



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

Tuesday, October 19, 2021
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 S 3HM
47-051-02415-00-00

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 S 3HM
Farm Name: CNX LAND LLC
U.S. WELL NUMBER: 47-051-02415-00-00
Horizontal 6A New Drill
Date Issued: 10/19/2021

Promoting a healthy environment.

10/22/2021

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.

10/22/2021

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 S-3HM 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

Bang Stlhp 4-7-21

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 5,866' - 6,918', thickness of 52' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 7,018'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 18,749'

11) Proposed Horizontal Leg Length: 10,654.90'

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

13) Method to Determine Fresh Water Depths: Offset well reports or noticeable flow at the flowline or when need to start soaping

14) Approximate Saltwater Depths: 1,464'

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

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

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

(a) If Yes, provide Mine Info: Name: Marshall County Coal Resources, Inc./Marshall County Mine
Depth: 986' TVD and 324' subsea level
Seam: Pittsburgh
Owner: Marshall County Coal Resources, Inc.

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120' ✓	259ft^3(CTS)
Fresh Water/Coal	13 3/8"	NEW	J55	54.5#	1,100'	1,100' ✓	1114^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,921'	2,921' ✓	969^3(CTS)
Production	5 1/2"	NEW	CYPH110	20#	18,749'	18,749' ✓	4792^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,948'	
Liners							

B.S. 9-7-21

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							

PACKERS

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

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

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

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

Well to be completed with approximately 26,700,000 lb proppant and 480,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

B.S. 9-7-21

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.

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

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

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

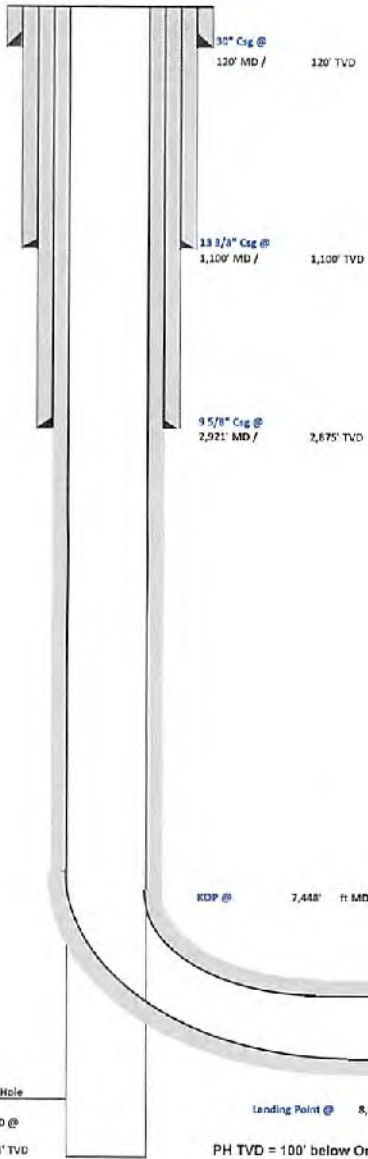


WELL NAME: Willett S-3HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 1,310' GL Elev: 1,310'
 TD: 18,749'
 TH Latitude: 39.82300875
 TH Longitude: -80.65615768
 SH Latitude: 39.793091
 SH Longitude: -80.626684

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	992
Sewickley Coal	888
Pittsburgh Coal	886
Big Lime	2325
Well	2546
Berea	2743
Gordon	2995
Rhinestreet	6155
Genesee/Burkett	6713
Tully	6746
Hamilton	6776
Marcellus	6866
Landing Depth	6909
Onondaga	6913
Pilot Hole Depth	7018

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,100'	1,100'	54.5	J55	Surface
Intermediate 1	12 1/4	8 5/8	2,821'	2,875'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	18,749'	7,094'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,128	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	973	A	15	Air	1 Centralizer every other jt
Production	4,401	A	14.5	Air / SOBEM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to s/c



B.S. 9-7-21

Pilot Hole
 PH TD @ 7,018' TVD
 Landing Point @ 8,096' MD / 6,509' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 18,749' R MD
 7,094' R TVD

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Tug Hill Operating, LLC Casing and Cement Program

Willett S-3HM

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"	2,921'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	18,749'	CTS

Cement

Conductor:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.19
Kick Off Plug:	Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
Production:	50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 14.5 ppg, Y = 1.19

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Well: Willett S-03 HM (slot C)
 Site: Willett
 Project: Marshall County, West Virginia
 Design: rev2
 Rig:

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-/S	+E-/W	Dlag	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1601.00	0.00	0.00	1601.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	3354.98	35.08	115.50	3247.44	-232.17	465.71	2.00	116.498	467.53	Begin 35.08° tangent
4	7448.09	35.08	116.50	6597.05	-1281.72	2570.97	0.00	0.000	2581.02	Begin 8°/100' build/turn
5	7872.79	50.00	131.55	6752.57	-1369.32	2694.18	6.00	40.127	2724.70	Begin 10°/100' build/turn
6	8096.06	89.00	149.62	5909.00	-1572.34	2933.52	10.00	27.423	3111.59	Begin 89.00° lateral
7	18749.03	89.00	149.62	7094.00	-10860.80	8320.89	0.00	0.000	13581.69	PBHLTD 18749.03 MD 7094.00 TVD



Azimuths to Grid North
 True North: -0.22°
 Magnetic North: -8.92°
 Magnetic Field
 Strength: 51752.3nT
 Dip Angle: 66.55°
 Date: 7/13/2021
 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)

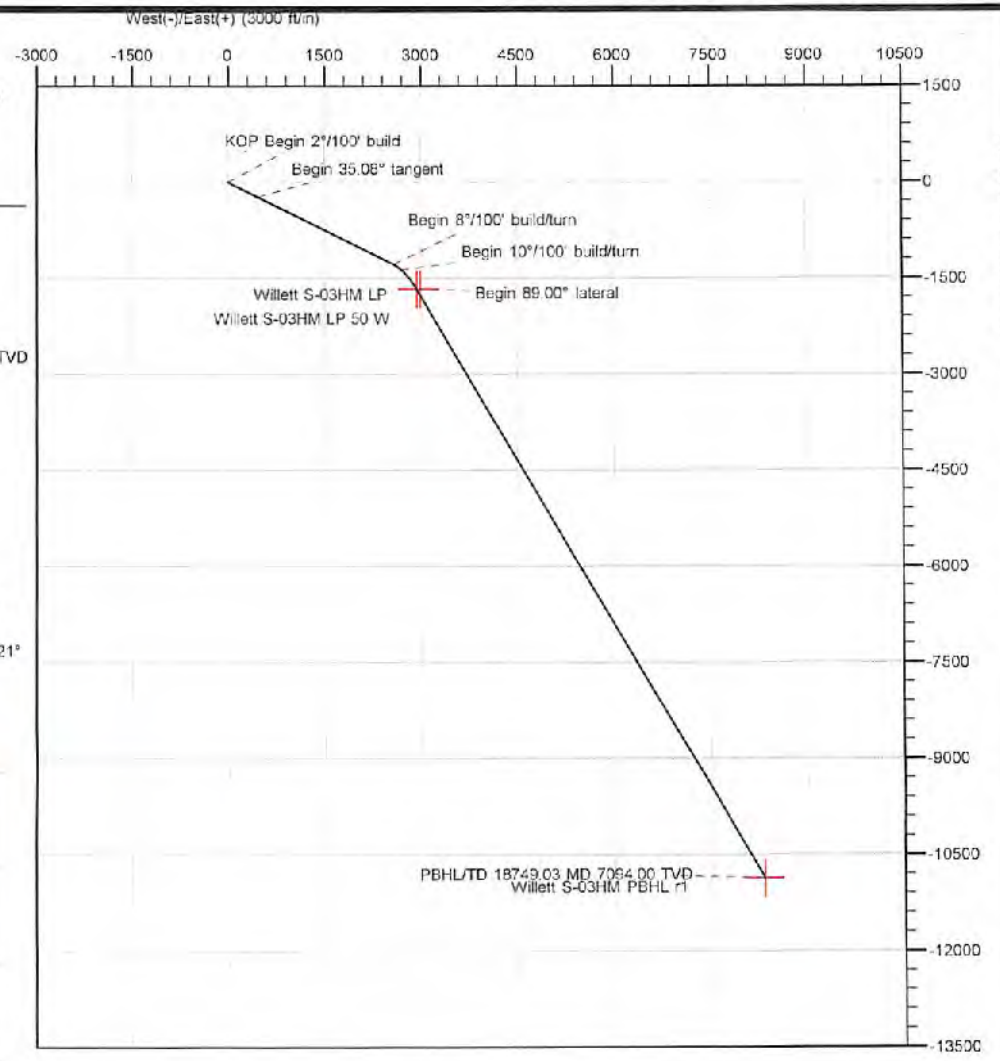
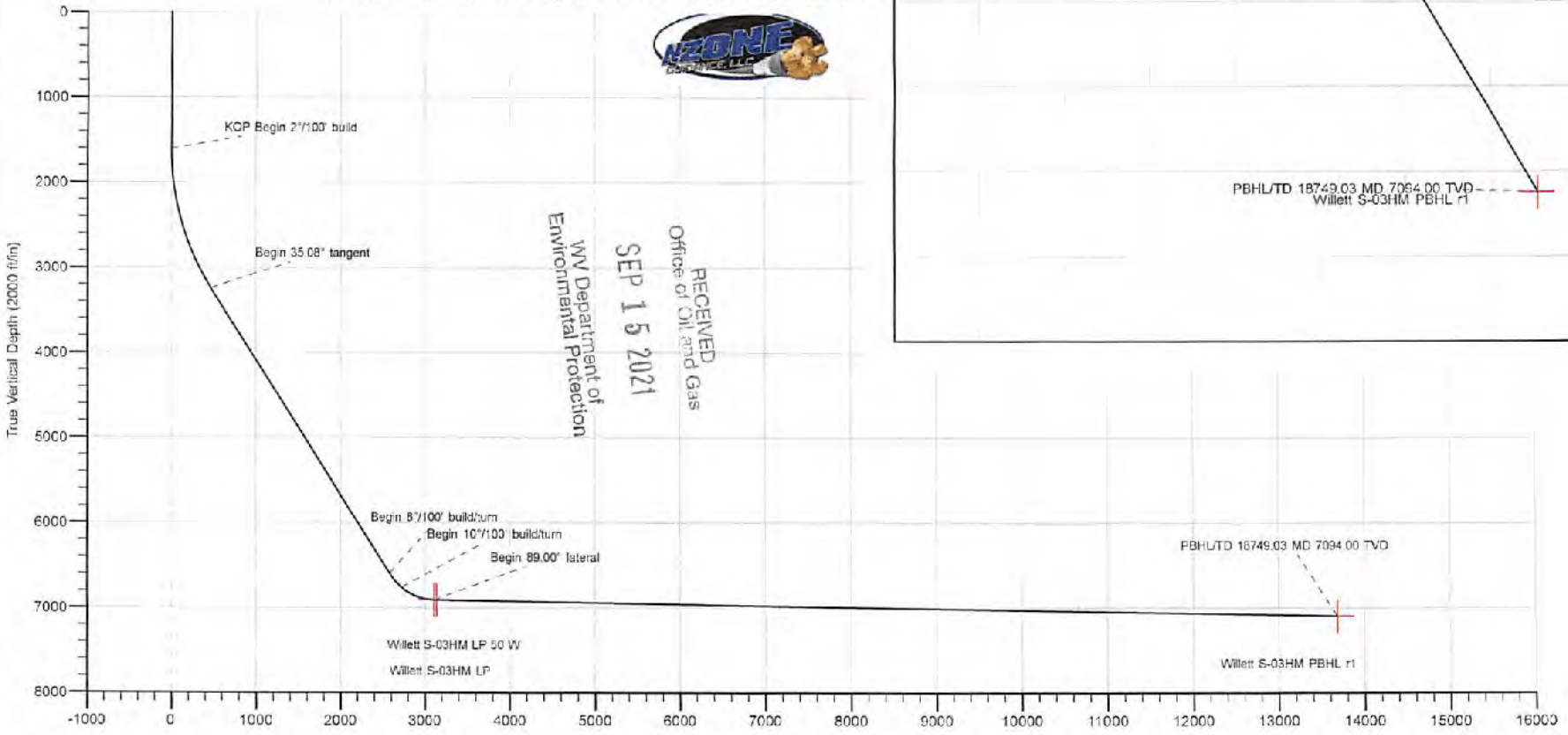
System Datum: Mean Sea Level
 Depth Reference: GL @ 1310.00ft

Northing: 14482470.31
 Easting: 1736958.29
 Latitude: 39.8230875
 Longitude: -80.65615768

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



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Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Willett S-03 HM (slot C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00ft
Site:	Willett	North Reference:	Grid
Well:	Willett S-03 HM (slot C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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

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

Well	Willett S-03 HM (slot C)					
Well Position	+N-S	0.00 ft	Northing:	14,462,470.32 usft	Latitude:	39.82300875
	+E-W	0.00 ft	Easting:	1,736,958.29 usft	Longitude:	-80.65615768
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,310.00 ft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/13/2021	-8.701	66.552	51,752.32332980

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	142.54

Plan Survey Tool Program	Date				
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,749.03 rev2 (Original Hole)			

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Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,601.00	0.00	0.00	1,601.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,354.98	35.08	116.50	3,247.44	-232.17	465.71	2.00	2.00	0.00	116.498	
7,448.09	35.08	116.50	6,597.05	-1,281.72	2,570.97	0.00	0.00	0.00	0.000	
7,672.79	50.00	131.55	6,762.57	-1,368.32	2,694.18	8.00	6.64	6.70	40.127	
8,095.05	89.00	149.62	6,909.00	-1,672.34	2,933.52	10.00	9.22	4.27	27.423	
18,749.03	89.00	149.62	7,094.00	-10,860.80	8,320.89	0.00	0.00	0.00	0.000	Willett S-03HM PBHL



Planning Report - Geographic

4705102415

Database: DB_Dec2220_v16
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Willett
 Well: Willett S-03 HM (slot C)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Willett S-03 HM (slot C)
 TVD Reference: GL @ 1310.00ft
 MD Reference: GL @ 1310.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
100.00	0.00	0.00	100.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
200.00	0.00	0.00	200.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
300.00	0.00	0.00	300.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
400.00	0.00	0.00	400.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
500.00	0.00	0.00	500.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
600.00	0.00	0.00	600.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
700.00	0.00	0.00	700.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
800.00	0.00	0.00	800.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
900.00	0.00	0.00	900.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
1,601.00	0.00	0.00	1,601.00	0.00	0.00	14,462,470.32	1,736,958.29	39.82300875	-80.65815768
KOP Begin 2°/100' build									
1,700.00	1.98	116.50	1,699.98	-0.76	1.53	14,462,469.55	1,736,959.82	39.82300864	-80.65815224
1,800.00	3.98	116.50	1,799.84	-3.08	6.18	14,462,467.23	1,736,964.47	39.82300022	-80.65813570
1,900.00	5.98	116.50	1,899.46	-6.96	13.95	14,462,463.36	1,736,972.24	39.82298950	-80.65810609
2,000.00	7.98	116.50	1,998.71	-12.38	24.83	14,462,457.94	1,736,983.12	39.82297450	-80.65806943
2,100.00	9.98	116.50	2,097.48	-19.34	38.80	14,462,450.96	1,736,997.09	39.82295523	-80.65801977
2,200.00	11.98	116.50	2,195.64	-27.84	55.84	14,462,442.48	1,737,014.13	39.82293171	-80.65595918
2,300.00	13.98	116.50	2,293.08	-37.86	75.94	14,462,432.46	1,737,034.23	39.82290398	-80.65588773
2,400.00	15.98	116.50	2,389.68	-49.39	99.07	14,462,420.93	1,737,057.36	39.82287207	-80.65580551
2,500.00	17.98	116.50	2,485.32	-62.42	125.21	14,462,407.90	1,737,083.50	39.82283601	-80.65571261
2,600.00	19.98	116.50	2,579.88	-76.93	154.31	14,462,393.39	1,737,112.60	39.82279585	-80.65560915
2,700.00	21.98	116.50	2,673.24	-92.90	186.35	14,462,377.41	1,737,144.64	39.82275165	-80.65549525
2,800.00	23.98	116.50	2,765.30	-110.32	221.29	14,462,360.00	1,737,179.58	39.82270345	-80.65537108
2,900.00	25.98	116.50	2,855.94	-129.16	259.08	14,462,341.15	1,737,217.37	39.82265130	-80.65523672
3,000.00	27.98	116.50	2,945.05	-149.40	299.68	14,462,320.91	1,737,257.97	39.82258529	-80.65509240
3,100.00	29.98	116.50	3,032.53	-171.02	343.04	14,462,299.30	1,737,301.33	39.82253547	-80.65493827
3,200.00	31.98	116.50	3,118.26	-193.98	389.11	14,462,276.33	1,737,347.40	39.82247191	-80.65477453
3,300.00	33.98	116.50	3,202.14	-218.27	437.82	14,462,252.05	1,737,396.11	39.82240470	-80.65460137
3,354.98	35.08	116.50	3,247.44	-232.17	465.71	14,462,238.14	1,737,424.00	39.82236622	-80.65450223
Begin 36.08° tangent									
3,400.00	35.08	116.50	3,284.28	-243.72	488.87	14,462,226.60	1,737,447.16	39.82233428	-80.65441992
3,500.00	35.08	116.50	3,368.11	-269.38	540.30	14,462,200.96	1,737,498.59	39.82228331	-80.65423709
3,600.00	35.08	116.50	3,447.95	-295.00	591.74	14,462,175.32	1,737,550.02	39.82219235	-80.65405428
3,700.00	35.08	116.50	3,529.78	-320.64	643.17	14,462,149.68	1,737,601.46	39.82212139	-80.65387143
3,800.00	35.08	116.50	3,611.62	-346.28	694.60	14,462,124.03	1,737,652.89	39.82205042	-80.65368860
3,900.00	35.08	116.50	3,693.45	-371.93	746.04	14,462,098.39	1,737,704.33	39.82197946	-80.65350578
4,000.00	35.08	116.50	3,775.29	-397.57	797.47	14,462,072.75	1,737,755.76	39.82190849	-80.65332295
4,100.00	35.08	116.50	3,857.12	-423.21	848.91	14,462,047.11	1,737,807.19	39.82183753	-80.65314012
4,200.00	35.08	116.50	3,938.96	-448.85	900.34	14,462,021.47	1,737,858.63	39.82176656	-80.65295729
4,300.00	35.08	116.50	4,020.80	-474.49	951.77	14,461,995.83	1,737,910.06	39.82169559	-80.65277447
4,400.00	35.08	116.50	4,102.63	-500.13	1,003.21	14,461,970.18	1,737,961.50	39.82162463	-80.65259164
4,500.00	35.08	116.50	4,184.47	-525.78	1,054.64	14,461,944.54	1,738,012.93	39.82155366	-80.65240882
4,600.00	35.08	116.50	4,266.30	-551.42	1,106.08	14,461,918.90	1,738,064.36	39.82148269	-80.65222599
4,700.00	35.08	116.50	4,348.14	-577.06	1,157.51	14,461,893.26	1,738,115.80	39.82141173	-80.65204317
4,800.00	35.08	116.50	4,429.97	-602.70	1,208.94	14,461,867.62	1,738,167.23	39.82134076	-80.65186034
4,900.00	35.08	116.50	4,511.81	-628.34	1,260.38	14,461,841.98	1,738,218.67	39.82126979	-80.65167752
5,000.00	35.08	116.50	4,593.64	-653.98	1,311.81	14,461,816.33	1,738,270.10	39.82119882	-80.65149469



Planning Report - Geographic

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SEP 15 2021

Database: DB_Dec2220_v16
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Willett
Well: Willett S-03 HM (slot C)
Wellbore: Original Hole
Design: rav2

Local Co-ordinate Reference: Well (Willett S-03 HM (slot C))
TVD Reference: Environmental Protection
MD Reference: GL @ 1310.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,100.00	35.08	116.50	4,675.48	-679.63	1,353.25	14,461,790.69	1,738,321.53	39.82112786	-80.65131187
5,200.00	35.08	116.50	4,757.31	-705.27	1,414.68	14,461,765.05	1,738,372.97	39.82105689	-80.65112905
5,300.00	35.08	116.50	4,839.15	-730.91	1,466.12	14,461,739.41	1,738,424.40	39.82098592	-80.65094623
5,400.00	35.08	116.50	4,920.98	-756.55	1,517.55	14,461,713.77	1,738,475.84	39.82091495	-80.65076340
5,500.00	35.08	116.50	5,002.82	-782.19	1,568.98	14,461,688.13	1,738,527.27	39.82084398	-80.65058058
5,600.00	35.08	116.50	5,084.66	-807.84	1,620.42	14,461,662.48	1,738,578.70	39.82077301	-80.65039776
5,700.00	35.08	116.50	5,166.49	-833.48	1,671.85	14,461,636.84	1,738,630.14	39.82070204	-80.65021494
5,800.00	35.08	116.50	5,248.33	-859.12	1,723.29	14,461,611.20	1,738,681.57	39.82063107	-80.65003212
5,900.00	35.08	116.50	5,330.16	-884.76	1,774.72	14,461,585.56	1,738,733.01	39.82056010	-80.64984930
6,000.00	35.08	116.50	5,412.00	-910.40	1,826.15	14,461,559.92	1,738,784.44	39.82048913	-80.64966648
6,100.00	35.08	116.50	5,493.83	-936.04	1,877.59	14,461,534.28	1,738,835.87	39.82041816	-80.64948366
6,200.00	35.08	116.50	5,575.67	-961.69	1,929.02	14,461,508.63	1,738,887.31	39.82034719	-80.64930084
6,300.00	35.08	116.50	5,657.50	-987.33	1,980.46	14,461,482.99	1,738,938.74	39.82027622	-80.64911802
6,400.00	35.08	116.50	5,739.34	-1,012.97	2,031.89	14,461,457.35	1,738,990.18	39.82020524	-80.64893520
6,500.00	35.08	116.50	5,821.17	-1,038.61	2,083.32	14,461,431.71	1,739,041.61	39.82013427	-80.64875238
6,600.00	35.08	116.50	5,903.01	-1,064.25	2,134.76	14,461,406.07	1,739,093.04	39.82006330	-80.64856957
6,700.00	35.08	116.50	5,984.84	-1,089.89	2,186.19	14,461,380.43	1,739,144.48	39.81999233	-80.64838675
6,800.00	35.08	116.50	6,066.68	-1,115.54	2,237.63	14,461,354.78	1,739,195.91	39.81992135	-80.64820393
6,900.00	35.08	116.50	6,148.52	-1,141.18	2,289.06	14,461,329.14	1,739,247.35	39.81985038	-80.64802112
7,000.00	35.08	116.50	6,230.35	-1,166.82	2,340.50	14,461,303.50	1,739,298.78	39.81977941	-80.64783830
7,100.00	35.08	116.50	6,312.19	-1,192.46	2,391.93	14,461,277.86	1,739,350.22	39.81970843	-80.64765548
7,200.00	35.08	116.50	6,394.02	-1,218.10	2,443.36	14,461,252.22	1,739,401.65	39.81963746	-80.64747267
7,300.00	35.08	116.50	6,475.86	-1,243.74	2,494.80	14,461,226.58	1,739,453.08	39.81956648	-80.64728985
7,400.00	35.08	116.50	6,557.69	-1,269.39	2,546.23	14,461,200.93	1,739,504.52	39.81949551	-80.64710704
7,448.09	35.08	116.50	6,597.05	-1,281.72	2,570.97	14,461,188.60	1,739,529.25	39.81946137	-80.64701912
Begin 8°/100' build/turn									
7,450.00	35.20	116.67	6,598.61	-1,282.21	2,571.95	14,461,188.11	1,739,530.23	39.81946002	-80.64701563
7,500.00	38.34	120.81	6,638.66	-1,296.63	2,598.16	14,461,173.69	1,739,556.44	39.81942014	-80.64692251
7,550.00	41.60	124.41	6,676.90	-1,313.96	2,625.18	14,461,156.36	1,739,583.46	39.81937225	-80.64682651
7,600.00	44.97	127.57	6,713.38	-1,334.12	2,652.89	14,461,136.20	1,739,611.17	39.81931659	-80.64672811
7,650.00	48.41	130.37	6,747.68	-1,357.01	2,681.15	14,461,113.31	1,739,639.43	39.81925342	-80.64662778
7,672.79	50.00	131.55	6,762.57	-1,368.32	2,694.18	14,461,102.00	1,739,652.46	39.81922221	-80.64658154
Begin 10°/100' build/turn									
7,700.00	52.43	133.13	6,779.61	-1,382.60	2,709.85	14,461,087.72	1,739,668.13	39.81918281	-80.64652593
7,750.00	56.93	135.78	6,808.52	-1,411.18	2,738.94	14,461,059.14	1,739,697.23	39.81910402	-80.64642273
7,800.00	61.49	138.17	6,834.10	-1,442.59	2,768.22	14,461,027.73	1,739,726.51	39.81901745	-80.64631890
7,850.00	66.09	140.37	6,856.18	-1,476.58	2,797.47	14,460,993.74	1,739,755.75	39.81892378	-80.64621522
7,900.00	70.71	142.41	6,874.58	-1,512.90	2,826.46	14,460,957.42	1,739,784.74	39.81882372	-80.64611249
7,950.00	75.36	144.34	6,889.17	-1,551.28	2,854.97	14,460,919.04	1,739,813.26	39.81871802	-80.64601148
8,000.00	80.02	146.19	6,899.82	-1,591.42	2,882.79	14,460,878.91	1,739,841.08	39.81860749	-80.64591297
8,050.00	84.70	147.99	6,906.47	-1,633.01	2,909.71	14,460,837.31	1,739,867.99	39.81849298	-80.64581770
8,096.06	89.00	149.62	6,909.00	-1,672.34	2,933.52	14,460,797.99	1,739,891.81	39.81838472	-80.64573344
Begin 89.00° lateral									
8,100.00	89.00	149.62	6,909.07	-1,675.73	2,935.52	14,460,794.59	1,739,893.80	39.81837536	-80.64572639
8,200.00	89.00	149.62	6,910.81	-1,761.99	2,986.09	14,460,708.33	1,739,944.37	39.81813794	-80.64554751
8,300.00	89.00	149.62	6,912.54	-1,848.24	3,036.66	14,460,622.08	1,739,994.94	39.81790053	-80.64536863
8,400.00	89.00	149.62	6,914.28	-1,934.49	3,087.23	14,460,535.83	1,740,045.51	39.81766311	-80.64518975
8,500.00	89.00	149.62	6,916.02	-2,020.74	3,137.80	14,460,449.58	1,740,096.09	39.81742569	-80.64501087
8,600.00	89.00	149.62	6,917.75	-2,107.00	3,188.37	14,460,363.32	1,740,146.66	39.81718827	-80.64483199
8,700.00	89.00	149.62	6,919.49	-2,193.25	3,238.95	14,460,277.07	1,740,197.23	39.81695085	-80.64465312
8,800.00	89.00	149.62	6,921.23	-2,279.50	3,289.52	14,460,190.82	1,740,247.80	39.81671343	-80.64447424
8,900.00	89.00	149.62	6,922.96	-2,365.75	3,340.09	14,460,104.57	1,740,298.37	39.81647601	-80.64429537
9,000.00	89.00	149.62	6,924.70	-2,452.01	3,390.66	14,460,018.32	1,740,348.94	39.81623859	-80.64411649
9,100.00	89.00	149.62	6,926.44	-2,538.26	3,441.23	14,459,932.06	1,740,399.51	39.81600116	-80.64393762



Planning Report - Geographic

Database:	DB_Dac2220_v16	Local Co-ordinate Reference:	Well Willatt S-03 HM (slot C)
Company:	Tug Hill Operating LLC	TVD Reference:	CL @ 1310.00ft
Project:	Marshall County, West Virginia	MD Reference:	CL @ 1310.00ft
Site:	Willatt	North Reference:	Grid
Well:	Willatt S-03 HM (slot C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,200.00	89.00	149.62	6,928.17	-2,624.51	3,491.80	14,459,845.81	1,740,450.09	39.81576374	-80.64375875	
9,300.00	89.00	149.62	6,929.91	-2,710.76	3,542.37	14,459,759.55	1,740,500.65	39.81552632	-80.64367888	
9,400.00	89.00	149.62	6,931.65	-2,797.02	3,592.95	14,459,673.31	1,740,551.23	39.81528890	-80.64340101	
9,500.00	89.00	149.62	6,933.38	-2,883.27	3,643.52	14,459,587.05	1,740,601.80	39.81505148	-80.64322215	
9,600.00	89.00	149.62	6,935.12	-2,969.52	3,694.09	14,459,500.80	1,740,652.37	39.81481405	-80.64304328	
9,700.00	89.00	149.62	6,936.86	-3,055.77	3,744.66	14,459,414.55	1,740,702.94	39.81457663	-80.64286442	
9,800.00	89.00	149.62	6,938.59	-3,142.03	3,795.23	14,459,328.30	1,740,753.51	39.81433921	-80.64268555	
9,900.00	89.00	149.62	6,940.33	-3,228.28	3,845.80	14,459,242.04	1,740,804.09	39.81410178	-80.64250669	
10,000.00	89.00	149.62	6,942.06	-3,314.53	3,896.38	14,459,155.79	1,740,854.66	39.81386436	-80.64232783	
10,100.00	89.00	149.62	6,943.80	-3,400.79	3,946.95	14,459,069.54	1,740,905.23	39.81362694	-80.64214897	
10,200.00	89.00	149.62	6,945.54	-3,487.04	3,997.52	14,458,983.29	1,740,955.80	39.81338951	-80.64197011	
10,300.00	89.00	149.62	6,947.27	-3,573.29	4,048.09	14,458,897.03	1,741,006.37	39.81315209	-80.64179126	
10,400.00	89.00	149.62	6,949.01	-3,659.54	4,098.66	14,458,810.78	1,741,056.94	39.81291466	-80.64161240	
10,500.00	89.00	149.62	6,950.75	-3,745.80	4,149.23	14,458,724.53	1,741,107.51	39.81267724	-80.64143355	
10,600.00	89.00	149.62	6,952.48	-3,832.05	4,199.80	14,458,638.28	1,741,158.09	39.81243981	-80.64125469	
10,700.00	89.00	149.62	6,954.22	-3,918.30	4,250.38	14,458,552.02	1,741,208.66	39.81220239	-80.64107584	
10,800.00	89.00	149.62	6,955.96	-4,004.55	4,300.95	14,458,465.77	1,741,259.23	39.81196496	-80.64089699	
10,900.00	89.00	149.62	6,957.69	-4,090.81	4,351.52	14,458,379.52	1,741,309.80	39.81172753	-80.64071814	
11,000.00	89.00	149.62	6,959.43	-4,177.06	4,402.09	14,458,293.27	1,741,360.37	39.81149011	-80.64053929	
11,100.00	89.00	149.62	6,961.17	-4,263.31	4,452.66	14,458,207.02	1,741,410.94	39.81125268	-80.64036044	
11,200.00	89.00	149.62	6,962.90	-4,349.56	4,503.23	14,458,120.76	1,741,461.51	39.81101525	-80.64018160	
11,300.00	89.00	149.62	6,964.64	-4,435.82	4,553.80	14,458,034.51	1,741,512.09	39.81077783	-80.64000275	
11,400.00	89.00	149.62	6,966.38	-4,522.07	4,604.38	14,457,948.26	1,741,562.66	39.81054040	-80.63982391	
11,500.00	89.00	149.62	6,968.11	-4,608.32	4,654.95	14,457,862.01	1,741,613.23	39.81030297	-80.63964507	
11,600.00	89.00	149.62	6,969.85	-4,694.57	4,705.52	14,457,775.75	1,741,663.80	39.81006554	-80.63946623	
11,700.00	89.00	149.62	6,971.59	-4,780.83	4,756.09	14,457,689.50	1,741,714.37	39.80982811	-80.63928739	
11,800.00	89.00	149.62	6,973.32	-4,867.08	4,806.66	14,457,603.25	1,741,764.94	39.80959069	-80.63910855	
11,900.00	89.00	149.62	6,975.06	-4,953.33	4,857.23	14,457,517.00	1,741,815.51	39.80935326	-80.63892971	
12,000.00	89.00	149.62	6,976.80	-5,039.58	4,907.81	14,457,430.74	1,741,866.09	39.80911583	-80.63875087	
12,100.00	89.00	149.62	6,978.53	-5,125.84	4,958.38	14,457,344.49	1,741,916.66	39.80887840	-80.63857204	
12,200.00	89.00	149.62	6,980.27	-5,212.09	5,008.95	14,457,258.24	1,741,967.23	39.80864097	-80.63839321	
12,300.00	89.00	149.62	6,982.01	-5,298.34	5,059.52	14,457,171.99	1,742,017.80	39.80840354	-80.63821437	
12,400.00	89.00	149.62	6,983.74	-5,384.59	5,110.09	14,457,085.73	1,742,068.37	39.80816611	-80.63803554	
12,500.00	89.00	149.62	6,985.48	-5,470.85	5,160.66	14,456,999.48	1,742,118.94	39.80792868	-80.63785671	
12,600.00	89.00	149.62	6,987.22	-5,557.10	5,211.23	14,456,913.23	1,742,169.51	39.80769124	-80.63767786	
12,700.00	89.00	149.62	6,988.95	-5,643.35	5,261.81	14,456,826.98	1,742,220.09	39.80745381	-80.63749906	
12,800.00	89.00	149.62	6,990.69	-5,729.60	5,312.38	14,456,740.72	1,742,270.66	39.80721638	-80.63732023	
12,900.00	89.00	149.62	6,992.43	-5,815.86	5,362.95	14,456,654.47	1,742,321.23	39.80697895	-80.63714140	
13,000.00	89.00	149.62	6,994.16	-5,902.11	5,413.52	14,456,568.22	1,742,371.80	39.80674152	-80.63696258	
13,100.00	89.00	149.62	6,995.90	-5,988.36	5,464.09	14,456,481.97	1,742,422.37	39.80650409	-80.63678376	
13,200.00	89.00	149.62	6,997.64	-6,074.61	5,514.66	14,456,395.71	1,742,472.94	39.80626665	-80.63660494	
13,300.00	89.00	149.62	6,999.37	-6,160.87	5,565.24	14,456,309.46	1,742,523.51	39.80602922	-80.63642612	
13,400.00	89.00	149.62	7,001.11	-6,247.12	5,615.81	14,456,223.21	1,742,574.09	39.80579179	-80.63624730	
13,500.00	89.00	149.62	7,002.85	-6,333.37	5,666.38	14,456,136.96	1,742,624.66	39.80555435	-80.63606848	
13,600.00	89.00	149.62	7,004.58	-6,419.62	5,716.95	14,456,050.71	1,742,675.23	39.80531692	-80.63588966	
13,700.00	89.00	149.62	7,006.32	-6,505.88	5,767.52	14,455,964.45	1,742,725.80	39.80507949	-80.63571085	
13,800.00	89.00	149.62	7,008.06	-6,592.13	5,818.09	14,455,878.20	1,742,776.37	39.80484205	-80.63553203	
13,900.00	89.00	149.62	7,009.79	-6,678.38	5,868.66	14,455,791.95	1,742,826.94	39.80460462	-80.63535322	
14,000.00	89.00	149.62	7,011.53	-6,764.64	5,919.24	14,455,705.70	1,742,877.51	39.80436718	-80.63517441	
14,100.00	89.00	149.62	7,013.27	-6,850.89	5,969.81	14,455,619.44	1,742,928.08	39.80412975	-80.63499560	
14,200.00	89.00	149.62	7,015.00	-6,937.14	6,020.38	14,455,533.19	1,742,978.66	39.80389231	-80.63481679	
14,300.00	89.00	149.62	7,016.74	-7,023.39	6,070.95	14,455,446.94	1,743,029.23	39.80365487	-80.63463798	
14,400.00	89.00	149.62	7,018.48	-7,109.65	6,121.52	14,455,360.69	1,743,079.80	39.80341744	-80.63445917	
14,500.00	89.00	149.62	7,020.21	-7,195.90	6,172.09	14,455,274.43	1,743,130.37	39.80318000	-80.63428037	
14,600.00	89.00	149.62	7,021.95	-7,282.15	6,222.67	14,455,188.18	1,743,180.94	39.80294257	-80.63410156	



Planning Report - Geographic

4705102415

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Willett S-03 HM (slot C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00ft
Site:	Willett	North Reference:	Grid
Well:	Willett S-03 HM (slot C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,700.00	89.00	149.62	7,023.66	-7,368.40	6,273.24	14,455,101.93	1,743,231.51	39.80270513	-80.63392276
14,800.00	89.00	149.62	7,025.42	-7,454.66	6,323.81	14,455,015.68	1,743,282.09	39.80246769	-80.63374398
14,900.00	89.00	149.62	7,027.16	-7,540.91	6,374.38	14,454,929.42	1,743,332.66	39.80223025	-80.63356516
15,000.00	89.00	149.62	7,028.89	-7,627.16	6,424.95	14,454,843.17	1,743,383.23	39.80199282	-80.63338636
15,100.00	89.00	149.62	7,030.63	-7,713.41	6,475.52	14,454,756.92	1,743,433.80	39.80175538	-80.63320756
15,200.00	89.00	149.62	7,032.37	-7,799.67	6,526.09	14,454,670.67	1,743,484.37	39.80151794	-80.63302876
15,300.00	89.00	149.62	7,034.10	-7,885.92	6,576.67	14,454,584.41	1,743,534.94	39.80128050	-80.63284997
15,400.00	89.00	149.62	7,035.84	-7,972.17	6,627.24	14,454,498.16	1,743,585.51	39.80104306	-80.63267117
15,500.00	89.00	149.62	7,037.58	-8,058.42	6,677.81	14,454,411.91	1,743,636.09	39.80080562	-80.63249238
15,600.00	89.00	149.62	7,039.31	-8,144.68	6,728.38	14,454,325.66	1,743,686.66	39.80056818	-80.63231359
15,700.00	89.00	149.62	7,041.05	-8,230.93	6,778.95	14,454,239.40	1,743,737.23	39.80033074	-80.63213480
15,800.00	89.00	149.62	7,042.79	-8,317.18	6,829.52	14,454,153.15	1,743,787.80	39.80009330	-80.63195601
15,900.00	89.00	149.62	7,044.52	-8,403.43	6,880.10	14,454,066.90	1,743,838.37	39.79985586	-80.63177722
16,000.00	89.00	149.62	7,046.26	-8,489.69	6,930.67	14,453,980.65	1,743,888.94	39.79961842	-80.63159843
16,100.00	89.00	149.62	7,048.00	-8,575.94	6,981.24	14,453,894.40	1,743,939.51	39.79938098	-80.63141965
16,200.00	89.00	149.62	7,049.73	-8,662.19	7,031.81	14,453,808.14	1,743,990.09	39.79914354	-80.63124086
16,300.00	89.00	149.62	7,051.47	-8,748.44	7,082.38	14,453,721.89	1,744,040.66	39.79890610	-80.632106208
16,400.00	89.00	149.62	7,053.21	-8,834.70	7,132.95	14,453,635.64	1,744,091.23	39.79866866	-80.63088330
16,500.00	89.00	149.62	7,054.94	-8,920.95	7,183.52	14,453,549.39	1,744,141.80	39.79843122	-80.63070452
16,600.00	89.00	149.62	7,056.68	-9,007.20	7,234.10	14,453,463.13	1,744,192.37	39.79819377	-80.63052574
16,700.00	89.00	149.62	7,058.42	-9,093.45	7,284.67	14,453,376.88	1,744,242.94	39.79795633	-80.63034696
16,800.00	89.00	149.62	7,060.15	-9,179.71	7,335.24	14,453,290.63	1,744,293.51	39.79771889	-80.63016818
16,900.00	89.00	149.62	7,061.89	-9,265.96	7,385.81	14,453,204.38	1,744,344.09	39.79748145	-80.62998940
17,000.00	89.00	149.62	7,063.63	-9,352.21	7,436.38	14,453,118.12	1,744,394.66	39.79724400	-80.62981063
17,100.00	89.00	149.62	7,065.36	-9,438.46	7,486.95	14,453,031.87	1,744,445.23	39.79700656	-80.62963186
17,200.00	89.00	149.62	7,067.10	-9,524.72	7,537.52	14,452,945.62	1,744,495.80	39.79676912	-80.62945308
17,300.00	89.00	149.62	7,068.84	-9,610.97	7,588.10	14,452,859.37	1,744,546.37	39.79653167	-80.62927431
17,400.00	89.00	149.62	7,070.57	-9,697.22	7,638.67	14,452,773.11	1,744,596.94	39.79629423	-80.62909554
17,500.00	89.00	149.62	7,072.31	-9,783.48	7,689.24	14,452,686.86	1,744,647.51	39.79605678	-80.62891677
17,600.00	89.00	149.62	7,074.05	-9,869.73	7,739.81	14,452,600.61	1,744,698.09	39.79581934	-80.62873801
17,700.00	89.00	149.62	7,075.78	-9,955.98	7,790.38	14,452,514.36	1,744,748.66	39.79558189	-80.62855924
17,800.00	89.00	149.62	7,077.52	-10,042.23	7,840.95	14,452,428.10	1,744,799.23	39.79534445	-80.62838047
17,900.00	89.00	149.62	7,079.26	-10,128.49	7,891.53	14,452,341.85	1,744,849.80	39.79510700	-80.62820171
18,000.00	89.00	149.62	7,080.99	-10,214.74	7,942.10	14,452,255.60	1,744,900.37	39.79486955	-80.62802295
18,100.00	89.00	149.62	7,082.73	-10,300.99	7,992.67	14,452,169.35	1,744,950.94	39.79463211	-80.62784419
18,200.00	89.00	149.62	7,084.47	-10,387.24	8,043.24	14,452,083.09	1,745,001.51	39.79439466	-80.62766543
18,300.00	89.00	149.62	7,086.20	-10,473.50	8,093.81	14,451,996.84	1,745,052.09	39.79415721	-80.62748667
18,400.00	89.00	149.62	7,087.94	-10,559.75	8,144.38	14,451,910.59	1,745,102.66	39.79391977	-80.62730791
18,500.00	89.00	149.62	7,089.68	-10,646.00	8,194.95	14,451,824.34	1,745,153.23	39.79368232	-80.62712915
18,600.00	89.00	149.62	7,091.41	-10,732.25	8,245.53	14,451,738.09	1,745,203.80	39.79344487	-80.62695040
18,700.00	89.00	149.62	7,093.15	-10,818.51	8,296.10	14,451,651.83	1,745,254.37	39.79320742	-80.62677164
18,749.03	89.00	149.62	7,094.00	-10,860.80	8,320.89	14,451,609.54	1,745,279.17	39.79309100	-80.62668400

PBHL/TD 18749.03 MD 7094.00 TVD

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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Willett S-03 HM (slot C)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00ft
Site:	Willett	North Reference:	Grid
Well:	Willett S-03 HM (slot C)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Willett S-03HM LP 50 W - plan misses target center by 0.04ft at 8096.02ft MD (6909.00 TVD, -1672.30 N, 2933.50 E) - Point	0.00	0.00	6,909.00	-1,672.32	2,933.47	14,460,798.00	1,739,891.75	39.81838477	-80.64573363
Willett S-03HM LP - plan misses target center by 43.10ft at 8121.31ft MD (6909.44 TVD, -1694.11 N, 2948.29 E) - Point	0.00	0.00	6,909.00	-1,672.32	2,983.47	14,460,798.00	1,739,941.76	39.81838422	-80.64555556
Willett S-03HM PBHL r1 - plan hits target center - Point	0.00	0.00	7,094.00	-10,860.80	8,320.89	14,451,609.54	1,745,279.17	39.79309100	-80.62668400

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
1,601.00	1,601.00	0.00	0.00	KOP Begin 2°/100' build	
3,354.98	3,247.44	-232.17	465.71	Begin 35.08° tangent	
7,448.09	6,597.05	-1,281.72	2,570.97	Begin 8°/100' build/turn	
7,672.79	6,762.57	-1,368.32	2,694.18	Begin 10°/100' build/turn	
8,096.06	6,909.00	-1,672.34	2,933.52	Begin 89.00° lateral	
18,749.03	7,094.00	-10,860.80	8,320.89	PBHL/TD 18749.03 MD 7094.00 TVD	

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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 (08/25/2021) 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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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.

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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.	
4705100631	CNX Gas Co. LLC (North)	2909' 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 6/19/2004.
4705100915	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. Well is plugged.	Well was plugged 5/15/2004.
4705170619	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705170620	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.

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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
4705170621	unknown	unknown	unknown	unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing in the planned Marcellus well.	State records are incomplete.
4705100937	Consolidation Coal Co.	2851' 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 8/17/2004.

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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	LON_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 9:44:58 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		3050	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&eq)	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 Gorozyce 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	Meads	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_BEFO	G_AFT
4705101006	5/22/2006	5/1/2006	1375	Ground Level				unclassified	unclassified	not available	unknown	UnFin/WISim						

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

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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	87,786	0	3,425	7,702	6,164	8,876	9,799	10,135	9,703	5,719	9,161	8,956	8,136
4705101085	CNX Gas Co. LLC (North)	2009	53,114	7,295	5,388	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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WV Geological & Economic Survey:

Well: County = 51 Permit = 00631

Report Time: Monday, August 30, 2021 10:06:13 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100631	Marshall	631	Liberty	Glen Easton	Cameron	39.807021	-80.635897	531167.1	4406402.2

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_I
4705100631	10/14/1908	Original Loc	Completed	Lydick-Vanscoy	1	C-1				South Penn Oil (S. Penn Nat. Gas)		
4705100631	6/19/2004	Plugging	Completed	Ila Dobbs-Kerns		M-330	Ila Dobbs-Kerns		Consolidation Coal Co	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	#
4705100631	10/14/1908	8/24/1908	1210	Topo Estimation	Cameron-Garner	Hampshire Grp	Gordon	unclassified	unclassified	Oil w/ Gas Show	unknown	Shot	2909		2909	
4705100631	6/19/2004	5/13/2004	1168	Ground Level						not available	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
4705100631	10/14/1908	Show	Gas	Vertical			2885	Gordon	0	0			
4705100631	10/14/1908	Pay	Oil	Vertical			2891	Gordon	0	0			

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100631	6/19/2004	0

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WV Geological & Economic Survey:

Well: County = 51 Permit = 00915

Report Time: Monday, August 30, 2021 10:06:56 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100915	Marshall	915	Liberty	Glen Easton	Cameron	39.807116	-80.636893	531061.8	4406412.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRG
4705100915	5/15/2004	Plugging	Completed	Joseph B & Judith M Patrello		M-177	John Chapman Sr		Consolidation Coal Co	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_AFT	O_BEF
4705100915	5/15/2004	4/16/2004	1398	Ground Level															

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
4705100915	5/15/2004	0

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WV Geological & Economic Survey

Well: County = 51 Permit = 70619

Report Time: Monday, August 30, 2021 10:07:16 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170619	Marshall	70619	Liberty	Glen Easton	Cameron	39.799304	-80.631009	531589	4405547.5

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
4705170619	-/-	unknown	Prpty Map	Jonathan Wilson Hrs	1					----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_
4705170619	-/-	-/-						unclassified	unclassified	not available	unknown	unknown							

WV Geological & Economic Survey

Well: County = 51 Permit = 70620

Report Time: Monday, August 30, 2021 10:07:35 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170620	Marshall	70620	Liberty	Glen Easton	Cameron	39.799304	-80.633265	531395.9	4405546.7

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
4705170620	-/-	unknown	Prpty Map	W H Dobbs	2					----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_
4705170620	-/-	-/-						unclassified	unclassified	not available	unknown	unknown							

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WV Geological & Economic Survey

Well: County = 51 Permit = 70621

Report Time: Monday, August 30, 2021 10:07:59 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170621	Marshall	70621	Liberty	Glen Easton	Cameron	39.801772	-80.632514	531459.1	4405820.8

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_FM	TFM_EST_PR
4705170621	--		unknown	Prpty Map W H Dobbs		6				----- unknown -----			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_
4705170621	--	--						unclassified	unclassified	not available	unknown	unknown							

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WV Geological & Economic Survey:

Well: County = 51 Permit = 00937

Report Time: Monday, August 30, 2021 10:08:14 AM

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	30301	51	937

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705100937	Marshall	937	Liberty	Glen Easton	Cameron	39.793826	-80.62518	532090.6	4404941.5

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
4705100937	12/4/1901	Original Loc	Completed	Harrison G Chambers	1		Lewis Chambers		Grave Creek Fuel Co	Tri-State Pipe Company, The		
4705100937	8/17/2004	Plugging	Completed	Blaine Stern		M-415			Consolidation Coal Co	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_AFT	O_BEF
4705100937	12/4/1901	+-			Gordon	Gordon		unclassified	unclassified	Oil	unknown	unknown	2851		2851				
4705100937	8/17/2004	7/30/2004																	

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

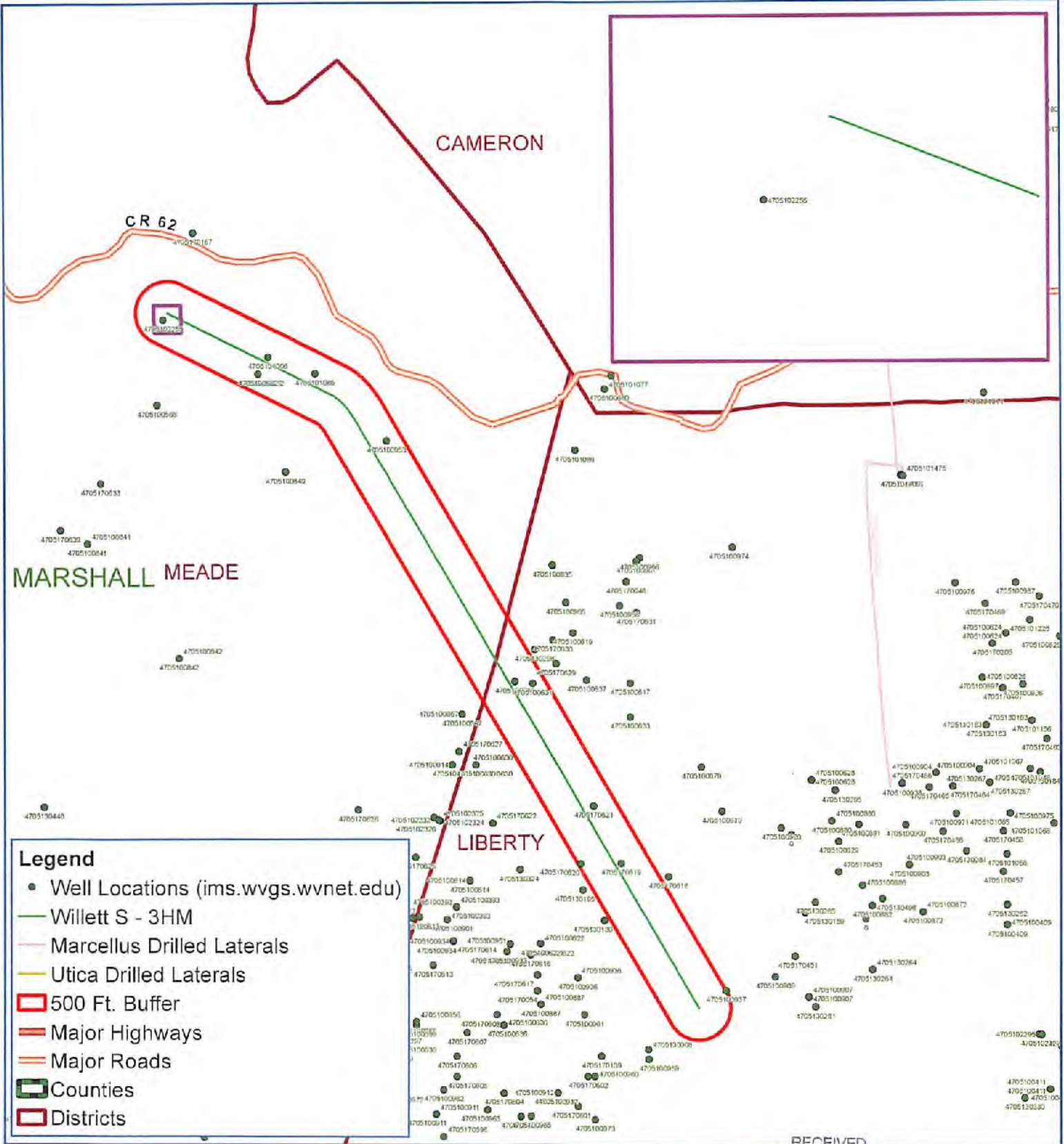
There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100937	7/20/1949	0
4705100937	8/17/2004	0

There is no Sample data for this well

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Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Willett S - 3HM
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- 500 Ft. Buffer
- Major Highways
- Major Roads
- ▭ Counties
- ▭ Districts



Willett S - 3HM Meade District Marshall County, WV



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

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10/22/2021

Map Created: August 26, 2021
Map Content As Of: August 26, 2021

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 containm⁺

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459, 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? Wetzel County Sanitary Landfill (SWF-1021 / WV0109165) 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 + Pancake*

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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Subscribed and sworn before me this 1st day of September, 20 21

Susanne Deliere

Notary Public

My commission expires 1/15/2025

Commonwealth of Pennsylvania - Notary Seal
Susanne Deliere, Notary Public
Wetzel County
My commission expires January 15, 2025
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: Bang Sillip

Comments: _____

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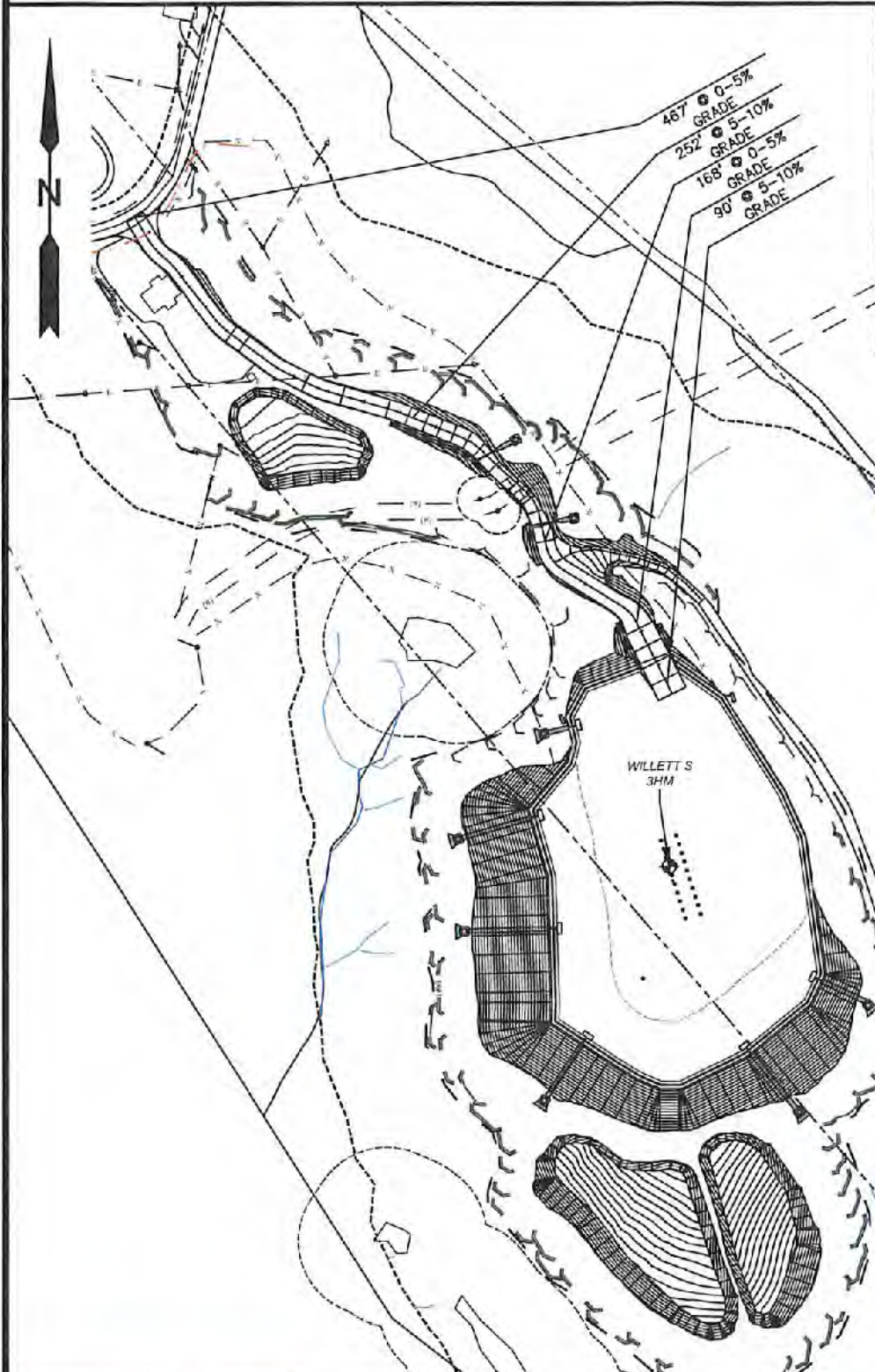
Title: Oil and Gas Inspector

Date: 9-7-21

Field Reviewed? Yes

No

PROPOSED WILLETT S - 3HM



- 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 SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.

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12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5636
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsw.com

TOPD SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	07/30/21	NONE

**TUG HILL
OPERATING**
10/22/2021



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

Well Name: Willett S-3HM

Pad Name: Willett Pad

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,408,169.71

Easting: 529,425.94

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

Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

B.S. 9-7-21

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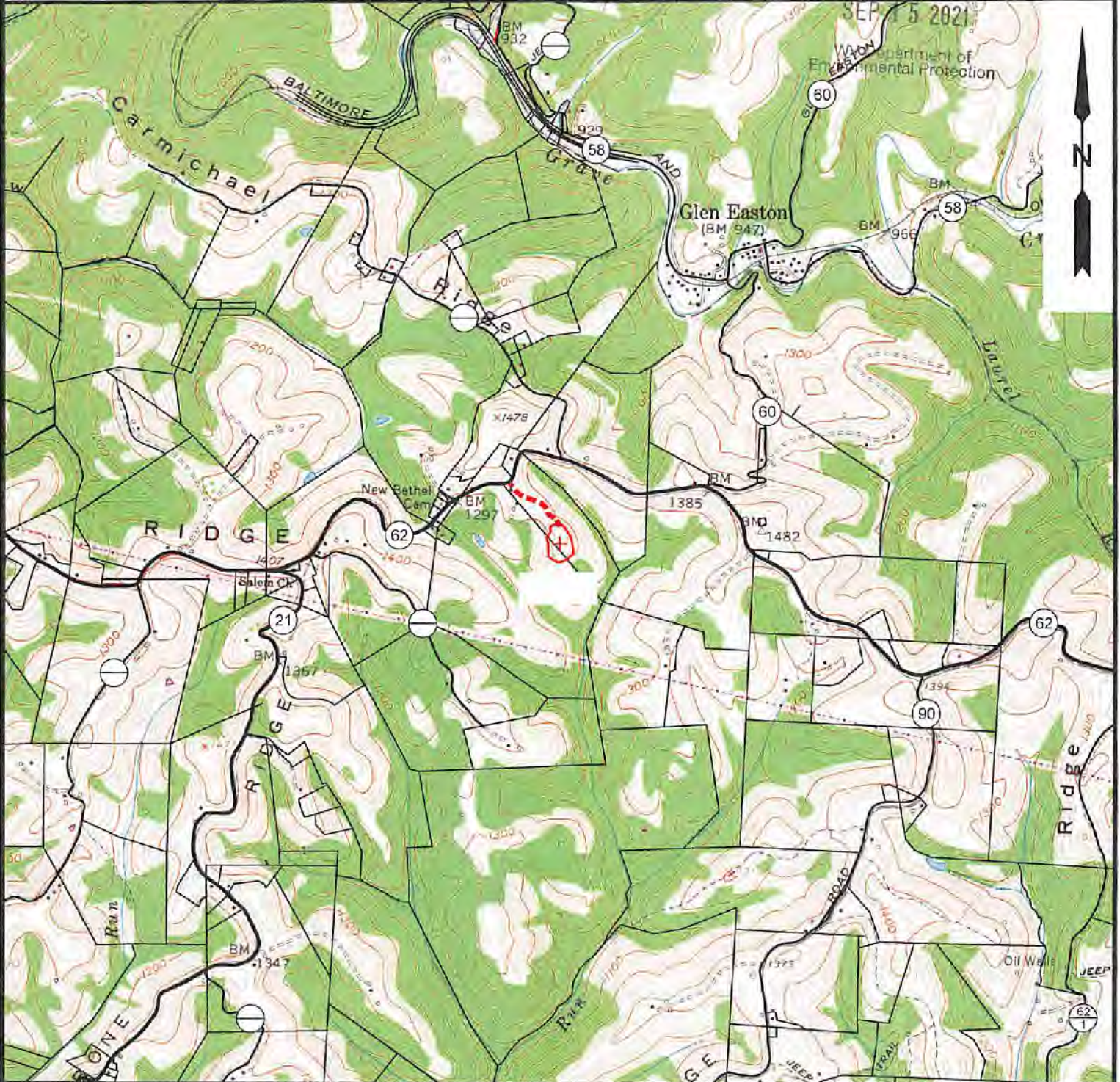
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10/22/2021
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PROPOSED WILLETT S - 3HM

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

LAT: 39.829865
LON: -80.573724
LOCATED: N 84°36'39" E AT 23,313.72' FROM THE CENTER OF WILLETT S WELL PAD LOCATION.



12 Van Horn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.452.9634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.258.5296
slsw.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	07/30/2021	1" = 2000'



TUG HILL
OPERATING

10/22/2021

**WILLETT S LEASE
3HM
TUG HILL OPERATING**

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

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

NAD'83 S.P.C.(FT) N. 483,971.32 E. 1,843,778.94
NAD'83 GEO. LAT-(N) 39.823009 LONG-(W) 80.656158
NAD'83 UTM (M) N. 4,408,169.77 E. 529,425.95

LANDING POINT

NAD'83 S.P.C.(FT) N. 482,249.6 E. 1,646,665.1
NAD'83 GEO. LAT-(N) 39.818385 LONG-(W) 80.645733
NAD'83 UTM (M) N. 4,407,560.0 E. 530,320.1

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 472,969.3 E. 1,651,919.9
NAD'83 GEO. LAT-(N) 39.793091 LONG-(W) 80.626684
NAD'83 UTM (M) N. 4,404,859.4 E. 531,962.2

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

3,781' T.H.

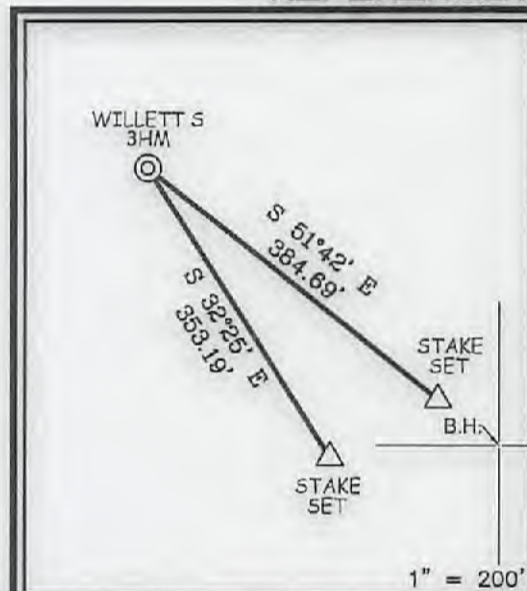
14,659' B.H.

T.H.

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	GLEN G. GORCZYCA - TOD	9-9-6	25.12
D	JOSEPH B. & JUDITH PATRELLO	9-9-9.1	149.924
E	DANNY R. & FRANCES V. KERNS ESTATE	7-1-3	58.00
F	CONSOLIDATION COAL COMPANY	7-1-4	52.00
G	DANNY R. & FRANCES V. KERNS ESTATE	7-8-2	94.00
H	GEO A. BURRIS	7-8-14	95.44
I	BLAINE E. STERN, JR.	7-8-13	104.92

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-3-17.1	BRIAN & LEAH KESTNER	11.8
9-8-5.2	AMY EVANS & KAREN WHITZAL	4.586
9-8-6.1	KAYLA F. BRATTON	1.423
9-9-8.1	DIANA MAE PIATT	2.253
9-9-8.2	VINCENT PATRELLO	0.723
9-9-9	VINCENT P. PATRELLO	1.076

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 525' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsvv.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 2, 20 21
REVISED _____, 20 ____
OPERATORS WELL NO. WILLETT S 3HM
API WELL NO. 47 - 051 - 02415
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500
FILE NO. 8939P3HM.dwg
WILLETT S 3HM-REV2
HORIZONTAL & VERTICAL CONTROL DETERMINED BY: DGPS (SURVEY GRADE TIE TO CORS NETWORK)
SCALE 1" = 2000'

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



WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION STORAGE ___ DEEP ___ SHALLOW
LOCATION: ELEVATION 1,310.03' WATERSHED TRIBUTARY OF UPPER BOWMAN RUN
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'
SURFACE OWNER CNX LAND LLC ACREAGE 27.596±
ROYALTY OWNER APPALACHIAN BASIN MINERALS, LP, ET AL ACREAGE 10/92/2021
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: 7,018' / TMD: 18,749'

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

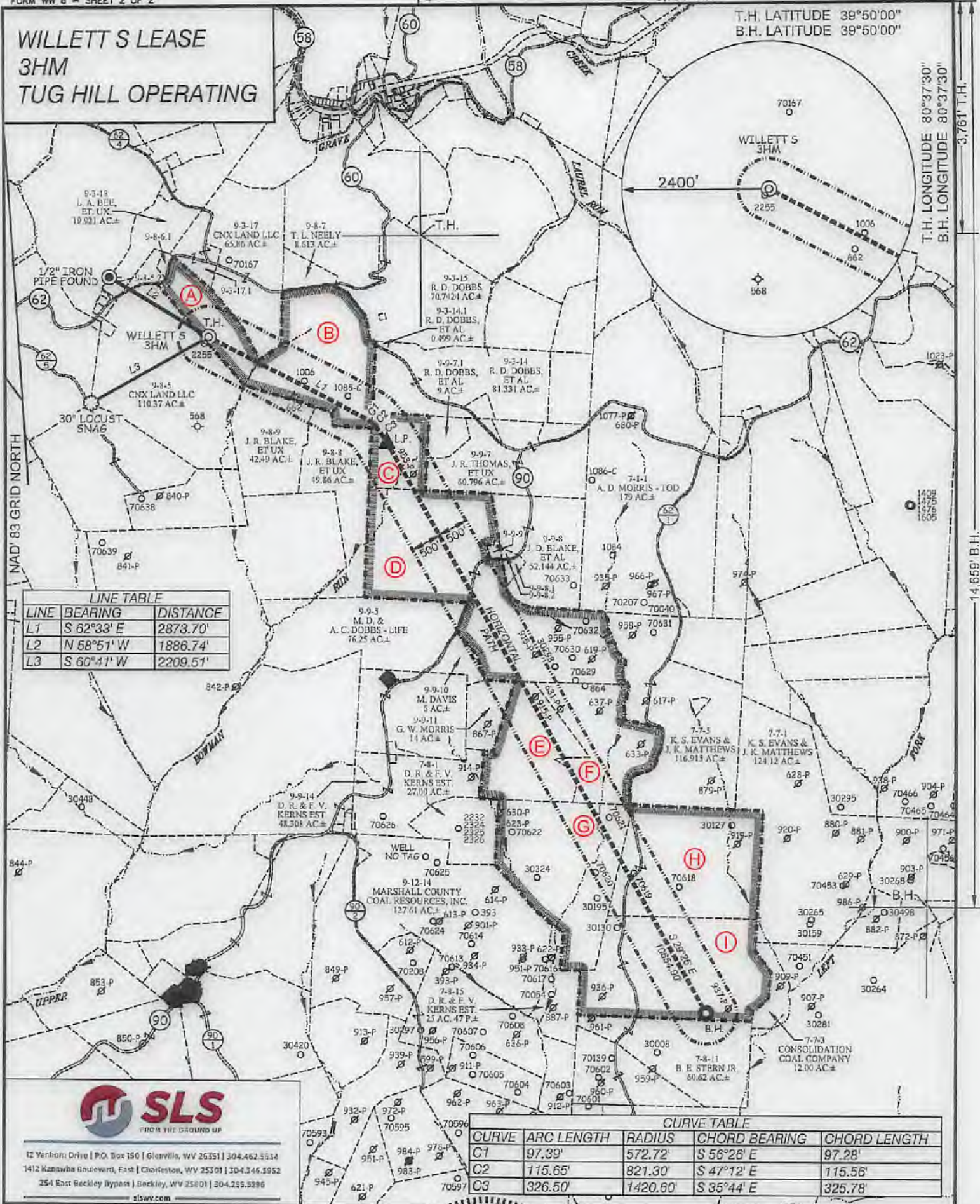
COUNTY NAME

PERMIT

**WILLETT S LEASE
3HM
TUG HILL OPERATING**

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

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



LINE TABLE

LINE	BEARING	DISTANCE
L1	S 62°33' E	2873.70'
L2	N 58°51' W	1886.74'
L3	S 60°41' W	2209.51'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	97.39'	572.72'	S 56°28' E	97.28'
C2	115.65'	821.30'	S 47°12' E	115.56'
C3	326.50'	1420.60'	S 35°44' E	325.78'



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1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.5952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slswv.com



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

P.S. *Gregory A. Smith*
677

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- SURFACE OWNER (SEE TABLE)
- LEASE # (SEE WW-8A1)

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

NAD'83 S.P.C.(FT)	N. 483,971.32	E. 1,643,778.94
NAD'83 GEO.	LAT-(N) 39.823009	LONG-(W) 80.656158
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NAD'83 GEO.	LAT-(N) 39.818385	LONG-(W) 80.645733
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BOTTOM HOLE

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NAD'83 GEO.	LAT-(N) 39.793091	LONG-(W) 80.626684
NAD'83 UTM (M)	N. 4,404,859.4	E. 531,962.2

SCALE 1" = 2000' FILE NO 8939P3HM.dwg
WILLETT S 3HM-REV2
DATE SEPTEMBER 2, 20 21
REVISED _____, 20 ____
OPERATORS WELL NO. WILLETT S 3HM
API WELL NO. 47 STATE 051 COUNTY PERMIT 02415

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

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN - CT CORPORATION
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W. STE 407
FORT WORTH, TX 76107 CHARLESTON, WV 25313-1551

COUNTY NAME PERMIT

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

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

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

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

*See attached pages

**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 Morris*
 Its: Permitting Specialist - Appalachia Region

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*21602	9-8-6	A	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959	289	N/A	N/A	N/A
10*21604	9-8-6	A	WILLIAM EDWARD STACY AND JACQUELINE L STACY	TH EXPLORATION LLC	1/8+	958	428	N/A	N/A	N/A
10*22616	9-8-6	A	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968	281	N/A	N/A	N/A
10*22618	9-8-6	A	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966	636	N/A	N/A	N/A
10*22721	9-8-6	A	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988	134	N/A	N/A	N/A
10*22796	9-8-6	A	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972	87	N/A	N/A	N/A
10*22880	9-8-6	A	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977	85	N/A	N/A	N/A
10*22881	9-8-6	A	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977	87	N/A	N/A	N/A
10*23033	9-8-6	A	MAXINE BEYSER	TH EXPLORATION LLC	1/8+	977	346	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
10*23107	9-8-6	A	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983	620	N/A	N/A	N/A
10*23141	9-8-6	A	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984	7	N/A	N/A	N/A
10*23142	9-8-6	A	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984	5	N/A	N/A	N/A
10*23161	9-8-6	A	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983	618	N/A	N/A	N/A
10*23162	9-8-6	A	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983	622	N/A	N/A	N/A
10*23163	9-8-6	A	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983	571	N/A	N/A	N/A
10*23176	9-8-6	A	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984	9	N/A	N/A	N/A
10*23181	9-8-6	A	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983	627	N/A	N/A	N/A
10*23192	9-8-6	A	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984	472	N/A	N/A	N/A
10*23313	9-8-6	A	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988	136	N/A	N/A	N/A
10*23419	9-8-6	A	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988	492	N/A	N/A	N/A
10*23420	9-8-6	A	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988	490	N/A	N/A	N/A
10*23739	9-8-6	A	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1011	538	N/A	N/A	N/A
10*23740	9-8-6	A	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1011	532	N/A	N/A	N/A
10*23741	9-8-6	A	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1011	515	N/A	N/A	N/A
10*23742	9-8-6	A	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1011	536	N/A	N/A	N/A
10*23743	9-8-6	A	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1011	534	N/A	N/A	N/A
10*23749	9-8-6	A	MARCELLUS TX MINERAL PRTRN LTD	TH EXPLORATION LLC	1/8+	1012	193	N/A	N/A	N/A
10*24781	9-8-6	A	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027	578	N/A	N/A	N/A
10*24782	9-8-6	A	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027	572	N/A	N/A	N/A
10*24783	9-8-6	A	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027	569	N/A	N/A	N/A
10*25224	9-8-6	A	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030	141	N/A	N/A	N/A
10*25701	9-8-6	A	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034	239	N/A	N/A	N/A
10*25716	9-8-6	A	RUSSELL BREDBENNER	TH EXPLORATION LLC	1/8+	1035	23	N/A	N/A	N/A
10*26631	9-8-6	A	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039	322	N/A	N/A	N/A
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
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
10*28092	9-8-6	A	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073	370	N/A	N/A	N/A
10*28647	9-8-6	A	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076	65	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
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
10*29621	9-8-6	A	BRADLEY B LEHNER	TH EXPLORATION LLC	1/8+	1096	362	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
10*29625	9-8-6	A	HARRY ALBERT RICHARDSON	TH EXPLORATION LLC	1/8+	1096	368	N/A	N/A	N/A

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10*29627	9-8-6	A	JANET M SMITH	TH EXPLORATION LLC	1/8+	1096	350	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
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
10*31002	9-8-6	A	MARK F HEUSER	CHEVRON USA INC	1/8+	791	247	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	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31006	9-8-6	A	TERRY WITHEROW AND JAY WITHEROW	CHEVRON USA INC	1/8+	793	375	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31007	9-8-6	A	CAROL D ELMORE	CHEVRON USA INC	1/8+	793	383	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	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	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	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	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	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	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	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	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31016	9-8-6	A	JESSICA M CHAVEZ	CHEVRON USA INC	1/8+	804	393	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31017	9-8-6	A	PHILIP A WILSON	CHEVRON USA INC	1/8+	805	421	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
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	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31019	9-8-6	A	EDWARD F WILSON	CHEVRON USA INC	1/8+	813	564	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31020	9-8-6	A	MATTHEW L GROSSAINT	CHEVRON USA INC	1/8+	818	6	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31021	9-8-6	A	TROY THOMAS WILSON	CHEVRON USA INC	1/8+	828	352	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31022	9-8-6	A	ELLA JEAN MCCARDLE	CHEVRON USA INC	1/8+	828	374	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31027	9-8-6	A	LOU ANN GROSSAINT	CHEVRON USA INC	1/8+	829	470	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31029	9-8-6	A	JESSE ALLEN WILSON	CHEVRON USA INC	1/8+	831	355	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31034	9-8-6	A	APRIL DAWN HOGAN	CHEVRON USA INC	1/8+	835	248	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31035	9-8-6	A	KIMBERLY SUE PIERSON	CHEVRON USA INC	1/8+	835	271	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593

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10*31036	9-8-6	A	JOSEPH RICHARD FOX	CHEVRON USA INC	1/8+	800	546	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31043	9-8-6	A	DIANE M BAYLESS	CHEVRON USA INC	1/8+	798	97	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31044	9-8-6	A	DENNIS M WILSON	CHEVRON USA INC	1/8+	798	97	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31045	9-8-6	A	DAVID H WILSON	CHEVRON USA INC	1/8+	798	77	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31046	9-8-6	A	SANDRA JEAN WILSON	CHEVRON USA INC	1/8+	794	605	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31047	9-8-6	A	MARY CHRISTINE MCKENNA	CHEVRON USA INC	1/8+	795	49	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31048	9-8-6	A	LAURENCE E WILSON JR	CHEVRON USA INC	1/8+	800	154	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31049	9-8-6	A	ROBERT L ARCHER	CHEVRON USA INC	1/8+	803	45	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31050	9-8-6	A	KATHERINE JEAN CONNELLY	CHEVRON USA INC	1/8+	803	30	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31051	9-8-6	A	STEVEN M ARCHER	CHEVRON USA INC	1/8+	803	38	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31052	9-8-6	A	WILLIAM R WISE	CHEVRON USA INC	1/8+	805	407	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
✓ 10*28808	9-8-7.1	B	HOLLY MARIE EBERSOLE	TH EXPLORATION LLC	1/8+	1078	47	N/A	N/A	N/A
✓ 10*28092	9-8-7.1	B	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073	370	N/A	N/A	N/A
✓ 10*19634	9-9-6	C	JANICE L PIETERSE	TH EXPLORATION LLC	1/8+	944	619	N/A	N/A	N/A
10*19637	9-9-6	C	RANDY K AND ALICE E BOWER	TH EXPLORATION LLC	1/8+	944	621	N/A	N/A	N/A
10*19703	9-9-6	C	WILLIAM M BECKER AND KATHARINE B BECKER	TH EXPLORATION LLC	1/8+	944	616	N/A	N/A	N/A
10*19880	9-9-6	C	R RICK HYRE	TH EXPLORATION LLC	1/8+	944	623	N/A	N/A	N/A
10*19930	9-9-6	C	TODD W BULLARD AND BETH H BULLARD	TH EXPLORATION LLC	1/8+	949	270	N/A	N/A	N/A
10*21243	9-9-6	C	NORMAN B AND JO ELLEN KAUBLE	TH EXPLORATION LLC	1/8+	952	394	N/A	N/A	N/A
10*21404	9-9-6	C	WILLIAM W HYRE AND NOREEN M HYRE	TH EXPLORATION LLC	1/8+	953	542	N/A	N/A	N/A
10*21499	9-9-6	C	SAMUEL J RICKEY	TH EXPLORATION LLC	1/8+	953	250	N/A	N/A	N/A
10*22525	9-9-6	C	JOHN P RICKEY & ROSE HOWELL RICKEY	TH EXPLORATION LLC	1/8+	964	525	N/A	N/A	N/A
10*23294	9-9-6	C	GLENN GORCZYCA AND JANE GORCZYCA	TH EXPLORATION LLC	1/8+	988	103	N/A	N/A	N/A
10*26711	9-9-6	C	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8+	1074	593	N/A	N/A	N/A
10*27265	9-9-6	C	UNKNOWN HEIRS OF DONALD E RICKEY & ANITA M RICKEY	TH EXPLORATION LLC	1/8+	1052	118	N/A	N/A	N/A
10*27947	9-9-6	C	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568	N/A	N/A	N/A
✓ 10*22615	9-9-9.1	D	DAVID D MURRAY AND MARY ANN MURRAY	TH EXPLORATION LLC	1/8+	965	591	N/A	N/A	N/A
10*22745	9-9-9.1	D	BONNIE J JENKINS	TH EXPLORATION LLC	1/8+	968	288	N/A	N/A	N/A
10*23314	9-9-9.1	D	CYNTHIA WATSON	TH EXPLORATION LLC	1/8+	988	499	N/A	N/A	N/A
10*23353	9-9-9.1	D	SHARON E MCDONALD AND HAROLD S MCDONALD	TH EXPLORATION LLC	1/8+	988	495	N/A	N/A	N/A
10*25718	9-9-9.1	D	KATHLEEN JEANNE B JENKINS	TH EXPLORATION LLC	1/8+	1035	13	N/A	N/A	N/A
10*25719	9-9-9.1	D	NICHOLE M JENKINS	TH EXPLORATION LLC	1/8+	1035	17	N/A	N/A	N/A
10*26494	9-9-9.1	D	JOHN P JENKINS	TH EXPLORATION LLC	1/8+	1037	434	N/A	N/A	N/A
10*29231	9-9-9.1	D	COLE DALE GRIMM	TH EXPLORATION LLC	1/8+	1078	45	N/A	N/A	N/A
10*29244	9-9-9.1	D	SHARON ANN PETERSON	TH EXPLORATION LLC	1/8+	1086	501	N/A	N/A	N/A
10*29833	9-9-9.1	D	SKYPOINT RESOURCES LLC	TH EXPLORATION LLC	1/8+	1103	556	N/A	N/A	N/A
10*31023	9-9-9.1	D	LUANN N HIMMELFARB	CHEVRON USA INC	1/8+	828	403	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593

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10*31024	9-9-9.1	D	DOUGLAS A WAYSON	CHEVRON USA INC	1/8+	828	610	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31025	9-9-9.1	D	DAWNETTA MARIE WAYSON	CHEVRON USA INC	1/8+	828	616	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31026	9-9-9.1	D	DONALD CARMICHAEL	CHEVRON USA INC	1/8+	829	225	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31028	9-9-9.1	D	DAVID W CHAPMAN	CHEVRON USA INC	1/8+	829	470	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31030	9-9-9.1	D	ROBERT BRANDT WAYSON	CHEVRON USA INC	1/8+	831	362	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31031	9-9-9.1	D	GREGORY L CHAPMAN	CHEVRON USA INC	1/8+	831	490	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31032	9-9-9.1	D	SARAH LEONA MCGLONE	CHEVRON USA INC	1/8+	831	537	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31033	9-9-9.1	D	JUDITH ELLEN DOTY	CHEVRON USA INC	1/8+	834	426	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31037	9-9-9.1	D	LINDA S COLEMAN	CHEVRON USA INC	1/8+	836	319	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31038	9-9-9.1	D	MARGARET ANN JONES	CHEVRON USA INC	1/8+	837	364	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31039	9-9-9.1	D	PATRICK P TRUEX	CHEVRON USA INC	1/8+	847	514	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31040	9-9-9.1	D	JOSEPH B PATRELLO AND JUDITH M PATRELLO	CHEVRON USA INC	1/8+	848	472	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31042	9-9-9.1	D	DANIEL W CHAPMAN	CHEVRON USA INC	1/8+	915	564	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*17969	7-1-3	E	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928	424	N/A	N/A	N/A
10*26562	7-1-3	E	MARTHA SUE FORBES	TH EXPLORATION LLC	1/8+	1038	510	N/A	N/A	N/A
10*26563	7-1-3	E	SCOTT SHOTT AIF JOY A SHOTT	TH EXPLORATION LLC	1/8+	1038	513	N/A	N/A	N/A
10*26632	7-1-3	E	MORGAN GIBSON	TH EXPLORATION LLC	1/8+	1039	319	N/A	N/A	N/A
10*26636	7-1-3	E	THOMAS SHOTT	TH EXPLORATION LLC	1/8+	1039	316	N/A	N/A	N/A
10*26691	7-1-3	E	DANIEL C SHOTT	TH EXPLORATION LLC	1/8+	1041	218	N/A	N/A	N/A
10*26970	7-1-3	E	THE ESTATE OF JOHN C SHOTT	TH EXPLORATION LLC	1/8+	1046	190	N/A	N/A	N/A
10*26971	7-1-3	E	GRACE R SHOTT-CLARDY	TH EXPLORATION LLC	1/8+	1046	194	N/A	N/A	N/A
10*27090	7-1-3	E	HUGH I SHOTT II AIF BETTY SHOTT	TH EXPLORATION LLC	1/8+	1053	9	N/A	N/A	N/A
10*27091	7-1-3	E	BRIDGITTE BLAYKE JONES	TH EXPLORATION LLC	1/8+	1050	204	N/A	N/A	N/A
10*27092	7-1-3	E	JAMES H SHOTT III	TH EXPLORATION LLC	1/8+	1050	201	N/A	N/A	N/A
10*28172	7-1-3	E	BETTY BROWN GORDON	TH EXPLORATION LLC	1/8+	1067	394	N/A	N/A	N/A
10*29562	7-1-3	E	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1097	513	N/A	N/A	N/A
10*30043	7-1-3	E	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1098	366	N/A	N/A	N/A
10*30160	7-1-3	E	UNKNOWN INTEREST OWNERS OF THE NANCY BROW HEREFORD REV LIV TR, JOSEPH HITE BILLES & THE BLODWN H COURTNEY REV TR OF 1989	TH EXPLORATION LLC	1/8+	1102	313	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31478	7-1-3	E	EQT PRODUCTION COMPANY	TH EXPLORATION LLC	1/8+	1100	528	N/A	N/A	N/A
10*17969	7-1-4	F	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928	424	N/A	N/A	N/A
10*24225	7-1-4	F	CHESTNUT HOLDINGS INC	TH EXPLORATION LLC	1/8+	1025	140	N/A	N/A	N/A
10*28328	7-1-4	F	UNKNOWN HEIRS OF JOSEPH HITE BILLES AND THE BLODWN H COURTNEY REVOCABLE TRUST	TH EXPLORATION LLC	1/8+	1068	130	N/A	N/A	N/A
10*28629	7-1-4	F	UNKNOWN INTEREST OWNERS OF THE NANCY BROWN HEREFORD REVOCABLE LIVING TRUST	TH EXPLORATION LLC	1/8+	1072	404	N/A	N/A	N/A
10*28897	7-1-4	F	PAIGE FRANCIS	TH EXPLORATION LLC	1/8+	1076	310	N/A	N/A	N/A

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10*28928	7-1-4	F	SUSAN SHRIVER	TH EXPLORATION LLC	1/8+	1077	10	N/A	N/A	N/A
10*28172	7-1-4	F	BETTY L. BROWN GORDON	TH EXPLORATION LLC	1/8+	1067	394	N/A	N/A	N/A
10*19490	7-1-4	F	BRIAN C. LUTZ AND SARA M. LUTZ	TH EXPLORATION LLC	1/8+	943	19	N/A	N/A	N/A
10*27091	7-1-4	F	BRIDGETTE BLAYKE JONES	TH EXPLORATION LLC	1/8+	1050	204	N/A	N/A	N/A
10*26691	7-1-4	F	DANIEL C. SHOTT	TH EXPLORATION LLC	1/8+	1041	218	N/A	N/A	N/A
10*26971	7-1-4	F	GRACE R. SHOTT NKA GRACE R. SHOTT-CLARDY	TH EXPLORATION LLC	1/8+	1046	194	N/A	N/A	N/A
10*27090	7-1-4	F	HUGH SHOTT, AKA HUGH I. SHOTT II	TH EXPLORATION LLC	1/8+	1053	9	N/A	N/A	N/A
10*27092	7-1-4	F	JAMES H. SHOTT III	TH EXPLORATION LLC	1/8+	1050	201	N/A	N/A	N/A
10*21448	7-1-4	F	JAMES L. BLAKE	TH EXPLORATION LLC	1/8+	957	264	N/A	N/A	N/A
10*19744	7-1-4	F	JILL L. HENNEN AND ALEXANDER O. BARRETT, JR.	TH EXPLORATION LLC	1/8+	944	635	N/A	N/A	N/A
10*19705	7-1-4	F	LOIS J. ELIAS AND LOUIS J. ELIAS, JR.	TH EXPLORATION LLC	1/8+	944	633	N/A	N/A	N/A
10*26562	7-1-4	F	MARTHA SUE FORBES	TH EXPLORATION LLC	1/8+	1038	510	N/A	N/A	N/A
10*26632	7-1-4	F	MORGAN GIBSON	TH EXPLORATION LLC	1/8+	1039	319	N/A	N/A	N/A
10*26563	7-1-4	F	SCOTT SHOTT	TH EXPLORATION LLC	1/8+	1038	513	N/A	N/A	N/A
10*30043	7-1-4	F	STONE HILL MINERALS HOLDINGS, LLC	TH EXPLORATION LLC	1/8+	1098	366	N/A	N/A	N/A
10*26970	7-1-4	F	THE ESTATE OF JOHN C. SHOTT	TH EXPLORATION LLC	1/8+	1046	190	N/A	N/A	N/A
10*26636	7-1-4	F	THOMAS SHOTT	TH EXPLORATION LLC	1/8+	1039	316	N/A	N/A	N/A
✓ 10*25518	7-8-2	G	DANNY S KERNS	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	532	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25520	7-8-2	G	DEENA J PALOMO	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1009	357	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25522	7-8-2	G	REGINA D FIGUEROA	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	535	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
✓ 10*25508	7-8-14	H	THE AMY M TOUPS FAMILY TRUST OF 2013 DATED JUNE 14, 2013	FOSSIL CREEK OHIO, LLC	1/8+	827	119	Fossil Creek Ohio LLC to Gulfport Energy Corporation: 32/337	Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC: 36/588	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25509	7-8-14	H	ELIZABETH A PADDEN	FOSSIL CREEK OHIO, LLC	1/8+	827	123	Fossil Creek Ohio LLC to Gulfport Energy Corporation: 32/337	Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC: 36/588	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25510	7-8-14	H	JOHN M PADDEN	FOSSIL CREEK OHIO, LLC	1/8+	827	121	Fossil Creek Ohio LLC to Gulfport Energy Corporation: 32/337	Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC: 36/588	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
✓ 10*25501	7-8-13	I	AMP FUND III LP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	925	459	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25514	7-8-13	I	FREDERICK S MARCO & REBECCA J MARCO	BLUE ROAN RESOURCES LLC	1/8+	911	244	N/A	Blue Roan Resources LLC to American Petroleum Partners Operating LLC: 38/174	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25528	7-8-13	I	KAREN JEAN CHAMBERS	BLUE ROAN RESOURCES LLC	1/8+	911	246	N/A	Blue Roan Resources LLC to American Petroleum Partners Operating LLC: 38/174	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25556	7-8-13	I	RIDGETOP ROYALTIES LLC	AMERICAN PETROLEUM PARTNERS LLC	1/8+	910	11	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503

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STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 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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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 S-3HM

Subject: Marshall County Route 62/1 and Marshall County Route 90

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 62/1 and Marshall County Route 90 in the area reflected on the Willett S-3HM 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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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 09/14/2021

API No. 47- 051 -
Operator's Well No. Willett S-3HM
Well Pad Name: Willett

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: West Virginia
County: Marshall
District: Meade
Quadrangle: Glen Easton 7.5'
Watershed: Middle Fish Creek - HUC 10

UTM NAD 83 Easting: 529,425.94
Northing: 4,408,169.71
Public Road Access: CR 62 New Bethel Road
Generally used farm name: CNX Land, LLC

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p align="center">OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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Required Attachments:

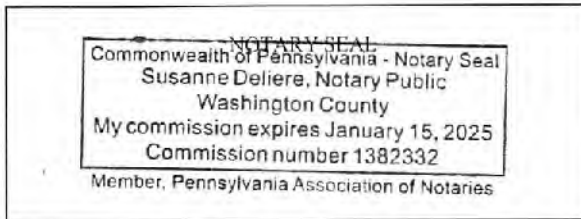
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

10/22/2021

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 14th day of September 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 or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@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: 9/14/2021 **Date Permit Application Filed:** 9/15/2021

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 Blair
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.

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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 and 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.**

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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. Willet S-3HM
Well Pad Name: Willet

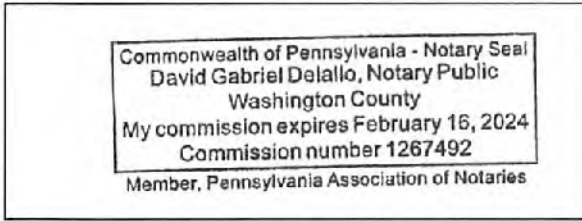
Notice is hereby given by:

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

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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 7 day of SEPTEMBER, 2021

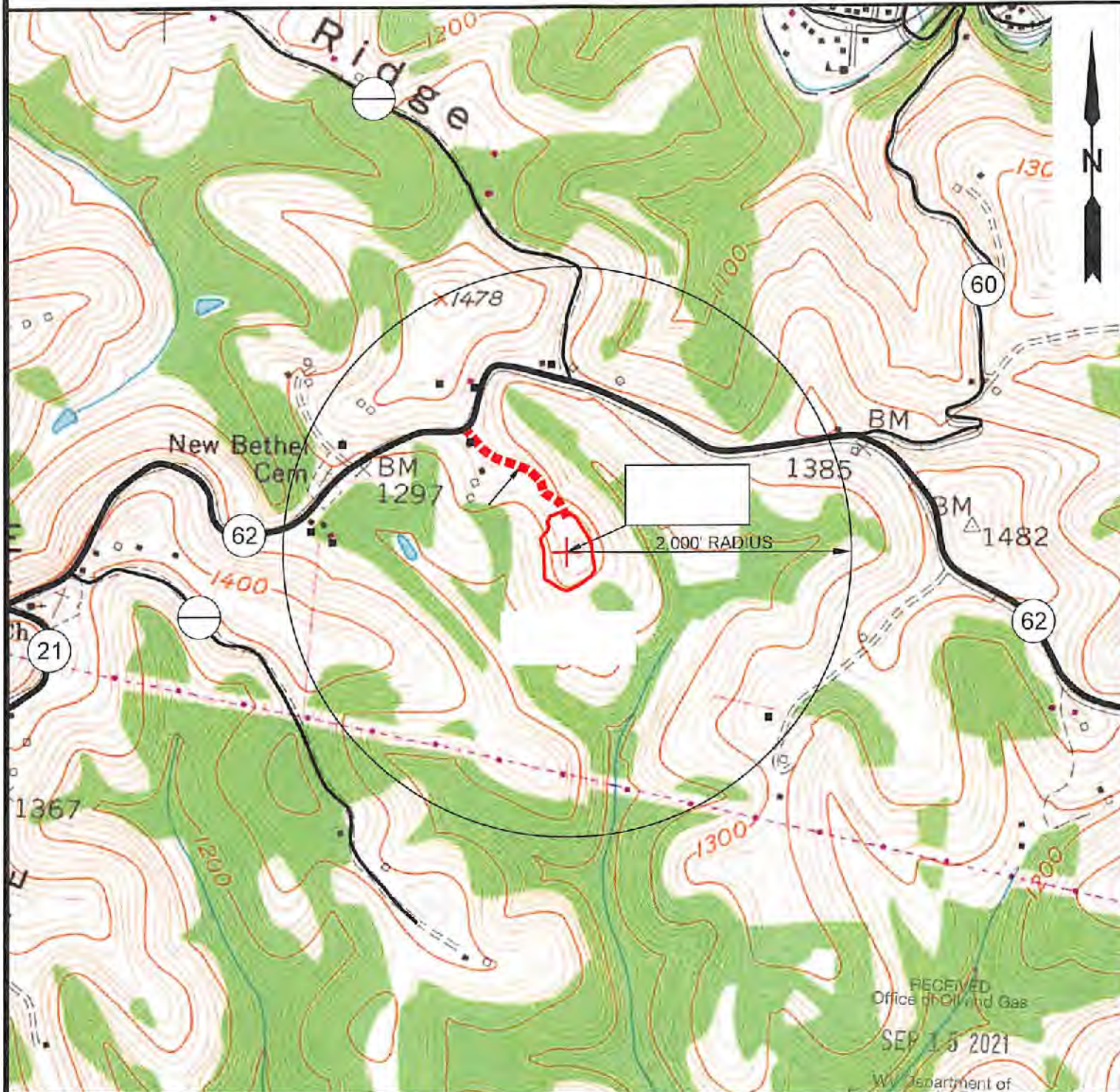
David Gabriel Delallo Notary Public

My Commission Expires 2/16/2024

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PROPOSED WILLETTS - 3HM



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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 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	07/30/2021	1" = 1000'



TUG HILL
OPERATING

10/22/2021

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 S – 3HM
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: center;">RECEIVED Office of Oil and Gas SEP 15 2021 WV Department of Environmental Protection</p>

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**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: 8235 Douglas Avenue, Suite 815
Dallas, TX 75225

*please attach additional forms if necessary

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: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.82306349; -80.65626349</u>
County: <u>Marshall</u>	Public Road Access: <u>New Bethel Road (County Route 62)</u>
District: <u>Meade</u>	Watershed: <u>Middle Fish Creek</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>CNX Land Resources, LLC</u>

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: 724-749-8388
Email: amiller@tug-hill-op.com

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

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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.

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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 PI 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, VON 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 NW
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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Barbara Krus
421 Fox Chapel Dr
Lutherville Timonium, MD 21093

Maureen Wilson
12 Juliet Ln Apt 102
Nottingham, MD 21736

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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4705102415

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 Orouke Dr Apt O
Trenton, NJ 08692

Eileen Sennett
10 Orchard Dr
Chesterfield, NJ 08515

Patricia Cassady
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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10/22/2021

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

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

Date of Notice: 09/14/2021 **Date Permit Application Filed:** 09/15/2021

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

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

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Eastings:	<u>529,425.94</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,169.71</u>
District:	<u>Meade</u>	Public Road Access:	<u>CR 62 New Bethel Road</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>CNX Land, LLC</u>	
Watershed:	<u>Middle Fish Creek - HUC 10</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. 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 Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hilltop.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.

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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

July 6, 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 S-3HM 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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