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west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, June 28, 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 WILLETT N-1HM  
47-051-02437-00-00

**Lateral Extension**

TUG HILL OPERATING, LLC

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

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



James A. Martin  
Chief

Operator's Well Number: WILLETT N-1HM  
Farm Name: CNX LAND LLC  
U.S. WELL NUMBER: 47-051-02437-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 6/28/2022

Promoting a healthy environment.

07/01/2022



June 3, 2022

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

**VIA USPS**

**RE: Willett N-1HM API#: 47-051-02437  
Meade District, Marshall County, WV**

Dear Wade:

Tug Hill Operating, LLC is submitting a permit modification for its permitted well, Willett N-1HM. Therefore, enclosed please find the following:

- Modified WW-6B with changes highlighted in yellow.
- Updated well plat.
- Updated WW-6A1 information.

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

Sincerely,

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

Enclosures

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**MODIFICATION**

Ch#  
055809  
\$2500  
3/24/22

API NO. 47-051 - 02437  
OPERATOR WELL NO. Willett N-1HM  
Well Pad Name: Willett

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator: Tug Hill Operating, LLC 494510851 Marshall Meade Glen Easton 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Willett N-1HM Well Pad Name: Willett

3) Farm Name/Surface Owner: CNX Land, LLC Public Road Access: CR 62 New Bethel Road

4) Elevation, current ground: 1,310.03' Elevation, proposed post-construction: 1,310.03'

5) Well Type (a) Gas  Oil  Underground Storage

Other

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Marcellus is the target formation at a depth of 6,866' - 6,917', thickness of 51' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 7,017'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 20,108'

11) Proposed Horizontal Leg Length: 11,597.11'

12) Approximate Fresh Water Strata Depths: 70; 992'

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

14) Approximate Saltwater Depths: 1,464'

15) Approximate Coal Seam Depths: Sewickley Coal - 888' and Pittsburgh Coal - 986'

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: Marshall County Coal Resources, Inc./Marshall County Mine

Depth: 986' TVD and 324' subsea level

Seam: Pittsburgh #8

Owner: Marshall County Coal Resources, Inc.

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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	13 3/8"	NEW	J55	54.5#	1,100'	1,100'	1,114FT^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	3,014'	3,014'	999FT^3(CTS)
Production	5 1/2"	NEW	CYPH110	20#	20,108'	20,108'	5,129FT^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,532'	
Liners							

*John Damm*  
5-17-22. *make*

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/ Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 29,000,000 lb proppant and 530,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 15.60 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.44 acres

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

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

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\*Note: Attach additional sheets as needed.

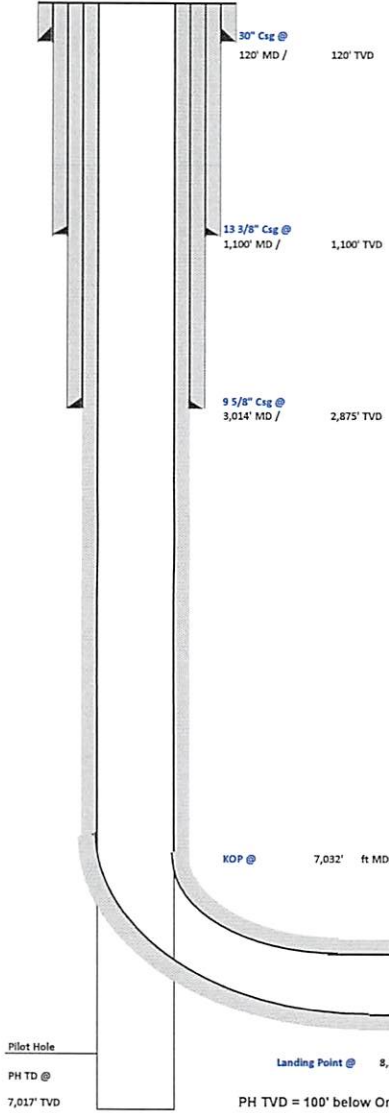


**WELL NAME:** Willett N-1HM  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Meade  
**DF Elev:** 1,310' **GL Elev:** 1,310'  
**TD:** 20,108'  
**TH Latitude:** 39.82294609  
**TH Longitude:** -80.65613126  
**BH Latitude:** 39.84719848  
**BH Longitude:** -80.666795

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	992
Sewickley Coal	888
Pittsburgh Coal	986
Big Lime	2125
Weir	2546
Berea	2743
Gordon	2995
Rhinestreet	6155
Genesee/Burkett	6712
Tully	6746
Hamilton	6775
Marcellus	6866
Landing Depth	6906
Onondaga	6917
Pilot Hole Depth	7017

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,100'	1,100'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	3,014'	2,875'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	20,108'	6,704'	20	CYHP110	Surface

	CEMENT SUMMARY			DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,128	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,004	A	15	Air	1 Centralizer every other jt
Production	4,709	A	14.5	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



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**Tug Hill Operating, LLC Casing and Cement Program**

**Willett N-1HM**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	1,100'	CTS
Intermediate	9 5/8"	J55	12 1/4"	3,014'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	20,108'	CTS

**Cement**

Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2

Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.19

Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 14.5 ppg, Y = 1.19

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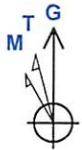


**TUG HILL**  
OPERATING

**Well: Willett N-01 HM (slot A)**  
**Site: Willett**  
**Project: Marshall County, West Virginia**  
**Design: rev1**  
**Rig:**

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1101.00	0.00	0.00	1101.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2"/100' build
3	3181.64	41.61	123.29	3003.49	-396.80	604.31	2.00	123.290	-571.48	Begin 41.61° tangent
4	7031.79	41.61	123.29	5882.05	-1800.18	2741.61	0.00	0.000	-2592.67	Begin 8"/100' build/turn
5	8065.48	50.00	349.28	6758.37	-1555.53	3001.69	8.00	-146.255	-2445.70	Begin 10"/100' build/turn
6	8513.34	91.00	329.55	6906.00	-1174.36	2848.44	10.00	-28.636	-2035.43	Begin 91.00° lateral
7	20108.32	91.00	329.55	6704.00	8819.74	-3027.00	0.00	0.000	9324.73	PBHL/TD 20108.32 MD 6704.00 TVD



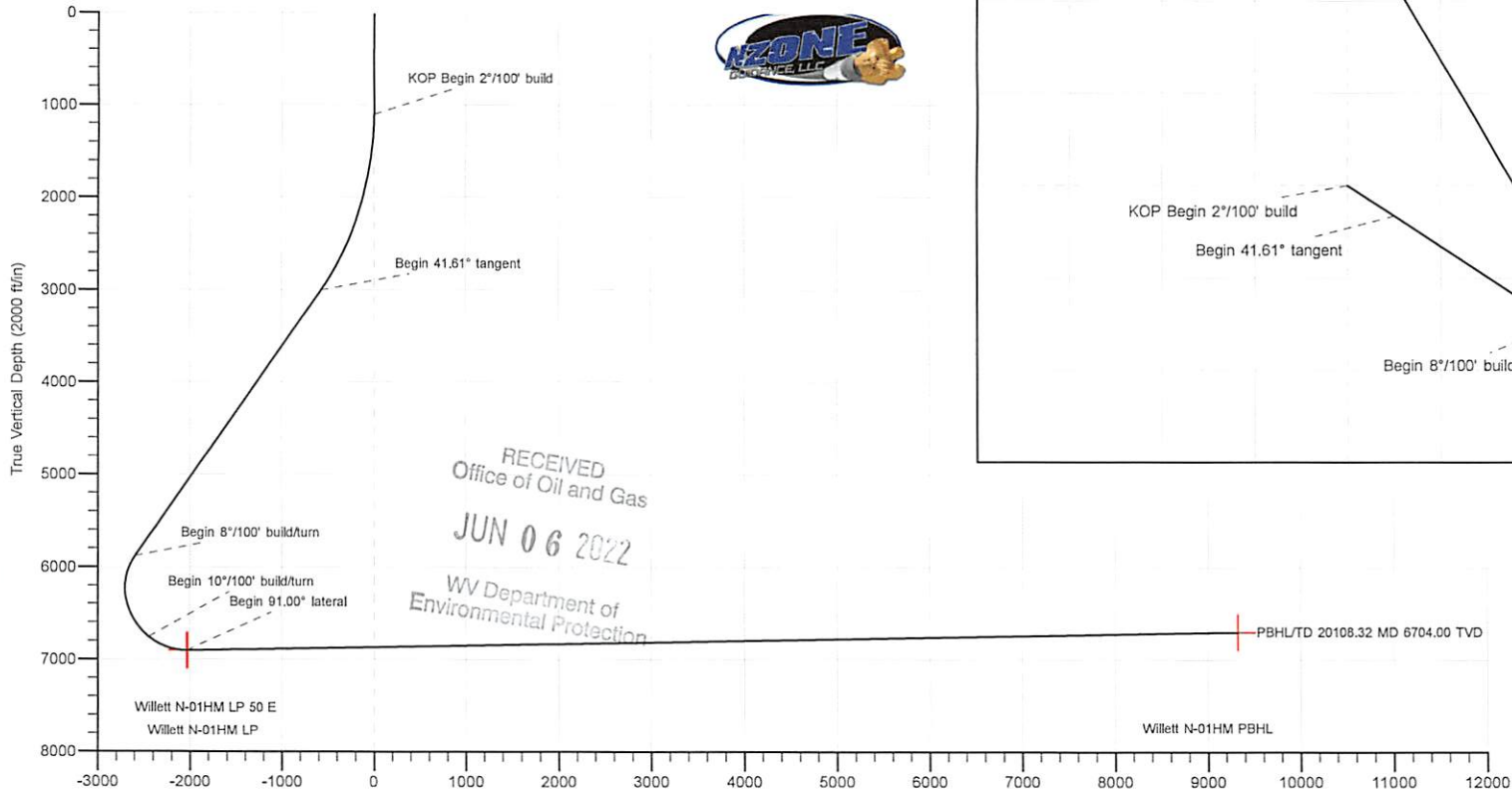
Azimuths to Grid North  
True North: -0.22°  
Magnetic North: -8.92°  
  
Magnetic Field  
Strength: 51741.8nT  
Dip Angle: 66.54°  
Date: 8/19/2021  
Model: IGRF2020

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

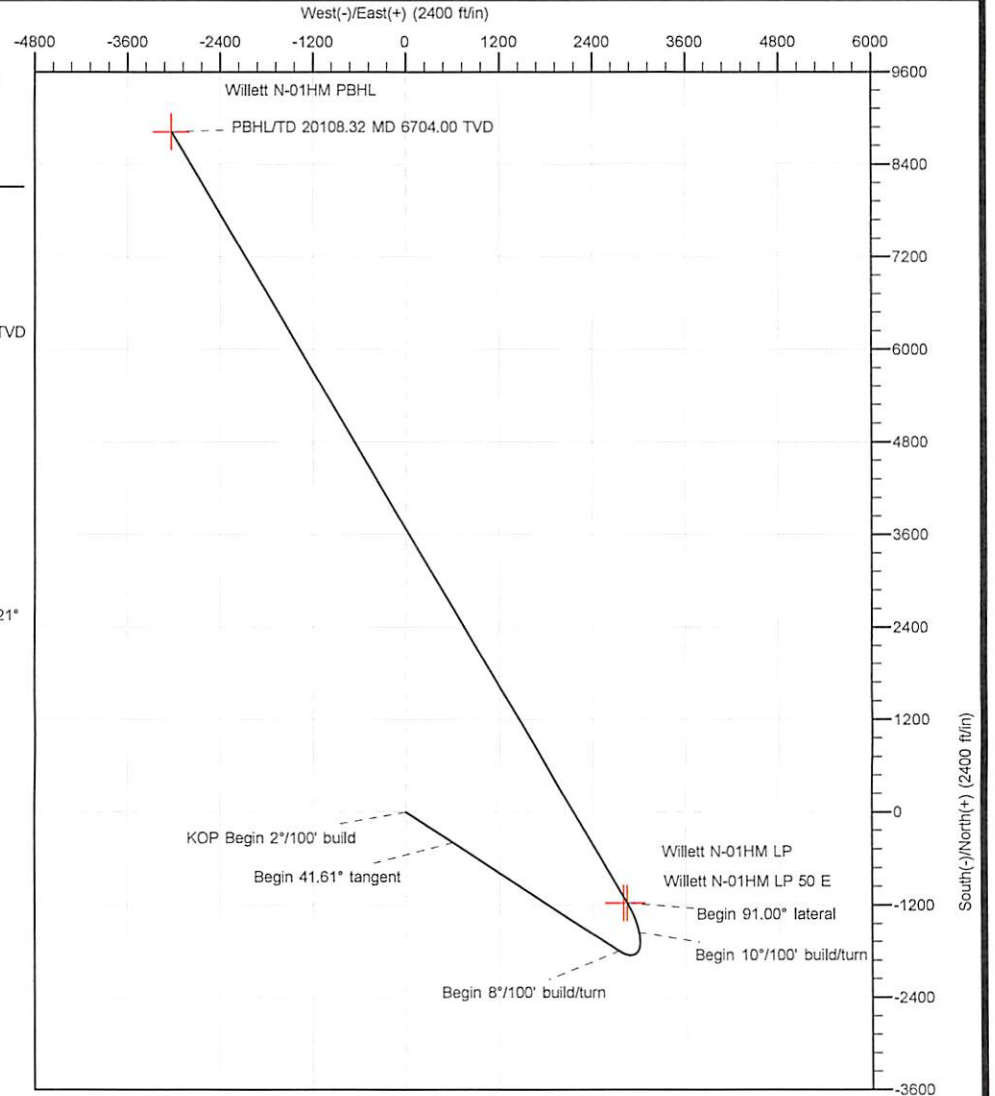
System Datum: Mean Sea Level  
Depth Reference: GL @ 1310.00ft

Northing: 14462447.53    Easting: 1736965.80    Latitude: 39.82294609    Longitude: -80.65613126

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.921°



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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Willett N-01 HM (slot A)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00ft
Site:	Willett	North Reference:	Grid
Well:	Willett N-01 HM (slot A)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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

Site	Willett				
Site Position:		Northing:	14,462,447.53 usft	Latitude:	39.82294609
From:	Lat/Long	Easting:	1,736,965.80 usft	Longitude:	-80.65613126
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Willett N-01 HM (slot A)					
Well Position	+N/-S	0.00 ft	Northing:	14,462,447.53 usft	Latitude:	39.82294609
	+E/-W	0.00 ft	Easting:	1,736,965.80 usft	Longitude:	-80.65613126
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,310.00 ft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/19/2021	-8.701	66.542	51,741.75429793

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	341.06

Plan Survey Tool Program	Date				
	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,108.32	rev1 (Original Hole)		

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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	
1,101.00	0.00	0.00	1,101.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,181.64	41.61	123.29	3,003.49	-396.80	604.31	2.00	2.00	0.00	123.290	
7,031.79	41.61	123.29	5,882.05	-1,800.18	2,741.61	0.00	0.00	0.00	0.000	
8,065.48	50.00	349.28	6,758.37	-1,555.53	3,001.69	8.00	0.81	-12.96	-146.255	
8,513.34	91.00	329.55	6,906.00	-1,174.36	2,848.44	10.00	9.15	-4.41	-28.636	
20,108.32	91.00	329.55	6,704.00	8,819.74	-3,027.00	0.00	0.00	0.00	0.000	Willett N-01HM PBHL

WV Department of Environmental Protection





Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Willett N-01 HM (slot A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1310.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1310.00ft
<b>Site:</b>	Willett	<b>North Reference:</b>	Grid
<b>Well:</b>	Willett N-01 HM (slot A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
100.00	0.00	0.00	100.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
200.00	0.00	0.00	200.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
300.00	0.00	0.00	300.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
400.00	0.00	0.00	400.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
500.00	0.00	0.00	500.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
600.00	0.00	0.00	600.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
700.00	0.00	0.00	700.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
800.00	0.00	0.00	800.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
900.00	0.00	0.00	900.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
1,101.00	0.00	0.00	1,101.00	0.00	0.00	14,462,447.53	1,736,965.80	39.82294609	-80.65613126	
<b>KOP Begin 2°/100' build</b>										
1,200.00	1.98	123.29	1,199.98	-0.94	1.43	14,462,446.59	1,736,967.23	39.82294350	-80.65612618	
1,300.00	3.98	123.29	1,299.84	-3.79	5.78	14,462,443.74	1,736,971.57	39.82293562	-80.65611074	
1,400.00	5.98	123.29	1,399.46	-8.56	13.03	14,462,438.97	1,736,978.83	39.82292246	-80.65608497	
1,500.00	7.98	123.29	1,498.71	-15.23	23.19	14,462,432.30	1,736,988.98	39.82290403	-80.65604888	
1,600.00	9.98	123.29	1,597.48	-23.79	36.24	14,462,423.74	1,737,002.03	39.82288037	-80.65600253	
1,700.00	11.98	123.29	1,695.64	-34.25	52.16	14,462,413.28	1,737,017.95	39.82285149	-80.65594597	
1,800.00	13.98	123.29	1,793.08	-46.57	70.93	14,462,400.96	1,737,036.73	39.82281744	-80.65587928	
1,900.00	15.98	123.29	1,889.68	-60.76	92.54	14,462,386.77	1,737,058.33	39.82277825	-80.65580252	
2,000.00	17.98	123.29	1,985.32	-76.79	116.95	14,462,370.74	1,737,082.74	39.82273398	-80.65571580	
2,100.00	19.98	123.29	2,079.88	-94.64	144.13	14,462,352.89	1,737,109.93	39.82268467	-80.65561923	
2,200.00	21.98	123.29	2,173.24	-114.29	174.06	14,462,333.24	1,737,139.86	39.82263039	-80.65551291	
2,300.00	23.98	123.29	2,265.30	-135.72	206.69	14,462,311.81	1,737,172.49	39.82257120	-80.65539698	
2,400.00	25.98	123.29	2,355.94	-158.90	241.99	14,462,288.63	1,737,207.79	39.82250717	-80.65527158	
2,500.00	27.98	123.29	2,445.05	-183.80	279.91	14,462,263.73	1,737,245.71	39.82243839	-80.65513687	
2,600.00	29.98	123.29	2,532.53	-210.39	320.41	14,462,237.14	1,737,286.21	39.82236494	-80.65499300	
2,700.00	31.98	123.29	2,618.26	-238.64	363.44	14,462,208.89	1,737,329.23	39.82228690	-80.65484015	
2,800.00	33.98	123.29	2,702.14	-268.51	408.94	14,462,179.02	1,737,374.73	39.82220437	-80.65467851	
2,900.00	35.98	123.29	2,784.07	-299.98	456.86	14,462,147.55	1,737,422.65	39.82211745	-80.65450828	
3,000.00	37.98	123.29	2,863.95	-332.99	507.14	14,462,114.54	1,737,472.93	39.82202625	-80.65432967	
3,100.00	39.98	123.29	2,941.68	-367.52	559.72	14,462,080.01	1,737,525.51	39.82193088	-80.65414288	
3,181.64	41.61	123.29	3,003.49	-396.80	604.31	14,462,050.73	1,737,570.10	39.82185000	-80.65398448	
<b>Begin 41.61° tangent</b>										
3,200.00	41.61	123.29	3,017.21	-403.49	614.49	14,462,044.04	1,737,580.29	39.82183152	-80.65394828	
3,300.00	41.61	123.29	3,091.98	-439.94	670.01	14,462,007.59	1,737,635.80	39.82173083	-80.65375108	
3,400.00	41.61	123.29	3,166.74	-476.39	725.52	14,461,971.14	1,737,691.31	39.82163014	-80.65355388	
3,500.00	41.61	123.29	3,241.51	-512.84	781.03	14,461,934.69	1,737,746.83	39.82152945	-80.65335667	
3,600.00	41.61	123.29	3,316.27	-549.29	836.54	14,461,898.24	1,737,802.34	39.82142876	-80.65315947	
3,700.00	41.61	123.29	3,391.04	-585.74	892.06	14,461,861.79	1,737,857.85	39.82132807	-80.65296227	
3,800.00	41.61	123.29	3,465.80	-622.19	947.57	14,461,825.34	1,737,913.36	39.82122737	-80.65276507	
3,900.00	41.61	123.29	3,540.57	-658.64	1,003.08	14,461,788.89	1,737,968.87	39.82112668	-80.65256788	
4,000.00	41.61	123.29	3,615.33	-695.09	1,058.59	14,461,752.44	1,738,024.39	39.82102599	-80.65237068	
4,100.00	41.61	123.29	3,690.10	-731.54	1,114.10	14,461,715.99	1,738,079.90	39.82092530	-80.65217348	
4,200.00	41.61	123.29	3,764.86	-767.99	1,169.62	14,461,679.54	1,738,135.41	39.82082460	-80.65197628	
4,300.00	41.61	123.29	3,839.63	-804.44	1,225.13	14,461,643.09	1,738,190.92	39.82072391	-80.65177909	
4,400.00	41.61	123.29	3,914.39	-840.89	1,280.64	14,461,606.64	1,738,246.43	39.82062322	-80.65158189	
4,500.00	41.61	123.29	3,989.16	-877.34	1,336.15	14,461,570.19	1,738,301.95	39.82052252	-80.65138469	
4,600.00	41.61	123.29	4,063.92	-913.79	1,391.67	14,461,533.74	1,738,357.46	39.82042183	-80.65118750	
4,700.00	41.61	123.29	4,138.69	-950.24	1,447.18	14,461,497.29	1,738,412.97	39.82032113	-80.65099030	
4,800.00	41.61	123.29	4,213.45	-986.69	1,502.69	14,461,460.84	1,738,468.48	39.82022044	-80.65079311	
4,900.00	41.61	123.29	4,288.22	-1,023.14	1,558.20	14,461,424.39	1,738,523.99	39.82011974	-80.65059592	
5,000.00	41.61	123.29	4,362.98	-1,059.59	1,613.71	14,461,387.94	1,738,579.51	39.82001905	-80.65039873	





Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Willett N-01 HM (slot A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1310.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1310.00ft
<b>Site:</b>	Willett	<b>North Reference:</b>	Grid
<b>Well:</b>	Willett N-01 HM (slot A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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	
5,100.00	41.61	123.29	4,437.75	-1,096.04	1,669.23	14,461,351.49	1,738,635.02	39.81991835	-80.65020153	
5,200.00	41.61	123.29	4,512.51	-1,132.49	1,724.74	14,461,315.04	1,738,690.53	39.81981765	-80.65000434	
5,300.00	41.61	123.29	4,587.28	-1,168.94	1,780.25	14,461,278.59	1,738,746.04	39.81971696	-80.64980715	
5,400.00	41.61	123.29	4,662.04	-1,205.39	1,835.76	14,461,242.14	1,738,801.55	39.81961626	-80.64960996	
5,500.00	41.61	123.29	4,736.81	-1,241.84	1,891.27	14,461,205.69	1,738,857.07	39.81951556	-80.64941277	
5,600.00	41.61	123.29	4,811.57	-1,278.29	1,946.79	14,461,169.24	1,738,912.58	39.81941487	-80.64921558	
5,700.00	41.61	123.29	4,886.34	-1,314.74	2,002.30	14,461,132.79	1,738,968.09	39.81931417	-80.64901839	
5,800.00	41.61	123.29	4,961.10	-1,351.19	2,057.81	14,461,096.34	1,739,023.60	39.81921347	-80.64882121	
5,900.00	41.61	123.29	5,035.87	-1,387.64	2,113.32	14,461,059.89	1,739,079.11	39.81911277	-80.64862402	
6,000.00	41.61	123.29	5,110.63	-1,424.09	2,168.84	14,461,023.44	1,739,134.63	39.81901207	-80.64842683	
6,100.00	41.61	123.29	5,185.40	-1,460.54	2,224.35	14,460,986.99	1,739,190.14	39.81891137	-80.64822965	
6,200.00	41.61	123.29	5,260.16	-1,496.99	2,279.86	14,460,950.54	1,739,245.65	39.81881067	-80.64803246	
6,300.00	41.61	123.29	5,334.92	-1,533.44	2,335.37	14,460,914.09	1,739,301.16	39.81870997	-80.64783527	
6,400.00	41.61	123.29	5,409.69	-1,569.89	2,390.88	14,460,877.64	1,739,356.68	39.81860927	-80.64763809	
6,500.00	41.61	123.29	5,484.45	-1,606.34	2,446.40	14,460,841.19	1,739,412.19	39.81850857	-80.64744091	
6,600.00	41.61	123.29	5,559.22	-1,642.79	2,501.91	14,460,804.74	1,739,467.70	39.81840787	-80.64724372	
6,700.00	41.61	123.29	5,633.98	-1,679.24	2,557.42	14,460,768.29	1,739,523.21	39.81830717	-80.64704654	
6,800.00	41.61	123.29	5,708.75	-1,715.69	2,612.93	14,460,731.84	1,739,578.72	39.81820647	-80.64684936	
6,900.00	41.61	123.29	5,783.51	-1,752.14	2,668.45	14,460,695.39	1,739,634.24	39.81810576	-80.64665218	
7,000.00	41.61	123.29	5,858.28	-1,788.59	2,723.96	14,460,658.94	1,739,689.75	39.81800506	-80.64645500	
7,031.79	41.61	123.29	5,882.05	-1,800.18	2,741.61	14,460,647.35	1,739,707.40	39.81797305	-80.64639231	
<b>Begin 8°/100' build/turn</b>										
7,050.00	40.41	122.04	5,895.79	-1,806.63	2,751.66	14,460,640.90	1,739,717.45	39.81795522	-80.64635658	
7,100.00	37.18	118.27	5,934.76	-1,822.39	2,778.72	14,460,625.14	1,739,744.51	39.81791165	-80.64626046	
7,150.00	34.08	113.92	5,975.40	-1,835.23	2,804.84	14,460,612.30	1,739,770.63	39.81787610	-80.64616762	
7,200.00	31.17	108.83	6,017.51	-1,845.09	2,829.90	14,460,602.44	1,739,795.69	39.81784875	-80.64607849	
7,250.00	28.49	102.84	6,060.89	-1,851.92	2,853.79	14,460,595.61	1,739,819.58	39.81782974	-80.64599353	
7,300.00	26.13	95.81	6,105.33	-1,855.69	2,876.38	14,460,591.84	1,739,842.17	39.81781915	-80.64591313	
7,350.00	24.16	87.60	6,150.60	-1,856.38	2,897.56	14,460,591.16	1,739,863.35	39.81781703	-80.64583770	
7,400.00	22.70	78.22	6,196.50	-1,853.98	2,917.23	14,460,593.56	1,739,883.02	39.81782341	-80.64576760	
7,450.00	21.84	67.90	6,242.78	-1,848.50	2,935.30	14,460,599.03	1,739,901.09	39.81783824	-80.64570318	
7,500.00	21.67	57.10	6,289.24	-1,839.99	2,951.68	14,460,607.55	1,739,917.47	39.81786145	-80.64564474	
7,550.00	22.19	46.47	6,335.64	-1,828.46	2,966.28	14,460,619.07	1,739,932.07	39.81789294	-80.64559257	
7,600.00	23.36	36.58	6,381.76	-1,813.99	2,979.04	14,460,633.54	1,739,944.83	39.81793254	-80.64554693	
7,650.00	25.09	27.78	6,427.37	-1,796.64	2,989.89	14,460,650.89	1,739,955.68	39.81798006	-80.64550803	
7,700.00	27.27	20.17	6,472.25	-1,776.50	2,998.79	14,460,671.03	1,739,964.58	39.81803529	-80.64547608	
7,750.00	29.81	13.68	6,516.18	-1,753.66	3,005.68	14,460,693.87	1,739,971.47	39.81809793	-80.64545121	
7,800.00	32.61	8.17	6,558.95	-1,728.24	3,010.54	14,460,719.29	1,739,976.33	39.81816769	-80.64543356	
7,850.00	35.62	3.47	6,600.34	-1,700.36	3,013.33	14,460,747.18	1,739,979.12	39.81824423	-80.64542321	
7,900.00	38.79	359.42	6,640.17	-1,670.15	3,014.05	14,460,777.38	1,739,979.84	39.81832718	-80.64542021	
7,950.00	42.08	355.91	6,678.22	-1,637.76	3,012.70	14,460,809.77	1,739,978.49	39.81841613	-80.64542457	
8,000.00	45.46	352.82	6,714.33	-1,603.36	3,009.28	14,460,844.17	1,739,975.07	39.81851065	-80.64543628	
8,050.00	48.92	350.07	6,748.31	-1,567.10	3,003.80	14,460,880.43	1,739,969.59	39.81861028	-80.64545528	
8,065.48	50.00	349.28	6,758.37	-1,555.53	3,001.69	14,460,892.00	1,739,967.48	39.81864209	-80.64546263	
<b>Begin 10°/100' build/turn</b>										
8,100.00	53.05	347.21	6,779.85	-1,529.08	2,996.18	14,460,918.45	1,739,961.97	39.81871478	-80.64548188	
8,150.00	57.52	344.49	6,808.32	-1,489.25	2,986.11	14,460,958.28	1,739,951.90	39.81882428	-80.64551717	
8,200.00	62.05	342.03	6,833.48	-1,447.90	2,973.65	14,460,999.64	1,739,939.44	39.81893798	-80.64556096	
8,250.00	66.61	339.77	6,855.13	-1,405.33	2,958.90	14,461,042.20	1,739,924.69	39.81905503	-80.64561291	
8,300.00	71.21	337.66	6,873.12	-1,361.88	2,941.96	14,461,085.65	1,739,907.75	39.81917454	-80.64567263	
8,350.00	75.83	335.66	6,887.30	-1,317.88	2,922.96	14,461,129.65	1,739,888.75	39.81929559	-80.64573966	
8,400.00	80.46	333.75	6,897.57	-1,273.65	2,902.05	14,461,173.88	1,739,867.84	39.81941727	-80.64581350	
8,450.00	85.11	331.88	6,903.85	-1,229.55	2,879.39	14,461,217.99	1,739,845.18	39.81953864	-80.64589358	
8,500.00	89.76	330.04	6,906.09	-1,185.89	2,855.15	14,461,261.64	1,739,820.94	39.81965879	-80.64597930	





Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Willett N-01 HM (slot A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1310.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1310.00ft
<b>Site:</b>	Willett	<b>North Reference:</b>	Grid
<b>Well:</b>	Willett N-01 HM (slot A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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
8,513.34	91.00	329.55	6,906.00	-1,174.36	2,848.44	14,461,273.17	1,739,814.23	39.81969052	-80.64600303
<b>Begin 91.00° lateral</b>									
8,600.00	91.00	329.55	6,904.49	-1,099.67	2,804.52	14,461,347.86	1,739,770.31	39.81989613	-80.64615837
8,700.00	91.00	329.55	6,902.75	-1,013.47	2,753.85	14,461,434.06	1,739,719.64	39.82013339	-80.64633762
8,800.00	91.00	329.55	6,901.01	-927.28	2,703.18	14,461,520.25	1,739,668.97	39.82037064	-80.64651687
8,900.00	91.00	329.55	6,899.27	-841.09	2,652.51	14,461,606.44	1,739,618.30	39.82060790	-80.64669612
9,000.00	91.00	329.55	6,897.52	-754.89	2,601.84	14,461,692.64	1,739,567.63	39.82084515	-80.64687537
9,100.00	91.00	329.55	6,895.78	-668.70	2,551.16	14,461,778.83	1,739,516.95	39.82108241	-80.64705463
9,200.00	91.00	329.55	6,894.04	-582.51	2,500.49	14,461,865.02	1,739,466.28	39.82131966	-80.64723388
9,300.00	91.00	329.55	6,892.30	-496.31	2,449.82	14,461,951.22	1,739,415.61	39.82155692	-80.64741314
9,400.00	91.00	329.55	6,890.55	-410.12	2,399.15	14,462,037.41	1,739,364.94	39.82179417	-80.64759240
9,500.00	91.00	329.55	6,888.81	-323.93	2,348.47	14,462,123.60	1,739,314.27	39.82203143	-80.64777166
9,600.00	91.00	329.55	6,887.07	-237.73	2,297.80	14,462,209.80	1,739,263.59	39.82226868	-80.64795092
9,700.00	91.00	329.55	6,885.33	-151.54	2,247.13	14,462,295.99	1,739,212.92	39.82250593	-80.64813018
9,800.00	91.00	329.55	6,883.59	-65.35	2,196.46	14,462,382.18	1,739,162.25	39.82274318	-80.64830944
9,900.00	91.00	329.55	6,881.84	20.85	2,145.78	14,462,468.38	1,739,111.58	39.82298044	-80.64848870
10,000.00	91.00	329.55	6,880.10	107.04	2,095.11	14,462,554.57	1,739,060.90	39.82321769	-80.64866797
10,100.00	91.00	329.55	6,878.36	193.23	2,044.44	14,462,640.76	1,739,010.23	39.82345494	-80.64884724
10,200.00	91.00	329.55	6,876.62	279.43	1,993.77	14,462,726.95	1,738,959.56	39.82369219	-80.64902650
10,300.00	91.00	329.55	6,874.88	365.62	1,943.10	14,462,813.15	1,738,908.89	39.82392945	-80.64920577
10,400.00	91.00	329.55	6,873.13	451.81	1,892.42	14,462,899.34	1,738,858.22	39.82416670	-80.64938504
10,500.00	91.00	329.55	6,871.39	538.01	1,841.75	14,462,985.53	1,738,807.54	39.82440395	-80.64956431
10,600.00	91.00	329.55	6,869.65	624.20	1,791.08	14,463,071.73	1,738,756.87	39.82464120	-80.64974359
10,700.00	91.00	329.55	6,867.91	710.39	1,740.41	14,463,157.92	1,738,706.20	39.82487845	-80.64992286
10,800.00	91.00	329.55	6,866.16	796.59	1,689.73	14,463,244.11	1,738,655.53	39.82511570	-80.65010213
10,900.00	91.00	329.55	6,864.42	882.78	1,639.06	14,463,330.31	1,738,604.85	39.82535295	-80.65028141
11,000.00	91.00	329.55	6,862.68	968.97	1,588.39	14,463,416.50	1,738,554.18	39.82559020	-80.65046069
11,100.00	91.00	329.55	6,860.94	1,055.17	1,537.72	14,463,502.69	1,738,503.51	39.82582745	-80.65063997
11,200.00	91.00	329.55	6,859.20	1,141.36	1,487.05	14,463,588.89	1,738,452.84	39.82606470	-80.65081925
11,300.00	91.00	329.55	6,857.45	1,227.55	1,436.37	14,463,675.08	1,738,402.17	39.82630195	-80.65099853
11,400.00	91.00	329.55	6,855.71	1,313.75	1,385.70	14,463,761.27	1,738,351.49	39.82653919	-80.65117781
11,500.00	91.00	329.55	6,853.97	1,399.94	1,335.03	14,463,847.47	1,738,300.82	39.82677644	-80.65135709
11,600.00	91.00	329.55	6,852.23	1,486.13	1,284.36	14,463,933.66	1,738,250.15	39.82701369	-80.65153638
11,700.00	91.00	329.55	6,850.49	1,572.33	1,233.68	14,464,019.85	1,738,199.48	39.82725094	-80.65171566
11,800.00	91.00	329.55	6,848.74	1,658.52	1,183.01	14,464,106.04	1,738,148.81	39.82748819	-80.65189495
11,900.00	91.00	329.55	6,847.00	1,744.71	1,132.34	14,464,192.24	1,738,098.13	39.82772543	-80.65207424
12,000.00	91.00	329.55	6,845.26	1,830.91	1,081.67	14,464,278.43	1,738,047.46	39.82796268	-80.65225353
12,100.00	91.00	329.55	6,843.52	1,917.10	1,031.00	14,464,364.62	1,737,996.79	39.82819993	-80.65243282
12,200.00	91.00	329.55	6,841.77	2,003.29	980.32	14,464,450.82	1,737,946.12	39.82843717	-80.65261211
12,300.00	91.00	329.55	6,840.03	2,089.49	929.65	14,464,537.01	1,737,895.44	39.82867442	-80.65279140
12,400.00	91.00	329.55	6,838.29	2,175.68	878.98	14,464,623.20	1,737,844.77	39.82891166	-80.65297070
12,500.00	91.00	329.55	6,836.55	2,261.87	828.31	14,464,709.40	1,737,794.10	39.82914891	-80.65314999
12,600.00	91.00	329.55	6,834.81	2,348.07	777.63	14,464,795.59	1,737,743.43	39.82938615	-80.65332929
12,700.00	91.00	329.55	6,833.06	2,434.26	726.96	14,464,881.78	1,737,692.76	39.82962340	-80.65350859
12,800.00	91.00	329.55	6,831.32	2,520.45	676.29	14,464,967.98	1,737,642.08	39.82986064	-80.65368789
12,900.00	91.00	329.55	6,829.58	2,606.65	625.62	14,465,054.17	1,737,591.41	39.83009789	-80.65386719
13,000.00	91.00	329.55	6,827.84	2,692.84	574.94	14,465,140.36	1,737,540.74	39.83033513	-80.65404649
13,100.00	91.00	329.55	6,826.10	2,779.03	524.27	14,465,226.56	1,737,490.07	39.83057238	-80.65422579
13,200.00	91.00	329.55	6,824.35	2,865.23	473.60	14,465,312.75	1,737,439.40	39.83080962	-80.65440510
13,300.00	91.00	329.55	6,822.61	2,951.42	422.93	14,465,398.94	1,737,388.72	39.83104686	-80.65458440
13,400.00	91.00	329.55	6,820.87	3,037.61	372.26	14,465,485.14	1,737,338.05	39.83128411	-80.65476371
13,500.00	91.00	329.55	6,819.13	3,123.80	321.58	14,465,571.33	1,737,287.38	39.83152135	-80.65494302
13,600.00	91.00	329.55	6,817.38	3,210.00	270.91	14,465,657.52	1,737,236.71	39.83175859	-80.65512233
13,700.00	91.00	329.55	6,815.64	3,296.19	220.24	14,465,743.71	1,737,186.03	39.83199583	-80.65530164





Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Willett N-01 HM (slot A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1310.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1310.00ft
<b>Site:</b>	Willett	<b>North Reference:</b>	Grid
<b>Well:</b>	Willett N-01 HM (slot A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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	
13,800.00	91.00	329.55	6,813.90	3,382.38	169.57	14,465,829.91	1,737,135.36	39.83223307	-80.65548095	
13,900.00	91.00	329.55	6,812.16	3,468.58	118.89	14,465,916.10	1,737,084.69	39.83247032	-80.65566026	
14,000.00	91.00	329.55	6,810.42	3,554.77	68.22	14,466,002.29	1,737,034.02	39.83270756	-80.65583958	
14,100.00	91.00	329.55	6,808.67	3,640.96	17.55	14,466,088.49	1,736,983.35	39.83294480	-80.65601889	
14,200.00	91.00	329.55	6,806.93	3,727.16	-33.12	14,466,174.68	1,736,932.67	39.83318204	-80.65619821	
14,300.00	91.00	329.55	6,805.19	3,813.35	-83.79	14,466,260.87	1,736,882.00	39.83341928	-80.65637753	
14,400.00	91.00	329.55	6,803.45	3,899.54	-134.47	14,466,347.07	1,736,831.33	39.83365652	-80.65655685	
14,500.00	91.00	329.55	6,801.71	3,985.74	-185.14	14,466,433.26	1,736,780.66	39.83389376	-80.65673617	
14,600.00	91.00	329.55	6,799.96	4,071.93	-235.81	14,466,519.45	1,736,729.99	39.83413100	-80.65691549	
14,700.00	91.00	329.55	6,798.22	4,158.12	-286.48	14,466,605.65	1,736,679.31	39.83436824	-80.65709481	
14,800.00	91.00	329.55	6,796.48	4,244.32	-337.16	14,466,691.84	1,736,628.64	39.83460548	-80.65727413	
14,900.00	91.00	329.55	6,794.74	4,330.51	-387.83	14,466,778.03	1,736,577.97	39.83484271	-80.65745346	
15,000.00	91.00	329.55	6,792.99	4,416.70	-438.50	14,466,864.23	1,736,527.30	39.83507995	-80.65763279	
15,100.00	91.00	329.55	6,791.25	4,502.90	-489.17	14,466,950.42	1,736,476.62	39.83531719	-80.65781211	
15,200.00	91.00	329.55	6,789.51	4,589.09	-539.84	14,467,036.61	1,736,425.95	39.83555443	-80.65799144	
15,300.00	91.00	329.55	6,787.77	4,675.28	-590.52	14,467,122.80	1,736,375.28	39.83579167	-80.65817077	
15,400.00	91.00	329.55	6,786.03	4,761.48	-641.19	14,467,209.00	1,736,324.61	39.83602890	-80.65835010	
15,500.00	91.00	329.55	6,784.28	4,847.67	-691.86	14,467,295.19	1,736,273.94	39.83626614	-80.65852944	
15,600.00	91.00	329.55	6,782.54	4,933.86	-742.53	14,467,381.38	1,736,223.26	39.83650338	-80.65870877	
15,700.00	91.00	329.55	6,780.80	5,020.06	-793.21	14,467,467.58	1,736,172.59	39.83674061	-80.65888811	
15,800.00	91.00	329.55	6,779.06	5,106.25	-843.88	14,467,553.77	1,736,121.92	39.83697785	-80.65906744	
15,900.00	91.00	329.55	6,777.32	5,192.44	-894.55	14,467,639.96	1,736,071.25	39.83721509	-80.65924678	
16,000.00	91.00	329.55	6,775.57	5,278.64	-945.22	14,467,726.16	1,736,020.57	39.83745232	-80.65942612	
16,100.00	91.00	329.55	6,773.83	5,364.83	-995.90	14,467,812.35	1,735,969.90	39.83768956	-80.65960546	
16,200.00	91.00	329.55	6,772.09	5,451.02	-1,046.57	14,467,898.54	1,735,919.23	39.83792679	-80.65978480	
16,300.00	91.00	329.55	6,770.35	5,537.22	-1,097.24	14,467,984.74	1,735,868.56	39.83816403	-80.65996414	
16,400.00	91.00	329.55	6,768.60	5,623.41	-1,147.91	14,468,070.93	1,735,817.89	39.83840126	-80.66014349	
16,500.00	91.00	329.55	6,766.86	5,709.60	-1,198.58	14,468,157.12	1,735,767.21	39.83863849	-80.66032283	
16,600.00	91.00	329.55	6,765.12	5,795.80	-1,249.26	14,468,243.32	1,735,716.54	39.83887573	-80.66050218	
16,700.00	91.00	329.55	6,763.38	5,881.99	-1,299.93	14,468,329.51	1,735,665.87	39.83911296	-80.66068152	
16,800.00	91.00	329.55	6,761.64	5,968.18	-1,350.60	14,468,415.70	1,735,615.20	39.83935020	-80.66086087	
16,900.00	91.00	329.55	6,759.89	6,054.38	-1,401.27	14,468,501.89	1,735,564.53	39.83958743	-80.66104022	
17,000.00	91.00	329.55	6,758.15	6,140.57	-1,451.95	14,468,588.09	1,735,513.85	39.83982466	-80.66121957	
17,100.00	91.00	329.55	6,756.41	6,226.76	-1,502.62	14,468,674.28	1,735,463.18	39.84006189	-80.66139893	
17,200.00	91.00	329.55	6,754.67	6,312.96	-1,553.29	14,468,760.47	1,735,412.51	39.84029913	-80.66157828	
17,300.00	91.00	329.55	6,752.93	6,399.15	-1,603.96	14,468,846.67	1,735,361.84	39.84053636	-80.66175763	
17,400.00	91.00	329.55	6,751.18	6,485.34	-1,654.63	14,468,932.86	1,735,311.16	39.84077359	-80.66193699	
17,500.00	91.00	329.55	6,749.44	6,571.54	-1,705.31	14,469,019.05	1,735,260.49	39.84101082	-80.66211635	
17,600.00	91.00	329.55	6,747.70	6,657.73	-1,755.98	14,469,105.25	1,735,209.82	39.84124805	-80.66229571	
17,700.00	91.00	329.55	6,745.96	6,743.92	-1,806.65	14,469,191.44	1,735,159.15	39.84148528	-80.66247507	
17,800.00	91.00	329.55	6,744.21	6,830.12	-1,857.32	14,469,277.63	1,735,108.48	39.84172251	-80.66265443	
17,900.00	91.00	329.55	6,742.47	6,916.31	-1,908.00	14,469,363.83	1,735,057.80	39.84195974	-80.66283379	
18,000.00	91.00	329.55	6,740.73	7,002.50	-1,958.67	14,469,450.02	1,735,007.13	39.84219697	-80.66301315	
18,100.00	91.00	329.55	6,738.99	7,088.70	-2,009.34	14,469,536.21	1,734,956.46	39.84243420	-80.66319252	
18,200.00	91.00	329.55	6,737.25	7,174.89	-2,060.01	14,469,622.41	1,734,905.79	39.84267143	-80.66337188	
18,300.00	91.00	329.55	6,735.50	7,261.08	-2,110.68	14,469,708.60	1,734,855.12	39.84290866	-80.66355125	
18,400.00	91.00	329.55	6,733.76	7,347.28	-2,161.36	14,469,794.79	1,734,804.44	39.84314589	-80.66373062	
18,500.00	91.00	329.55	6,732.02	7,433.47	-2,212.03	14,469,880.99	1,734,753.77	39.84338312	-80.66390999	
18,600.00	91.00	329.55	6,730.28	7,519.66	-2,262.70	14,469,967.18	1,734,703.10	39.84362035	-80.66408936	
18,700.00	91.00	329.55	6,728.54	7,605.86	-2,313.37	14,470,053.37	1,734,652.43	39.84385757	-80.66426873	
18,800.00	91.00	329.55	6,726.79	7,692.05	-2,364.05	14,470,139.56	1,734,601.75	39.84409480	-80.66444810	
18,900.00	91.00	329.55	6,725.05	7,778.24	-2,414.72	14,470,225.76	1,734,551.08	39.84433203	-80.66462748	
19,000.00	91.00	329.55	6,723.31	7,864.44	-2,465.39	14,470,311.95	1,734,500.41	39.84456926	-80.66480685	
19,100.00	91.00	329.55	6,721.57	7,950.63	-2,516.06	14,470,398.14	1,734,449.74	39.84480648	-80.66498623	
19,200.00	91.00	329.55	6,719.82	8,036.82	-2,566.74	14,470,484.34	1,734,399.07	39.84504371	-80.66516561	





Planning Report - Geographic

<b>Database:</b>	DB_Dec2220_v16	<b>Local Co-ordinate Reference:</b>	Well Willett N-01 HM (slot A)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1310.00ft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL @ 1310.00ft
<b>Site:</b>	Willett	<b>North Reference:</b>	Grid
<b>Well:</b>	Willett N-01 HM (slot A)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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
19,300.00	91.00	329.55	6,718.08	8,123.02	-2,617.41	14,470,570.53	1,734,348.39	39.84528094	-80.66534499
19,400.00	91.00	329.55	6,716.34	8,209.21	-2,668.08	14,470,656.72	1,734,297.72	39.84551816	-80.66552437
19,500.00	91.00	329.55	6,714.60	8,295.40	-2,718.75	14,470,742.92	1,734,247.05	39.84575539	-80.66570375
19,600.00	91.00	329.55	6,712.86	8,381.60	-2,769.42	14,470,829.11	1,734,196.38	39.84599261	-80.66588313
19,700.00	91.00	329.55	6,711.11	8,467.79	-2,820.10	14,470,915.30	1,734,145.70	39.84622984	-80.66606252
19,800.00	91.00	329.55	6,709.37	8,553.98	-2,870.77	14,471,001.50	1,734,095.03	39.84646706	-80.66624190
19,900.00	91.00	329.55	6,707.63	8,640.18	-2,921.44	14,471,087.69	1,734,044.36	39.84670429	-80.66642129
20,000.00	91.00	329.55	6,705.89	8,726.37	-2,972.11	14,471,173.88	1,733,993.69	39.84694151	-80.66660068
20,108.32	91.00	329.55	6,704.00	8,819.74	-3,027.00	14,471,267.25	1,733,938.80	39.84719848	-80.66679500
PBHL/TD 20108.32 MD 6704.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Willett N-01HM PBHL - hit/miss target - Shape - Point	0.00	0.00	6,704.00	8,819.74	-3,027.00	14,471,267.25	1,733,938.80	39.84719848	-80.66679500
Willett N-01HM LP 50 E - plan misses target center by 0.02ft at 8513.33ft MD (6906.00 TVD, -1174.37 N, 2848.44 E) - Point	0.00	0.01	6,906.00	-1,174.38	2,848.43	14,461,273.15	1,739,814.22	39.81969047	-80.64600306
Willett N-01HM LP - plan misses target center by 43.12ft at 8538.66ft MD (6905.56 TVD, -1152.53 N, 2835.60 E) - Point	0.00	0.00	6,906.00	-1,174.38	2,798.43	14,461,273.15	1,739,764.22	39.81969101	-80.64618114

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,101.00	1,101.00	0.00	0.00	KOP Begin 2°/100' build	
3,181.64	3,003.49	-396.80	604.31	Begin 41.61° tangent	
7,031.79	5,882.05	-1,800.18	2,741.61	Begin 8°/100' build/turn	
8,065.48	6,758.37	-1,555.53	3,001.69	Begin 10°/100' build/turn	
8,513.34	6,906.00	-1,174.36	2,848.44	Begin 91.00° lateral	
20,108.32	6,704.00	8,819.74	-3,027.00	PBHL/TD 20108.32 MD 6704.00 TVD	



**TUG HILL**  
**OPERATING**

**Well Site Safety Plan**  
**Part A – Site Specific Data and Figures**

**Well Name: Willett N-1HM**

**Pad Name: Willett**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,408,162.76

Easting: 529,428.23

*Handwritten signature and date: 5-17-22*

**KEY CONTACT FOR WELL SITE SAFETY PLAN  
DEVELOPMENT AND MAINTENANCE**

**Jerry V. DeRosa, Director EH&S Affairs**

**(724) 338-2029 (office)**

**(412) 736-5767 (cellular)**

**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

RECEIVED  
Office of Oil and Gas

JUN 06 2022

WV Department of  
Environmental Protection

07/01/2022



**WILLETT N LEASE  
1HM  
TUG HILL OPERATING**

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°52'30"

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

NAD'83 S.P.C.(FT) N. 483,948.41 E. 1,643,786.07  
NAD'83 GEO. LAT-(N) 39.822946 LONG-(W) 80.656131  
NAD'83 UTM (M) N. 4,408,162.82 E. 529,428.23

LANDING POINT

NAD'83 S.P.C.(FT) N. 482,726.2 E. 1,646,615.4  
NAD'83 GEO. LAT-(N) 39.819691 LONG-(W) 80.646003  
NAD'83 UTM (M) N. 4,407,804.9 E. 530,296.4

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 492,820.5 E. 1,640,905.9  
NAD'83 GEO. LAT-(N) 39.847198 LONG-(W) 80.666795  
NAD'83 UTM (M) N. 4,410,851.1 E. 528,505.6

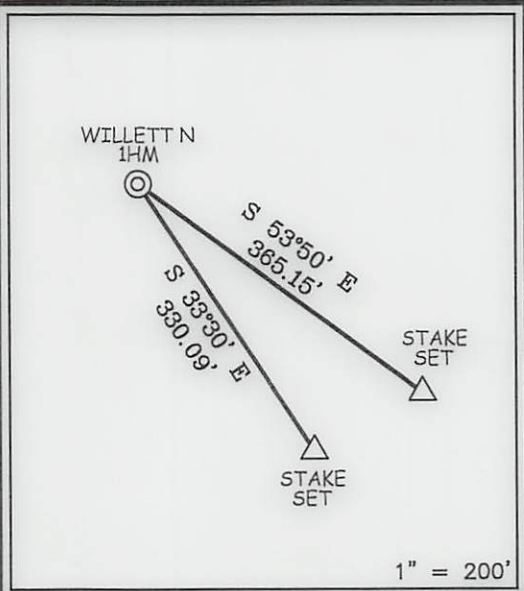
T.H. LONGITUDE 80°37'30"  
B.H. LONGITUDE 80°40'00"

10,127' B.H.

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
3-12-22	MARSHALL COUNTY COAL COMPANY	6.80
3-12-22.1	CNX LAND, LLC	0.43
3-12-22.2	GARY W. MORRIS, ET UX	2.06
3-12-24.1	CNX LAND, LLC	0.22
3-19A-55	CNX LAND, LLC	P/O 82.47
3-19A-63	DOUGLAS & PAMELA MYERS	2.73
9-3-2.1	JAMES & GINGER REGIEC	0.940
9-3-4.1	DANIEL WEST, ET UX	0.986
9-3-4.2	GRANT M. & MALISSA D. CARTER	0.720
9-3-4.3	JOHN & RACHELL HOLPP	0.870
9-3-4.4	JIM & GINGER REGIEC	1.044
9-3-4.6	DANIEL R. WEST, ET UX	12.035
9-3-6.1	TRAVIS POSTLETHWAIT	1.0468
9-3-8	MARSHALL COUNTY COAL COMPANY	4.12
9-3-15.1	MARSHALL COUNTY PUBLIC SERVICE DISTRICT #4	0.2296
9-3-17.1	BRIAN & LEAH KESTNER	11.8
9-8-5.2	AMY EVANS & KAREN WHETZAL	4.586
9-8-6.1	KAYLA E. BRATTON	1.423
9-9-7.1	RAYMOND DEWAINA DOBBS, ET AL	9.00
9-9-7.2	XCL PROCESSING OPERATING LLC	3.907
9-9-7.3	JEFFREY B. THOMAS	1.297

TAG	SURFACE OWNER	PARCEL	ACRES
A	CNX LAND, LLC	9-8-6	27.596
B	LARRY S. NEELY - LIFE	9-8-7.1	76.005
C	JAMES RICHARD BLAKE, ET UX	9-8-9	42.49
D	JAMES RICHARD BLAKE, ET UX	9-8-8	49.86
E	GLEN G. CORCZYCA - TOD	9-9-6	25.12
F	RAYMOND DEWAINA DOBBS, ET AL	9-3-14	81.331
G	TREVOR L. NEELY	9-8-7	8.613
H	CNX LAND, LLC	9-3-16	53.00
I	CNX LAND, LLC	9-3-17	65.86
J	ALVIN D. & CAROL D. BARRETT	9-3-7	27.19
K	ALVIN D. & CAROL D. BARRETT	9-3-6	29.9702
L	GRANT M. & MALISSA D. CARTER	9-3-4.5	50.543
M	JAMES & GINGER REGIEC	9-3-4.7	25.025
N	JAMES E. JR., & GINGER REGIEC	9-3-3	68.30
O	CNX LAND, LLC	3-12-28	P/O 82.47
P	EFFIE A. STERN EST., ET AL	3-12-8	4.29
Q	ROBERT W. ZIRKLE, ET AL	3-12-9	30.71

**REFERENCES**



**NOTES ON SURVEY**

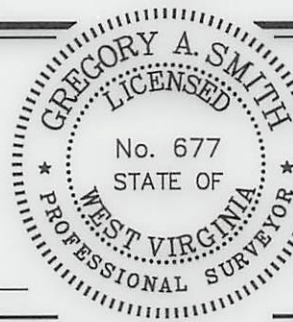
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5295  
sllsv.com

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

P.S. 677 Gregory A. Smith



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

DATE SEPTEMBER 8, 20 21

REVISED \_\_\_\_\_, 20 \_\_\_\_\_

OPERATORS WELL NO. WILLETT N 1HM M&D

API WELL NO. 47 - 051 - 02437  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8939P1HM.dwg  
WILLETT N 1HM-REV1

HORIZONTAL & VERTICAL CONTROL DETERMINED BY: DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION 1,310.03' WATERSHED TRIBUTARY OF UPPER BOWMAN RUN

DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER CNX LAND LLC ACREAGE 27.596±

ROYALTY OWNER APPALACHIAN BASIN MINERALS, LP, ET AL ACREAGE 27.596±

PROPOSED WORK: LEASE NO. SEE WW-6A1

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD

FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH TVD: 7,017' / TMD: 20,108'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN - CT CORPORATION

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W, STE 407

FORT WORTH, TX 76107 CHARLESTON, WV 25313-1561

COUNTY NAME

PERMIT

07/01/2022



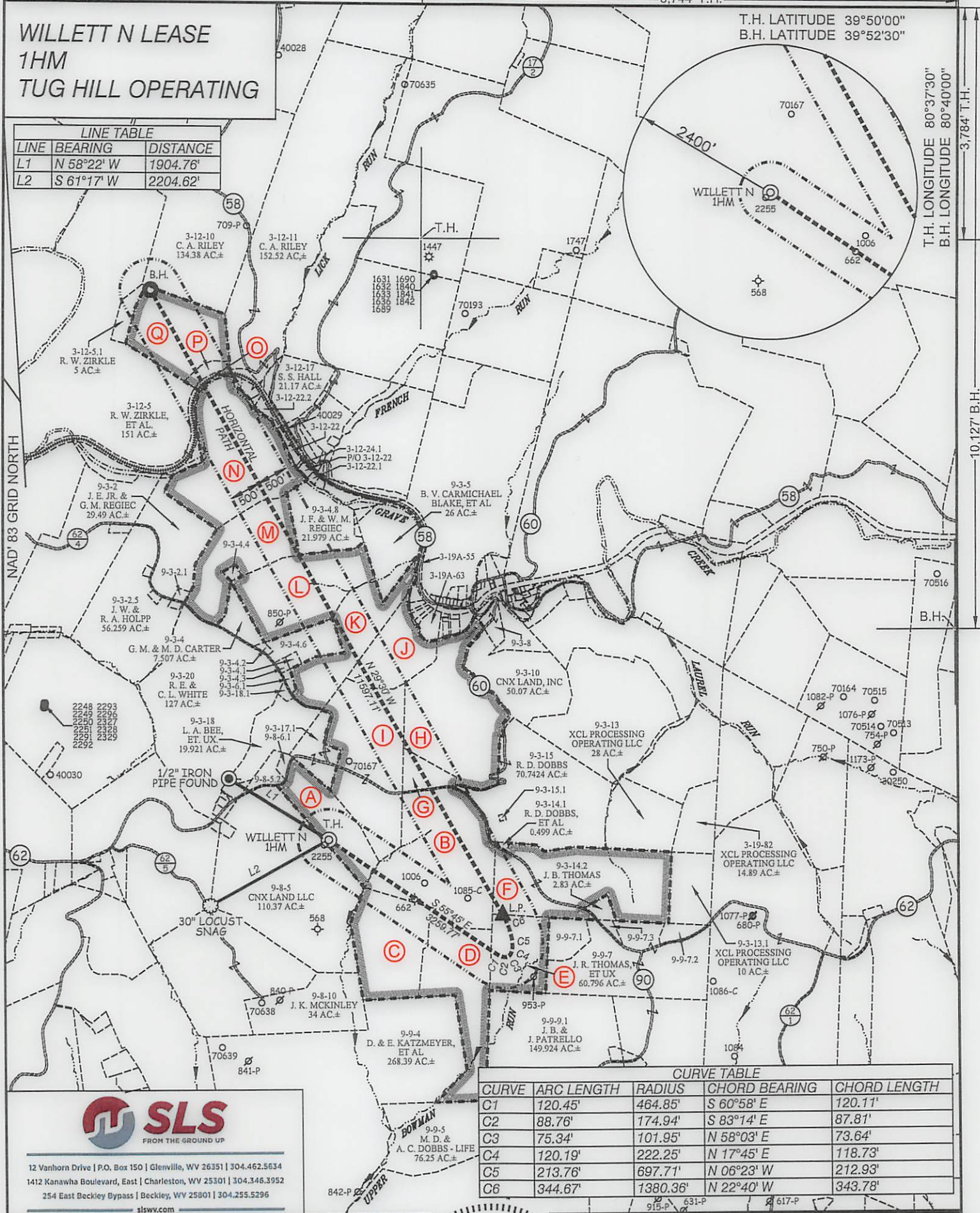
**WILLETT N LEASE  
1HM  
TUG HILL OPERATING**

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°52'30"

T.H. LONGITUDE 80°37'30"  
B.H. LONGITUDE 80°40'00"

**LINE TABLE**

LINE	BEARING	DISTANCE
L1	N 58°22' W	1904.76'
L2	S 61°17' W	2204.62'



**CURVE TABLE**

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	120.45'	464.85'	S 60°58' E	120.11'
C2	88.76'	174.94'	S 83°14' E	87.81'
C3	75.34'	101.95'	N 58°03' E	73.64'
C4	120.19'	222.25'	N 17°45' E	118.73'
C5	213.76'	697.71'	N 06°23' W	212.93'
C6	344.67'	1380.36'	N 22°40' W	343.78'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
slswv.com



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

P.S. 677 *Gregory A. Smith*

**LEGEND**

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

SCALE 1" = 2000' FILE NO. 8939P1HM.dwg  
WILLETT N 1HM-REV1  
DATE SEPTEMBER 8, 20 21  
REVISED \_\_\_\_\_, 20 \_\_\_\_  
OPERATORS WELL NO. WILLETT N 1HM  
API WELL NO. 47 - 051 - 02437  
STATE COUNTY PERMIT

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

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN - CT CORPORATION  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W, STE 407  
FORT WORTH, TX 76107 CHARLESTON, WV 25313-1561



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

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

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

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

**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

RECEIVED  
 Office of Oil and Gas  
 JUN 06 2022  
 WV Department of  
 Environmental Protection

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*21602	9-8-6	A	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21604	9-8-6	A	WILLIAM EDWARD STACY AND JACQUELINE L STACY	TH EXPLORATION LLC	1/8+	958 428	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22616	9-8-6	A	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968 281	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22618	9-8-6	A	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966 636	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22721	9-8-6	A	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988 134	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22796	9-8-6	A	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22880	9-8-6	A	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22881	9-8-6	A	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23107	9-8-6	A	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983 620	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23141	9-8-6	A	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984 7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23142	9-8-6	A	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23161	9-8-6	A	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983 618	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23162	9-8-6	A	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983 622	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23163	9-8-6	A	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983 571	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23176	9-8-6	A	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23181	9-8-6	A	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983 627	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23192	9-8-6	A	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984 472	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23313	9-8-6	A	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988 136	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23419	9-8-6	A	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23420	9-8-6	A	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988 490	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23739	9-8-6	A	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1011 538	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23740	9-8-6	A	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1011 532	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23741	9-8-6	A	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1011 515	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23742	9-8-6	A	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1011 536	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23743	9-8-6	A	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1011 534	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23749	9-8-6	A	MARCELLUS TX MINERAL PRTRNR LTD	TH EXPLORATION LLC	1/8+	1012 193	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24781	9-8-6	A	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027 578	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24782	9-8-6	A	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027 572	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24783	9-8-6	A	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027 569	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25224	9-8-6	A	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030 141	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25701	9-8-6	A	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034 239	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25716	9-8-6	A	RUSSELL BREDBENNER	TH EXPLORATION LLC	1/8+	1035 23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26631	9-8-6	A	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039 322	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28092	9-8-6	A	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28647	9-8-6	A	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076 65	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31007	9-8-6	A	CAROL D ELMORE	CHEVRON USA INC	1/8+	793 383	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31008	9-8-6	A	NORMA V PRATICO	CHEVRON USA INC	1/8+	794 532	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31002	9-8-6	A	MARK F HEUSER	CHEVRON USA INC	1/8+	791 247	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31005	9-8-6	A	GARY KEITH BERGER	CHEVRON USA INC	1/8+	793 358	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31006	9-8-6	A	JAMES S WILSON	CHEVRON USA INC	1/8+	793 375	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31009	9-8-6	A	MARGARET LEE HALL	CHEVRON USA INC	1/8+	795 414	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31010	9-8-6	A	JULIANNE ERDOS	CHEVRON USA INC	1/8+	795 57	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31011	9-8-6	A	MARVIN C WILSON	CHEVRON USA INC	1/8+	795 350	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31012	9-8-6	A	JAMES P OVIES	CHEVRON USA INC	1/8+	797 368	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31013	9-8-6	A	BERTHA LYNN KLUG	CHEVRON USA INC	1/8+	797 548	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31014	9-8-6	A	CHERYL FOX BRAUCH	CHEVRON USA INC	1/8+	800 489	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31015	9-8-6	A	CAROL FOX VALLANDINGHAM	CHEVRON USA INC	1/8+	800 564	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*31016	9-8-6	A	JESSICA M CHAVEZ	CHEVRON USA INC	1/8+	804 393	N/A	N/A	N/A	N/A	N/A	N/A
10*31017	9-8-6	A	PHILIP A WILSON	CHEVRON USA INC	1/8+	805 421	N/A	N/A	N/A	N/A	N/A	N/A
10*31018	9-8-6	A	JUANITA S HATCH LIVING TRUST DTD 2/16/1998	CHEVRON USA INC	1/8+	831 438	N/A	N/A	N/A	N/A	N/A	N/A
10*31019	9-8-6	A	EDWARD F WILSON	CHEVRON USA INC	1/8+	813 564	N/A	N/A	N/A	N/A	N/A	N/A
10*31020	9-8-6	A	MATTHEW L GROSSAINT	CHEVRON USA INC	1/8+	818 6	N/A	N/A	N/A	N/A	N/A	N/A
10*31021	9-8-6	A	TROY THOMAS WILSON	CHEVRON USA INC	1/8+	828 352	N/A	N/A	N/A	N/A	N/A	N/A
10*31022	9-8-6	A	ELLA JEAN MCCARDLE	CHEVRON USA INC	1/8+	828 374	N/A	N/A	N/A	N/A	N/A	N/A
10*31027	9-8-6	A	LOU ANN GROSSAINT	CHEVRON USA INC	1/8+	829 470	N/A	N/A	N/A	N/A	N/A	N/A
10*31029	9-8-6	A	JESSE ALLEN WILSON	CHEVRON USA INC	1/8+	831 355	N/A	N/A	N/A	N/A	N/A	N/A
10*31034	9-8-6	A	APRIL DAWN HOGAN	CHEVRON USA INC	1/8+	835 248	N/A	N/A	N/A	N/A	N/A	N/A
10*31035	9-8-6	A	KIMBERLY SUE PIERSON	CHEVRON USA INC	1/8+	835 271	N/A	N/A	N/A	N/A	N/A	N/A
10*31036	9-8-6	A	JOSEPH RICHARD FOX	CHEVRON USA INC	1/8+	800 546	N/A	N/A	N/A	N/A	N/A	N/A
10*31043	9-8-6	A	DIANE M BAYLESS	CHEVRON USA INC	1/8+	798 97	N/A	N/A	N/A	N/A	N/A	N/A
10*31044	9-8-6	A	DENNIS M WILSON	CHEVRON USA INC	1/8+	798 97	N/A	N/A	N/A	N/A	N/A	N/A
10*31045	9-8-6	A	DAVID H WILSON	CHEVRON USA INC	1/8+	798 77	N/A	N/A	N/A	N/A	N/A	N/A
10*31046	9-8-6	A	SANDRA JEAN WILSON	CHEVRON USA INC	1/8+	794 605	N/A	N/A	N/A	N/A	N/A	N/A
10*31047	9-8-6	A	MARY CHRISTINE MCKENNA	CHEVRON USA INC	1/8+	795 49	N/A	N/A	N/A	N/A	N/A	N/A
10*31048	9-8-6	A	LAURENCE E WILSON JR	CHEVRON USA INC	1/8+	800 154	N/A	N/A	N/A	N/A	N/A	N/A
10*31049	9-8-6	A	ROBERT L ARCHER	CHEVRON USA INC	1/8+	803 45	N/A	N/A	N/A	N/A	N/A	N/A
10*31050	9-8-6	A	KATHERINE JEAN CONNELLY	CHEVRON USA INC	1/8+	803 30	N/A	N/A	N/A	N/A	N/A	N/A
10*31051	9-8-6	A	STEVEN M ARCHER	CHEVRON USA INC	1/8+	803 38	N/A	N/A	N/A	N/A	N/A	N/A
10*31052	9-8-6	A	WILLIAM R WISE	CHEVRON USA INC	1/8+	805 407	N/A	N/A	N/A	N/A	N/A	N/A
10*29613	9-8-6	A	JANE D BEARDEN AND WILLIAM L BEARDEN	TH EXPLORATION LLC	1/8+	1096 374	N/A	N/A	N/A	N/A	N/A	N/A
10*29615	9-8-6	A	UNKNOWN HEIRS AND ASSIGNS OF LAWRENCE B OSTREY	TH EXPLORATION LLC	1/8+	1096 343	N/A	N/A	N/A	N/A	N/A	N/A
10*29621	9-8-6	A	BRADLEY B LEHNER	TH EXPLORATION LLC	1/8+	1096 362	N/A	N/A	N/A	N/A	N/A	N/A
10*29623	9-8-6	A	RACHAEL MARIA MCLARDY	TH EXPLORATION LLC	1/8+	1096 355	N/A	N/A	N/A	N/A	N/A	N/A
10*29625	9-8-6	A	HARRY ALBERT RICHARDSON	TH EXPLORATION LLC	1/8+	1096 368	N/A	N/A	N/A	N/A	N/A	N/A
10*29627	9-8-6	A	JANET M SMITH	TH EXPLORATION LLC	1/8+	1096 350	N/A	N/A	N/A	N/A	N/A	N/A
10*29629	9-8-6	A	UNKNOWN INTEREST OWNERS OF THE BERNARD E KURLICH FAMILY TRUST	TH EXPLORATION LLC	1/8+	1096 335	N/A	N/A	N/A	N/A	N/A	N/A
10*29631	9-8-6	A	UNKNOWN INTEREST OWNERS OF THE ROBERT WISE LIVING TRUST	TH EXPLORATION LLC	1/8+	1096 327	N/A	N/A	N/A	N/A	N/A	N/A
10*23033	9-8-6	A	MAXINE BEYSER	TH EXPLORATION LLC	1/8+	977 346	N/A	N/A	N/A	N/A	N/A	N/A
10*23034	9-8-6	A	NINA L KOVACS	TH EXPLORATION LLC	1/8+	977 348	N/A	N/A	N/A	N/A	N/A	N/A
10*27106	9-8-6	A	JASMINE LEIGH HALL PENA C/O ROBERT HALL	TH EXPLORATION LLC	1/8+	1050 217	N/A	N/A	N/A	N/A	N/A	N/A
10*27229	9-8-6	A	KENNETH ANDERSON BY DAVID C WHITE, SP COMM	TH EXPLORATION LLC	1/8+	1068 311	N/A	N/A	N/A	N/A	N/A	N/A
10*28092	9-8-7.1	B	WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073 370	N/A	N/A	N/A	N/A	N/A	N/A
10*28808	9-8-7.1	B	HOLLY MARIE EBERSOLE	TH EXPLORATION LLC	1/8+	1078 47	N/A	N/A	N/A	N/A	N/A	N/A
10*22055	9-8-9	C	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1010 226	N/A	N/A	N/A	N/A	N/A	N/A
10*28866	9-8-9	C	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1072 230	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
10*28987	9-8-9	C	ALLDALE MINERALS II LP	TH EXPLORATION LLC	1/8+	1080 558	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28649	9-8-9	C	KENNETH M MCCARDLE AND DELORES MCCARDLE	TH EXPLORATION LLC	1/8+	1075 483	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28809	9-8-9	C	LUCY MCCARDLE	TH EXPLORATION LLC	1/8+	1077 468	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28810	9-8-9	C	LEROY ANDERSON AND DONNA KAY ANDERSON	TH EXPLORATION LLC	1/8+	1077 261	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.12	9-8-9	C	ROBERT GENE WILLIAMS	TH EXPLORATION LLC	1/8+	957 86	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.13	9-8-9	C	WILLIAM O TURNER AND LISA ANN TURNER	TH EXPLORATION LLC	1/8+	941 401	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.14	9-8-9	C	KATHE A TURNER	TH EXPLORATION LLC	1/8+	941 429	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.15	9-8-9	C	REBA J CURTIS	TH EXPLORATION LLC	1/8+	1023 540	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.16	9-8-9	C	LORETTA L FREELOVE	TH EXPLORATION LLC	1/8+	941 433	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22055	9-8-8	D	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1010 226	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28866	9-8-8	D	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1072 230	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28987	9-8-8	D	ALLDALE MINERALS II LP	TH EXPLORATION LLC	1/8+	1080 558	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28649	9-8-8	D	KENNETH M MCCARDLE AND DELORES MCCARDLE	TH EXPLORATION LLC	1/8+	1075 483	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28809	9-8-8	D	LUCY MCCARDLE	TH EXPLORATION LLC	1/8+	1077 468	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28810	9-8-8	D	LEROY ANDERSON AND DONNA KAY ANDERSON	TH EXPLORATION LLC	1/8+	1077 261	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.12	9-8-8	D	ROBERT GENE WILLIAMS	TH EXPLORATION LLC	1/8+	957 86	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.13	9-8-8	D	WILLIAM O TURNER AND LISA ANN TURNER	TH EXPLORATION LLC	1/8+	941 401	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.14	9-8-8	D	KATHE A TURNER	TH EXPLORATION LLC	1/8+	941 429	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.15	9-8-8	D	REBA J CURTIS	TH EXPLORATION LLC	1/8+	1023 540	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.086.16	9-8-8	D	LORETTA L FREELOVE	TH EXPLORATION LLC	1/8+	941 433	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19634	9-9-6	E	JANICE L PIETERSE	TH EXPLORATION LLC	1/8+	944 619	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19637	9-9-6	E	RANDY K AND ALICE E BOWER	TH EXPLORATION LLC	1/8+	944 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19703	9-9-6	E	WILLIAM M BECKER AND KATHARINE B BECKER	TH EXPLORATION LLC	1/8+	944 616	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19880	9-9-6	E	R RICK HYRE	TH EXPLORATION LLC	1/8+	944 623	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19930	9-9-6	E	TODD W BULLARD AND BETH H BULLARD	TH EXPLORATION LLC	1/8+	949 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21243	9-9-6	E	NORMAN B AND JO ELLEN KAUBLE	TH EXPLORATION LLC	1/8+	952 394	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21404	9-9-6	E	WILLIAM W HYRE AND NOREEN M HYRE	TH EXPLORATION LLC	1/8+	953 542	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21499	9-9-6	E	SAMUEL J RICKEY	TH EXPLORATION LLC	1/8+	953 250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22525	9-9-6	E	JOHN P RICKEY & ROSE HOWELL RICKEY	TH EXPLORATION LLC	1/8+	964 525	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-9-6	E	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063 568	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27265	9-9-6	E	UNKNOWN HEIRS OF DONALD E RICKEY & ANITA M RICKEY	TH EXPLORATION LLC	1/8+	1052 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23294	9-9-6	E	GLENN GORCZYCA AND JANE GORCZYCA	TH EXPLORATION LLC	1/8+	988 103	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26711	9-9-6	E	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8+	1074 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19737	9-3-14	F	ALICE BUZZARD	TH EXPLORATION LLC	1/8+	948 195	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19738	9-3-14	F	JAMES R BLAIR	TH EXPLORATION LLC	1/8+	946 318	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19739	9-3-14	F	ROBERT C BLAKE AND LYN BLAKE	TH EXPLORATION LLC	1/8+	946 313	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19740	9-3-14	F	TERRY L BLAKE	TH EXPLORATION LLC	1/8+	946 311	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19741	9-3-14	F	JOHN PURDY AND BRENDA S PURDY	TH EXPLORATION LLC	1/8+	946 308	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19742	9-3-14	F	CAROLE J WOOD	TH EXPLORATION LLC	1/8+	946 316	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19922	9-3-14	F	MARLENE GARIN	TH EXPLORATION LLC	1/8+	946 320	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19924	9-3-14	F	CHARLES W DOBBS AND JUDITH M DOBBS	TH EXPLORATION LLC	1/8+	946 322	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19991	9-3-14	F	BRADLEY S SCHERICH AND LEIGH SCHERICH	TH EXPLORATION LLC	1/8+	948 192	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19992	9-3-14	F	GARY F BLAKE AND DORIS E BLAKE	TH EXPLORATION LLC	1/8+	948 197	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21323	9-3-14	F	TODD SCHERICH AND WANDA D SCHERICH	TH EXPLORATION LLC	1/8+	946 324	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22723	9-3-14	F	LUNDA SUE BENNETT AND THOMAS BENNETT	TH EXPLORATION LLC	1/8+	968 276	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22769	9-3-14	F	NANCY JO FENN	TH EXPLORATION LLC	1/8+	968 274	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22770	9-3-14	F	REBECCA LYNN RITZ AND THOMAS A RITZ	TH EXPLORATION LLC	1/8+	968 272	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22822	9-3-14	F	DARLA J KLUKAS	TH EXPLORATION LLC	1/8+	974 182	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22824	9-3-14	F	PEGGY ANNETTE GARDNER & ROBERT W GARDNER	TH EXPLORATION LLC	1/8+	974 180	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23227	9-3-14	F	ROGER F CROSS	TH EXPLORATION LLC	1/8+	984 478	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28700	9-3-14	F	ARTHUR AND VERA WORKMAN IRREVOCABLE TRUST	TH EXPLORATION LLC	1/8+	1077 41	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28854	9-3-14	F	CHARLES HAWKINS AND CONSTANCE HAWKINS	TH EXPLORATION LLC	1/8+	1077 258	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28949	9-3-14	F	SAMUEL W PHIPPS AND ALLISON M PHIPPS	TH EXPLORATION LLC	1/8+	1078 447	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28446	9-3-14	F	TIMOTHY R LINKOUS	TH EXPLORATION LLC	1/8+	1072 375	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24396	9-3-14	F	ELEANOR CHAMBERS	TH EXPLORATION LLC	1/8+	1023 166	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26711	9-3-14	F	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8+	1074 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28092	9-8-7	G	WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29269	9-8-7	G	TIMOTHY N NEELY	TH EXPLORATION LLC	1/8+	1090 135	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29271	9-8-7	G	BRIAN L NEELY	TH EXPLORATION LLC	1/8+	1090 133	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29272	9-8-7	G	TAMMY SUE MCDONALD	TH EXPLORATION LLC	1/8+	1090 137	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
10*29333	9-8-7	G	STEVEN L NEELY	TH EXPLORATION LLC	1/8+	1091 505	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*38639	9-3-16	H	RAYMOND D DOBBS	CHESAPEAKE APPALACHIA LLC	1/8+	677 229	Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 21/565	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*21602	9-3-17	I	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21604	9-3-17	I	WILLIAM EDWARD STACY AND JACQUELINE I STACY	TH EXPLORATION LLC	1/8+	958 428	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22616	9-3-17	I	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968 281	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22618	9-3-17	I	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966 636	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22721	9-3-17	I	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988 134	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22796	9-3-17	I	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22880	9-3-17	I	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22881	9-3-17	I	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977 87	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23107	9-3-17	I	IOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983 620	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23141	9-3-17	I	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984 7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23142	9-3-17	I	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23161	9-3-17	I	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983 618	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23162	9-3-17	I	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983 622	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23163	9-3-17	I	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983 571	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23176	9-3-17	I	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23181	9-3-17	I	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983 627	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23192	9-3-17	I	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984 472	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23313	9-3-17	I	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988 136	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23419	9-3-17	I	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23420	9-3-17	I	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988 490	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24781	9-3-17	I	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027 578	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24782	9-3-17	I	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027 572	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24783	9-3-17	I	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027 569	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25224	9-3-17	I	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030 141	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25701	9-3-17	I	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034 239	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25716	9-3-17	I	RUSSELL BREDENNER	TH EXPLORATION LLC	1/8+	1035 23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26406	9-3-17	I	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1033 117	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26410	9-3-17	I	MARCELLUS TX MINERAL PRTRN LTD	TH EXPLORATION LLC	1/8+	1034 242	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26411	9-3-17	I	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1034 244	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26412	9-3-17	I	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1034 247	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26413	9-3-17	I	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1034 250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26414	9-3-17	I	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1034 218	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26631	9-3-17	I	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039 322	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28092	9-3-17	I	WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28647	9-3-17	I	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076 65	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31009	9-3-17	I	MARGARET LEE HALL	CHEVRON USA INC	1/8+	795 414	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31007	9-3-17	I	CAROL D ELMORE	CHEVRON USA INC	1/8+	793 383	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31008	9-3-17	I	NORMA V PRATICO	CHEVRON USA INC	1/8+	794 532	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31002	9-3-17	I	MARK F HEUSER	CHEVRON USA INC	1/8+	791 247	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31005	9-3-17	I	GARY KEITH BERGER	CHEVRON USA INC	1/8+	793 358	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31006	9-3-17	I	JAMES S WILSON	CHEVRON USA INC	1/8+	793 375	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31010	9-3-17	I	JULIANNE ERDOS	CHEVRON USA INC	1/8+	795 57	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31011	9-3-17	I	MARVIN C WILSON	CHEVRON USA INC	1/8+	795 350	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31012	9-3-17	I	JAMES P OVIES	CHEVRON USA INC	1/8+	797 368	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*31013	9-3-17	I	BERTHA LYNN KLUG	CHEVRON USA INC	1/8+	797	548	N/A	N/A	N/A	N/A	N/A	N/A
10*31014	9-3-17	I	CHERYL FOX BRAUCH	CHEVRON USA INC	1/8+	800	489	N/A	N/A	N/A	N/A	N/A	N/A
10*31015	9-3-17	I	CAROL FOX VALLANDINGHAM	CHEVRON USA INC	1/8+	800	564	N/A	N/A	N/A	N/A	N/A	N/A
10*31016	9-3-17	I	JESSICA M CHAVEZ	CHEVRON USA INC	1/8+	804	393	N/A	N/A	N/A	N/A	N/A	N/A
10*31017	9-3-17	I	PHILIP A WILSON	CHEVRON USA INC	1/8+	805	421	N/A	N/A	N/A	N/A	N/A	N/A
10*31018	9-3-17	I	JUANITA S HATCH LIVING TRUST DTD 2/16/1998	CHEVRON USA INC	1/8+	831	438	N/A	N/A	N/A	N/A	N/A	N/A
10*31019	9-3-17	I	EDWARD F WILSON	CHEVRON USA INC	1/8+	813	564	N/A	N/A	N/A	N/A	N/A	N/A
10*31020	9-3-17	I	MATTHEW L GROSSAINT	CHEVRON USA INC	1/8+	818	6	N/A	N/A	N/A	N/A	N/A	N/A
10*31021	9-3-17	I	TROY THOMAS WILSON	CHEVRON USA INC	1/8+	828	352	N/A	N/A	N/A	N/A	N/A	N/A
10*31022	9-3-17	I	ELLA JEAN MCCARDLE	CHEVRON USA INC	1/8+	828	374	N/A	N/A	N/A	N/A	N/A	N/A
10*31027	9-3-17	I	LOU ANN GROSSAINT	CHEVRON USA INC	1/8+	829	470	N/A	N/A	N/A	N/A	N/A	N/A
10*31029	9-3-17	I	JESSE ALLEN WILSON	CHEVRON USA INC	1/8+	831	355	N/A	N/A	N/A	N/A	N/A	N/A
10*31034	9-3-17	I	APRIL DAWN HOGAN	CHEVRON USA INC	1/8+	835	248	N/A	N/A	N/A	N/A	N/A	N/A
10*31035	9-3-17	I	KIMBERLY SUE PIERSON	CHEVRON USA INC	1/8+	835	271	N/A	N/A	N/A	N/A	N/A	N/A
10*31036	9-3-17	I	JOSEPH RICHARD FOX	CHEVRON USA INC	1/8+	800	546	N/A	N/A	N/A	N/A	N/A	N/A
10*31043	9-3-17	I	DIANE M BAYLESS	CHEVRON USA INC	1/8+	798	97	N/A	N/A	N/A	N/A	N/A	N/A
10*31044	9-3-17	I	DENNIS M WILSON	CHEVRON USA INC	1/8+	798	97	N/A	N/A	N/A	N/A	N/A	N/A
10*31045	9-3-17	I	DAVID H WILSON	CHEVRON USA INC	1/8+	798	77	N/A	N/A	N/A	N/A	N/A	N/A
10*31046	9-3-17	I	SANDRA JEAN WILSON	CHEVRON USA INC	1/8+	794	605	N/A	N/A	N/A	N/A	N/A	N/A
10*31047	9-3-17	I	MARY CHRISTINE MCKENNA	CHEVRON USA INC	1/8+	795	49	N/A	N/A	N/A	N/A	N/A	N/A
10*31048	9-3-17	I	LAURENCE E WILSON JR	CHEVRON USA INC	1/8+	800	154	N/A	N/A	N/A	N/A	N/A	N/A
10*31049	9-3-17	I	ROBERT L ARCHER	CHEVRON USA INC	1/8+	803	45	N/A	N/A	N/A	N/A	N/A	N/A
10*31050	9-3-17	I	KATHERINE JEAN CONNELLY	CHEVRON USA INC	1/8+	803	30	N/A	N/A	N/A	N/A	N/A	N/A
10*31051	9-3-17	I	STEVEN M ARCHER	CHEVRON USA INC	1/8+	803	38	N/A	N/A	N/A	N/A	N/A	N/A
10*31052	9-3-17	I	WILLIAM R WISE	CHEVRON USA INC	1/8+	805	407	N/A	N/A	N/A	N/A	N/A	N/A
10*29613	9-3-17	I	JANE D BEARDEN AND WILLIAM L BEARDEN	TH EXPLORATION LLC	1/8+	1096	374	N/A	N/A	N/A	N/A	N/A	N/A
10*29615	9-3-17	I	UNKNOWN HEIRS AND ASSIGNS OF LAWRENCE B OSTREY	TH EXPLORATION LLC	1/8+	1096	343	N/A	N/A	N/A	N/A	N/A	N/A
10*29621	9-3-17	I	BRADLEY B LEHNER	TH EXPLORATION LLC	1/8+	1096	362	N/A	N/A	N/A	N/A	N/A	N/A
10*29623	9-3-17	I	RACHAEL MARIA MCLARDY	TH EXPLORATION LLC	1/8+	1096	356	N/A	N/A	N/A	N/A	N/A	N/A
10*29625	9-3-17	I	HARRY ALBERT RICHARDSON	TH EXPLORATION LLC	1/8+	1096	368	N/A	N/A	N/A	N/A	N/A	N/A
10*29627	9-3-17	I	JANET M SMITH	TH EXPLORATION LLC	1/8+	1096	350	N/A	N/A	N/A	N/A	N/A	N/A
10*29629	9-3-17	I	UNKNOWN INTEREST OWNERS OF THE BERNARD E KURLICH FAMILY TRUST	TH EXPLORATION LLC	1/8+	1096	335	N/A	N/A	N/A	N/A	N/A	N/A
10*29631	9-3-17	I	UNKNOWN INTEREST OWNERS OF THE ROBERT WISE LIVING TRUST	TH EXPLORATION LLC	1/8+	1096	327	N/A	N/A	N/A	N/A	N/A	N/A
10*23033	9-3-17	I	MAXINE BEYSER	TH EXPLORATION LLC	1/8+	977	346	N/A	N/A	N/A	N/A	N/A	N/A
10*23034	9-3-17	I	NINA L KOVACS	TH EXPLORATION LLC	1/8+	977	348	N/A	N/A	N/A	N/A	N/A	N/A

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*27106	9-3-17	I	JASMINE LEIGH HALL PENA C/O ROBERT HALL	TH EXPLORATION LLC	1/8+	1050 217	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27229	9-3-17	I	KENNETH ANDERSON BY DAVID C WHITE, SP COMM	TH EXPLORATION LLC	1/8+	1068 311	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31226	9-3-7	J	ALVIN D. BARRETT AND CAROL D. BARRETT	CHESAPEAKE APPALACHIA LLC	1/8+	726 464	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/386	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 36/204	Chesapeake Appalachia LLC to SWN Production Company LLC: 38/35	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31225	9-3-6	K	ALVIN D. BARRETT AND CAROL D. BARRETT	CHESAPEAKE APPALACHIA LLC	1/8+	727 112	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/386	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 36/204	Chesapeake Appalachia LLC to SWN Production Company LLC: 38/35	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31219	9-3-4.5	L	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690 341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31220	9-3-4.5	L	SHIRLEY E BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690 344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31221	9-3-4.5	L	J RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688 580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31222	9-3-4.5	L	WILLIAM N LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690 347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31223	9-3-4.5	L	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690 350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31224	9-3-4.5	L	DOROTHY L HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690 483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/132	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31219	9-3-4.7	M	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690 341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31220	9-3-4.7	M	SHIRLEY E BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690 344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31221	9-3-4.7	M	J RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688 580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31222	9-3-4.7	M	WILLIAM N LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690 347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604

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Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*31223	9-3-4.7	M	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690 350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*31224	9-3-4.7	M	DOROTHY L HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690 483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/132	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Title LLC merged with and into SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc changed its name to Equinor USA Onshore Properties Inc: 2/427	SWN Production Company LLC to TH Exploration LLC: 49/635	Equinor USA Onshore Properties Inc to TH Exploration LLC: 49/604
10*18339	9-3-3	N	RESOURCE MINERALS HEADWATER I LP	TH EXPLORATION LLC	1/8+	940 448	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31111	3-12-28	O	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8+	1098 576	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23319	3-12-8	P	HAROLD P AND DONNA SUE RICHMOND	TH EXPLORATION LLC	1/8+	988 131	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23321	3-12-8	P	BETTY K CRONE	TH EXPLORATION LLC	1/8+	988 129	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23635	3-12-8	P	GEORGE BRENT STERN	TH EXPLORATION LLC	1/8+	1009 120	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23645	3-12-8	P	KARL JAY STERN	TH EXPLORATION LLC	1/8+	1009 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23657	3-12-8	P	JERRY GLENN STERN	TH EXPLORATION LLC	1/8+	1011 545	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23801	3-12-8	P	LARRY STERN	TH EXPLORATION LLC	1/8+	1015 169	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23747	3-12-8	P	WILLIAM K STERN AND BETTY L STERN	TH EXPLORATION LLC	1/8+	1011 542	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23751	3-12-8	P	ROBERT H STERN AND DEBORAH STERN	TH EXPLORATION LLC	1/8+	1012 201	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23802	3-12-8	P	STEPHEN AND MARGARET STERN	TH EXPLORATION LLC	1/8+	1015 171	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23903	3-12-8	P	GARY STERN	TH EXPLORATION LLC	1/8+	1017 598	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24259	3-12-8	P	SHAWN STERN AND AIMEE STERN	TH EXPLORATION LLC	1/8+	1022 378	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24503	3-12-8	P	ALAN STERN	TH EXPLORATION LLC	1/8+	1025 425	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24934	3-12-8	P	BEVERLY DAVENPORT	TH EXPLORATION LLC	1/8+	1029 511	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24935	3-12-8	P	DIANE STERN	TH EXPLORATION LLC	1/8+	1028 638	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24938	3-12-8	P	DEBORAH PERRIS	TH EXPLORATION LLC	1/8+	1028 597	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*39572	3-12-9	Q	THOMAS G & CYNTHIA A ZIRKLE	GREAT LAKES ENERGY PARTNERS, LLC	1/8+	653 508	N/A	Corp Book 19/443 - Name Change from Great Lake Energy Partners, LLC to Range Resources - Appalachia, LLC.	Range Resources - Appalachia, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties: 23/368	Chesapeake Appalachia LLC to SWN Production Company, LLC.: 33/110	SWN Production Company, LLC, and Statoil USA Onshore Properties Inc. to Chevron USA Inc: 36/226	Chevron USA Inc. to EQT Aurora LLC: 47/1	EQT Production Co. to TH Exploration LLC: AB 50/267
10*39574	3-12-9	Q	ROBERT W & SABRINA ZIRKLE	GREAT LAKES ENERGY PARTNERS, LLC	1/8+	653 510	N/A	Corp Book 19/443 - Name Change from Great Lake Energy Partners, LLC to Range Resources - Appalachia, LLC.	Range Resources - Appalachia, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties: 23/368	Chesapeake Appalachia LLC to SWN Production Company, LLC.: 33/110	SWN Production Company, LLC, and Statoil USA Onshore Properties Inc. to Chevron USA Inc: 36/226	Chevron USA Inc. to EQT Aurora LLC: 47/1	EQT Production Co. to TH Exploration LLC: AB 50/267

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STATE OF WEST VIRGINIA     §  
   §  
COUNTY OF MARSHALL       §

**ASSIGNMENT AND CONVEYANCE**

**THIS ASSIGNMENT AND CONVEYANCE** (the "**Assignment**") is made and entered into this 24<sup>th</sup> day of June 2020 (the "**Effective Date**"), by and between **CHEVRON U.S.A. INC.**, a Pennsylvania corporation, with an address at 700 Cherrington Parkway, Coraopolis, PA 15108 (hereinafter "**Assignor**") and **TH EXPLORATION II, LLC**, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignee**").

**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**"), subject to any applicable overriding royalty interests and midstream obligations;

**NOW, THEREFORE**, for good and valuable consideration, 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. **Payment.** Within 15 days of execution of this Assignment by both parties, Assignee agrees to tender payment to Assignor in the amount and manner described in **Exhibit "B"**.

3. **No Warranty.** The Assignment is made on an "as is, where is" basis without warranty of any kind and is subject to any existing liens, encumbrances or burdens, including specifically any overriding royalty interests or midstream dedications, attached to or affecting the Leases. Assignor makes no, and expressly disclaims any, representation or warranty to Assignee regarding the Leases or title thereto, whether express, statutory or implied, in fact, at law, common law, in equity or otherwise.

4. **Existing Obligations.** This Assignment is made subject to and Assignee agrees to accept and perform all obligations under any existing agreements that affect the Leases, including Assignor's remaining obligations under any gathering, processing or other midstream contracts as those contracts relate specifically to the Leases.

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

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**Modification Horizontal H6A Well Work Permits API: (47-051-02249 & 47-051-02437)**

1 message

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

Tue, Jun 28, 2022 at 12:16 PM

To: Amy Morris <amorris@tug-hillop.com>, Eric Buzzard <ebuzzard@marshallcountywv.org>, "Gayne J. Knitowski" <gayne.j.knitowski@wv.gov>, Strader C Gower <strader.c.gower@wv.gov>

I have attached a copy of the newly issued well permit numbers:

**47-051-02249 - HUDSON S-2HM**  
**47-051-02437 - WILLETT N-1HM**

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](mailto:Wade.A.Stansberry@wv.gov)**

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**2 attachments**

 **47-051-02249 - mod.pdf**  
6161K

 **47-051-02437 - mod.pdf**  
7442K

**07/01/2022**