



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

Thursday, October 20, 2022
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-16HU
47-103-03504-00-00

Extend Lateral, Horizontal Leg Length to 10976.63'. Total Measured Depth to 23525'. Updated Lease Chain

TUG HILL OPERATING, LLC

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

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

A blue ink signature of James A. Martin, Chief, is written over a white background.

James A. Martin
Chief

Operator's Well Number: ELMER N-16HU
Farm Name: ELNORA TUTTLE
U.S. WELL NUMBER: 47-103-03504-00-00
Horizontal 6A New Drill
Date Modification Issued: 10/20/2022

Promoting a healthy environment.

10/21/2022



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

October 12, 2022

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

RE: Application for Deep Well Permit – API #47-103-03504

COMPANY: Tug Hill Operating, LLC

FARM: Elnora Tuttle Elmer N-16HU 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 308-312

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? Yes, but withdrawn.
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

**Elmer N-18HU 47-103-03467; Elmer N-17HU 47-103-03505; Elmer N-15HU 47-103-03503; Elmer N-14HU 47-103-03502; Burch Ridge S-6HU 47-051-02193; Burch Ridge S-7HU 47-051-02194; McMasters S-16HU 47-051-02337; McMasters S-17HU 47-051-02338; McMasters S-18HU 47-051-02339; McMasters S-19HU 47-051-02340; Hillrock S-12HU 47-051-02272; Hillrock S-13HU 47-051-02273; Hillrock S-14HU 47-051-02262; Hillrock S-15HU 47-051-02263; Simms U-5H 47-051-0731

10/21/2022

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-16HU Well Pad Name: Elmer

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

4) Elevation, current ground: 1,308.88' Elevation, proposed post-construction: 1,276.50'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow _____ Deep

Horizontal

*Clk #
058340
\$2500^m*

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 11,677' - 11,796', thickness of 119' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,946'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 23,525'

11) Proposed Horizontal Leg Length: 10,976.63'

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: _____

RECEIVED
Office of Oil and Gas
AUG 19 2022
WV Department of
Environmental Protection

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#	10,905'	10,905'	3,562ft ³ (CTS)
Production	5 1/2"	NEW	P110	23#	23,525'	23,525'	5,575ft ³ (CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,191'	
Liners							

Kevin L. Reynolds 7-28-22

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							

PACKERS

Kind:	N/A			
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(10,691'). 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 27,500,000 lb. proppant and 500,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 26.11 acres

22) Area to be disturbed for well pad only, less access road (acres): 7.63 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

*Note: Attach additional sheets as needed.

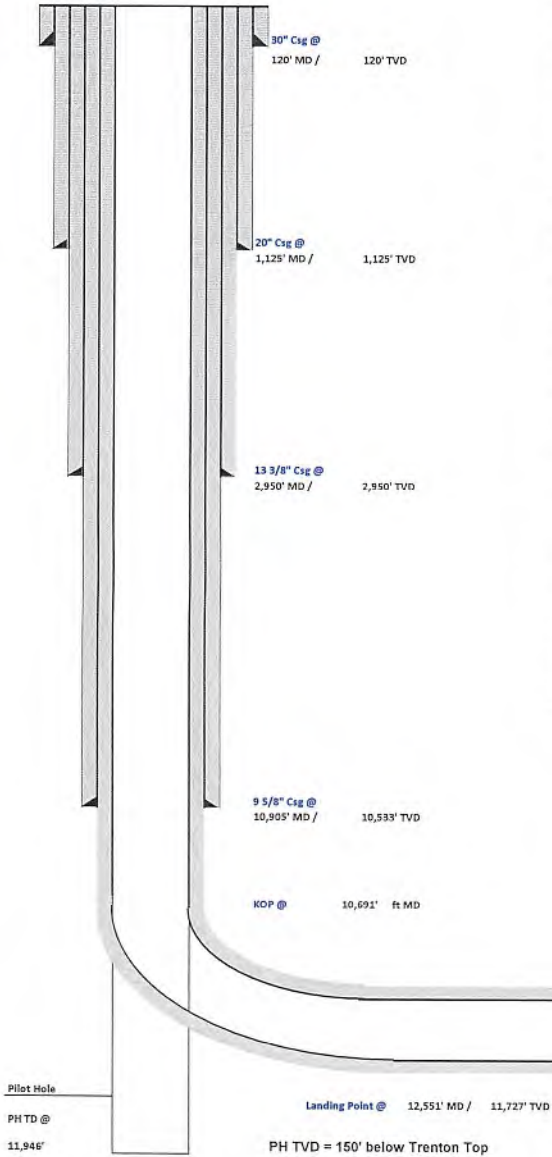


WELL NAME: Elmer N-16HU
STATE: WV **COUNTY:** Wetzel
DISTRICT: Proctor
DF Elev: 1,277' **GL Elev:** 1,277'
TD: 23,525'
TH Latitude: 39.69393577
TH Longitude: -80.73752767
BH Latitude: 39.718562
BH Longitude: -80.754829

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1,009'
Sewickley Coal	909'
Pittsburgh Coal	1,003'
Big Lime	2,178'
Berea	2,821'
Tully	6,733'
Marcellus	6,814'
Onondaga	6,864'
Salina	7,451'
Lockport	8,598'
Utica	11,433'
Point Pleasant	11,677'
Landing Depth	11,727'
Trenton	11,796'
Pilot Hole TD	11,946'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	1,125'	1,125'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,950'	2,950'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,905'	10,533'	47	HPP110	Surface
Production	8 1/2	5 1/2	23,525'	11,535'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Type	Sacks	Class	Density (ppg)	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,943	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,253	A	15.6	Air	1 Centralizer every other joint
Intermediate 2	3,239	A	14.5	Air	1 Centralizer every other joint
Production	5,697	A	16.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface





Tug Hill Operating, LLC Casing and Cement Program

Elmer N-16HU

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"	10,905'	CTS
Production	5 1/2"	HCP110	8 1/2"	23,525'	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



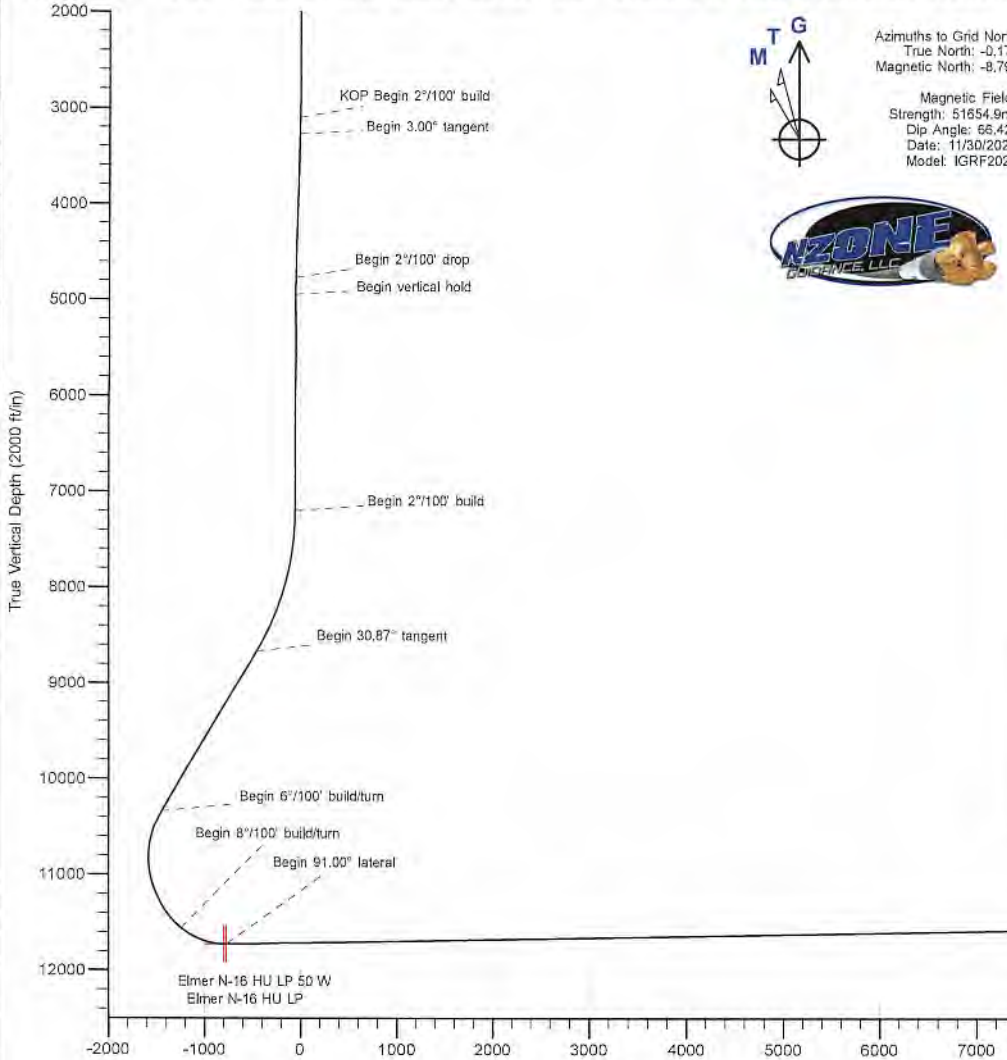
Well: Elmer N-16 HU (slot L)
 Site: Elmer
 Project: Wetzel County, West Virginia (UTM17 NAD83)
 Design: rev1

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Elmer N-16 HU BHL	11535.00	8953.21	-4891.35	14415394.082	1714249.463	39.718562000	-80.754829000
- plan hits target center							
Elmer N-16 HU LP	11727.00	-571.27	607.51	14414822.818	1714856.976	39.692362000	-80.735374000
- plan misses target center by 43.40ft at 12525.99ft MD (11727.01 TVD, -592.78 N, 569.82 E)							
Elmer N-16 HU LP 50 W	11727.00	-571.27	557.51	14414822.818	1714806.977	39.692362405	-80.735551740
- plan misses target center by 0.01ft at 12550.78ft MD (11727.00 TVD, -571.26 N, 557.52 E)							

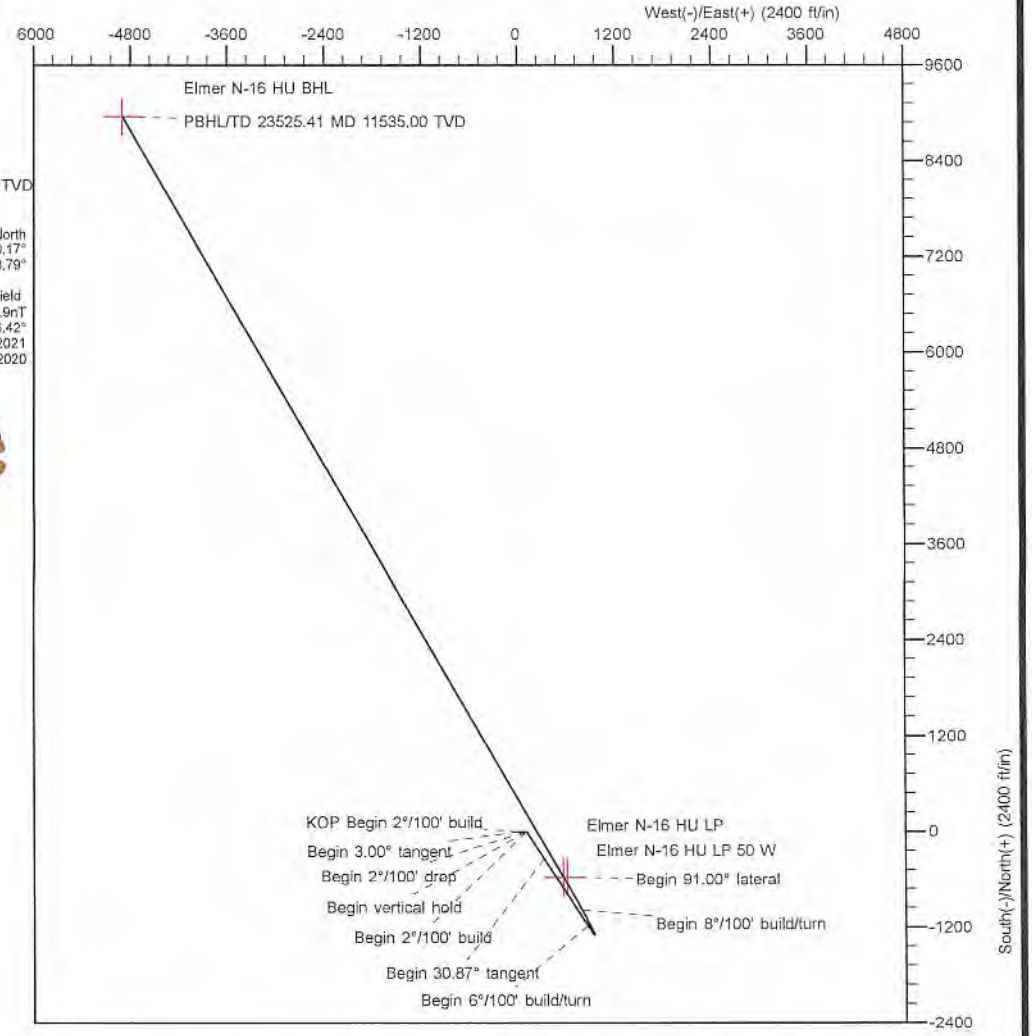
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	3102.00	0.00	0.00	3102.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	3277.00	3.50	90.00	3276.89	0.00	5.34	2.00	90.000	-2.56	Begin 3.00° tangent
4	4777.00	3.50	90.00	4774.09	0.00	96.92	0.00	0.000	-46.47	Begin 2°/100' drop
5	4952.00	0.00	90.00	4948.98	0.00	102.26	2.00	180.000	-49.03	Begin vertical hold
6	7205.02	0.00	90.00	7202.00	0.00	102.26	0.00	90.000	-49.03	Begin 2°/100' build
7	8748.62	30.87	147.36	8671.99	-341.81	321.17	2.00	147.362	-453.94	Begin 30.87° tangent
8	10691.19	30.87	147.36	10339.32	-1181.19	858.75	0.00	0.000	-1448.30	Begin 6°/100' build/turn
9	12037.99	50.00	331.65	11559.46	-964.43	788.02	6.00	-176.674	-1241.72	Begin 8°/100' build/turn
10	12550.78	91.00	330.23	11727.00	-571.26	557.52	8.00	-2.169	-768.62	Begin 91.00° lateral
11	23525.41	91.00	330.23	11535.00	8953.21	-4891.35	0.00	0.000	10202.72	PBHL/TD 23525.41 MD 11535.00 TVD



Azimuths to Grid North
 True North: -0.17°
 Magnetic North: -8.79°

Magnetic Field
 Strength: 51854.9nT
 Dip Angle: 66.42°
 Date: 11/30/2021
 Model: IGRF2020



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: 14415394.082 Easting: 1714249.463 Latitude: 39.692362770 Longitude: -80.737527670

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.734



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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-16 HU (slot L)					
Well Position	+N/-S	0.00 ft	Northing:	14,415,394.082 usft	Latitude:	39.693935770
	+E/-W	0.00 ft	Easting:	1,714,249.462 usft	Longitude:	-80.737527670
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	-8.626	66.424	51,654.86130262

Design	rev1			
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	331.35

Plan Survey Tool Program	Date				
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	23,525.41 rev1 (Original Hole)			



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,102.00	0.00	0.00	3,102.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,277.00	3.50	90.00	3,276.89	0.00	5.34	2.00	2.00	0.00	90.000	
4,777.00	3.50	90.00	4,774.09	0.00	96.92	0.00	0.00	0.00	0.000	
4,952.00	0.00	90.00	4,948.98	0.00	102.26	2.00	-2.00	0.00	180.000	
7,205.02	0.00	90.00	7,202.00	0.00	102.26	0.00	0.00	0.00	90.000	
8,748.62	30.87	147.36	8,671.99	-341.81	321.17	2.00	2.00	0.00	147.362	
10,691.19	30.87	147.36	10,339.32	-1,181.19	858.75	0.00	0.00	0.00	0.000	
12,037.99	50.00	331.65	11,559.46	-984.43	788.02	6.00	1.42	-13.05	-176.674	
12,550.78	91.00	330.23	11,727.00	-571.26	557.52	8.00	8.00	-0.28	-2.169	
23,525.41	91.00	330.23	11,535.00	8,953.21	-4,891.35	0.00	0.00	0.00	0.000	Elmer N-16 HU BHL



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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	0.00	0.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
100.00	0.00	0.00	100.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
200.00	0.00	0.00	200.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
300.00	0.00	0.00	300.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
400.00	0.00	0.00	400.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
500.00	0.00	0.00	500.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
600.00	0.00	0.00	600.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
700.00	0.00	0.00	700.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
800.00	0.00	0.00	800.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
900.00	0.00	0.00	900.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
3,102.00	0.00	0.00	3,102.00	0.00	0.00	14,415,394.082	1,714,249.462	39.693935770	-80.737527670	
KOP Begin 2°/100' build										
3,200.00	1.96	90.00	3,199.98	0.00	1.68	14,415,394.082	1,714,251.138	39.693935756	-80.737521712	
3,277.00	3.50	90.00	3,276.89	0.00	5.34	14,415,394.082	1,714,254.806	39.693935727	-80.737508675	
Begin 3.00° tangent										
3,300.00	3.50	90.00	3,299.85	0.00	6.75	14,415,394.082	1,714,256.210	39.693935715	-80.737503684	
3,400.00	3.50	90.00	3,399.66	0.00	12.85	14,415,394.082	1,714,262.315	39.693935666	-80.737481981	
3,500.00	3.50	90.00	3,499.48	0.00	18.96	14,415,394.082	1,714,268.420	39.693935617	-80.737460279	
3,600.00	3.50	90.00	3,599.29	0.00	25.06	14,415,394.082	1,714,274.524	39.693935568	-80.737438577	
3,700.00	3.50	90.00	3,699.10	0.00	31.17	14,415,394.082	1,714,280.629	39.693935519	-80.737416875	
3,800.00	3.50	90.00	3,798.92	0.00	37.27	14,415,394.082	1,714,286.734	39.693935470	-80.737395172	
3,900.00	3.50	90.00	3,898.73	0.00	43.38	14,415,394.082	1,714,292.839	39.693935421	-80.737373470	
4,000.00	3.50	90.00	3,998.54	0.00	49.48	14,415,394.082	1,714,298.944	39.693935372	-80.737351768	
4,100.00	3.50	90.00	4,098.36	0.00	55.59	14,415,394.082	1,714,305.049	39.693935323	-80.737330066	
4,200.00	3.50	90.00	4,198.17	0.00	61.69	14,415,394.082	1,714,311.154	39.693935274	-80.737308363	
4,300.00	3.50	90.00	4,297.98	0.00	67.80	14,415,394.082	1,714,317.258	39.693935225	-80.737286661	
4,400.00	3.50	90.00	4,397.80	0.00	73.90	14,415,394.082	1,714,323.363	39.693935176	-80.737264959	
4,500.00	3.50	90.00	4,497.61	0.00	80.01	14,415,394.082	1,714,329.468	39.693935126	-80.737243257	
4,600.00	3.50	90.00	4,597.42	0.00	86.11	14,415,394.082	1,714,335.573	39.693935077	-80.737221555	
4,700.00	3.50	90.00	4,697.24	0.00	92.22	14,415,394.082	1,714,341.678	39.693935028	-80.737199852	
4,777.00	3.50	90.00	4,774.09	0.00	96.92	14,415,394.082	1,714,346.378	39.693934990	-80.737183142	
Begin 2°/100' drop										
4,800.00	3.04	90.00	4,797.06	0.00	98.23	14,415,394.082	1,714,347.690	39.693934980	-80.737178478	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,900.00	1.04	90.00	4,896.99	0.00	101.79	14,415,394.082	1,714,351.250	39.693934951	-80.737165824	
4,952.00	0.00	90.00	4,948.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
Begin vertical hold										
5,000.00	0.00	0.00	4,996.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,100.00	0.00	0.00	5,096.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,200.00	0.00	0.00	5,196.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,300.00	0.00	0.00	5,296.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,400.00	0.00	0.00	5,396.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,500.00	0.00	0.00	5,496.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,600.00	0.00	0.00	5,596.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,700.00	0.00	0.00	5,696.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,800.00	0.00	0.00	5,796.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
5,900.00	0.00	0.00	5,896.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,000.00	0.00	0.00	5,996.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,100.00	0.00	0.00	6,096.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,200.00	0.00	0.00	6,196.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,300.00	0.00	0.00	6,296.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,400.00	0.00	0.00	6,396.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,500.00	0.00	0.00	6,496.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,600.00	0.00	0.00	6,596.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,700.00	0.00	0.00	6,696.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,800.00	0.00	0.00	6,796.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
6,900.00	0.00	0.00	6,896.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
7,000.00	0.00	0.00	6,996.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
7,100.00	0.00	0.00	7,096.98	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
7,205.02	0.00	0.00	7,202.00	0.00	102.26	14,415,394.082	1,714,351.722	39.693934947	-80.737164146	
Begin 2°/100' build										
7,300.00	1.90	147.36	7,296.97	-1.33	103.11	14,415,392.757	1,714,352.571	39.693931299	-80.737161141	
7,400.00	3.90	147.36	7,396.83	-5.59	105.84	14,415,388.497	1,714,355.299	39.693919579	-80.737151487	
7,500.00	5.90	147.36	7,496.46	-12.78	110.44	14,415,381.305	1,714,359.905	39.693899790	-80.737135188	
7,600.00	7.90	147.36	7,595.73	-22.89	116.92	14,415,371.189	1,714,366.384	39.693871957	-80.737112262	
7,700.00	9.90	147.36	7,694.53	-35.92	125.26	14,415,358.162	1,714,374.727	39.693836113	-80.737082738	
7,800.00	11.90	147.36	7,792.72	-51.84	135.46	14,415,342.239	1,714,384.925	39.693792303	-80.737046653	
7,900.00	13.90	147.36	7,890.19	-70.64	147.50	14,415,323.441	1,714,396.964	39.693740580	-80.737004050	
8,000.00	15.90	147.36	7,986.82	-92.29	161.37	14,415,301.790	1,714,410.831	39.693681007	-80.736954980	
8,100.00	17.90	147.36	8,082.50	-116.77	177.05	14,415,277.311	1,714,426.508	39.693613656	-80.736899505	
8,200.00	19.90	147.36	8,177.10	-144.05	194.51	14,415,250.036	1,714,443.977	39.693538609	-80.736837690	
8,300.00	21.90	147.36	8,270.52	-174.09	213.75	14,415,219.997	1,714,463.215	39.693455958	-80.736769613	
8,400.00	23.90	147.36	8,362.63	-206.85	234.74	14,415,187.231	1,714,484.200	39.693365803	-80.736695355	
8,500.00	25.90	147.36	8,453.33	-242.30	257.44	14,415,151.778	1,714,506.906	39.693268255	-80.736615008	
8,600.00	27.90	147.36	8,542.51	-280.40	281.84	14,415,113.681	1,714,531.305	39.693163432	-80.736528669	
8,700.00	29.90	147.36	8,630.05	-321.10	307.91	14,415,072.987	1,714,557.368	39.693051462	-80.736436444	
8,748.62	30.87	147.36	8,671.99	-341.81	321.17	14,415,052.278	1,714,570.631	39.692994481	-80.736389511	
Begin 30.87° tangent										
8,800.00	30.87	147.36	8,716.09	-364.01	335.39	14,415,030.076	1,714,584.850	39.692933394	-80.736339196	
8,900.00	30.87	147.36	8,801.92	-407.22	363.06	14,414,986.866	1,714,612.524	39.692814502	-80.736241271	
9,000.00	30.87	147.36	8,887.75	-450.43	390.74	14,414,943.656	1,714,640.198	39.692695611	-80.736143346	
9,100.00	30.87	147.36	8,973.58	-493.64	418.41	14,414,900.446	1,714,667.872	39.692576719	-80.736045421	
9,200.00	30.87	147.36	9,059.42	-536.85	446.08	14,414,857.236	1,714,695.546	39.692457828	-80.735947497	
9,300.00	30.87	147.36	9,145.25	-580.06	473.76	14,414,814.026	1,714,723.220	39.692338936	-80.735849573	
9,400.00	30.87	147.36	9,231.08	-623.27	501.43	14,414,770.816	1,714,750.894	39.692220045	-80.735751649	
9,500.00	30.87	147.36	9,316.91	-666.48	529.11	14,414,727.606	1,714,778.567	39.692101153	-80.735653726	
9,600.00	30.87	147.36	9,402.74	-709.69	556.78	14,414,684.396	1,714,806.241	39.691982261	-80.735555803	
9,700.00	30.87	147.36	9,488.57	-752.90	584.45	14,414,641.186	1,714,833.915	39.691863369	-80.735457880	

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1277.00ft
Project:	Watzel County, West Virginia (UTM17 NAD83)	MD Reference:	GL @ 1277.00ft
Site:	Elmer	North Reference:	Grid
Well:	Elmer N-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,800.00	30.87	147.36	9,574.41	-796.11	612.13	14,414,597.977	1,714,861.589	39.691744477	-80.735359958
9,900.00	30.87	147.36	9,660.24	-839.32	639.80	14,414,554.767	1,714,889.263	39.691625585	-80.735262036
10,000.00	30.87	147.36	9,746.07	-882.53	667.48	14,414,511.557	1,714,916.937	39.691506693	-80.735164114
10,100.00	30.87	147.36	9,831.90	-925.74	695.15	14,414,468.347	1,714,944.611	39.691387800	-80.735066193
10,200.00	30.87	147.36	9,917.73	-968.95	722.82	14,414,425.137	1,714,972.284	39.691268908	-80.734968272
10,300.00	30.87	147.36	10,003.56	-1,012.16	750.50	14,414,381.927	1,714,999.958	39.691150015	-80.734870351
10,400.00	30.87	147.36	10,089.39	-1,055.37	778.17	14,414,338.717	1,715,027.632	39.691031123	-80.734772431
10,500.00	30.87	147.36	10,175.23	-1,098.58	805.85	14,414,295.507	1,715,055.306	39.690912230	-80.734674511
10,600.00	30.87	147.36	10,261.06	-1,141.79	833.52	14,414,252.297	1,715,082.980	39.690793338	-80.734576591
10,691.19	30.87	147.36	10,339.32	-1,181.19	858.75	14,414,212.896	1,715,108.214	39.690684925	-80.734487303
Begin 6°/100' build/turn									
10,700.00	30.34	147.30	10,346.91	-1,184.97	861.18	14,414,209.118	1,715,110.637	39.690674529	-80.734478732
10,750.00	27.35	146.92	10,390.70	-1,205.22	874.27	14,414,188.861	1,715,123.732	39.690618792	-80.734432394
10,800.00	24.36	146.45	10,435.69	-1,223.44	886.24	14,414,170.641	1,715,135.703	39.690568657	-80.734390032
10,850.00	21.37	145.85	10,481.76	-1,239.58	897.06	14,414,154.508	1,715,146.517	39.690524261	-80.734351761
10,900.00	18.38	145.07	10,528.78	-1,253.58	906.68	14,414,140.505	1,715,156.144	39.690485726	-80.734317686
10,950.00	15.39	144.01	10,576.61	-1,265.41	915.10	14,414,128.670	1,715,164.558	39.690453157	-80.734287901
11,000.00	12.42	142.44	10,625.14	-1,275.05	922.28	14,414,119.038	1,715,171.736	39.690426644	-80.734262486
11,050.00	9.45	139.92	10,674.23	-1,282.45	928.20	14,414,111.633	1,715,177.659	39.690406259	-80.734241512
11,100.00	6.53	135.13	10,723.74	-1,287.61	932.85	14,414,106.476	1,715,182.309	39.690392059	-80.734225036
11,150.00	3.72	122.92	10,773.54	-1,290.50	936.21	14,414,103.581	1,715,185.674	39.690384082	-80.734213104
11,200.00	1.73	70.22	10,823.49	-1,291.13	938.29	14,414,102.956	1,715,187.746	39.690382349	-80.734205747
11,250.00	3.19	2.49	10,873.45	-1,289.48	939.06	14,414,104.604	1,715,188.517	39.690386867	-80.734202986
11,300.00	5.95	346.83	10,923.28	-1,285.57	938.53	14,414,108.518	1,715,187.987	39.690397622	-80.734204830
11,350.00	8.86	341.23	10,972.86	-1,279.40	936.70	14,414,114.689	1,715,186.157	39.690414585	-80.734211271
11,400.00	11.82	338.40	11,022.04	-1,270.98	933.57	14,414,123.100	1,715,183.031	39.690437710	-80.734222294
11,450.00	14.80	336.69	11,070.70	-1,260.36	929.16	14,414,133.728	1,715,178.618	39.690466932	-80.734237868
11,500.00	17.78	335.55	11,118.68	-1,247.54	923.47	14,414,146.543	1,715,172.931	39.690502173	-80.734257949
11,550.00	20.77	334.72	11,165.88	-1,232.57	916.52	14,414,161.511	1,715,165.985	39.690543335	-80.734282484
11,600.00	23.76	334.10	11,212.15	-1,215.50	908.34	14,414,178.589	1,715,157.799	39.690590305	-80.734311405
11,650.00	26.75	333.61	11,257.36	-1,196.35	898.93	14,414,197.733	1,715,148.395	39.690642955	-80.734344632
11,700.00	29.74	333.21	11,301.40	-1,175.20	888.34	14,414,218.888	1,715,137.799	39.690701141	-80.734382075
11,750.00	32.74	332.87	11,344.15	-1,152.09	876.58	14,414,241.998	1,715,126.040	39.690764703	-80.734423630
11,800.00	35.73	332.59	11,385.48	-1,127.09	863.69	14,414,266.998	1,715,113.151	39.690833467	-80.734469185
11,850.00	38.73	332.35	11,425.28	-1,100.26	849.71	14,414,293.821	1,715,099.167	39.690907243	-80.734518614
11,900.00	41.73	332.13	11,463.45	-1,071.69	834.66	14,414,322.392	1,715,084.125	39.690985831	-80.734571782
11,950.00	44.72	331.94	11,499.88	-1,041.45	818.61	14,414,352.634	1,715,068.069	39.691069015	-80.734628542
12,000.00	47.72	331.77	11,534.47	-1,009.62	801.58	14,414,384.463	1,715,051.040	39.691156566	-80.734688741
12,037.99	50.00	331.65	11,559.46	-984.43	788.02	14,414,409.654	1,715,037.481	39.691225859	-80.734736675
Begin 8°/100' build/turn									
12,050.00	50.96	331.60	11,567.10	-976.28	783.62	14,414,417.806	1,715,033.078	39.691248283	-80.734752241
12,100.00	54.96	331.42	11,597.22	-941.21	764.58	14,414,452.876	1,715,014.044	39.691344750	-80.734819533
12,150.00	58.96	331.26	11,624.47	-904.44	744.48	14,414,489.645	1,714,993.944	39.691445892	-80.734890598
12,200.00	62.95	331.10	11,648.75	-866.15	723.42	14,414,527.934	1,714,972.876	39.691551216	-80.734965089
12,250.00	66.95	330.96	11,669.91	-826.53	701.48	14,414,567.556	1,714,950.942	39.691660209	-80.735042644
12,300.00	70.95	330.83	11,687.87	-785.76	678.79	14,414,608.319	1,714,928.249	39.691772341	-80.735122885
12,350.00	74.95	330.70	11,702.52	-744.06	655.45	14,414,650.024	1,714,904.908	39.691887064	-80.735205421
12,400.00	78.95	330.58	11,713.82	-701.62	631.57	14,414,692.467	1,714,881.032	39.692003820	-80.735289849
12,450.00	82.94	330.46	11,721.68	-658.64	607.28	14,414,735.442	1,714,856.738	39.692122040	-80.735375760
12,500.00	86.94	330.34	11,726.09	-615.34	582.68	14,414,778.740	1,714,832.144	39.692241148	-80.735462733
12,550.78	91.00	330.23	11,727.00	-571.26	557.52	14,414,822.824	1,714,806.984	39.692362421	-80.735551711
Begin 91.00° lateral									
12,600.00	91.00	330.23	11,726.14	-528.54	533.08	14,414,865.542	1,714,782.546	39.692479936	-80.735638139
12,700.00	91.00	330.23	11,724.39	-441.75	483.43	14,414,952.328	1,714,732.896	39.692718679	-80.735813727

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,800.00	91.00	330.23	11,722.64	-354.97	433.78	14,415,039.114	1,714,683.246	39.692957422	-80.735989316
12,900.00	91.00	330.23	11,720.89	-268.18	384.14	14,415,125.901	1,714,633.597	39.693196164	-80.736164907
13,000.00	91.00	330.23	11,719.14	-181.40	334.49	14,415,212.687	1,714,583.947	39.693434907	-80.736340499
13,100.00	91.00	330.23	11,717.39	-94.61	284.84	14,415,299.473	1,714,534.298	39.693673649	-80.736516092
13,200.00	91.00	330.23	11,715.64	-7.82	235.19	14,415,386.259	1,714,484.648	39.693912390	-80.736691686
13,300.00	91.00	330.23	11,713.89	78.96	185.54	14,415,473.045	1,714,434.999	39.694151132	-80.736867281
13,400.00	91.00	330.23	11,712.14	165.75	135.89	14,415,559.831	1,714,385.349	39.694389873	-80.737042877
13,500.00	91.00	330.23	11,710.39	252.53	86.24	14,415,646.617	1,714,335.699	39.694628614	-80.737218475
13,600.00	91.00	330.23	11,708.64	339.32	36.59	14,415,733.403	1,714,286.050	39.694867355	-80.737394074
13,700.00	91.00	330.23	11,706.90	426.11	-13.06	14,415,820.189	1,714,236.400	39.695106095	-80.737569674
13,800.00	91.00	330.23	11,705.15	512.89	-82.71	14,415,906.975	1,714,186.751	39.695344835	-80.737745276
13,900.00	91.00	330.23	11,703.40	599.68	-112.36	14,415,993.761	1,714,137.101	39.695583575	-80.737920878
14,000.00	91.00	330.23	11,701.65	686.47	-162.01	14,416,080.547	1,714,087.451	39.695822315	-80.738096482
14,100.00	91.00	330.23	11,699.90	773.25	-211.66	14,416,167.333	1,714,037.802	39.696061054	-80.738272087
14,200.00	91.00	330.23	11,698.15	860.04	-261.31	14,416,254.119	1,713,988.152	39.696299793	-80.738447693
14,300.00	91.00	330.23	11,696.40	946.82	-310.96	14,416,340.905	1,713,938.503	39.696538532	-80.738623300
14,400.00	91.00	330.23	11,694.65	1,033.61	-360.61	14,416,427.691	1,713,888.853	39.696777270	-80.738798909
14,500.00	91.00	330.23	11,692.90	1,120.40	-410.26	14,416,514.477	1,713,839.204	39.697016008	-80.738974519
14,600.00	91.00	330.23	11,691.15	1,207.18	-459.91	14,416,601.263	1,713,789.554	39.697254746	-80.739150130
14,700.00	91.00	330.23	11,689.40	1,293.97	-509.56	14,416,688.049	1,713,739.904	39.697493484	-80.739325742
14,800.00	91.00	330.23	11,687.65	1,380.76	-559.21	14,416,774.835	1,713,690.255	39.697732221	-80.739501355
14,900.00	91.00	330.23	11,685.90	1,467.54	-608.86	14,416,861.621	1,713,640.605	39.697970958	-80.739676970
15,000.00	91.00	330.23	11,684.15	1,554.33	-658.51	14,416,948.408	1,713,590.956	39.698209695	-80.739852586
15,100.00	91.00	330.23	11,682.40	1,641.11	-708.16	14,417,035.194	1,713,541.306	39.698448432	-80.740028203
15,200.00	91.00	330.23	11,680.65	1,727.90	-757.81	14,417,121.980	1,713,491.657	39.698687168	-80.740203821
15,300.00	91.00	330.23	11,678.90	1,814.69	-807.46	14,417,208.766	1,713,442.007	39.698925904	-80.740379440
15,400.00	91.00	330.23	11,677.15	1,901.47	-857.11	14,417,295.552	1,713,392.357	39.699164640	-80.740555061
15,500.00	91.00	330.23	11,675.40	1,988.26	-906.76	14,417,382.338	1,713,342.708	39.699403375	-80.740730682
15,600.00	91.00	330.23	11,673.65	2,075.05	-956.41	14,417,469.124	1,713,293.058	39.699642111	-80.740906305
15,700.00	91.00	330.23	11,671.91	2,161.83	-1,006.06	14,417,555.910	1,713,243.409	39.699880846	-80.741081929
15,800.00	91.00	330.23	11,670.16	2,248.62	-1,055.71	14,417,642.696	1,713,193.759	39.700119580	-80.741257555
15,900.00	91.00	330.23	11,668.41	2,335.40	-1,105.36	14,417,729.482	1,713,144.110	39.700358315	-80.741433181
16,000.00	91.00	330.23	11,666.66	2,422.19	-1,155.00	14,417,816.268	1,713,094.460	39.700597049	-80.741608809
16,100.00	91.00	330.23	11,664.91	2,508.98	-1,204.65	14,417,903.054	1,713,044.810	39.700835783	-80.741784438
16,200.00	91.00	330.23	11,663.16	2,595.76	-1,254.30	14,417,989.840	1,712,995.161	39.701074516	-80.741960069
16,300.00	91.00	330.23	11,661.41	2,682.55	-1,303.95	14,418,076.626	1,712,945.511	39.701313250	-80.742135700
16,400.00	91.00	330.23	11,659.66	2,769.34	-1,353.60	14,418,163.412	1,712,895.862	39.701551983	-80.742311333
16,500.00	91.00	330.23	11,657.91	2,856.12	-1,403.25	14,418,250.198	1,712,846.212	39.701790715	-80.742486967
16,600.00	91.00	330.23	11,656.16	2,942.91	-1,452.90	14,418,336.984	1,712,796.563	39.702029448	-80.742662602
16,700.00	91.00	330.23	11,654.41	3,029.69	-1,502.55	14,418,423.770	1,712,746.913	39.702268180	-80.742838238
16,800.00	91.00	330.23	11,652.66	3,116.48	-1,552.20	14,418,510.556	1,712,697.263	39.702506912	-80.743013876
16,900.00	91.00	330.23	11,650.91	3,203.27	-1,601.85	14,418,597.342	1,712,647.614	39.702745644	-80.743189515
17,000.00	91.00	330.23	11,649.16	3,290.05	-1,651.50	14,418,684.128	1,712,597.964	39.702984375	-80.743365155
17,100.00	91.00	330.23	11,647.41	3,376.84	-1,701.15	14,418,770.915	1,712,548.315	39.703223106	-80.743540796
17,200.00	91.00	330.23	11,645.66	3,463.63	-1,750.80	14,418,857.701	1,712,498.665	39.703461837	-80.743716438
17,300.00	91.00	330.23	11,643.91	3,550.41	-1,800.45	14,418,944.487	1,712,449.015	39.703700568	-80.743892082
17,400.00	91.00	330.23	11,642.16	3,637.20	-1,850.10	14,419,031.273	1,712,399.366	39.703939298	-80.744067727
17,500.00	91.00	330.23	11,640.41	3,723.98	-1,899.75	14,419,118.059	1,712,349.716	39.704178028	-80.744243373
17,600.00	91.00	330.23	11,638.67	3,810.77	-1,949.40	14,419,204.845	1,712,300.067	39.704416758	-80.744419020
17,700.00	91.00	330.23	11,636.92	3,897.56	-1,999.05	14,419,291.631	1,712,250.417	39.704655488	-80.744594668
17,800.00	91.00	330.23	11,635.17	3,984.34	-2,048.70	14,419,378.417	1,712,200.768	39.704894217	-80.744770318
17,900.00	91.00	330.23	11,633.42	4,071.13	-2,098.35	14,419,465.203	1,712,151.118	39.705132946	-80.744945969
18,000.00	91.00	330.23	11,631.67	4,157.92	-2,148.00	14,419,551.989	1,712,101.468	39.705371675	-80.745121621
18,100.00	91.00	330.23	11,629.92	4,244.70	-2,197.65	14,419,638.775	1,712,051.819	39.705610403	-80.745297274
18,200.00	91.00	330.23	11,628.17	4,331.49	-2,247.30	14,419,725.561	1,712,002.169	39.705849131	-80.745472928

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey

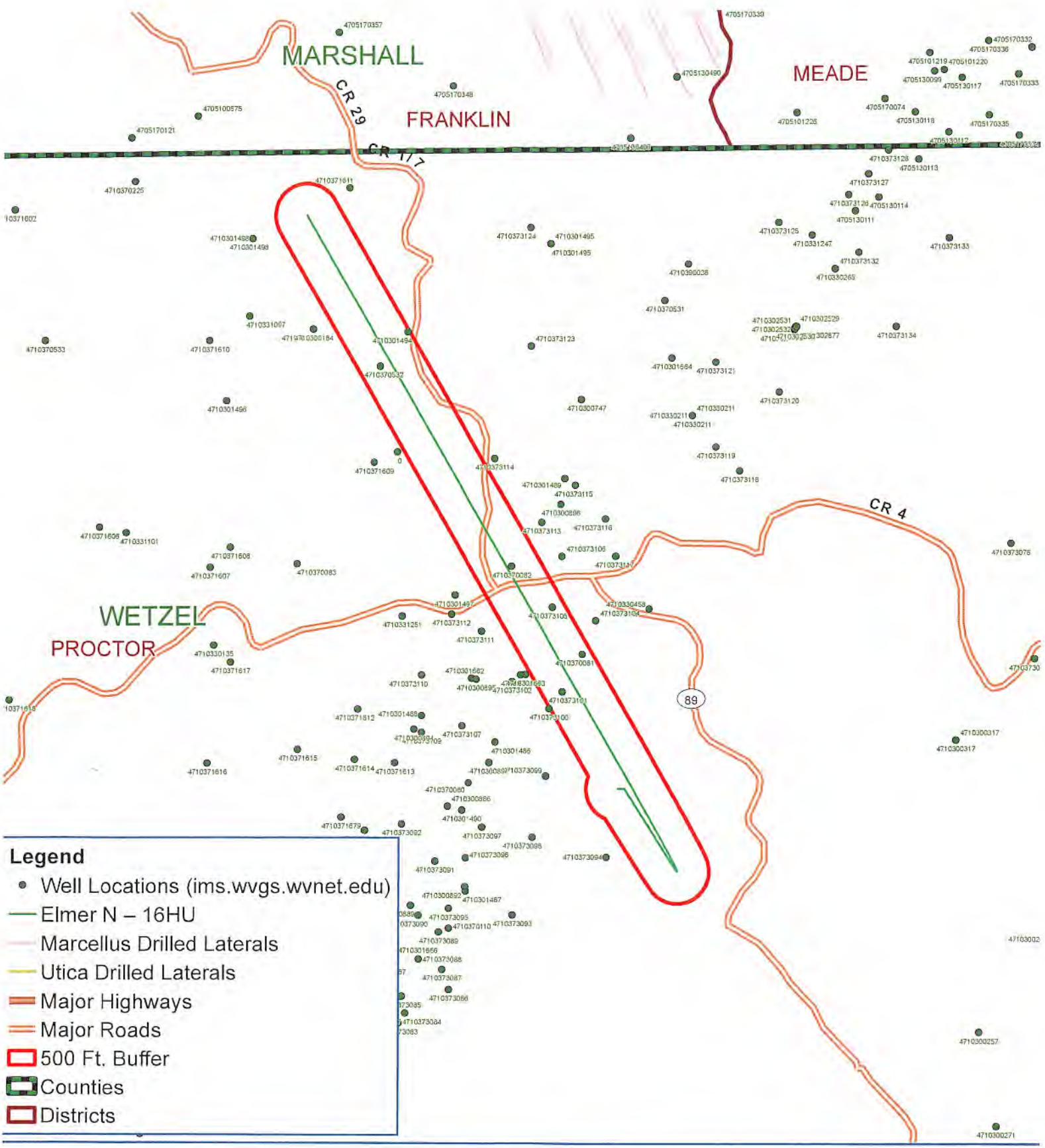
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,300.00	91.00	330.23	11,626.42	4,418.27	-2,296.95	14,419,812.347	1,711,952.520	39.706087859	-80.745648584
18,400.00	91.00	330.23	11,624.67	4,505.06	-2,346.60	14,419,899.133	1,711,902.870	39.706326587	-80.745824241
18,500.00	91.00	330.23	11,622.92	4,591.85	-2,396.25	14,419,985.919	1,711,853.221	39.706565314	-80.745999899
18,600.00	91.00	330.23	11,621.17	4,678.63	-2,445.90	14,420,072.705	1,711,803.571	39.706804041	-80.746175558
18,700.00	91.00	330.23	11,619.42	4,765.42	-2,495.55	14,420,159.491	1,711,753.921	39.707042768	-80.746351219
18,800.00	91.00	330.23	11,617.67	4,852.20	-2,545.20	14,420,246.277	1,711,704.272	39.707281494	-80.746526881
18,900.00	91.00	330.23	11,615.92	4,938.99	-2,594.85	14,420,333.063	1,711,654.622	39.707520221	-80.746702543
19,000.00	91.00	330.23	11,614.17	5,025.78	-2,644.50	14,420,419.849	1,711,604.973	39.707758947	-80.746878208
19,100.00	91.00	330.23	11,612.42	5,112.56	-2,694.14	14,420,506.635	1,711,555.323	39.707997672	-80.747053873
19,200.00	91.00	330.23	11,610.67	5,199.35	-2,743.79	14,420,593.421	1,711,505.674	39.708236398	-80.747229539
19,300.00	91.00	330.23	11,608.92	5,286.14	-2,793.44	14,420,680.208	1,711,456.024	39.708475123	-80.747405207
19,400.00	91.00	330.23	11,607.17	5,372.92	-2,843.09	14,420,766.994	1,711,406.374	39.708713848	-80.747580876
19,500.00	91.00	330.23	11,605.42	5,459.71	-2,892.74	14,420,853.780	1,711,356.725	39.708952572	-80.747756546
19,600.00	91.00	330.23	11,603.68	5,546.49	-2,942.39	14,420,940.566	1,711,307.075	39.709191297	-80.747932218
19,700.00	91.00	330.23	11,601.93	5,633.28	-2,992.04	14,421,027.352	1,711,257.426	39.709430021	-80.748107890
19,800.00	91.00	330.23	11,600.18	5,720.07	-3,041.69	14,421,114.138	1,711,207.776	39.709668745	-80.748283564
19,900.00	91.00	330.23	11,598.43	5,806.85	-3,091.34	14,421,200.924	1,711,158.127	39.709907468	-80.748459239
20,000.00	91.00	330.23	11,596.68	5,893.64	-3,140.99	14,421,287.710	1,711,108.477	39.710146192	-80.748634915
20,100.00	91.00	330.23	11,594.93	5,980.43	-3,190.64	14,421,374.496	1,711,058.827	39.710384915	-80.748810593
20,200.00	91.00	330.23	11,593.18	6,067.21	-3,240.29	14,421,461.282	1,711,009.178	39.710623637	-80.748986271
20,300.00	91.00	330.23	11,591.43	6,154.00	-3,289.94	14,421,548.068	1,710,959.528	39.710862360	-80.749161951
20,400.00	91.00	330.23	11,589.68	6,240.78	-3,339.59	14,421,634.854	1,710,909.879	39.711101082	-80.749337632
20,500.00	91.00	330.23	11,587.93	6,327.57	-3,389.24	14,421,721.640	1,710,860.229	39.711339804	-80.749513314
20,600.00	91.00	330.23	11,586.18	6,414.36	-3,438.89	14,421,808.426	1,710,810.580	39.711578525	-80.749688998
20,700.00	91.00	330.23	11,584.43	6,501.14	-3,488.54	14,421,895.212	1,710,760.930	39.711817247	-80.749864682
20,800.00	91.00	330.23	11,582.68	6,587.93	-3,538.19	14,421,981.998	1,710,711.280	39.712055968	-80.750040368
20,900.00	91.00	330.23	11,580.93	6,674.72	-3,587.84	14,422,068.784	1,710,661.631	39.712294689	-80.750216055
21,000.00	91.00	330.23	11,579.18	6,761.50	-3,637.49	14,422,155.570	1,710,611.981	39.712533409	-80.750391744
21,100.00	91.00	330.23	11,577.43	6,848.29	-3,687.14	14,422,242.356	1,710,562.332	39.712772130	-80.750567433
21,200.00	91.00	330.23	11,575.68	6,935.07	-3,736.79	14,422,329.142	1,710,512.682	39.713010850	-80.750743124
21,300.00	91.00	330.23	11,573.93	7,021.86	-3,786.44	14,422,415.928	1,710,463.032	39.713249569	-80.750918816
21,400.00	91.00	330.23	11,572.18	7,108.65	-3,836.09	14,422,502.715	1,710,413.383	39.713488289	-80.751094509
21,500.00	91.00	330.23	11,570.43	7,195.43	-3,885.74	14,422,589.501	1,710,363.733	39.713727008	-80.751270203
21,600.00	91.00	330.23	11,568.69	7,282.22	-3,935.39	14,422,676.287	1,710,314.084	39.713965727	-80.751445899
21,700.00	91.00	330.23	11,566.94	7,369.01	-3,985.04	14,422,763.073	1,710,264.434	39.714204446	-80.751621595
21,800.00	91.00	330.23	11,565.19	7,455.79	-4,034.69	14,422,849.859	1,710,214.785	39.714443164	-80.751797293
21,900.00	91.00	330.23	11,563.44	7,542.58	-4,084.34	14,422,936.645	1,710,165.135	39.714681882	-80.751972993
22,000.00	91.00	330.23	11,561.69	7,629.36	-4,133.99	14,423,023.431	1,710,115.485	39.714920600	-80.752148693
22,100.00	91.00	330.23	11,559.94	7,716.15	-4,183.64	14,423,110.217	1,710,065.836	39.715159317	-80.752324394
22,200.00	91.00	330.23	11,558.19	7,802.94	-4,233.28	14,423,197.003	1,710,016.186	39.715398035	-80.752500097
22,300.00	91.00	330.23	11,556.44	7,889.72	-4,282.93	14,423,283.789	1,709,966.537	39.715636752	-80.752675801
22,400.00	91.00	330.23	11,554.69	7,976.51	-4,332.58	14,423,370.575	1,709,916.887	39.715875468	-80.752851506
22,500.00	91.00	330.23	11,552.94	8,063.30	-4,382.23	14,423,457.361	1,709,867.238	39.716114185	-80.753027213
22,600.00	91.00	330.23	11,551.19	8,150.08	-4,431.88	14,423,544.147	1,709,817.588	39.716352901	-80.753202920
22,700.00	91.00	330.23	11,549.44	8,236.87	-4,481.53	14,423,630.933	1,709,767.938	39.716591617	-80.753378629
22,800.00	91.00	330.23	11,547.69	8,323.65	-4,531.18	14,423,717.719	1,709,718.289	39.716830333	-80.753554339
22,900.00	91.00	330.23	11,545.94	8,410.44	-4,580.83	14,423,804.505	1,709,668.639	39.717069048	-80.753730051
23,000.00	91.00	330.23	11,544.19	8,497.23	-4,630.48	14,423,891.291	1,709,618.990	39.717307763	-80.753905763
23,100.00	91.00	330.23	11,542.44	8,584.01	-4,680.13	14,423,978.077	1,709,569.340	39.717546478	-80.754081477
23,200.00	91.00	330.23	11,540.69	8,670.80	-4,729.78	14,424,064.863	1,709,519.691	39.717785193	-80.754257191
23,300.00	91.00	330.23	11,538.94	8,757.59	-4,779.43	14,424,151.649	1,709,470.041	39.718023907	-80.754432908
23,400.00	91.00	330.23	11,537.19	8,844.37	-4,829.08	14,424,238.435	1,709,420.391	39.718262621	-80.754608625
23,500.00	91.00	330.23	11,535.44	8,931.16	-4,878.73	14,424,325.222	1,709,370.742	39.718501335	-80.754784343

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Elmer N-16 HU (slot L)
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-16 HU (slot L)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
23,525.41	91.00	330.23	11,535.00	8,953.21	-4,891.35	14,424,347.277	1,709,358.124	39.718562000	-80.754829000
PBHL/TD 23525.41 MD 11535.00 TVD									

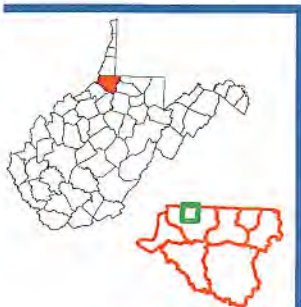
Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Elmer N-16 HU BHL - hit/miss target center - Shape - Point	0.00	0.00	11,535.00	8,953.21	-4,891.35	14,424,347.277	1,709,358.124	39.718562000	-80.754829000
Elmer N-16 HU LP 50 W - plan misses target center by 0.01ft at 12550.78ft MD (11727.00 TVD, -571.26 N, 557.52 E) - Point	0.00	0.00	11,727.00	-571.27	557.51	14,414,822.818	1,714,806.976	39.692362404	-80.735551740
Elmer N-16 HU LP - plan misses target center by 43.40ft at 12525.99ft MD (11727.01 TVD, -592.78 N, 569.82 E) - Point	0.00	0.00	11,727.00	-571.27	607.51	14,414,822.818	1,714,856.975	39.692362000	-80.735374000

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	
3,277.00	3,276.89	0.00	5.34	Begin 3.00° tangent	
4,777.00	4,774.09	0.00	96.92	Begin 2°/100' drop	
4,952.00	4,948.98	0.00	102.26	Begin vertical hold	
7,205.02	7,202.00	0.00	102.26	Begin 2°/100' build	
8,748.62	8,671.99	-341.81	321.17	Begin 30.87° tangent	
10,691.19	10,339.32	-1,181.19	858.75	Begin 6°/100' build/turn	
12,037.99	11,559.46	-984.43	788.02	Begin 8°/100' build/turn	
12,550.78	11,727.00	-571.26	557.52	Begin 91.00° lateral	
23,525.41	11,535.00	8,953.21	-4,891.35	PBHL/TD 23525.41 MD 11535.00 TVD	



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Elmer N – 16HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- 500 Ft. Buffer
- Counties
- Districts



Elmer N – 16HU Proctor District Wetzel County, WV



Map Prepared by:
10/21/2022
EPS
LAND SERVICES

Area of Review

Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.

Description of process to identify potential pathways for well communication during hydraulic fracturing activities.

Data Sources Reviewed:

1. Enverus and RS Energy Group Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Adam Picard 724-485-9331, apicard@dpslandservices.com, DPS GIS (10/15/2021) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with Enverus All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots.

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4710301494	Perkins Oil and Gas, Inc.	3202' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	
4710370532	Hope Natural Gas Company	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well.	State records are incomplete.
4710370082	South Penn Oil (S. Penn Nat. Gas)	3067' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	
4710373105	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well.	State records are incomplete.

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4710370081	South Penn Oil (S. Penn Nat. Gas)	2959' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	
4710373101	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Point Pleasant well.	State records are incomplete.

WV Geological & Economic Survey:

Well: County = 103 Permit = 01494

Report Time: Tuesday, October 19, 2021 1:54:55 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710301494	Wetzel	1494	Proctor	Wileyville	Littleton	39.713553	-80.749199	521497.5	4395995.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710301494	6/4/1903	Original Loc	Completed	Robert & S J Coffield	3	339				Hope Natural Gas Company			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AI
4710301494	6/4/1903	--	1385	Barometer	Unnamed		Gordon	Development Well	Development Well	Gas	unknown	unknown			0		3202	0	0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4710301494	6/4/1903	Pay	Gas	Vertical		Gordon	0	Gordon	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4710301494	Perkins Oil and Gas, Inc.	1990	0	0	0	0	0	0	0	0	0	0	0	0	0
4710301494	Perkins Oil and Gas, Inc.	1991													
4710301494	Perkins Oil and Gas, Inc.	1996	186	0	0	0	0	0	0	0	0	0	0	0	186
4710301494	Perkins Oil and Gas, Inc.	1997	978	178	259	0	0	251	50	0	0	0	59	181	0
4710301494	Perkins Oil and Gas, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4710301494	Perkins Oil and Gas, Inc.	1998	1,436	0	0	0	0	27	205	112	220	222	220	204	226
4710301494	Perkins Oil and Gas, Inc.	1999	2,382	319	198	280	200	187	47	123	215	219	186	220	198
4710301494	Perkins Oil and Gas, Inc.	2001	2,200	189	160	199	178	194	153	203	204	182	169	226	143
4710301494	Perkins Oil and Gas, Inc.	2002	1,819	155	119	201	159	143	158	184	162	132	159	84	163
4710301494	Perkins Oil and Gas, Inc.	2003	1,651	122	109	163	162	159	155	175	166	177	159	2	102
4710301494	Perkins Oil and Gas, Inc.	2004	1,827	149	142	169	170	142	154	171	131	150	154	156	139
4710301494	Perkins Oil and Gas, Inc.	2005	1,589	141	118	107	137	140	139	83	147	143	135	159	140
4710301494	Perkins Oil and Gas, Inc.	2006	1,538	123	90	141	113	136	133	141	143	135	138	125	120
4710301494	Perkins Oil and Gas, Inc.	2007	1,535	128	98	122	126	137	133	117	140	136	143	132	123
4710301494	Perkins Oil and Gas, Inc.	2008	1,441	124	111	113	87	95	135	140	140	105	139	129	123
4710301494	Perkins Oil and Gas, Inc.	2009	1,366	107	107	117	107	127	129	128	136	4	133	146	125
4710301494	Perkins Oil and Gas, Inc.	2010	304	5	8	26	29	32	32	36	39	29	36	25	7
4710301494	Perkins Oil and Gas, Inc.	2011	485	7	22	27	40	48	49	53	48	53	65	41	32
4710301494	Perkins Oil and Gas, Inc.	2012	536	29	26	42	28	52	46	69	70	53	50	40	31
4710301494	Perkins Oil and Gas, Inc.	2013	585	36	23	35	45	44	50	85	71	68	58	44	46
4710301494	Perkins Oil and Gas, Inc.	2014	794	29	42	46	73	83	74	83	87	95	77	49	56
4710301494	Perkins Oil and Gas, Inc.	2015	4,126	53	50	52	197	403	351	505	713	378	456	541	427
4710301494	Perkins Oil and Gas, Inc.	2016	4,807	453	17	284	369	403	460	435	470	645	462	409	397
4710301494	Perkins Oil and Gas, Inc.	2017	220	216	0	0	0	0	0	0	0	4	0	0	0
4710301494	Perkins Oil and Gas, Inc.	2018	3,557	0	0	347	273	373	386	339	395	462	182	427	373
4710301494	Perkins Oil and Gas, Inc.	2019	2,923	376	456	268	416	265	201	252	70	212	308	99	0
4710301494	Perkins Oil and Gas, Inc.	2020	1,295	98	92	113	108	111	114	119	122	112	112	95	99

WV Geological & Economic Survey:

Well: County = 103 Permit = 70532

Report Time: Tuesday, October 19, 2021 1:55:23 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710370532	Wetzel	70532	Proctor	New Martinsville	New Martinsville	39.712086	-80.750753	521364.8	4395832.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710370532	-/-	Original Loc	Completed	Robert Coffield	3					Hope Natural Gas Company			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4710370532	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

WV Geological & Economic Survey:

Well: County = 103 Permit = 70082

Report Time: Tuesday, October 19, 2021 1:55:43 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710370082	Wetzel	70082	Proctor	Wileyville	Littleton	39.703481	-80.743439	521994.4	4394878.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710370082	9/7/1900	Original Loc	Completed	Henry Garner	23				A Garner 6	South Penn Oil (S. Penn Nat. Gas)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	O_AI
4710370082	9/7/1900	9/7/1900	1345	Barometer	Unnamed	UDev undf.Ber/LoHURN	Gordon	unclassified	unclassified	Oil	unknown	unknown	3067		3067		0	0	0	0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4710370082	9/7/1900	Pay	Oil	Vertical		Gordon	3055	Gordon	0	0			

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4710370082	Original Loc	Pittsburgh coal	Well Record	1040	Reasonable	4	Reasonable	1354	Barometer
4710370082	Original Loc	Big Lime	Well Record	2140	Reasonable	50	Reasonable	1345	Barometer
4710370082	Original Loc	Big Injun (undiff)	Well Record	2190	Reasonable	268	Reasonable	1354	Barometer
4710370082	Original Loc	Gordon Stray	Well Record	3005	Reasonable	12	Reasonable	1345	Barometer
4710370082	Original Loc	Gordon	Well Record	3055	Reasonable	12	Reasonable	1345	Barometer

WV Geological & Economic Survey:

Well: County = 103 Permit = 73105

Report Time: Tuesday, October 19, 2021 1:55:59 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710373105	Wetzel	73105	Proctor	Wileyville	Littleton	39.701735	-80.741177	522188.9	4394685.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710373105	-/-	unknown	Prpty Map	Nancy J Garner	21					----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4710373105	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

WV Geological & Economic Survey:

Well: County = 103 Permit = 70081

Report Time: Tuesday, October 19, 2021 1:56:11 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710370081	Wetzel	70081	Proctor	Wileyville	Littleton	39.699711	-80.739495	522333.7	4394461.4

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710370081	-/-	Original Loc	Completed	Henry Garner	16					South Penn Oil (S. Penn Nat. Gas)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_B
4710370081	-/-	-/-	1285	Topo Estimation	Cameron-Garner		Gordon	unclassified	unclassified	not available	unknown	unknown					0	0	0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4710370081	-/-	Pay	Oil	Vertical			2959	Gordon	0	0			

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4710370081	Original Loc	Washington coal	Well Record	480	Reasonable	4	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Sewickley coal	Well Record	840	Reasonable	6	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Pittsburgh coal	Well Record	930	Reasonable	5	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Salt Sands (undiff)	Well Record	1668	Reasonable	58	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Big Lime	Well Record	2030	Reasonable	54	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Big Injun (undiff)	Well Record	2084	Reasonable	276	Reasonable	1285	Topo Estimation
4710370081	Original Loc	Gordon	Well Record	2959	Reasonable	19	Reasonable	1285	Topo Estimation

WV Geological & Economic Survey:

Well: County = 103 Permit = 73101

Report Time: Tuesday, October 19, 2021 1:56:26 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4710373101	Wetzel	73101	Proctor	Wileyville	Littleton	39.698107	-80.740615	522238.2	4394283.1

There is no Bottom Hole Location data for this well

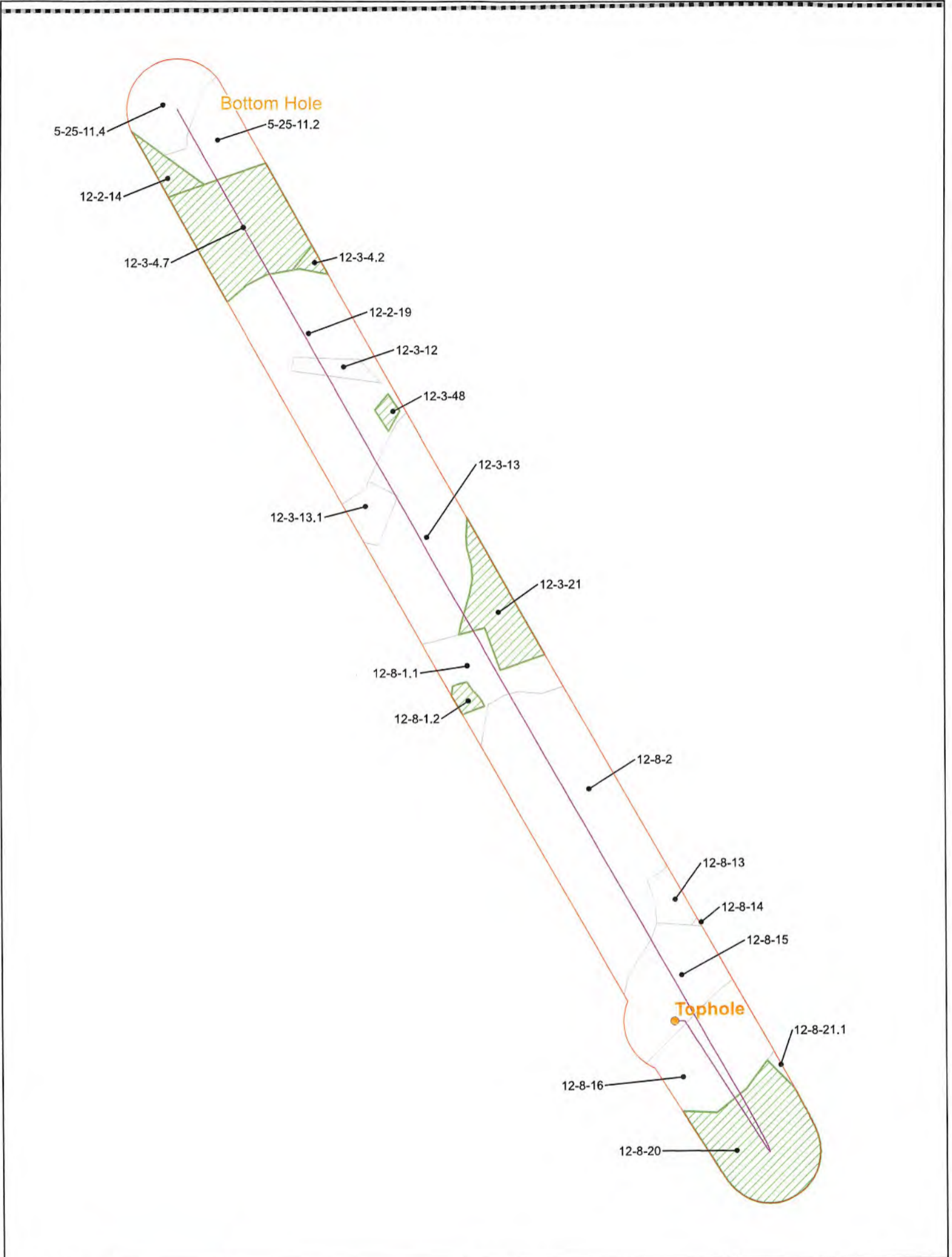
Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4710373101	-/-		unknown	Prpty Map Nancy J Garner		14				----- unknown -----			

Completion Information:




API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL
4710373101	-/-	-/-						unclassified	unclassified	not available	unknown	unknown									

Elmer N-16HU



Coordinate System: NAD 1983 UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983
 False Easting: 1,445,000.0000
 False Northing: 0.0000
 Central Meridian: -81.0000
 Scale Factor: 0.9999
 Latitude of Origin: 38.0000
 Units: Feet/ft

CONFIDENTIAL

-  Utica Well
-  Force Pool
-  500' Buffer



Elmer N-16HU
 Operators within 500 Feet of Well Borehole



**Operators within 500' of Well Borehole
Elmer N-16HU**

COUNTY	DISTRICT	TMP	MINERAL OWNER OR LESSEE	ADDRESS
WETZEL	PROCTOR	12-2-14	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-2-19	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-4.2	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-4.7	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-12	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-13	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-3-13.1	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	12-3-21	COLUMBIA GAS TRANSMISSION LLC	1700 MacCorkle Ave SE Charleston, WV 25314
WETZEL	PROCTOR	12-3-48	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-1.1	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-1.2	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	12-8-13	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
WETZEL	PROCTOR	12-8-14	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
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	12-8-20	SWN PRODUCTION COMPANY LLC	10000 Energy Drive Spring, TX 77389
WETZEL	PROCTOR	12-8-20	EQUINOR USA ONSHORE PROPERTIES INC	6300 Bridge Point Pkwy Building 2, Ste 100 Austin, TX 78730
WETZEL	PROCTOR	12-8-21.1	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107

10/21/2022

**Operators within 500' of Well Borehole
Elmer N-16HU**

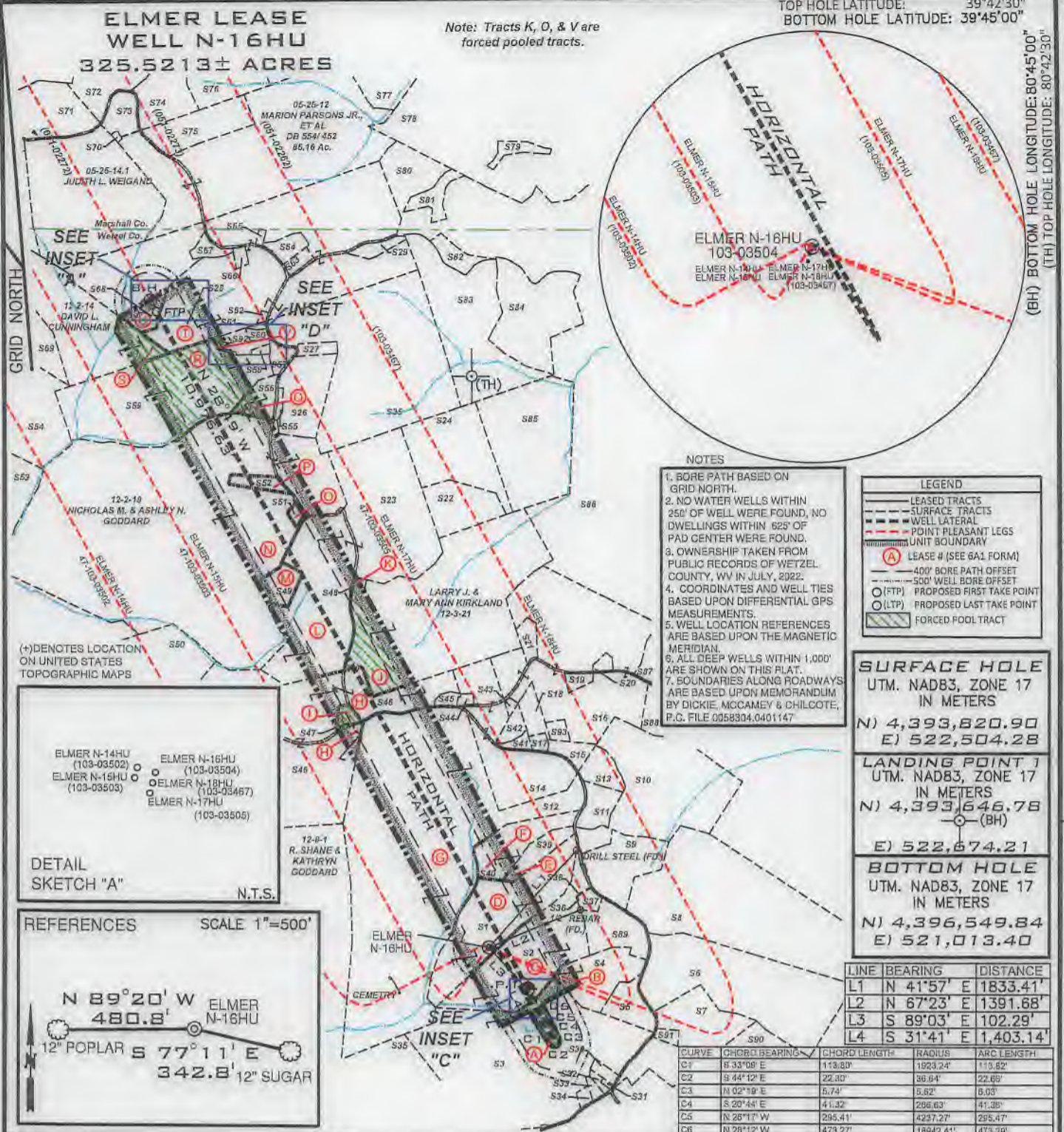
MARSHALL	FRANKLIN	5-25-11.2	TH EXPLORATION II	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
MARSHALL	FRANKLIN	5-25-11.2	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
MARSHALL	FRANKLIN	5-25-11.4	TH EXPLORATION II	1320 S. University Blvd Suite 500 Fort Worth, TX 76107
MARSHALL	FRANKLIN	5-25-11.4	TH EXPLORATION, LLC	1320 S. University Blvd Suite 500 Fort Worth, TX 76107

10/21/2022

ELMER LEASE WELL N-16HU 325.5213± ACRES

Note: Tracts K, O, & V are forced pooled tracts.

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



NOTES

1. BORE PATH BASED ON GRID NORTH.
2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF WETZEL COUNTY, WV IN JULY, 2022.
4. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
5. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
6. ALL DEEP WELLS WITHIN 1,000' ARE SHOWN ON THIS PLAT.
7. 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
- (A) LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
- 300' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT
- FORCED POOL TRACT

SURFACE HOLE

UTM. NAD83, ZONE 17 IN METERS

N) 4,393,820.90

E) 522,504.28

LANDING POINT 1

UTM. NAD83, ZONE 17 IN METERS

N) 4,393,646.78

E) 522,674.21

BOTTOM HOLE

UTM. NAD83, ZONE 17 IN METERS

N) 4,396,549.84

E) 521,013.40

LINE BEARING DISTANCE

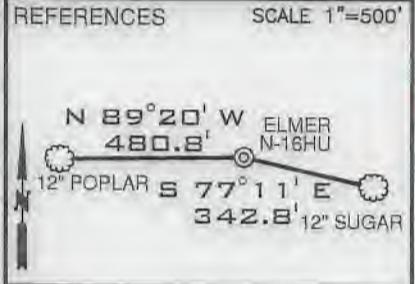
L1 N 41°57' E 1833.41'

L2 N 67°23' E 1391.68'

L3 S 89°03' E 102.29'

L4 S 31°41' E 1,403.14'

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 33°09' E	113.80'	1923.24'	115.82'
C2	S 44°12' E	22.30'	36.84'	22.69'
C3	N 02°19' E	5.74'	5.82'	5.03'
C4	S 20°44' E	41.32'	298.63'	41.38'
C5	N 26°17' W	295.41'	4237.27'	295.47'
C6	N 28°12' W	473.27'	18942.41'	473.28'



FILE NUMBER _____
DRAWING NUMBER ELMER_N-16HU_REV1
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

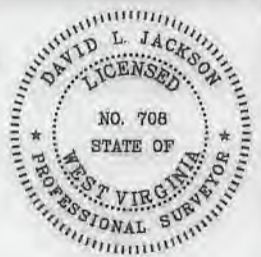
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET, SE
CHARLESTON, WV 25304

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
304-623-5851



SEAL

DATE: JULY 27, 2022

REVISED: SEPTEMBER 28, 2022

OPERATORS WELL NO. ELMER N-16HU

API WELL NO. 47-103-03504

STATE COUNTY PERMIT

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

LOCATION ELEVATION 1276.50' 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 HENRY & NANCY GARNER - SEE WW-6A1 LEASE ACREAGE 39.19

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

TARGET FORMATION POINT PLEASANT PLUG & ABANDON CLEAN OUT & REPLUG
ESTIMATED DEPTH TVD: 11,946' TMD: 23,525'

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

10/21/2022

COUNTY NAME PERMIT

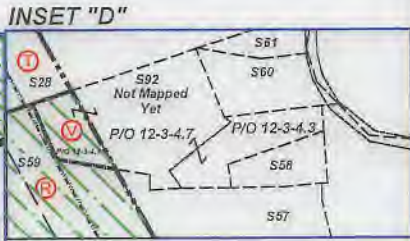
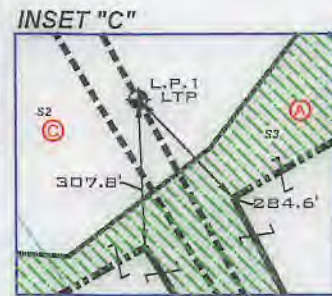
**ELMER LEASE
WELL N-16HU
325.5213± ACRES**

* FORCED POOLED TRACTS ARE HIGHLIGHTED

Tags	Number	Tax Map -Parcel	Surface Owner	Acres
D	S1	12-8-15	ELNORA TUTTLE HRS.	39.19
C	S2	12-8-16	CHARLES & BETTY HUGGINS	39.13
A	S3	12-8-20	NANCY D. TRUEX	95.35
B	S4	12-8-21.1	LINDA M. STOUT	15.26
	S5	12-8-22.1	BARRY C. KIRKLAND	7.401
	S6	12-8-23	JACOB WOODROW & MARY JOSEPHINE NICE	59
	S7	12-8-32	DAVID TODD & CINDY L. BATES & CHARLES M. THOMAS	27.287
	S8	12-8-17	JACOB WOODROW & MARY JOSEPHINE NICE	85.69
	S9	12-8-4	JACOB WOODROW & MARY JOSEPHINE NICE	20.893
	S10	12-8-4.5	JACOB WOODROW & MARY JOSEPHINE NICE	51.107
	S11	12-8-4.1	JACOB WOODROW & MARY JOSEPHINE NICE	6.171
G	S12	12-8-2	R. SHANE & KATHRYN GODDARD	178
	S13	12-8-4.3	BRADY G. & SHARON L. HOWELL	5.59
	S14	12-8-3	R. SHANE & KATHRYN GODDARD	31.13
	S15	12-3-31	DOUGLAS & SUZANNE ESTEP	3.25
	S16	12-3-30.4	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	81.82
	S17	12-3-39.1	WILLIAM NICE	1.31
	S18	12-3-39	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	4.69
	S19	12-3-30.2	APRIL ROSE & DONALD ALLEN POSTLETHWAIT	1.67
	S20	12-3-30	MARY ROSE YOHO - L/E; APRIL ROSE POSTLETHWAIT	0.48
	S21	12-3-29	FRIEND V. ESTEP (RAYMOND F. ESTEP - L/E)	2.9
	S22	12-3-24.1	MATTHEW D. HALL	13
L	S23	12-3-13	LARRY J. & MARY ANN KIRKLAND	95
	S24	12-3-14	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	27
	S25	12-3-4	MARY HOHMAN ET AL	85
	S26	12-3-3.1	DIANA & ROBERT L. SMITH	15.78
	S27	12-3-02	ROBERT LEE & DIANA G. SMITH	2.48
T	S28	5-25-11.2	JAMES W. KLUG	110.491
	S29	12-3-42	J. M. KLUG	2.617
	S30	12-8-20.1	PAUL J. BLAKE	1.5
	S31	12-8-20.3	PAUL J. BLAKE	0.25
	S32	12-8-20.9	JOSHUA M. & COURTNEY R. NEFF	0.4
	S33	12-8-20.8	JOSHUA M. & COURTNEY R. NEFF	0.99
	S34	12-8-20.6	JOHN G. & DEBRA D. THROCKMORTON	1.046
	S35	12-8-20.5	JOE B. MILLER & GERALD & SUE YEATER	44.85
	S36	12-8-4.4	CHARLES & BETTY HUGGINS	0.69
	S37	12-8-4.2	BRENT A. & KIMBERLY J. EDDY	1.861
	S38	12-8-16.1	BRENT A. & KIMBERLY J. EDDY	0.06
E	S39	12-8-14	EDWARD C. & SANDRA K. MURRINER	5.33
F	S40	12-8-13	EDWARD C. & SANDRA K. MURRINER	15
	S41	12-3-32.1	TIMOTHY L. & LEA ANN SUMMERS	1.78
	S42	12-3-32	TIMOTHY L. SUMMERS	2.32
	S43	12-3-30.3	TIMOTHY L. SUMMERS	0.61
	S44	12-3-45	ANTIOCH CHURCH	0.774
	S45	12-3-28	ANTIOCH CHURCH	1
H	S46	12-8-1.1	R. SHANE & KATHRYN GODDARD	92.69
I	S47	12-8-2	JOSH GODDARD	1.81
K	S48	12-3-11.1	LARRY J. & MARY ANN KIRKLAND	0.47
M	S49	12-3-13.1	ZACHARY J. KIRKLAND	5
	S50	12-2-22.1	DAVID A. NICE	54.66
O	S51	12-3-48	RONALD W. & JULIANA NICE	1
P	S52	12-3-12	RODNEY DEAN JACKSON	3.625
	S53	12-2-12	BERYL E. MASON	59.9
	S54	12-2-13	JAY S. BOOTH; DANIEL T. BOOTH & DIANE BETH OVERDORFF	100
	S55	12-3-3	ANITA LARELL SLOUGH	1.12
Q	S56	12-3-1.2	DEREK L. BAKER	5.21
	S57	12-3-4.3	JOSEPH P. & BARBARA A. CAIN	3.619
	S58	12-3-4.8	ERIN HUBBS	0.621
R	S59	12-3-4.7	JOSEPH P. & BARBARA A. CAIN	67.3
	S60	12-3-4.6	STEVEN P. WAYMAN	1.009
	S61	12-3-4.5	HAZEL M. BLAIR	0.451
	S62	12-3-1	JAMES W. KLUG	0.375
	S63	12-3-43	ADAM W. FERRELL & BRITTANY M. LOY	1.97
	S64	12-3-49	LOGAN & AMY TAYLOR	3.814

Tags	Number	Tax Map -Parcel	Surface Owner	Acres
	S65	12-3-47	WETZEL CO. EMERGENCY AMBULANCE	0.5
	S66	12-3-44	JAMES A. & JO C. ESTEP	1.1
	S67	05-25-11.1	EDWARD W. & DIANNA KLUG	2.343
U	S68	05-25-11.4	EDWARD W. KLUG, ET UX	32.787
	S69	12-2-14.2	JOHN G. JR. & GERALDINE W. ROGERS	22.0007
	S70	05-25-13.4	PARSONS CEMETERY	0.382
	S71	05-25-14	ROY F. YOHO	23
	S72	05-25-1	MICHAEL L. MASON	35.43
	S73	05-25-13.2	DAVID A. KLUG	5.89
	S74	05-25-13	WILLIAM M. FERDA, JR. & STEPHANIE L. PALICKA	16.014
	S75	05-25-12.1	KENT & BETTY MASON	15
	S76	05-25-1.5	RYAN J. BRATTON	21.35
	S77	05-25-2	JAMES W. KLUG	122.3
	S78	05-25-3	S.D. FERTITTA, ET UX	181.548
	S79	05-25-3.1	S.D. FERTITTA, ET UX	3.022
	S80	05-25-10	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	18.75
	S81	05-25-10.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	5.25
	S82	12-3-41	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	4.102
	S83	12-3-41.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	74.138
	S84	12-3-4.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	10.5
	S85	12-3-15	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	38
	S86	12-3-22	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	22.5
	S87	12-3-30.1	JOAN & MICHAEL J. ESTEP	1.75
	S88	12-3-33	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	58.32
	S89	12-8-21	EDUARDO C. & SONYA R. DEGUZMAN	11.51
	S90	12-8-32.8	DAVID TODD & CINDY L. BATES	36.425
	S91	12-8-32.6	CHARLES W. THOMAS, JR.	1.309
V	S92	See Inset "D"	JOSHUA D. LEMASTERS & ERIN LEMASTERS	3.602
	S93	p/o 12-3-39 & 30.4	DOUGLAS & SUZANNE ESTEP	0.145

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Deed Book/Page
"FORCE POOL"	12-8-20	A	BRC MINERALS LP, ET AL	102A 501
10*31435	12-8-21.1	B	HENRY AND NANCY GARNER	55 394
10*31435	12-8-16	C	HENRY AND NANCY GARNER	55 394
10*31435	12-8-15	D	HENRY AND NANCY GARNER	55 394
10*31435	12-8-14	E	HENRY AND NANCY GARNER	55 394
10*31435	12-8-13	F	HENRY AND NANCY GARNER	55 394
10*31435	12-8-2	G	HENRY AND NANCY GARNER	55 394
10*31435	12-8-1.1	H	HENRY AND NANCY GARNER	55 394
10*31435	12-8-1.2	I	HENRY AND NANCY GARNER	55 394
10*21681	12-3-21	J	DOROTHY J HAAS, ET AL	214A 358
10*21681	12-3-21.1	K	DOROTHY J HAAS, ET AL	214A 358
10*22229	12-3-13	L	MURIEL A MILLER, ET AL	204A 150
10*22229	12-3-13.1	M	MURIEL A MILLER, ET AL	204A 150
10*21681	12-2-19	N	DOROTHY J HAAS, ET AL	214A 358
10*21681	12-3-48	O	DOROTHY J HAAS, ET AL	214A 358
10*23350	12-3-12	P	RODNEY DEAN JACKSON, ET AL	211A 235
10*39463	12-3-4.2	Q	J P COOPER ET AL	56 245
10*39463	12-3-4.7	R	J P COOPER ET AL	56 245
				941 235
10*19484	12-2-14	S	FREDRIC & BETTY RICHTER, ET AL	195A 166
10*22496	5-25-11.2	T	JAMES W KLUG	923 544
10*22494	5-25-11.4	U	EDWARD W KLUG & DIANNA KLUG ITW ROS	920 109



API	OPERATOR
47-051-02272	Tug Hill Operating, LLC
47-103-03467	Tug Hill Operating, LLC
47-103-03505	Tug Hill Operating, LLC
47-103-03502	Tug Hill Operating, LLC
47-103-03503	Tug Hill Operating, LLC



P.S. 708 *David L Jackson*



TUG HILL OPERATING

OPERATOR'S
WELL #: ELMER N-16HU
DISTRICT: Proctor
COUNTY: Wetzel
STATE: WV **MOD**
API #: 47-103-03504

WELL PLAT
PAGE 2 OF 2
DATE: 07/27/2022
REVISED: 09/28/2022

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

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

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

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

*See attached pages

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

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

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

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

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

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*40570	12-8-20	A	HUBERT D MORRIS	TH EXPLORATION LLC	1/8+	PENDING	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
"FORCE POOL"	12-8-20	A	BRC MINERALS LP	BRC WORKING INTEREST COMPANY	1/8+	102A 501	BRC Working Interest Company LLC to Chesapeake Appalachia LLC: 103A/470	Chesapeake Appalachia LLC to Statoil Onshore Properties Inc: 120A/109	Chesapeake Appalachia LLC to SWN Production Company LLC: 157A/540	Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC: 158A/801	Merger - SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: CB 13/296	SWN Production Company LLC to Antero Exchange Properties LLC: 177A/533	Statoil USA Onshore Properties Inc to Antero Exchange Properties LLC: 177A/738	Merger - Antero Exchange Properties LLC with and into Antero Resources Corp: CB 13/311	"FORCE POOL"	
"FORCE POOL"	12-8-20	A	LINDA WILSON	ANTERO RESOURCES CORPORATION	1/8+	180A 433	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	HAROLD P RICHMOND AND DONNA S RICHMOND	ANTERO RESOURCES CORPORATION	1/8+	186A 350	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	NANCY D TRUEX	ANTERO RESOURCES CORPORATION	1/8+	186A 353	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	RICKY A YEATER AND CAROL A YEATER	ANTERO RESOURCES CORPORATION	1/8+	186A 640	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	SHARON L YEATER	ANTERO RESOURCES CORPORATION	1/8+	186A 643	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	MARY JANE BUNGARD	ANTERO RESOURCES CORPORATION	1/8+	186A 646	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	HESTER LORETTA DUGAN	ANTERO RESOURCES CORPORATION	1/8+	186A 652	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	JANET M HILPERT	ANTERO RESOURCES CORPORATION	1/8+	186A 655	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
"FORCE POOL"	12-8-20	A	TERRY W YEATER	ANTERO RESOURCES CORPORATION	1/8+	186A 661	Antero Resources Corp to EQT Production Company: 231A/22								"FORCE POOL"	
10*31435	12-8-16	C	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31435	12-8-15	D	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31435	12-8-2	G	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*31435	12-8-1.1	H	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*21681	12-3-21	J	DOROTHY J HAAS	TH EXPLORATION LLC	1/8+	214A 358	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22229	12-3-21	J	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22230	12-3-21	J	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22694	12-3-21	J	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	209A 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23007	12-3-21	J	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23512	12-3-21	J	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23697	12-3-21	J	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23719	12-3-21	J	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23797	12-3-21	J	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23824	12-3-21	J	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24004	12-3-21	J	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24148	12-3-21	J	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24175	12-3-21	J	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24602	12-3-21	J	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	215A 402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25009	12-3-21	J	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26923	12-3-21	J	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26986	12-3-21	J	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27309	12-3-21	J	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27548	12-3-21	J	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27549	12-3-21	J	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27963	12-3-21	J	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	232A 339	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28038	12-3-21	J	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31435	12-3-21	J	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31440	12-3-21	J	RACHEL AND JACOB COFFIELD	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*26986	12-3-13	L	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27309	12-3-13	L	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27548	12-3-13	L	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27549	12-3-13	L	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27963	12-3-13	L	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	232A 339	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28038	12-3-13	L	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31426	12-3-13	L	DOROTHY J HAAS	ANTERO RESOURCES CORPORATION	1/8+	194A 88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Antero Resources Corp to TH Exploration LLC: 256A/812

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*31435	12-3-13	L	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463		
10*39163	12-3-13	L	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	263A 282	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22229	12-3-13.1	M	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22230	12-3-13.1	M	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23007	12-3-13.1	M	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23512	12-3-13.1	M	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23697	12-3-13.1	M	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23719	12-3-13.1	M	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23797	12-3-13.1	M	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23824	12-3-13.1	M	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24004	12-3-13.1	M	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24148	12-3-13.1	M	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24175	12-3-13.1	M	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24602	12-3-13.1	M	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	215A 402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*25009	12-3-13.1	M	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26923	12-3-13.1	M	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*26986	12-3-13.1	M	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27309	12-3-13.1	M	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27548	12-3-13.1	M	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27549	12-3-13.1	M	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*27963	12-3-13.1	M	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	232A 339	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*28038	12-3-13.1	M	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*31426	12-3-13.1	M	DOROTHY J HAAS	ANTERO RESOURCES CORPORATION	1/8+	194A 88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Antero Resources Corp to TH Exploration LLC: 256A/812
10*31435	12-3-13.1	M	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463		
10*39163	12-3-13.1	M	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	263A 282	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*21681	12-2-19	N	DOROTHY J HAAS	TH EXPLORATION LLC	1/8+	214A 358	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22229	12-2-19	N	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22230	12-2-19	N	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*22692	12-2-19	N	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	209A 295	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23007	12-2-19	N	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23029	12-2-19	N	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	209A 285	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23512	12-2-19	N	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23697	12-2-19	N	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23719	12-2-19	N	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23797	12-2-19	N	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*23824	12-2-19	N	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24004	12-2-19	N	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24148	12-2-19	N	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*24175	12-2-19	N	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*24775	12-2-19	N	2011 WILLIAM F ROWLAND & CONNIE J ROWLAND IRREVOCABLE TRUST DATED OCTOBER 28, 2011	TH EXPLORATION LLC	1/8+	220A 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25009	12-2-19	N	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26923	12-2-19	N	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26986	12-2-19	N	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27309	12-2-19	N	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27548	12-2-19	N	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27549	12-2-19	N	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27963	12-2-19	N	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	232A 339	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28038	12-2-19	N	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31435	12-2-19	N	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*39464	12-2-19	N	ROBERT AND SARAH J COFFIELD	J A PHILLIPS	1/8+	55 216	J A Phillips to South Penn Oil Company: 55/235	South Penn Oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/452	Merger - CNG Development Company merged with and into CNG Producing Company Eff. 1/1/1991	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479
10*39465	12-2-19	N	ROBERT AND SARAH J COFFIELD	J A PHILLIPS	1/8+	55 212	J A Phillips to South Penn Oil Company: 55/235	South Penn Oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/452	Merger - CNG Development Company merged with and into CNG Producing Company Eff. 1/1/1991	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479
10*23350	12-3-12	P	RODNEY DEAN JACKSON	TH EXPLORATION LLC	1/8+	211A 235	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23494	12-3-12	P	SAMANTHA FAYE JACKSON	TH EXPLORATION LLC	1/8+	212A 55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*39464	12-3-12	P	ROBERT AND SARAH J COFFIELD	J A PHILLIPS	1/8+	55 216	J A Phillips to South Penn Oil Company: 55/235	South Penn Oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/452	Merger - CNG Development Company merged with and into CNG Producing Company Eff. 1/1/1991	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479
10*39463	12-3-4.7	R	J P COOPER ET AL	SOUTH PENN OIL COMPANY	1/8+	56 245	N/A	South Penn Oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/452	Merger - CNG Development Company merged with and into CNG Producing Company Eff. 1/1/1991	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479
10*22496	5-25-11.2	T	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923 543	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: 207A/706
10*22494	5-25-11.4	U	EDWARD W KLUG & DIANNA KLUG JTWROS	AMERICAN PETROLEUM PARTNERS LLC	1/8+	920 109	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109

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]

ASSIGNMENT OF OIL AND GAS LEASES

This ASSIGNMENT OF OIL AND GAS LEASES (hereinafter, "**Assignment**"), made the 7th day of October, 2021 (hereinafter, "**Effective Date**"), is by and between CNX GAS COMPANY LLC, a Virginia limited liability company, whose address is 1000 CONSOL Energy Drive, Suite 400, Canonsburg, Pennsylvania 15317 (hereinafter "**Assignor**") and TH EXPLORATION, LLC, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 (hereinafter "**Assignee**"). All references in this Assignment to "**Party**" shall be deemed at all times to mean Assignor or Assignee and to "**Parties**" shall be deemed to mean both Assignor and Assignee. Capitalized terms used but not defined herein shall have the meaning given such terms in the Acreage Trade Agreement, by and between Assignor and Assignee dated May 26, 2021 (the "**Trade Agreement**").

WHEREAS, Assignor desires to assign all of Assignor's right, title and interest in and to the Assigned Rights (as defined below), as more particularly described in this Assignment.

NOW, THEREFORE, for and in consideration of TEN AND NO/100 DOLLARS (\$10.00) and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby GRANT, BARGAIN, ASSIGN, TRANSFER, AND CONVEY unto Assignee the following "**Assigned Rights**" expressly excluding the Retained Rights (as defined below):

- (a) All of Assignor's right, title, and interest in and to the oil and gas leases described on **Exhibit A** attached hereto and made a part hereof located in Wetzel County, West Virginia ("**Leases**") TO THE EXTENT AND ONLY TO THE EXTENT of the Utica/Point Pleasant Formation (as defined below) (the Leases limited to the Utica/Point Pleasant Formation are the "**Leasehold Rights**");
- (b) all rights expressly granted under the Leases including rights related to, or necessary in connection with, the ownership, exploration, drilling, development, or operation of the Leasehold Rights, including, without limitation, any pooling or unitization, any ability to shut-in a well(s), and the non-exclusive access rights to conduct seismic, geophysical, and other investigations, install pipelines, roadways, surface locations, water and/or power lines, impoundments, structures, tanks, gas gathering and/or metering facilities, and all other related facilities; and
- (c) to the extent the formations shallower than the Utica/Point Pleasant Formation are owned or controlled by Assignor, the non-exclusive right to penetrate and drill through, but not stimulate, perforate or produce, the formations shallower than the Utica/Point Pleasant Formation in order to drill and produce from the Utica/Point Pleasant Formation.

TO HAVE AND TO HOLD the Assigned Rights unto Assignee, its respective successors and assigns, subject to the terms of this Assignment.

"**Retained Rights**" means: (i) any and all existing oil and/or gas wells currently in, on, or pertaining to the Leases ("**Retained Wells**"), (ii) all depths and formations for each Lease described on **Exhibit A** other than the Utica/Point Pleasant Formation ("**Retained Formations**"), (iii) all rights relating to, or necessary in connection with, the ownership, exploration, drilling, development, or operation of the Retained Wells and Retained Formations, including, without limitation, any pooling or unitization, any ability to shut-in any Retained Wells, and the non-exclusive access rights to conduct seismic, geophysical, and other investigations, install pipelines, roadways, surface locations, water and/or power lines,

STATE OF WEST VIRGINIA §
 §
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

WV-AG1R-0009

10/21/2022

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

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 Marshall 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

Marshall County
Jan Pest, Clerk
Instrument 1440860
05/25/2018 @ 02:36:09 PM
ASSIGNMENTS
Book 42 @ Page 109
Pages Recorded 9
Recording Cost \$ 15.00

WV-ACR-0009

MEMORANDUM OF SURFACE USE AGREEMENT

This Memorandum of Surface Use Agreement ("Memorandum") made this 25 day of May 2021 by and between Charles Lee & Betty Jean Huggins, husband and wife, whose address is 5352 Palmer Ridge Road, Proctor, WV 26055, (hereinafter collectively called "Surface Owner"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address of 1320 S. University Drive, Suite 500, Fort Worth, TX 76107, (hereinafter called "Company").

WITNESSETH

For and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound, Surface Owner did make and execute in favor of Company a Surface Use Agreement (the "Agreement") dated May 25, 2021 and made effective May 25, 2021 which provides for a five (5) year term ("Agreement Term") covering Surface Owner's interest in the following described lands (the "Lands"):

The Lands are located, all or part, in Proctor District, Wetzel County, State of West Virginia, and including lands identified as: 12-8-16, and described for the purposes of this Memorandum as containing 39.19 acres, and Lands located, all or part, in Proctor District, Wetzel County, State of West Virginia, and including all contiguous or appurtenant lands owned by Surface Owner, as described in that certain deed dated July 1, 1987 and recorded in the office of the County Clerk of the aforesaid County in Deed Book, 322-120.

The Company desires to use the portion of Land labeled as "Limit of Disturbance - Pad" and "Limit of Disturbance - Access Road" on the attached Exhibit A for the construction and installation of access roads, drilling pads, tanks, fences, pits and any other facilities or equipment necessary or convenient for the drilling, completion, production, operation, and maintenance of the Company's operations on or off the Land as well as to lay, maintain, excavate, construct, survey, re-construct, operate, tie into, inspect, enlarge, repair, replace, alter, clear trees and other obstructions, and remove, one or more above and/or below ground pipelines, whether permanent or temporary, with fittings and appliances, for the transportation of potable and non-potable fresh water, produced water, completion backflow water, oil, gas and other liquid or gaseous products/substances to and from wells drilled, or to be drilled, on or off the Lands and the Surface Owner is agreeable to the same on the terms and conditions set out in the Agreement.

The Agreement also grants unto Company, Surface Owner's consent to and an easement for the drilling, production, and operation of shallow and deep horizontal or vertical oil and gas wells at any legal location(s) upon the surface of the Lands pursuant to W. Va. Code §§ 22-6A and 22C-9-7(b)(4) and applicable regulations.

The Agreement, with all of its terms, covenants and other provisions, is referred to and incorporated into this Memorandum for all purposes. This Memorandum is placed of record for the purpose of giving notice of the Agreement. Nothing contained in this Memorandum will alter or amend any of the terms and provisions of the Agreement. In the event of any conflict between this Memorandum and the Agreement, the terms and conditions of the Agreement shall control.

IN WITNESS WHEREOF this Memorandum of Surface Use Agreement is executed as of the date first above written.

Surface Owner: Charles Lee Huggins
Charles Lee Huggins

Betty Jean Huggins
Betty Jean Huggins

Company: TH EXPLORATION, LLC

By: Benjamin J. Irwin
Name: Benjamin J. Irwin
Title: Attorney-in-Fact

FILED
MAY 28 2021

APR 28 2021

ACKNOWLEDGEMENT

STATE OF WEST VIRGINIA)
) SS:
COUNTY OF WETZEL)

On this the 25 day of May, 2021, before me, a notary public, the undersigned authority, personally appeared Charles Lee Huggins, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.
IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission Expires: August 8, 2021 Signature: [Signature]
Notary Public

Name/Notary Public (print): Mich Feather



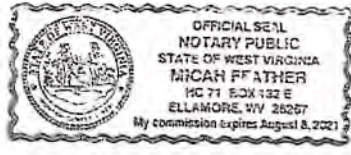
ACKNOWLEDGEMENT

STATE OF WEST VIRGINIA)
) SS:
COUNTY OF WETZEL)

On this the 25 day of May, 2021, before me, a notary public, the undersigned authority, personally appeared Betty Jean Huggins, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.
IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission Expires: August 8, 2021 Signature: [Signature]
Notary Public

Name/Notary Public (print): Mich Feather



ACKNOWLEDGEMENT

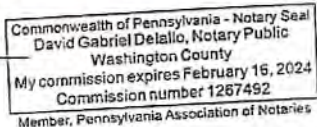
COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF WASHINGTON)

On this, the 25 day of May, 2021, before me a notary public, the undersigned authority, personally appeared Benjamin J. Irwin, who acknowledged himself to be the Attorney-In-Fact of TH EXPLORATION, LLC, a Texas limited liability company, and that he as such Attorney-In-Fact being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited liability company by himself as Attorney-In-Fact.

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

My Commission Expires: 2/16/24 Signature: [Signature]
Notary Public

Name/Notary Public (print): David G. Delallo



Prepared by and please return to:
TH Exploration, LLC
1320 S. University Drive, Suite 500
Fort Worth, TX 76107

APR 28 2022
WV Department of Environmental Protection

10/21/2022



1 inch = 271 feet

0 80 160 320
Feet

NOTE: THE APPROXIMATE LOCATION OF THE DISTURBANCE LIMITS ARE SHOWN BY THE DASHED LINES. THESE LIMITS ARE BASED ON THE LOCATION OF THE PROPOSED PAD AND ACCESS ROAD. CERTAINLY, THE ACTUAL LOCATION OF THE DISTURBANCE LIMITS WILL BE DETERMINED BY THE FIELD SURVEY. THE ACTUAL LOCATION OF THE DISTURBANCE LIMITS WILL BE DETERMINED BY THE FIELD SURVEY. THE ACTUAL LOCATION OF THE DISTURBANCE LIMITS WILL BE DETERMINED BY THE FIELD SURVEY.

Exhibit "A"

CHARLES & BETTY HUGGINS
Wetzel County, WV

Date: 5-25-21

Name: C. L. H.

Name: Betty Jean Huggins



Date: 4/14/2021
PCS: NAD 1983 UTM Zone 17H Feet US

RECEIVED
Office of Oil and Gas
APR 28 2022
WV Department of Environmental Protection

Wetzel County
Carol S. Housht, Clerk
Instrument 308767
06/11/2021 @ 03:59:54 PM
AMENDMENT
Book 138 @ Page 174
Pages Recorded 3
Recording Cost \$ 11.00

10/21/2022

RENEGA WISKO
OFS LAND SERVICES
3000 FORK CENTER BLVD
SUITE 245
DANBURG PA 15317-3841

MEMORANDUM OF SURFACE USE AGREEMENT

This Memorandum of Surface Use Agreement ("Memorandum") made this 14 day of May 2021 by and between Elnora Tuttle, by her Power-of-Attorney whose address is 6768 Proctor Creek Road, Proctor, WV 26055, (hereinafter collectively called "Surface Owner"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address of 1320 S. University Drive, Suite 500, Fort Worth, TX 76107, (hereinafter called "Company").

WITNESSETH

For and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound, Surface Owner did make and execute in favor of Company a Surface Use Agreement (the "Agreement") dated May 14, 2021 and made effective May 24, 2021 which provides for a ten (10) year term ("Agreement Term") covering Surface Owner's interest in the following described lands (the "Lands"):

The Lands are located, all or part, in Proctor District, Wetzel County, State of West Virginia, and including lands identified as: 12-8-15, and described for the purposes of this Memorandum as containing 39.2 acres, and Lands located, all or part, in Proctor District, Wetzel County, State of West Virginia, and including all contiguous or appurtenant lands owned by Surface Owner, as described in that certain deed dated July 25, 1985 and recorded in the office of the County Clerk of the aforesaid County in Deed Book, 315-62.

The Company desires to use the portion of Land labeled as "Limit of Disturbance - Pad" and "Limit of Disturbance - Access Road" on the attached Exhibit A for the construction and installation of access roads, drilling pads, tanks, fences, pits and any other facilities or equipment necessary or convenient for the drilling, completion, production, operation, and maintenance of the Company's operations on or off the Land as well as to lay, maintain, excavate, construct, survey, re-construct, operate, tie into, inspect, enlarge, repair, replace, alter, clear trees and other obstructions, and remove, one or more above and/or below ground pipelines, whether permanent or temporary, with fittings and appliances, for the transportation of potable and non-potable fresh water, produced water, completion backflow water, oil, gas and other liquid or gaseous products/substances to and from wells drilled, or to be drilled, on or off the Lands and the Surface Owner is agreeable to the same on the terms and conditions set out in the Agreement.

The Agreement also grants unto Company, Surface Owner's consent to and an easement for the drilling, production, and operation of shallow and deep horizontal or vertical oil and gas wells at any legal location(s) upon the surface of the Lands pursuant to W. Va. Code §§ 22-6A and 22C-9-7(b)(4) and applicable regulations.

The Agreement, with all of its terms, covenants and other provisions, is referred to and incorporated into this Memorandum for all purposes. This Memorandum is placed of record for the purpose of giving notice of the Agreement. Nothing contained in this Memorandum will alter or amend any of the terms and provisions of the Agreement. In the event of any conflict between this Memorandum and the Agreement, the terms and conditions of the Agreement shall control.

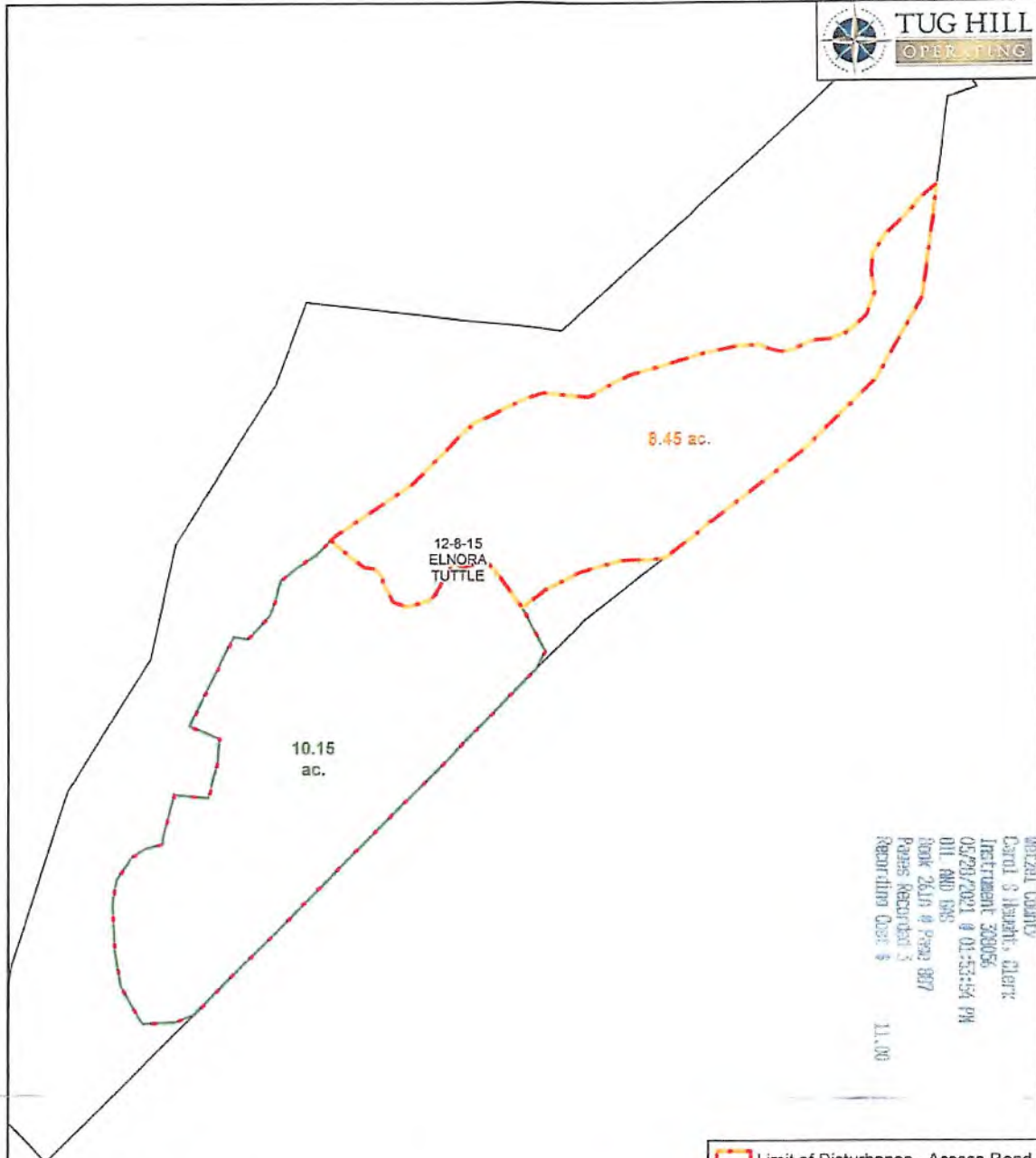
IN WITNESS WHEREOF this Memorandum of Surface Use Agreement is executed as of the date first above written.

Surface Owner: Sandra Murriner
Sandra Murriner
Power-of-Attorney

Company: TH EXPLORATION, LLC

By: Benjamin J. Irwin
Name: Benjamin J. Irwin
Title: Attorney-in-Fact

RECEIVED
TH EXPLORATION, LLC
APR 28 2022
TH EXPLORATION, LLC
A TEXAS LIMITED LIABILITY CORPORATION



Wetzel County
 Carol S. Hebert, Clerk
 Instrument 200056
 05/29/2021 @ 01:53:54 PM
 011 AND 1985
 Book 2619 @ Page 887
 Pages Recorded: 3
 Recording Cost: \$ 11.00

1 inch: 273 feet

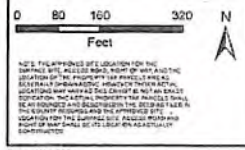


Exhibit "A"
 ELNORA TUTTLE
 Wetzel County, WV

Date: _____
 Name: Samuel D. [Signature]
 Name: _____



Date: 4/14/2021
 PGS: NAD 1983 UTM Zone 17N Feet US

RECEIVED
 Office of Oil and Gas
 APR 28 2022
 WV Department of
 Environmental Protection



SWN Production Company, LLC
P O Box 12359
Spring, Texas 77391-2359
www.swn.com

July 6, 2022

SENT VIA EMAIL

Oil and Gas Conservation Commission
Attn: Ms. Susan Rose
601 57th Street SE
Charleston, WV 25304

Re: Objection to Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Elmer N-14HU
Tug Hill Operating, LLC – Elmer N-15HU
Tug Hill Operating, LLC – Elmer N-16HU
Tug Hill Operating, LLC – Elmer N-17HU

Dear Ms. Rose:

SWN Production Company, LLC (“SWN”) hereby withdraws the May 11, 2022 objections to the above referenced applications filed on behalf of Tug Hill Operating, LLC.

If you have any questions or concerns, please contact the undersigned at (832) 796-6162 or via email at brandi_williams@swn.com.

Respectfully Submitted:
SWN Production Company, LLC

Brandi Williams
Brandi Williams, CPL
Staff Landman



10/21/2022

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*31435	12-8-21.1	B	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31435	12-8-14	E	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31435	12-8-13	F	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*31435	12-8-1.2	I	HENRY AND NANCY GARNER	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 Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463
10*21681	12-3-21.1	K	DOROTHY J HAAS	TH EXPLORATION LLC	1/8+	214A 358	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22229	12-3-21.1	K	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22230	12-3-21.1	K	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23007	12-3-21.1	K	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23512	12-3-21.1	K	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23697	12-3-21.1	K	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23719	12-3-21.1	K	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23797	12-3-21.1	K	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23824	12-3-21.1	K	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24004	12-3-21.1	K	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24148	12-3-21.1	K	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24175	12-3-21.1	K	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24602	12-3-21.1	K	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	215A 402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25009	12-3-21.1	K	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26923	12-3-21.1	K	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26986	12-3-21.1	K	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27309	12-3-21.1	K	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27548	12-3-21.1	K	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27549	12-3-21.1	K	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27963	12-3-21.1	K	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	232A 339	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28038	12-3-21.1	K	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

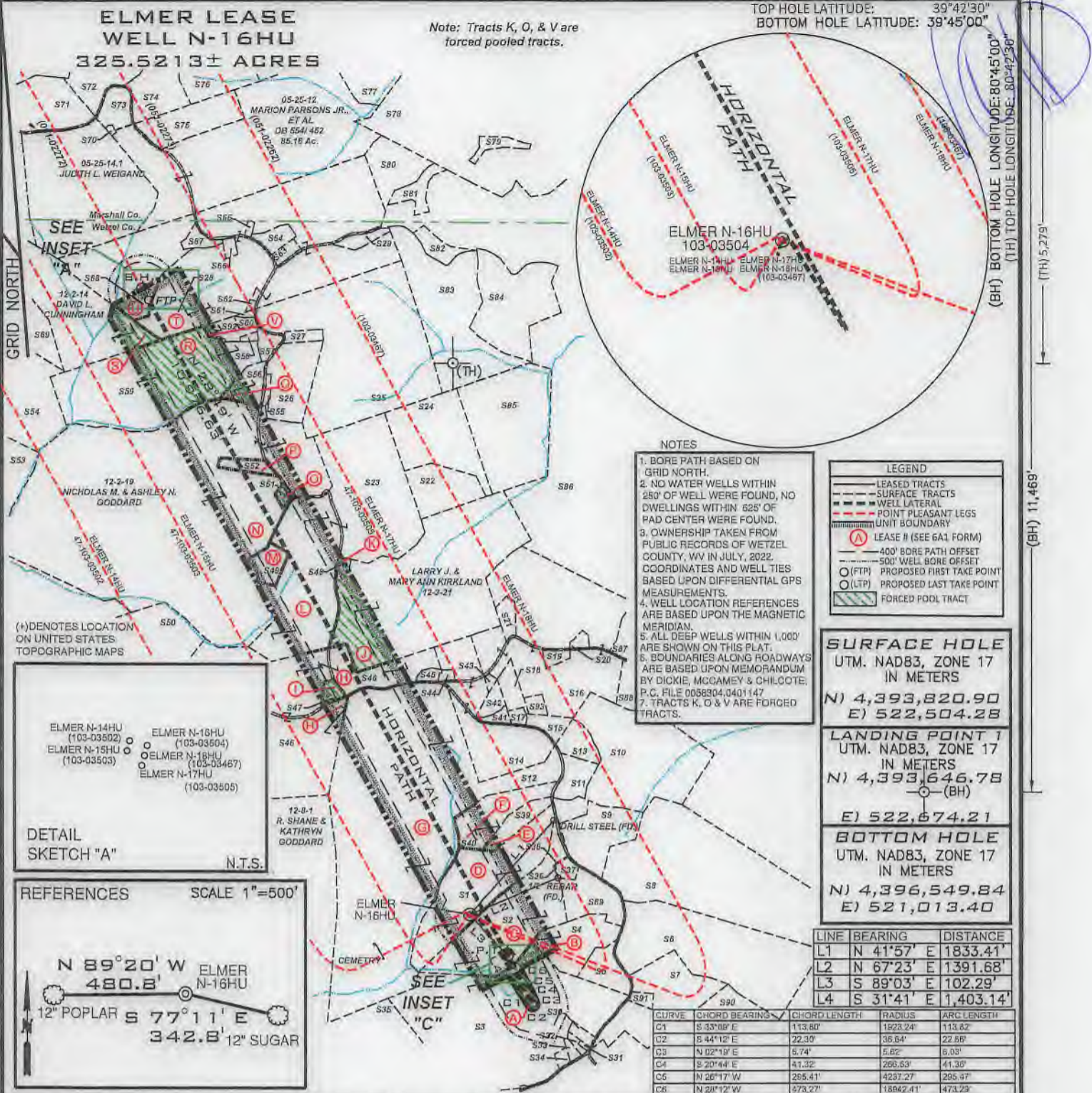
Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*31440	12-3-21.1	K	RACHEL AND JACOB COFFIELD	J A PHILLIPS	1/8+	55 329	J A Phillips to South Penn Oil Company: 56/284	South Penn Oil Company to South Penn Natural Gas Company: 33A/455	South Penn Natural Gas Company to Dallis Snyder & Sam Beren dba Snyder & Beren: 39A/33	Dallis Snyder & Muriel C Snyder, Sam Beren & Sarah Beren, dba Snyder and Beren to John H Robinson & George F Eagon: 39A/38	John H Robinson, Blanche Eagon, Est of George F Eagon, decd, Mildred M Lartigue, Carl L 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 & Harry R Cronin: 44A/92	Katherine A & Harry R Cronin Jr to Charles E & Kathryn C Reed: 51A/241	Kathryn C Reed to Carl Perkins: 55A/54	Carl & Dorothy Louise Perkins to Perkins Oil and Gas Inc: 84A/9	Perkins Oil & Gas Inc to TH Exploration LLC: 251A/463	
10*22229	12-3-13	L	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22230	12-3-13	L	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23007	12-3-13	L	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23512	12-3-13	L	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23697	12-3-13	L	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23719	12-3-13	L	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23797	12-3-13	L	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23824	12-3-13	L	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24004	12-3-13	L	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24148	12-3-13	L	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24175	12-3-13	L	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24602	12-3-13	L	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	215A 402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25009	12-3-13	L	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26923	12-3-13	L	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21681	12-3-48	O	DOROTHY J HAAS	TH EXPLORATION LLC	1/8+	214A 358	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22229	12-3-48	O	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	204A 150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22230	12-3-48	O	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	204A 146	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22692	12-3-48	O	HERBERT L MILLER AND BRENDA S MILLER	TH EXPLORATION LLC	1/8+	209A 295	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23007	12-3-48	O	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	209A 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23512	12-3-48	O	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	212A 59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23697	12-3-48	O	RICHARD ALLEN FONNER AND LINDA M FONNER	TH EXPLORATION LLC	1/8+	212A 521	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23719	12-3-48	O	BRENDA S FONNER	TH EXPLORATION LLC	1/8+	213A 410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23797	12-3-48	O	FREDERICK R FONNER AND PENELOPE G FONNER	TH EXPLORATION LLC	1/8+	213A 703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23824	12-3-48	O	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	215A 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24004	12-3-48	O	JOHN E FONNER AND MICHELE D FONNER	TH EXPLORATION LLC	1/8+	215A 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24148	12-3-48	O	ROY C PARSONS	TH EXPLORATION LLC	1/8+	212A 517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24175	12-3-48	O	THOMAS L FONNER	TH EXPLORATION LLC	1/8+	214A 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25009	12-3-48	O	FRANCES E ALLOWAY	TH EXPLORATION LLC	1/8+	220A 887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26923	12-3-48	O	CHRISTOPHER TILLMAN AND KELLY L TILLMAN	TH EXPLORATION LLC	1/8+	225A 771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26986	12-3-48	O	ROBERT FRANKLIN II FONNER AND KARYN FONNER	TH EXPLORATION LLC	1/8+	226A 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27309	12-3-48	O	JOHN IHNATOLYA AND CHARLOTTE IHNATOLYA	TH EXPLORATION LLC	1/8+	229A 590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27548	12-3-48	O	BECKY LANE LLC	TH EXPLORATION LLC	1/8+	232A 716	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27549	12-3-48	O	BETTY JANE RICHARDSON FONNER	TH EXPLORATION LLC	1/8+	232A 720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28038	12-3-48	O	CHRISTINE C CONNOR AND WILLIAM KYLE CONNOR	TH EXPLORATION LLC	1/8+	234A 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29815	12-3-48	O	RONALD W NICE AND JULIE A NICE	TH EXPLORATION LLC	1/8+	253A 349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*39161	12-3-48	O	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	263A 284	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*39463	12-3-4.2	Q	J P COOPER ET AL	SOUTH PENN OIL COMPANY	1/8+	56 245	N/A	South Penn Oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/452	Merger - CNG Development Company merged with and into CNG Producing Company Eff. 1/1/1991	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479	
10*19484	12-2-14	S	FREDRIC & BETTY RICHTER	TH EXPLORATION LLC	1/8+	941 235 195A 166	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19643	12-2-14	S	PATRICIA LOUISE CROW AND HOY GLENN CROW	TH EXPLORATION LLC	1/8+	944 101 205A 877	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23349	12-2-14	S	LYNN ELLEN BARCUS AND PAUL E BARCUS JR	TH EXPLORATION LLC	1/8+	988 439 211A 335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23403	12-2-14	S	JAN LEA O'DONNELL AND KELLY O'DONNELL	TH EXPLORATION LLC	1/8+	988 436 211A 338	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23426	12-2-14	S	STEVEN L & CAROL J NEWMAN	TH EXPLORATION LLC	1/8+	988 433	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*27435	12-2-14	S	ROHN J BOWERS MARTIN	TH EXPLORATION LLC	1/8+	1058 230A	568 656	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27439	12-2-14	S	GERALD H COOPER	TH EXPLORATION LLC	1/8+	230A 1058	660 570	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27444	12-2-14	S	GREGORY T COOPER AND SUSAN COOPER	TH EXPLORATION LLC	1/8+	230A 1058	658 572	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27569	12-2-14	S	ROBERT LOHR	TH EXPLORATION LLC	1/8+	1060 1063	484 605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27897	12-2-14	S	CAROL VASS	TH EXPLORATION LLC	1/8+	232A 1064	346 145	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27898	12-2-14	S	PAUL G FOX AND CYNTHIA G FOX	TH EXPLORATION LLC	1/8+	233A	522	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*39461	12-2-14	S	JAMES M PARSONS	SOUTH PENN OIL COMPANY	1/8+	73	195	N/A	N/A	South Penn oil Company to Hope Natural Gas Company: 9A/227	Hope Natural Gas Company to Consolidated Gas Supply Corp: 233/387	Consolidated Gas Supply Corp to Consolidated Gas Transmission Corp: 66A/69	Consolidated Gas Transmission Corp to CNG Development Company: 67A/453	Name Change - CNG Producing Company changed name into Dominion Exploration & Producing Inc. - 5/10/2000	Merger - Dominion Exploration & Production Inc merger with and into Consol Gas Company: CB 13/108	Merger - Consol Gas Company merged with and into CNX Gas Company LLC: MB 96/307	CNX Gas Company LLC to TH Exploration LLC: 270A/479

ELMER LEASE WELL N-16HU 325.5213± ACRES

Note: Tracts K, O, & V are forced pooled tracts.

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



- NOTES**
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 525' 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 0088304.0401147
 - TRACTS K, O & V ARE FORCED TRACTS.

LEGEND

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

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS

N) 4,393,820.90
E) 522,504.28

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS

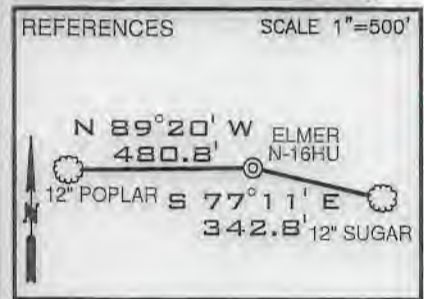
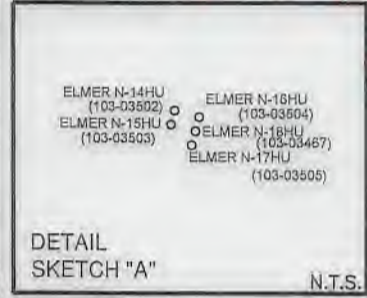
N) 4,393,646.78
E) 522,674.21

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS

N) 4,396,549.84
E) 521,013.40

LINE	BEARING	DISTANCE
L1	N 41°57' E	1833.41'
L2	N 67°23' E	1391.68'
L3	S 89°03' E	102.29'
L4	S 31°41' E	1,403.14'

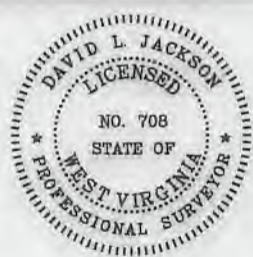
CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 33°08' E	113.80'	1623.24'	113.82'
C2	S 44°12' E	22.30'	36.64'	22.88'
C3	N 02°19' E	5.74'	5.62'	5.03'
C4	S 20°44' E	41.32'	266.63'	41.30'
C5	N 26°17' W	295.41'	4237.27'	295.47'
C6	N 28°12' W	473.27'	18642.41'	473.25'



FILE NUMBER _____
DRAWING NUMBER ELMER_N-16HU_REV1
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 1460
Clarksburg, WV 26302
304-623-5851



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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP X SHALLOW ___
LOCATION ELEVATION 1276.50' 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 X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,946' TMD: 23,525'
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

10/21/2022

COUNTY NAME
PERMIT

FORM WWS

ELMER LEASE WELL N-16HU 325.5213± ACRES

Tags	Number	Tax Map - Parcel	Surface Owner	Acres
D	S1	12-8-15	ELNORA TUTTLE HRS.	39.19
C	S2	12-8-16	CHARLES & BETTY HUGGINS	39.13
A	S3	12-8-20	NANCY D. TRUEX	95.35
B	S4	12-8-21.1	LINDA M. STOUT	15.26
	S5	12-8-22.1	BARRY C. KIRKLAND	7.401
	S6	12-8-23	JACOB WOODROW & MARY JOSEPHINE NICE	59
	S7	12-8-32	DAVID TODD & CINDY L. BATES & CHARLES M. THOMAS	27.287
	S8	12-8-17	JACOB WOODROW & MARY JOSEPHINE NICE	85.69
	S9	12-8-4	JACOB WOODROW & MARY JOSEPHINE NICE	20.893
	S10	12-8-4.5	JACOB WOODROW & MARY JOSEPHINE NICE	51.107
	S11	12-8-4.1	JACOB WOODROW & MARY JOSEPHINE NICE	6.171
G	S12	12-8-2	R. SHANE & KATHRYN GODDARD	178
	S13	12-8-4.3	BRADY G. & SHARON L. HOWELL	5.59
	S14	12-8-3	R. SHANE & KATHRYN GODDARD	31.13
	S15	12-3-31	DOUGLAS & SUZANNE ESTEP	3.25
	S16	12-3-30.4	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	81.82
	S17	12-3-39.1	WILLIAM NICE	1.31
	S18	12-3-39	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & SUZANNE ESTEP (RAYMOND ESTEP - L/E)	4.69
	S19	12-3-30.2	APRIL ROSE & DONALD ALLEN POSTLETHWAIT	1.67
	S20	12-3-30	MARY ROSE YOHO - L/E/ APRIL ROSE POSTLETHWAIT	0.48
	S21	12-3-29	FRIEND V. ESTEP (RAYMOND F. ESTEP - L/E)	2.9
	S22	12-3-14.1	MATTHEW D. HALL	13
L	S23	12-3-13	LARRY J. & MARY ANN KIRKLAND	95
	S24	12-3-14	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	27
	S25	12-3-4	MARY HOHMAN ET AL	85
	S26	12-3-3.1	DIANA & ROBERT L. SMITH	15.78
	S27	12-3-02	ROBERT LEE & DIANA G. SMITH	2.48
T	S28	5-25-11.2	JAMES W. KLUG	110.491
	S29	12-3-42	J. M. KLUG	2.617
	S30	12-8-20.1	PAUL J. BLAKE	1.5
	S31	12-8-20.3	PAUL J. BLAKE	0.25
	S32	12-8-20.9	JOSHUA M. & COURTNEY R. NEFF	0.4
	S33	12-8-20.8	JOSHUA M. & COURTNEY R. NEFF	0.99
	S34	12-8-20.6	JOHN G. & DEBRA D. THROCKMORTON	1.046
	S35	12-8-20.5	JOE B. MILLER & GERALD & SUE YEATER	44.85
	S36	12-8-4.4	CHARLES & BETTY HUGGINS	0.69
	S37	12-8-4.2	BRENT A. & KIMBERLY J. EDDY	1.861
	S38	12-8-16.1	BRENT A. & KIMBERLY J. EDDY	0.06
E	S39	12-8-14	EDWARD C. & SANDRA K. MURRINER	5.33
F	S40	12-8-13	EDWARD C. & SANDRA K. MURRINER	1.5
	S41	12-3-32.1	TIMOTHY L. & LEA ANN SUMMERS	1.78
	S42	12-3-32	TIMOTHY L. SUMMERS	2.32
	S43	12-3-30.3	TIMOTHY L. SUMMERS	0.61
	S44	12-3-45	ANTIOCH CHURCH	0.774
	S45	12-3-28	ANTIOCH CHURCH	1
H	S46	12-8-1.1	R. SHANE & KATHRYN GODDARD	92.69
I	S47	12-8-1.2	JOSH GODDARD	1.81
K	S48	12-3-21.1	LARRY J & MARY ANN KIRKLAND	0.47
M	S49	12-3-13.1	ZACHARY J. KIRKLAND	5
	S50	12-2-22.1	DAVID A. NICE	54.66
O	S51	12-3-46	RONALD W. & JULIANA NICE	1
P	S52	12-3-12	RODNEY DEAN JACKSON	3.625
	S53	12-2-12	BERYL E. MASON	59.9
	S54	12-2-13	JAY S. BOOTH; DANIEL T. BOOTH & DIANE BETH OVERDORFF	100
	S55	12-3-3	ANITA LARELL SLOUGH	1.12
Q	S56	12-3-4.2	DEREK L. BAKER	5.21
	S57	12-3-4.3	JOSEPH P. & BARBARA A. CAIN	3.619
	S58	12-3-4.8	ERIN HUBBS	0.621
R	S59	12-3-4.7	JOSEPH P. & BARBARA A. CAIN	67.3
	S60	12-3-4.6	STEVEN P. WAYMAN	1.009
	S61	12-3-4.5	HAZEL M. BLAIR	0.451
	S62	12-3-1	JAMES W. KLUG	0.375
	S63	12-3-43	ADAM W. FERRELL & BRITTANY M. LOY	1.97
	S64	12-3-49	LOGAN & AMY TAYLOR	3.814

* FORCED POOLED TRACTS ARE HIGHLIGHTED

Tags	Number	Tax Map - Parcel	Surface Owner	Acres
	S65	12-3-47	WETZEL CO. EMERGENCY AMBULANCE	0.5
	S66	12-3-44	JAMES A. & JO C. ESTEP	1.1
	S67	05-25-11.1	EDWARD W. & DIANNA KLUG	2.343
U	S68	05-25-11.4	EDWARD W. KLUG, ET UX	32.787
	S69	12-2-14.2	JOHN G. JR. & GERALDINE W. ROGERS	22.0007
	S70	05-25-13.4	PARSONS CEMETERY	0.382
	S71	05-25-14	ROY F. YOHO	23
	S72	05-25-1	MICHAEL L. MASON	35.43
	S73	05-25-13.2	DAVID A. KLUG	5.89
	S74	05-25-13	WILLIAM M. FERDA, JR. & STEPHANIE L. PAUCKA	16.014
	S75	05-25-12.1	KENT & BETTY MASON	15
	S76	05-25-1.5	RYAN J. BRATTON	21.35
	S77	05-25-2	JAMES W. KLUG	122.3
	S78	05-25-3	S.D. FERTITTA, ET UX	181.548
	S79	05-25-3.1	S.D. FERTITTA, ET UX	3.022
	S80	05-25-10	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	18.75
	S81	05-25-10.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	5.25
	S82	12-3-41	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	4.102
	S83	12-3-41.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	74.138
	S84	12-3-4.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	10.5
	S85	12-3-15	ROBERT W. BAXTER, FREDERICK J. BAXTER & ANN C. LINGER	38
	S86	12-3-22	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	22.5
	S87	12-3-30.1	JOAN & MICHAEL J. ESTEP	1.75
	S88	12-3-33	FRIEND V. ESTEP, MICHAEL & JOAN ESTEP & DOUGLAS & JOAN ESTEP (RAYMOND ESTEP - L/E)	58.32
	S89	12-8-21	EDUARDO C. & SONYA R. DEGUZMAN	11.51
	S90	12-8-32.8	DAVID TODD & CINDY L. BATES	36.425
	S91	12-8-32.6	CHARLES W. THOMAS, JR.	1.309
V	S92	12-3-4.7 & 4.3	JOSHUA D. LEMASTERS & ERIN LEMASTERS	3.602
	S93	p/o 12-3-39 & 30.4	DOUGLAS & SUZANNE ESTEP	0.145

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Deed Book/Page
"FORCE POOL"	12-8-20	A	BRC MINERALS LP, ET AL	102A 501
10*31435	12-8-21.1	B	HENRY AND NANCY GARNER	55 394
10*31435	12-8-16	C	HENRY AND NANCY GARNER	55 394
10*31435	12-8-15	D	HENRY AND NANCY GARNER	55 394
10*31435	12-8-14	E	HENRY AND NANCY GARNER	55 394
10*31435	12-8-13	F	HENRY AND NANCY GARNER	55 394
10*31435	12-8-2	G	HENRY AND NANCY GARNER	55 394
10*31435	12-8-1.1	H	HENRY AND NANCY GARNER	55 394
10*31435	12-8-1.2	I	HENRY AND NANCY GARNER	55 394
10*21681	12-3-21	J	DOROTHY J HAAS, ET AL	214A 358
10*21681	12-3-21.1	K	DOROTHY J HAAS, ET AL	214A 358
10*22229	12-3-13	L	MURIEL A MILLER, ET AL	204A 150
10*22229	12-3-13.1	M	MURIEL A MILLER, ET AL	204A 150
10*21681	12-2-19	N	DOROTHY J HAAS, ET AL	214A 358
10*21681	12-3-48	D	DOROTHY J HAAS, ET AL	214A 358
10*23350	12-3-12	P	RODNEY DEAN JACKSON, ET AL	211A 235
10*39463	12-3-4.2	Q	J P COOPER ET AL	56 245
10*39463	12-3-4.7	R	J P COOPER ET AL	56 245
10*19484	12-2-14	S	FREDRIC & BETTY RICHTER, ET AL	941 235
10*22496	5-25-11.2	T	JAMES W KLUG	923 543
10*22494	5-25-11.4	U	EDWARD W KLUG & DIANNA KLUG JTWROS	920 109

INSET "C"



INSET "B"



NOTE: L.P.1 and L.T.P. are same point.

DEEP WELLS WITHIN 2400' OF PROPOSED WELL'S SURFACE LOCATION AND/OR WITHIN 500' OF WELL LATERAL

API	OPERATOR
47-051-02272	Tug Hill Operating, LLC
47-103-03467	Tug Hill Operating, LLC
47-103-03505	Tug Hill Operating, LLC
47-103-03502	Tug Hill Operating, LLC
47-103-03503	Tug Hill Operating, LLC

INSET "A"



10/21/2022



P.S. 708

David L Jackson



TUG HILL OPERATING

OPERATOR'S
WELL #: ELMER N-16HU
DISTRICT: Proctor
COUNTY: Wetzel
STATE: WV
API #: 47-103-03504

WELL PLAT
PAGE 2 OF 2
DATE: 07/26/2022



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

May 2, 2022

TH Exploration, LLC
1320 S. University Dr Ste 500
Ft Worth TX 76107

9489 0090 0027 6402 6048 59

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Elmer N-16HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in black ink that reads "Susan Rose".

Susan Rose
Administrator

encl:

10/21/2022



May 19, 2022

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6402 6048 59**.

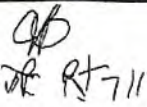
Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	May 6, 2022, 2:51 pm
Location:	FORT WORTH, TX 76107
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	8lb, 15.5oz
----------------	-------------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	1320 S University 76107 TX 500

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

10/21/2022



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

May 2, 2022

Columbia Gas Transmission LLC
1700 MacCorkle Ave SE
Charleston WV 25314

9489 0090 0027 6402 6049 27

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Elmer N-16HU

Dear Sir or Ma'am:

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Sincerely,

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

encl:

10/21/2022



May 19, 2022

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6402 6049 27**.

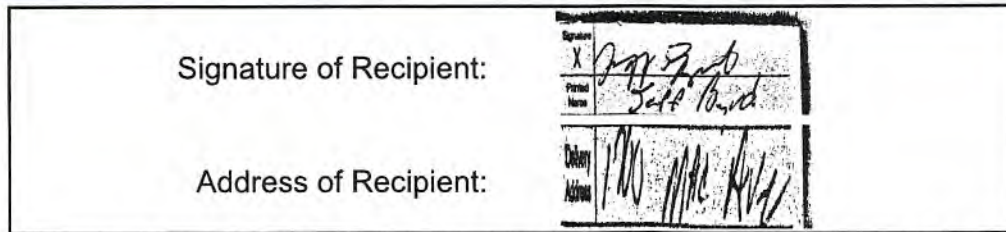
Item Details

Status:	Delivered, Individual Picked Up at Postal Facility
Status Date / Time:	May 6, 2022, 10:32 am
Location:	CHARLESTON, WV 25301
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight: 6lb, 12.6oz

Recipient Signature



Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



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

May 2, 2022

Equinor USA Onshore Properties, Inc.
6300 Bridge Point Pkwy Bldg 2 Ste 100
Austin TX 78730

9489 0090 0027 6402 6048 73

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Elmer N-16HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in black ink that reads "Susan Rose". The signature is written in a cursive, flowing style.

Susan Rose
Administrator

encl:

10/21/2022



May 19, 2022

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6402 6048 73**.

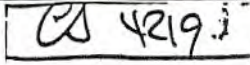

Item Details

Status:	Delivered, Left with Individual
Status Date / Time:	May 18, 2022, 9:29 am
Location:	HOUSTON, TX 77042
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	8lb, 14.0oz
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Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Sincerely,
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475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



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

May 2, 2022

SWN Production Company, LLC
10000 Energy Dr
Spring TX 77389

9489 0090 0027 6402 6048 66

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Elmer N-16HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

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If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in black ink that reads "Susan Rose".

Susan Rose
Administrator

encl:

10/21/2022



May 19, 2022

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6402 6048 66.

Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	May 4, 2022, 11:19 am
Location:	MORGANTOWN, WV 26508
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	8lb, 15.6oz
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Recipient Signature

Signature of Recipient:	<i>Tammy Shub</i> Tammy
Address of Recipient:	1300 Fmt Pierpont # 201

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

10/21/2022



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Deep Modification Horizontal H6A Well Work Permit API : (47-103-03504 & 47-103-03505)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Thu, Oct 20, 2022 at 3:11 PM

To: Amy Morris <amorris@tug-hillop.com>, Scott Lemley <slemley@wvassessor.com>, "Greynolds, Kenneth L" <kenneth.l.greynolds@wv.gov>

I have attached a copy of the newly issued well [permit](#) numbers:

47-103-03504 - ELMER N-16HU

47-103-03505 - ELMER N-17HU

These will serve as your copy.

Thank you,

Wade A. Stansberry

Environmental Resource Specialist 3

West Virginia Department of Environmental Protection

Office of Oil & Gas

601 57th St. SE


Charleston, WV 25304


(304) 926-0499 ext. 41115

(304) 926-0452 fax

Wade.A.Stansberry@wv.gov

2 attachments

 **47-103-03505 - mod.pdf**
4397K

 **47-103-03504 - mod.pdf**
3976K

10/21/2022