

02/23/2023



west virginia department of environmental protection

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

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

Friday, January 27, 2023
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 ELMER N-18HU
47-103-03467-00-00

Adding lateral length, new forced pooling leases

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 handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin
Chief

Operator's Well Number: ELMER N-18HU
Farm Name: ELNORA TUTTLE
U.S. WELL NUMBER: 47-103-03467-00-00
Horizontal 6A New Drill
Date Modification Issued: 1/27/2023

Promoting a healthy environment.

02/03/2023

02/23/2023



47 10303 107

west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

January 25, 2023

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-103-03467

COMPANY: Tug Hill Operating, LLC

FARM: Elnora Tuttle Elmer N-18HU modification

COUNTY: Wetzel DISTRICT: Proctor QUAD: Wileyville

The deep well review of the application for the above company is Approved to drill to Trenton for Point Pleasant completion. Pooling Docket No. 310-314.

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes
4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose".
Susan Rose
Administrator

**Hillrock S-12HU 47-051-02272, Hillrock S-13HU 47-051-02273, Hillrock S-14HU 47-051-02262, Hillrock S-15HU 47-051-02263, Margaret Sue Kelley UP WTZ 105H 47-103-03200, James Messenger WTZ 3 HU 47-103-02973, Elmer N-17HU 47-103-03503, Elmer N-15HU 47-103-03503, Elmer N-16HU 47-103-03504, Elmer N-14HU 47-103-03502.

02/03/2023

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 Wetzel Proctor Wileyville 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Elmer N-18HU Well Pad Name: Elmer

3) Farm Name/Surface Owner: Elnora Tuttle Public Road Access: Proctor Creek Road

4) Elevation, current ground: 1,309.47' Elevation, proposed post-construction: 1,277'

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

Other _____

(b) If Gas Shallow _____ Deep

Horizontal

6) Existing Pad: Yes or No No

7) **Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):**
Point Pleasant is the target formation at a depth of 11,737' - 11,856, thickness of 119' and anticipated pressure of approx. 7,500 psi.

8) **Proposed Total Vertical Depth:** 12,006'

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9) Formation at Total Vertical Depth: Trenton

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10) **Proposed Total Measured Depth:** 25,800'

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Environmental Protection

11) **Proposed Horizontal Leg Length:** 11,185.96'

12) **Approximate Fresh Water Strata Depths:** 70; 1,009'

13) Method to Determine Fresh Water Depths: Based on the depth of Pittsburgh Coal seam, per WVGES mapping contours

14) **Approximate Saltwater Depths:** 1,645'

15) **Approximate Coal Seam Depths:** Sewickley Coal - 909' and Pittsburgh Coal - 1,003'

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

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

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

Depth: _____

Seam: _____

Owner: _____

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/Coal	20"	NEW	J55	106.5#	1,125'	1,125'	1,802ft^3(CTS)
Intermediate 1	13 3/8"	NEW	J55	54.5#	2,950'	2,950'	2,079ft^3(CTS)
Intermediate 2	9 5/8"	NEW	HPP110	47#	10,743'	10,743'	3,511ft^3(CTS)
Production	5 1/2"	NEW	P110	23#	25,800'	25,800'	6,093ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,821'	
Liners							

Harriet L. Reynolds
10-12-2022

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	20"	26"	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.33
Production	5 1/2"	8 1/2"	.415	16,510	13,208	SEE #24	1.17/1.19
Tubing	2 7/8"			14,530	11,624		
Liners							

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PACKERS

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

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP(11,321'). Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 28,000,000 lb. proppant and 505,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 26.44 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.26 acres

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate strings 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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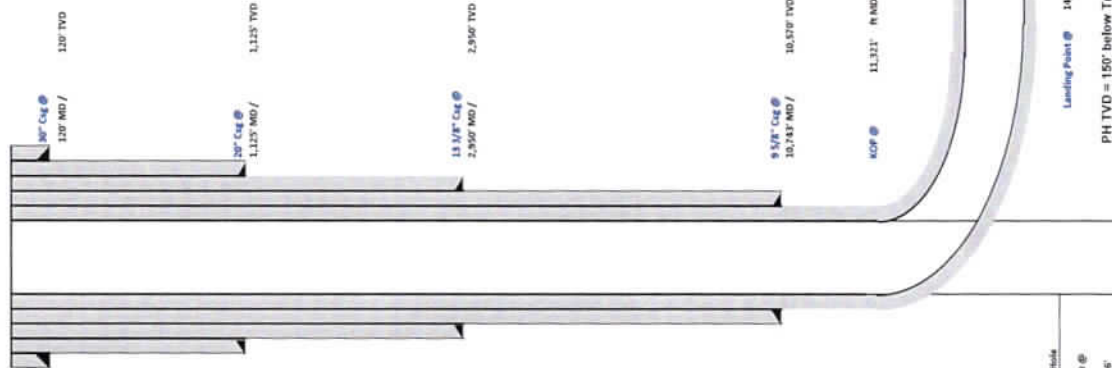
*Note: Attach additional sheets as needed.

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02/23/2023



WELL NAME: Elmer H. JERU COUNTY: Westal
 STATE: WV
 DISTRICT: Proctor
 DF Elev: 1,277' OL Elev: 1,277'
 TD: 25,800'
 TH Latitude: 39.09390383
 TH Longitude: -80.73753815
 BH Latitude: 39.720003
 BH Longitude: -80.745565



Formation	Depth TVD
Deepart Fresh Water	1,009'
Sewickley Coal	909'
Pittsburgh Coal	1,003'
Big Linn	2,200'
Berea	2,842'
Tully	6,794'
Marcellus	6,835'
Onondaga	6,885'
Salina	7,940'
Lockport	8,613'
Utica	11,417'
Poist Pleasant	11,737'
Landing Depth	11,787'
Trenton	11,850'
Pilot Hole TD	12,000'

CASING SUMMARY						
Type	Hole Size [in]	Csg Size [in]	Depth [MD]	Depth [TVD]	Weight [lb/ft]	Grade
Conductor	36	30	120'	120'	BW	BW
Surface	26	20	1,125'	1,125'	306.5	J55
Intermediate 1	17 1/2	13 7/8	2,950'	2,950'	54.5	J55
Intermediate 2	12 1/4	9 5/8	10,743'	10,570'	47	HP110
Production	8 1/2	5 1/2	25,800'	11,592'	23	HP110

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density [ppg]	Fluid Type	Centralizer Notes
Conductor	318	A	15.6	Air	None
Surface	1,983	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,253	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	3,190	A	14.5	Air	1 Centralizer every other joint
Production	6,235	A	16.5	Air / SOBMM	3 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface

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Lateral TD @ 25,800' R MD
 11,592' R TVD

02/03/2023



Tug Hill Operating, LLC Casing and Cement Program

Elmer N-18HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,125'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,950'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,743'	CTS
Production	5 1/2"	HCP110	8 1/2"	25,800'	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 1: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 14.5 ppg, Y=1.35

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 16.5 ppg, Y = 1.03

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OPERATING

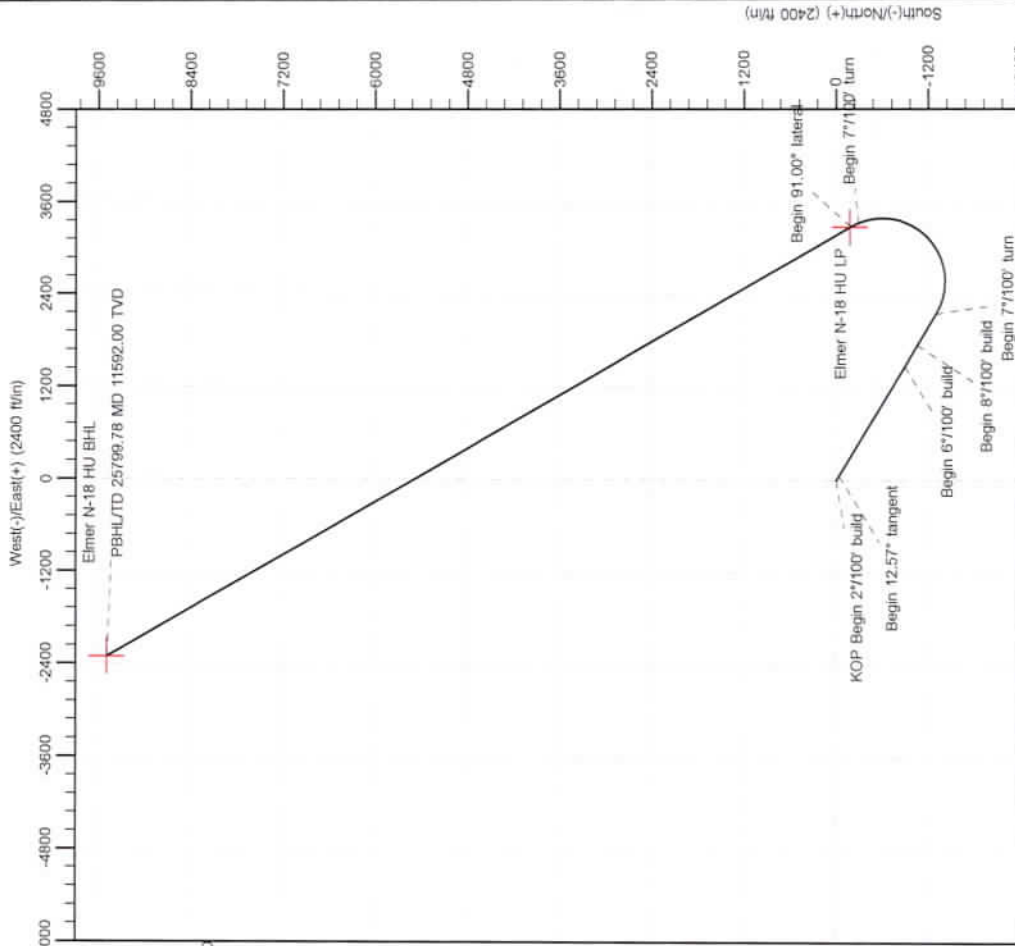
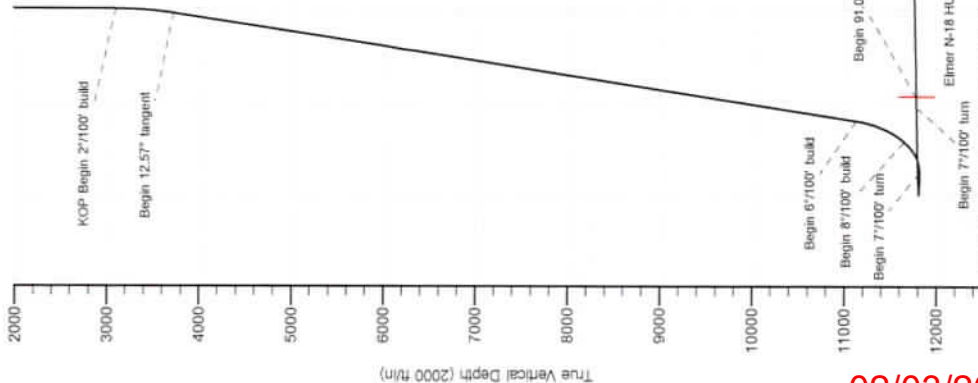
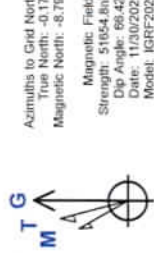
Well: Elmer N-18 HU (slot M)
Site: Elmer
Project: Wetzel County, West Virginia (UTM17 NAD83)
Design: rev2

DESIGN TARGET DETAILS

Name: Elmer N-18 HU BHL
 +N/-S: 9496.74
 +E/-W: -2308.80
 Northing: 4424879.169
 Easting: 1711937.750
 Longitude: -80.745450000
 TVD: 11592.00
 Elmer N-18 HU LP
 - plan hits target center
 11787.00
 -175.85
 3275.49
 4415206.597
 1717522.029
 39.693394000
 -80.725996000
 - plan misses target center by 0.24ft at 14629.22ft MD (11787.23 TVD, -175.86 N, 3275.46 E)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
2	3102.00	0.00	0.000	3102.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2'100' build
3	3730.50	12.57	121.100	3725.47	-35.47	59.80	2.00	121.10	-48.35	Begin 12.57' tangent
4	11320.97	12.57	121.100	11134.00	-888.75	1473.29	0.00	0.00	-1211.63	Begin 6'100' build
5	11944.80	50.00	121.100	11657.70	-1053.12	1745.77	8.00	0.00	-1435.72	Begin 8'100' build
6	12457.30	91.00	121.100	11825.14	-1297.37	2150.67	7.00	0.00	-1768.71	Begin 7'100' turn
7	14507.30	91.00	337.600	11789.37	-284.75	3330.03	7.00	-89.92	-1063.96	Begin 7'100' turn
8	14615.84	91.00	330.001	11787.47	-187.44	3282.15	7.00	-89.92	-957.49	Begin 91.00' lateral
9	25799.78	91.00	330.001	11592.00	9496.74	-2308.80	0.00	0.00	9773.37	PBHL/TD 25799.78 MD 11592.00 TVD



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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 @ 1277.00ft

Northing: 14415382.443
 Easting: 1714246.549
 Latitude: 39.693903830

Longitude: -80.7375381

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

15-20, August 23, 2022

02/03/2023

02/23/2023



Planning Report - Geographic

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Elmer N-18 HU (slot M)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1277.00ft
Project:	Wetzel County, West Virginia (UTM17 NAD83)	MD Reference:	GL @ 1277.00ft
Site:	Elmer	North Reference:	Grid
Well:	Elmer N-18 HU (slot M)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project	Wetzel County, West Virginia (UTM17 NAD83)		
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	Elmer				
Site Position:		Northing:	14,415,313.835 usft	Latitude:	39.693715720
From:	Lat/Long	Easting:	1,714,207.744 usft	Longitude:	-80.737676810
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Elmer N-18 HU (slot M)					
Well Position	+N/-S	0.00 ft	Northing:	14,415,382.444 usft	Latitude:	39.693903830
	+E/-W	0.00 ft	Easting:	1,714,246.548 usft	Longitude:	-80.737538150
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	1,277.00 ft	
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/30/2021	-8.63	66.42	51,654.84590222

Design	rev2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	346.336

Plan Survey Tool Program		Date		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	25,799.78 rev2 (Original Hole)		

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Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Elmer N-18 HU (slot M)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1277.00ft
Project:	Wetzel County, West Virginia (UTM17 NAD83)	MD Reference:	GL @ 1277.00ft
Site:	Elmer	North Reference:	Grid
Well:	Elmer N-18 HU (slot M)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,102.00	0.00	0.000	3,102.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,730.50	12.57	121.100	3,725.47	-35.47	58.80	2.00	2.00	0.00	121.10	
11,320.97	12.57	121.100	11,134.00	-888.75	1,473.29	0.00	0.00	0.00	0.00	
11,944.80	50.00	121.100	11,657.70	-1,053.12	1,745.77	6.00	6.00	0.00	0.00	
12,457.30	91.00	121.100	11,825.14	-1,297.37	2,150.67	8.00	8.00	0.00	0.00	
14,507.30	91.00	337.600	11,789.37	-284.75	3,330.03	7.00	0.00	-7.00	-90.00	
14,615.84	91.00	330.001	11,787.47	-187.44	3,282.15	7.00	0.00	-7.00	-89.92	
25,799.78	91.00	330.001	11,592.00	9,496.74	-2,308.80	0.00	0.00	0.00	0.00	Elmer N-18 HU BHL

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Planning Report - Geographic

47103 02/23/2023

Database: DB_Feb2822
 Company: Tug Hill Operating LLC
 Project: Wetzel County, West Virginia (UTM17 NAD83)
 Site: Elmer
 Well: Elmer N-18 HU (slot M)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Elmer N-18 HU (slot M)
 GL @ 1277.00ft
 GL @ 1277.00ft
 Grid
 Minimum Curvature

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
100.00	0.00	0.000	100.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
200.00	0.00	0.000	200.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
300.00	0.00	0.000	300.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
400.00	0.00	0.000	400.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
500.00	0.00	0.000	500.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
600.00	0.00	0.000	600.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
700.00	0.00	0.000	700.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
800.00	0.00	0.000	800.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
900.00	0.00	0.000	900.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,600.00	0.00	0.000	1,600.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,700.00	0.00	0.000	1,700.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,800.00	0.00	0.000	1,800.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
1,900.00	0.00	0.000	1,900.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,000.00	0.00	0.000	2,000.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,100.00	0.00	0.000	2,100.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,200.00	0.00	0.000	2,200.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,300.00	0.00	0.000	2,300.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,400.00	0.00	0.000	2,400.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,500.00	0.00	0.000	2,500.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,600.00	0.00	0.000	2,600.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,700.00	0.00	0.000	2,700.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,800.00	0.00	0.000	2,800.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
2,900.00	0.00	0.000	2,900.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
3,000.00	0.00	0.000	3,000.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
3,102.00	0.00	0.000	3,102.00	0.00	0.00	14,415,382.444	1,714,246.548	39.693903830	-80.737538150
KOP Begin 2°/100' build									
3,200.00	1.96	121.100	3,199.98	-0.87	1.44	14,415,381.578	1,714,247.984	39.693901441	-80.737533058
3,300.00	3.96	121.100	3,299.84	-3.53	5.86	14,415,378.911	1,714,252.405	39.693894080	-80.737517368
3,400.00	5.96	121.100	3,399.46	-8.00	13.26	14,415,374.445	1,714,259.808	39.693881756	-80.737491097
3,500.00	7.96	121.100	3,498.72	-14.26	23.63	14,415,368.186	1,714,270.183	39.693864484	-80.737454279
3,600.00	9.96	121.100	3,597.50	-22.30	36.97	14,415,360.142	1,714,283.519	39.693842285	-80.737406957
3,700.00	11.96	121.100	3,695.67	-32.12	53.25	14,415,350.322	1,714,299.797	39.693815185	-80.737349189
3,730.50	12.57	121.100	3,725.47	-35.47	58.80	14,415,346.975	1,714,305.345	39.693805950	-80.737329502
Begin 12.57° tangent									
3,800.00	12.57	121.100	3,793.30	-43.28	71.75	14,415,339.162	1,714,318.297	39.693784389	-80.737263542
3,900.00	12.57	121.100	3,890.91	-54.52	90.38	14,415,327.921	1,714,336.932	39.693753367	-80.737217413
4,000.00	12.57	121.100	3,988.51	-65.76	109.02	14,415,316.680	1,714,355.567	39.693722344	-80.737151284
4,100.00	12.57	121.100	4,086.11	-77.01	127.65	14,415,305.438	1,714,374.202	39.693691322	-80.737085155
4,200.00	12.57	121.100	4,183.72	-88.25	146.29	14,415,294.197	1,714,392.837	39.693660300	-80.737019026
4,300.00	12.57	121.100	4,281.32	-99.49	164.92	14,415,282.955	1,714,411.472	39.693629277	-80.736952897
4,400.00	12.57	121.100	4,378.92	-110.73	183.56	14,415,271.714	1,714,430.107	39.693598255	-80.736886768
4,500.00	12.57	121.100	4,476.53	-121.97	202.19	14,415,260.473	1,714,448.742	39.693567232	-80.736820640
4,600.00	12.57	121.100	4,574.13	-133.21	220.83	14,415,249.231	1,714,467.377	39.693536210	-80.736754511
4,700.00	12.57	121.100	4,671.73	-144.45	239.46	14,415,237.990	1,714,486.012	39.693505187	-80.736688382
4,800.00	12.57	121.100	4,769.34	-155.70	258.10	14,415,226.748	1,714,504.648	39.693474165	-80.736622254
4,900.00	12.57	121.100	4,866.94	-166.94	276.73	14,415,215.507	1,714,523.283	39.693443142	-80.736556125
5,000.00	12.57	121.100	4,964.54	-178.18	295.37	14,415,204.266	1,714,541.918	39.693412119	-80.736489997

02/03/2023



Planning Report - Geographic

4710300957 02/23/2023

Database: DB_Feb2822
 Company: Tug Hill Operating LLC
 Project: Wetzel County, West Virginia (UTM17 NAD83)
 Site: Elmer
 Well: Elmer N-18 HU (slot M)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Elmer N-18 HU (slot M)
 GL @ 1277.00ft
 GL @ 1277.00ft
 Grid
 Minimum Curvature

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 OCT 21 2022
 WV Department of
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,100.00	12.57	121.100	5,062.14	-189.42	314.01	14,415,193.024	1,714,560.553	39.693381096	-80.736423869
5,200.00	12.57	121.100	5,159.75	-200.66	332.64	14,415,181.783	1,714,579.188	39.693350074	-80.736357740
5,300.00	12.57	121.100	5,257.35	-211.90	351.28	14,415,170.541	1,714,597.823	39.693319051	-80.736291612
5,400.00	12.57	121.100	5,354.95	-223.14	369.91	14,415,159.300	1,714,616.458	39.693288028	-80.736225484
5,500.00	12.57	121.100	5,452.56	-234.39	388.55	14,415,148.059	1,714,635.093	39.693257005	-80.736159356
5,600.00	12.57	121.100	5,550.16	-245.63	407.18	14,415,136.817	1,714,653.728	39.693225982	-80.736093228
5,700.00	12.57	121.100	5,647.76	-256.87	425.82	14,415,125.576	1,714,672.363	39.693194959	-80.736027100
5,800.00	12.57	121.100	5,745.37	-268.11	444.45	14,415,114.334	1,714,690.998	39.693163936	-80.735960972
5,900.00	12.57	121.100	5,842.97	-279.35	463.09	14,415,103.093	1,714,709.634	39.693132913	-80.735894844
6,000.00	12.57	121.100	5,940.57	-290.59	481.72	14,415,091.851	1,714,728.269	39.693101890	-80.735828716
6,100.00	12.57	121.100	6,038.18	-301.83	500.36	14,415,080.610	1,714,746.904	39.693070867	-80.735762588
6,200.00	12.57	121.100	6,135.78	-313.08	518.99	14,415,069.369	1,714,765.539	39.693039844	-80.735696461
6,300.00	12.57	121.100	6,233.38	-324.32	537.63	14,415,058.127	1,714,784.174	39.693008821	-80.735630333
6,400.00	12.57	121.100	6,330.98	-335.56	556.26	14,415,046.886	1,714,802.809	39.692977797	-80.735564205
6,500.00	12.57	121.100	6,428.59	-346.80	574.90	14,415,035.644	1,714,821.444	39.692946774	-80.735498078
6,600.00	12.57	121.100	6,526.19	-358.04	593.53	14,415,024.403	1,714,840.079	39.692915751	-80.735431950
6,700.00	12.57	121.100	6,623.79	-369.28	612.17	14,415,013.162	1,714,858.714	39.692884728	-80.735365823
6,800.00	12.57	121.100	6,721.40	-380.52	630.80	14,415,001.920	1,714,877.349	39.692853704	-80.735299696
6,900.00	12.57	121.100	6,819.00	-391.77	649.44	14,414,990.679	1,714,895.985	39.692822681	-80.735233568
7,000.00	12.57	121.100	6,916.60	-403.01	668.07	14,414,979.437	1,714,914.620	39.692791657	-80.735167441
7,100.00	12.57	121.100	7,014.21	-414.25	686.71	14,414,968.196	1,714,933.255	39.692760634	-80.735101314
7,200.00	12.57	121.100	7,111.81	-425.49	705.34	14,414,956.955	1,714,951.890	39.692729610	-80.735035187
7,300.00	12.57	121.100	7,209.41	-436.73	723.98	14,414,945.713	1,714,970.525	39.692698587	-80.734969060
7,400.00	12.57	121.100	7,307.02	-447.97	742.61	14,414,934.472	1,714,989.160	39.692667563	-80.734902933
7,500.00	12.57	121.100	7,404.62	-459.21	761.25	14,414,923.230	1,715,007.795	39.692636539	-80.734836806
7,600.00	12.57	121.100	7,502.22	-470.46	779.88	14,414,911.989	1,715,026.430	39.692605516	-80.734770679
7,700.00	12.57	121.100	7,599.83	-481.70	798.52	14,414,900.748	1,715,045.065	39.692574492	-80.734704552
7,800.00	12.57	121.100	7,697.43	-492.94	817.15	14,414,889.506	1,715,063.700	39.692543468	-80.734638425
7,900.00	12.57	121.100	7,795.03	-504.18	835.79	14,414,878.265	1,715,082.335	39.692512445	-80.734572299
8,000.00	12.57	121.100	7,892.63	-515.42	854.42	14,414,867.023	1,715,100.971	39.692481421	-80.734506172
8,100.00	12.57	121.100	7,990.24	-526.66	873.06	14,414,855.782	1,715,119.606	39.692450397	-80.734440045
8,200.00	12.57	121.100	8,087.84	-537.90	891.69	14,414,844.541	1,715,138.241	39.692419373	-80.734373919
8,300.00	12.57	121.100	8,185.44	-549.15	910.33	14,414,833.299	1,715,156.876	39.692388349	-80.734307792
8,400.00	12.57	121.100	8,283.05	-560.39	928.96	14,414,822.058	1,715,175.511	39.692357325	-80.734241666
8,500.00	12.57	121.100	8,380.65	-571.63	947.60	14,414,810.816	1,715,194.146	39.692326301	-80.734175540
8,600.00	12.57	121.100	8,478.25	-582.87	966.23	14,414,799.575	1,715,212.781	39.692295277	-80.734109413
8,700.00	12.57	121.100	8,575.86	-594.11	984.87	14,414,788.334	1,715,231.416	39.692264253	-80.734043287
8,800.00	12.57	121.100	8,673.46	-605.35	1,003.50	14,414,777.092	1,715,250.051	39.692233229	-80.733977161
8,900.00	12.57	121.100	8,771.06	-616.59	1,022.14	14,414,765.851	1,715,268.686	39.692202205	-80.733911035
9,000.00	12.57	121.100	8,868.67	-627.84	1,040.78	14,414,754.609	1,715,287.321	39.692171180	-80.733844909
9,100.00	12.57	121.100	8,966.27	-639.08	1,059.41	14,414,743.368	1,715,305.957	39.692140156	-80.733778783
9,200.00	12.57	121.100	9,063.87	-650.32	1,078.05	14,414,732.126	1,715,324.592	39.692109132	-80.733712657
9,300.00	12.57	121.100	9,161.47	-661.56	1,096.68	14,414,720.885	1,715,343.227	39.692078108	-80.733646531
9,400.00	12.57	121.100	9,259.08	-672.80	1,115.32	14,414,709.644	1,715,361.862	39.692047083	-80.733580405
9,500.00	12.57	121.100	9,356.68	-684.04	1,133.95	14,414,698.402	1,715,380.497	39.692016059	-80.733514279
9,600.00	12.57	121.100	9,454.28	-695.28	1,152.59	14,414,687.161	1,715,399.132	39.691985034	-80.733448154
9,700.00	12.57	121.100	9,551.89	-706.53	1,171.22	14,414,675.919	1,715,417.767	39.691954010	-80.733382028
9,800.00	12.57	121.100	9,649.49	-717.77	1,189.86	14,414,664.678	1,715,436.402	39.691922985	-80.733315902
9,900.00	12.57	121.100	9,747.09	-729.01	1,208.49	14,414,653.437	1,715,455.037	39.691891961	-80.733249777
10,000.00	12.57	121.100	9,844.70	-740.25	1,227.13	14,414,642.195	1,715,473.672	39.691860936	-80.733183651
10,100.00	12.57	121.100	9,942.30	-751.49	1,245.76	14,414,630.954	1,715,492.307	39.691829912	-80.733117526
10,200.00	12.57	121.100	10,039.90	-762.73	1,264.40	14,414,619.712	1,715,510.943	39.691798887	-80.733051401
10,300.00	12.57	121.100	10,137.51	-773.97	1,283.03	14,414,608.471	1,715,529.578	39.691767862	-80.732985275
10,400.00	12.57	121.100	10,235.11	-785.22	1,301.67	14,414,597.230	1,715,548.213	39.691736838	-80.732919150
10,500.00	12.57	121.100	10,332.71	-796.46	1,320.30	14,414,585.988	1,715,566.848	39.691705813	-80.732853025

02/03/2023

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Planning Report - Geographic

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OCT 21 2022

WV Department of Environmental Protection

Database: DB_Feb2822
 Company: Tug Hill Operating LLC
 Project: Wetzel County, West Virginia (UTM17 NAD83)
 Site: Elmer
 Well: Elmer N-18 HU (slot M)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Elmer N-18 HU (slot M)
 GL @ 1277.00ft
 GL @ 1277.00ft
 Grid
 Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,600.00	12.57	121.100	10,430.31	-807.70	1,338.94	14,414,574.747	1,715,585.483	39.691674788	-80.732786900
10,700.00	12.57	121.100	10,527.92	-818.94	1,357.57	14,414,563.505	1,715,604.118	39.691643763	-80.732720775
10,800.00	12.57	121.100	10,625.52	-830.18	1,376.21	14,414,552.264	1,715,622.753	39.691612738	-80.732654650
10,900.00	12.57	121.100	10,723.12	-841.42	1,394.84	14,414,541.023	1,715,641.388	39.691581713	-80.732588525
11,000.00	12.57	121.100	10,820.73	-852.66	1,413.48	14,414,529.781	1,715,660.023	39.691550688	-80.732522400
11,100.00	12.57	121.100	10,918.33	-863.91	1,432.11	14,414,518.540	1,715,678.658	39.691519663	-80.732456275
11,200.00	12.57	121.100	11,015.93	-875.15	1,450.75	14,414,507.298	1,715,697.294	39.691488638	-80.732390151
11,300.00	12.57	121.100	11,113.54	-886.39	1,469.38	14,414,496.057	1,715,715.929	39.691457613	-80.732324026
11,320.97	12.57	121.100	11,134.00	-888.75	1,473.29	14,414,493.700	1,715,719.836	39.691451108	-80.732310162
Begin 6°/100' build									
11,350.00	14.31	121.100	11,162.24	-892.23	1,479.07	14,414,490.214	1,715,725.614	39.691441488	-80.732289658
11,400.00	17.31	121.100	11,210.34	-899.27	1,490.73	14,414,483.178	1,715,737.279	39.691422068	-80.732248268
11,450.00	20.31	121.100	11,257.66	-907.60	1,504.54	14,414,474.851	1,715,751.083	39.691399086	-80.732199285
11,500.00	23.31	121.100	11,304.08	-917.19	1,520.44	14,414,465.255	1,715,766.989	39.691372604	-80.732142845
11,550.00	26.31	121.100	11,349.46	-928.03	1,538.41	14,414,454.419	1,715,784.953	39.691342696	-80.732079101
11,600.00	29.31	121.100	11,393.68	-940.08	1,558.38	14,414,442.370	1,715,804.926	39.691309443	-80.732008228
11,650.00	32.31	121.100	11,436.61	-953.30	1,580.31	14,414,429.143	1,715,826.854	39.691272936	-80.731930421
11,700.00	35.31	121.100	11,478.15	-967.67	1,604.13	14,414,414.773	1,715,850.675	39.691233276	-80.731845894
11,750.00	38.31	121.100	11,518.18	-983.15	1,629.78	14,414,399.299	1,715,876.326	39.691190571	-80.731754876
11,800.00	41.31	121.100	11,556.58	-999.68	1,657.19	14,414,382.765	1,715,903.736	39.691144938	-80.731672105
11,850.00	44.31	121.100	11,593.26	-1,017.23	1,686.28	14,414,365.216	1,715,932.828	39.691096502	-80.731554389
11,900.00	47.31	121.100	11,628.10	-1,035.75	1,716.98	14,414,346.699	1,715,963.524	39.691045397	-80.731445469
11,944.80	50.00	121.100	11,657.70	-1,053.12	1,745.77	14,414,329.327	1,715,992.321	39.690997453	-80.731343288
Begin 8°/100' build									
11,950.00	50.42	121.100	11,661.02	-1,055.18	1,749.20	14,414,327.263	1,715,995.742	39.690991756	-80.731331148
12,000.00	54.42	121.100	11,691.51	-1,075.65	1,783.12	14,414,306.801	1,716,029.663	39.690935281	-80.731210785
12,050.00	58.42	121.100	11,719.17	-1,097.16	1,818.78	14,414,285.290	1,716,065.322	39.690875912	-80.731084253
12,100.00	62.42	121.100	11,743.85	-1,119.61	1,856.00	14,414,262.835	1,716,102.547	39.690813936	-80.730952169
12,150.00	66.42	121.100	11,765.43	-1,142.90	1,894.61	14,414,239.545	1,716,141.154	39.690749658	-80.730815176
12,200.00	70.42	121.100	11,783.82	-1,166.91	1,934.41	14,414,215.534	1,716,180.957	39.690683389	-80.730673942
12,250.00	74.42	121.100	11,798.92	-1,191.53	1,975.22	14,414,190.919	1,716,221.762	39.690615452	-80.730529155
12,300.00	78.42	121.100	11,810.67	-1,216.63	2,016.82	14,414,165.820	1,716,263.369	39.690546179	-80.730381520
12,350.00	82.42	121.100	11,818.99	-1,242.09	2,059.03	14,414,140.359	1,716,305.576	39.690475907	-80.730231757
12,400.00	86.42	121.100	11,823.85	-1,267.79	2,101.63	14,414,114.660	1,716,348.178	39.690404978	-80.730080594
12,450.00	90.42	121.100	11,825.23	-1,293.60	2,144.42	14,414,088.849	1,716,390.966	39.690333738	-80.729928770
12,457.30	91.00	121.100	11,825.14	-1,297.37	2,150.67	14,414,085.079	1,716,397.216	39.690323332	-80.729906592
Begin 7°/100' turn									
12,500.00	91.00	118.111	11,824.40	-1,318.46	2,187.79	14,414,063.989	1,716,434.332	39.690265107	-80.729774882
12,550.00	91.00	114.611	11,823.53	-1,340.65	2,232.57	14,414,041.795	1,716,479.119	39.690203784	-80.729615915
12,600.00	91.00	111.111	11,822.65	-1,360.07	2,278.63	14,414,022.376	1,716,525.177	39.690150072	-80.729452399
12,650.00	91.00	107.611	11,821.78	-1,376.64	2,325.79	14,414,005.805	1,716,572.335	39.690104173	-80.729284943
12,700.00	91.00	104.111	11,820.91	-1,390.30	2,373.87	14,413,992.144	1,716,620.416	39.690066257	-80.729114174
12,750.00	91.00	100.611	11,820.04	-1,401.00	2,422.70	14,413,981.444	1,716,669.242	39.690036466	-80.728940727
12,800.00	91.00	97.111	11,819.16	-1,408.70	2,472.09	14,413,973.745	1,716,718.630	39.690014911	-80.728765249
12,850.00	91.00	93.611	11,818.29	-1,413.37	2,521.85	14,413,969.075	1,716,768.396	39.69001672	-80.728588396
12,900.00	91.00	90.111	11,817.42	-1,415.00	2,571.81	14,413,967.451	1,716,818.354	39.689996799	-80.728410826
12,950.00	91.00	86.611	11,816.55	-1,413.57	2,621.77	14,413,968.881	1,716,868.318	39.69000310	-80.728233203
13,000.00	91.00	83.111	11,815.67	-1,409.09	2,671.56	14,413,973.358	1,716,918.101	39.690012191	-80.728056188
13,050.00	91.00	79.611	11,814.80	-1,401.58	2,720.98	14,413,980.866	1,716,967.519	39.690032399	-80.727880442
13,100.00	91.00	76.111	11,813.93	-1,391.07	2,769.84	14,413,991.377	1,717,016.386	39.690060858	-80.727706621
13,150.00	91.00	72.611	11,813.06	-1,377.59	2,817.98	14,414,004.852	1,717,064.520	39.690097463	-80.727535372
13,200.00	91.00	69.111	11,812.18	-1,361.21	2,865.20	14,414,021.240	1,717,111.741	39.690142075	-80.727367335
13,250.00	91.00	65.611	11,811.31	-1,341.97	2,911.33	14,414,040.480	1,717,157.875	39.690194529	-80.727203137
13,300.00	91.00	62.111	11,810.44	-1,319.95	2,956.20	14,414,062.501	1,717,202.747	39.690254630	-80.727043389

02/03/2023



Planning Report - Geographic

02/23/2023 RECEIVED Office of Oil and Gas

OCT 21 2022

WV Department of Environmental Protection

Database: DB_Feb2822
Company: Tug Hill Operating LLC
Project: Wetzel County, West Virginia (UTM17 NAD83)
Site: Elmer
Well: Elmer N-18 HU (slot M)
Wellbore: Original Hole
Design: rev2

Local Co-ordinate Reference: Well Elmer N-18 HU (slot M)
TVD Reference: GL @ 1277.00ft
MD Reference: GL @ 1277.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Table with 10 columns: Measured Depth (ft), Inclination (°), Azimuth (°), Vertical Depth (ft), +N/-S (ft), +E/-W (ft), Map Northing (usft), Map Easting (usft), Latitude, Longitude. Contains multiple rows of survey data and section headers like 'Begin 7°/100' turn' and 'Begin 91.00° lateral'.

02/03/2023



Planning Report - Geographic

67103034 02/23/2023

RECEIVED Office of Oil and Gas

OCT 21 2022

WV Department of Environmental Protection

Database: DB_Feb2822
Company: Tug Hill Operating LLC
Project: Wetzel County, West Virginia (UTM17 NAD83)
Site: Elmer
Well: Elmer N-18 HU (slot M)
Wellbore: Original Hole
Design: rev2

Local Co-ordinate Reference: Well Elmer N-18 HU (slot M)
TVD Reference: GL @ 1277.00ft
MD Reference: GL @ 1277.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Table with 11 columns: Measured Depth (ft), Inclination (°), Azimuth (°), Vertical Depth (ft), +N/-S (ft), +E/-W (ft), Map Northing (usft), Map Easting (usft), Latitude, Longitude. Rows range from 17,100.00 to 22,500.00 ft depth.

02/03/2023



Planning Report - Geographic

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Office of Oil and Gas

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Survey Calculation Method: Minimum Curvature

OCT 21 2022
 WV Department of
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
22,600.00	91.00	330.001	11,647.92	6,726.05	-709.20	14,422,108.480	1,713,537.347	39.712381256	-80.739988990
22,700.00	91.00	330.001	11,646.18	6,812.64	-759.19	14,422,195.070	1,713,487.356	39.712619456	-80.740166858
22,800.00	91.00	330.001	11,644.43	6,899.23	-809.18	14,422,281.660	1,713,437.365	39.712857656	-80.740343728
22,900.00	91.00	330.001	11,642.68	6,985.82	-859.18	14,422,368.250	1,713,387.374	39.713095856	-80.740520599
23,000.00	91.00	330.001	11,640.93	7,072.41	-909.17	14,422,454.840	1,713,337.384	39.713334055	-80.740697471
23,100.00	91.00	330.001	11,639.19	7,159.00	-959.16	14,422,541.430	1,713,287.393	39.713572254	-80.740874344
23,200.00	91.00	330.001	11,637.44	7,245.59	-1,009.15	14,422,628.020	1,713,237.402	39.713810453	-80.741051219
23,300.00	91.00	330.001	11,635.69	7,332.18	-1,059.14	14,422,714.610	1,713,187.411	39.714048651	-80.741228095
23,400.00	91.00	330.001	11,633.94	7,418.77	-1,109.13	14,422,801.200	1,713,137.420	39.714286849	-80.741404972
23,500.00	91.00	330.001	11,632.19	7,505.36	-1,159.12	14,422,887.790	1,713,087.429	39.714525047	-80.741581850
23,600.00	91.00	330.001	11,630.45	7,591.95	-1,209.11	14,422,974.380	1,713,037.439	39.714763245	-80.741758730
23,700.00	91.00	330.001	11,628.70	7,678.54	-1,259.10	14,423,060.970	1,712,987.448	39.715001442	-80.741935611
23,800.00	91.00	330.001	11,626.95	7,765.13	-1,309.09	14,423,147.560	1,712,937.457	39.715239639	-80.742112493
23,900.00	91.00	330.001	11,625.20	7,851.72	-1,359.09	14,423,234.149	1,712,887.466	39.715477836	-80.742289376
24,000.00	91.00	330.001	11,623.46	7,938.31	-1,409.08	14,423,320.739	1,712,837.475	39.715716033	-80.742466260
24,100.00	91.00	330.001	11,621.71	8,024.90	-1,459.07	14,423,407.329	1,712,787.484	39.715954229	-80.742643146
24,200.00	91.00	330.001	11,619.96	8,111.49	-1,509.06	14,423,493.919	1,712,737.494	39.716192425	-80.742820033
24,300.00	91.00	330.001	11,618.21	8,198.08	-1,559.05	14,423,580.509	1,712,687.503	39.716430621	-80.742996921
24,400.00	91.00	330.001	11,616.47	8,284.67	-1,609.04	14,423,667.099	1,712,637.512	39.716668816	-80.743173810
24,500.00	91.00	330.001	11,614.72	8,371.26	-1,659.03	14,423,753.689	1,712,587.521	39.716907011	-80.743350701
24,600.00	91.00	330.001	11,612.97	8,457.85	-1,709.02	14,423,840.279	1,712,537.530	39.717145206	-80.743527592
24,700.00	91.00	330.001	11,611.22	8,544.44	-1,759.01	14,423,926.869	1,712,487.539	39.717383401	-80.743704485
24,800.00	91.00	330.001	11,609.47	8,631.03	-1,809.00	14,424,013.459	1,712,437.549	39.717621595	-80.743881380
24,900.00	91.00	330.001	11,607.73	8,717.62	-1,858.99	14,424,100.049	1,712,387.558	39.717859789	-80.744058275
25,000.00	91.00	330.001	11,605.98	8,804.21	-1,908.99	14,424,186.639	1,712,337.567	39.718097983	-80.744235171
25,100.00	91.00	330.001	11,604.23	8,890.80	-1,958.98	14,424,273.229	1,712,287.576	39.718336176	-80.744412069
25,200.00	91.00	330.001	11,602.48	8,977.39	-2,008.97	14,424,359.819	1,712,237.585	39.718574369	-80.744588968
25,300.00	91.00	330.001	11,600.74	9,063.98	-2,058.96	14,424,446.409	1,712,187.594	39.718812562	-80.744765868
25,400.00	91.00	330.001	11,598.99	9,150.57	-2,108.95	14,424,532.999	1,712,137.604	39.719050755	-80.744942770
25,500.00	91.00	330.001	11,597.24	9,237.16	-2,158.94	14,424,619.589	1,712,087.613	39.719288947	-80.745119673
25,600.00	91.00	330.001	11,595.49	9,323.75	-2,208.93	14,424,706.179	1,712,037.622	39.719527140	-80.745296576
25,700.00	91.00	330.001	11,593.74	9,410.34	-2,258.92	14,424,792.769	1,711,987.631	39.719765331	-80.745473482
25,799.78	91.00	330.001	11,592.00	9,496.74	-2,308.80	14,424,879.169	1,711,937.750	39.720003000	-80.745650000

PBHL/TD 25799.78 MD 11592.00 TVD

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Elmer N-18 HU BHL - plan hits target center - Point	0.00	0.000	11,592.00	9,496.74	-2,308.80	14,424,879.169	1,711,937.750	39.720003000	-80.745650000
Elmer N-18 HU LP - plan misses target center by 0.24ft at 14629.22ft MD (11787.23 TVD, -175.86 N, 3275.46 E) - Point	0.00	0.000	11,787.00	-175.85	3,275.49	14,415,206.597	1,717,522.030	39.693394000	-80.725896000



47 10303407

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Elmer N-18 HU (slot M)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1277.00ft
Project:	Wetzel County, West Virginia (UTM17 NAD83)	MD Reference:	GL @ 1277.00ft
Site:	Elmer	North Reference:	Grid
Well:	Elmer N-18 HU (slot M)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,102.00	3,102.00	0.00	0.00	KOP Begin 2°/100' build
3,730.50	3,725.47	-35.47	58.80	Begin 12.57° tangent
11,320.97	11,134.00	-888.75	1,473.29	Begin 6°/100' build
11,944.80	11,657.70	-1,053.12	1,745.77	Begin 8°/100' build
12,457.30	11,825.14	-1,297.37	2,150.67	Begin 7°/100' turn
14,507.30	11,789.37	-284.75	3,330.03	Begin 7°/100' turn
14,615.84	11,787.47	-187.44	3,282.15	Begin 91.00° lateral
25,799.78	11,592.00	9,496.74	-2,308.80	PBHL/TD 25799.78 MD 11592.00 TVD

02/23/2023

4710303457



TUG HILL
OPERATING

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Office of Oil and Gas
OCT 21 2022
WV Department of
Environmental Protection

Well Site Safety Plan

Part A – Site Specific Data and Figures

Well Name: Elmer N-18HU

Pad Name: Elmer

County: Wetzel

UTM (meters), NAD83, Zone 17

Northing: 4,393,817.36

Easting: 522,503.39

KEY CONTACT FOR WELL SITE SAFETY PLAN DEVELOPMENT AND MAINTENANCE

Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

Kenneth L. Reynolds

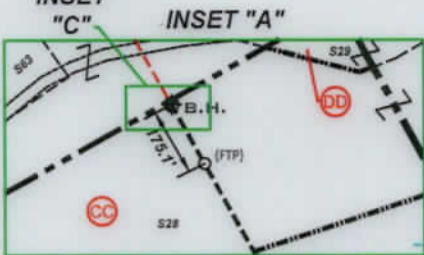
10-12-22

02/03/2023

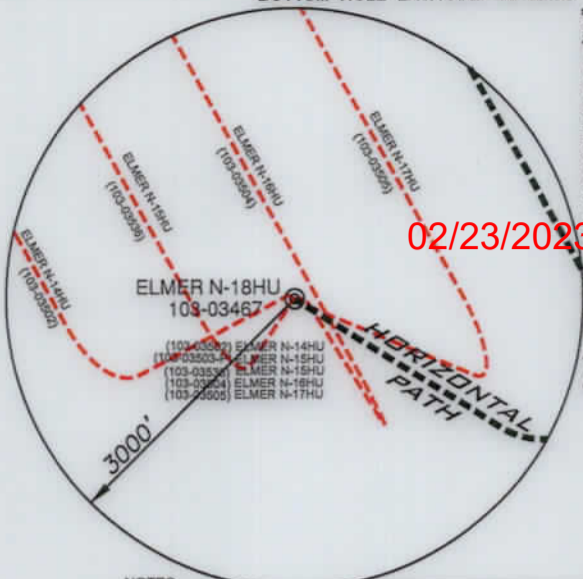
ELMER LEASE WELL N-18HU 310.9511 ± ACRES

TOP HOLE LATITUDE: 39°42'30"
BOTTOM HOLE LATITUDE: 39°45'00"

SEE
INSET
"C"



INSET "B"



02/23/2023

NOTES

- BORE PATH BASED ON GRID NORTH.
- NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
- OWNERSHIP TAKEN FROM PUBLIC RECORDS OF WETZEL COUNTY, WV IN JULY, 2022. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
- WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
- ALL DEEP WELLS WITHIN 1,000' ARE SHOWN ON THIS PLAT.
- BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.0401147

LEGEND

- LEASED TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- UNIT BOUNDARY
- LEASE # (SEE GA1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT
- FORCED POOL TRACT

(*) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

DETAIL SKETCH "A" N.T.S.



INSET "C"



SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS

N) 4,393,817.36
E) 522,503.39

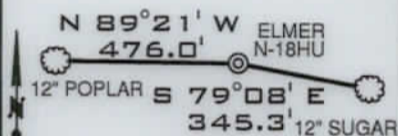
LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS

N) 4,393,760.22
E) 523,503.79

BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS

N) 4,396,711.96
E) 521,799.67

REFERENCES SCALE 1"=500'



LINE	BEARING	DISTANCE
L1	N 41°47' E	1844.12'
L2	N 87°00' E	1399.04'
L3	S 57°57' E	2,512.53'

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	N 64°34' E	1380.81'	818.68'	1642.97'
C2	N 10°59' W	507.44'	818.65'	515.94'

FILE NUMBER _____

DRAWING NUMBER ELMER_N-18HU_REV2

SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

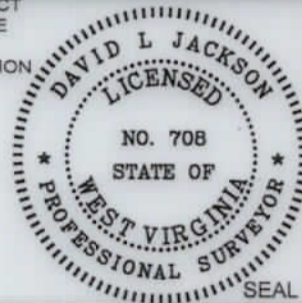
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 708

David L Jackson

JACKSON SURVEYING INC.
P.O. Box 1480
Clarksburg, WV 26302
304-623-5551



WVDEP
OFFICE OF OIL & GAS
601 57TH STREET, SE
CHARLESTON, WV 25304

DATE: DECEMBER 15, 2021

REVISED: OCTOBER 20, 2022

OPERATORS WELL NO. ELMER N-18HU

API WELL NO.

47-103-03467 MOD

STATE COUNTY PERMIT

LOCATION ELEVATION 1275.25' WATERSHED (HUC 10) PROCTOR CREEK OF FRENCH CREEK - OHIO RIVER (HUC-10)

DISTRICT PROCTOR COUNTY WETZEL

QUADRANGLE WILEYVILLE 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER ELNORA TUTTLE HRS. ACREAGE 39.19

OIL & GAS ROYALTY OWNER ELNORA TUTTLE HRS. - SEE WW-6A1 LEASE ACREAGE 39.19

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____

TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 12,006' TMD: 25,800'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN, CT CORP
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5098 WASHINGTON STREET WEST, SUITE 407 CHARLESTON, WV 25313-1561

02/03/2023

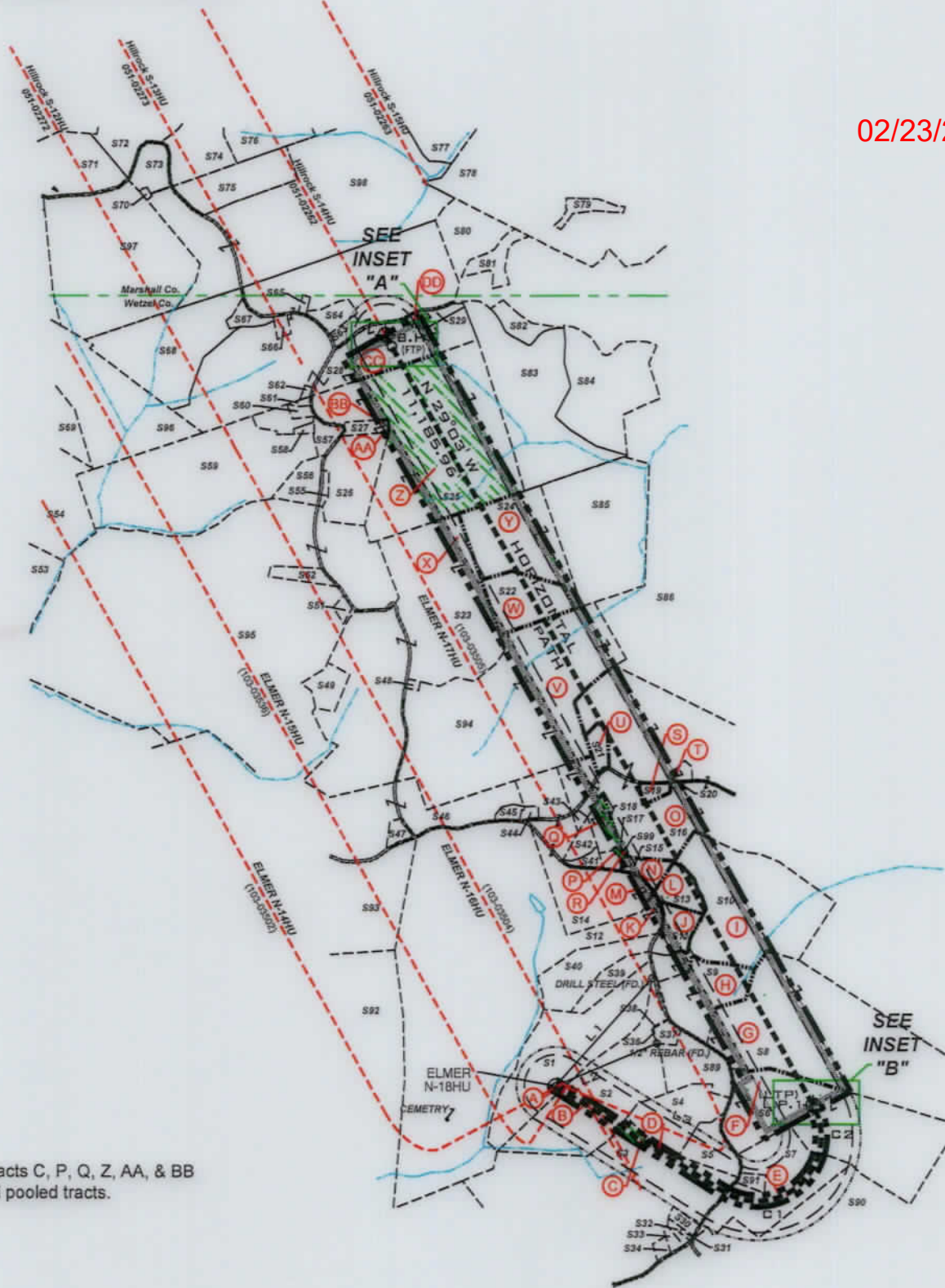
COUNTY NAME

PERMIT

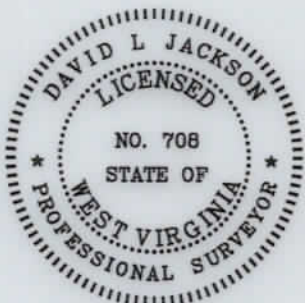
ELMER LEASE
WELL N-18HU
310.9511 ± ACRES

02/23/2023

GRID NORTH



NOTE: Tracts C, P, Q, Z, AA, & BB are forced pooled tracts.



P.S. 708 *David L Jackson*

LEGEND	
	LEASED TRACTS
	SURFACE TRACTS
	WELL LATERAL
	POINT PLEASANT LEGS
	UNIT BOUNDARY
	LEASE # (SEE 6A1 FORM)
	400' BORE PATH OFFSET
	500' WELL BORE OFFSET
	PROPOSED FIRST TAKE POINT
	PROPOSED LAST TAKE POINT
	FORCED POOL TRACT

02/03/2023



TUG HILL
OPERATING

OPERATOR'S
 WELL #: ELMER N-18HU
 DISTRICT: Proctor
 COUNTY: Wetzel
 STATE: WV
 API #: 47-103-03467 MDD

WELL PLAT
 PAGE 2 OF 4
 DATE: 12/15/2021
 REVISED: 10/20/2022

form ww6

**ELMER LEASE
WELL N-18HU
310.9511 ± ACRES**

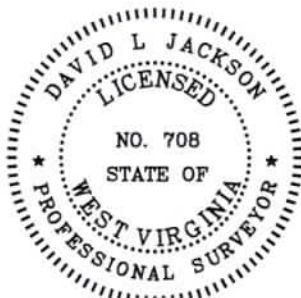
* FORCED POOLED TRACTS ARE HIGHLIGHTED

Parcels within Unit Boundary				
Tags	Number	Tax Map -Parcel	Surface Owner	Acres
A	S1	12-8-15	ELNORA TUTTLE HRS.	39.19
B	S2	12-8-16	CHARLES & BETTY HUGGINS	39.13
C	S3	12-8-20	NANCT TRUEX	95.35
D	S4	12-8-21.1	LINDA M. STOUT	15.26
E	S7	12-8-32	DAVID TODD & CINDY L. BATES & CHARLES M. THOMAS	27.287
F	S6	12-8-23	JACOB WOODROW & MARY JOSEPHINE NICE	59
G	S8	12-8-17	JACOB WOODROW & MARY JOSEPHINE NICE	85.69
H	S9	12-8-4	JACOB WOODROW & MARY JOSEPHINE NICE	20.893
I	S10	12-8-4.5	JACOB WOODROW & MARY JOSEPHINE NICE	51.107
J	S11	12-8-4.1	JACOB WOODROW & MARY JOSEPHINE NICE	6.171
K	S12	12-8-2	R. SHANE & KATHRYN GODDARD	178
L	S13	12-8-4.3	BRADY G. & SHARON L. HOWELL	5.59
M	S14	12-8-3	R. SHANE & KATHRYN GODDARD	31.13
N	S15	12-3-31	DOUGLAS & SUZANNE ESTEP	3.25
O	S16	12-3-30.4	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	81.82
P	S17	12-3-39.1	WILLIAM NICE	1.31
Q	S18	12-3-39	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	4.69
R	S99	p/o 12-3-39 & 12-3-30.4	DONALD & SUZANNE ESTEP	0.145
S	S19	12-3-30.2	APRIL ROSE & DONALD ALLEN POSTLETHWAIT	1.67
T	S20	12-3-30	APRIL ROSE POSTLETHWAIT; MARY ROSE YOHO - L/E	1.48
U	S21	12-3-29	FRIEND V. ESTEP (RAYMOND F. ESTEP - L/E)	2.9
V	S94	12-3-21	LARRY J & MARY ANN KIRKLAND	99.53
W	S22	12-3-14.1	MATTHEW D. HALL	13
X	S23	12-3-13	LARRY J. & MARY ANN KIRKLAND	95
Y	S24	12-3-14	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	27
Z	S25	12-3-4	MARY HOHMAN ET AL	85
AA	S26	12-3-3.1	DIANA & ROBERT L. SMITH	15.78
BB	S27	12-3-02	ROBERT LEE & DIANA G. SMITH	2.48
CC	S28	5-25-11.2	JAMES W. KLUG	110.491
DD	S29	12-3-42	J. M. KLUG	2.617

Adjoining Parcels Ownership Table			
Number	Tax Map -Parcel	Surface Owner	Acres
55	12-8-22.1	BARRY C. KIRKLAND	7.401
530	12-8-20.1	PAUL J. BLAKE	1.5
531	12-8-20.3	PAUL J. BLAKE	0.25
532	12-8-20.9	JOSHUA M. & COURTNEY R. NEFF	0.4
533	12-8-20.8	JOSHUA M. & COURTNEY R. NEFF	0.99
534	12-8-20.6	JOHN G. & DEBRA D. THROCKMORTON	1.046
535	12-8-20.5	JOE B. MILLER & GERALD & SUE YEATER	5.44
536	12-8-4.4	CHARLES & BETTY HUGGINS	0.69
537	12-8-4.2	BRENT A. & KIMBERLY J. EDDY	0.29
538	12-8-16.1	BRENT A. & KIMBERLY J. EDDY	0.06
539	12-8-14	EDWARD C. & SANDRA K. MURRINER	5.33
540	12-8-13	EDWARD C. & SANDRA K. MURRINER	15
541	12-3-32.1	TIMOTHY L. & LEA ANN SUMMERS	1.78
542	12-3-32	TIMOTHY L. SUMMERS	2.32
543	12-3-30.3	TIMOTHY L. SUMMERS	0.61
544	12-3-45	ANTIOCH CHURCH	0.774
545	12-3-28	ANTIOCH CHURCH	1
546	12-8-1.1	R. SHANE & KATHRYN GODDARD	92.69
547	12-8-1.2	JOSH GODDARD	1.81
548	12-3-21.1	LARRY J & MARY ANN KIRKLAND	0.47
549	12-3-13.1	ZACHARY J. KIRKLAND	5
550	12-2-22.1	DAVID A. NICE	54.66
551	12-3-48	RONALD W. & JULIE A. NICE	1
552	12-3-12	RODNEY DEAN JACKSON	3.625
553	12-2-12	BERYL E. MASON	59.9
554	12-2-13	JAYS. BOOTH; DANIEL T. BOOTH & DIANE BETH OVERDORFF	100
555	12-3-3	ANITA LARELL SLOUGH	1.12
556	12-3-4.2	DEREK L. BAKER	5.21
557	12-3-4.3	JOSEPH P. & BARBARA A. CAIN	3.619
558	12-3-4.8	ERIN HUBBS	0.621
559	12-3-4.7	JOSEPH P. & BARBARA A. CAIN	67.3
560	12-3-4.6	STEVEN P. WAYMAN	1.009
561	12-3-4.5	HAZEL M. BLAIR	0.451
562	12-3-1	JAMES W. KLUG	0.375
563	12-3-43	ADAM W. FERRELL & BRITTANY M. LOY	1.97
564	12-3-49	LOGAN & AMY TAYLOR	3.814
565	12-3-47	WETZEL CO. EMERGENCY AMBULANCE	0.5
566	12-3-44	JAMES A. & JO C. ESTEP	1.1
567	05-25-11.1	EDWARD W. & DIANNA KLUG	2.343
568	05-25-11.4	EDWARD W. KLUG, ET UX	32.787
569	12-2-14.2	JOHN G. JR. & GERALDINE W. ROGERS	22.0007
570	05-25-13.4	PARSONS CEMETERY	0.382
571	05-25-14	ROY F. YOHO	23
572	05-25-1	MICHAEL L. MASON	35.43
573	05-25-13.2	DAVID A. KLUG	5.89
574	05-25-13	WILLIAM M. FERDA, JR. & STEPHANIE L. PALUCKA	16.014
575	05-25-12.1	KENT & BETTY MASON	15
576	05-25-1.5	RYAN J. BRATTON	21.35
577	05-25-2	JAMES W. KLUG	122.3
578	05-25-3	S.D. FERTITTA, ET UX	181.548
579	05-25-3.1	S.D. FERTITTA, ET UX	3.022
580	05-25-10	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	18.75
581	05-25-10.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	5.25
582	12-3-41	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	4.102
583	12-3-41.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	74.138
584	12-3-4.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	10.5
585	12-3-15	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	38
586	12-3-22	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	22.5
587	12-3-30.1	JOAN & MICHAEL J. ESTEP	1.75
588	12-3-33	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	58.32
589	12-8-6	JEREMY S. & ERIN P. GODDARD	25
590	12-8-32.8	DAVID TODD & CINDY L. BATES	36.425
591	12-8-32.6	CHARLES W. THOMAS, JR.	1.309
592	12-8-1	R SHANE & KATHRYN GODDARD	77
593	12-8-1.1	R SHANE & KATHRYN GODDARD	92.69
595	12-2-19	NICHOLAS M & ASHLEY N GODDARD	243.68
596	12-2-14	DAVID L CUNNINGHAM	36.23
597	5-25-14.1	JUDITH L WEIGAND	65
598	5-25-12	MARION PARSONS JR, ET AL	85.16

02/23/2023

02/03/2023



P.S. 708 *David L Jackson*

LEGEND	
--- (dashed)	LEASED TRACTS
--- (dotted)	SURFACE TRACTS
--- (dash-dot)	WELL LATERAL
--- (long-dash)	POINT PLEASANT LEGS
---	UNIT BOUNDARY
(A)	LEASE # (SEE 6A1 FORM)
---	400' BORE PATH OFFSET
---	500' WELL BORE OFFSET
(F)	PROPOSED FIRST TAKE POINT
(L)	PROPOSED LAST TAKE POINT
(H)	FORCED POOL TRACT



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: ELMER N-18HU
DISTRICT: Proctor
COUNTY: Wetzel
STATE: WV
API #: 47-103-03467 MDD

WELL PLAT
PAGE 3 OF 4
DATE: 12/15/2021
REVISED: 10/20/2022

form .wv6

**ELMER LEASE
WELL N-18HU
310.9511± ACRES**

* FORCED POOLED TRACTS ARE HIGHLIGHTED

02/23/2023

Lease ID	Tag	Parcel	Grantor, Lessor, Etc.	Deed Book/Page	
10*31435	A	12-8-15	HENRY AND NANCY GARNER	55	394
10*31435	B	12-8-16	HENRY AND NANCY GARNER	55	394
10*40570	C	12-8-20	HUBERT D MORRIS, ET AL	295A	175
10*31435	D	12-8-21.1	HENRY AND NANCY GARNER	55	394
10*31435	E	12-8-32	HENRY AND NANCY GARNER	55	394
10*31435	F	12-8-23	HENRY AND NANCY GARNER	55	394
10*40155	G	12-8-17	ROY J GODDARD AND DOROTHY GODDARD	47A	197
10*40155	H	12-8-4	ROY J GODDARD AND DOROTHY GODDARD	47A	197
10*40155	I	12-8-4.5	ROY J GODDARD AND DOROTHY GODDARD	47A	197
10*40155	J	12-8-4.1	ROY J GODDARD AND DOROTHY GODDARD	47A	197
10*31435	K	12-8-2	HENRY AND NANCY GARNER	55	394
10*40155	L	12-8-4.3	ROY J GODDARD AND DOROTHY GODDARD	47A	197
10*31435	M	12-8-3	HENRY AND NANCY GARNER	55	394
10*31435	N	12-3-31	HENRY AND NANCY GARNER	55	394
10*31435	O	12-3-30.4	HENRY AND NANCY GARNER	55	394
10*24010	P	12-3-39.1	JOHN ROBINSON DAVIS, ET AL	215A	419
10*24010	Q	12-3-39	JOHN ROBINSON DAVIS, ET AL	215A	419
10*31435	R	12-3-30.4	HENRY AND NANCY GARNER, ET AL	55	394
10*31435	S	12-3-30.2	HENRY AND NANCY GARNER	55	394
10*31435	T	12-3-30	HENRY AND NANCY GARNER	55	394
10*31435	U	12-3-29	HENRY AND NANCY GARNER	55	394
10*21681	V	12-3-21	DOROTHY J HAAS, ET AL	214A	358
10*39720	W	12-3-14.1	FREDERICK J BAXTER, ET AL	273A	326
10*22229	X	12-3-13	MURIEL A MILLER, ET AL	204A	150
10*39720	Y	12-3-14	FREDERICK J BAXTER, ET AL	273A	326
10*39463	Z	12-3-4	J P COOPER ET AL	56	245
10*39463	AA	12-3-3.1	J P COOPER ET AL	56	245
10*39463	BB	12-3-2	J P COOPER ET AL	56	245
10*22496	CC	5-25-11.2	JAMES W KLUG	923	543
10*22496	DD	12-3-42	JAMES W KLUG	923	543



P.S. 708 *David L Jackson*

LEGEND	
	LEASED TRACTS
	SURFACE TRACTS
	WELL LATERAL
	POINT PLEASANT LEGS
	UNIT BOUNDARY
	LEASE # (SEE GA1 FORM)
	400' BORE PATH OFFSET
	500' WELL BORE OFFSET
	PROPOSED FIRST TAKE POINT
	PROPOSED LAST TAKE POINT

02/03/2023



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: ELMER N-18HU
DISTRICT: Proctor
COUNTY: Wetzel
STATE: WV
API #: 47-103-03467

WELL PLAT
PAGE 4 OF 4
DATE: 12/15/2021
REVISED: 10/20/2022

WW-6A1
(5/13)

Operator's Well No. Elmer N-18HU

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

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

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

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

RECEIVED
Office of Oil and Gas
OCT 21 2022
WV Department of
Environmental Protection

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

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

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

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

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

Parcel ID	TRIP	TRM	Grantor, Lessee, Etc.	Operator, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*21435	12-8-15	A	HENRY AND NANCY GARNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	
10*21435	12-8-16	B	HENRY AND NANCY GARNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	
10*40570	12-8-20	C	HUBERT D MORRIS	TH EXPLORATION LLC	1/8+	285A	175	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*40860	12-8-20	C	HAROLD P AND DOMINA SUE RICHMOND	ANTERO RESOURCES CORPORATION	1/8+	286A	814	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*40861	12-8-20	C	SW ANNU LLC	ANTERO RESOURCES CORPORATION	1/8+	289A	107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*40862	12-8-20	C	KRISTE L WILSON	ANTERO RESOURCES CORPORATION	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*40863	12-8-20	C	MARK R WILSON	ANTERO RESOURCES CORPORATION	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21435	12-8-21.1	D	HENRY AND NANCY GARNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	
10*21435	12-8-22	E	HENRY AND NANCY GARNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	
10*21435	12-8-23	F	HENRY AND NANCY GARNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	
10*40155	12-8-17	G	ROY J GODDARD AND DOROTHY GODDARD	THE MANUFACTURERS LIGHT AND HEAT COMPANY	1/8+	47A	197	J.A. Phillips to South Penn Oil Company; 56/724	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dabbs Snyder & Sam Beren aka Snyder & Beren; 39A/733	Dabbs Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, aka Snyder & Beren to John H Robinson & George F Eagon; 39A/738	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Larrigue, Carl L Eagon, Elva Robinson, Est of John H Robinson, Est of Elva Robinson, Est of Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Head & Henry R Cronin; 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed; 51A/741	Kathryn C Reed to Carl Perkins; 55A/754	Carl & Dorothy Louie Perkins to Perkins Oil and Gas Inc; 88A/79	Perkins Oil & Gas Inc to TH Exploration LLC; 251A/653	

02/23/2023

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Office of Oil and Gas

JAN 27 2023

ENVIRONMENTAL CONTROL

10740155	12-8-4	H	ROY J GOBOARD AND DOROTHY GOBOARD	THE MANUFACTURERS LIGHT AND HEAT	1/8+	47A	137	THE MANUFACTURERS LIGHT AND HEAT Company to Columbia Gas Transmission Corp. 263/764	Columbia Gas Transmission Corp to Columbia Natural Resources LLC. 84A/129	Columbia Natural Resources LLC to Chesapeake Appalachia LLC. 402/446	Chesapeake Appalachia LLC to Statoil/USDA USA Onshore Properties Inc. 97A/578	Chesapeake Appalachia LLC to SWN Production Company LLC. 157A/540	Statoil USA Properties Inc. to SWN Exchange. 158A/601	Merger - SWN Exchange. The holder LLC with and into SWN Production Company LLC. CB 13/296	Chesapeake Appalachia LLC to SWN Production Company LLC. 176A/717	Equator USA Onshore Properties Inc. to TH Exploration LLC. 291A/39	SWN Production Company LLC to TH Exploration LLC. 291A/39		
10740155	12-8-4.5	I	ROY J GOBOARD AND DOROTHY GOBOARD	THE MANUFACTURERS LIGHT AND HEAT	1/8+	47A	197	THE MANUFACTURERS LIGHT AND HEAT Company to Columbia Gas Transmission Corp. 263/764	Columbia Gas Transmission Corp to Columbia Natural Resources LLC. 84A/129	Columbia Natural Resources LLC to Chesapeake Appalachia LLC. 402/446	Chesapeake Appalachia LLC to Statoil/USDA USA Onshore Properties Inc. 97A/578	Chesapeake Appalachia LLC to SWN Production Company LLC. 157A/540	Statoil USA Properties Inc. to SWN Exchange. 158A/601	Merger - SWN Exchange. The holder LLC with and into SWN Production Company LLC. CB 13/296	Chesapeake Appalachia LLC to SWN Production Company LLC. 176A/717	Equator USA Onshore Properties Inc. to TH Exploration LLC. 291A/39	SWN Production Company LLC to TH Exploration LLC. 291A/39		
10740155	12-8-4.3	I	ROY J GOBOARD AND DOROTHY GOBOARD	THE MANUFACTURERS LIGHT AND HEAT	1/8+	47A	197	THE MANUFACTURERS LIGHT AND HEAT Company to Columbia Gas Transmission Corp. 263/764	Columbia Gas Transmission Corp to Columbia Natural Resources LLC. 84A/129	Columbia Natural Resources LLC to Chesapeake Appalachia LLC. 402/446	Chesapeake Appalachia LLC to Statoil/USDA USA Onshore Properties Inc. 97A/578	Chesapeake Appalachia LLC to SWN Production Company LLC. 157A/540	Statoil USA Properties Inc. to SWN Exchange. 158A/601	Merger - SWN Exchange. The holder LLC with and into SWN Production Company LLC. CB 13/296	Chesapeake Appalachia LLC to SWN Production Company LLC. 176A/717	Equator USA Onshore Properties Inc. to TH Exploration LLC. 291A/39	SWN Production Company LLC to TH Exploration LLC. 291A/39		
10731435	12-3-30.2	3	HENRY AND NANCY GARNER	J A PHILLIPS	1/8+	55	394	J A Phillips to South Penn Oil Company. 56/784	South Penn Oil Company to South Penn Natural Gas Company. 33A/455	South Penn Natural Gas Company to Dallas Snyder & Saml. Beren aka Snyder & Beren. 39A/733	Dallas Snyder & Murch C Snyder, Sam Beren & Sarah Beren, aka Snyder and Beren to John H Robinson & George F Emgen. 39A/738	John H Robinson, Blanche Emgen, Est of George F Emgen, deed, Mildred M Lantique, Carl Emgen, Eva Robinson, Est of John H Robinson, Deed to Eva Emgen DAVIS. 43A/440	Eva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Reed & Kathryn C Reed. 44A/792	Katherine A & Henry R Cronin Jr to Charles E & Kathryn C Reed. 51A/241	Kathryn C Reed to Carl Emgen. 55A/454	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc. 64A/9	Perkins Oil & Gas Inc. to TH Exploration LLC. 251A/463		
10714135	12-3-26	U	HENRY AND NANCY GARNER	J A PHILLIPS	1/8+	55	394	J A Phillips to South Penn Oil Company. 56/784	South Penn Oil Company to South Penn Natural Gas Company. 33A/455	South Penn Natural Gas Company to Dallas Snyder & Saml. Beren aka Snyder & Beren. 39A/733	Dallas Snyder & Murch C Snyder, Sam Beren & Sarah Beren, aka Snyder and Beren to John H Robinson & George F Emgen. 39A/738	John H Robinson, Blanche Emgen, Est of George F Emgen, deed, Mildred M Lantique, Carl Emgen, Eva Robinson, Est of John H Robinson, Deed to Eva Emgen DAVIS. 43A/440	Eva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Reed & Kathryn C Reed. 44A/792	Katherine A & Henry R Cronin Jr to Charles E & Kathryn C Reed. 51A/241	Kathryn C Reed to Carl Emgen. 55A/454	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc. 64A/9	Perkins Oil & Gas Inc. to TH Exploration LLC. 251A/463		
1071581	12-3-21	V	ROBERT J HAYS	TH EXPLORATION LLC	1/8+	214A	316	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1072329	12-3-21	V	NATHAN A MILLER	TH EXPLORATION LLC	1/8+	204A	146	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072330	12-3-21	V	JOHN S GARNER	TH EXPLORATION LLC	1/8+	204A	146	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072380	12-3-21	V	FRANK T LARO & MEREDITH LARO	TH EXPLORATION LLC	1/8+	204A	146	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072381	12-3-21	V	JOHN M PARSONS & ANTONETTE L COSMANTINO	TH EXPLORATION LLC	1/8+	209A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072382	12-3-21	V	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072383	12-3-21	V	HERBERT L MILLER AND BRENDON S MILLER	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072384	12-3-21	V	STORIE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072385	12-3-21	V	VIVIANA A PARSONS	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072386	12-3-21	V	RYCHARD ALLEN FOMMER AND TIMOTHY M FOMMER	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072387	12-3-21	V	BRENDON S FOMMER	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072388	12-3-21	V	FREDERICK R FOMMER AND FENILOPE G FOMMER	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072389	12-3-21	V	JOHN E FOMMER AND MICHELLE D FOMMER	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072390	12-3-21	V	ROY C PARSONS	TH EXPLORATION LLC	1/8+	215A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072391	12-3-21	V	THOMAS E ALLOMAN	TH EXPLORATION LLC	1/8+	214A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072392	12-3-21	V	FRANKS E ALLOMAN	TH EXPLORATION LLC	1/8+	220A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072393	12-3-21	V	CHRISTOPHER TILLYMAN AND KELLY L TILLYMAN	TH EXPLORATION LLC	1/8+	225A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072394	12-3-21	V	ROBERT FRANKLIN H FOMMER AND KARRIN FOMMER	TH EXPLORATION LLC	1/8+	225A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072395	12-3-21	V	JOHN IHAKIOTOVA AND CHARLOTTE IHAKIOTOVA	TH EXPLORATION LLC	1/8+	229A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072396	12-3-21	V	BETTY LANE REICHARDSON FOMMER	TH EXPLORATION LLC	1/8+	232A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072397	12-3-21	V	BETTY LANE REICHARDSON FOMMER	TH EXPLORATION LLC	1/8+	232A	147	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072398	12-3-21	V	CHRISTINE C CONNOR AND WILLIAM RYLE CONNOR	TH EXPLORATION LLC	1/8+	234A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1072399	12-3-21	V	CHRISTINE C CONNOR AND WILLIAM RYLE CONNOR	TH EXPLORATION LLC	1/8+	234A	148	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10740154	12-3-21	V	LEONOLDO	TH EXPLORATION LLC	1/8+	283A	230	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10740155	12-3-21	V	ORICO LLC	TH EXPLORATION LLC	1/8+	283A	233	TH EXPLORATION LLC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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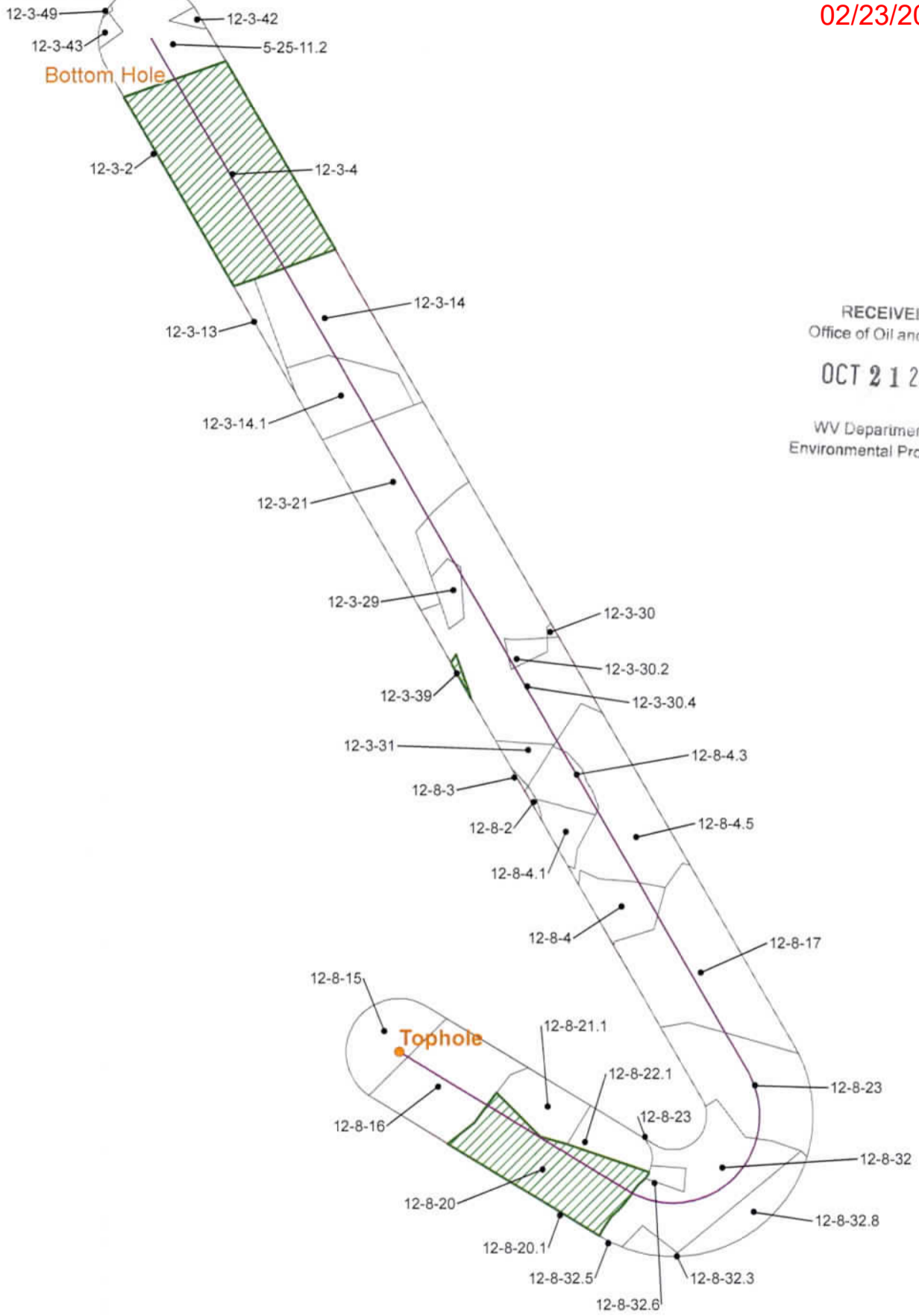
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10721440	12-3-21	V	RACHEL AND JACOB CORFIELD	J.A. PHILLIPS	1/8+	55	329	N/A	N/A	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dallas Snyder & Sam Beren dba Snyder & Beren; 39A/73	Dallas Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon; 39A/78	John H Robinson, Beren-Eagon, Est of George f Antigua, Carl E Eagon, Elva Robinson, Est of John H Robinson, decd, & Mary Ellen Davis to Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Reed & Henry R Crown; 44A/312	Katherine A & Henry R Crown Jr to Charles E & Andrew L Reed; 51A/243	The Manufacturers Light & Heat Company to Columbia Gas Transmission Corp; 263/164	Name Change - Columbia Gas Transmission Corporation changed its name to Columbia Gas Transmission LLC; 1/30/2009	Columbia Gas Transmission, LLC to TH Exploration - PETROLEUM RECORDING
10721440	12-3-21	V	RACHEL AND JACOB CORFIELD	J.A. PHILLIPS	1/8+	55	329	J.A. Phillips to South Penn Oil Company; 56/284	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dallas Snyder & Sam Beren dba Snyder & Beren; 39A/73	Dallas Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon; 39A/78	John H Robinson, Blanche Eagon, Est of George f Eagon, decd, Mildred M Lanique, Carl E Eagon, Elva Robinson, Est of John H Robinson, decd, & Mary Ellen Davis to Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Reed & Henry R Crown; 44A/312	Katherine A & Henry R Crown Jr to Charles E & Andrew L Reed; 51A/243	Merger - Columbia Gas Transmission, LLC to TH Exploration LLC; 2/20/2019	Perkins Oil & Gas Inc to TH Exploration LLC; 2/20/2019		
10721435	12-3-21	V	HENRY AND MARCE GABNER	J.A. PHILLIPS	1/8+	55	394	J.A. Phillips to South Penn Oil Company; 56/284	South Penn Oil Company to South Penn Natural Gas Company; 33A/455	South Penn Natural Gas Company to Dallas Snyder & Sam Beren dba Snyder & Beren; 39A/73	Dallas Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon; 39A/78	John H Robinson, Blanche Eagon, Est of George f Eagon, decd, Mildred M Lanique, Carl E Eagon, Elva Robinson, Est of John H Robinson, decd, & Mary Ellen Davis to Elva Robinson & Mary Ellen Davis; 43A/440	Elva Robinson & Mary Ellen Davis to Andrew L Henry, Charles E Reed & Henry R Crown; 44A/312	Katherine A & Henry R Crown Jr to Charles E & Andrew L Reed; 51A/243	Merger - Columbia Gas Transmission, LLC to TH Exploration LLC; 2/20/2019	Perkins Oil & Gas Inc to TH Exploration LLC; 2/20/2019		
10721430	12-3-21	W	HERBERT BAUER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10721425	12-3-21	W	ROBERT W BAUER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10721420	12-3-21	W	SAMUEL LUNGER AND ARTHUR L LUNGER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10721415	12-3-21	Y	FREDERICK BAUER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10721410	12-3-21	Y	ROBERT W BAUER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10721405	12-3-21	Y	ANN C LUNGER AND ARTHUR L LUNGER	THE EDUCATION LLC	1/8+	72A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10722496	5-25-11-2	CC	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923	583	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Coordinate System: NAD 83 UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983
 Prime Meridian: 146° 00' 00.000"
 False Easting: 500000
 False Northing: 0
 Scale Factor: 0.9996
 UTM Zone ID Number: 17N
 Units: Meter

CONFIDENTIAL

-  Utica Well
-  Force Pool
-  500' Buffer



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Elmer N-18HU
 Operators within 500 Feet of Well Borehole

**Operators within 500' of Well Bores
Elmer N - 18HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER OR LESSEE	ADDRESS
WETZEL	PROCTOR	12-3-13	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-14	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107 02/23/2023
WETZEL	PROCTOR	12-3-14.1	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-2	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-21	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-29	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-30	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-30.2	TH Exploration, LLC	1320 S. University Blvd Suite 500
WETZEL	PROCTOR	12-3-30.4	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-31	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-39	Anthony Reynolds	29 WEST MAIN STREET, FORDSVILLE, KY 42343
WETZEL	PROCTOR	12-3-39	Conklin Center for the Multi- handicapped Blind	405 WHITE STREET, DAYTONA BEACH, FL 32114
WETZEL	PROCTOR	12-3-39	Darcy Hileman	237 NAVAHO HALLOW RD., FAYETTE CITY, PA 15438
WETZEL	PROCTOR	12-3-39	David E. Hinerman	2546 NATIONAL RD., APT 309, WHEELING, WV 26003
WETZEL	PROCTOR	12-3-39	DWG Oil and Gas Acquisitions, LLC	356 NICHOLSON LOOP ROAD, MORGANTOWN, WV 26508
WETZEL	PROCTOR	12-3-39	Elizabeth M. Gentry	UNKNOWN & UNLOCATABLE
WETZEL	PROCTOR	12-3-39	Gary L. Archer and Kelly Archer	1563 HAROLD SIKES ROAD CLAXTON, GA 30417
WETZEL	PROCTOR	12-3-39	Harold Coffield Jr	P.O. BOX 293236, PHELAN, CA 92329
WETZEL	PROCTOR	12-3-39	Herman Eugene Coffield	3502 PLAUDIT PLACE, OWENSBORO, KY 42303
WETZEL	PROCTOR	12-3-39	Humane Society Environmental Defense Fund	257 PARK AVENUE SOUTH, NEW YORK, NY 10010
WETZEL	PROCTOR	12-3-39	James Coffield, aka John J. Coffield	3889 COUNTY ROAD, APT. 26, WADLEY, AL 36276
WETZEL	PROCTOR	12-3-39	Janice Bogess Westerman	1208 POPLAR COURT, GREENEVILLE, TN 37743
WETZEL	PROCTOR	12-3-39	Jodie Mullens, a/k/a Greta Jo Mullens	808 TEAGUE DRIVE, TALLAHASSEE, FL 32303
WETZEL	PROCTOR	12-3-39	John J. Coffield	3889 COUNTY ROAD, APT. 26, WADLEY, AL 36276 02/03/2023
WETZEL	PROCTOR	12-3-39	Joyce Ann Dougherty	4277 LIVORN LOOP, MYRTLE BEACH, SC 29579
WETZEL	PROCTOR	12-3-39	Julie Garber	P.O. BOX 326, 60 MANSEL DRIVE, LANDING, NJ 07850

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WETZEL	PROCTOR	12-3-39	Karen Sue Gray and James Edward Gray, Jr.	174 IDABELLE AVENIE, WHEELING, WV 26003
WETZEL	PROCTOR	12-3-39	Kathi Davidson	4996 SABLE PINE CIRCLE, APT. A1, WEST PALM BEACH, FL 33417
WETZEL	PROCTOR	12-3-39	Kathryn McKinnon	17 IRONWOOD ROAD, MORRISTOWN, NJ 07960
WETZEL	PROCTOR	12-3-39	Lawrence P. Lemon	76 THOMAS LANE, NEW MARTINSVILLE, WV 26155
WETZEL	PROCTOR	12-3-39	Lee Ann Horn	767 4TH ST., NEW MARTINSVILLE, WV 26155
WETZEL	PROCTOR	12-3-39	Linda Archer	874 GARY BARNARD ROAD, COBBTOWN, GA 30420
WETZEL	PROCTOR	12-3-39	Memorial Cemetery Association (Williams Cemetery)	253 DUERR STREET, NEW MARTINSVILLE, WV 26155
WETZEL	PROCTOR	12-3-39	Nellie L. Hawkins	3607 SUNSET DRIVE, HOMESTEAD, PA 15120
WETZEL	PROCTOR	12-3-39	Ramona Milton	1515 VICTORIA WOODS, HIAWASSEE, GA 30546
WETZEL	PROCTOR	12-3-39	Rebecca Haugen	39627 BOUQUET CANYON RD., LEONA VALLEY, CA 93351
WETZEL	PROCTOR	12-3-39	Richard M. Coffield	186 GENERAL CLEBURN DRIVE, RICHMOND, KY 40475
WETZEL	PROCTOR	12-3-39	Robert John Weishaupt	2001 COOK MILL ROAD, DANDRIDGE, TN 37725
WETZEL	PROCTOR	12-3-39	Robert T. Coffield	302 RICHMOND STREET, LANCASTER, KY 40444
WETZEL	PROCTOR	12-3-39	Ronald Louis Hawkins	573 WHIPPOORWILL TRAIL, WEST PALM BEACH, FL 33411
WETZEL	PROCTOR	12-3-39	Roxanna Miller	94 COUNTRY LANE, SEDONA, AZ 86336
WETZEL	PROCTOR	12-3-39	Sandy L. Behrems	2122 UNION HILL, TRIADELPHIA, WV 26059
WETZEL	PROCTOR	12-3-39	Terry R. Corn	4854 HIGHLANDS PLACE DRIVE, LAKE LAND, FL 33813
WETZEL	PROCTOR	12-3-39	The First Church of Christ Scientist, Massachusetts, in memory of Mabel Funk Potts and Helen Potts Westerman	250 MASSACHUSETTS AVENUE, BOSTON, MA 02115
WETZEL	PROCTOR	12-3-39	The unknown heirs, successors or assigns of Harlie Ike Corn	UNKNOWN & UNLOCATABLE
WETZEL	PROCTOR	12-3-39	Thomas Roos Potts and Susan Potts	134 PINE STREET, GREAT BARRINGTON, MA 01230
WETZEL	PROCTOR	12-3-39	Unknown Heirs of Betty J. Coffield	UNKNOWN & UNLOCATABLE
WETZEL	PROCTOR	12-3-39	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-4	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-42	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-43	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-49	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107

**Operators within 500' of Well Bores
Elmer N - 18HU**

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WETZEL	PROCTOR	12-8-15	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-16	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-17	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-2	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-20	EQT Production Company	625 LIBERTY AVE. SUITE 1700 PITTSBURGH, PA 15222
WETZEL	PROCTOR	12-8-20	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-20.1	EQT Production Company	625 LIBERTY AVE. SUITE 1700 PITTSBURGH, PA 15222
WETZEL	PROCTOR	12-8-21.1	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-22.1	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-23	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-3	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-32	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-32.3	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-32.5	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-32.6	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-32.8	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-4	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-4.1	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-4.3	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107

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WETZEL	PROCTOR	12-8-4.5	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	5-25-11.2	TH Exploration, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107

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For those parties identified as Missing or Address Unknown, the following actions were performed in pursuit of locating these individuals : A reasonable review of the records of the clerk of the county commission, the sheriff, the assessor, and the clerk of the circuit court in the county in which the interest is located, and includes unknown heirs, successors and assigns known to be alive; A reasonable inquiry in the vicinity of the owner's last known place of residence; A diligent inquiry into known interest owners in the same tract; and A reasonable review of available Internet resources commonly utilized by the industry.

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MEMORANDUM OF PARTIAL ASSIGNMENT OF OIL AND GAS LEASES

STATE OF WEST VIRGINIA §
 §
COUNTY OF WETZEL §

This **MEMORANDUM OF PARTIAL ASSIGNMENT OF OIL AND GAS LEASES** (hereinafter, the "Memorandum") has been executed by and between PERKINS OIL & GAS, INC., a West Virginia corporation, whose address is 2966 Northwest Turnpike, Pennsboro, West Virginia 26415 (hereinafter the "Assignor"), and TH EXPLORATION, LLC, a Texas limited liability company (hereinafter the "Assignee") whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107. Assignor and Assignee are sometimes referred to herein, collectively, as the "Parties" and, individually, as a "Party." This Memorandum is being executed for the purpose of providing notice to third parties of the execution of a certain Partial Assignment of Oil and Gas Leases (hereinafter, the "Assignment"), by and between the Parties.

WHEREAS, Assignor is the current owner and lessee of certain oil and gas leases located in Wetzel County, West Virginia, covering specific parcels and being more particularly described on **Exhibit "A"** attached hereto and made a part hereof (collectively, the "Oil and Gas Leases").

In the Assignment dated effective as of the 15th day of October, 2020 (hereinafter, the "Effective Date") and this Memorandum, Assignor does hereby **GRANT, BARGAIN, SELL, CONVEY, TRANSFER and ASSIGN** unto Assignee, all right, title and interest in and to the Oil and Gas Leases **INSOFAR AND ONLY INSOFAR** as each lease and parcel covers those formations lying between two hundred (200) feet above and two hundred (200) feet below the formations commonly known to as the Utica/Point Pleasant Shale formations, or the stratigraphic equivalent thereof (such depths and formations being referred to as the "Assigned Formations"). The Assigned Formations are included with and part of the Assigned Rights as defined in the Assignment.

EXCLUDING THEREFROM AND EXCEPTING AND RESERVING UNTO THE ASSIGNOR, ITS SUCCESSORS AND ASSIGNS, THE OVERRIDING ROYALTY INTEREST, as defined in the Assignment.

The Assignment contains various other terms, provisions and conditions, all of which are incorporated herein by reference, and made a part hereof in all respects as though the same were fully set forth herein. To the extent that there are any inconsistencies between this Memorandum and the Assignment, the terms and provisions of the Assignment shall prevail.

Assignor does hereby bind itself and its successors and assigns to warrant and forever defend all and singular title to the Assigned Formations unto Assignee and Assignee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by through, or under Assignor, but not otherwise.

This Memorandum is made expressly subject to the terms and conditions of the Purchase and Sale Agreement dated June, 24, 2020, by and between the Parties, all of which are fully incorporated herein by reference (the "Purchase Agreement").

This Memorandum may be executed in multiple counterparts, each of which shall be deemed an original instrument, but all such counterparts together shall constitute but one agreement.

[TWO SIGNATURE PAGES TO FOLLOW]

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COUNTY OF WETZEL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "**Assignment**") is made and entered into this 18th day of May, 2018, and made effective December 12, 2017 (the "**Effective Date**"), by and between AMERICAN PETROLEUM PARTNERS OPERATING, LLC, (hereinafter "**Assignor**") and TH EXPLORATION, LLC (hereinafter "**Assignee**") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated December 12, 2017 (the "**Acreage Trade Agreement**"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

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

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

1. **Assignment.** Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon.

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

2: **Special Warranty.** Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the

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WV-AC1R-0009

02/03/2023

SARAH CRANGANU
DPS LAND SERVICES
6000 TOWN CENTER BLVD
STE 145
CANDONSBURG PA 15317-5941

02/23/2023

ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from EQUINOR USA ONSHORE PROPERTIES INC., a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on June 8, 2022 (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 March 25, 2022 (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 and Exhibit A-1 (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.

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SARAH CRANGANU
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6000 TOWN CENTER BLVD
STE 145
CANDONSBURG PA 15317-5841

02/23/2023

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 June 8th, 2022 (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 March 25, 2022 (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 and Exhibit A-1 (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.

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02/03/2023

ASSIGNMENT AND CONVEYANCE OF OIL AND GAS LEASES

STATE OF WEST VIRGINIA §
COUNTY OF WETZEL §§
§

This Assignment and Conveyance of Oil and Gas Leases (this "Assignment"), dated effective as of August 30, 2022, at 7:00 a.m. Central Time (the "Effective Time"), is made by **Antero Resources Corporation**, a Delaware corporation, whose address is 1615 Wynkoop Street, Denver, CO 80202 ("Assignor"), to **TH Exploration, LLC**, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 ("Assignee"). Assignor and Assignee are sometimes referred to herein together as the "Parties" and individually as a "Party."

WHEREAS, Assignor owns an undivided working interest in the Leases (as defined below).

WHEREAS, Assignor desire to assign to Assignee, and Assignee desires to accept such assignment of, the Leasehold Rights (as defined below), as more particularly described in this Assignment.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor does hereby GRANT, BARGAIN, TRANSFER, ASSIGN and CONVEY to Assignee 100% of Assignor's right, title and interest in and to the following (in each case, less and except the Excluded Assets):

- (a) those oil and gas leases located described in more detail on Exhibit A-Part I attached hereto, and further including the leasehold estates created thereby and all renewals, amendments, extensions and top leases thereof entered into prior to the Effective Time;
- (b) those oil and gas leases described on Exhibit A-Part II, INsofar AND ONLY INsofar as to those lands expressly designated as "Conveyed Interests" on such Exhibit A-Part II (the oil and gas leases described on Exhibit A-Part I and Exhibit A-Part II, collectively, the "Leases" and 100% of Assignor's right title and interest into the Leases, and as so limited, the "Leasehold Rights"); and
- (c) the Records.

This Assignment is further made subject to the following:

1. **Assignment Subject to 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, dated August 30, 2022, by and between Assignor and Assignee (as the same may be amended from time to time, the "Trade Agreement"). In the event of a conflict

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