



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, July 13, 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 VAN WINKLE S-21HU
47-051-02354-00-00

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: VAN WINKLE S-21HU
Farm Name: XCL MIDSTREAM OPERATING
U.S. WELL NUMBER: 47-051-02354-00-00
Horizontal 6A New Drill
Date Issued: 7/13/2021

Promoting a healthy environment.

07/16/2021



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

June 14, 2021

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

RE: Application for Deep Well Permit – API #47-051-02354

COMPANY: Tug Hill Operating, LLC

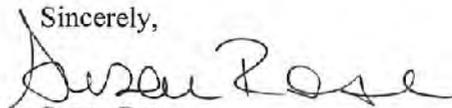
FARM: XCL Midstream Operating, LLC Van Winkle S-21HU

COUNTY: Marshall DISTRICT: Meade QUAD: Glen Easton

The deep well review of the application for the above company is Approved to drill to Trenton for Point Pleasant completion.

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

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

Sincerely,

Susan Rose
Administrator

** Old Crow N-20HU 47-051-02191; Old Crow N-21HU 47-051-02335; MND 6 HHS 47-051-01732; MND20EU 47-051-02045; Knob Creek N-12HU 47-051-02268; Knob Creek N-11HU 47-051-02287; Hunter 1 47-051-01284; Van Winkle N-16HU 47-051-02349; Van Winkle N-17HU 47-051-02350; Van Winkle N-18HU 47-051-02351; Van Winkle S-23HU 47-051-02356; Van Winkle N-19HU 47-051-02352; Van Winkle S-20HU 47-051-02353; Van Winkle S-22HU 47-051-02355; Pendleton N-9HU 47-051-02245; Heaven Hill 2W-13HU 47-051-01957; Heaven Hill 2W-12HU 47-051-01952; Keith Stern N-13HU 47-051-02265; Keith Stern S-17HU 47-051-02266; Knob Creek N-13HU 47-051-02269; Knob Creek S-16HU 47-051-02290; Knob Creek S-15HU 47-051-02289; Knob Creek S-14HU 47-051-02288

07/16/2021

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.

07/16/2021

WW-6B
(04/15)

API NO. 47-061 -
OPERATOR WELL NO. Van Winkle S-21HU
Well Pad Name: Hunter Pethtel

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: Van Winkle S-21HU Well Pad Name: Hunter Pethtel

3) Farm Name/Surface Owner: XcL Midstream Operating, LLC Public Road Access: County Route 74

4) Elevation, current ground: 754' Elevation, proposed post-construction: 754'

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

(b) If Gas Shallow _____ Deep
Horizontal

6) Existing Pad: Yes or No Yes

Way Stiles
1-22-21

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 10,951' - 11,070', thickness of 119' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,220'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 26,088' ✓

11) Proposed Horizontal Leg Length: 14,521.70' ✓

12) Approximate Fresh Water Strata Depths: 70; 415' ✓

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: 870'

15) Approximate Coal Seam Depths: Sewickley Coal - 314' and Pittsburgh Coal - 409'

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

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

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

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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	20"	NEW	J55	106.5#	515'	515'	883FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2,226'	2,226'	1576FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,031'	10,031'	3252FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	26,088'	26,088'	6147FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,665'	
Liners							

Barry Stiles
1-22-21

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	20"	26#	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.33
Production	5 1/2"	8 1/2"	.415	16,510	13,208	SEE #24	1.17/1.19
Tubing	2 7/8"			14,530	11,624		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle S-21HU
Well Pad Name: Hunter Pethtel

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

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

Boyd Stilly 1-22-21

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

Well to be completed with approximately 36,250,000 lb. proppant and 650,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.63 acres

22) Area to be disturbed for well pad only, less access road (acres): 4.87 acres

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

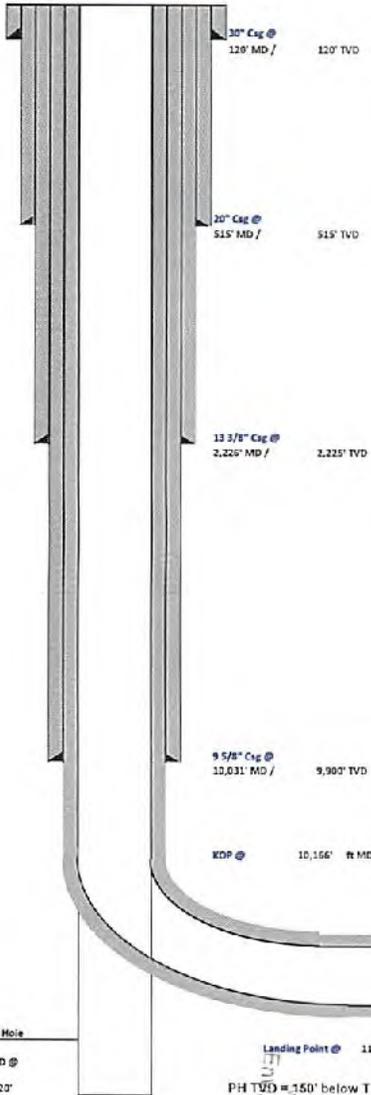


WELL NAME: Van Winkle S-21HU
STATE: WV **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 754' **OT Elev:** 754'
ID: 26,088'
TH Latitude: 39.781535
TH Longitude: -80.726968
BH Latitude: 39.744400
BH Longitude: -80.705576

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	415'
Sewickley Coal	314'
Pittsburgh Coal	409'
Big Lime	1,630'
Berea	2,121'
Tully	6,040'
Marcellus	6,143'
Onondaga	6,193'
Salina	6,906'
Lockport	7,959'
Utica	10,674'
Point Pleasant	10,951'
Landing Depth	11,000'
Trenton	11,070'
Pilot Hole TD	11,220'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	26	20	515'	515'	106.5	J5	Surface
Intermediate 1	17 1/2	13 3/8	2,226'	2,225'	54.5	J5	Surface
Intermediate 2	12 1/4	9 5/8	10,031'	9,900'	47	HP110	Surface
Production	8 1/2	5 1/2	26,088'	11,255'	21	MCP110	Surface

	CEMENT SUMMARY			DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	943	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,708	A	15	Air	1 Centralizer every other jt
Intermediate 2	2,799	A	14.5	Air	1 Centralizer every other jt
Production	5,479	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to site



Bray Hilly 1-22-21

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 PH TD = 150' below Trenton Top

Pilot Hole
 PH TD @
 11,220'

Lateral TD @ 76,088' ft MD
 11,255' ft TVD



Tug Hill Operating, LLC Casing and Cement Program

Van Winkle S-21HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	28"	515'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,226'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,031'	CTS
Production	5 1/2"	HCP110	8 1/2"	26,088'	CTS

Cement

Surface: Premium NE-1 + 2% bwoc CaC12 + 48.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2

Intermediate 1: Premium NE-1 + 1% bwoc CaC12 + 48.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 48.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.99

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 15.2ppg, Y = 1.16

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Well: Van Winkle S-21 HU (slot B)
 Site: Van Winkle
 Project: Marshall County, West Virginia
 Design: rev3
 Rig:

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Van Winkle S-21HU LP r2	11000.00	-908.03	-1164.32	14447299.69	1715958.39	39.77905100	-80.73172200
- plan misses target center by 0.04ft at 11568.31ft MD (11000.00 TVD, -908.04 N, -1164.35 E)							
Van Winkle S-21HU PBHL r3	11253.00	-13502.82	6054.37	14433797.20	1723177.06	39.74440000	-80.70557600
- plan hits target center							

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1990
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: GL @ 754.00ft

Northing	Easting	Latitude	Longitude
14447299.69	1717122.71	39.78163500	-80.72896800

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.820°

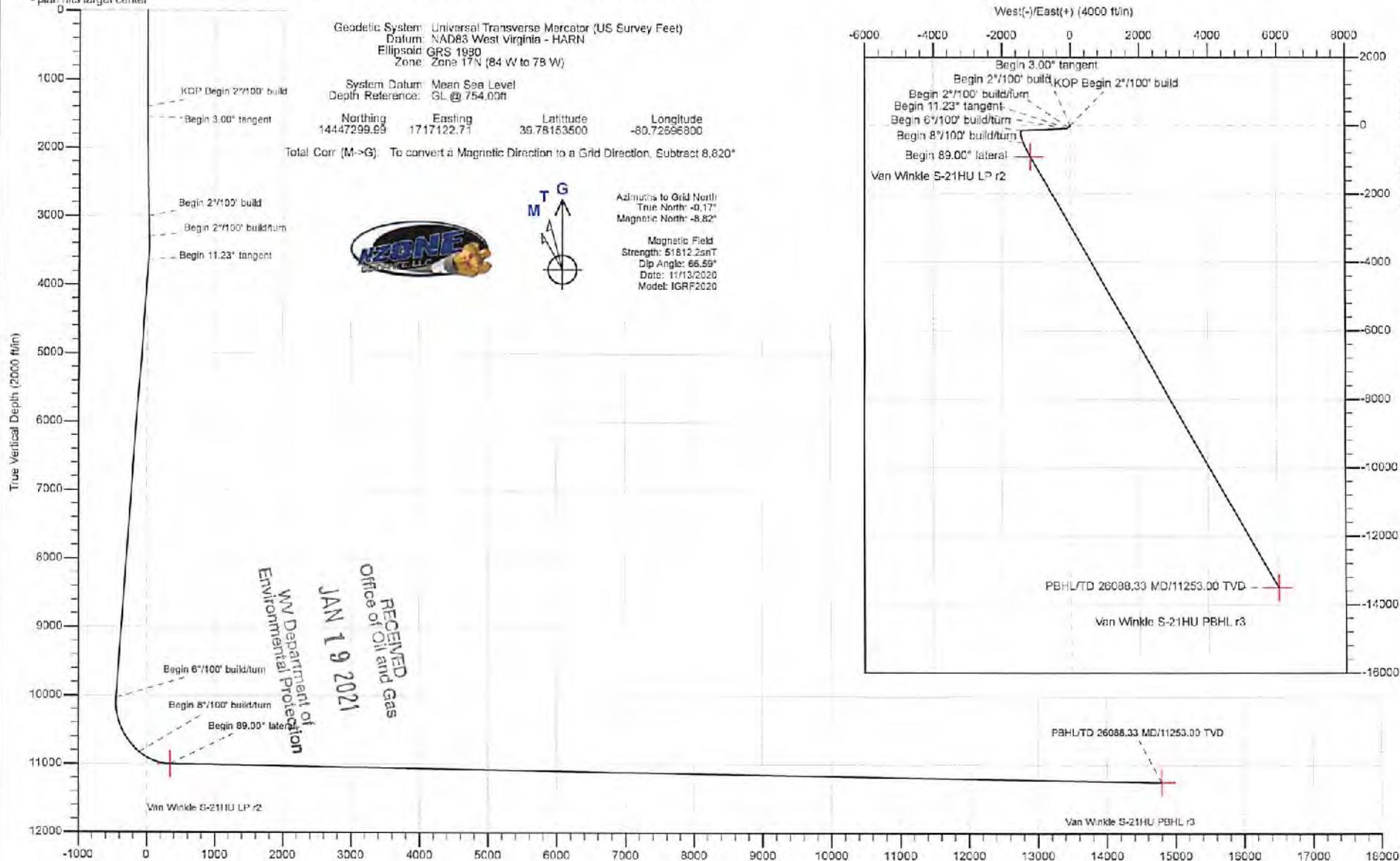


Azimuths to Grid North
 True North: -0.17°
 Magnetic North: -8.82°

Magnetic Field
 Strength: 51812.2nT
 Dip Angle: 66.59°
 Date: 11/13/2020
 Model: IGRF2020

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
2	1400.00	0.00	0.000	1400.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1550.00	3.00	230.000	1549.63	-2.52	-3.01	2.00	230.000	1.07	Begin 3.00° tangent
4	3002.05	3.00	230.000	3000.00	-51.37	-61.22	0.00	0.000	21.63	Begin 2°/100' build
5	3302.05	9.00	230.000	3298.22	-71.52	-85.23	0.00	0.000	50.39	Begin 2°/100' build/turn
6	3642.65	11.23	267.522	3633.85	-90.10	-136.84	2.00	90.432	25.41	Begin 11.23° tangent
7	10165.71	11.23	267.522	10032.03	-145.03	-1407.90	0.00	0.000	-443.69	Begin 6°/100' build/turn
8	11072.65	50.00	158.510	10829.15	-499.10	-1365.64	6.00	-117.057	-103.31	Begin 8°/100' build/turn
9	11568.29	89.00	150.181	11000.00	-908.03	-1164.36	8.00	-13.057	352.18	Begin 89.00° lateral
10	26088.34	89.00	150.181	11253.00	-13502.82	6054.37	0.00	0.000	4798.02	PBHLTD 26088.33 MD/11253.00 TVD



Vertical Section at 155.850° (2000 ft/in)



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Van Winkle S-21 HU (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 754.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 754.00ft
Site:	Van Winkle	North Reference:	Grid
Well:	Van Winkle S-21 HU (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	Van Winkle				
Site Position:		Northing:	14,447,369.50 usft	Latitude:	39.78172533
From:	Lat/Long	Easting:	1,717,168.44 usft	Longitude:	-80.72873327
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.175 °

Well	Van Winkle S-21 HU (slot B)					
Well Position	+N-S	0.00 ft	Northing:	14,447,299.99 usft	Latitude:	39.78153500
	+E-W	0.00 ft	Easting:	1,717,122.70 usft	Longitude:	-80.72896800
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	754.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/13/2020	-8.646	66.595	51,812.15593592

Design	rev3			
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	155.850

Plan Survey Tool Program	Date	12/21/2020		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	26,088.34 rev3 (Original Hole)	MWD	
			MWD - Standard	

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Van Winkle S-21 HU (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 754.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 754.00ft
Site:	Van Winkle	North Reference:	Grid
Well:	Van Winkle S-21 HU (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,400.00	0.00	0.000	1,400.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,550.00	3.00	230.000	1,549.93	-2.52	-3.01	2.00	2.00	0.00	230.000	
3,002.06	3.00	230.000	3,000.00	-51.37	-61.22	0.00	0.00	0.00	0.000	
3,302.06	9.00	230.000	3,298.22	-71.52	-85.23	2.00	2.00	0.00	0.000	
3,642.65	11.23	267.522	3,633.85	-90.10	-138.84	2.00	0.65	11.02	90.432	
10,165.71	11.23	267.522	10,032.04	-145.03	-1,407.90	0.00	0.00	0.00	0.000	
11,072.65	50.00	158.510	10,829.15	-499.10	-1,385.64	6.00	4.27	-12.02	-117.057	
11,569.30	89.00	150.181	11,000.00	-908.03	-1,164.36	8.00	7.85	-1.68	-13.097	
26,086.34	89.00	150.181	11,253.00	-13,502.82	6,054.37	0.00	0.00	0.00	0.000	Van Winkle S-21HU F

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Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle S-21 HU (slot B)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Van Winkle S-21 HU (slot B)
 TVD Reference: GL @ 754.00ft
 MD Reference: GL @ 754.00ft
 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	0.000	0.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
100.00	0.00	0.000	100.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
200.00	0.00	0.000	200.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
300.00	0.00	0.000	300.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
400.00	0.00	0.000	400.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
500.00	0.00	0.000	500.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
600.00	0.00	0.000	600.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
700.00	0.00	0.000	700.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
800.00	0.00	0.000	800.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
900.00	0.00	0.000	900.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,447,299.99	1,717,122.70	39.78153500	-80.72698800
KOP Begin 2°/100' build									
1,500.00	2.00	230.000	1,499.98	-1.12	-1.34	14,447,298.87	1,717,121.37	39.78153193	-80.72697277
1,550.00	3.00	230.000	1,549.93	-2.52	-3.01	14,447,297.47	1,717,119.70	39.78152810	-80.72697873
Begin 3.00° tangent									
1,600.00	3.00	230.000	1,599.86	-4.21	-5.01	14,447,295.78	1,717,117.89	39.78152349	-80.72698569
1,700.00	3.00	230.000	1,699.73	-7.57	-9.02	14,447,292.42	1,717,113.68	39.78151429	-80.72700019
1,800.00	3.00	230.000	1,799.59	-10.93	-13.03	14,447,289.06	1,717,109.67	39.78150508	-80.72701450
1,900.00	3.00	230.000	1,899.45	-14.30	-17.04	14,447,285.69	1,717,105.66	39.78149588	-80.72702881
2,000.00	3.00	230.000	1,999.31	-17.66	-21.05	14,447,282.33	1,717,101.65	39.78148667	-80.72704311
2,100.00	3.00	230.000	2,099.18	-21.03	-25.06	14,447,278.98	1,717,097.65	39.78147747	-80.72705742
2,200.00	3.00	230.000	2,199.04	-24.39	-29.07	14,447,275.60	1,717,093.64	39.78146826	-80.72707173
2,300.00	3.00	230.000	2,298.90	-27.75	-33.08	14,447,272.24	1,717,089.63	39.78145906	-80.72708603
2,400.00	3.00	230.000	2,398.77	-31.12	-37.09	14,447,268.87	1,717,085.62	39.78144985	-80.72710034
2,500.00	3.00	230.000	2,498.63	-34.48	-41.09	14,447,265.51	1,717,081.61	39.78144065	-80.72711465
2,600.00	3.00	230.000	2,598.49	-37.85	-45.10	14,447,262.14	1,717,077.60	39.78143144	-80.72712895
2,700.00	3.00	230.000	2,698.36	-41.21	-49.11	14,447,258.78	1,717,073.59	39.78142224	-80.72714326
2,800.00	3.00	230.000	2,798.22	-44.57	-53.12	14,447,255.42	1,717,069.58	39.78141303	-80.72715757
2,900.00	3.00	230.000	2,898.08	-47.94	-57.13	14,447,252.05	1,717,065.57	39.78140383	-80.72717187
3,000.00	3.00	230.000	2,997.94	-51.30	-61.14	14,447,248.69	1,717,061.56	39.78139462	-80.72718618
3,002.06	3.00	230.000	3,000.00	-51.37	-61.22	14,447,248.62	1,717,061.48	39.78139443	-80.72718648
Begin 2°/100' build									
3,100.00	4.96	230.000	3,097.70	-55.74	-66.43	14,447,244.25	1,717,056.27	39.78138248	-80.72720506
3,200.00	6.96	230.000	3,197.16	-62.41	-74.38	14,447,237.58	1,717,048.32	39.78136422	-80.72723343
3,300.00	8.96	230.000	3,296.19	-71.31	-84.99	14,447,228.68	1,717,037.72	39.78133987	-80.72727128
3,302.06	9.00	230.000	3,298.22	-71.52	-85.23	14,447,228.47	1,717,037.47	39.78133930	-80.72727216
Begin 2°/100' build/tum									
3,400.00	9.19	242.352	3,394.94	-80.08	-98.04	14,447,219.91	1,717,024.67	39.78131591	-80.72731782
3,500.00	9.80	253.933	3,493.58	-86.14	-113.29	14,447,213.85	1,717,009.41	39.78129939	-80.72737218
3,600.00	10.74	263.844	3,591.98	-94.49	-130.74	14,447,210.50	1,716,991.97	39.78129032	-80.72743431
3,642.65	11.23	267.522	3,633.85	-90.10	-138.84	14,447,209.89	1,716,983.87	39.78128873	-80.72746315
Begin 11.23° tangent									
3,700.00	11.23	267.522	3,690.10	-90.58	-149.99	14,447,209.41	1,716,972.71	39.78128749	-80.72750287
3,800.00	11.23	267.522	3,788.19	-91.42	-169.45	14,447,208.57	1,716,953.26	39.78128534	-80.72757213
3,900.00	11.23	267.522	3,886.27	-92.27	-188.90	14,447,207.72	1,716,933.80	39.78128319	-80.72764139
4,000.00	11.23	267.522	3,984.36	-93.11	-208.36	14,447,206.88	1,716,914.35	39.78128104	-80.72771064
4,100.00	11.23	267.522	4,082.45	-93.95	-227.81	14,447,206.04	1,716,894.89	39.78127889	-80.72777990
4,200.00	11.23	267.522	4,180.53	-94.79	-247.27	14,447,205.20	1,716,875.44	39.78127674	-80.72784916
4,300.00	11.23	267.522	4,278.62	-95.63	-266.72	14,447,204.36	1,716,855.98	39.78127459	-80.72791842
4,400.00	11.23	267.522	4,376.70	-96.48	-286.18	14,447,203.51	1,716,836.53	39.78127244	-80.72798767



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle S-21 HU (slot B)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Van Winkle S-21 HU (slot B)
 TVD Reference: GL @ 754.00ft
 MD Reference: GL @ 754.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,500.00	11.23	267.522	4,474.79	-87.32	-305.63	14,447,202.67	1,716,817.07	39.78127029	-80.72805693
4,600.00	11.23	267.522	4,572.87	-88.16	-325.09	14,447,201.83	1,716,797.62	39.78126814	-80.72812619
4,700.00	11.23	267.522	4,670.96	-89.00	-344.54	14,447,200.99	1,716,778.16	39.78126589	-80.72819545
4,800.00	11.23	267.522	4,769.04	-89.85	-364.00	14,447,200.15	1,716,758.71	39.78126384	-80.72826470
4,900.00	11.23	267.522	4,867.13	-100.69	-383.45	14,447,199.30	1,716,739.25	39.78126169	-80.72833396
5,000.00	11.23	267.522	4,965.22	-101.53	-402.91	14,447,198.46	1,716,719.80	39.78125954	-80.72840322
5,100.00	11.23	267.522	5,063.30	-102.37	-422.36	14,447,197.62	1,716,700.34	39.78125739	-80.72847247
5,200.00	11.23	267.522	5,161.39	-103.21	-441.82	14,447,196.78	1,716,680.89	39.78125524	-80.72854173
5,300.00	11.23	267.522	5,259.47	-104.06	-461.27	14,447,195.94	1,716,661.43	39.78125309	-80.72861099
5,400.00	11.23	267.522	5,357.56	-104.90	-480.73	14,447,195.09	1,716,641.98	39.78125094	-80.72868025
5,500.00	11.23	267.522	5,455.64	-105.74	-500.18	14,447,194.25	1,716,622.52	39.78124879	-80.72874950
5,600.00	11.23	267.522	5,553.73	-106.58	-519.64	14,447,193.41	1,716,603.07	39.78124664	-80.72881876
5,700.00	11.23	267.522	5,651.82	-107.42	-539.09	14,447,192.57	1,716,583.61	39.78124449	-80.72888802
5,800.00	11.23	267.522	5,749.90	-108.27	-558.55	14,447,191.73	1,716,564.16	39.78124234	-80.72895728
5,900.00	11.23	267.522	5,847.99	-109.11	-578.00	14,447,190.88	1,716,544.70	39.78124019	-80.72902654
6,000.00	11.23	267.522	5,946.07	-109.95	-597.46	14,447,190.04	1,716,525.25	39.78123803	-80.72909579
6,100.00	11.23	267.522	6,044.16	-110.79	-616.91	14,447,189.20	1,716,505.79	39.78123588	-80.72916505
6,200.00	11.23	267.522	6,142.24	-111.63	-636.37	14,447,188.36	1,716,486.33	39.78123373	-80.72923431
6,300.00	11.23	267.522	6,240.33	-112.48	-655.82	14,447,187.51	1,716,466.88	39.78123158	-80.72930356
6,400.00	11.23	267.522	6,338.41	-113.32	-675.28	14,447,186.67	1,716,447.42	39.78122943	-80.72937282
6,500.00	11.23	267.522	6,436.50	-114.16	-694.74	14,447,185.83	1,716,427.97	39.78122728	-80.72944208
6,600.00	11.23	267.522	6,534.59	-115.00	-714.19	14,447,184.99	1,716,408.51	39.78122513	-80.72951134
6,700.00	11.23	267.522	6,632.67	-115.84	-733.65	14,447,184.15	1,716,389.06	39.78122298	-80.72958059
6,800.00	11.23	267.522	6,730.76	-116.69	-753.10	14,447,183.30	1,716,369.60	39.78122083	-80.72964985
6,900.00	11.23	267.522	6,828.84	-117.53	-772.56	14,447,182.46	1,716,350.15	39.78121868	-80.72971911
7,000.00	11.23	267.522	6,926.93	-118.37	-792.01	14,447,181.62	1,716,330.69	39.78121652	-80.72978837
7,100.00	11.23	267.522	7,025.01	-119.21	-811.47	14,447,180.78	1,716,311.24	39.78121437	-80.72985762
7,200.00	11.23	267.522	7,123.10	-120.05	-830.92	14,447,179.94	1,716,291.78	39.78121222	-80.72992688
7,300.00	11.23	267.522	7,221.19	-120.90	-850.38	14,447,179.09	1,716,272.33	39.78121007	-80.72999614
7,400.00	11.23	267.522	7,319.27	-121.74	-869.83	14,447,178.25	1,716,252.87	39.78120792	-80.73006539
7,500.00	11.23	267.522	7,417.36	-122.58	-889.29	14,447,177.41	1,716,233.42	39.78120577	-80.73013465
7,600.00	11.23	267.522	7,515.44	-123.42	-908.74	14,447,176.57	1,716,213.96	39.78120362	-80.73020391
7,700.00	11.23	267.522	7,613.53	-124.26	-928.20	14,447,175.73	1,716,194.51	39.78120146	-80.73027317
7,800.00	11.23	267.522	7,711.61	-125.11	-947.65	14,447,174.88	1,716,175.05	39.78119931	-80.73034242
7,900.00	11.23	267.522	7,809.70	-125.95	-967.11	14,447,174.04	1,716,155.60	39.78119716	-80.73041168
8,000.00	11.23	267.522	7,907.79	-126.79	-986.56	14,447,173.20	1,716,136.14	39.78119501	-80.73048094
8,100.00	11.23	267.522	8,005.87	-127.63	-1,006.02	14,447,172.36	1,716,116.69	39.78119286	-80.73055020
8,200.00	11.23	267.522	8,103.96	-128.47	-1,025.47	14,447,171.52	1,716,097.23	39.78119071	-80.73061945
8,300.00	11.23	267.522	8,202.04	-129.32	-1,044.93	14,447,170.67	1,716,077.78	39.78118855	-80.73068871
8,400.00	11.23	267.522	8,300.13	-130.16	-1,064.38	14,447,169.83	1,716,058.32	39.78118640	-80.73075797
8,500.00	11.23	267.522	8,398.21	-131.00	-1,083.84	14,447,168.99	1,716,038.87	39.78118425	-80.73082722
8,600.00	11.23	267.522	8,496.30	-131.84	-1,103.29	14,447,168.15	1,716,019.41	39.78118210	-80.73089648
8,700.00	11.23	267.522	8,594.38	-132.69	-1,122.75	14,447,167.31	1,715,999.96	39.78117995	-80.73096574
8,800.00	11.23	267.522	8,692.47	-133.53	-1,142.20	14,447,166.46	1,715,980.50	39.78117779	-80.73103500
8,900.00	11.23	267.522	8,790.56	-134.37	-1,161.66	14,447,165.62	1,715,961.05	39.78117564	-80.73110425
9,000.00	11.23	267.522	8,888.64	-135.21	-1,181.11	14,447,164.78	1,715,941.59	39.78117349	-80.73117351
9,100.00	11.23	267.522	8,986.73	-136.05	-1,200.57	14,447,163.94	1,715,922.14	39.78117134	-80.73124277
9,200.00	11.23	267.522	9,084.81	-136.90	-1,220.02	14,447,163.10	1,715,902.69	39.78116919	-80.73131203
9,300.00	11.23	267.522	9,182.90	-137.74	-1,239.48	14,447,162.25	1,715,883.23	39.78116703	-80.73138128
9,400.00	11.23	267.522	9,280.98	-138.58	-1,258.93	14,447,161.41	1,715,863.77	39.78116488	-80.73145054
9,500.00	11.23	267.522	9,379.07	-139.42	-1,278.39	14,447,160.57	1,715,844.32	39.78116273	-80.73151980
9,600.00	11.23	267.522	9,477.16	-140.26	-1,297.84	14,447,159.73	1,715,824.86	39.78116058	-80.73158905
9,700.00	11.23	267.522	9,575.24	-141.11	-1,317.30	14,447,158.89	1,715,805.41	39.78115842	-80.73165831
9,800.00	11.23	267.522	9,673.33	-141.95	-1,336.75	14,447,158.04	1,715,785.95	39.78115627	-80.73172757
9,900.00	11.23	267.522	9,771.41	-142.79	-1,356.21	14,447,157.20	1,715,766.50	39.78115412	-80.73179683



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle S-21 HU (slot B)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Van Winkle S-21 HU (slot B)
 TVD Reference: GL @ 754.00ft
 MD Reference: GL @ 754.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,000.00	11.23	267.522	9,869.50	-143.63	-1,375.66	14,447,156.36	1,715,747.04	39.78115187	-80.73186608
10,100.00	11.23	267.522	9,967.58	-144.47	-1,395.12	14,447,155.52	1,715,727.59	39.78114981	-80.73193534
10,165.71	11.23	267.522	10,032.04	-145.03	-1,407.90	14,447,154.96	1,715,714.81	39.78114840	-80.73198085
Begin 6°/100' build/turm									
10,200.00	10.45	257.372	10,065.72	-145.85	-1,414.27	14,447,154.14	1,715,708.43	39.78114619	-80.73200354
10,300.00	10.39	223.745	10,164.16	-154.36	-1,429.38	14,447,145.63	1,715,693.33	39.78112295	-80.73205739
10,400.00	13.34	197.941	10,262.07	-171.87	-1,439.18	14,447,120.12	1,715,683.53	39.78107493	-80.73208246
10,500.00	17.87	163.113	10,358.40	-198.20	-1,443.57	14,447,101.79	1,715,679.14	39.78100267	-80.73210938
10,600.00	23.08	174.441	10,452.08	-233.05	-1,442.50	14,447,086.94	1,715,680.20	39.78090696	-80.73210496
10,700.00	28.56	168.887	10,542.08	-276.04	-1,435.99	14,447,023.95	1,715,688.71	39.78078884	-80.73208224
10,800.00	34.22	165.021	10,627.42	-326.70	-1,424.11	14,446,973.29	1,715,698.60	39.78064961	-80.73204047
10,900.00	39.86	162.144	10,707.16	-384.48	-1,406.98	14,446,915.51	1,715,715.73	39.78049079	-80.73198012
11,000.00	45.76	159.886	10,780.43	-448.74	-1,384.79	14,446,851.25	1,715,737.91	39.78031413	-80.73190184
11,072.65	50.00	158.510	10,829.15	-499.10	-1,365.64	14,446,800.89	1,715,757.07	39.78017588	-80.73183420
Begin 8°/100' build/turm									
11,100.00	52.13	157.882	10,846.33	-518.85	-1,357.74	14,446,781.14	1,715,764.97	39.78021238	-80.73180628
11,200.00	59.95	155.856	10,902.15	-595.03	-1,325.12	14,446,704.86	1,715,787.59	39.77991188	-80.73169100
11,300.00	67.80	154.129	10,946.15	-676.32	-1,287.15	14,446,623.67	1,715,835.55	39.77968835	-80.73155673
11,400.00	75.87	152.586	10,977.46	-761.11	-1,244.58	14,446,538.88	1,715,878.13	39.77945512	-80.73140610
11,500.00	83.54	151.148	10,995.49	-847.77	-1,198.23	14,446,452.22	1,715,924.48	39.77921675	-80.73124204
11,569.29	89.00	150.181	11,000.00	-908.03	-1,164.36	14,446,391.97	1,715,958.34	39.77905100	-80.73112215
Begin 89.00° lateral									
11,500.00	89.00	150.181	11,000.53	-934.67	-1,149.09	14,446,365.33	1,715,973.61	39.77897771	-80.73106809
11,700.00	89.00	150.181	11,002.27	-1,021.41	-1,099.37	14,446,278.58	1,716,023.33	39.77873908	-80.73089206
11,800.00	89.00	150.181	11,004.02	-1,108.16	-1,049.66	14,446,191.83	1,716,073.05	39.77850044	-80.73071602
11,900.00	89.00	150.181	11,005.76	-1,184.91	-999.94	14,446,105.09	1,716,122.77	39.77826180	-80.73053999
12,000.00	89.00	150.181	11,007.50	-1,281.65	-950.22	14,446,018.34	1,716,172.49	39.77802316	-80.73036395
12,100.00	89.00	150.181	11,009.24	-1,388.40	-900.50	14,445,931.59	1,716,222.21	39.77778452	-80.73018792
12,200.00	89.00	150.181	11,010.99	-1,455.15	-850.78	14,445,844.85	1,716,271.93	39.77754587	-80.73001189
12,300.00	89.00	150.181	11,012.73	-1,541.89	-801.06	14,445,758.10	1,716,321.65	39.77730723	-80.72983586
12,400.00	89.00	150.181	11,014.47	-1,628.64	-751.34	14,445,671.35	1,716,371.36	39.77706859	-80.72965984
12,500.00	89.00	150.181	11,016.21	-1,715.39	-701.62	14,445,584.61	1,716,421.08	39.77682995	-80.72948381
12,600.00	89.00	150.181	11,017.96	-1,802.13	-651.90	14,445,497.86	1,716,470.80	39.77659131	-80.72930778
12,700.00	89.00	150.181	11,019.70	-1,888.88	-602.18	14,445,411.12	1,716,520.52	39.77635287	-80.72913176
12,800.00	89.00	150.181	11,021.44	-1,975.63	-552.46	14,445,324.37	1,716,570.24	39.77611402	-80.72895574
12,900.00	89.00	150.181	11,023.19	-2,062.37	-502.75	14,445,237.62	1,716,619.96	39.77587538	-80.72877972
13,000.00	89.00	150.181	11,024.93	-2,149.12	-453.03	14,445,150.88	1,716,669.68	39.77563674	-80.72860369
13,100.00	89.00	150.181	11,026.67	-2,235.87	-403.31	14,445,064.13	1,716,719.40	39.77539810	-80.72842768
13,200.00	89.00	150.181	11,028.41	-2,322.61	-353.59	14,444,977.38	1,716,769.12	39.77515945	-80.72825166
13,300.00	89.00	150.181	11,030.16	-2,409.36	-303.87	14,444,890.64	1,716,818.83	39.77492081	-80.72807564
13,400.00	89.00	150.181	11,031.90	-2,496.11	-254.15	14,444,803.89	1,716,868.55	39.77468217	-80.72789963
13,500.00	89.00	150.181	11,033.64	-2,582.85	-204.43	14,444,717.14	1,716,918.27	39.77444352	-80.72772361
13,600.00	89.00	150.181	11,035.38	-2,669.60	-154.71	14,444,630.40	1,716,967.99	39.77420488	-80.72754760
13,700.00	89.00	150.181	11,037.13	-2,756.35	-104.99	14,444,543.65	1,717,017.71	39.77396623	-80.72737159
13,800.00	89.00	150.181	11,038.87	-2,843.09	-55.27	14,444,456.90	1,717,067.43	39.77372759	-80.72719557
13,900.00	89.00	150.181	11,040.61	-2,929.84	-5.56	14,444,370.16	1,717,117.15	39.77348894	-80.72701957
14,000.00	89.00	150.181	11,042.35	-3,016.59	44.16	14,444,283.41	1,717,166.87	39.77325030	-80.72684356
14,100.00	89.00	150.181	11,044.10	-3,103.33	93.88	14,444,196.66	1,717,216.59	39.77301185	-80.72666755
14,200.00	89.00	150.181	11,045.84	-3,190.08	143.60	14,444,109.92	1,717,266.30	39.77277300	-80.72649154
14,300.00	89.00	150.181	11,047.58	-3,276.83	193.32	14,444,023.17	1,717,316.02	39.77253436	-80.72631554
14,400.00	89.00	150.181	11,049.32	-3,363.57	243.04	14,443,936.42	1,717,365.74	39.77229571	-80.72613954
14,500.00	89.00	150.181	11,051.07	-3,450.32	292.76	14,443,849.68	1,717,415.46	39.77205706	-80.72596353
14,600.00	89.00	150.181	11,052.81	-3,537.07	342.48	14,443,762.93	1,717,465.18	39.77181842	-80.72578753
14,700.00	89.00	150.181	11,054.55	-3,623.81	392.20	14,443,676.19	1,717,514.90	39.77157977	-80.72561153



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle S-21 HU (slot B)
 Wellbore: Original Hole
 Design: rev3

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

Well Van Winkle S-21 HU (slot B)
 GL @ 754.00ft
 GL @ 754.00ft
 Grid
 Minimum Curvature

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 JAN 19 2021

WV Department of
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,800.00	89.00	150.181	11,058.29	-3,710.56	441.92	14,443,599.44	1,717,564.62	39.77134112	-80.72543553
14,900.00	89.00	150.181	11,058.04	-3,797.31	491.63	14,443,502.69	1,717,814.34	39.77110247	-80.72525954
15,000.00	89.00	150.181	11,059.78	-3,884.05	541.35	14,443,415.95	1,717,664.06	39.77086382	-80.72508354
15,100.00	89.00	150.181	11,061.52	-3,970.80	591.07	14,443,329.20	1,717,713.77	39.77082518	-80.72490755
15,200.00	89.00	150.181	11,063.26	-4,057.55	640.79	14,443,242.45	1,717,763.49	39.77038653	-80.72473155
15,300.00	89.00	150.181	11,065.01	-4,144.29	690.51	14,443,155.71	1,717,813.21	39.77014788	-80.72455556
15,400.00	89.00	150.181	11,066.75	-4,231.04	740.23	14,443,068.96	1,717,862.93	39.76990923	-80.72437957
15,500.00	89.00	150.181	11,068.49	-4,317.79	789.95	14,442,982.21	1,717,912.65	39.76967058	-80.72420358
15,600.00	89.00	150.181	11,070.23	-4,404.53	839.67	14,442,895.47	1,717,962.37	39.76943193	-80.72402759
15,700.00	89.00	150.181	11,071.98	-4,491.28	889.39	14,442,808.72	1,718,012.09	39.76919328	-80.72385160
15,800.00	89.00	150.181	11,073.72	-4,578.03	939.11	14,442,721.97	1,718,061.81	39.76895483	-80.72367561
15,900.00	89.00	150.181	11,075.46	-4,664.77	988.82	14,442,635.23	1,718,111.53	39.76871598	-80.72349963
16,000.00	89.00	150.181	11,077.20	-4,751.52	1,038.54	14,442,548.48	1,718,161.25	39.76847733	-80.72332365
16,100.00	89.00	150.181	11,078.95	-4,838.27	1,088.26	14,442,461.73	1,718,210.96	39.76823868	-80.72314766
16,200.00	89.00	150.181	11,080.69	-4,925.01	1,137.98	14,442,374.99	1,718,260.68	39.76800002	-80.72297168
16,300.00	89.00	150.181	11,082.43	-5,011.76	1,187.70	14,442,288.24	1,718,310.40	39.76776137	-80.72279570
16,400.00	89.00	150.181	11,084.17	-5,098.51	1,237.42	14,442,201.50	1,718,360.12	39.76752272	-80.72261972
16,500.00	89.00	150.181	11,085.92	-5,185.25	1,287.14	14,442,114.75	1,718,409.84	39.76728407	-80.72244374
16,600.00	89.00	150.181	11,087.66	-5,272.00	1,336.86	14,442,028.00	1,718,459.56	39.76704542	-80.72226777
16,700.00	89.00	150.181	11,089.40	-5,358.75	1,386.58	14,441,941.28	1,718,509.28	39.76680676	-80.72209179
16,800.00	89.00	150.181	11,091.14	-5,445.49	1,436.30	14,441,854.51	1,718,559.00	39.76656811	-80.72191582
16,900.00	89.00	150.181	11,092.88	-5,532.24	1,486.01	14,441,767.76	1,718,608.72	39.76632946	-80.72173984
17,000.00	89.00	150.181	11,094.63	-5,618.99	1,535.73	14,441,681.02	1,718,658.43	39.76609080	-80.72156387
17,100.00	89.00	150.181	11,096.37	-5,705.73	1,585.45	14,441,594.27	1,718,708.15	39.76585215	-80.72138790
17,200.00	89.00	150.181	11,098.12	-5,792.48	1,635.17	14,441,507.52	1,718,757.87	39.76561349	-80.72121193
17,300.00	89.00	150.181	11,099.86	-5,879.23	1,684.89	14,441,420.78	1,718,807.59	39.76537484	-80.72103596
17,400.00	89.00	150.181	11,101.60	-5,965.97	1,734.61	14,441,334.03	1,718,857.31	39.76513618	-80.72086000
17,500.00	89.00	150.181	11,103.34	-6,052.72	1,784.33	14,441,247.28	1,718,907.03	39.76489753	-80.72068403
17,600.00	89.00	150.181	11,105.09	-6,139.47	1,834.05	14,441,160.54	1,718,956.75	39.76465887	-80.72050807
17,700.00	89.00	150.181	11,106.83	-6,226.21	1,883.77	14,441,073.79	1,719,006.47	39.76442022	-80.72033210
17,800.00	89.00	150.181	11,108.57	-6,312.96	1,933.49	14,440,987.04	1,719,056.19	39.76418156	-80.72015614
17,900.00	89.00	150.181	11,110.31	-6,399.71	1,983.20	14,440,900.30	1,719,105.90	39.76394291	-80.71998018
18,000.00	89.00	150.181	11,112.06	-6,486.45	2,032.92	14,440,813.55	1,719,155.62	39.76370425	-80.71980422
18,100.00	89.00	150.181	11,113.80	-6,573.20	2,082.64	14,440,726.80	1,719,205.34	39.76346559	-80.71962826
18,200.00	89.00	150.181	11,115.54	-6,659.95	2,132.36	14,440,640.05	1,719,255.06	39.76322694	-80.71945230
18,300.00	89.00	150.181	11,117.28	-6,746.69	2,182.08	14,440,553.31	1,719,304.78	39.76298828	-80.71927635
18,400.00	89.00	150.181	11,119.03	-6,833.44	2,231.80	14,440,466.57	1,719,354.50	39.76274962	-80.71910039
18,500.00	89.00	150.181	11,120.77	-6,920.19	2,281.52	14,440,379.82	1,719,404.22	39.76251096	-80.71892444
18,600.00	89.00	150.181	11,122.51	-7,006.93	2,331.24	14,440,293.07	1,719,453.94	39.76227230	-80.71874849
18,700.00	89.00	150.181	11,124.25	-7,093.68	2,380.96	14,440,206.33	1,719,503.66	39.76203365	-80.71857253
18,800.00	89.00	150.181	11,126.00	-7,180.43	2,430.68	14,440,119.58	1,719,553.37	39.76179499	-80.71839658
18,900.00	89.00	150.181	11,127.74	-7,267.17	2,480.40	14,440,032.83	1,719,603.09	39.76155633	-80.71822063
19,000.00	89.00	150.181	11,129.48	-7,353.92	2,530.11	14,439,946.09	1,719,652.81	39.76131767	-80.71804469
19,100.00	89.00	150.181	11,131.22	-7,440.67	2,579.83	14,439,859.34	1,719,702.53	39.76107901	-80.71786874
19,200.00	89.00	150.181	11,132.97	-7,527.41	2,629.55	14,439,772.59	1,719,752.25	39.76084035	-80.71769280
19,300.00	89.00	150.181	11,134.71	-7,614.16	2,679.27	14,439,685.85	1,719,801.97	39.76060169	-80.71751685
19,400.00	89.00	150.181	11,136.45	-7,700.91	2,728.99	14,439,599.10	1,719,851.69	39.76036303	-80.71734091
19,500.00	89.00	150.181	11,138.19	-7,787.65	2,778.71	14,439,512.35	1,719,901.41	39.76012437	-80.71716497
19,600.00	89.00	150.181	11,139.94	-7,874.40	2,828.43	14,439,425.61	1,719,951.13	39.75988571	-80.71698903
19,700.00	89.00	150.181	11,141.68	-7,961.15	2,878.15	14,439,338.86	1,720,000.85	39.75964705	-80.71681309
19,800.00	89.00	150.181	11,143.42	-8,047.89	2,927.87	14,439,252.11	1,720,050.56	39.75940839	-80.71663715
19,900.00	89.00	150.181	11,145.16	-8,134.64	2,977.59	14,439,165.37	1,720,100.28	39.75916972	-80.71646121
20,000.00	89.00	150.181	11,146.91	-8,221.39	3,027.30	14,439,078.62	1,720,150.00	39.75893106	-80.71628528
20,100.00	89.00	150.181	11,148.65	-8,308.13	3,077.02	14,438,991.88	1,720,199.72	39.75869240	-80.71610934
20,200.00	89.00	150.181	11,150.39	-8,394.88	3,126.74	14,438,905.13	1,720,249.44	39.75845374	-80.71593341



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle S-21 HU (slot B)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Van Winkle S-21 HU (slot B)
 TVD Reference: GL @ 754.00ft
 MD Reference: GL @ 754.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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 Office of Oil and Gas
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WV Department of
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,300.00	89.00	150.181	11,152.13	-8,481.63	3,176.46	14,438,818.38	1,720,299.16	39.75821508	-80.71575748
20,400.00	89.00	150.181	11,153.88	-8,568.37	3,226.18	14,438,731.64	1,720,348.88	39.75797641	-80.71558155
20,500.00	89.00	150.181	11,155.62	-8,655.12	3,275.90	14,438,644.89	1,720,398.60	39.75773775	-80.71540562
20,600.00	89.00	150.181	11,157.36	-8,741.87	3,325.62	14,438,558.14	1,720,448.32	39.75749909	-80.71522969
20,700.00	89.00	150.181	11,159.10	-8,828.61	3,375.34	14,438,471.40	1,720,498.03	39.75726042	-80.71505376
20,800.00	89.00	150.181	11,160.85	-8,915.36	3,425.06	14,438,384.65	1,720,547.75	39.75702176	-80.71487784
20,900.00	89.00	150.181	11,162.59	-9,002.11	3,474.78	14,438,297.90	1,720,597.47	39.75678309	-80.71470191
21,000.00	89.00	150.181	11,164.33	-9,088.85	3,524.49	14,438,211.16	1,720,647.19	39.75654443	-80.71452599
21,100.00	89.00	150.181	11,166.08	-9,175.60	3,574.21	14,438,124.41	1,720,696.91	39.75630576	-80.71435006
21,200.00	89.00	150.181	11,167.82	-9,262.35	3,623.93	14,438,037.66	1,720,746.63	39.75606710	-80.71417414
21,300.00	89.00	150.181	11,169.56	-9,349.09	3,673.65	14,437,950.92	1,720,796.35	39.75582843	-80.71399822
21,400.00	89.00	150.181	11,171.30	-9,435.84	3,723.37	14,437,864.17	1,720,846.07	39.75558977	-80.71382231
21,500.00	89.00	150.181	11,173.05	-9,522.59	3,773.09	14,437,777.42	1,720,895.79	39.75535110	-80.71364639
21,600.00	89.00	150.181	11,174.79	-9,609.33	3,822.81	14,437,690.66	1,720,945.50	39.75511243	-80.71347047
21,700.00	89.00	150.181	11,176.53	-9,696.08	3,872.53	14,437,603.93	1,720,995.22	39.75487377	-80.71329456
21,800.00	89.00	150.181	11,178.27	-9,782.83	3,922.25	14,437,517.18	1,721,044.94	39.75463510	-80.71311864
21,900.00	89.00	150.181	11,180.02	-9,869.57	3,971.97	14,437,430.44	1,721,094.66	39.75439643	-80.71294273
22,000.00	89.00	150.181	11,181.76	-9,956.32	4,021.68	14,437,343.69	1,721,144.38	39.75415777	-80.71276682
22,100.00	89.00	150.181	11,183.50	-10,043.07	4,071.40	14,437,256.95	1,721,194.10	39.75391910	-80.71259091
22,200.00	89.00	150.181	11,185.24	-10,129.81	4,121.12	14,437,170.20	1,721,243.82	39.75368043	-80.71241500
22,300.00	89.00	150.181	11,186.99	-10,216.56	4,170.84	14,437,083.45	1,721,293.54	39.75344176	-80.71223909
22,400.00	89.00	150.181	11,188.73	-10,303.31	4,220.56	14,436,996.71	1,721,343.26	39.75320309	-80.71206319
22,500.00	89.00	150.181	11,190.47	-10,390.05	4,270.28	14,436,909.96	1,721,392.97	39.75296443	-80.71188728
22,600.00	89.00	150.181	11,192.21	-10,476.80	4,320.00	14,436,823.21	1,721,442.69	39.75272576	-80.71171138
22,700.00	89.00	150.181	11,193.96	-10,563.55	4,369.72	14,436,736.47	1,721,492.41	39.75248709	-80.71153547
22,800.00	89.00	150.181	11,195.70	-10,650.29	4,419.44	14,436,649.72	1,721,542.13	39.75224842	-80.71135957
22,900.00	89.00	150.181	11,197.44	-10,737.04	4,469.16	14,436,562.97	1,721,591.85	39.75200975	-80.71118367
23,000.00	89.00	150.181	11,199.18	-10,823.79	4,518.87	14,436,476.23	1,721,641.57	39.75177108	-80.71100777
23,100.00	89.00	150.181	11,200.93	-10,910.53	4,568.59	14,436,389.48	1,721,691.29	39.75153241	-80.71083187
23,200.00	89.00	150.181	11,202.67	-10,997.28	4,618.31	14,436,302.73	1,721,741.01	39.75129374	-80.71065596
23,300.00	89.00	150.181	11,204.41	-11,084.03	4,668.03	14,436,215.99	1,721,790.73	39.75105507	-80.71048006
23,400.00	89.00	150.181	11,206.15	-11,170.77	4,717.75	14,436,129.24	1,721,840.45	39.75081640	-80.71030419
23,500.00	89.00	150.181	11,207.90	-11,257.52	4,767.47	14,436,042.49	1,721,890.16	39.75057772	-80.71012829
23,600.00	89.00	150.181	11,209.64	-11,344.27	4,817.19	14,435,955.75	1,721,939.88	39.75033905	-80.70995240
23,700.00	89.00	150.181	11,211.38	-11,431.01	4,866.91	14,435,869.00	1,721,989.60	39.75010038	-80.70977651
23,800.00	89.00	150.181	11,213.12	-11,517.76	4,916.63	14,435,782.26	1,722,039.32	39.74985171	-80.70960062
23,900.00	89.00	150.181	11,214.87	-11,604.51	4,966.35	14,435,695.51	1,722,089.04	39.74962304	-80.70942473
24,000.00	89.00	150.181	11,216.61	-11,691.25	5,016.07	14,435,608.76	1,722,138.76	39.74939436	-80.70924885
24,100.00	89.00	150.181	11,218.35	-11,778.00	5,065.78	14,435,522.02	1,722,188.48	39.74916569	-80.70907296
24,200.00	89.00	150.181	11,220.09	-11,864.75	5,115.50	14,435,435.27	1,722,238.20	39.74893702	-80.70889707
24,300.00	89.00	150.181	11,221.84	-11,951.49	5,165.22	14,435,348.52	1,722,287.92	39.74870834	-80.70872119
24,400.00	89.00	150.181	11,223.58	-12,038.24	5,214.94	14,435,261.78	1,722,337.63	39.74847967	-80.70854531
24,500.00	89.00	150.181	11,225.32	-12,124.99	5,264.66	14,435,175.03	1,722,387.35	39.74825100	-80.70836943
24,600.00	89.00	150.181	11,227.06	-12,211.73	5,314.38	14,435,088.28	1,722,437.07	39.74802232	-80.70819355
24,700.00	89.00	150.181	11,228.81	-12,298.48	5,364.10	14,435,001.54	1,722,486.79	39.74779365	-80.70801767
24,800.00	89.00	150.181	11,230.55	-12,385.23	5,413.82	14,434,914.79	1,722,536.51	39.74756497	-80.70784179
24,900.00	89.00	150.181	11,232.29	-12,471.97	5,463.54	14,434,828.04	1,722,586.23	39.74733630	-80.70766592
25,000.00	89.00	150.181	11,234.04	-12,558.72	5,513.26	14,434,741.30	1,722,635.95	39.74710762	-80.70749004
25,100.00	89.00	150.181	11,235.78	-12,645.47	5,562.97	14,434,654.55	1,722,685.67	39.74687894	-80.70731417
25,200.00	89.00	150.181	11,237.52	-12,732.21	5,612.69	14,434,567.80	1,722,735.39	39.74665027	-80.70713829
25,300.00	89.00	150.181	11,239.26	-12,818.96	5,662.41	14,434,481.06	1,722,785.10	39.74642159	-80.70696242
25,400.00	89.00	150.181	11,241.01	-12,905.71	5,712.13	14,434,394.31	1,722,834.82	39.74619291	-80.70678655
25,500.00	89.00	150.181	11,242.75	-12,992.45	5,761.85	14,434,307.56	1,722,884.54	39.74596424	-80.70661068
25,600.00	89.00	150.181	11,244.49	-13,079.20	5,811.57	14,434,220.82	1,722,934.26	39.74573556	-80.70643482
25,700.00	89.00	150.181	11,246.23	-13,165.95	5,861.29	14,434,134.07	1,722,983.98	39.74550688	-80.70625895



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Van Winkle S-21 HU (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 754.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 754.00ft
Site:	Van Winkle	North Reference:	Grid
Well:	Van Winkle S-21 HU (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

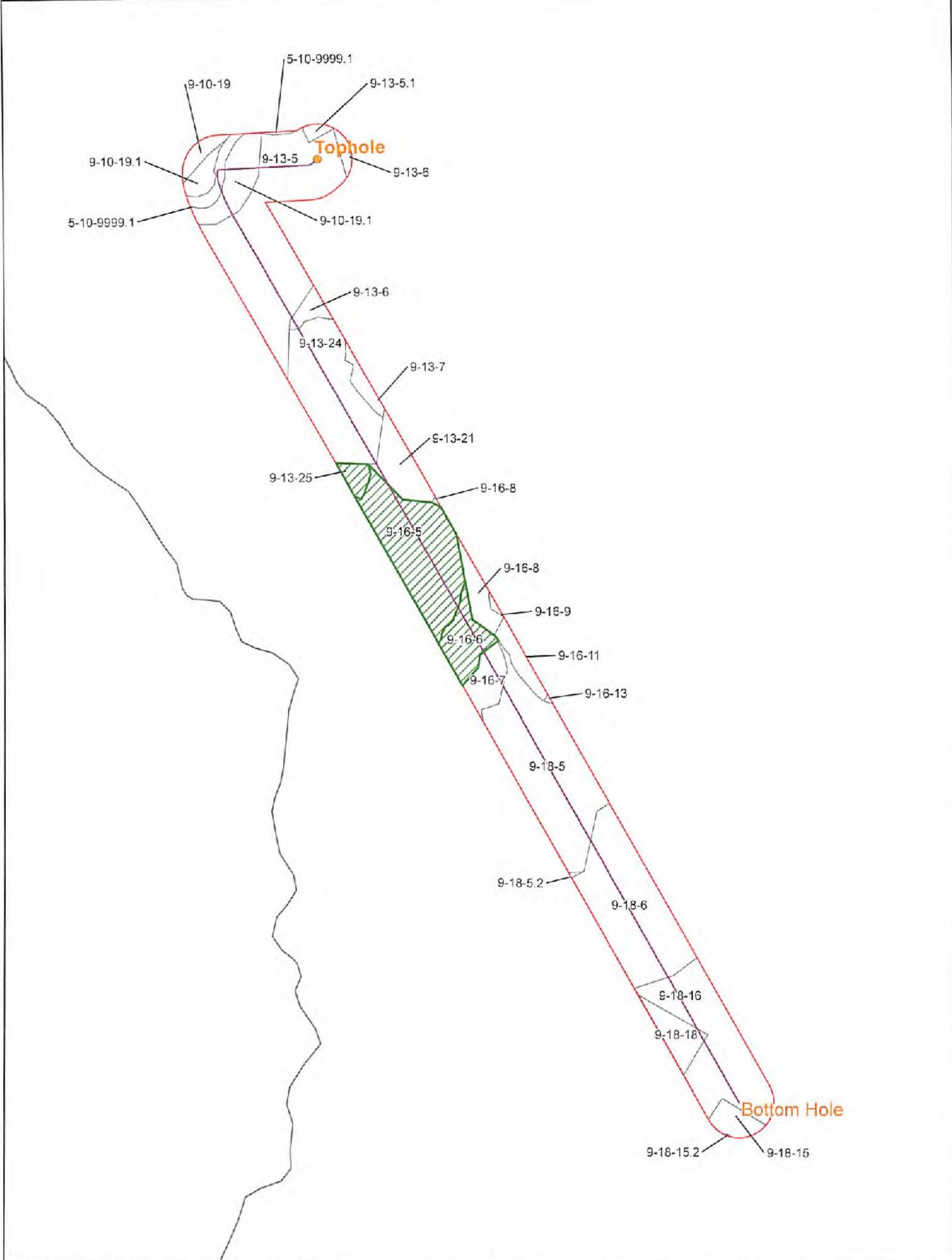
Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25,800.00	89.00	150.181	11,247.98	-13,252.89	5,911.01	14,434,047.33	1,723,033.70	39.74508821	-80.70608308
25,900.00	89.00	150.181	11,249.72	-13,339.44	5,960.73	14,433,960.58	1,723,083.42	39.74484953	-80.70590722
26,000.00	89.00	150.181	11,251.46	-13,428.19	6,010.45	14,433,873.83	1,723,133.14	39.74461085	-80.70573136
26,088.33	89.00	150.181	11,253.00	-13,502.81	6,054.36	14,433,797.21	1,723,177.05	39.74440002	-80.70557602
PBHL/TD 26088.33 MD/11253.00 TVD									
26,088.34	89.00	150.181	11,253.00	-13,502.82	6,054.37	14,433,797.20	1,723,177.06	39.74440000	-80.70557600

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Van Winkle S-21HU LP - hit/miss target - Shape	0.00	0.000	11,000.00	-908.03	-1,164.32	14,446,391.97	1,715,958.39	39.77905100	-80.73112200
- plan misses target center by 0.04ft at 11569.31ft MD (11000.00 TVD, -908.04 N, -1184.35 E)									
- Point									
Van Winkle S-21HU PB - plan hits target center - Point	0.00	0.000	11,253.00	-13,502.82	6,054.37	14,433,797.20	1,723,177.06	39.74440000	-80.70557600

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.00	1,400.00	0.00	0.00	KOP Begin 2°/100' build
1,550.00	1,549.93	-2.52	-3.01	Begin 3.00° tangent
3,002.06	3,000.00	-51.37	-61.22	Begin 2°/100' build
3,302.06	3,298.22	-71.52	-85.23	Begin 2°/100' build/turn
3,642.65	3,633.85	-90.10	-138.84	Begin 11.23° tangent
10,165.71	10,032.04	-145.03	-1,407.90	Begin 6°/100' build/turn
11,072.65	10,829.15	-499.10	-1,385.64	Begin 8°/100' build/turn
11,569.29	11,000.00	-908.03	-1,164.36	Begin 89.00° lateral
26,088.33	11,253.00	-13,502.81	6,054.36	PBHL/TD 26088.33 MD/11253.00 TVD

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Van Winkle S-21HU



Coordinate System: NAD 83 / UTM Zone 17N
 Projection: Transverse Mercator
 Datum: North American 1983
 Spheroid: GRS 1980
 Prime Meridian: 0.0000
 Central Meridian: 41.0000
 Scale Factor: 0.9999
 False Easting: 500000
 Units: Feet US

CONFIDENTIAL

0 11,000 22,000 44,000 Feet

TUG HILL OPERATING

- Utica Well
- Force Pool
- 500' Buffer

Van Winkle S-21HU
Operators within 500 Feet of Well Borehole



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. IHS 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 (12/04/2020) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with IHS 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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Permit well - Van Winkle S-21HU

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" (2 1000' is max limit) would assign to wells that might be within in range of fracture propagation	Comments
4705101310	Tug Hill Operating	10154' MD, 6151' TVD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well. Tug Hill Operating is considering plugging this well.
4705101284	Tug Hill Operating	6340' TVD	None	None	Yes, existing vertical pilot drilled into Onondaga. Well was not perforated. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Well is not producing.
4705101859	EQT Production Company	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705101860	EQT Production Company	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705101866	EQT Production Company	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705101845	EQT Production Company	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705101847	EQT Production Company	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705100505	Fruchtman, M.	2444' TVD	Big Injun	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 9/4/1963.
4705100516	Fruchtman, M.	1661' TVD	Big Injun	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 10/16/1963.
4705130404	Wilhelm & Jackson	2955' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 10/6/1959.
4705130407	Wilhelm & Jackson	2985' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 10/30/1959.
4705130441	Manufacturers Light & Heat Co.	2980' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 5/14/1962
4705170197	Hope Natural Gas Company	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Point Pleasant well.	State records are incomplete.
4705100827	Perkins Oil and Gas, Inc.	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Point Pleasant well.	State records are incomplete.
4705101217	CNX Gas Co. LLC (North)	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.
4705101218	CNX Gas Co. LLC (North)	No Depth/Not Drilled	None	None	No, well is a proposed well. The well was not drilled. This is a canceled permit.	A canceled permit.

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Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705100505	Marshall	505	Meado	Glen Easton	Cameron	39 780144	-80 733702	522803 9	4403389 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	YFM_EST_PR
4705100505	7/17/1963	Original Loc	Completed	C.B. Smith et al	1				C.B. Smith	Frustrman, M			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705100505	7/17/1963	6/10/1963	682	Ground Level	Unarmed	Price Fm & equivs	Price Fm & equivs	Outpost (Extension)	Test	Unsuccessful	Dry w/ Gas Show	Cable Tool	Fractured	2444		2444	0	16	0	0	0	0	0	0	0	415	40	

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
4705100505	7/17/1963	Water	Unknown Water	Vertical			160						3
4705100505	7/17/1963	Water	Unknown Water	Vertical			1042						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
4705100505	Original Loc	Pittsburgh coal	Well Record	310	Reasonable	7	Reasonable	661 Ground Level
4705100505	Original Loc	1st Covr Rn/Moundsville	Past WVGES Staff Geologist	672	Reasonable	18	Reasonable	661 Ground Level
4705100505	Original Loc	1st Salt Sand	Past WVGES Staff Geologist	1033	Reasonable	23	Reasonable	661 Ground Level
4705100505	Original Loc	2nd Salt Sand	Past WVGES Staff Geologist	1118	Reasonable	47	Reasonable	661 Ground Level
4705100505	Original Loc	3rd Salt Sand	Past WVGES Staff Geologist	1235	Reasonable	90	Reasonable	661 Ground Level
4705100505	Original Loc	Big Lime	Well Record	1358	Reasonable	52	Reasonable	661 Ground Level
4705100505	Original Loc	Greenbrier Group	Well Record	1358	Reasonable	52	Reasonable	661 Ground Level
4705100505	Original Loc	Big Injun (Priceless)	Past WVGES Staff Geologist	1410	Reasonable	260	Reasonable	661 Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100505	9/4/1963	0

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAY_DD	LOH_DD	UTME	UTMN
4705100516	Marshall	516	Meads	Glen Estion	Cameron	39 781994	-80 733327	522835.5	4403550.7

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE_NUM	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705100516	10/5/1963	Original Loc	Completed	John E Kelley	1				John E Kelley	Fruchtman, JJ			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705100516	10/5/1963	9/11/1963	676 Ground Level	Unnamed	Big Injun (PriceSeq)	Big Injun (PriceSeq)	Outport (Extension) Test	Unsuccessful	Dry w/ Gas Show	Cable Tool	NotOpen H	1661		1661		0	0	0	0	0	0	0	0	0	0	0	0	0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100516	10/5/1963	Water	Fresh Water	Vertical			55						0
4705100516	10/5/1963	Water	Fresh Water	Vertical			183						2
4705100516	10/5/1963	Show	Gas	Vertical	180		186	Pennsylvania System	0	0			
4705100516	10/5/1963	Show	Gas	Vertical	605		690	Pennsylvania System	0	0			
4705100516	10/5/1963	Water	Salt Water	Vertical			1068						0
4705100516	10/5/1963	Show	Gas	Vertical			1130	2nd Salt Sand	0	0			
4705100516	10/5/1963	Show	Gas	Vertical	1467		1470	Big Injun (undr)	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
4705100516	Original Loc	Pittsburgh coal	Well Record	316	Reasonable	6	Reasonable	676	Ground Level
4705100516	Original Loc	1st Salt Sand	Past WVGES Staff Geologist	1048	Reasonable	62	Reasonable	676	Ground Level
4705100516	Original Loc	2nd Salt Sand	Past WVGES Staff Geologist	1130	Reasonable	8	Ostible Pick	676	Ground Level
4705100516	Original Loc	3rd Salt Sand	Past WVGES Staff Geologist	1245	Reasonable	67	Reasonable	676	Ground Level
4705100516	Original Loc	Big Lime	Well Record	1358	Reasonable	53	Reasonable	676	Ground Level
4705100516	Original Loc	Greensboro Group	Well Record	1358	Reasonable	52	Reasonable	676	Ground Level
4705100516	Original Loc	Big Injun (PriceSeq)	Well Record	1410	Reasonable	0	Reasonable	676	Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705100516	10/16/1963	0

There is no Sample data for this well

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	70770	51	827

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705100827	Wayne	827	Meade	Glen Easton	Cameron	39 754478	-80 711337	524726.3	4400547.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DY	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CD_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705100827	++	unknown	Prpty Map	Joseph Shuter	1		1278			Perkins Oil and Gas, Inc.			
4705100827	++		Original Loc.	Completed			1278			unknown			

Completion Information:

API	CMP_DY	SPUD_DY	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FYD	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	YI_BEF	P_AFT	YI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705100827	++	++	1360	Topo Estimation			unclassified	unclassified	Gas	unknown	unknown																	
4705100827	++	++					unclassified	unclassified	not available	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	
4705100827	Perkins Oil and Gas, Inc.	1999	317	0	0	0	0	0	0	0	0	0	0	85	122	110
4705100827	Perkins Oil and Gas, Inc.	2001	817	65	42	44	69	63	62	60	72	70	58	63	58	
4705100827	Perkins Oil and Gas, Inc.	2002	620	66	56	74	61	60	59	60	16	15	29	42	96	
4705100827	Perkins Oil and Gas, Inc.	2003	559	77	3	68	51	61	62	34	28	47	70	0	38	
4705100827	Perkins Oil and Gas, Inc.	2004	788	73	56	98	81	90	50	59	28	13	64	96	60	
4705100827	Perkins Oil and Gas, Inc.	2005	638	25	59	95	89	85	87	70	92	84	82	93	77	
4705100827	Perkins Oil and Gas, Inc.	2006	815	22	54	69	83	65	60	82	87	81	70	63	59	
4705100827	Perkins Oil and Gas, Inc.	2007	435	28	10	36	38	72	48	32	41	39	36	48	18	
4705100827	Perkins Oil and Gas, Inc.	2008	603	48	39	44	34	58	37	82	65	49	71	52	48	
4705100827	Perkins Oil and Gas, Inc.	2009	1,065	66	63	77	69	95	97	99	81	94	91	78		
4705100827	Perkins Oil and Gas, Inc.	2010	829	81	69	58	78	61	65	70	68	62	100	81	58	
4705100827	Perkins Oil and Gas, Inc.	2011	1,043	73	72	98	90	105	94	82	74	81	87	79	110	
4705100827	Perkins Oil and Gas, Inc.	2012	1,295	93	106	103	196	82	100	88	75	109	119	109	105	
4705100827	Perkins Oil and Gas, Inc.	2013	1,196	111	68	86	93	102	82	79	115	106	122	112	106	
4705100827	Perkins Oil and Gas, Inc.	2014	1,229	90	94	74	111	118	114	112	98	106	106	101	106	
4705100827	Perkins Oil and Gas, Inc.	2015	1,199	125	95	39	81	73	63	117	154	102	119	116	115	
4705100827	Perkins Oil and Gas, Inc.	2016	1,231	93	82	102	95	113	84	100	99	108	115	112	118	
4705100827	Perkins Oil and Gas, Inc.	2017	2,130	214	182	186	188	174	170	228	186	206	218	210	82	
4705100827	Perkins Oil and Gas, Inc.	2018	1,028	27	53	79	77	68	85	105	101	105	88	102	105	
4705100827	Perkins Oil and Gas, Inc.	2019	985	0	42	101	95	99	105	97	102	90	92	63	99	

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100827	Perkins Oil and Gas, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2006	6	0	6	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2007	3	0	0	0	0	0	0	0	0	0	0	0	3
4705100827	Perkins Oil and Gas, Inc.	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2009	6	0	0	0	0	0	0	0	6	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2011	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2012	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2013	5	0	0	0	0	0	0	5	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2016	7	0	7	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100827	Perkins Oil and Gas, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100827	Perkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100827	Perkins Oil and Gas, Inc.	2019	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_45	LAT_DD	LONG_DD	UTME	UTM
4705101217	Marshall	1217	Meade	Wileyville	Leetown	39 748334	-80 70984	524858.7	4399865.6

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705101217	-/-		Dvtd Ownr Loc Canceled	James Frenzhofer			MC42			CNX Gas Co LLC (North)		1106 Pittsburgh coal	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FIG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101217	-/-	-/-	1196	Ground Level																									

Comment: -/- Multiple dog legs

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTIME	UTMIN
4705101218	Marshall	1218	Meade	Wheynbe	Linton	39 747615	-80 708543	524970	1 4399786

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_TYGY_FM	TFM_EST_PR
4705101218	-/-		Cancelled	James Frohnspiel		MO2A				CNX Gas Co. LLC (North)	854	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_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101218	-/-	-/-	1187	Ground Level																									

Comment: -/- Multiple dog legs

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: View Map

Table with columns: APN, COUNTY, PERMIT, TAX_DISTRICT, QUAD, QUAD_15, LAT_DD, LONG_DD, UTM_E, UTM_N

There is no Bottom Hole Location data for this well

Owner Information:

Table with columns: APN, CMP_ID, SUFFX, STATUS, SURFACE_OWNER, WELL_NUM, CO_NUM, LEASE, LEASE_NUM, MINERAL_OWN, OPERATOR, LAI, COMPLETION, PROP_YD, PROP_TRG1_FM, FTM_EST_FR

Completion Information:

Table with columns: APN, CMP_ID, SUFFX, DT, ELEV, DATUM, FIELD, DEEPEST_FM, DEEPEST_FMI, INITIAL_CLASS, FINAL_CLASS, TYPE, RIG, CMP_MTHD, TVD, TMD, NEW_FTG, KOO, G_DEP, G_AFT, O_DEP, O_AFT, NGL_DEP, NGL_AFT, P_DEP, P_AFT, TLAFT, BHP_DEP, BHP_AFT, G_MSRD_BY

Pay/Show/Water Information:

Table with columns: APN, CMP_ID, ACTIVITY, PRODUCT, SECTION, DEPTH_TOP, FM_TOP, DEPTH_BOT, FM_BOT, G_DEP, G_AFT, O_DEP, O_AFT, WATER_ONLY

Production Gas Information: (Volumes in Mcf)

Table with columns: APN, PRODUCING_OPERATOR, PRD_YEAR, ANN_GAS, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

Table with columns: APN, PRODUCING_OPERATOR, PRD_YEAR, ANN_OIL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

Table with columns: APN, PRODUCING_OPERATOR, PRD_YEAR, ANN_NGL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production Water Information: (Volumes in Gallons)

Table with columns: APN, PRODUCING_OPERATOR, PRD_YEAR, ANN_WTR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Stratigraphy Information:

Table with columns: APN, SUFFX, FM, FM_QUALITY, DEPTH_TOP, DEPTH_QUALITY, THICKNESS, THICKNESS_QUALITY, ELEV, DATUM

Wirelogs (E-Log) Information:

Table with columns: APN, LOG_TOP, LOG_BOT, DEEPEST_FM, LOGS_AVAILABLE, SCAN, DIGITIZED, GR_TOP, GR_BOT, D_TOP, D_BOT, N_TOP, N_BOT, L_TOP, L_BOT, I_TOP, I_BOT, S_TOP, S_BOT, O_TOP, O_BOT, INCH, INCHS, REDUCED, KOP, LOGMD, ELEV_XB, ELEV_GL, ELEV_DP, LOG_MSRD_FROM

Comment: *logs: caliper, pe, tension, it, amplitude, ccl, vdl, bit size.

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the image of interest and select the save option. Then you can direct the file to a location of your choice. Please note these images vary in size and some may take several minutes to download, especially if using a 56k or slower dialup connection.

Quick Reference Guide for Log File Names: For more info about WVGES scanned logs click here.

Table with columns: FILENAME, LOG_TOP, LOG_BOT, DEEPEST_FM

- geologic log types:
c density (includes bulk density, compensated density, density, density, porosity, grain density, matrix density, etc.)
d photoelectric absorption (PE or Pe, etc.)
g gamma ray
i induction (includes dual induction, induction, induction, deep induction, etc.)
l lithology
m dipmeter
n neutron (includes neutron porosity, sidereal neutron-SWN, etc.)
s slt="
v sonic or velocity
t temperature (includes borehole temperature, BHT, differential temperature, etc.)
z spontaneous potential or potential
mechanical log types:
b cement bond
c caliper
e clog="
p perforation depth control or profile

*other logs may include, but are not limited to, such curves as audio bit size, CO2-coring collar locator, continuous meter, directional survey, gas detector, gyro, NGLT-Holston Cement Top Locator, radioactive tracer, tension

There is no Logging data for this well

There is no Sample data for this well

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Location Information: View Map

Table with columns: API, COUNTY, PERMIT, TAX_DISTRICT, QUAD_75, QUAD_16, LAT_DD, LON_DD, UTM_E, UTM_N

Bottom Hole Location Information:

Table with columns: API, EP_FLAG, UTM_E, UTM_N, LON_DD, LAT_DD

Owner Information:

Table with columns: 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

Completion Information:

Table with columns: API, CMP_DT, SPUD_DT, ELEV, DATUM, FIELD, DEEPEST_FM, DEEPEST_FMI, INITIAL_CLASS, FINAL_CLASS, TYPE, RIG, CMP_MTHD, TVD, TMD, NEW_FIG, KOD, G_BEF, G_AFT, O_BEF, O_AFT, NGL_BEF, NGL_AFT, P_BEF, P_AFT, FLAFT, BHP_P_BEF, BHP_P_AFT, G_MSHD_BY

Pay/Show/Water Information:

Table with columns: API, CMP_DT, ACTIVITY, PRODUCT, SECTION, DEPTH_TOP, FM_TOP, DEPTH_BOT, FM_BOT, G_BEF, G_AFT, O_BEF, O_AFT, WATER_QNTY

Production Gas Information: (Volumes in Mcf)

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_GAS, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_OIL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_NGL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production Water Information: (Volumes in Gallons)

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_WTR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Stratigraphy Information:

Table with columns: API, SUFFIX, FM, FM_QUALITY, DEPTH_TOP, DEPTH_BOTTOM, THICKNESS, THICKNESS_QUALITY, ELEV, DATUM

Wireline (E-Log) Information:

Table with columns: API, LOG_TOP, LOG_BOT, DEEPEST_FMI, LOGS_AVAILABLE, SCAN, DIGITIZED, GR_TOP, GR_BOT, D_TOP, D_BOT, N_TOP, N_BOT, L_TOP, L_BOT, T_TOP, T_BOT, S_TOP, S_BOT, O_TOP, O_BOT, INCH2, INCHS, REDUCED, KOP, LOGMD, ELEV_KB, ELEV_GL, ELEV_DF, LOG_MSRD_FROM

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the thumbnail image of interest and select the save option.

Table with columns: FILENAME, LOG_ID, LOG_TYPE

- Geologic log types:
d density (includes bulk density, compensated density, density, density porosity, grain density, matrix density, etc.)
a photoelectric absorption (PE or Pe, etc.)
g gamma ray
i induction (includes dual induction, medium induction, deep induction, etc.)
l laterolog
m dipmeter
n neutron (includes neutron porosity, sidewall neutron-SW/N, etc.)
o other
s sonic or velocity
t temperature (includes borehole temperature, BHT, differential temperature, etc.)
z spontaneous potential or potential
Mechanical log types:
b cement bond
c caliper
d depth
e perforation depth control or perforator

Other logs may include, but are not limited to, such curves as audio, bit size, CCL-casing collar locator, continuous meter, directional survey, gas detector, guard, NCTL-Nuclear Cement Top Locator, radioactive tracer, tension

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTIME	UTMR
4705101848	Marshall	1848	Maade	Glen Easton	Cameron	39 781827	-80 728602	523411 3	4403578 3

Bottom Hole Location Information:

API	EP_FLAG	UTIME	UTMR	LONG_DD	LAT_DD
4705101848	1	As Proposed	521973 8	4404978 5	-80 743342 39.784401

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_YRGT_FM	TFM_EST_PR
4705101848	--		Drtd Orig Loc Canceled	Dennis W Hunter	9H		Hunter Pethel		Dennis W Hunter et al	Stone Energy Corporation	6140	Marcellus Fr	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FYD	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101848	--	--	795	Ground Level																								

There is no Pay data for this well

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANH_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101848	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANH_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101848	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANH_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101848	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANH_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101848	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101847	Marshall	1847	Meade	Glen Easton	Cameron	39.761735	-80.72647	523422.8	4403570.4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101847	1	As Proposed	523970	4401941.7	-80.720137

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
4705101847	--		Drill Origi Loc. Canceled	Dennis W Hunter	4H		Hunter Pethel		Dennis W Hunter et al	Stone Energy Corporation	6250	Marcellus Fin	

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101847	--	--	735	Ground Level																								

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
4705101847	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101847	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101847	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101847	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX DISTRICT	QUAD_76	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4705101859	Marshall	1859	Meade	Glen Easton	Cameron	39.78156	-80.726875	523388	4403548.6

Bottom Hole Location Information:

API	EP FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101859	1	As Proposed	521903.3	4404881.6	-80.744175

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
4705101859	--		Cancelled	Dennis W Hunter	BH		Hunter Pethtel		Dennis W Hunter et al	Stone Energy Corporation	6140	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	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101859	--	--	755	Ground Level																									

Comment: --/-- Plat coordinates hard to read, blurry Per WVDEP OOG website, well was cancelled 12/11/2017. No cancellation documents available.

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
4705101859	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101859	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101859	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101859	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101860	Marshall	1860	Meade	Glen Easton	Cameron	39 781673	-80 728543	523416	4403581.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
4705101860	1	As Proposed	522074.3	4405230.4	-80 74216

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
4705101860	-/-		Div'd Orig'd Loc	Cancelled	Derevs W Hunter	101	Huster Pethtel		Derevs W Hunter et al	Stone Energy Corporation	6140	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	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSROD_BY
4705101860	-/-	-/-	765	Ground Level																									

Comment: -/- Per WVDEP OOG website, well was cancelled 12/11/2017. No cancellation documents available.

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
4705101860	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101860	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101860	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101860	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_15	LAT_DD	LONG_DD	UTME	UTMR
4705101886	Marshall	1886	Meade	Glen Easton	Cameron	39 781762	-90 726409	523427 8	4403573 4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMR	LONG_DD	LAT_DD
4705101886	1	As Proposed	524237 2	4402287 1	-90 717005 39 77617

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
4705101886	--		Cancelled	Dennis W Hunter	SH		Hunter/Peiriel		Dennis W Hunter et al	Stone Energy Corporation	6250	Marcellus Fm	4200

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705101886	--	--	755	Ground Level																									

Comment: -- Per WVDEP OOG website, well was cancelled 12/11/2017. No cancellation documents available.

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
4705101886	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101886	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101886	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705101886	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAY_OD	LOW_OD	UTME	UTMN
4705130404	Marshall	30404	Meado	Glen Easton	Cameron	39.775069	-80.727874	523304.6	4402827.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CD_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705130404	--	--	Original Loc Completed	John R. Keiser	736				1338	OP-A.H. Strider also W. Helm & Jackson			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FYD	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705130404	--	--	1277	Ground Level	Cameron-Garner	UDev undr Ben/LeHURH	Gordon	Development Well	Unclassified	Gas	Cable Tool	unknown	2955		2955		0	0	0	0	0	0	0	0	0	0	0	0	0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705130404	--	Water	Fresh Water	Vertical			120	undetermined unit					
4705130404	--	Water	Salt Water	Vertical	1700	Salt Sands (undiff)	1700	Salt Sands (undiff)					
4705130404	--	Pay	Gas	Vertical			2902	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
4705130404		Original Loc	unidentified coal	550	Reasonable	5	Reasonable	1277	Ground Level
4705130404		Original Loc	Senickley coal	805	Reasonable	5	Reasonable	1277	Ground Level
4705130404		Original Loc	Pittsburgh coal	900	Reasonable	5	Reasonable	1277	Ground Level
4705130404		Original Loc	Bufflo S#1st Cow Rn	1220	Reasonable	25	Reasonable	1277	Ground Level
4705130404		Original Loc	Mazonig Sw/Big Duzk	1315	Reasonable	35	Reasonable	1277	Ground Level
4705130404		Original Loc	Salt Sands (undiff)	1835	Reasonable	205	Reasonable	1277	Ground Level
4705130404		Original Loc	Maxton	1905	Reasonable	15	Reasonable	1277	Ground Level
4705130404		Original Loc	Big Lime	1980	Reasonable	45	Reasonable	1277	Ground Level
4705130404		Original Loc	Big Injun (undiff)	2025	Reasonable	260	Reasonable	1277	Ground Level
4705130404		Original Loc	Gordon Stray	2677	Reasonable	5	Reasonable	1277	Ground Level
4705130404		Original Loc	Gordon	2900	Reasonable	10	Reasonable	1277	Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705130404	10/6/1959	0

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTM_E	UTM_N
4705130407	Marshall	30407	Meade	Glen Easton	Cameron	39.770479	-90.725103	523543.6	4402319.2

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_EST_PR
4705130407	9/28/1904		Original Loc. Completed	Washington Kelley			S13-H183		1967	OP=A M Solder also Withers & Jackson			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	T_BEF	P_AFT	T_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY	
4705130407	9/28/1904	--	1214 Ground Level	Cameron-Garnet	UDev und/Ber/Lo	MURN Gordon	Development Well	unclassified	Gas Cable Tool	unknown	2965				0	0	0	0	0	0	0	0	0	0	0	0	0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705130407	9/28/1904	Pay	Gas	Vertical			2938	Gordon	0	0			
4705130407	9/28/1904	Pay	Gas	Vertical			2950	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	
4705130407		Original Loc	Pittsburgh coal	Well Record	835	Reasonable	5	Reasonable	1214 Ground Level
4705130407		Original Loc	Mariong Sa/Big Dunk	Well Record	1225	Reasonable	35	Reasonable	1214 Ground Level
4705130407		Original Loc	SaII Sands (und2)	Well Record	1635	Reasonable	140	Reasonable	1214 Ground Level
4705130407		Original Loc	Big Injan (und2)	Well Record	1960	Reasonable	250	Reasonable	1214 Ground Level
4705130407		Original Loc	Gordon Stray	Well Record	2790	Reasonable	5	Reasonable	1214 Ground Level
4705130407		Original Loc	Gordon	Well Record	2837	Reasonable	23	Reasonable	1214 Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PST
4705130407	10/30/1959	0

There is no Sample data for this well

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Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTM_E	UTM_N
4705130441	Marshall	30441	Meade	Glen Easton	Cameron	39.766273	-80.722468	523770.6	4401853.2

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_EST_PR
4705130441	8/7/1904	Original Loc	Completed	Joseph Shuster	3	1279		2882	unknown	Manufacturers Light & Heat Co.			
4705130441	6/9/1914	Drilled Deeper	Completed	Joseph Shuster	3	L-1279		2882	unknown	Manufacturers Light & Heat Co.			
4705130441	4/28/1915	Drilled Deeper	Completed	Joseph Shuster	3	L-1279		2882	unknown	Manufacturers Light & Heat Co.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	YMD	NEW_FTG	KOD	G_DEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705130441	8/7/1904	6/10/1904	1308	Ground Level	Cameron-Garner	UDev undf Ber/LoHURN	Gordon	Development Well	unclassified	Gas	Cable Tool	unknown	2830		2930		0	0	0	0	0	0	0	0	0	0	0	0	0
4705130441	6/9/1914	J-L	1308	Ground Level	Cameron-Garner	UDev undf Ber/LoHURN	UDev undf Ber/LoHURN	unclassified	unclassified	Gas	Cable Tool	unknown	2941		11		0	0	0	0	0	0	0	0	0	0	0	0	0
4705130441	4/28/1915	J-L	1308	Ground Level	Cameron-Garner	UDev undf Ber/LoHURN	UDev undf Ber/LoHURN	unclassified	unclassified	Gas	Cable Tool	unknown	2960		39		0	0	0	0	0	0	0	0	0	0	0	0	0

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705130441	8/7/1904	Pay	Gas	Vertical			2820	Gordon	0	0			
4705130441	6/9/1914	Pay	Gas	Vertical			2841	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
4705130441	Original Loc	unidentified coal	Well Record	530	Reasonable			1308	Ground Level
4705130441	Original Loc	Sewickley coal	Well Record	830	Reasonable	7	Reasonable	1308	Ground Level
4705130441	Original Loc	Pittsburgh coal	Well Record	920	Reasonable	5	Reasonable	1308	Ground Level
4705130441	Original Loc	Bufflo Se'let Cow Rn	Well Record	1250	Reasonable	20	Reasonable	1308	Ground Level
4705130441	Original Loc	Mahoning 5 1/2' Big Dunk	Well Record	1420	Reasonable	15	Reasonable	1308	Ground Level
4705130441	Original Loc	1st Sall Sand	Well Record	1650	Reasonable	40	Reasonable	1308	Ground Level
4705130441	Original Loc	2nd Sall Sand	Well Record	1830	Reasonable	80	Reasonable	1308	Ground Level
4705130441	Original Loc	Big Lime	Well Record	1960	Reasonable	45	Reasonable	1308	Ground Level
4705130441	Original Loc	Big Injan (undist)	Well Record	2005	Reasonable	270	Reasonable	1308	Ground Level
4705130441	Original Loc	Berea Ss	Well Record	2815	Reasonable	15	Reasonable	1308	Ground Level
4705130441	Original Loc	Gordon	Well Record	2910	Reasonable	10	Reasonable	1308	Ground Level

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4705130441	5/14/1962	0

There is no Sample data for this well

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Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_15	LAT_DD	LONG_DD	UTM_E	UTM_N
4705170197	Marshall	70197	Meade	Glen Easton	Cameron	39 774054	-80 727498	523337 2	4452715 4

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DY	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TYRGT_FM	TYM_EST_PR
4705170197	--		Original Loc Completed	J.R. Kelley	1					Hope Natural Gas Company			

Completion Information:

API	CMP_DY	SPUD_DY	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TYM	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
4705170197	--	--					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

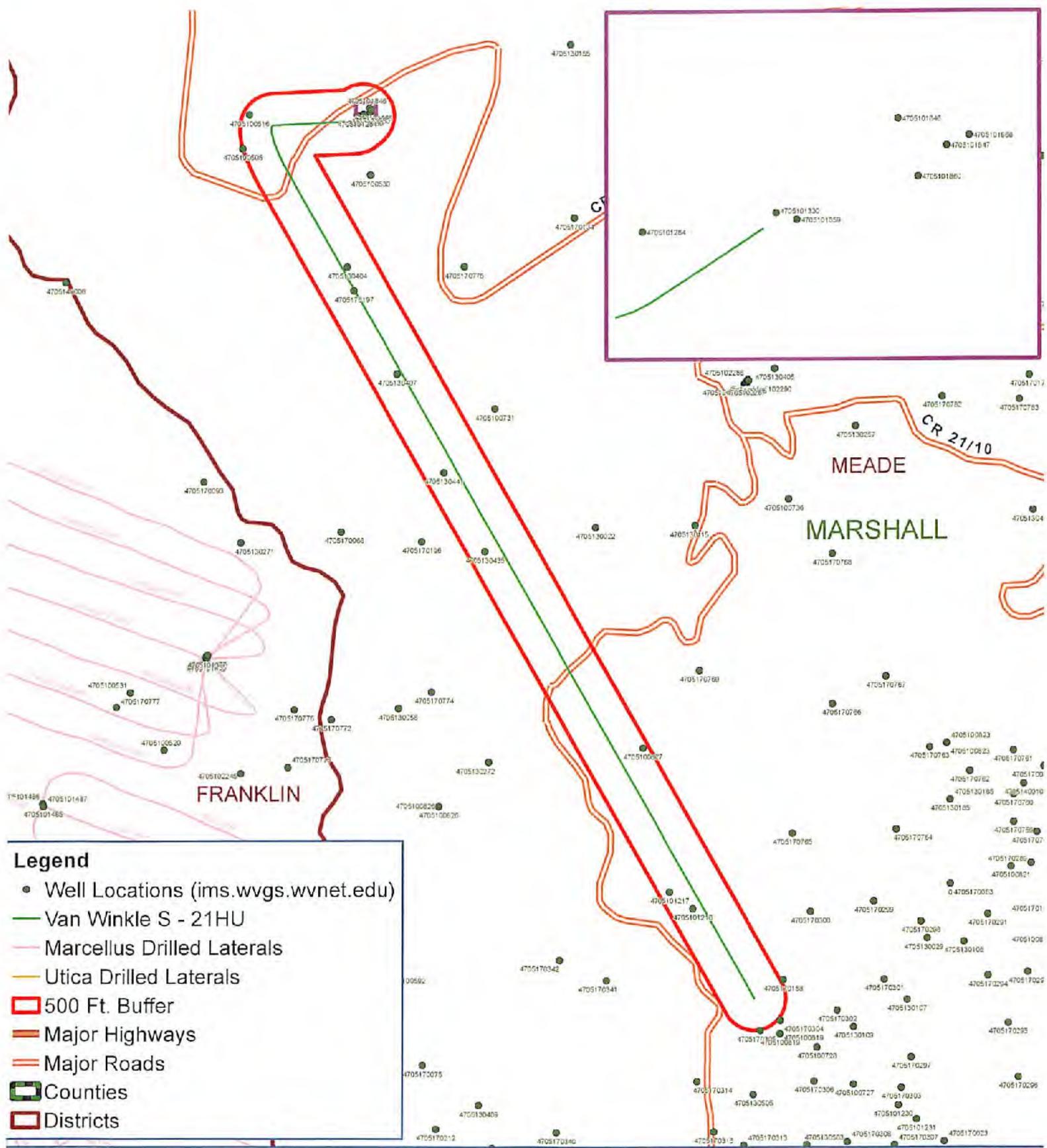
There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Van Winkle S - 21HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- 500 Ft. Buffer
- Major Highways
- Major Roads
- Counties
- Districts



Van Winkle S - 21HU Meade District Marshall County, WV



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

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Map Prepared by:
DPS
LAND SERVICES
07/16/2021

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Van Winkle S-21HU

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) Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459; UIC 966, 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 and horizontal drilling

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

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Oil Base

Additives to be used in drilling medium? Barite for weight

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 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386420)

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

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

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

Company Official Signature James A. Pancake
Company Official (Typed Name) James Pancake
Company Official Title Vice President - Geoscience

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Subscribed and sworn before me this 8 day of JANUARY, 2021

David Gabriel Delallo

Commonwealth of Pennsylvania - Notary Seal
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

Notary Public

My commission expires _____

WV Department of Environmental Protection

07/16/2021

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.63 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: Barry Stolley

Comments: _____

RECEIVED
Office of Oil and Gas
FEB 03 2021
WV Department of
Environmental Protection

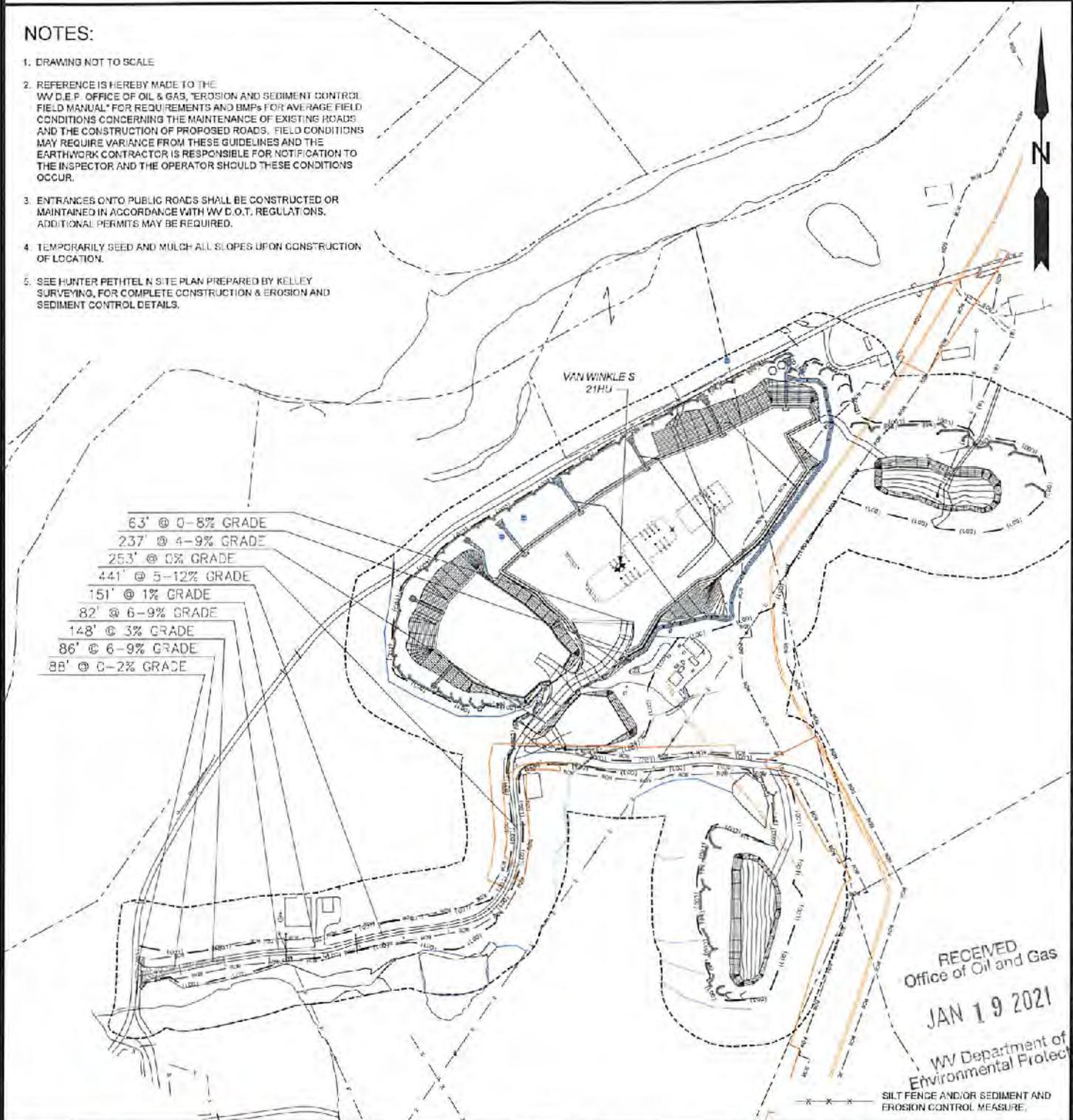
Title: Oil and Gas Inspector Date: 1-22-21

Field Reviewed? () Yes () No

PROPOSED VAN WINKLE S - 21HU

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. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.
5. SEE HUNTER PETHTEL N SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.




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 | 304.355.8298
slsvv.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.	8952	12/24/2020	NONE



**TUG HILL
OPERATING**

07/16/2021



Well Site Safety Plan

Tug Hill Operating, LLC

Bay Staley 1-22-21

Well Name: Van Winkle S-21HU

Location: Hunter Pethtel

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

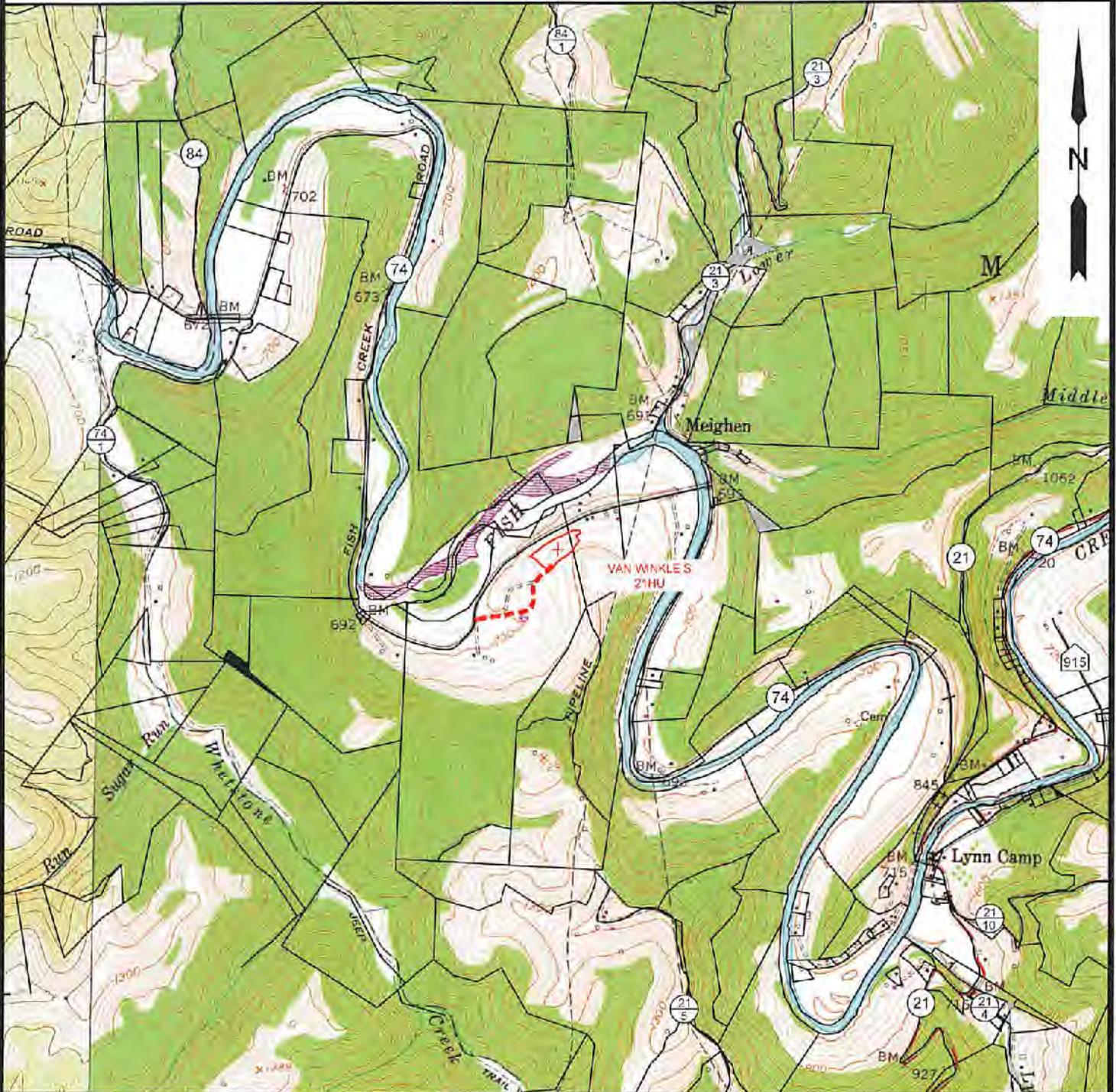
Northing: 4,403,545.82

Easting: 523,380.01

RECEIVED
Office of Oil and Gas
FEB 03 2021

WV Department of
Environmental Protection
January 2021

PROPOSED VAN WINKLE S - 21HU



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT
PROCTOR, WV

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 49°13'48" W AT 37,316.19' FROM THE CENTER OF HUNTER PETHEL N WELL PAD LOCATION.

 12 Vanhorn Drive P.O. Box 150 Glenville, WV 26351 304.462.6634 1412 Kanawha Boulevard, East Charleston, WV 25301 304.546.3952 25 East Beckley Bypass Beckley, WV 25801 304.255.5296 slsw.com	TOPO SECTION:		OPERATOR:		 TUG HILL OPERATING 07/16/2021
	GLEN EASTON 7.5'		PREPARED FOR:		
	COUNTY	DISTRICT	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		
	MARSHALL	MEADE	DRAWN BY	JOB NO.	
		K.G.M.	8952	12/24/2020	1" = 2000'

**HUNTER PETHTEL LEASE
UTICA UNIT - 427.38 AC±
VAN WINKLE S 21HU WELL
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°45'00"

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

NAD'83 S.P.C.(FT) N. 469,129.47 E. 1,623,685.75
NAD'83 GEO. LAT-(N) 39.781535 LONG-(W) 80.726968
NAD'83 UTM (M) N. 4,403,545.92 E. 523,380.01

LANDING POINT

NAD'83 S.P.C.(FT) N. 468,240.8 E. 1,622,506.1
NAD'83 GEO. LAT-(N) 39.779051 LONG-(W) 80.731122
NAD'83 UTM (M) N. 4,403,269.1 E. 523,025.2

BOTTOM HOLE

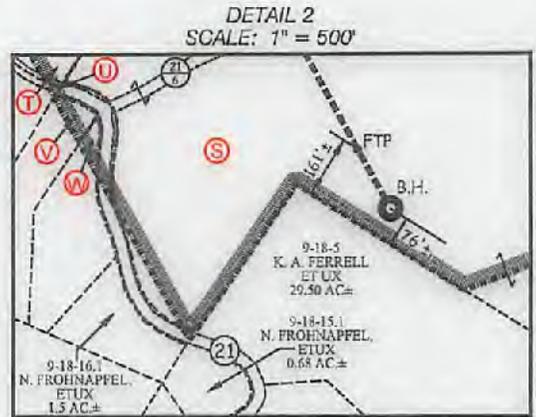
NAD'83 S.P.C.(FT) N. 455,522.9 E. 1,629,515.8
NAD'83 GEO. LAT-(N) 39.744400 LONG-(W) 80.705576
NAD'83 UTM (M) N. 4,399,430.2 E. 525,225.4

T.H. LONG. 80°42'30"
B.H. LONG. 80°40'00"

B.H.

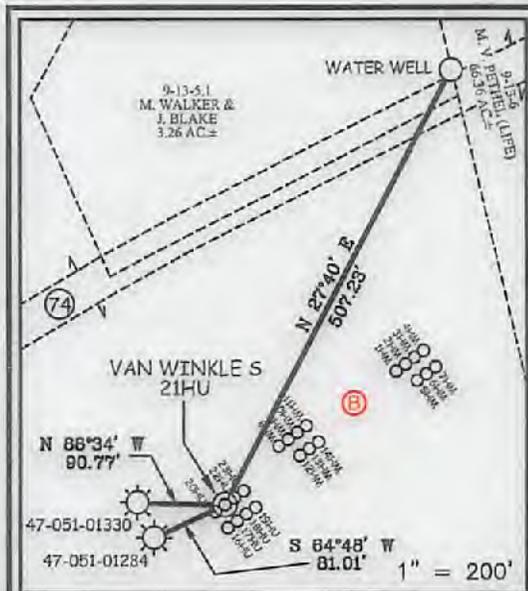
T.H.

TAG	SURFACE OWNER	PARCEL	ACRES
A	XCL MIDSTREAM OPERATING, LLC	9-10-19.1	10.00
B	XCL MIDSTREAM OPERATING, LLC	9-13-5	190.12
C	MARY VIRGINIA PETHTEL (LIFE)	9-13-6	66.36
D	ROBERT M. & NANCY R. MCCARDLE	9-13-24	50.64
B	MARY VIRGINIA PETHTEL (LIFE)	9-13-7	96.00
F	ROBERT M. & NANCY R. MCCARDLE	9-13-25	48.00
G	SHUTLER FAMILY TRUST	9-13-21	81.49
H	JAMES G. RICHMOND	9-16-8	30.00
I	ROBERT M. & NANCY R. MCCARDLE	9-16-5	133.00
J	JAMES G. RICHMOND	9-16-9	22.71
K	ROBERT M. & NANCY R. MCCARDLE	9-16-6	31.00
L	JAMES G. RICHMOND	9-16-11	67.8822
M	WILLIAM B. KLUG, ET UX	9-16-7	26.105
N	WILLIAM B. KLUG, ET UX	9-18-5	122.437
O	PAUL R. BLAKE	9-16-13	97.9962
P	WILLIAM B. KLUG, ET UX	9-16-4	73.39
Q	LOUIS FOX	9-18-5.2	0.933
R	LOUIS FOX	9-18-6	141.75
S	ROBERT F. VILLERS	9-18-16	62.893
T	JAMES D. FROHNAPFEL, ET UX	9-18-18	154.03
U	JOHN F. WAYMAN	9-18-18.1	1.1
V	JOHN F. WAYMAN	9-18-16.2	2.17
W	BERNARD KLUG, ET UX ESTS.	9-18-16.3	1.818
X	ROBERT F. & APRIL L. VILLERS	9-18-16.4	1.509



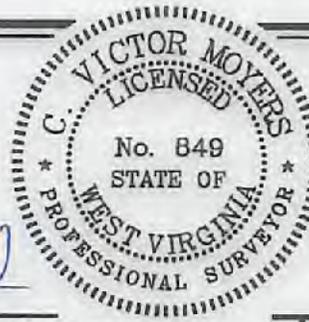
NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
3. BASED ON WV DOT COUNTY ROUTE 74 IS A 40' STRIP OF LAND ACQUIRED IN NUMEROUS DEEDS.
4. PROPOSED LATERAL OR TOP HOLE OF VAN WINKLE S-21HU IS WITHIN 3000' OF TOP HOLES OR LATERALS OF: PROPOSED VAN WINKLE N-16HU, PROPOSED VAN WINKLE N-17HU, PROPOSED VAN WINKLE N-18HU, PROPOSED VAN WINKLE N-19HU, PROPOSED VAN WINKLE S-20HU, PROPOSED VAN WINKLE S-22HU, PROPOSED VAN WINKLE S-23HU, KNOB CREEK N-11HU (47-051-02287).



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
234 East Beckley Bypass | Beckley, WV 25801 | 304.255.9296
slsuw.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. 849 *C. Victor Moyers*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JANUARY 14, 20 21
REVISED MARCH 3, 2021
OPERATORS WELL NO. VAN WINKLE S 21HU
API WELL NO. 47 - 051 - 02354
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8952P21HUR.dwg
VAN WINKLE S 21HU-REV3
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 X INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP X SHALLOW ___

LOCATION: GROUND: 756.10' ELEVATION PROPOSED: 753.50' WATERSHED FISH CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER XCL MIDSTREAM OPERATING, LLC ACREAGE 190.12 ±
ROYALTY OWNER DENNIS HUNTER, ET AL - SEE WW-6A1 ACREAGE 190.12

PROPOSED WORK:
DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,220' / TMD: 26,088'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME PERMIT

07/16/2021

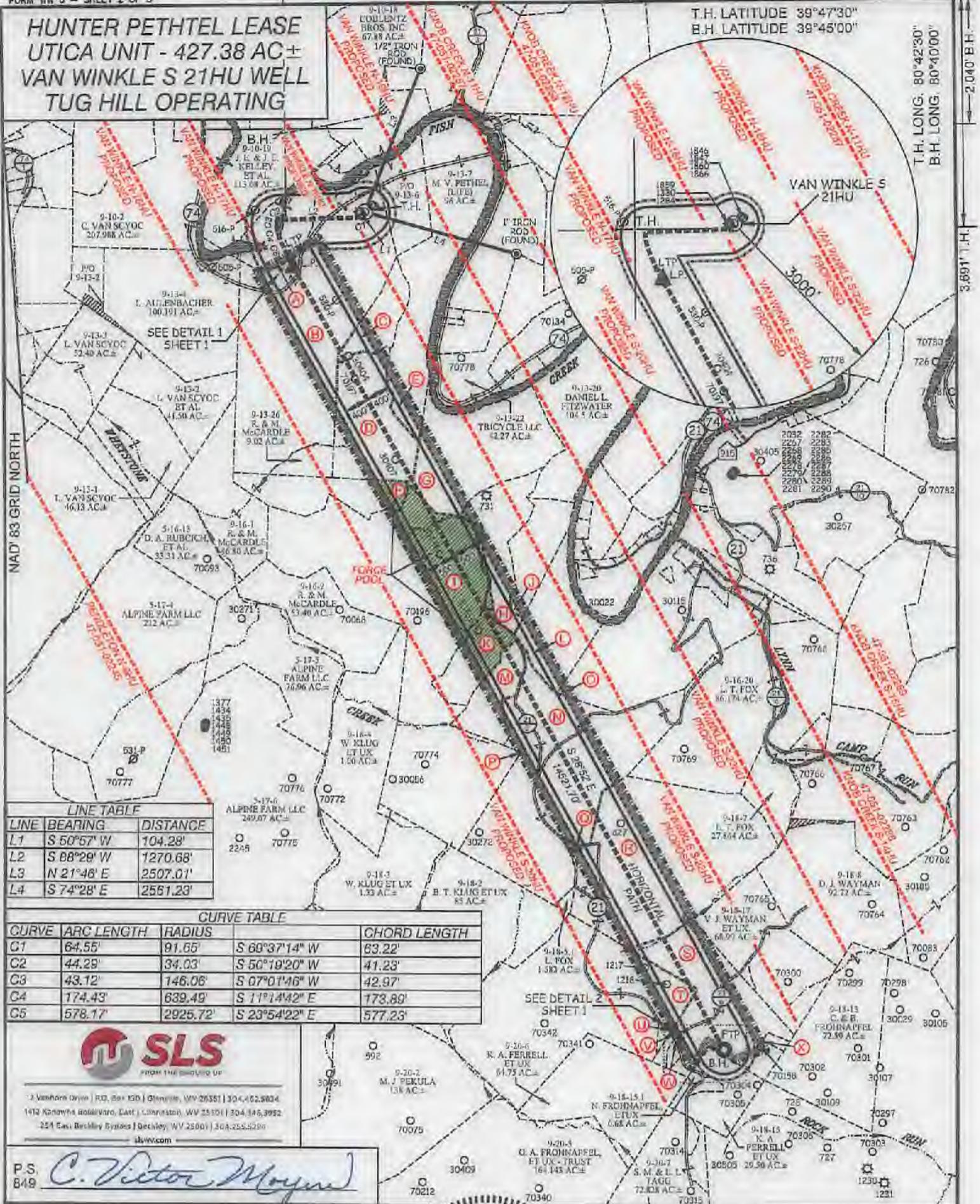
10,941' B.H.

5,237' T.H.

**HUNTER PETHTEL LEASE
UTICA UNIT - 427.38 AC±
VAN WINKLE S 21HU WELL
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°45'00"

T.H. LONG. 80°42'30"
B.H. LONG. 80°40'00"



LINE TABLE

LINE	BEARING	DISTANCE
L1	S 60°57' W	104.28'
L2	S 88°29' W	1270.68'
L3	N 21°48' E	2507.01'
L4	S 74°28' E	2551.23'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD LENGTH
C1	64.55'	91.65'	S 60°37'14" W 63.22'
C2	44.29'	34.03'	S 50°19'20" W 41.23'
C3	43.12'	146.06'	S 07°01'46" W 42.97'
C4	174.43'	639.49'	S 11°14'42" E 173.89'
C5	578.17'	2925.72'	S 23°54'22" E 577.23'



Vanhook Drive | P.O. Box 150 | Otterville, WV 26351 | 304.462.8834
1412 Kanawha Boulevard, East | Charleston, WV 25310 | 304.345.3952
251 East Beckley Street | Beckley, WV 25801 | 304.255.5299
slsvw.com

P.S. 849 *C. Victor Moyers*

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

NAD'83 S.P.C.(FT)	N. 469,129.47	E. 1,523,635.75
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BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 455,522.9	E. 1,529,515.8
NAD'83 GEO.	LAT (N) 39.744400	LONG-(W) 80.705576
NAD'83 UTM (M)	N. 4,389,430.2	E. 525,225.4



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

LEGEND

- UNIT BOUNDARY
- LEASED TRACTS INSIDE
- UNIT BOUNDARY
- SURFACE LINE
- PROPOSED UTICA
- WELL LATERAL
- 400' OFFSET LINE
- 500' OFFSET LINE
- TIE LINE
- FORGE POOL TRACT
- CREEK
- ROAD
- PROPOSED FIRST TAKE POINT
- PROPOSED LAST TAKE POINT
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- SURFACE OWNER (SEE TABLE)
- LEASE # (SEE ADDITIONAL SHEETS)

SCALE 1" = 2000' FILE NO. 8952P21HUR.dwg
VAN WINKLE S 21HU-REV3
DATE JANUARY 14, 20 21
REVISED MARCH 3, 2021
OPERATORS WELL NO. VAN WINKLE S 21HU
API WELL 47 - 051 - 02354
NO STATE COUNTY PERMIT

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

WELL OPERATOR TUG HILL OPERATING, LLC
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107

DESIGNATED AGENT DIANNA STAMPER
ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

07/16/2021

COUNTY NAME PERMIT

**HUNTER PETHTEL LEASE
UTICA UNIT - 427.38 AC±
VAN WINKLE S 21HU WELL
TUG HILL OPERATING**



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1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slnw.com

NO.	Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Deed Book/Page
1	10*31352	9-10-19.1	A	DENNIS W HUNTER ET UX	690 60
2	10*31312	9-13-5	B	DENNIS W & KATHY A HUNTER	668 155
3	10*31303	9-13-6	C	MARY V & FRANK E PETHTEL, ET AL	668 525
4	10*21131	9-13-24	D	ROBERT M MCCARDLE & NANCY R MCCARDLE, ET AL	951 621
5	10*31303	9-13-7	E	MARY V & FRANK E PETHTEL, ET AL	668 525
6	10*28268	9-13-25	F	JOSEPH & ELIZABETH SHUTLER	63 203
7	10*23197	9-13-21	G	J W KELLEY AND R A KELLEY	63 156
8	10*23197	9-16-8	H	J W KELLEY AND R A KELLEY	63 156
9	10*28268	9-16-5	I	JOSEPH & ELIZABETH SHUTLER	63 203
10	10*16481	9-16-9	J	JAMES G RICHMOND AND CINDY L RICHMOND	829 71
11	10*28268	9-16-6	K	JOSEPH & ELIZABETH SHUTLER	63 203
12	10*16481	9-16-11	L	JAMES G RICHMOND AND CINDY L RICHMOND	829 71
13	10*22789	9-16-7	M	DONNA K FAHEY, ET AL	962 87
14	10*22789	9-18-5	N	DONNA K FAHEY, ET AL	962 87
15	10*47051.135.D	9-16-13	O	PAUL R BLAKE	878 280
16	10*18038	9-16-4	P	JEANETTE A SHUTLER DAVIS AND ROY J DAVIS, ET AL	927 84
17	10*28268	9-18-5.2	Q	JOSEPH & ELIZABETH SHUTLER	63 203
18	10*28268	9-18-5	R	JOSEPH & ELIZABETH SHUTLER	63 203
19	10*28265	9-18-16	S	ROBERT F VILLERS AND APRIL L VILLERS	1073 381
20	10*47051.047.1	9-18-18	T	JAMES E BLATT, ET AL	869 587
21	10*18326	9-18-18.1	U	JOHN F WAYMAN AND DOROTHY A WAYMAN	938 13
22	10*19352	9-18-16.2	V	JOHN F WAYMAN AND DOROTHY A WAYMAN	938 11
23	10*28265	9-18-16.3	W	ROBERT F VILLERS AND APRIL L VILLERS	Pending
24	10*28265	9-18-16.4	X	ROBERT F VILLERS AND APRIL L VILLERS	1073 381

FILE NO. 8952P21HUR.dwg
VAN WINKLE S 21HU-REV3

DATE JANUARY 14, 20 21

REVISED MARCH 3, 2021

OPERATORS WELL NO. VAN WINKLE S 21HU

API WELL NO. 47 — 051 — 02354
NO. STATE COUNTY PERMIT



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



P.S.
849

C. Victor Moyers

WELL OPERATOR TUG HILL OPERATING, LLC
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76107

DESIGNATED AGENT DIANNA STAMPER
ADDRESS CT CORPORATION SYSTEM
5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

COUNTY NAME

PERMIT

07/16/2021

WW-6A1
(5/13)

Operator's Well No. Van Winkle S-21HU

**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

***Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.**

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

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

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

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

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

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book	Page	Assignment	Assignment		
10*31352	9-10-19.1	A	DENNIS W HUNTER ET UX	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	690	60	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/497	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31312	9-13-5	B	DENNIS W & KATHY A HUNTER	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	155	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/497	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31303	9-13-6	C	MARY V & FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	525	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/497	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31304	9-13-6	C	MARY V & FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	672	171	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/497	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31306	9-13-6	C	RICHARD CUNNINGHAM	STONE ENERGY CORPORATION	1/8+	859	595	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31307	9-13-6	C	LINDA DANLEY	STONE ENERGY CORPORATION	1/8+	859	593	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31308		C	SUZY WALKER	STONE ENERGY CORPORATION	1/8+	859	591	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*21131	9-13-24	D	ROBERT M MCCARDLE & NANCY R MCCARDLE	TH EXPLORATION LLC	1/8+	951	621	N/A	N/A	N/A	
10*28341	9-13-24	D	WILLIAM BRAD FOX	TH EXPLORATION LLC	1/8+	1071	466	N/A	N/A	N/A	
10*28622	9-13-24	D	LINDA SMITH	TH EXPLORATION LLC	1/8+	1075	33	N/A	N/A	N/A	
10*28623	9-13-24	D	ANN MILLER	TH EXPLORATION LLC	1/8+	1075	31	N/A	N/A	N/A	
10*31313	9-13-24	D	MARY V & FRANK E PETHTEL	STONE ENERGY CORPORATION	1/8+	674	354	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31314	9-13-24	D	JOHN FOX	STONE ENERGY CORPORATION	1/8+	703	276	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31315	9-13-24	D	MICHAEL SHUTLER	STONE ENERGY CORPORATION	1/8+	715	207	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31316	9-13-24	D	SUSAN WALKER	STONE ENERGY CORPORATION	1/8+	864	563	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31317	9-13-24	D	RICHARD CUNNINGHAM	STONE ENERGY CORPORATION	1/8+	164A	416	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31318	9-13-24	D	LINDA DANLEY	STONE ENERGY CORPORATION	1/8+	868	438	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*31319	9-13-24	D	AARON & REGINA MURRAY	STONE ENERGY CORPORATION	1/8+	868	436	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book	Page	Assignment	Assignment	
10°31328	9-13-24	D	DEBRA COURTWRIGHT	STONE ENERGY CORPORATION	1/8+	702	376	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31329	9-13-24	D	DAVID C YEAGER	STONE ENERGY CORPORATION	1/8+	702	368	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31330	9-13-24	D	HERBERT YEAGER	STONE ENERGY CORPORATION	1/8+	702	370	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31331	9-13-24	D	HOWARD FOX	STONE ENERGY CORPORATION	1/8+	697	431	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31332	9-13-24	D	ROBERT L SHUTLER	STONE ENERGY CORPORATION	1/8+	697	435	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31333	9-13-24	D	CHARLOTTE JACKLEY	STONE ENERGY CORPORATION	1/8+	697	433	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31334	9-13-24	D	BETTY PERSINGER	STONE ENERGY CORPORATION	1/8+	702	374	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31335	9-13-24	D	BETTY JEAN OTTE	STONE ENERGY CORPORATION	1/8+	702	346	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31336	9-13-24	D	JEANIE HUFF	STONE ENERGY CORPORATION	1/8+	702	357	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31337	9-13-24	D	JANE FOX	STONE ENERGY CORPORATION	1/8+	702	354	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31338	9-13-24	D	KIM JONES	STONE ENERGY CORPORATION	1/8+	702	364	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31339	9-13-24	D	MARY V & FRANK E PETHEL	STONE ENERGY CORPORATION	1/8+	702	362	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31340	9-13-24	D	MARY JANE FERKOL	STONE ENERGY CORPORATION	1/8+	702	350	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31341	9-13-24	D	MARY KAY FRENCH	STONE ENERGY CORPORATION	1/8+	702	348	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production
10°31342	9-13-24	D	MARY ELLEN YEAGER	STONE ENERGY CORPORATION	1/8+	702	366	N/A	Stone Energy Corporation to EQT Company to TH Exploration LLC: AB 48/21	EQT Production

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10*31343	9-13-24	D	ROBERTA FROHNAPFEL	STONE ENERGY CORPORATION	1/8+	702	356	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31344	9-13-24	D	MARTI SNYDER	STONE ENERGY CORPORATION	1/8+	702	384	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31345	9-13-24	D	JAMES D FROHNAPFEL	STONE ENERGY CORPORATION	1/8+	702	360	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31346	9-13-24	D	HELEN SHUTLER	STONE ENERGY CORPORATION	1/8+	702	382	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31347	9-13-24	D	DOROTHY ARGENTA	STONE ENERGY CORPORATION	1/8+	702	352	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31348	9-13-24	D	KAREN EVANS	STONE ENERGY CORPORATION	1/8+	703	274	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31349	9-13-24	D	ROBERT L FROHNAPFEL	STONE ENERGY CORPORATION	1/8+	703	278	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31350	9-13-24	D	RUTH ANN SOUTH	STONE ENERGY CORPORATION	1/8+	702	378	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31351	9-13-24	D	CAROLINE J SHUTLER CANALES	STONE ENERGY CORPORATION	1/8+	702	380	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*23197	9-13-21	G	J W KELLEY AND R A KELLEY	TG STILES	1/8+	63	156	N/A	TG Stiles to South Penn Oil Company: 60/367	Hope Natural Gas Company to Consolidated Gas Supply Corporation: DB 374/234	Consolidated Gas Supply Corporation to Consolidated Gas Transmission Corporation: DB 505/405	Consolidated Gas Transmission Corporation to CNG Development Company: DB 515/88	Merger of CNG Development Company into CNG Producing Company eff. 1/1/1991	Name change of CNG Producing Company to Dominion Exploration & Production Inc - 5/10/2000	Merger from Dominion Exploration & Production Inc to CONSOL Gas Company 5/21/2010: CB 19/546	Affidavit of Name Changes & Mergers from CONSOL Gas Co. to CNX Gas Company LLC: MB 11/415	CNX Gas Company LLC to TH Exploration LLC: AB 42/140
10*28268	9-16-5	I	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Heat Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*28268	9-16-6	K	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Heat Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*22789	9-16-7	M	DONNA K FAHEY	TH EXPLORATION LLC	1/8+	962	87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-16-7	M	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*28268	9-16-7	M	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Hea Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*22789	9-18-5	N	DONNA K FAHEY	TH EXPLORATION LLC	1/8+	962	87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27947	9-18-5	N	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28268	9-18-5	N	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Hea Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*28268	9-18-6	R	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Hea Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*28265	9-18-16	S	ROBERT F VILLERS AND APRIL L VILLERS	TH EXPLORATION LLC	1/8+	1073	381	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.047.1	9-18-18	T	JAMES E BLATT	TH EXPLORATION LLC	1/8+	869	587	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.047.2	9-18-18	T	JOHN WILLIAM BLATT	TH EXPLORATION LLC	1/8+	869	590	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.047.3	9-18-18	T	CAROL LEE BURNSIDE	TH EXPLORATION LLC	1/8+	869	593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.047.4	9-18-18	T	LOIS JEAN CECIL	TH EXPLORATION LLC	1/8+	869	596	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*31303	9-13-7	E	MARY V & FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	525	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/497	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31304	9-13-7	E	MARY V & FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	672	171	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/497	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31305	9-13-7	E	MARY V & FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	677	401	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 38/54	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31309	9-13-7	E	RICHARD CUNNINGHAM	STONE ENERGY CORPORATION	1/8+	870	122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31310	9-13-7	E	SUSAN WALKER	STONE ENERGY CORPORATION	1/8+	870	139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*31311	9-13-7	E	LINDA DANLEY	STONE ENERGY CORPORATION	1/8+	870	141	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*28268	9-13-25	F	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Hea Company: DB 148/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21	
10*23197	9-16-8	H	J W KELLEY AND R A KELLEY	TG STILES	1/8+	63	156	N/A	TG Stiles to South Penn Oil Company: 60/367	Hope Natural Gas Company to Consolidated Gas Supply Corporation: DB 374/234	Consolidated Gas Supply Corporation to Consolidated Gas Transmission Corporation: DB 505/405	Consolidated Gas Transmission Corporation to CNG Development Company: DB 515/88	Merger of CNG Development Company into CNG Producing Company eff. 1/1/1991	Name chane of CNG Producing Company to Dominion Exploration & Production Inc - 5/10/2000	Merger from Dominion Exploration & Production Inc to CONSOL Gas Company 5/21/2010: CB 19/546	Affidavit of Name Changes & Mergers from CONSOL Gas Co. to CNX Gas Company LLC: MB 11/415	CNX Gas Company LLC to TH Exploration LLC: AB 42/140	
10*16481	9-16-9	J	JAMES G RICHMOND AND CINDY L RICHMOND	FOSSIL CREEK OHIO, LLC	1/8+	829	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Fossil Creek Ohio LLC to Gulfport Energy Corp.: AB 32/307 & 34/410	Fossil Creek Ohio LLC & Gulfport Energy Corp. to American Petroleum Partners Operating LLC: AB 36/588	American Petroleum Partners Operating LLC to TH Exploration LLC: AB 36/535
10*16481	9-16-11	L	JAMES G RICHMOND AND CINDY L RICHMOND	FOSSIL CREEK OHIO, LLC	1/8+	829	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Fossil Creek Ohio LLC to Gulfport Energy Corp.: AB 32/307 & 34/410	Fossil Creek Ohio LLC & Gulfport Energy Corp. to American Petroleum Partners Operating LLC: AB 36/588	American Petroleum Partners Operating LLC to TH Exploration LLC: AB 36/535
10*47051.135.0	9-16-13	O	PAUL R BLAKE	TH EXPLORATION LLC	1/8+	878	280	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18038	9-16-4	P	JEANETTE A SHUTLER DAVIS AND ROY J DAVIS	TH EXPLORATION LLC	1/8+	927	84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18039	9-16-4	P	CLEMENT R SHUTLER AND NANCY L SHUTLER	TH EXPLORATION LLC	1/8+	927	82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18337	9-16-4	P	VIRIGNIA LEA SHUTLER	TH EXPLORATION LLC	1/8+	929	552	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18338	9-16-4	P	MARY MARGARET SHUTLER	TH EXPLORATION LLC	1/8+	929	554	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18439	9-16-4	P	MARTIN E FAHEY AND PAMELA S FAHEY	TH EXPLORATION LLC	1/8+	933	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18440	9-16-4	P	JOHN M FAHEY AND SANDY Y FAHEY	TH EXPLORATION LLC	1/8+	933	87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18538	9-16-4	P	KRIS & JULIE BECKER	TH EXPLORATION LLC	1/8+	933	644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18667	9-16-4	P	DONNA K FAHEY	TH EXPLORATION LLC	1/8+	936	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18668	9-16-4	P	THOMAS M FAHEY AND PATRICIA FAHEY	TH EXPLORATION LLC	1/8+	936	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18669	9-16-4	P	ANDREW E POWELL AND MARIE C POWELL	TH EXPLORATION LLC	1/8+	936	139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22384	9-16-4	P	VIVIAN SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	916	642	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22429	9-16-4	P	DENNIS E BOGER AND MARY BETH BOGER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	921	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22477	9-16-4	P	NANCY E MCFARLAND AND SHAWN B MCFARLAND	AMERICAN PETROLEUM PARTNERS LLC	1/8+	921	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22478	9-16-4	P	URBAN SHUTLER AIF KEVIN C SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	921	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22479	9-16-4	P	KEVIN SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	920	115	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22482	9-16-4	P	MICHAEL J SHUTLER & PATRICIA SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	930	193	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22484	9-16-4	P	TERRENCE A SHUTLER AND DAWN J SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	928	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*22945	9-16-4	P	MARTHA J SHUTLER	AMERICAN PETROLEUM PARTNERS LLC	1/8+	917	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: AB 42/109
10*29413	9-16-4	P	JANA K PARRY	TH EXPLORATION LLC	1/8+	1096	319	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*29646	9-16-4	P	RED STONE RESOURCES LLC*	TH EXPLORATION LLC	1/8+	1100	70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*28268	9-18-5.2	Q	JOSEPH & ELIZABETH SHUTLER	TG STILES	1/8+	63	203	N/A	TG Stiles to South Penn Oil Company: DB 60/366	South Penn Oil Company to Tri-State Gas Company: DB 80/150	Tri-State Gas Company to The Manufacturers Light & Heat Company: DB 145/388	The Manufacturers Light & Heat Company to AM Snider & Duane M Sniders, Partners dba Hundred Gas Company: AB 4/489	Hundred Gas Company to Carl D Perkins: DB 451/132	Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72	Perkins Oil & Gas Inc to Stone Energy Corporation: AB 26/322	Stone Energy Corporation to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: AB 48/21
10*18326	9-18-18.1	U	JOHN F WAYMAN AND DOROTHY A WAYMAN	TH EXPLORATION LLC	1/8+	938	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19352	9-18-16.2	V	JOHN F WAYMAN AND DOROTHY A WAYMAN	TH EXPLORATION LLC	1/8+	938	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
**	9-18-16.3	W	CLARA THERESA KLUG RESIDUARY TRUST, by BENEFICIARIES ROBERT F. VILLERS and MARY JOSEPHINE NICE	UNLEASED				**FORCE POOL**									
10*28265	9-18-16.4	X	ROBERT F VILLERS AND APRIL L VILLERS	TH EXPLORATION LLC	1/8+	1073	381	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ASSIGNMENT AND BILL OF SALE

This ASSIGNMENT AND BILL OF SALE (this "Assignment") dated as of December 1, 2020 (the "Execution Date"), is made by and between EQT PRODUCTION COMPANY, a Pennsylvania corporation, with an address at 625 Liberty Avenue, Suite 1700, Pittsburgh, Pennsylvania 15222 ("EQT"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("TH") pursuant to the terms of that certain Acreage Trade Agreement by and among EQT, TH and TH Exploration II, LLC ("TH II"), dated July 8, 2020 (the "Agreement"). EQT and TH may be referred to herein together as the "Parties", and each individually as a "Party".

RECITALS

WHEREAS, EQT desires to transfer, convey and assign to TH certain of EQT's oil and gas leasehold interests located in Marshall County, West Virginia set forth on Exhibit A attached hereto and incorporated herein ("EQT Leases") in accordance with this Assignment and the Agreement; and

WHEREAS, TH desires to receive from EQT, all of EQT's right, title and interest in and to the EQT Leases in accordance with this Assignment and the Agreement.

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Agreement, the benefits to be derived by each Party hereunder and under the Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

ARTICLE I DEFINED TERMS

1.1 *Definitions.* Capitalized terms used herein and not otherwise defined throughout this Assignment shall have the meanings given such terms in the Agreement.

ARTICLE II ASSIGNMENT OF ASSETS

2.1 *Assignment.* Subject to the terms and conditions of this Assignment and the Agreement, EQT does hereby assign, convey and transfer to TH all of the right, title and interest of EQT in and to the following (collectively for purposes of this Assignment, the "EQT Assets"):

(a) Subject to the conveyance of the Wells Assets from EQT to TH II as described in the Agreement, the EQT Leases and appurtenances thereto (including rights of access and to install facilities), all Hydrocarbons within, produced from, derived from, or sold from the EQT Leases (and all proceeds related thereto), on and after the Valuation Date, and all Surface Contracts including but not limited to those set forth on Exhibit B attached hereto and incorporated herein (the "EQT Surface Contracts") related to the EQT Leases and such Hydrocarbons; and

(b) Copies of deeds, files and all other ownership information directly related to the acquisition, operations and maintenance of the EQT Leases, lease files for the EQT Leases

RECEIVED
Office of Oil and Gas
JAN 19 2021
WV Department of
Environmental Protection

07/16/2021

PARTIAL ASSIGNMENT OF OIL AND GAS LEASES

This PARTIAL ASSIGNMENT OF OIL AND GAS LEASES (hereinafter, "**Assignment**"), made the 31 day of May, 2018 (hereinafter, "**Effective Date**"), is by and between CNX GAS COMPANY LLC, a Virginia limited liability company, whose address is 1000 CONSOL Energy Drive, Suite 400, Canonsburg, Pennsylvania 15317 (hereinafter "**Assignor**") and TH EXPLORATION, LLC, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignee**"). All references in this Assignment to "**Party**" or "**Parties**" shall be deemed at all times to mean Assignor or Assignee or both. Capitalized terms used but not defined herein shall have the meaning given such terms in the Acreage Trade Agreement, by and between Assignor and Assignee dated April 9, 2018 (the "**ATA**").

WHEREAS, Assignor desires to assign all of Assignor's right, title and interest in and to those Oil and Gas Lease(s) as same may have been previously or will in the future be modified, extended, or amended (hereinafter, "**Lease**" or "**Leases**"), covering certain tracts of land (hereinafter, "**Lands**") located in Marshall County, West Virginia; such Leases and Lands covered thereby being more particularly described on Exhibit "A" attached hereto and made a part hereof insofar and only insofar as such Leases cover the Target Formations (as defined below).

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

- (a) All of Assignor's right, title, and interest in and to those Leases set forth on Exhibit A attached hereto INsofar AND ONLY INsofar as to the particular Target Formation(s) (defined below) described and delineated on Exhibit A for each Lease:
 - i. "**Target Formation(s)**" means, with respect to each Lease, two hundred feet (200') above the top and two hundred feet (200') below the base of the Marcellus Formation or the Utica Formation or both, as specified for each Lease on Exhibit A. For the purposes of this Assignment, the Marcellus Formation shall be defined as the formation commonly known as the Marcellus Shale Formation, with the top of the Marcellus Shale Formation defined as the correlative stratigraphic equivalent to that point found at 6517 feet (6517') measured depth on the Halliburton Simms U-5H Composite_DLL_DEN_NEU Log dated June 14, 2014 (the "**Log**")

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Office of Oil and Gas
JAN 19 2021
WV Department of
Environmental Protection

07/16/2021



January 15, 2021

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Susan Rose

RE: Van Winkle S-21HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

Tug Hill Operating, LLC is authorized through, either lease or other agreement, to unitize and pool all lands falling within the boundaries of the proposed voluntary unit included with this submission, with the exception of the following tract which we intend to force pool.

9-13-25

9-16-5

9-16-6

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 724-749-8388, or by email at amorris@tug-hilop.com.

Sincerely,

Amy L. Morris
Permitting Specialist – Appalachia Region
Tug Hill Operating



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

April 2, 2021

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

9489 0090 0027 6201 331710

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Van Winkle S-21HU

Dear Sir or Ma'am:

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

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

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

Sincerely,

A handwritten signature in cursive script that reads "Susan Rose". The signature is written in black ink and is positioned above the printed name and title.

Susan Rose
Administrator

encl:

07/16/2021



May 12, 2021

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6201 3317 10.

Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	April 9, 2021, 2:07 pm
Location:	FORT WORTH, TX 76107
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	10lb, 3.1oz
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Recipient Signature

Signature of Recipient:	<i>JB</i>
Address of Recipient:	<i>JB Rt 7th Covid-19</i> <i>1320 S University</i> <i># 500</i> <i>76107</i>

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

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

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

07/16/2021



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

April 2, 2021

SWN Production Company, LLC
10000 Energy Dr
Spring TX 77389

9489 0090 0027 6201 331741

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – Van Winkle S-21HU

Dear Sir or Ma'am:

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

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

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

Sincerely,

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

Susan Rose
Administrator

encl:

07/16/2021



May 12, 2021

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6201 3317 41.

Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	April 8, 2021, 12:18 pm
Location:	MORGANTOWN, WV 26508
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	8lb, 7.8oz
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Recipient Signature

Signature of Recipient:	CO - 19 MN 24
Address of Recipient:	1300 Ford Pierpont Dr # 201

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

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

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

07/16/2021

COUNTY	DISTRICT	PARCEL	OWNER	ADDRESS
Marshall	Franklin	5-10-9999.1	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-10-19	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-10-19.1	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-21	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-24	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-25	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-5.1	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-6	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-13-7	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-11	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-13	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-6	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-7	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

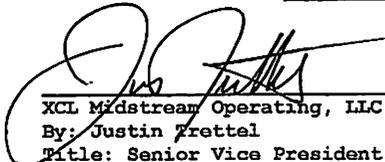
07/16/2021

Marshall	Meade	9-16-8	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-16-9	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-18-15	SWN PRODUCTION COMPANY, LLC	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-18-15.2	SWN PRODUCTION COMPANY, LLC	10000 Energy Drive Spring, TX 77389
Marshall	Meade	9-18-16	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-18-18	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-18-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-18-5.2	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
Marshall	Meade	9-18-6	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

CERTIFICATE OF CONSENT AND EASEMENT

I, the undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being all the owners of the surface of that certain lot, tract or parcel of land located in Meade District, Marshall County, State of West Virginia, shown on the attached plat or survey, or hereby consent and grant an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 11 day of FEBRUARY, 2021.



XCL Midstream Operating, LLC
By: Justin Trettel
Title: Senior Vice President

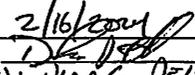
Marshall County
Jan Pest, Clerk
Instrument 1475005
02/18/2021 @ 12:30:42 PM
RIGHT OF WAY W/O CONSIDERATION
Book 1104 @ Page 189
Pages Recorded 2
Recording Cost \$ 11.00

ACKNOWLEDGMENT

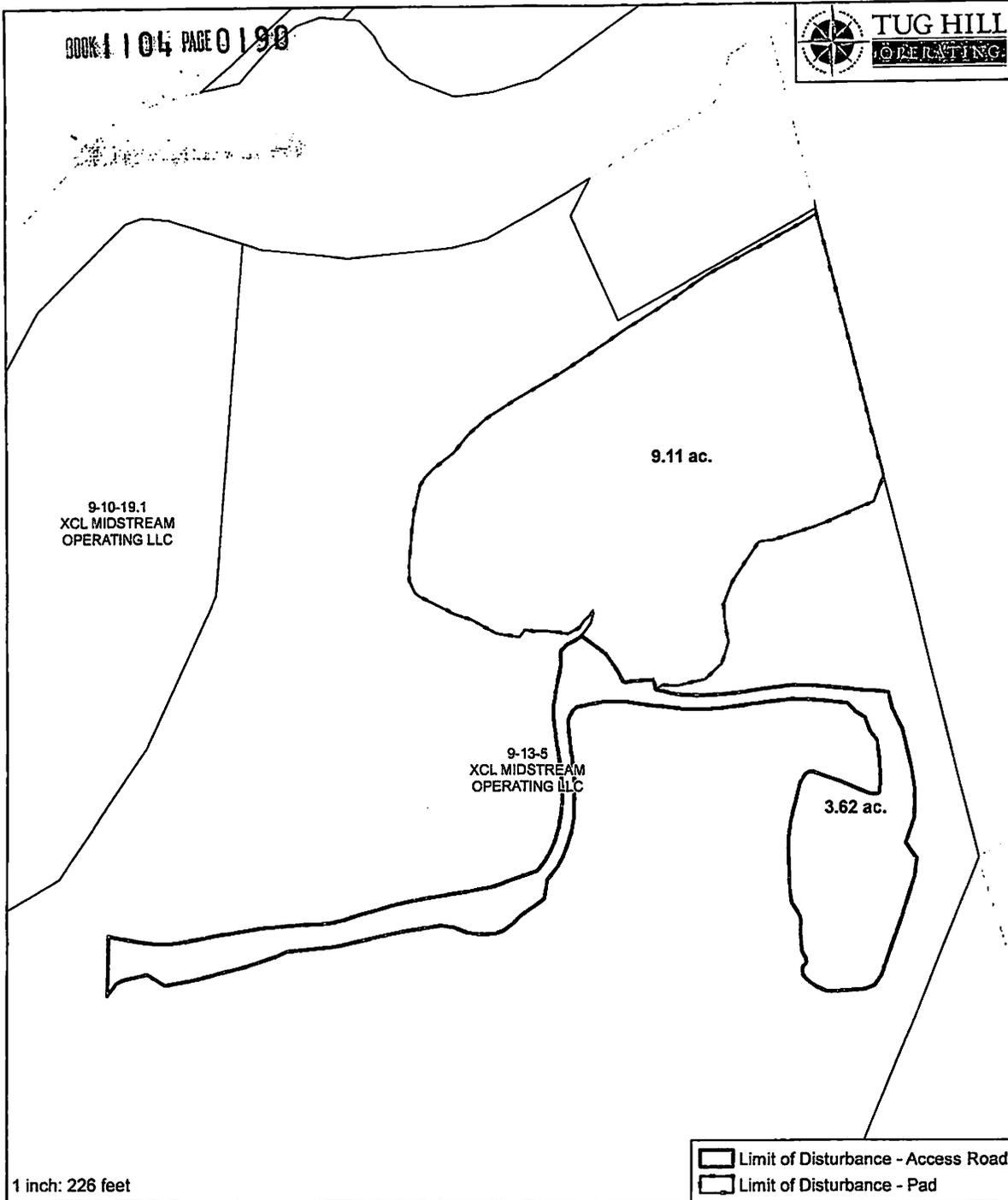
COMMONWEALTH OF PENNSYLVANIA §
§ SS:
COUNTY OF WASHINGTON §

On this, the 11 day of FEBRUARY 2021, before me, a notary public, the undersigned authority, personally appeared Justin Trettel, who acknowledged himself to be the Senior Vice President of XcL Midstream Operating, a Delaware limited liability company, and that he as such Senior Vice President being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited liability company by himself as Senior Vice President.

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

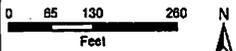
Commonwealth of Pennsylvania - Notary Seal
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 18, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries
Commission Expires: 2/18/2024
Signature/Notary Public: 
Notary Public (print): David G. Delallo

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304



1 inch: 226 feet

Limit of Disturbance - Access Road
 Limit of Disturbance - Pad



NOTE: THE APPROVED SITE LOCATION FOR THE SURFACE IS THE ACCESS ROAD. THE LOCATION OF THE PROPERTY PARCELS AS SHOWN ON THIS PLAT IS FOR INFORMATION ONLY. LOCATIONS MAY VARY AS THE USE OF A NOT AN EXACT REPRESENTATION. THE SURFACE PROPERTY IS THE PROPERTY OF THE COUNTY RECORDS AND THE APPROVED SITE LOCATION FOR THE SURFACE SITE. ACCESS ROAD AND PAD SHALL BE ITS LOCATION AS ACTUALLY CONSTRUCTED.

"Plat"

XCL MIDSTREAM OPERATING LLC
 Marshall County, WV

Date: _____

Name: _____

Name: _____



STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 11th day of February, 2021, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 18th day of February, 2021 at 12:30 o'clock P M.

TESTE: Jan Pest Clerk



January 15, 2021

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Wade Stansberry

RE: Van Winkle S-21HU

Subject: Marshall County Route 74, 21/5 and 21/6 Road Crossing Letter

Dear Wade:

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 74, 21/5 and 21/6 in the area reflected on the Van Winkle S-21HU 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-hilop.com.

Sincerely,

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

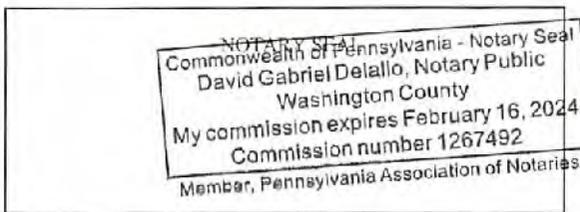
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Office of Oil and Gas
JAN 19 2021
WV Department of
Environmental Protection

07/16/2021

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><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-hilop.com</u>



Subscribed and sworn before me this 15 day of JANUARY, 2021.
David Gabriel Delallo Notary Public
 My Commission Expires 2/16/24

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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 WV Department of
 Environmental Protection
 07/16/2021

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle S-21HU
Well Pad Name: Hunter Pethel

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: 1/26/2021 **Date Permit Application Filed:** 1/15/2021

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: XcL Midstream Operating, LLC (Well Pad & Access Road)
Address: 380 Southpointe Boulevard, Plaza II, Suite 215
Canonsburg, PA 15317

Name: Frank E. & Mary Virginia Pethel, Life Estate (Well Pad)
Address: 9845 Fish Creek Road
Glen Easton, WV 26039

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: Regina M. & Aaron D. Murray, Remainderman
Address: 5 Mound Manor
St. Mary's, WV 26170

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

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

COAL OPERATOR

Name: _____
Address: _____

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

FEB 03 2021

WV Department of

07/16/2021

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and 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

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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WV Department of
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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.**

07/16/2021

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. Van Winkle S-21HU
Well Pad Name: Hunter Pethel

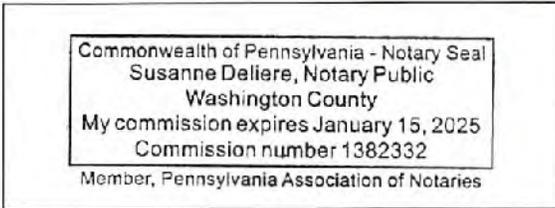
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hill-op.com *amy morris*

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.



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

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07/16/2021

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

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

Well: Van Winkle S – 21HU
 District: Meade
 State: WV

There are four (4) possible residences, one (1) possible commercial or business site, no churches, no schools and no emergency facilities within two-thousand feet (2,000') of the above referenced well location. Number 6 is a water well only and is not a residence.

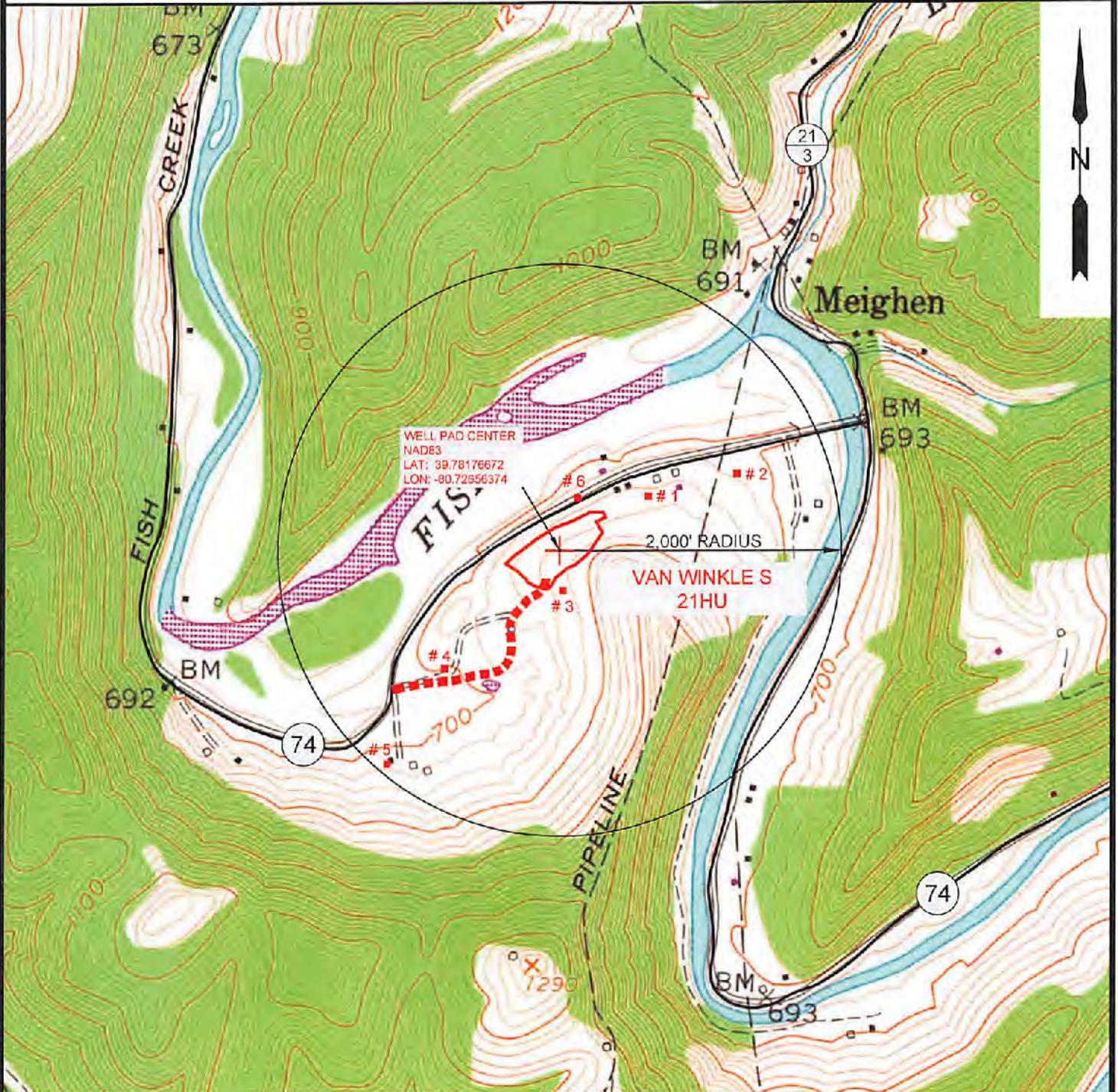
<p>Residence (#1) TM 13 Pcl. 6 Mary Virginia Pethtel Phone: 304-684-2646, 304-845-3423 Physical Address: None Found – Possible Mobile Home Tax Address: 9845 Fish Creek Rd Glen Easton, WV 26039</p>	<p>Residence (#2) TM 13 Pcl. 7 Mary Virginia Pethtel Phone: 304-684-2646, 304-845-3423 Physical Address: 9845 Fish Creek Rd Glen Easton, WV 26039 Tax Address: Same</p>	<p>Commercial/Business (#3)* TM 13 Pcl. 5 Xcl Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: 9269 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107 *Physical address appears to be related to Oil & Gas Well Pad.</p>
<p>Residence (#4) TM 13 Pcl. 5 Xcl Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: None Found – Appears to be newer home Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107</p>	<p>Residence (#5) TM 13 Pcl. 5 Xcl Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: 9201 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107</p>	<p>(#6) Water Well Only (No Residence) Joseph L. Blake & Michael A. Walker 1207 Roberts Ridge Rd. Moundsville, WV 26041</p>

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 Environmental Protection

PROPOSED VAN WINKLE S - 21HU



NOTE: THERE APPEARS TO BE SIX (6) POSSIBLE WATER SOURCES WITHIN 2,000'. NUMBER 6 IS A WATER WELL ONLY (NO RESIDENCE).

 <p>12 Vanhorn Drive P.O. Box 150 Glenville, WV 26351 304.462.5634 1412 Kanawha Boulevard, East Charleston, WV 25301 204.346.3952 254 East Beckley Bypass Beckley, WV 25801 304.255.5296 stsvv.com</p>	TOPO SECTION: GLEN EASTON 7.5'		OPERATOR: PREPARED FOR: TUG HILL OPERATING, LLC 390 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		 <p>TUG HILL OPERATING</p>
	COUNTY MARSHALL	DISTRICT MEADE	DATE 12/24/2020	SCALE 1" = 1000'	
	DRAWN BY K.G.M.	JOB NO. 8952			
	07/16/2021				

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle S-21HU
Well Pad Name: Hunter Pethel

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: 1/14/2021 Date Permit Application Filed: 1/15/2021

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: XcL Midstream Operating, LLC (Well Pad & Access Road)
 Address: 380 Southpointe Boulevard, Plaza II, Suite 215
 Canonsburg, PA 15317
 Name: Frank E. & Mary Virginia Pethel, Life Estate (Well Pad)
 Address: 9845 Fish Creek Road
 Glen Easton, WV 26039

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Regina M. & Aaron D. Murray, Remaindermen
 Address: 5 Mound Manor
 St. Mary's, WV 26170
 Name: _____
 Address: _____

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

COAL OWNER OR LESSEE
 Name: CNX Land, LLC
 Address: 1000 Consol Energy Drive
 Canonsburg, PA 15317

COAL OPERATOR
 Name: _____
 Address: _____

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

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

*Please attach additional forms if necessary

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Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any 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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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.

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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.

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

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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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JAN 19 2021
WV Department of
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07/16/2021

WW-6A
(8-13)

API NO. 47-051 - _____
OPERATOR WELL NO. Van Winkle S-21HU
Well Pad Name: Hunter Pethtel

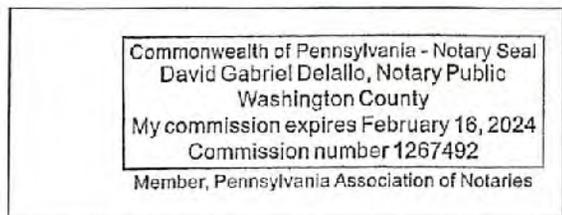
Notice is hereby given by:

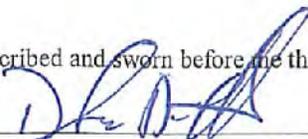
Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hilltop.com

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.



Subscribed and sworn before me this 14 day of JANUARY, 2021.


Notary Public
My Commission Expires 2/16/2024

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Exhibit WW-6A**Supplement Pg. 1A**

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

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

Well: Van Winkle S – 21HU
 District: Meade
 State: WV

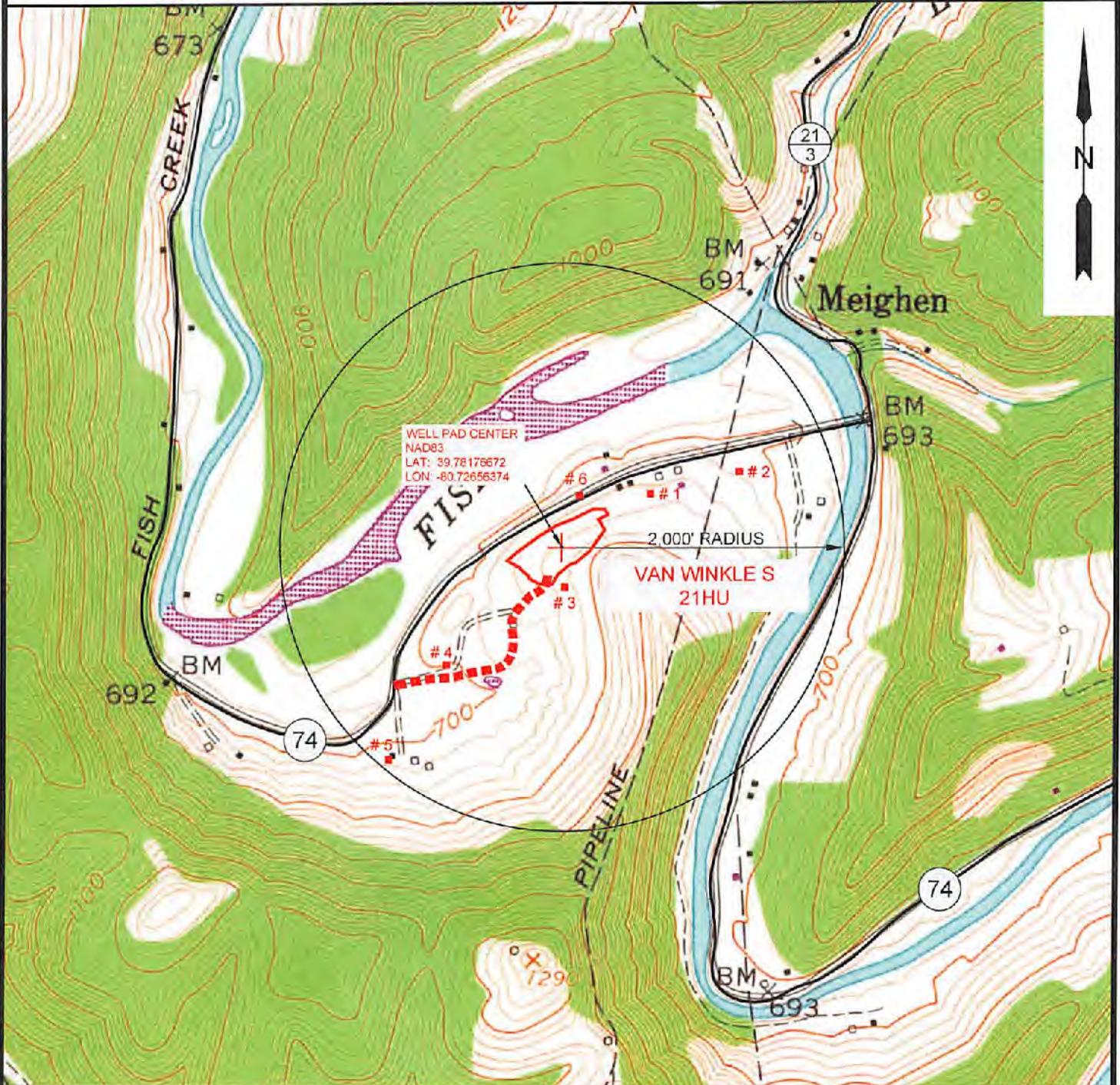
There are four (4) possible residences, one (1) possible commercial or business site, no churches, no schools and no emergency facilities within two-thousand feet (2,000') of the above referenced well location. Number 6 is a water well only and is not a residence.

Residence (#1) TM 13 Pcl. 6 Mary Virginia Pethtel Phone: 304-684-2646, 304-845-3423 Physical Address: None Found – Possible Mobile Home Tax Address: 9845 Fish Creek Rd Glen Easton, WV 26039	Residence (#2) TM 13 Pcl. 7 Mary Virginia Pethtel Phone: 304-684-2646, 304-845-3423 Physical Address: 9845 Fish Creek Rd Glen Easton, WV 26039 Tax Address: Same	Commercial/Business (#3)* TM 13 Pcl. 5 XcL Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: 9269 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107 *Physical address appears to be related to Oil & Gas Well Pad.
Residence (#4) TM 13 Pcl. 5 XcL Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: None Found – Appears to be newer home Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107	Residence (#5) TM 13 Pcl. 5 XcL Midstream Operating, LLC Phone: 1-888-751-0434 Physical Address: 9201 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 1320 S University DR STE 500 Fort Worth, TX 76107	(#6) Water Well Only (No Residence)

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PROPOSED VAN WINKLE S - 21HU



NOTE: THERE APPEARS TO BE SIX (6) POSSIBLE WATER SOURCES WITHIN 2,000'. NUMBER 6 IS A WATER WELL ONLY (NO RESIDENCE).

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Environmental Protection



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26035 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.546.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.265.6296
slsww.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.	8952	12/24/2020	1" = 1000'



**TUG HILL
OPERATING**

07/16/2021

Affidavit of Personal Service

State Of Pennsylvania
County Of Washington



The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) ___ / WW-3(A) ___ / WW-4(A) ___ / WW-5(A) ___ / WW-6(A) UAS
- (2) Application on Form WW-2(B) ___ / WW-3(B) ___ / WW-4(B) ___ / WW-5(B) ___ / WW-6(B) X
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Van Winkle Wells (see) located in Meade District, Marshall County, West Virginia, upon the person or organization named--

Kcl Midstream Operating, LLC
--by delivering the same in Washington County, State of Pennsylvania on the 14th day of January, 2021 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him ___ / her ___ / or, because he ___ / she ___ / refused to take it when offered it, by leaving it in his ___ / her ___ / presence.

Handing it to a member of his or her family above the age of 16 years named _____ who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to _____, a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named _____, or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

Handing it to the corporation's employee ___ / officer / director ___ / attorney in fact ___ / named Justin Trettel.

anyllowis
(Signature of person executing service)

Taken, subscribed and sworn before me this 14 day of JANUARY 2021.
My commission expires 2/16/24

[Signature]
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)

Commonwealth of Pennsylvania - Notary Seal
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

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JAN 19 2021
WV Department of
Environmental Protection

07/16/2021

WW-70 Attachment

Well List

Van Winkle N-16HU

Van Winkle N-17HU

Van Winkle N-18HU

Van Winkle N-19HU

Van Winkle S-20HU

Van Winkle S-21HU

Van Winkle S-22HU

Van Winkle S-23HU

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07/16/2021

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: 12/11/2020 **Date of Planned Entry:** 12/18/2020

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: XcL Midstream Operating, LLC (Well Pad & Access Road)
Address: 380 Southpointe Boulevard, Plaza II, Suite 215
Canonsburg, PA 15317

Name: Frank E. & Mary Virginia Pelhtel, Life Estate (Well Pad)
Address: 9845 Fish Creek Road
Glen Easton, WV 26039

Name: Regina M. & Aaron D. Murray, Remainderman
Address: 5 Mound Manor
St. Marys, WV 26170

COAL OWNER OR LESSEE

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

MINERAL OWNER(s)

Name: Frank E. & Mary Virginia Pelhtel, Life Estate
Address: 9845 Fish Creek Road
Glen Easton, WV 26039 **See attached list

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

Approx. Latitude & Longitude: 39.76176850; -80.72661360
Public Road Access: County Route 74
Watershed: Middle Fish Creek
Generally used farm name: XcL Midstream Operating, LLC

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

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amorris@tug-hill-op.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2020

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JAN 19 2021
WV Department of
Environmental Protection

Oil and Gas Privacy Notice:

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

07/16/2021

**WW-6A3 Notice of Entry for Plat Survey
Additional Parties to Notice
Van Winkle Wells**

Additional Mineral Owner:
Dennis W. Hunter
3322 Rainbow Lane
North Ft. Myers, FL 33903

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Office of Oil and Gas
JAN 19 2021
WW Department of
Environmental Protection

07/16/2021

Affidavit of Personal Service

State Of Pennsylvania
County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) / WW-3(A) / WW-4(A) / WW-5(A) / WW-6(A) 3 ✓
- (2) Application on Form WW-2(B) / WW-3(B) / WW-4(B) / WW-5(B) / WW-6(B)
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Van Winkle Wells (see list) located in Meade District, Marshall County, West Virginia, upon the person or organization named--

XCL Midstream Operating, LLC
--by delivering the same in Washington County, State of Pennsylvania on the 14th day of December, 2020 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him / her / or, because he / she / refused to take it when offered it, by leaving it in his / her / presence.

Handing it to a member of his or her family above the age of 16 years named who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to , a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named , or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

Handing it to the corporation's employee / officer / director / attorney in fact / named Justin Irettel.

Amy Mlovic
(Signature of person executing service)

Taken, subscribed and sworn before me this 14 day of December 2020.
My commission expires 2/16/2024.

D. L. DeBell
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)

Commonwealth of Pennsylvania - Notary Seal
David Gabriel DeBello, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

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WV Department of
Environmental Protection

07/16/2021

WW-70 Attachment

Well List

Van Winkle N-16HU

Van Winkle N-17HU

Van Winkle N-18HU

Van Winkle N-19HU

Van Winkle S-20HU

Van Winkle S-21HU

Van Winkle S-22HU

Van Winkle S-23HU

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JAN 19 2021

WV Department of
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07/16/2021

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: 01/14/2021 **Date Permit Application Filed:** 01/15/2021

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: XcL Midstream Operating, LLC
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317

Name: Frank E. & Mary Virginia Pethel (Life Estate)
Address: 9645 Fish Creek Road
Glen Easton, WV 26039

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	Easting:	<u>523,380.01</u>
County:	<u>Marshall</u>		Northing:	<u>4,403,545.82</u>
District:	<u>Meade</u>	Public Road Access:	<u>County Route 74</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>XcL Midstream Operating, LLC</u>	
Watershed:	<u>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: 724-749-8368
Email: amorris@tug-hillop.com

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

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Office of Oil and Gas
JAN 19 2021

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WV Department of
Environmental Protection

**Additional Surface Owner – Van Winkle Wells
WW-6A5**

Regina M. & Aaron D. Murray
5 Mound Manor
St. Marys, WV 26170



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WV Department of
Environmental Protection

07/16/2021

Affidavit of Personal Service

State Of Pennsylvania

County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) ___ / WW-3(A) ___ / WW-4(A) ___ / WW-5(A) ___ / WW-6(A) WAS
- (2) Application on Form WW-2(B) ___ / WW-3(B) ___ / WW-4(B) ___ / WW-5(B) ___ / WW-6(B) X
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Van Winkle Wells (left) located in Meade District, Marshall County, West Virginia, upon the person or organization named--

Kel Midstream Operating, LLC
--by delivering the same in Washington County, State of Pennsylvania on the 14th day of January, 2021 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him ___ / her ___ / or, because he ___ / she ___ / refused to take it when offered it, by leaving it in his ___ / her ___ / presence.

Handing it to a member of his or her family above the age of 16 years named _____ who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to _____, a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named _____, or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

Handing it to the corporation's employee ___ / officer / director ___ / attorney in fact ___ / named Justin Trettel.

amy morris
(Signature of person executing service)

Taken, subscribed and sworn before me this 14 day of JANUARY 2021.
My commission expires 2/16/24

David Delallo
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)

Commonwealth of Pennsylvania - Notary Seal
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

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JAN 19 2021
WV Department of
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07/16/2021

WW-70 Attachment

Well List

Van Winkle N-16HU

Van Winkle N-17HU

Van Winkle N-18HU

Van Winkle N-19HU

Van Winkle S-20HU

Van Winkle S-21HU

Van Winkle S-22HU

Van Winkle S-23HU



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

January 14, 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 Hunter-Pethtel Pad, Marshall County
Van Winkle S-21HU Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2009-0275 which has been transferred to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 74 SLS.

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.

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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JAN 19 2021

WV Department of
Environmental Protection

07/16/2021



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Van Winkle 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

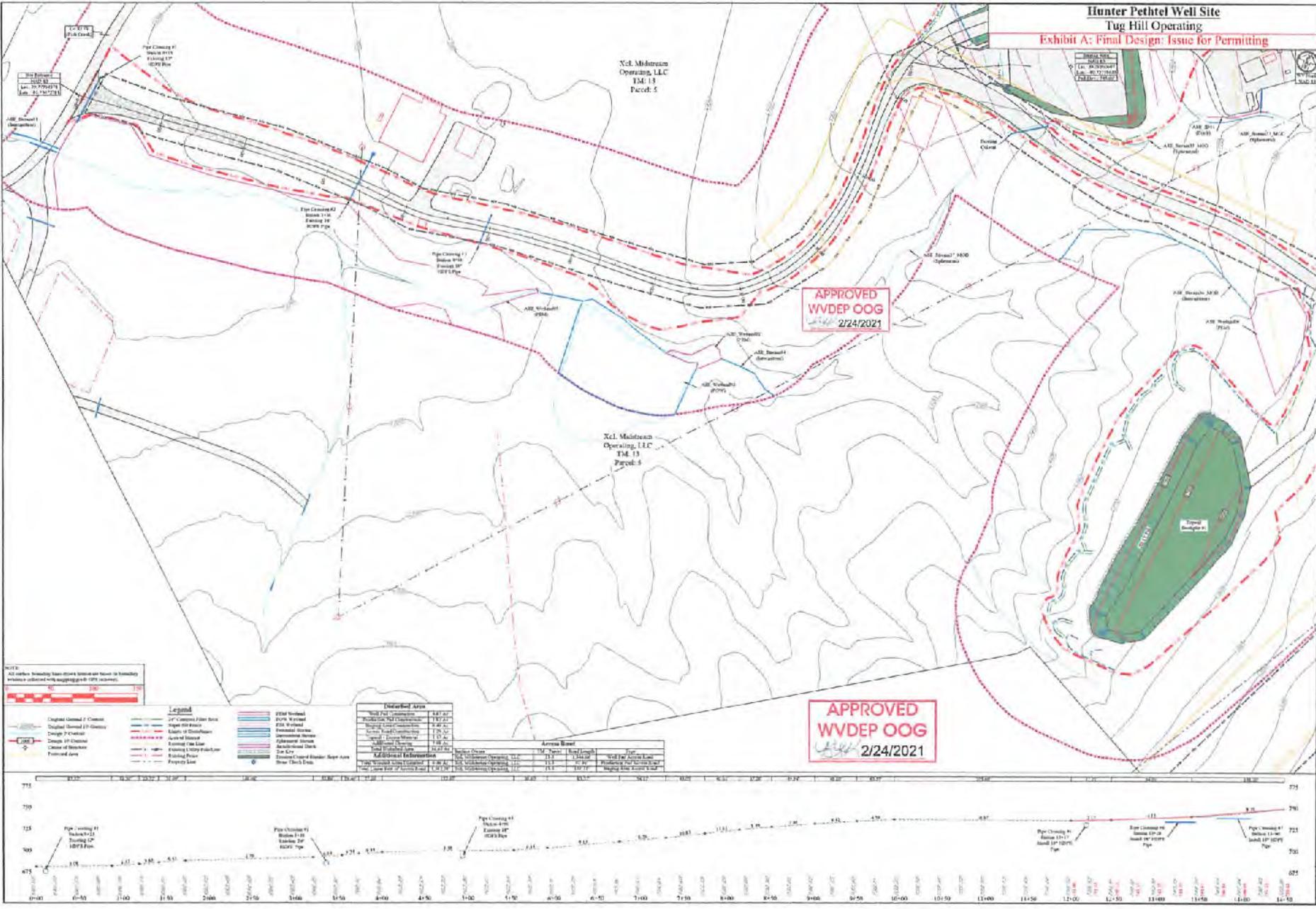
Hunter Pettel Well Site
Tug Hill Operating
Exhibit A: Final Design: Issue for Permitting

Xel Midstream
 Operating, LLC
 FM 13
 Parcel 5

Xel Midstream
 Operating, LLC
 FM 13
 Parcel 5

APPROVED
 WVDEP OOG
 2/24/2021

APPROVED
 WVDEP OOG
 2/24/2021



NOTES:
 All colors including blue shall be shown on finished drawings unless otherwise noted.

Legend

Original Ground Profile	24" Concrete Filter Box	24" Concrete Filter Box
Original Ground Profile	18" Concrete Filter Box	18" Concrete Filter Box
Design Profile	12" Concrete Filter Box	12" Concrete Filter Box
Design Profile	8" Concrete Filter Box	8" Concrete Filter Box
Design Profile	4" Concrete Filter Box	4" Concrete Filter Box
Center of Structure	2" Concrete Filter Box	2" Concrete Filter Box
Footprint Area	1" Concrete Filter Box	1" Concrete Filter Box
	0.5" Concrete Filter Box	0.5" Concrete Filter Box
	0.25" Concrete Filter Box	0.25" Concrete Filter Box
	0.125" Concrete Filter Box	0.125" Concrete Filter Box
	0.0625" Concrete Filter Box	0.0625" Concrete Filter Box
	0.03125" Concrete Filter Box	0.03125" Concrete Filter Box
	0.015625" Concrete Filter Box	0.015625" Concrete Filter Box
	0.0078125" Concrete Filter Box	0.0078125" Concrete Filter Box
	0.00390625" Concrete Filter Box	0.00390625" Concrete Filter Box
	0.001953125" Concrete Filter Box	0.001953125" Concrete Filter Box
	0.0009765625" Concrete Filter Box	0.0009765625" Concrete Filter Box
	0.00048828125" Concrete Filter Box	0.00048828125" Concrete Filter Box
	0.000244140625" Concrete Filter Box	0.000244140625" Concrete Filter Box
	0.0001220703125" Concrete Filter Box	0.0001220703125" Concrete Filter Box
	0.00006103515625" Concrete Filter Box	0.00006103515625" Concrete Filter Box
	0.000030517578125" Concrete Filter Box	0.000030517578125" Concrete Filter Box
	0.0000152587890625" Concrete Filter Box	0.0000152587890625" Concrete Filter Box
	0.00000762939453125" Concrete Filter Box	0.00000762939453125" Concrete Filter Box
	0.000003814697265625" Concrete Filter Box	0.000003814697265625" Concrete Filter Box
	0.0000019073486328125" Concrete Filter Box	0.0000019073486328125" Concrete Filter Box
	0.00000095367431640625" Concrete Filter Box	0.00000095367431640625" Concrete Filter Box
	0.000000476837158203125" Concrete Filter Box	0.000000476837158203125" Concrete Filter Box
	0.0000002384185791015625" Concrete Filter Box	0.0000002384185791015625" Concrete Filter Box
	0.00000011920928955078125" Concrete Filter Box	0.00000011920928955078125" Concrete Filter Box
	0.000000059604644775390625" Concrete Filter Box	0.000000059604644775390625" Concrete Filter Box
	0.0000000298023223876953125" Concrete Filter Box	0.0000000298023223876953125" Concrete Filter Box
	0.00000001490116119384765625" Concrete Filter Box	0.00000001490116119384765625" Concrete Filter Box
	0.000000007450580596923828125" Concrete Filter Box	0.000000007450580596923828125" Concrete Filter Box
	0.0000000037252902984619140625" Concrete Filter Box	0.0000000037252902984619140625" Concrete Filter Box
	0.00000000186264514923095703125" Concrete Filter Box	0.00000000186264514923095703125" Concrete Filter Box
	0.000000000931322574615478515625" Concrete Filter Box	0.000000000931322574615478515625" Concrete Filter Box
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	0.00000000000000000000000000000001232592941211979166640625" Concrete Filter Box	0.00000000000000000000000000000001232592941211979166640625" Concrete Filter Box
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