



west virginia department of environmental protection

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

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

Monday, March 14, 2022
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for WILLETT N-1HM
47-051-02437-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: WILLETT N-1HM
Farm Name: CNX LAND LLC
U.S. WELL NUMBER: 47-051-02437-00-00
Horizontal 6A: New Drill
Date Issued: 3/14/2022

Promoting a healthy environment.

03/18/2022

PERMIT CONDITIONS

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

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: _____

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

03/18/2022

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 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: 18,325' ✓

11) Proposed Horizontal Leg Length: 9,813.45'

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'

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

FEB 10 2022

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

WV Department of
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(a) If Yes, provide Mine Info: Name: Marshall County Coal Resources, Inc./Marshall County Mine

Depth: 986' TVD and 324' subsea level

Seam: Pittsburgh

Owner: Marshall County Coal Resources, Inc.

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' ✓	1114ft ³ (CTS)
Intermediate	9 5/8"	NEW	J55	36#	3,014'	3,014' ✓	999ft ³ (CTS)
Production	5 1/2"	NEW	CYPH110	20#	18,325'	18,325' ✓	4679ft ³ (CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,532' ✓	
Liners							

B.S. 10-14-21

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							

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PACKERS

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

WW-6B
(10/14)

API NO. 47- 051 - _____
OPERATOR WELL NO. Willitt N-1HM
Well Pad Name: Willitt

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 24,600,000 lb proppant and 445,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

B.S. 10-14-21

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.

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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

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25) Proposed borehole conditioning procedures:

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

*Note: Attach additional sheets as needed.

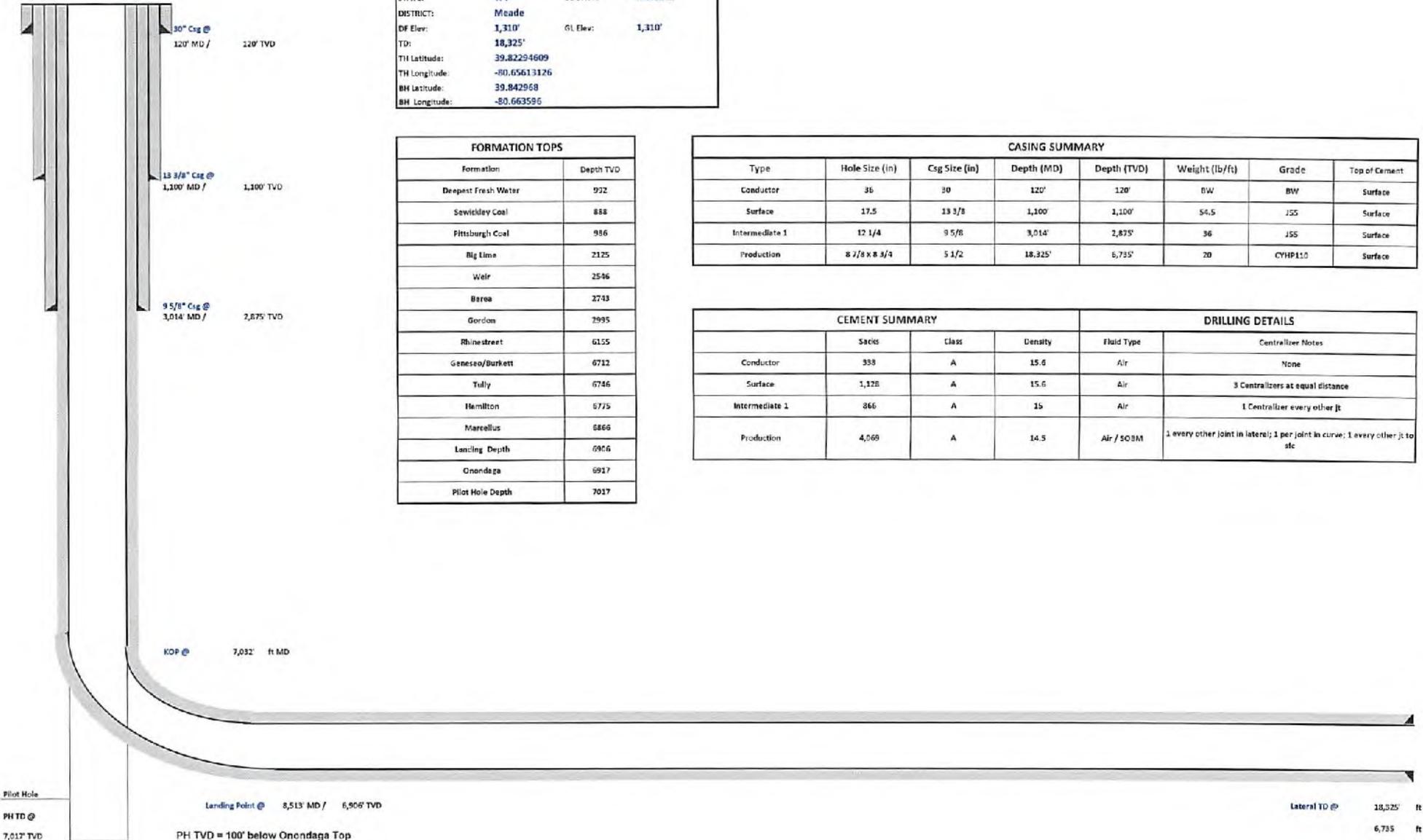


WELL NAME: Willett N-1HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 1,310' **Gl. Elev:** 1,310'
TD: 18,325'
TH Latitude: 39.82294609
TH Longitude: -80.65613126
BH Latitude: 39.842968
BH Longitude: -80.663596

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	922
Sewickley Coal	888
Pittsburgh Coal	956
Big Lime	2125
Wet	2546
Berea	2743
Gordon	2995
Rhine street	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'	8W	BW	Surface
Surface	17.5	13 1/8	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	18,325'	6,735'	20	CYHP11.0	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.0	Air	None
Surface	1,128	A	15.0	Air	3 Centralizers at equal distance
Intermediate 1	866	A	15	Air	1 Centralizer every other jt
Production	4,069	A	14.5	Air / SOB M	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to stc



Pilot Hole
 PH TD @
 7,017' TVD

Landing Point @ 8,513' MD / 6,906' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 18,325' ft MD
 6,735' ft TVD

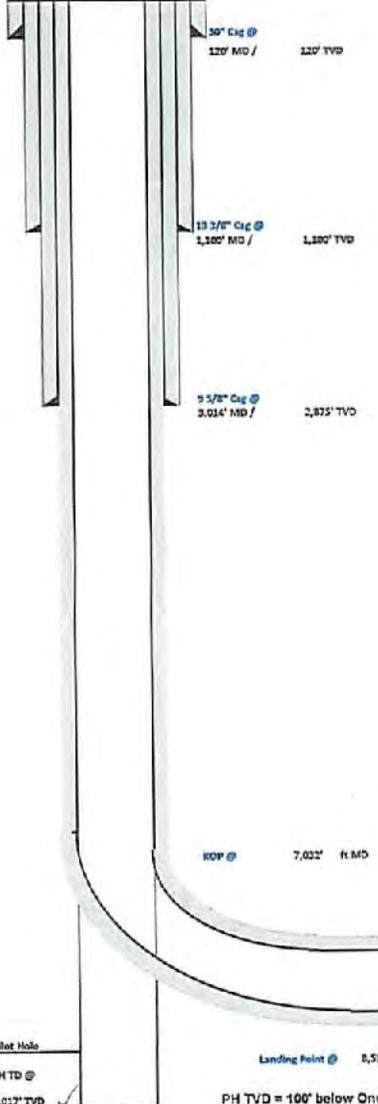


WELL NAME: Willett N-1HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 1,310' **GL Elev:** 1,310'
TD: 18,325'
TH Latitude: 39.82294609
TH Longitude: -80.65633126
BH Latitude: 39.842968
BH Longitude: -80.663596

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	992
Sewickley Coal	803
Pittsburgh Coal	986
Big Lime	1125
Wobr	2546
Berea	2763
Gordon	2995
Rhinestreet	4155
Genesee/Barkett	4712
Tully	4786
Hamilton	4775
Marcellus	4866
Landing Depth	4906
Onondaga	4937
Pilot Hole Depth	7017

CASING SUMMARY							
Type	Hole Size (in)	Cog Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	17.5	13 3/8	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	18,325'	6,735'	20	CYHP110	Surface

	CEMENT SUMMARY			DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	330	A	15.6	Air	None
Surface	1,128	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	866	A	15	Air	1 Centralizer every other jt
Production	4,069	A	14.5	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to s/c



*J.B.S.
10-14-21*

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Lateral TD @ 18,325' R MD ✓
 6,735' R TVD ✓

Pilot Hole
 PH TD @ 7,017' TVD
 PH TVD = 100' below Onondaga Top
 Landing Point @ 8,513' MD / 6,980' TVD



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"	16,325'	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=1.38
- 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 = 1.30

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TUG HILL
OPERATING

Well: Willett N-01 HM (slot A)
Site: Willett
Project: Marshall County, West Virginia
Design: rev2
Rig:



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

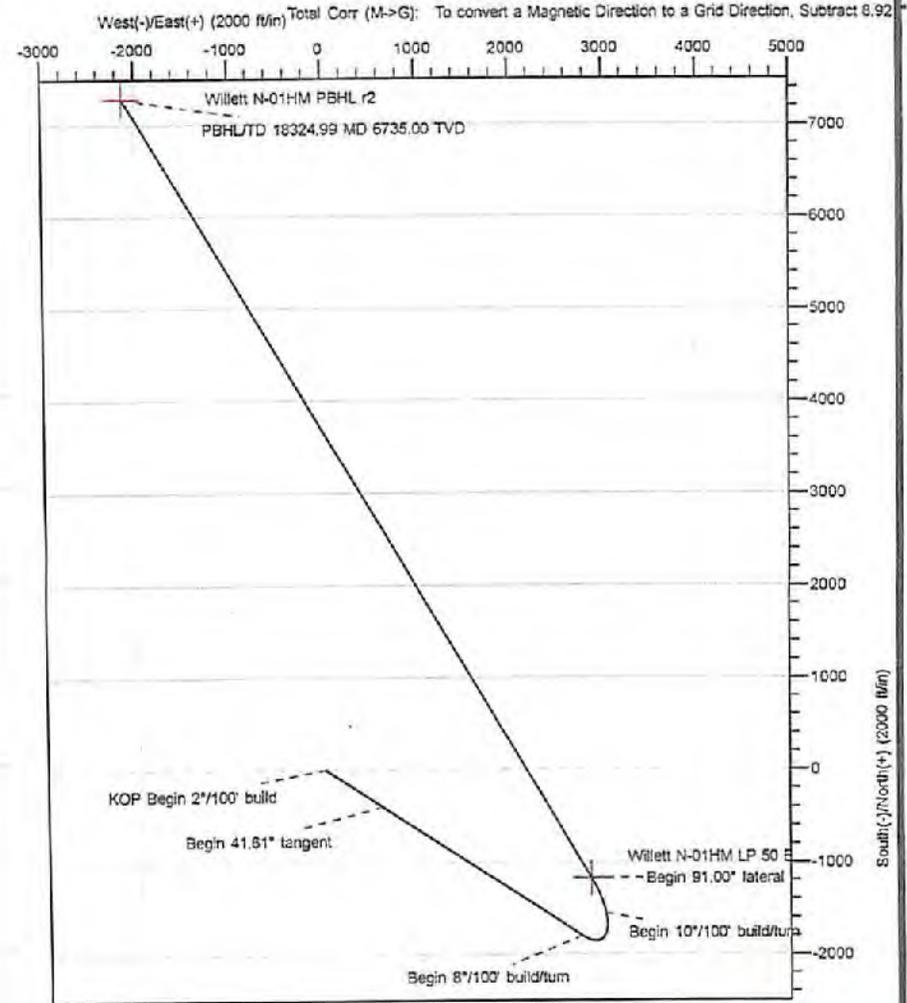
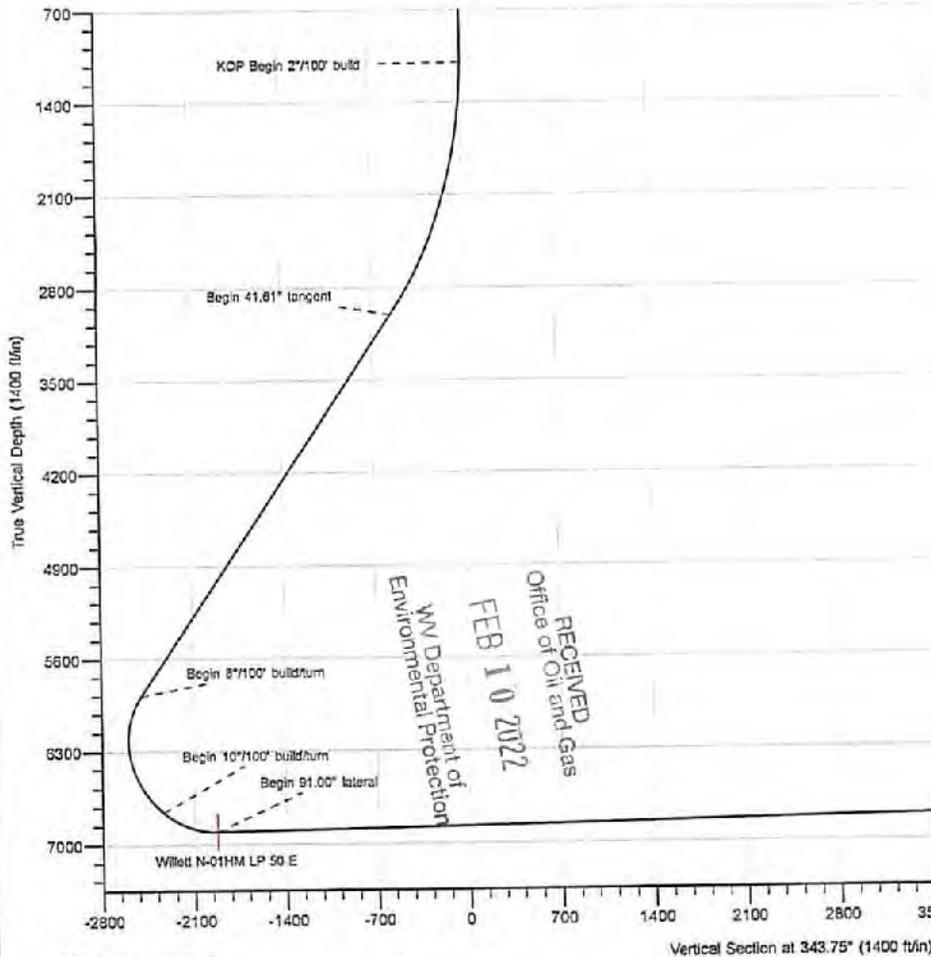
Northing: 14462447.53 Easting: 1735965.80 Latitude: 39.82294809 Longitude: -80.65613125

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	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	-395.80	604.31	2.00	123.290	-550.08	Begin 41.61° tangent
4	7031.79	41.61	123.29	5892.05	-1800.18	2741.61	0.00	0.000	-2495.61	Begin 8°/100' build/turn
5	8065.48	50.00	349.28	6758.37	-1555.53	3001.69	8.00	-146.255	-2333.64	Begin 10°/100' build/turn
6	8513.34	91.00	329.55	6906.00	-1174.36	2849.44	10.00	-28.835	-1924.71	Begin 91.00° lateral
7	18325.00	91.00	329.55	6735.00	7282.64	-2123.33	0.00	0.000	7595.87	PBHL/TD 18324.99 MD 6735.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Willett N-01HM PBHL r2 - plan hits target center	6735.00	7282.64	-2123.33	14469730.16	1734842.47	39.84296800	-80.6560306
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)	6906.00	-1174.38	2848.43	14461273.15	1739814.22	39.81969047	



PBHL/TD 18324.99 MD 6735.00 TVD
Willett N-01HM PBHL r2





Survey Report - Geographic

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Willett N-01 HM (slot A)
Project:	Marshall County, West Virginia	TVD Reference:	GL @ 1310.00ft
Site:	Willett	MD Reference:	GL @ 1310.00ft
Well:	Willett N-01 HM (slot A)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	rev2	Database:	DB_Dec2220_v16

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:	From:	Lat/Long	Northing:	14,462,447.53 usft	Latitude:	39.82294609
			Easting:	1,736,965.80 usft	Longitude:	-80.65613126
Position Uncertainty:		0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.220 °

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

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	rev2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	343.75	

Survey Tool Program	Date	9/13/2021			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	18,325.00	rev2 (Original Hole)	MWD	MWD - Standard	

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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



Survey Report - Geographic

Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Willett
 Well: Willett N-01 HM (slot A)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Willett N-01 HM (slot A)
 TVD Reference: GL @ 1310.00ft
 MD Reference: GL @ 1310.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: DB_Dec2220_v16

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
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
KOP Begin 2°/100' build									
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	1,736,976.83	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	-80.65604889
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	39.82277625	-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	39.82269467	-80.65561923
2,200.00	21.98	123.29	2,173.24	-114.29	174.06	14,462,333.24	1,737,139.86	39.82265039	-80.65551291
2,300.00	23.98	123.29	2,265.30	-135.72	208.69	14,462,311.81	1,737,172.49	39.82257120	-80.65539698
2,400.00	25.98	123.29	2,355.84	-158.00	241.99	14,462,289.63	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	2,616.26	-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	-80.65467651
2,900.00	35.98	123.29	2,784.07	-299.98	456.86	14,462,147.55	1,737,422.65	39.82211746	-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
Begin 41.61° tangent									
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	-478.39	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
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



Survey Report - Geographic

Company: Tug Hill Operating LLC	Local Co-ordinate Reference: Well Willett N-01 HM (slot A)
Project: Marshall County, West Virginia	TVD Reference: GL @ 1310.00ft
Site: Willett	MD Reference: GL @ 1310.00ft
Well: Willett N-01 HM (slot A)	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: rev2	Database: DB_Dec2220_v16

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
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	-80.64783609
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
Begin 8"/100' build/tum									
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	39.81787810	-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	39.81781815	-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	14,460,593.59	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	-80.64570319
7,500.00	21.87	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	23.39	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	1,739,955.88	39.81798006	-80.64550303
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	6.17	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	-1,700.38	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	1,739,976.49	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
Begin 10"/100' build/tum									
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	-80.64556098
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	-80.64567262
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	-80.64597929
8,513.34	91.00	329.55	6,906.00	-1,174.35	2,848.44	14,461,273.17	1,739,814.23	39.81969052	-80.64600303
Begin 91.00" lateral									
8,600.00	91.00	329.55	6,904.49	-1,099.67	2,804.53	14,461,347.86	1,739,770.32	39.81988613	-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	39.82037084	-80.64651686
8,900.00	91.00	329.55	6,899.26	-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	39.82084516	-80.64687537
9,100.00	91.00	329.55	6,895.78	-668.70	2,551.17	14,461,778.83	1,739,516.96	39.82108241	-80.64705462
9,200.00	91.00	329.55	6,894.03	-582.51	2,500.49	14,461,865.02	1,739,466.28	39.82131967	-80.64723387
9,300.00	91.00	329.55	6,892.29	-496.31	2,449.82	14,461,951.22	1,739,415.61	39.82155692	-80.64741313
9,400.00	91.00	329.55	6,890.55	-410.12	2,399.15	14,462,037.41	1,739,364.94	39.82179418	-80.64759239
9,500.00	91.00	329.55	6,888.81	-323.93	2,348.48	14,462,123.60	1,739,314.27	39.82203143	-80.64777164
9,600.00	91.00	329.55	6,887.06	-237.73	2,297.81	14,462,209.80	1,739,263.60	39.82226868	-80.64795090



Survey Report - Geographic

Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Willett
 Well: Willett N-01 HM (slot A)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Willett N-01 HM (slot A)
 TVD Reference: GL @ 1310.00ft
 MD Reference: GL @ 1310.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: DB_Dec2220_v16

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,700.00	91.00	329.55	6,885.32	-151.54	2,247.13	14,462,295.99	1,739,212.92	39.82250594	-80.64813016
9,800.00	91.00	329.55	6,883.58	-65.35	2,196.46	14,462,382.18	1,739,162.25	39.82274319	-80.64830943
9,900.00	91.00	329.55	6,881.83	20.85	2,145.79	14,462,468.38	1,739,111.58	39.8228044	-80.64846869
10,000.00	91.00	329.55	6,880.09	107.04	2,095.12	14,462,554.57	1,739,060.91	39.82321770	-80.64866795
10,100.00	91.00	329.55	6,878.35	193.23	2,044.45	14,462,640.76	1,739,010.24	39.82345495	-80.64884722
10,200.00	91.00	329.55	6,876.61	279.43	1,993.77	14,462,726.96	1,738,959.57	39.82369220	-80.64902648
10,300.00	91.00	329.55	6,874.86	365.62	1,943.10	14,462,813.15	1,738,908.89	39.82392945	-80.64920575
10,400.00	91.00	329.55	6,873.12	451.82	1,892.43	14,462,899.34	1,738,858.22	39.82416671	-80.64938502
10,500.00	91.00	329.55	6,871.38	538.01	1,841.76	14,462,985.54	1,738,807.55	39.82440396	-80.64956429
10,600.00	91.00	329.55	6,869.63	624.20	1,791.09	14,463,071.73	1,738,756.88	39.82464121	-80.64974356
10,700.00	91.00	329.55	6,867.89	710.40	1,740.41	14,463,157.92	1,738,706.21	39.82487846	-80.64992284
10,800.00	91.00	329.55	6,866.15	796.59	1,689.74	14,463,244.12	1,738,655.53	39.82511571	-80.65010211
10,900.00	91.00	329.55	6,864.41	882.78	1,639.07	14,463,330.31	1,738,604.86	39.82535296	-80.65028139
11,000.00	91.00	329.55	6,862.66	968.98	1,588.40	14,463,416.50	1,738,554.19	39.82559021	-80.65046066
11,100.00	91.00	329.55	6,860.92	1,055.17	1,537.73	14,463,502.70	1,738,503.52	39.82582746	-80.65063994
11,200.00	91.00	329.55	6,859.18	1,141.36	1,487.05	14,463,588.89	1,738,452.85	39.82606471	-80.65081922
11,300.00	91.00	329.55	6,857.43	1,227.56	1,436.38	14,463,675.08	1,738,402.17	39.82630196	-80.65099850
11,400.00	91.00	329.55	6,855.69	1,313.75	1,385.71	14,463,761.28	1,738,351.50	39.82653921	-80.65117778
11,500.00	91.00	329.55	6,853.95	1,399.94	1,335.04	14,463,847.47	1,738,300.83	39.82677645	-80.65135706
11,600.00	91.00	329.55	6,852.21	1,486.14	1,284.37	14,463,933.66	1,738,250.16	39.82701370	-80.65153633
11,700.00	91.00	329.55	6,850.46	1,572.33	1,233.69	14,464,019.86	1,738,199.49	39.82725095	-80.65171563
11,800.00	91.00	329.55	6,848.72	1,658.52	1,183.02	14,464,106.05	1,738,148.81	39.82748820	-80.65189492
11,900.00	91.00	329.55	6,846.98	1,744.72	1,132.35	14,464,192.24	1,738,098.14	39.82772545	-80.65207420
12,000.00	91.00	329.55	6,845.23	1,830.91	1,081.68	14,464,278.44	1,738,047.47	39.82796269	-80.65225349
12,100.00	91.00	329.55	6,843.49	1,917.10	1,031.01	14,464,364.63	1,737,996.80	39.82819994	-80.65243278
12,200.00	91.00	329.55	6,841.75	2,003.30	980.33	14,464,450.82	1,737,946.13	39.82843719	-80.65261207
12,300.00	91.00	329.55	6,840.01	2,089.49	929.66	14,464,537.02	1,737,895.46	39.82867443	-80.65279137
12,400.00	91.00	329.55	6,838.26	2,175.68	878.99	14,464,623.21	1,737,844.78	39.82891168	-80.65297066
12,500.00	91.00	329.55	6,836.52	2,261.88	828.32	14,464,709.40	1,737,794.11	39.82914893	-80.65314995
12,600.00	91.00	329.55	6,834.78	2,348.07	777.65	14,464,795.60	1,737,743.44	39.82938617	-80.65332925
12,700.00	91.00	329.55	6,833.03	2,434.26	726.97	14,464,881.79	1,737,692.77	39.82962342	-80.65350855
12,800.00	91.00	329.55	6,831.29	2,520.46	676.30	14,464,967.98	1,737,642.10	39.82986066	-80.65368785
12,900.00	91.00	329.55	6,829.55	2,606.65	625.63	14,465,054.18	1,737,591.42	39.83009791	-80.65386715
13,000.00	91.00	329.55	6,827.81	2,692.84	574.96	14,465,140.37	1,737,540.75	39.83033515	-80.65404645
13,100.00	91.00	329.55	6,826.06	2,779.04	524.29	14,465,226.56	1,737,490.08	39.83057239	-80.65422575
13,200.00	91.00	329.55	6,824.32	2,865.23	473.61	14,465,312.76	1,737,439.41	39.83080964	-80.65440505
13,300.00	91.00	329.55	6,822.58	2,951.43	422.94	14,465,398.95	1,737,388.74	39.83104688	-80.65458436
13,400.00	91.00	329.55	6,820.83	3,037.62	372.27	14,465,485.14	1,737,338.06	39.83128412	-80.65476366
13,500.00	91.00	329.55	6,819.09	3,123.81	321.60	14,465,571.34	1,737,287.39	39.83152137	-80.65494297
13,600.00	91.00	329.55	6,817.35	3,210.01	270.92	14,465,657.53	1,737,236.72	39.83175861	-80.65512228
13,700.00	91.00	329.55	6,815.61	3,296.20	220.25	14,465,743.72	1,737,186.05	39.83199585	-80.65530159
13,800.00	91.00	329.55	6,813.86	3,382.39	169.58	14,465,829.92	1,737,135.38	39.83223309	-80.65548090
13,900.00	91.00	329.55	6,812.12	3,468.59	118.91	14,465,916.11	1,737,084.70	39.83247034	-80.65566021
14,000.00	91.00	329.55	6,810.38	3,554.78	68.24	14,466,002.30	1,737,034.03	39.83270758	-80.65583953
14,100.00	91.00	329.55	6,808.63	3,640.97	17.56	14,466,088.49	1,736,983.36	39.83294482	-80.65601884
14,200.00	91.00	329.55	6,806.89	3,727.17	-33.11	14,466,174.69	1,736,932.69	39.83318206	-80.65619816
14,300.00	91.00	329.55	6,805.15	3,813.36	-83.78	14,466,260.88	1,736,882.02	39.83341930	-80.65637747
14,400.00	91.00	329.55	6,803.41	3,899.55	-134.45	14,466,347.07	1,736,831.34	39.83365654	-80.65655679
14,500.00	91.00	329.55	6,801.66	3,985.75	-185.12	14,466,433.27	1,736,780.67	39.83389378	-80.65673611
14,600.00	91.00	329.55	6,799.92	4,071.94	-235.80	14,466,519.46	1,736,730.00	39.83413102	-80.65691543
14,700.00	91.00	329.55	6,798.18	4,158.13	-286.47	14,466,605.65	1,736,679.33	39.83436826	-80.65709475
14,800.00	91.00	329.55	6,796.44	4,244.33	-337.14	14,466,691.85	1,736,628.66	39.83460550	-80.65727408
14,900.00	91.00	329.55	6,794.69	4,330.52	-387.81	14,466,778.04	1,736,577.99	39.83484274	-80.65745340
15,000.00	91.00	329.55	6,792.95	4,416.71	-438.48	14,466,864.23	1,736,527.31	39.83507996	-80.65763273
15,100.00	91.00	329.55	6,791.21	4,502.91	-489.16	14,466,950.43	1,736,476.64	39.83531722	-80.65781205



Survey Report - Geographic

Company: Tug Hill Operating LLC	Local Co-ordinate Reference: Well Willett N-01 HM (slot A)
Project: Marshall County, West Virginia	TVD Reference: GL @ 1310.00ft
Site: Willett	MD Reference: GL @ 1310.00ft
Well: Willett N-01 HM (slot A)	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: rev2	Database: DB_Dec2220_v16

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,200.00	91.00	329.55	6,769.46	4,589.10	-539.83	14,467,036.62	1,736,425.97	39.83555445	-80.65799138	
15,300.00	91.00	329.55	6,787.72	4,675.29	-590.50	14,467,122.81	1,736,375.30	39.83579169	-80.65817071	
15,400.00	91.00	329.55	6,785.98	4,761.49	-641.17	14,467,209.01	1,736,324.63	39.83602893	-80.65835004	
15,500.00	91.00	329.55	6,784.24	4,847.68	-691.84	14,467,295.20	1,736,273.95	39.83626617	-80.65852937	
15,600.00	91.00	329.55	6,782.49	4,933.87	-742.52	14,467,381.39	1,736,223.28	39.83650340	-80.65870870	
15,700.00	91.00	329.55	6,780.75	5,020.07	-793.19	14,467,467.59	1,736,172.61	39.83674064	-80.65888804	
15,800.00	91.00	329.55	6,779.01	5,106.26	-843.86	14,467,553.78	1,736,121.94	39.83697788	-80.65906737	
15,900.00	91.00	329.55	6,777.26	5,192.45	-894.53	14,467,639.97	1,736,071.27	39.83721511	-80.65924671	
16,000.00	91.00	329.55	6,775.52	5,278.65	-945.20	14,467,726.17	1,736,020.59	39.83745235	-80.65942605	
16,100.00	91.00	329.55	6,773.78	5,364.84	-995.88	14,467,812.36	1,735,969.92	39.83768958	-80.65960539	
16,200.00	91.00	329.55	6,772.04	5,451.04	-1,046.55	14,467,898.55	1,735,919.25	39.83792682	-80.65978473	
16,300.00	91.00	329.55	6,770.29	5,537.23	-1,097.22	14,467,984.75	1,735,868.58	39.83816406	-80.65996407	
16,400.00	91.00	329.55	6,768.55	5,623.42	-1,147.89	14,468,070.94	1,735,817.91	39.83840129	-80.66014341	
16,500.00	91.00	329.55	6,766.81	5,709.62	-1,198.56	14,468,157.13	1,735,767.23	39.83863852	-80.66032276	
16,600.00	91.00	329.55	6,765.06	5,795.81	-1,249.24	14,468,243.33	1,735,716.56	39.83887576	-80.66050210	
16,700.00	91.00	329.55	6,763.32	5,882.00	-1,299.91	14,468,329.52	1,735,665.89	39.83911299	-80.66068145	
16,800.00	91.00	329.55	6,761.58	5,968.20	-1,350.58	14,468,415.71	1,735,615.22	39.83935023	-80.66086080	
16,900.00	91.00	329.55	6,759.84	6,054.39	-1,401.25	14,468,501.91	1,735,564.55	39.83958746	-80.66104015	
17,000.00	91.00	329.55	6,758.09	6,140.58	-1,451.92	14,468,588.10	1,735,513.88	39.83982469	-80.66121950	
17,100.00	91.00	329.55	6,756.35	6,226.78	-1,502.60	14,468,674.29	1,735,463.20	39.84006193	-80.66139885	
17,200.00	91.00	329.55	6,754.61	6,312.97	-1,553.27	14,468,760.49	1,735,412.53	39.84029916	-80.66157820	
17,300.00	91.00	329.55	6,752.86	6,399.16	-1,603.94	14,468,846.68	1,735,361.86	39.84053639	-80.66175755	
17,400.00	91.00	329.55	6,751.12	6,485.36	-1,654.61	14,468,932.87	1,735,311.19	39.84077362	-80.66193691	
17,500.00	91.00	329.55	6,749.38	6,571.55	-1,705.28	14,469,019.07	1,735,260.52	39.84101085	-80.66211627	
17,600.00	91.00	329.55	6,747.64	6,657.74	-1,755.96	14,469,105.26	1,735,209.84	39.84124809	-80.66229562	
17,700.00	91.00	329.55	6,745.89	6,743.94	-1,806.63	14,469,191.45	1,735,159.17	39.84148532	-80.66247498	
17,800.00	91.00	329.55	6,744.15	6,830.13	-1,857.30	14,469,277.65	1,735,108.50	39.84172255	-80.66265434	
17,900.00	91.00	329.55	6,742.41	6,916.32	-1,907.97	14,469,363.84	1,735,057.83	39.84195978	-80.66283370	
18,000.00	91.00	329.55	6,740.66	7,002.52	-1,958.64	14,469,450.03	1,735,007.16	39.84219701	-80.66301307	
18,100.00	91.00	329.55	6,738.92	7,088.71	-2,009.32	14,469,536.23	1,734,956.48	39.84243424	-80.66319243	
18,200.00	91.00	329.55	6,737.18	7,174.90	-2,059.99	14,469,622.42	1,734,905.81	39.84267147	-80.66337179	
18,300.00	91.00	329.55	6,735.44	7,261.10	-2,110.66	14,469,708.61	1,734,855.14	39.84290870	-80.66355116	
18,324.99	91.00	329.55	6,735.00	7,282.64	-2,123.32	14,469,730.15	1,734,842.48	39.84296798	-80.66359598	
PBHL/TD 18324.99 MD 6735.00 TVD										
18,325.00	91.00	329.55	6,735.00	7,282.65	-2,123.33	14,469,730.16	1,734,842.47	39.84296800	-80.66359600	

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 r2 - hit/miss target - Shape - Point	0.00	0.00	6,735.00	7,282.65	-2,123.33	14,469,730.16	1,734,842.47	39.84296800	-80.66359600	
Willett N-01HM LP 50 E - plan hits target center by 0.02ft at 8513.33ft MD (6806.00 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	39.81968047	-80.64600305	



Survey Report - Geographic

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Willett N-01 HM (slot A)
Project:	Marshall County, West Virginia	TVD Reference:	GL @ 1310.00ft
Site:	Willett	MD Reference:	GL @ 1310.00ft
Well:	Willett N-01 HM (slot A)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	rev2	Database:	DB_Dec2220_v16

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
18,325.00	6,735.00	20" Casing	20	24	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1101	1101	0	0	KOP Begin 2°/100' build	
3182	3003	-397	604	Begin 41.61° tangent	
7032	5882	-1800	2742	Begin 8°/100' build/turn	
8065	6758	-1558	3002	Begin 10°/100' build/turn	
8513	6906	-1174	2848	Begin 91.00° lateral	
18,325	6735	7283	-2123	PBHL/TD 18324.99 MD 6735.00 TVD	



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"	18,325'	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=1.38
- Kick Off Plug: Class H Cement + 1% CD-32 + .75% 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 = 1.30

WW-9
(4/16)

API Number 47 - 051 - 02437
Operator's Well No. Willatt N-1HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2458, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

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

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

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? _____

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

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

-Landfill or offsite name/permit number? Waynes County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature James A Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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Office of Oil and Gas
FEB 10 2022
WV Department of
Environmental Protection

Subscribed and sworn before me this 1st day of September, 2021

Susanne Deliere

Notary Public

My commission expires 1/15/2025

Commonwealth of Pennsylvania - Notary Seal
Susanne Deliere, Notary Public
Washington County
My commission expires 03/18/2022
Commission number 1382332
Member, Pennsylvania Association of Notaries

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 5.44 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Daymond K. [Signature]*

Comments: _____

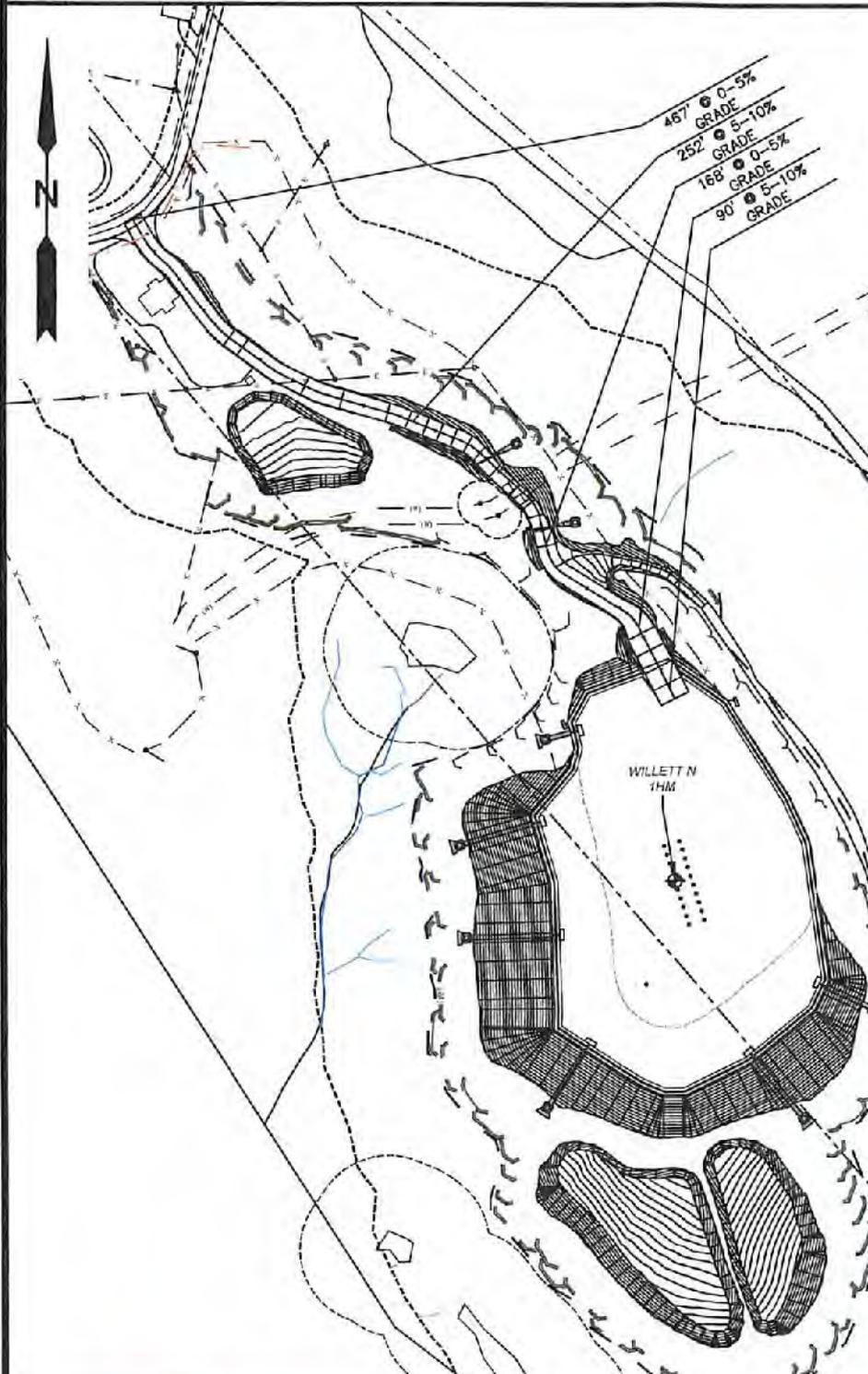
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FEB 10 2022
WV Department of
Environmental Protection

Title: Oil and Gas Inspector

Date: 1/19/2022

Field Reviewed? Yes No

PROPOSED WILLETT N - 1HM



NOTES:

1. DRAWING NOT TO SCALE
2. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
3. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
4. SEE WILLETT NITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.

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Office of Oil and Gas
FEB 10 2022
WV Department of
Environmental Protection

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26331 | 304.462.8834
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.256.5296
slsvv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	09/14/21	NONE

**TUG HILL
OPERATING**

03/18/2022

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 (09/27/2021) 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:

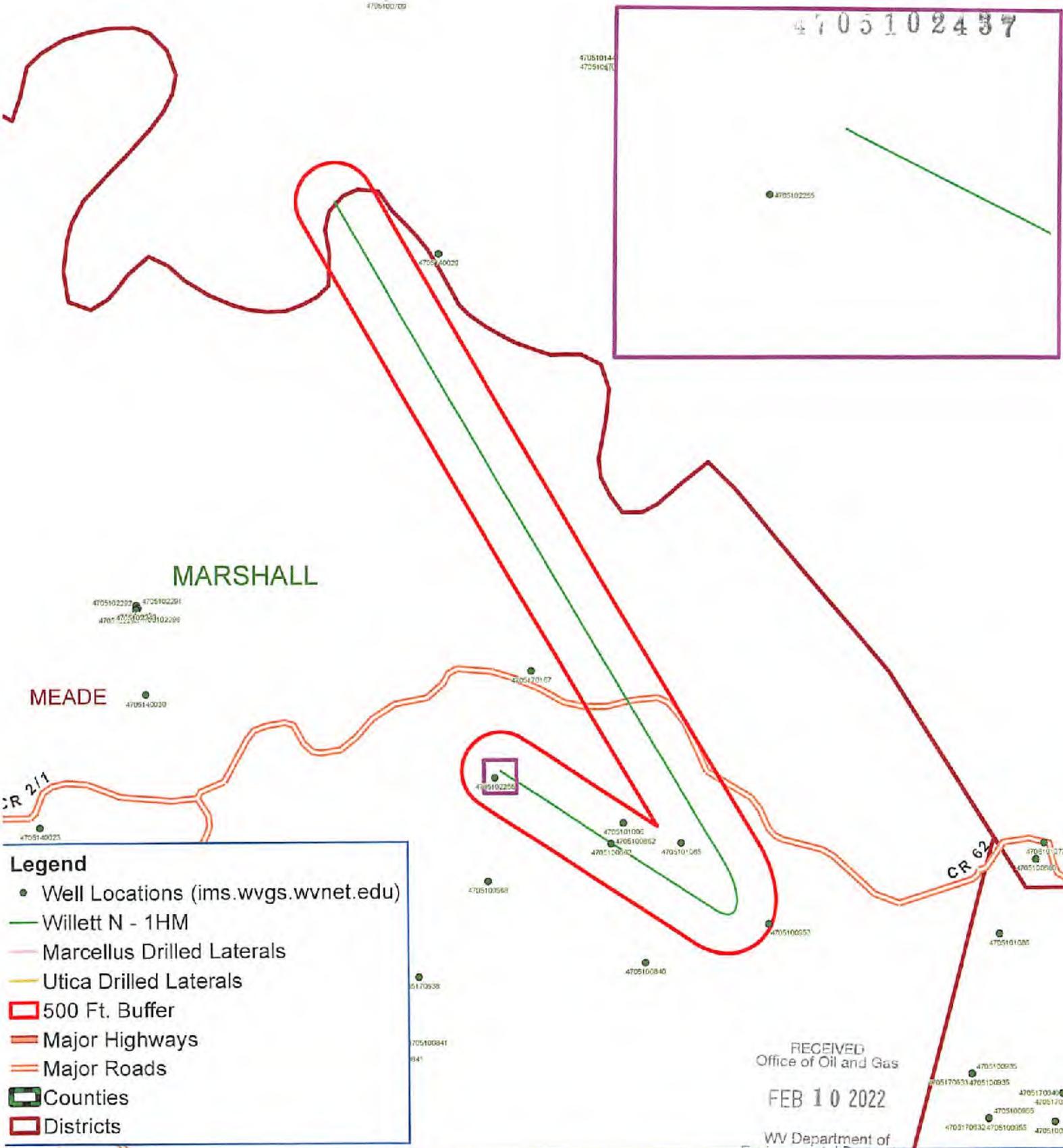
1. Wellbore with Enverus All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

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

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Page 1 of 8

03/18/2022



- Legend**
- Well Locations (ims.wvgs.wvnet.edu)
 - Willett N - 1HM
 - Marcellus Drilled Laterals
 - Utica Drilled Laterals
 - 500 Ft. Buffer
 - Major Highways
 - Major Roads
 - ▭ Counties
 - ▭ Districts

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Willett N - 1HM Meade District Marshall County, WV



Map Prepared by:
DPS
03/18/2022
LAND SERVICES

Map Created: September 27, 2021

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

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
4705102255	Tug Hill Operating, LLC	6870' TVD (proposed)	Marcellus (proposed)	none	Yes, this is a proposed well in the Marcellus. Once completed the well will be within the expected fracture propagation from a Marcellus stimulation. Proper casing and cement should prevent migration of fluids between wellbores.	A Tug Hill Operating, LLC permitted well on the pad that is not drilled or perforated.
4705100662	Cabot Oil & Gas of West Virginia (COGC of WV)	3201' TVD	Gordon	unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. Well is plugged.	Well was plugged 5/22/1984.
4705100953	Consolidation Coal Co.	unknown	Pittsburgh Coal	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well. Well is plugged.	Well was plugged 8/9/2005.
4705101006	Consolidation Coal Co.	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 Marcellus well. Well is plugged.	Well was plugged 5/22/2006.

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
4705101085	CNX Gas Co. LLC (North)	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 Marcellus well.	

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WV Geological & Economic Survey

Well: County = 51 Permit = 02255

Report Time: Monday, August 30, 2021 9:22:18 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705102255	Marshall	2255	Meade	Glen Easton	Cameron	39.822712	-80.656398	529405.5	4408136.8

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
4705102255	--	Dvtd Orgnl Loc	Permitted	CNX Land LLC	21V		Willett		Appalachian Basin Minerals LP et al	Tug Hill Operating, LLC	6870	Marcellus Fm

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
4705102255	--	--	1315	Ground Level															

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WV Geological & Economic Survey

Well: County = 51 Permit = 00662

Report Time: Monday, August 30, 2021 9:44:59 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100662	Marshall	662	Meade	Glen Easton	Cameron	39.820361	-80.65113	529857.3	4407877.6

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_TRG
4705100662	8/10/1979	Original Loc	Completed	Kenneth L Neely	1		Hally J Hubbs		Hally J Hubbs	Appalachian Exploration & Development, Inc.		
4705100662	5/22/1984	Plugging	Completed	Kenneth L Neely	1		Hally J Hubbs			Cabot Oil & Gas of West Virginia (COGC of WV)		

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
4705100662	8/10/1979	8/3/1979	1369	Ground Level	Cameron-Garner	Gordon	Gordon	Outpost (Extension) Test	Outpost (Extension) Well	Gas	Rotary	Acid-Frac	3201		3201
4705100662	5/22/1984	5/22/1984	1369	Ground Level						Gas	unknown	unknown			

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
4705100662	8/10/1979	Water	Fresh Water	Vertical				100					0
4705100662	8/10/1979	Show	Gas	Vertical				1560	Pennsylvanian System	0	0		0
4705100662	8/10/1979	Water	Salt Water	Vertical				1910					0
4705100662	8/10/1979	Pay	Gas	Vertical	3050			3060	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
4705100662	Original Loc	unidentified coal	Well Record	814	Reasonable	2	Reasonable	1369	Ground Level
4705100662	Original Loc	unidentified coal	Well Record	980	Reasonable	2	Reasonable	1369	Ground Level
4705100662	Original Loc	Pittsburgh coal	CBM: Drillers Pick	1031	Reasonable	3	Reasonable	1369	Ground Level
4705100662	Original Loc	unidentified coal	Well Record	1066	Reasonable	4	Reasonable	1369	Ground Level
4705100662	Original Loc	Greenbrier Group	Well Record	2164	Reasonable	56	Reasonable	1369	Ground Level
4705100662	Original Loc	Big Lime	Well Record	2164	Reasonable	56	Reasonable	1369	Ground Level
4705100662	Original Loc	Big Injun (Price&seq)	Well Record	2278	Reasonable	162	Reasonable	1369	Ground Level
4705100662	Original Loc	Berea Ss	Well Record	2782	Reasonable	22	Reasonable	1369	Ground Level
4705100662	Original Loc	Gordon	Well Record	3037	Reasonable	49	Reasonable	1369	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100662	5/22/1984	0

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WV Geological & Economic Survey

Well: County = 51 Permit = 00953

Report Time: Monday, August 30, 2021 9:45:39 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100953	Marshall	953	Meade	Glen Easton	Cameron	39.817461	-80.643984	530470.2	4407558.1

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
4705100953	8/9/2005	Plugging	Completed	Glenn Gorozycze et al		M-173				Consolidation Coal Co.			

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_AF
4705100953	8/9/2005	7/22/2005	1207	Ground Level			Pittsburgh coal	unclassified	unclassified	not available	unknown	unknown						

There is no Pay data for this well

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
4705100953	Plugging	Pittsburgh coal	Well Record	927	Reasonable	5	Reasonable	1207	Ground Level

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100953	8/9/2005	0

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WV Geological & Economic Survey

Well: County = 51 Permit = 01006

Report Time: Monday, August 30, 2021 9:45:58 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101006	Marshall	1006	Meade	Glen Easton	Cameron	39.821088	-80.650566	529905.3	4407958.2

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_
4705101006	5/22/2006	Plugging	Completed	Kenneth L & Carol J Neely		M-98			Kenneth & Carol Neely	Consolidation Coal Co.			

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_AF
4705101006	5/22/2006	5/1/2006	1375	Ground Level				unclassified	unclassified	not available	unknown	UnFin/WStm						

There is no Pay data for this well

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

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705101006	5/22/2006	0

WV Geological & Economic Survey

Well: County = 51 Permit = 01085

Report Time: Monday, August 30, 2021 9:46:17

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101085	Marshall	1085	Meade	Glen Easton	Cameron	39.820361	-80.647934	530130.9	4407878.6

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_E
4705101085	-/-		Original Loc	Permitted	Larry Neely		5A1		Larry Neely	CNX Gas Co. LLC (North)	980	Pittsburgh coal	

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_I
4705101085	-/-	-/-	1364	Ground Level				unclassified	unclassified	Methane (CBM)	unknown	unknown					

There is no Pay data for this well

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
4705101085	CNX Gas Co. LLC (North)	2008	87,788	0	3,425	7,702	6,164	8,876	9,799	10,135	9,703	5,719	9,161	8,958	8,136
4705101085	CNX Gas Co. LLC (North)	2009	53,114	7,295	5,386	5,043	5,610	8,349	8,192	6,145	1,191	1,393	1,608	1,477	1,425
4705101085	CNX Gas Co. LLC (North)	2010	10,771	1,441	1,289	1,437	1,311	1,030	909	299	8	431	669	687	1,260
4705101085	CNX Gas Co. LLC (North)	2011	5,138	891	605	724	712	496	228	1	8	166	468	394	445
4705101085	CNX Gas Co. LLC (North)	2012	2,416	540	540	410	368	261	121	30	2	2	0	28	114
4705101085	CNX Gas Co. LLC (North)	2013	122	16	53	42	11	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4705101085	CNX Gas Co. LLC (North)	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

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TUG HILL
OPERATING

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

Well Name: Willett N-1HM

Pad Name: Willett Pad

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,408,162.76

Easting: 529,428.23

B.S. 10-14-21

**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)

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24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

03/18/2022

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

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

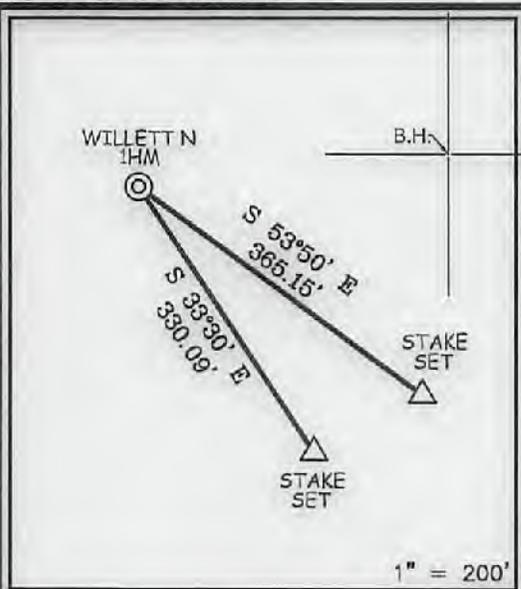
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 483,948.41 E. 1,643,786.07
 NAD'83 GEO. LAT-(N) 39.822945 LONG-(W) 80.656131
 NAD'83 UTM (M) N. 4,408,162.76 E. 529,428.23
LANDING POINT
 NAD'83 S.P.C.(FT) N. 482,726.2 E. 1,646,615.4
 NAD'83 GEO. LAT-(N) 39.819691 LONG-(W) 80.646003
 NAD'83 UTM (M) N. 4,407,804.9 E. 530,296.4
BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 491,268.0 E. 1,641,784.1
 NAD'83 GEO. LAT-(N) 39.842968 LONG-(W) 80.663596
 NAD'83 UTM (M) N. 4,410,392.6 E. 523,781.0

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

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 DEWAINE 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 DEWAINE 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

REFERENCES



NOTES ON SURVEY

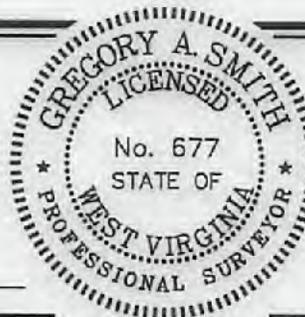
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



12 Vanhorn Drive | P.O. Box 180 | Glenville, WV 26031 | 304.482.5634
 1412 Kenawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slsmv.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 SEPTEMBER 24, 20 21
 OPERATORS WELL NO. WILLETT N 1HM
 API WELL NO. 47 - 051 - 02437
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8939P1HMR.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY: DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'
 WILLETT N 1HM-REV2

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: 18,325'

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

COUNTY NAME PERMIT

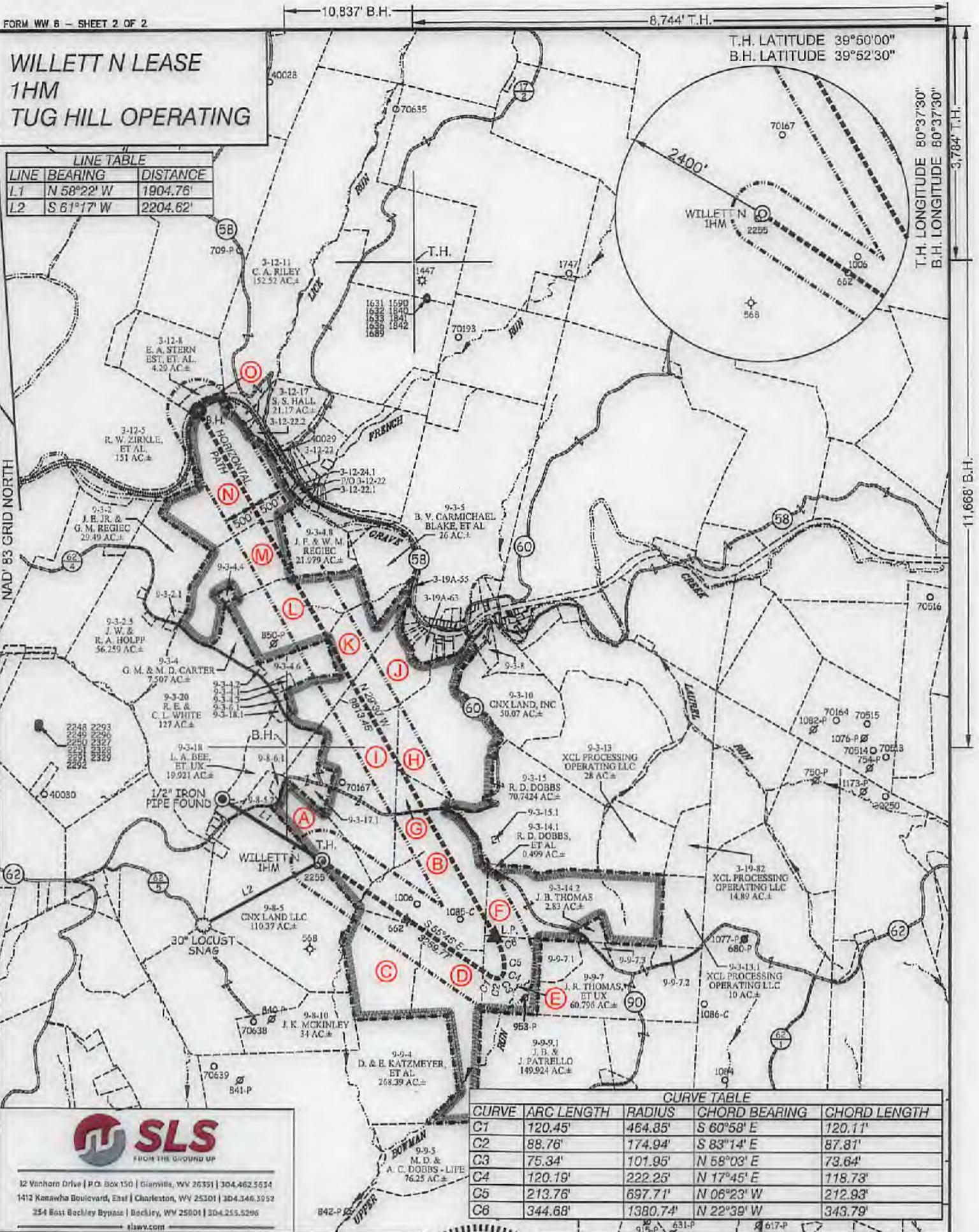
08/18/2022

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

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

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

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



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'	101.96'	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	344.68'	1380.74'	N 22°39' W	343.79'

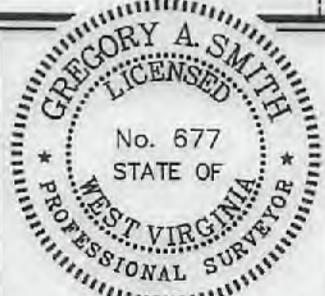


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slaw.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'83 S.P.C.(FT) N. 463,948.41 E. 1,843,786.07
NAD'83 GEO. LAT-(N) 39.822948 LONG-(W) 80.856131
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. 1,843,615.4
NAD'83 GEO. LAT-(N) 39.819801 LONG-(W) 80.848003
NAD'83 UTM (M) N. 4,407,804.9 E. 530,286.4

BOTTOM HOLE
NAD'83 S.P.C.(FT) N. 491,288.0 E. 1,841,784.1
NAD'83 GEO. LAT-(N) 39.842968 LONG-(W) 80.863598
NAD'83 UTM (M) N. 4,410,382.6 E. 528,781.0



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

P.S. *Gregory A. Smith*
677

SCALE 1" = 2000' FILE NO. 8939P1HMR.dwg
WILLETT N 1HM-REV2

DATE SEPTEMBER 8, 20 21
REVISED SEPTEMBER 24, 20 21

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

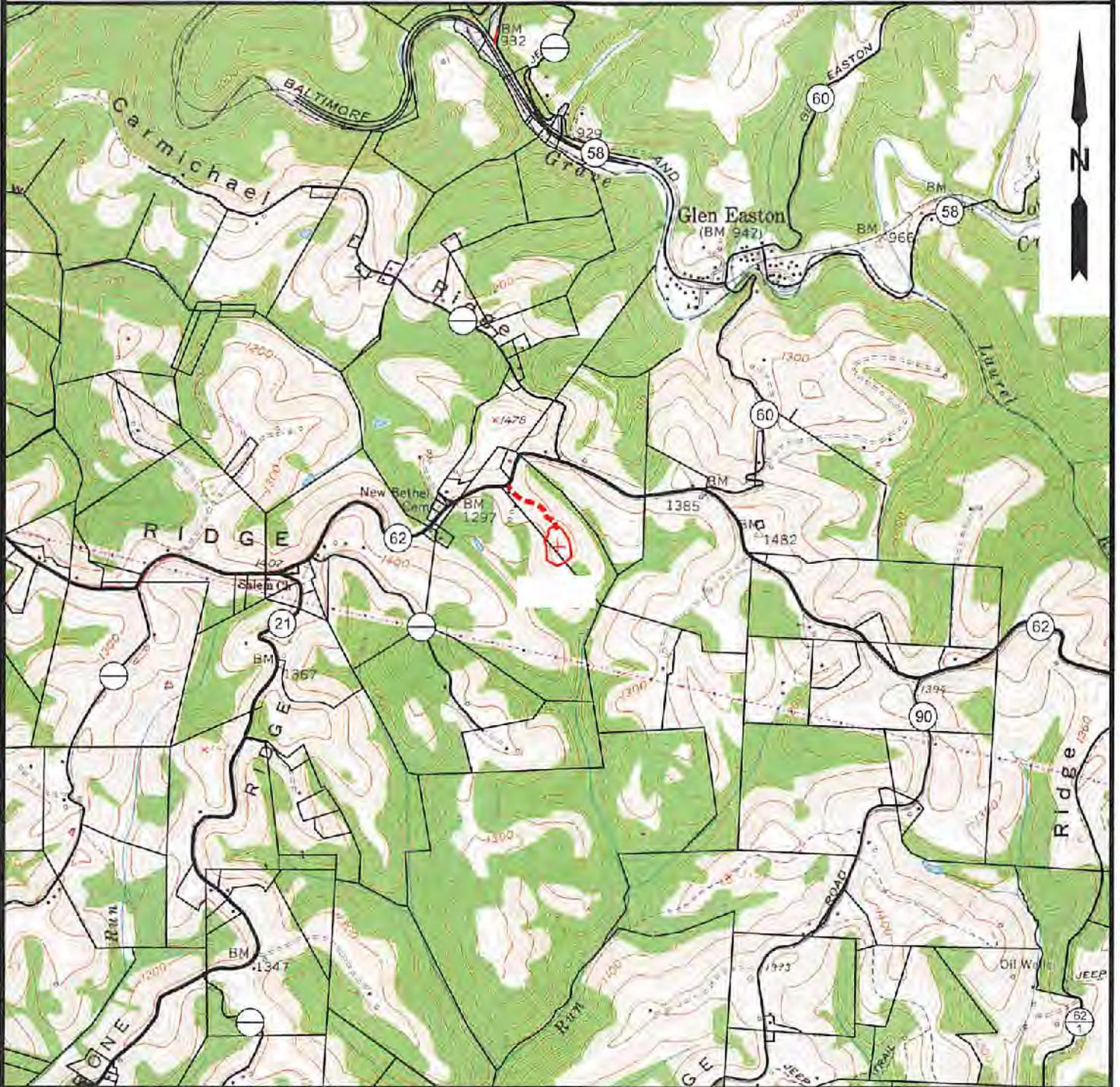
LEGEND	
LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	00-00
SURFACE OWNER (SEE TABLE)	
LEASE # (SEE WW-6A1)	

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

03/18/2022

COUNTY NAME PERMIT

PROPOSED WILLETT N - 1HM



NOTE: CLOSEST WATER PURVEYOR
CITY OF CAMERON - FRANK WALKER RESERVOIR
CAMDEN, WV

LAT: 39.829865
LON: -80.573724
LOCATED: N 84°38'39" E AT 23,313.72' FROM THE CENTER OF WILLETT N WELL PAD LOCATION.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.482.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 504.346.3952
281 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
sllswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	09/14/2021	1" = 2000'



TUG HILL
OPERATING

03/18/2022

**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
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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

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment						
10*21602	9-8-6	A	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959 289	N/A						
10*21604	9-8-6	A	WILLIAM EDWARD STACY AND JACQUELINE L STACY	TH EXPLORATION LLC	1/8+	958 428	N/A						
10*22616	9-8-6	A	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968 281	N/A						
10*22618	9-8-6	A	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966 636	N/A						
10*22721	9-8-6	A	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988 134	N/A						
10*22796	9-8-6	A	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972 87	N/A						
10*22880	9-8-6	A	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977 85	N/A						
10*22881	9-8-6	A	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977 87	N/A						
10*23107	9-8-6	A	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983 620	N/A						
10*23141	9-8-6	A	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984 7	N/A						
10*23142	9-8-6	A	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984 5	N/A						
10*23161	9-8-6	A	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983 618	N/A						
10*23162	9-8-6	A	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983 622	N/A						
10*23163	9-8-6	A	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983 571	N/A						
10*23176	9-8-6	A	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984 9	N/A						
10*23181	9-8-6	A	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983 627	N/A						
10*23192	9-8-6	A	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984 472	N/A						
10*23313	9-8-6	A	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988 136	N/A						
10*23419	9-8-6	A	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988 492	N/A						
10*23420	9-8-6	A	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988 490	N/A						
10*23739	9-8-6	A	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1011 538	N/A						
10*23740	9-8-6	A	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1011 532	N/A						
10*23741	9-8-6	A	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1011 515	N/A						
10*23742	9-8-6	A	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1011 536	N/A						
10*23743	9-8-6	A	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1011 534	N/A						
10*23749	9-8-6	A	MARCELLUS TX MINERAL PRTRN LTD	TH EXPLORATION LLC	1/8+	1012 193	N/A						
10*24781	9-8-6	A	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027 578	N/A						
10*24782	9-8-6	A	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027 572	N/A						
10*24783	9-8-6	A	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027 569	N/A						
10*25224	9-8-6	A	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030 141	N/A						
10*25701	9-8-6	A	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034 239	N/A						
10*25716	9-8-6	A	RUSSELL BREDENNER	TH EXPLORATION LLC	1/8+	1035 23	N/A						
10*26631	9-8-6	A	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039 322	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						
10*28647	9-8-6	A	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076 65	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

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 356	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

| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Grantee, Lessee, Etc. | Royalty | Deed Book/Page | Assignment |
|-----------------|--------|-----|---|-----------------------|---------|----------------|------------|------------|------------|------------|------------|------------|------------|
| 10*28866 | 9-8-9 | C | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1072 230 | N/A |
| 10*28987 | 9-8-9 | C | ALLDALE MINERALS II LP | TH EXPLORATION LLC | 1/8+ | 1080 558 | N/A |
| 10*28649 | 9-8-9 | C | KENNETH M MCCARDLE AND DELORES MCCARDLE | TH EXPLORATION LLC | 1/8+ | 1075 483 | N/A |
| 10*28809 | 9-8-9 | C | LUCY MCCARDLE | TH EXPLORATION LLC | 1/8+ | 1077 468 | N/A |
| 10*28810 | 9-8-9 | C | LEROY ANDERSON AND DONNA KAY ANDERSON | TH EXPLORATION LLC | 1/8+ | 1077 261 | N/A |
| 10*47051.086.12 | 9-8-9 | C | ROBERT GENE WILLIAMS | TH EXPLORATION LLC | 1/8+ | 957 86 | 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 |
| 10*47051.086.14 | 9-8-9 | C | KATHE A TURNER | TH EXPLORATION LLC | 1/8+ | 941 429 | N/A |
| 10*47051.086.15 | 9-8-9 | C | REBA J CURTIS | TH EXPLORATION LLC | 1/8+ | 1023 540 | N/A |
| 10*47051.086.16 | 9-8-9 | C | LORETTA L FREELOVE | TH EXPLORATION LLC | 1/8+ | 941 433 | N/A |
| 10*22055 | 9-8-8 | D | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1010 226 | N/A |
| 10*28866 | 9-8-8 | D | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1072 230 | N/A |
| 10*28987 | 9-8-8 | D | ALLDALE MINERALS II LP | TH EXPLORATION LLC | 1/8+ | 1080 558 | N/A |
| 10*28649 | 9-8-8 | D | KENNETH M MCCARDLE AND DELORES MCCARDLE | TH EXPLORATION LLC | 1/8+ | 1075 483 | N/A |
| 10*28809 | 9-8-8 | D | LUCY MCCARDLE | TH EXPLORATION LLC | 1/8+ | 1077 468 | N/A |
| 10*28810 | 9-8-8 | D | LEROY ANDERSON AND DONNA KAY ANDERSON | TH EXPLORATION LLC | 1/8+ | 1077 261 | N/A |
| 10*47051.086.12 | 9-8-8 | D | ROBERT GENE WILLIAMS | TH EXPLORATION LLC | 1/8+ | 957 86 | 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 |
| 10*47051.086.14 | 9-8-8 | D | KATHE A TURNER | TH EXPLORATION LLC | 1/8+ | 941 429 | N/A |
| 10*47051.086.15 | 9-8-8 | D | REBA J CURTIS | TH EXPLORATION LLC | 1/8+ | 1023 540 | N/A |
| 10*47051.086.16 | 9-8-8 | D | LORETTA L FREELOVE | TH EXPLORATION LLC | 1/8+ | 941 433 | N/A |
| 10*19634 | 9-9-6 | E | IANICE L PIETERSE | TH EXPLORATION LLC | 1/8+ | 944 619 | N/A |
| 10*19637 | 9-9-6 | E | RANDY K AND ALICE E BOWER | TH EXPLORATION LLC | 1/8+ | 944 621 | N/A |
| 10*19703 | 9-9-6 | E | WILLIAM M BECKER AND KATHARINE B BECKER | TH EXPLORATION LLC | 1/8+ | 944 616 | N/A |
| 10*19880 | 9-9-6 | E | R RICK HYRE | TH EXPLORATION LLC | 1/8+ | 944 623 | N/A |
| 10*19930 | 9-9-6 | E | TODD W BULLARD AND BETH H BULLARD | TH EXPLORATION LLC | 1/8+ | 949 270 | N/A |
| 10*21243 | 9-9-6 | E | NORMAN B AND JO ELLEN KAUBLE | TH EXPLORATION LLC | 1/8+ | 952 394 | N/A |
| 10*21404 | 9-9-6 | E | WILLIAM W HYRE AND NOREEN M HYRE | TH EXPLORATION LLC | 1/8+ | 953 542 | N/A |
| 10*21499 | 9-9-6 | E | SAMUEL J RICKEY | TH EXPLORATION LLC | 1/8+ | 953 250 | N/A |
| 10*22525 | 9-9-6 | E | JOHN P RICKEY & ROSE HOWELL RICKEY | TH EXPLORATION LLC | 1/8+ | 964 525 | N/A |
| 10*27947 | 9-9-6 | E | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1063 568 | 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 |
| 10*23294 | 9-9-6 | E | GLENN GORCZYCA AND JANE GORCZYCA | TH EXPLORATION LLC | 1/8+ | 988 103 | N/A |
| 10*26711 | 9-9-6 | E | CNX GAS COMPANY LLC | TH EXPLORATION LLC | 1/8+ | 1074 593 | N/A |
| 10*19737 | 9-3-14 | F | ALICE BUZZARD | TH EXPLORATION LLC | 1/8+ | 948 195 | N/A |
| 10*19738 | 9-3-14 | F | JAMES R BLAIR | TH EXPLORATION LLC | 1/8+ | 946 318 | N/A |
| 10*19739 | 9-3-14 | F | ROBERT C BLAKE AND LYN BLAKE | TH EXPLORATION LLC | 1/8+ | 946 313 | N/A |
| 10*19740 | 9-3-14 | F | TERRY L BLAKE | TH EXPLORATION LLC | 1/8+ | 946 311 | N/A |
| 10*19741 | 9-3-14 | F | JOHN PURDY AND BRENDA S PURDY | TH EXPLORATION LLC | 1/8+ | 946 308 | N/A |
| 10*19742 | 9-3-14 | F | CAROLE J WOOD | TH EXPLORATION LLC | 1/8+ | 946 316 | N/A |
| 10*19922 | 9-3-14 | F | MARLENE GARIN | TH EXPLORATION LLC | 1/8+ | 946 320 | N/A |
| 10*19924 | 9-3-14 | F | CHARLES W DOBBS AND JUDITH M DOBBS | TH EXPLORATION LLC | 1/8+ | 946 322 | N/A |
| 10*19991 | 9-3-14 | F | BRADLEY S SCHERICH AND LEIGH SCHERICH | TH EXPLORATION LLC | 1/8+ | 948 192 | N/A |
| 10*19992 | 9-3-14 | F | GARY F BLAKE AND DORIS E BLAKE | TH EXPLORATION LLC | 1/8+ | 948 197 | N/A |
| 10*21323 | 9-3-14 | F | TODD SCHERICH AND WANDA D SCHERICH | TH EXPLORATION LLC | 1/8+ | 946 324 | N/A |
| 10*22723 | 9-3-14 | F | LINDA SUE BENNETT AND THOMAS BENNETT | TH EXPLORATION LLC | 1/8+ | 968 276 | N/A |
| 10*22769 | 9-3-14 | F | NANCY JO FENN | TH EXPLORATION LLC | 1/8+ | 968 274 | N/A |
| 10*22770 | 9-3-14 | F | REBECCA LYNN RITZ AND THOMAS A RITZ | TH EXPLORATION LLC | 1/8+ | 968 272 | N/A |
| 10*22822 | 9-3-14 | F | DARLA J KLUKAS | TH EXPLORATION LLC | 1/8+ | 974 182 | N/A |
| 10*22824 | 9-3-14 | F | PEGGY ANNETTE GARDNER & ROBERT W GARDNER | TH EXPLORATION LLC | 1/8+ | 974 180 | N/A |
| 10*23227 | 9-3-14 | F | ROGER F CROSS | TH EXPLORATION LLC | 1/8+ | 984 478 | N/A |
| 10*28700 | 9-3-14 | F | ARTHUR AND VERA WORKMAN IRREVOCABLE TRUST | TH EXPLORATION LLC | 1/8+ | 1077 41 | N/A |
| 10*28854 | 9-3-14 | F | CHARLES HAWKINS AND CONSTANCE HAWKINS | TH EXPLORATION LLC | 1/8+ | 1077 258 | N/A |
| 10*28949 | 9-3-14 | F | SAMUEL W PHIPPS AND ALLISON M PHIPPS | TH EXPLORATION LLC | 1/8+ | 1078 447 | N/A |
| 10*28446 | 9-3-14 | F | TIMOTHY R LINKOUS | TH EXPLORATION LLC | 1/8+ | 1072 375 | N/A |
| 10*24396 | 9-3-14 | F | ELEANOR CHAMBERS | TH EXPLORATION LLC | 1/8+ | 1023 166 | N/A |
| 10*26711 | 9-3-14 | F | CNX GAS COMPANY LLC | TH EXPLORATION LLC | 1/8+ | 1074 593 | N/A |
| 10*28092 | 9-8-7 | G | WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS | TH EXPLORATION LLC | 1/8+ | 1073 370 | N/A |
| 10*29269 | 9-8-7 | G | TIMOTHY N NEELY | TH EXPLORATION LLC | 1/8+ | 1090 135 | N/A |

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
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	
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	
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	
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	
10*21604	9-3-17	I	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	
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	
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	
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	
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	
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	
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	
10*23107	9-3-17	I	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983 620	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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
10*25716	9-3-17	I	RUSSELL BREDBENNER	TH EXPLORATION LLC	1/8+	1035 23	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	
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	
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	
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	
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	
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	
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	
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	
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	
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	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	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	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	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	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	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	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	Chevron USA Inc to TH Exploration II LLC: 45/593	

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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
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

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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	
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	
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	
✓ 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	Chevron USA Inc to SWN Production Company LLC & 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	Chevron USA Inc to SWN Production Company LLC & 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

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
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
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

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "**Assignment**") is made and entered into this 24th 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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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from EQUINOR USA ONSHORE PROPERTIES, INC., a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on October 18, 2021 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated June 15, 2021 (the "*Acreage Trade Agreement*").

ARTICLE 1
ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") INsofar AND ONLY INsofar as they cover those lands described on Exhibit A and Exhibit A-1 (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

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

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

ARTICLE 2
SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

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03/18/2022



September 1, 2021

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Charles T. Brewer

RE: Willett N-1HM

Subject: Marshall County Route 62

Dear Taylor:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 62 in the area reflected on the Willett N-1HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 304-376-0111, or by email at amorris@tug-hillop.com.

Sincerely,

Amy Morris
Permit Specialist – Appalachia Region
Cell 304-376-0111
Email: amorris@tug-hillop.com

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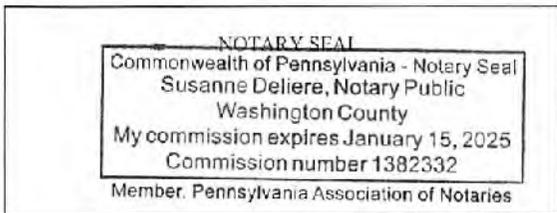
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Certification of Notice is hereby given:

THEREFORE, I Amy L. Morris, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	<u>Amy L. Morris <i>Amy L. Morris</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia Region</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amorris@tug-hillop.com</u>



Subscribed and sworn before me this 26th day of October, 2021
Susanne Deliere Notary Public
 My Commission Expires 1/15/2025

Oil and Gas Privacy Notice:

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

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

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 11/2/2021 Date Permit Application Filed: 11/3/2021

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
 Name: CNX Land Resources, LLC Attn: Casey Saunders
 Address: 1000 Consol Energy Drive
1000 Consol Energy Drive
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: _____
 Address: _____
 Name: _____
 Address: _____

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

COAL OWNER OR LESSEE
 Name: Consolidation Coal Company
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

COAL OPERATOR
 Name: Marshall County Coal Resources, Inc. Attn: Steve Baird
 Address: 46226 National Road
St. Clairsville, OH 43950

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

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

*Please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7 a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of providing qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

03/18/2022

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A
(8-13)

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

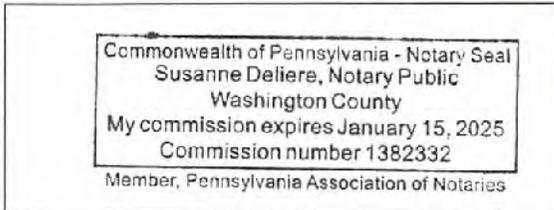
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hilltop.com *Amorris*

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-339-2030

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 26th day of October, 2021.
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

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Exhibit WW-6A

Supplement Pg. 1A

Tug Hill Operating, LLC
 380 Southpointe Blvd, Suite 200
 Cannonsburg, PA 15137

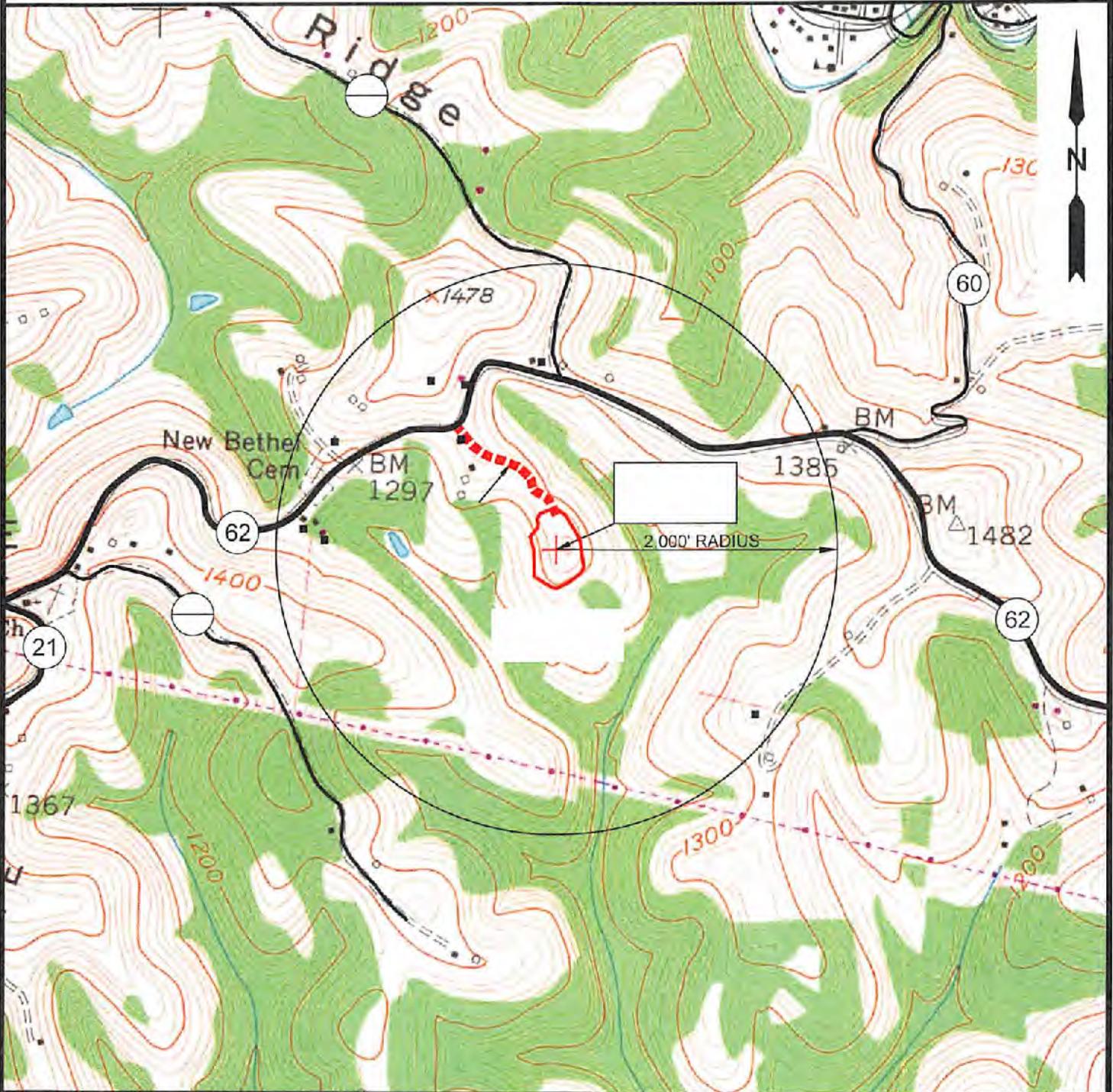
Residences within Two-Thousand Feet (2,000')

Well: Willett N – 1HM
 District: Meade
 State: WV

There are eight (8) residences, no business or commercial sites, no churches, no schools or emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p>Residence (#1) TM 8 Pcl. 6 CNX Land, LLC Phone: None Found Physical Address: 819 New Bethel Rd Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>	<p>Residence (#2) TM 8 Pcl. 6.1 Kayla E. Bratton Phone: 304-845-8266 Physical Address: Kayla Bratton (Reverse Address) 860 New Bethel Rd Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence (#3) TM 8 Pcl. 5.2 Amy Evans & Karen Whetzal Phone: 304-686-2827; 304-843-0902 (Larry Conkle) Physical Address: Larry Conkle (Reverse Address) 756 New Bethel Rd Glen Easton, WV 26039 Tax Address: Same</p>
<p>Residence (#4) TM 3 Pcl. 17 CNX Land, LLC Phone: 304-845-0038 (Leah Kestner) Physical Address: Leah Kestner (Reverse Address) 40 Carmichael Ln Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>	<p>Residence (#5) TM 8 Pcl. 9 James Richard Blake, Et Ux Phone: None Found – Reverse Address Physical Address: 295 Homestead Ln. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence (#6) TM 8 Pcl. 5.1 Raymond E. & Cindy L. White Phone: 304-845-4529 (Raymond White) Physical Address: Ruth Siburt (Reverse Address) 575 New Bethel Rd Glen Easton, WV 26039 Tax Address: 656 New Bethel Rd. Glen Easton, WV 26039</p>
<p>Residence (#7) TM 3 Pcl. 19 Raymond E. & Cindy L. White Phone: 304-845-4529 (Raymond White); 903-276-5846 (Gary Whitlatch) Physical Address: Gary Whitlatch (Reverse Address) 569 New Bethel Rd Glen Easton, WV 26039 Tax Address: 656 New Bethel Rd. Glen Easton, WV 26039</p>	<p>Residence (#8) TM 3 Pcl. 18.2 Raymond E. & Cindy L. White Phone: 304-845-4529; 304-843-5087 (Matthew Meyer) Physical Address: Matthew Meyer (Reverse Address) 692 New Bethel Rd Glen Easton, WV 26039 Tax Address: 656 New Bethel Rd Glen Easton, WV 26039</p>	<p style="text-align: right;">RECEIVED Office of Oil and Gas FEB 10 2022 WV Department of Environmental Protection</p>

PROPOSED WILLETT N - 1HM



NOTE: THERE APPEARS TO BE EIGHT (8) POSSIBLE WATER SOURCES WITHIN 2,000'.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5534
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.246.3952
 254 East Becklay Bypass | Beckley, WV 25801 | 304.255.5296
 slsvv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	09/14/2021	1" = 1000'



TUG HILL
OPERATING

03/18/2022

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

Date of Notice: 6/4/2019 **Date of Planned Entry:** 6/11/2019

Delivery method pursuant to West Virginia Code § 22-6A-10a

- PERSONAL SERVICE
 REGISTERED MAIL
 METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)

Name: CNX Land Resources, LLC Attn: Casey Saunders
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Consolidation Coal Company
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Appalachian Basin Minerals, LP *See attached list
Address: 8236 Douglas Avenue, Suite 815
Dallas, TX 75225

*please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia
County: Marshall
District: Meade
Quadrangle: Glen Easton 7.5'

Approx. Latitude & Longitude: 39.82308349; -80.65628349
Public Road Access: New Bethel Road (County Route 62)
Watershed: Middle Fish Creek
Generally used farm name: CNX Land Resources, LLC

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8383
Email: amiller@tug-hillop.com

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

Oil and Gas Privacy Notice:

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

03/18/2022

WW-6A3 Notice of Entry for Plat Survey

Willet Pad

Additional Mineral Owners

Carol Vallandingham
2430 Venetian Way
Burlington, KY 41005

Cheryl Brauch
6670 Snead Ln.
Florence, KY 41042

Teresa R. Fox
106 Brookside Ave
Ewing, NJ 08638

Juanita S. Hatch
1437 North Overland Trails Dr.
Washington, UT 84780

Bruce Johnson
6272 Highland Meadows Dr
Medina, OH 44256

Diane DeVault
9315 Brandywine Rd
Northfield, OH 44067

Bertha Lynn Klug
47 Shutler Ln.
Proctor, WV 26055

Marcellus TX Mineral Partners, Ltd.
307 West 7th St, Ste 1110
Fort Worth, TX 76102

McCrow Energy Partners II, LLC
8235 Douglas Ave., Ste 815
Dallas, TX 75225

Matthew Grossaint
4820 132 Pl SE
Mill Creek, WA 96012

Lou Ann Grossaint
1920 S. Atlantic St
Boise, ID 83705

Rachel Marie McLardy
5808 Medusa St
P.O. Box 931
Sechelt, British Columbia, V0N 3A0

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PennMarc Resources II, LP
2 East Market St., Ste 1
Clearfield, PA 16830

Purpleburgh Ventures, LLC
4675 Carfefree Trail
Parker, CO 80134

Wildes Mineral Interests, LLC
3517 Gillon Ave.
Dallas, TX 75205

Phillip A. Wilson
1715 Lancaster Dr
Youngstown, OH 44511

Jessica M. Chavez
5525 Alta Verde Cir
Arlington, TX 76017

Edward F. Wilson
2933 Hastings Dr
Grand Prairie, TX 75052

Denise Marie Rogers
9671 King Graves Rd NE
Warren, OH 44484

Julianne Erdos
119 Noran Cir
Bedford, OH 44146

The Robert Wise Living Trust
Trustee: Shirley Hagenbaugh
529 Genoa Dr
Kissimmee, FL 34759

Harry Albert Richardson
19819 10th Ave NW
Shoreline, WA 98177

Rev. Jane D. Bearden
19106 Timothy's Manor Ct
Parkton, MD 21120

Janet M. Smith
122 Kandahar Dr
East Aurora, NY 14052

Brad Lehner
2570 Chasewood Ct
Aurora, IL 60502

Bryan S. Lehner
372 5th Ave Apt 4J
New York, NY 10018

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6A3

Barbara Krus ✓
421 Fox Chapel Dr
Lutherville Timonium, MD 21093

Maureen Wilson ✓
12 Juliet Ln Apt 102
Nottingham, MD 21236

Russell Bredbenner ✓
965 Seybert St
Hazelton, PA 18201

Joseph R. Zbozien ✓
704 Pontiac Ave
Brooklyn, MD 21225

Jasmine Lee Hall Pena ✓
c/o Robert A Hall
4400 Falls Rd
Baltimore, MD 21211

William Edward Stacy ✓
116 Ocoee Falls Dr
Chapel Hill, NC 27517

Carol Stacy Saunders ✓
4149 Andros Way
Oceanside, CA 92056

Carol D. Elmore ✓
6461 Mesquite Dr
Midlothian, TX 76065

James S. Wilson ✓
6306 Farley Dr
San Diego, CA 92122

Margaret Lee Hall ✓
2910 Avenida De Autlan
Camarillo, CA 93010

Marvin Wilson ✓
214 Saint Andrews Cir
Oxford, MS 38655

James Ovies ✓
1204 5th St
Moundsville, WV 26041

Rick Heuser ✓
162 Lawrence Lane
Reynoldsburg, OH 43068

Mark Heuser ✓
209 Cherokee Ct
Pickerington, OH 43147

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Cindy Lee Richmond
157 Richmond Ln
Glen Easton, WV 26039

Berger Boys, LLC
1305 Center St
Moundsville, WV 26041

Ella Jean McCardle
348 Fairmont Ave
Wheeling, WV 26003

Jesse Allen Wilson
49 Forest Hill Dr
Glen Dale, WV 26038

Troy Thomas Wilson
49 Forest Hill Dr
Glen Dale, WV 26038

April Dawn Hogan
5032 Castleman Run Rd
Bethany, WV 26032

Kimberly Sue Pierson
30 Forest Hill Dr
Glen Dale, WV 26038

Kenneth R. Anderson
1706 N Washington Ave
Springfield, MO 65803

Charles Pratico
25 Hamilton Ave
Princeton, NJ 08542

Marietta Agocs
50 Orourke Dr Apt O
Trenton, NJ 08691

Eileen Sennett
10 Orchard Dr
Chesterfield, NJ 08515

Patricia Cassidy
46 Heather Narrows
Toms River, NJ 08755

Sharon Bucci
120 7th Ave
Seaside Park, NJ 08752

Amy Pratico
19 E Railroad Ave
Jamesburg, NJ 08831

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613

Abigail Constance ✓
612 East Rd
Middletown, NJ 07748

Rachel Constance ✓
36 Cherokee Ave
Rockaway, NJ 07866

Lawrence Bernard Ostry Estate, by ✓
Rachael Marie McLardy as Trustee
5808 Medusa Street, PO Box 931
Sechely, British Columbia, V0N 3A0

The Bernard E. Kurlich Family Trust ✓
c/o Richard P. Martin Co. L.P.A.
3603 Darrow Rd.
Stow, OH 44224

Joseph Richard Fox ✓
2116 Autumn Way
Melbourne, FL 32935

Norma V. Pratico ✓
821 River Road
Yardley, PA 19067

James R. Blair
1400 10th Street ✓
Moundsville, WV 26041

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

September 3, 2021

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Willett Pad, Marshall County
Willett N-1HM Well Site ✓

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2019-0352 which has been issued to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 62 SLS MP 0.80.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: Amy Morris
Tug Hill Operating
CH, OM, D-6
File

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Willett Wells

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS# 000064-17-5 Water – CAS# 007732-18-5
FRAC SAND	Silica Sand (various Mesh sizes)	Proppant	Crystalline silica (quartz) CAS# 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS# 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS# 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS# 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS# 000107-21-1 Diethylene glycol – CAS# 000111-46-6

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Amy Morris

From: Kees, Kelly L <kelly.l.kees@wv.gov>
Sent: Tuesday, October 19, 2021 10:29 AM
To: Amy Morris
Cc: Charles T Brewer; Newlon, Douglas C; Stollings, Barry W; Stansberry, Wade A
Subject: [External] Tug Hill - Willett Accepted As-built
Attachments: 2021-10-19 Tug Hill - Willett Accepted Asbuilt pgs 1 and 11.pdf

ATTENTION -- This message contains an attachment. If you are not expecting this message and/or attachment, please exercise extreme caution before opening the file

I have reviewed the as-built plans for the above referenced well pad as prepared by Kelly Surveying and received by the WVDEP-Office of Oil & Gas on 9/15/2021 and I am accepting these plans. Sheets 1 & 11 of these approved plans are to be submitted with additional well work applications for this pad prior to its construction. If you have any questions, please do not hesitate to contact me.

--

Kelly L. Kees, P.E.
Office of Oil and Gas
WVDEP
601 57th St SE,
Charleston, WV 25304
(304)926-0440

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