATION LLC	1/8+	966 456	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22600	9-17-2	N	AIDEN BOYD YOUNG JENNIFER A YOUNG, PETITIONER	TH EXPLORATION LLC	1/8+	966 462	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22776	9-17-2	N	JAMES ROBERT WELLS	TH EXPLORATION LLC	1/8+	970 19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22849	9-17-2	N	NEIL MCELROY AND SUE MASON MCELROY	TH EXPLORATION LLC	1/8+	977 44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22851	9-17-2	N	JOHN J HELLSTERN AND LYNN D HELLSTERN	TH EXPLORATION LLC	1/8+	977 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22853	9-17-2	N	RONALD LEE HENSLEY AND MARY ANN HENSLEY	TH EXPLORATION LLC	1/8+	977 34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23076	9-17-2	N	JACK R BERISFORD AKA RANDY RFRISFORD	TH EXPLORATION LLC	1/8+	984 43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-17-2	N	IDA M TRAVIS ET AL DAVID C WHITE AS SPECIAL COMMISSIONER	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23539	9-17-2	N	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1010 224	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23668	9-17-2	N	THE ESTATE OF RUTH N LUTHER SUZANNE L WOZNIAK EXECUTRIX	TH EXPLORATION LLC	1/8+	1009 286	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-17-2	N	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28489	9-17-2	N	CARDLYN J YOUNG	TH EXPLORATION LLC	1/8+	1073 384	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28655	9-17-2	N	HOLLY A YOUNG	TH EXPLORATION LLC	1/8+	1076 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28656	9-17-2	N	CRYSTAL DAWN YOUNG	TH EXPLORATION LLC	1/8+	1076 62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28657	9-17-2	N	PENNY YODER AND KEVIN LYNN YODER	TH EXPLORATION LLC	1/8+	1076 53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28659	9-17-2	N	MELISSA D FLETCHER & SCOTT A FLETCHER	TH EXPLORATION LLC	1/8+	1076 56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28762	9-17-2	N	ALEXA B YOUNG	TH EXPLORATION LLC	1/8+	1076 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28813	9-17-2	N	CLARA SUE YOUNG	TH EXPLORATION LLC	1/8+	1077 465	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28815	9-17-2	N	LELAND SINCLAIR YOUNG	TH EXPLORATION LLC	1/8+	1077 462	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28816	9-17-2	N	LOIS ELAINE WICKHAM	TH EXPLORATION LLC	1/8+	1078 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28817	9-17-2	N	NEIL ROBERT YOUNG	TH EXPLORATION LLC	1/8+	1078 15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28819	9-17-2	N	MARK A WALKER	TH EXPLORATION LLC	1/8+	1077 35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28820	9-17-2	N	MICHAEL A WALKER	TH EXPLORATION LLC	1/8+	1077 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28821	9-17-2	N	CHAD A YOUNG	TH EXPLORATION LLC	1/8+	1077 37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29010	9-17-2	N	LARRY R BONAR AND DEBRA L BONAR	TH EXPLORATION LLC	1/8+	1083 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29011	9-17-2	N	MICHAEL S OTT AND SYBIL OTT	TH EXPLORATION LLC	1/8+	1083 559	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29012	9-17-2	N	GRANT D RICHARDS AND KERRI S RICHARDS	TH EXPLORATION LLC	1/8+	1083 551	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29014	9-17-2	N	CARLA J SIMMS	TH EXPLORATION LLC	1/8+	1084 194	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29016	9-17-2	N	SUSAN C YOUNG	TH EXPLORATION LLC	1/8+	1083 374	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29176	9-17-2	N	RONALD W YOUNG	TH EXPLORATION LLC	1/8+	1085 188	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29177	9-17-2	N	ERIC J YOUNG	TH EXPLORATION LLC	1/8+	1085 182	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29178	9-17-2	N	RONALD R YOUNG AND GERALDINE YOUNG	TH EXPLORATION LLC	1/8+	1085 185	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29237	9-17-2	N	RONALD R YOUNG	TH EXPLORATION LLC	1/8+	1090 212	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29383	9-17-2	N	*ALICE F WINLAND	TH EXPLORATION LLC	1/8+	1090 159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27824	9-18-9	D	CATHARINE V B YOUNG AND A J YOUNG	J S MASON	1/8+	164 534	J S Mason to Frnk Marling; 164/571	Frank Marling to Lynn Camp Oil & Gas Company; 164/572	Lynn Camp Oil & Gas Company to Cameron Heat & Light Company; 220/423	Cameron Heat & Light Company to Zogg and Zogg Inc; 227/258	Zogg & Zogg Inc to Gerald Wells; 239/160	Gerald Wells & Hazel Wells to Paul J Klug and E J Klug; 380/359	E J Klug, Paul Klug & Lena Klug to Carl D. Perkins; 453/390	Carl D Perkins & Dorothy Louise Perkins to Perkins Oil & Gas Inc; 484/281 & 17/593	Perkins Oil & Gas Inc. to Stone Energy Corp; 26/322	Stone Energy Corp to EQT Production Company; 38/75	EQT Production Co to TH Exploration LLC; 48/21	
10*15938	9-18-11	P	MARK W YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	695 157	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc; 23/512	Chesapeake Appalachia LLC to SWN Production Company; 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC; 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC; 19/624	SWN Production Company LLC to TH Exploration LLC; 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC; 36/455	

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10*15940	9-18-11	P	JANICE N HAUDENSCHILT	CHESAPEAKE APPALACHIA LLC	1/8+	695 166	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15941	9-18-11	P	NICOLETTA MILICIA BLOODWORTH	CHESAPEAKE APPALACHIA LLC	1/8+	698 370	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15942	9-18-11	P	CLARA YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	698 197	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15943	9-18-11	P	DANA MILICIA HUMPHREYS	CHESAPEAKE APPALACHIA LLC	1/8+	700 90	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15944	9-18-11	P	DEWEY A MILICIA AND ROBIN MILICIA	CHESAPEAKE APPALACHIA LLC	1/8+	700 109	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15945	9-18-11	P	HELEN V MCMASTERS AND KENNETH MCMASTERS	CHESAPEAKE APPALACHIA LLC	1/8+	707 148	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15946	9-18-11	P	JOSEPH M EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	707 150	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15947	9-18-11	P	GERALD ARTHUR EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	703 588	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15948	9-18-11	P	GERALD ALLEN EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	707 152	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15949	9-18-11	P	CLARENCE W EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	703 590	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*18765	9-18-11	P	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	938 229	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19508	9-18-11	P	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	941 446	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23260	9-18-11	P	IDA M TRAVIS ET AL DAVID C WHITE AS SPECIAL COMMISSIONER	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24650	9-18-11	P	TIMOTHY B COURTWRIGHT AND KAREN COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24651	9-18-11	P	WILBUR L COURTWRIGHT AND GAIL COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 137	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24652	9-18-11	P	DEAN M COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24653	9-18-11	P	FRED C COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 141	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24654	9-18-11	P	JACOB A COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 143	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24655	9-18-11	P	FREDA L COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026 145	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26720	9-18-11	P	ADAM D COURTWRIGHT	TH EXPLORATION LLC	1/8+	1041 191	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26725	9-18-11	P	HAZEL B KOFFLER AND RALPH KOFFLER	TH EXPLORATION LLC	1/8+	1041 197	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26726	9-18-11	P	MILLIE F LUND AND DAVID LUND	TH EXPLORATION LLC	1/8+	1041 199	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26727	9-18-11	P	CHARLOTTE R MCMILLEN AND MARK E MCMILLEN	TH EXPLORATION LLC	1/8+	1041 195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26728	9-18-11	P	WRETHA M RICE AND AARON RICE	TH EXPLORATION LLC	1/8+	1041 193	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27352	9-18-11	P	*IOYCE E ROSPERT AND RICHARD ROSPERT	TH EXPLORATION LLC	1/8+	1053 646	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27353	9-18-11	P	*ROBERT E RIGGLE JR AND TAMI S RIGGLE	TH EXPLORATION LLC	1/8+	1054 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27354	9-18-11	P	*MARK D RIGGLE AND ALICIA RIGGLE	TH EXPLORATION LLC	1/8+	1053 634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27355	9-18-11	P	*KATHY L SULLIVAN AND MICHAEL SULLIVAN	TH EXPLORATION LLC	1/8+	1053 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27356	9-18-11	P	*LARRY G TAYLOR AND ROXANNE D TAYLOR	TH EXPLORATION LLC	1/8+	1053 640	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27615	9-18-11	P	*REBECCA K HICKS	TH EXPLORATION LLC	1/8+	1054 308	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27947	9-18-11	P	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28158	9-18-11	P	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1068 140	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*15938	9-18-10	Q	MARK W YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	695 157	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15940	9-18-10	Q	JANICE N HAUDENSCHILT	CHESAPEAKE APPALACHIA LLC	1/8+	695 166	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15941	9-18-10	Q	NICOLETTA MILICIA BLOODWORTH	CHESAPEAKE APPALACHIA LLC	1/8+	698 370	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15942	9-18-10	Q	CLARA YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	698 197	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15943	9-18-10	Q	DANA MILICIA HUMPHREYS	CHESAPEAKE APPALACHIA LLC	1/8+	700 90	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15944	9-18-10	Q	DEWEY A MILICIA AND ROBIN MILICIA	CHESAPEAKE APPALACHIA LLC	1/8+	700 109	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*15945	9-18-10	Q	HELEN V MCMASTERS AND KENNETH MCMASTERS	CHESAPEAKE APPALACHIA LLC	1/8+	707 148	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15946	9-18-10	Q	JOSEPH M EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	707 150	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15947	9-18-10	Q	GERALD ARTHUR EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	703 588	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15948	9-18-10	Q	GERALD ALLEN EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	707 152	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15949	9-18-10	Q	CLARENCE W EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	703 590	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15950	9-18-10	Q	KAREN S GIBSON	CHESAPEAKE APPALACHIA LLC	1/8+	707 154	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15951	9-18-10	Q	GEORGE R FINNEGAN	CHESAPEAKE APPALACHIA LLC	1/8+	707 156	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15952	9-18-10	Q	TOM A FINNEGAN	CHESAPEAKE APPALACHIA LLC	1/8+	707 135	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/512	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15953	9-18-10	Q	GARNET E EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	708 77	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17174	9-18-10	Q	JOSHUA EARL YOHO, JR.	CHESAPEAKE APPALACHIA LLC	1/8+	715 381	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*28655	9-19-1	R	HOLLY A YOUNG	TH EXPLORATION LLC	1/8+	1076 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28656	9-19-1	R	CRYSTAL DAWN YOUNG	TH EXPLORATION LLC	1/8+	1076 62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28657	9-19-1	R	PENNY YODER AND KEVIN LYNN YODER	TH EXPLORATION LLC	1/8+	1076 53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28659	9-19-1	R	MELISSA D FLETCHER & SCOTT A FLETCHER	TH EXPLORATION LLC	1/8+	1076 56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28762	9-19-1	R	ALEXA B YOUNG	TH EXPLORATION LLC	1/8+	1076 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28813	9-19-1	R	CLARA SUE YOUNG	TH EXPLORATION LLC	1/8+	1077 465	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28815	9-19-1	R	LELAND SINCLAIR YOUNG	TH EXPLORATION LLC	1/8+	1077 462	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28816	9-19-1	R	LOIS ELAINE WICKHAM	TH EXPLORATION LLC	1/8+	1078 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28817	9-19-1	R	NEIL ROBERT YOUNG	TH EXPLORATION LLC	1/8+	1078 15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28819	9-19-1	R	MARK A WALKER	TH EXPLORATION LLC	1/8+	1077 35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28820	9-19-1	R	MICHAEL A WALKER	TH EXPLORATION LLC	1/8+	1077 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28821	9-19-1	R	CHAD A YOUNG	TH EXPLORATION LLC	1/8+	1077 37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29010	9-19-1	R	LARRY R BONAR AND DEBRA L BONAR	TH EXPLORATION LLC	1/8+	1083 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29011	9-19-1	R	MICHAEL S OTT AND SYBIL OTT	TH EXPLORATION LLC	1/8+	1083 559	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29012	9-19-1	R	GRANT D RICHARDS AND KERRI S RICHARDS	TH EXPLORATION LLC	1/8+	1083 551	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29014	9-19-1	R	CARLA J SIMMS	TH EXPLORATION LLC	1/8+	1084 194	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29016	9-19-1	R	SUSAN C YOUNG	TH EXPLORATION LLC	1/8+	1083 374	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29176	9-19-1	R	RONALD W YOUNG	TH EXPLORATION LLC	1/8+	1085 188	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29177	9-19-1	R	ERIC J YOUNG	TH EXPLORATION LLC	1/8+	1085 182	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29178	9-19-1	R	RONALD R YOUNG AND GERALDINE YOUNG	TH EXPLORATION LLC	1/8+	1085 185	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29237	9-19-1	R	RONALD R YOUNG	TH EXPLORATION LLC	1/8+	1090 212	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29383	9-19-1	R	*ALICE F WINLAND	TH EXPLORATION LLC	1/8+	1090 159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.

ASSIGNMENT AND BILL OF SALE

This ASSIGNMENT AND BILL OF SALE (this "*Assignment*") dated as of December 1, 2020 (the "*Execution Date*"), is made by and between EQT PRODUCTION COMPANY, a Pennsylvania corporation, with an address at 625 Liberty Avenue, Suite 1700, Pittsburgh, Pennsylvania 15222 ("*EQT*"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("*TH*") pursuant to the terms of that certain Acreage Trade Agreement by and among EQT, TH and TH Exploration II, LLC ("*TH II*"), dated July 8, 2020 (the "*Agreement*"). EQT and TH may be referred to herein together as the "*Parties*", and each individually as a "*Party*".

RECITALS

WHEREAS, EQT desires to transfer, convey and assign to TH certain of EQT's oil and gas leasehold interests located in Marshall County, West Virginia set forth on Exhibit A attached hereto and incorporated herein ("*EQT Leases*") in accordance with this Assignment and the Agreement; and

WHEREAS, TH desires to receive from EQT, all of EQT's right, title and interest in and to the EQT Leases in accordance with this Assignment and the Agreement.

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Agreement, the benefits to be derived by each Party hereunder and under the Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

ARTICLE I
DEFINED TERMS

1.1 *Definitions.* Capitalized terms used herein and not otherwise defined throughout this Assignment shall have the meanings given such terms in the Agreement.

ARTICLE II
ASSIGNMENT OF ASSETS

2.1 *Assignment.* Subject to the terms and conditions of this Assignment and the Agreement, EQT does hereby assign, convey and transfer to TH all of the right, title and interest of EQT in and to the following (collectively for purposes of this Assignment, the "*EQT Assets*"):

(a) Subject to the conveyance of the Wells Assets from EQT to TH II as described in the Agreement, the EQT Leases and appurtenances thereto (including rights of access and to install facilities), all Hydrocarbons within, produced from, derived from, or sold from the EQT Leases (and all proceeds related thereto), on and after the Valuation Date, and all Surface Contracts including but not limited to those set forth on Exhibit B attached hereto and incorporated herein (the "*EQT Surface Contracts*") related to the EQT Leases and such Hydrocarbons; and

(b) Copies of deeds, files and all other ownership information directly related to the acquisition, operations and maintenance of the EQT Leases, lease files for the EQT Leases

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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from STATOIL USA ONSHORE PROPERTIES INC., a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on August 22, 2016 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated June 19, 2016 (the "*Acreage Trade Agreement*").

ARTICLE 1 ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") INsofar AND ONLY INsofar as they cover the Target Formations and INsofar AND ONLY INsofar as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*"). Assignor does hereby reserve unto itself the right and subsurface easement to drill through the Leasehold Rights to access the those depths and formations in the Leases other than the Target Formations and (y) to shoot seismic, sonic, or other energy or waves through the Leasehold Rights and to receive, record and evaluate such energy or waves, including those reflected from or in any way pertaining to the reserved depths, and to utilize any and all other exploration technologies that image the subsurface of the leasehold including the reserved depths and to receive, record and evaluate all images resulting therefrom.

TO HAVE AND TO HOLD the Conveyed Assets, together with all and singular the rights, privileges, contracts and appurtenances, in any way appertaining or belonging thereto, unto Assignee, its successors and assigns, forever, subject, to the terms and conditions of this Assignment.

Section 1.4 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

Section 2.1 Special Warranty of Title. Assignor hereby agrees to warrant and defend Defensible Title to the Leases unto Assignee, its successors and assigns, against every Person whomsoever lawfully claiming or to claim the same or any part thereof by, through or under Assignor or any of its Affiliates, but not otherwise.

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR WARRANTY, EXPRESS, IMPLIED OR STATUTORY, INCLUDING AS TO (I) TITLE TO THE LEASEHOLD RIGHTS, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY

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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on December 18, 2017 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 24, 2017 (the "*Acreage Trade Agreement*").

**ARTICLE 1
ASSIGNMENT OF ASSETS**

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby **GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS** unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") INsofar AND ONLY INsofar as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

TO HAVE AND TO HOLD the Conveyed Assets, together with all and singular the rights, privileges, contracts and appurtenances, in any way appertaining or belonging thereto, unto Assignee, its successors and assigns, forever, subject, to the terms and conditions of this Assignment.

Section 1.2 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

**ARTICLE 2
SPECIAL WARRANTY OF TITLE AND DISCLAIMERS**

Section 2.1 Special Warranty of Title. Assignor hereby agrees to warrant and defend Defensible Title to the Leases unto Assignee, its successors and assigns, against every Person whomsoever lawfully claiming or to claim the same or any part thereof by, through or under Assignor or any of its Affiliates, but not otherwise.

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR