



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, March 16, 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 N-6HM
47-051-02364-00-00

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 N-6HM
Farm Name: XCL MIDSTREAM OPERATI^h
U.S. WELL NUMBER: 47-051-02364-00-00
Horizontal 6A New Drill
Date Issued: 3/16/2021

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.

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.

WW-6B
(04/15)

API NO. 47-⁰⁵¹ 4705102364
OPERATOR WELL NO. Van Winkle N-6HM
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

<u>494510851</u>	<u>Marshall</u>	<u>Meade</u>	<u>Glen Easton 7.5'</u>
Operator ID	County	District	Quadrangle

2) Operator's Well Number: Van Winkle N-6HM 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

Bary Hilly 1-20-21

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6144' - 6194', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 6,294'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 15,684'

11) Proposed Horizontal Leg Length: 9,122.52'

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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4705102364

WW-6B
(04/15)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle N-6HM
Well Pad Name: Hunter Pethtel

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	13 3/8"	NEW	J55	54.5#	515'	515'	708ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	515'	515'	708ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,227'	2,227'	723ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,684'	15,684'	4001ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		5,847'	
Liners							

BS 1-28-21

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

PACKERS

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

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WW-6B
(10/14)

4705102364
API NO. 47-051 -
OPERATOR WELL NO. Van Winkle N-6HM
Well Pad Name: Hunter Pelhtel

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

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

Bany Stiles 1/20/21

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

Well to be completed with approximately 23,000,000 lb proppant and 410,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

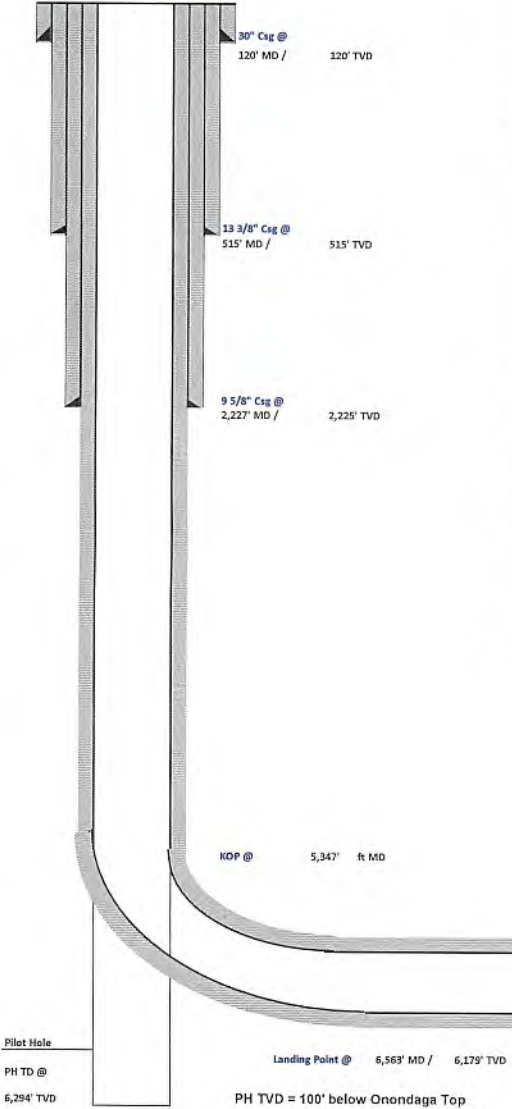


WELL NAME: Van Winkle N-6HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 754' GL Elev: 754'
 TD: 15,684'
 TH Latitude: 39.781916
 TH Longitude: -80.726229
 BH Latitude: 39.804406
 BH Longitude: -80.742752

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	415
Sewickley Coal	314
Pittsburgh Coal	409
Big Lime	1631
Weir	1923
Berea	2122
Gordon	2392
Rhinestreet	5509
Genesee/Burkett	6014
Tully	6041
Hamilton	6076
Marcellus	6144
Landing Depth	6179
Onondaga	6194
Pilot Hole Depth	6294

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	BW	Surface
Surface	17.5	13 3/8	515'	515'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,227'	2,225'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	15,684'	6,020'	20	CYHP110	Surface

CEMENT SUMMARY			DRILLING DETAILS		
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	687	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	757	A	15	Air	1 Centralizer every other jt
Production	3,676	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



Bay Shiller 1/20/21

4705102364

Lateral TD @ 15,684' ft MD
6,020' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Van Winkle N-6HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	515'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,227'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	15,684'	CTS

Cement

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

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

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19

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

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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

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

Data Sources Reviewed:

1. 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 N-6HM

Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101330	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.
4705101846	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.
4705130296	Unknown	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 Marcellus well.	Well was plugged 8/30/1949.
4705170653	Unknown	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 Marcellus well.	State records are incomplete.

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Location Information: View Map

Table with columns: API, COUNTY, PERMIT, TAX, DISTRICT, QUAD, QUAD_15, LAT_OD, LON_OD, UTM_E, UTM_N. Row 1: 4705101284, Marshall, 1284, Meade, Glen Easton Cameron, 39 791304 -90 727076, 5233024, 4407519 9

There is no Bottom Hole Location data for this well

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_VO, PROP_TRGT, FM, TFM_EST, PR. Row 1: 4705101284, 11/25/2009, Original Loc, Completed, Dennis W Hurter, 1, Hurter, Dennis W Hurter, Stone Energy Corporation, 8/155, Marcellus Fm

Completion Information:

Table with columns: API, CMP_DT, SPUD_DT, ELEV, DATUM, FIELD, DEEPERT_FM, DEEPEST_FTM, INITIAL_CLASS, FINAL_CLASS, TYPE, RIG, CMP_MTHD, TVD, TMD, NWD_FTC, KOD, G_BEF, G_AFT, O_BEF, O_AFT, NGL_BEF, NGL_AFT, P_BEF, T_BEF, P_AFT, TLAFT, BH_P_BEF, BH_P_AFT, G_MSRD_BY. Row 1: 4705101284, 11/25/2009, 8/25/2009, 752, Ground Level, Cameron-Garner, Onondaga Ls, Marcellus Fm, Development Well, Gas, Rotary, Fractured, 6346, 6346, 226, 206

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. Rows include Water, Gas, and Pay activities for various depths and sections.

Production Gas Information (Volumes in Mcf)

Table with columns: API, PRODUCING_OPERATOR, PRO_YEAR, ANN_GAS, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM. Rows show production data for Stone Energy Corporation and EOT Production Company from 2011 to 2018.

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

Table with columns: API, PRODUCING_OPERATOR, PRO_YEAR, ANN_OIL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM. Rows show production data for Stone Energy Corporation and EOT Production Company from 2011 to 2018.

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

Table with columns: API, PRODUCING_OPERATOR, PRO_YEAR, ANN_NGL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM. Rows show production data for Stone Energy Corporation and EOT Production Company from 2011 to 2018.

Production Water Information (Volumes in Gallons)

Table with columns: API, PRODUCING_OPERATOR, PRO_YEAR, ANN_WTR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM. Rows show production data for EOT Production Company from 2018 to 2019.

Stratigraphy Information:

Table with columns: API, SUFFIX, FM, FM_QUALITY, DEPTH_TOP, DEPTH_QUALITY, THICKNESS, THICKNESS_QUALITY, ELEV, DATUM. Lists various geological layers like Pittsburgh coal, Lime Lime, Greenlee Grp, etc., with their depths and qualities.

Wireline (E-Log) Information:

Table with columns: API, LOG_TOP, LOG_BOT, DEEPEST_FML, 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. Row 1: 4705101284, 109, 6360, 6360, Y, H, 106, 6360, 2011, 6355, 2011, 6360, 2037, 6360, 7011, 6367, Y, Y, H

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the .tif 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. 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-SYN, 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. e: other. p: perforation depth control or perforate.

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

There is no Plugging data for this well

There is no Sample data for this well

WV Department of Environmental Protection RECEIVED Office of Oil and Gas JAN 25 2021

4705102364

Location Information: View Map

Table with columns: API, COUNTY, PERMIT, TAX, DISTRICT, QUAD, QUAD_76, 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_FML, DEEPEST_FMT, INITIAL_CLASS, FINAL_CLASS, TYPE, RIG, CMP_MTHD, TVD, TMD, NEW_FYQ, KOD, G_BEF, G_AFT, O_BEF, O_AFT, NGL_BEF, NGL_AFT, P_BEF, TL_BEF, P_AFT, TL_AFT, BM_P_BEF, BR_P_AFT, G_MSRD_BY

Pay/Show/Well 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, QUALITY, THICKNESS, THICKNESS_QUALITY, ELEV, DATUM

Wireline (E-Log) Information:

Table with columns: API, LOG_TOP, LOG_BOT, DEEPEST_FML, LOGS_AVAIL, 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, INCH5, REDUCED, KOP, LOGMD, ELEV_KB, ELEV_GL, ELEV_DF, LOG_MSRD_FROM

Comment: *logs: ROP, tool temp

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the .tif images 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.

FILENAME: 4705101330oo_5n_md_tvd.pdf

- Quick Reference Guide for Log File Names For more info about WVGES scanned logs click here
geologic log types:
d density (includes bulk density, compensated density, density, density porosity, grain density, etc.)
e photoelectric adsorption (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-SWN, 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
o other
p perforation depth control or perforate

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, Imson

There is no Plugging data for this well

There is no Sample data for this well

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4705102364

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
1705101846	Marshall	1846	Meade	Glen Easton	Cameron	39.781827	-80.726602	523411.3	4403578.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
1705101846	1	As Proposed	521973.8	4404978.5	-80.743342

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
1705101846	-/-		Cancelled	Dennis W Hunter	9H		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	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
1705101846	-/-	-/-	755	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
1705101846	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
1705101846	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
1705101846	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
1705101846	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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Well: County = 51 Permit = 01847

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
705101847	Marshall	1847	Meade	Glen Easton	Cameron	39.781755	-80.72647	523422.6	4403570.4

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
705101847	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
705101847	--		Divd Orign Loc	Cancelled	Dennis W Hunter	4H	Hunter Pethtel		Dennis W Hunter et al	Stone Energy Corporation		6250	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	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
705101847	--	--		755	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
705101847	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
705101847	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
705101847	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
705101847	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	LONG_DD	UTME	UTMN
1705101859	Marshall	1859	Meade	Glen Easton	Cameron	39.78156	-80.726875	523388	4403548.6

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
1705101859	1	As Proposed	521903.3	4404681.6	-80.744175 39.781808

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
1705101859	--		Cancelled	Dennis W Hunter	8H		Hunter Pethel		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	TI_AFT	BH_P_BEF	BH_P_AFT	G_MSRD_BY
1705101859	--	--	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
1705101859	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
1705101859	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
1705101859	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
1705101859	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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WV Geological & Economic Survey:

Well: County = 61 Permit = 01860

Report Time: Thursday, December 03, 2020 3:59:50 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
1705101860	Marshall	1860	Meade	Glen Easton	Cameron	39.781673	-80.726548	523416	4403561.3

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LONG_DD	LAT_DD
1705101860	1	As Proposed	522074.3	4405230.4	-80.74216 39.796748

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
1705101860	--		Cancelled	Dennis W Hunter	10H		Hunter Peittel		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
1705101860	--	--	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
1705101860	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
1705101860	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
1705101860	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
1705101860	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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4705102364

Location Information: [View Map](#)

PI	COUNTY	PERMIT	TAX_DISTRICT	QUAD_76	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
705101866	Marshall	1866	Meade	Glen Easton	Cameron	39 781782	-80 726408	523427.8	4403573.4

Bottom Hole Location Information:

PI	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
705101866	1 As Proposed	524237.2	4402287.1	-80.717005	39.77617

Owner Information:

PI	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
705101866	1/1/17	Divd Orig Loc	Cancelled	Dennis W Hunter	5H		Hunter/Petite		Dennis W Hunter et al	Stone Energy Corporation	6250	Marcellus Fm	4200

Completion Information:

PI	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_MSRO_BY
705101866	1/1/17	1/1/17	755 Ground Level																									

Comment: 1/1/17 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)

PI	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
705101866	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

PI	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
705101866	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

PI	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
705101866	EQT Production Company	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

PI	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
705101866	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
705130296	Marshall	30296	Meade	Glen Easton	Cameron	39.795854	-80.735275	522884.1	4405132.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
705130296	-/-/1920		Original Loc. Completed	H & T W Crow	1					Isiringer, A. G.			

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
705130296	-/-/1920	-/-/	791	Ground Level				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

Logging Information:

API	PLG_DT	DEPTH_PBT
705130296	8/30/1949	0

There is no Sample data for this well

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4705102364

Well: County = 51 Permit = 70653

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
1705170653	Marshall	70653	Meade	Glen Easton	Cameron	39.792919	-80.734278	522750.4	4484807.2

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
1705170653	-/-		unknown	Prpty Map Weedson Crvw	2					unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TL_BEF	P_AFT	TL_AFT	BH_P_BEF	BH_P_AFT	G_MSRO_BY
1705170653	-/-	-/-						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

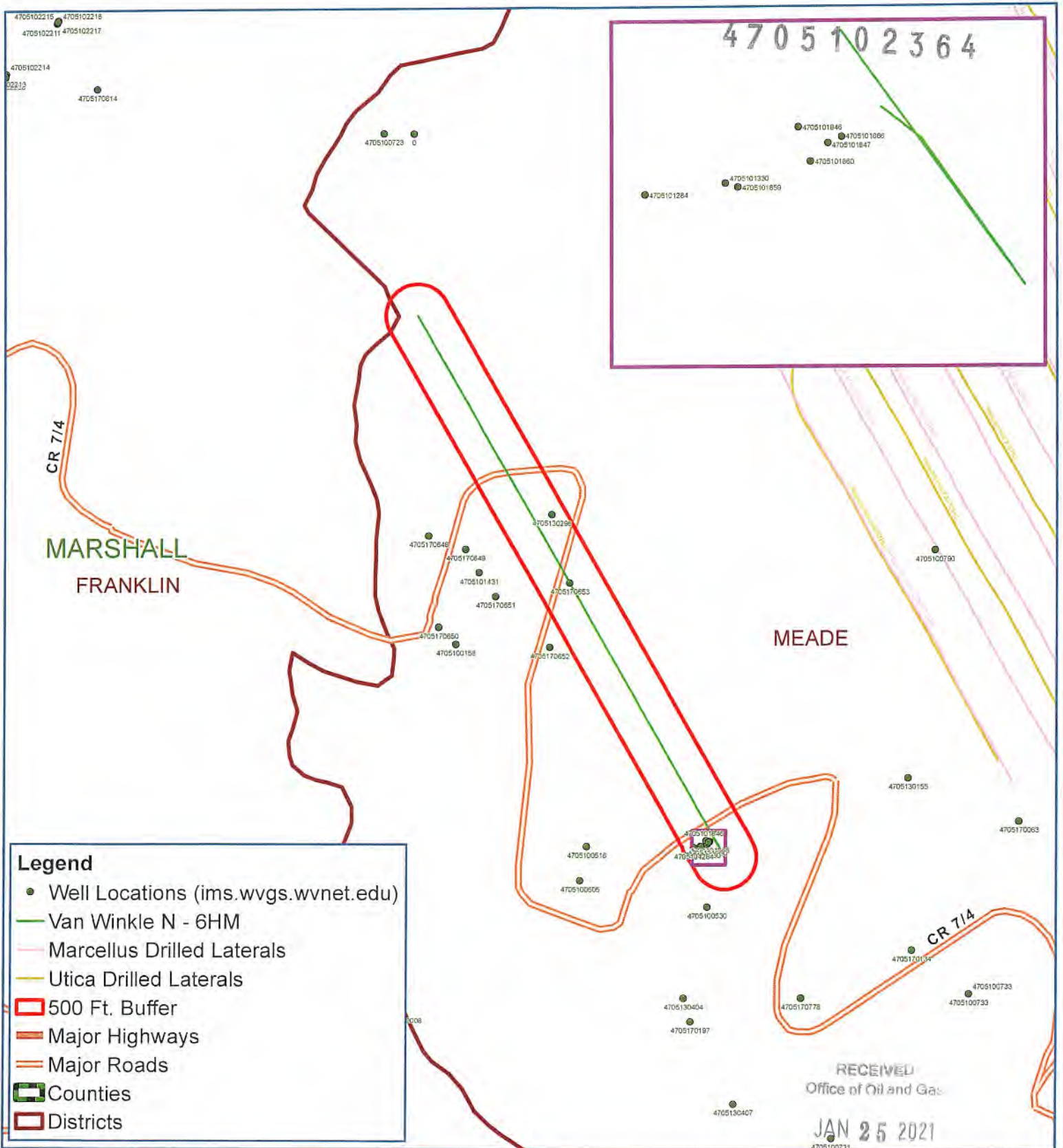
There is no Sample data for this well

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Van Winkle N - 6HM Meade District Marshall County, WV



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

WV Department of Environmental Protection

Map Prepared by:

03/19/2021

Map Created: December 2, 2020
 Map Current As Of: December 11, 2020



Well: Van Winkle N-06 HM (slot U)
Site: Van Winkle
Project: Marshall County, West Virginia
Design: rev1
Rig:

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Van Winkle N-06HM PBHL r1 - plan hits target center	6020.00	8175.49	-4665.52	14447439.35	1712664.39	39.80440600	-80.74275200
Van Winkle N-06HM LP r1 - plan hits target center	6179.00	263.23	-131.16	14447702.58	1717198.74	39.78264000	-80.72669300

SECTION DETAILS

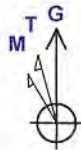
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1475.00	3.50	135.000	1474.89	-3.78	3.78	2.00	135.000	-5.15	Begin 3.50° tangent
4	2475.00	3.50	135.000	2473.03	-46.95	46.95	0.00	0.000	-64.04	Begin 2°/100' drop
5	2650.00	0.00	135.000	2647.92	-50.72	50.72	2.00	180.000	-69.20	Begin vertical hold
6	4002.08	0.00	135.000	4000.00	-50.72	50.72	0.00	135.000	-69.20	Begin 2°/100' build
7	4736.73	14.69	150.965	4726.62	-132.63	96.19	2.00	150.965	-162.87	
8	5344.74	14.69	150.965	5314.75	-267.47	171.04	0.00	0.000	-317.08	
9	6153.40	50.00	330.547	6045.04	-65.50	56.03	8.00	179.646	-84.66	Begin 10°/100' build/turn
10	6563.40	91.00	330.184	6179.00	263.23	-131.16	10.00	-0.553	293.63	Begin 91.00° lateral
11	15684.23	91.00	330.184	6020.00	8175.49	-4665.52	0.00	0.000	9413.06	PBHL/TD 15683.65 MD/6020.00 TVD

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

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

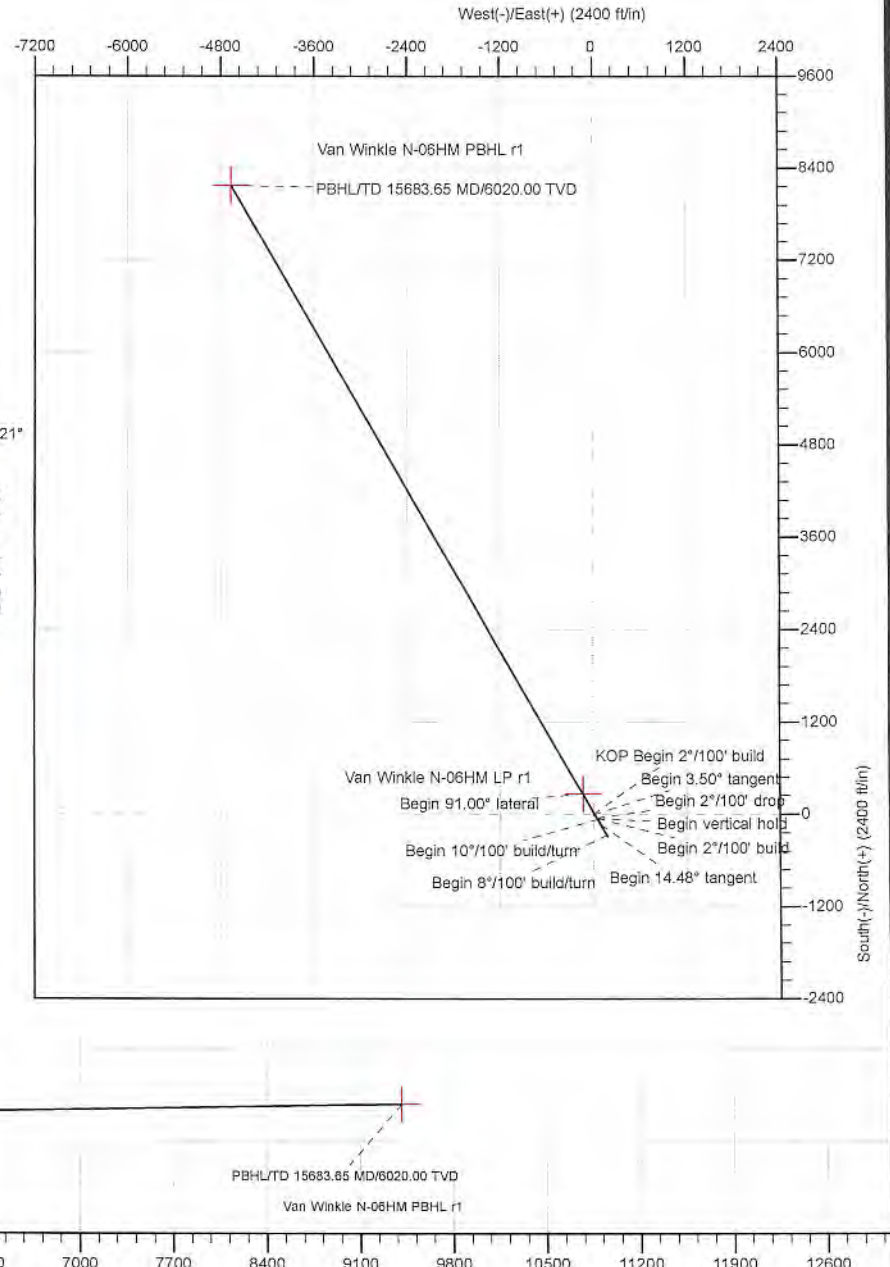
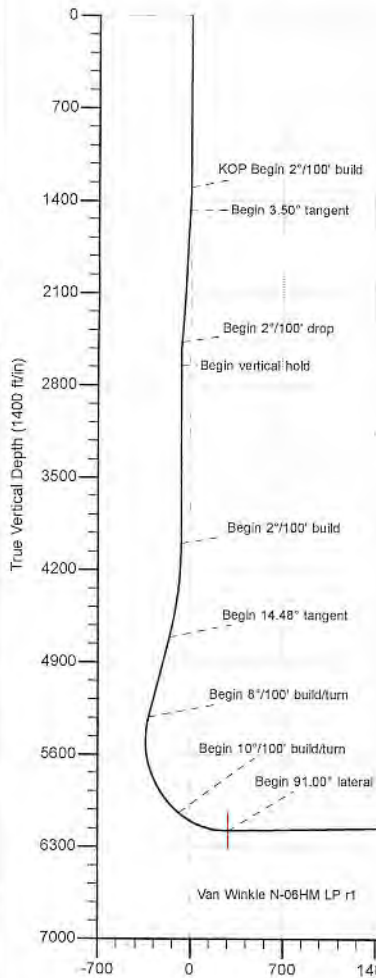
Northing: 14447439.35 Easting: 1717329.90 Latitude: 39.78191600 Longitude: -80.72622900

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.821°



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

Magnetic Field
 Strength: 51812.3snT
 Dip Angle: 66.60°
 Date: 11/13/2020
 Model: IGRF2020



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Vertical Section at 330.288° (1400 ft/in)

4705102364



Planning Report - Geographic



Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Van Winkle N-06 HM (slot U)
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 N-06 HM (slot U)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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

Site	Van Winkle				
Site Position:		Northing:	14,447,369.50 usft	Latitude:	39.78172533
From:	Lat/Long	Easting:	1,717,188.44 usft	Longitude:	-80.72673327
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.175 °

Well	Van Winkle N-06 HM (slot U)					
Well Position	+N/-S	0.00 ft	Northing:	14,447,439.36 usft	Latitude:	39.78191600
	+E/-W	0.00 ft	Easting:	1,717,329.90 usft	Longitude:	-80.72622900
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	51,812.27132655

Design	rev1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	330.288	

Plan Survey Tool Program	Date	11/17/2020			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	15,683.65 rev1 (Original Hole)	MWD		
			MWD - Standard		

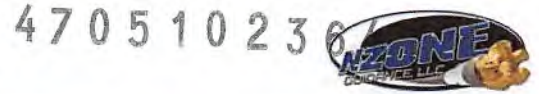
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Planning Report - Geographic



Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Van Winkle N-06 HM (slot U)
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 N-06 HM (slot U)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Plan Sections											
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target	
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,300.00	0.00	0.000	1,300.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,475.00	3.50	135.000	1,474.89	-3.78	3.78	2.00	2.00	0.00	135.000		
2,475.00	3.50	135.000	2,473.03	-46.95	46.95	0.00	0.00	0.00	0.000		
2,650.00	0.00	135.000	2,647.92	-50.72	50.72	2.00	-2.00	0.00	180.000		
4,002.08	0.00	135.000	4,000.00	-50.72	50.72	0.00	0.00	0.00	135.000		
4,736.73	14.69	150.965	4,726.62	-132.63	96.19	2.00	2.00	2.17	150.965		
5,344.74	14.69	150.965	5,314.75	-267.47	171.04	0.00	0.00	0.00	0.000		
6,153.40	50.00	330.547	6,045.04	-65.50	56.03	8.00	4.37	22.21	179.646		
6,563.40	91.00	330.184	6,179.00	263.23	-131.16	10.00	10.00	-0.09	-0.553		
15,684.23	91.00	330.184	6,020.00	8,175.49	-4,665.52	0.00	0.00	0.00	0.000	Van Winkle N-06HM F	

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Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle N-06 HM (slot U)
 Wellbore: Original Hole
 Design: rev1

Local Co-ordinate Reference: Well Van Winkle N-06 HM (slot U)
 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	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
100.00	0.00	0.000	100.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
200.00	0.00	0.000	200.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
300.00	0.00	0.000	300.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
400.00	0.00	0.000	400.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
500.00	0.00	0.000	500.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
600.00	0.00	0.000	600.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
700.00	0.00	0.000	700.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
800.00	0.00	0.000	800.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
900.00	0.00	0.000	900.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,447,439.36	1,717,329.90	39.78191600	-80.72622900
KOP Begin 2°/100' build									
1,400.00	2.00	135.000	1,399.98	-1.23	1.23	14,447,438.12	1,717,331.13	39.78191260	-80.72622462
1,475.00	3.50	135.000	1,474.89	-3.78	3.78	14,447,435.58	1,717,333.67	39.78190559	-80.72621559
Begin 3.50° tangent									
1,500.00	3.50	135.000	1,499.84	-4.86	4.86	14,447,434.50	1,717,334.75	39.78190262	-80.72621176
1,600.00	3.50	135.000	1,599.66	-9.17	9.17	14,447,430.18	1,717,339.07	39.78189073	-80.72619645
1,700.00	3.50	135.000	1,699.47	-13.49	13.49	14,447,425.87	1,717,343.39	39.78187884	-80.72618113
1,800.00	3.50	135.000	1,799.29	-17.81	17.81	14,447,421.55	1,717,347.70	39.78186695	-80.72616581
1,900.00	3.50	135.000	1,899.10	-22.12	22.12	14,447,417.23	1,717,352.02	39.78185506	-80.72615049
2,000.00	3.50	135.000	1,998.91	-26.44	26.44	14,447,412.92	1,717,356.34	39.78184316	-80.72613517
2,100.00	3.50	135.000	2,098.73	-30.76	30.76	14,447,408.60	1,717,360.65	39.78183127	-80.72611985
2,200.00	3.50	135.000	2,198.54	-35.08	35.08	14,447,404.28	1,717,364.97	39.78181938	-80.72610454
2,300.00	3.50	135.000	2,298.35	-39.39	39.39	14,447,399.97	1,717,369.29	39.78180749	-80.72608922
2,400.00	3.50	135.000	2,398.17	-43.71	43.71	14,447,395.65	1,717,373.60	39.78179560	-80.72607390
2,475.00	3.50	135.000	2,473.03	-46.95	46.95	14,447,392.41	1,717,376.84	39.78178668	-80.72606241
Begin 2°/100' drop									
2,500.00	3.00	135.000	2,497.99	-47.95	47.95	14,447,391.41	1,717,377.84	39.78178392	-80.72605885
2,600.00	1.00	135.000	2,597.92	-50.42	50.42	14,447,388.94	1,717,380.31	39.78177712	-80.72605010
2,650.00	0.00	135.000	2,647.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
Begin vertical hold									
2,700.00	0.00	0.000	2,697.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
2,800.00	0.00	0.000	2,797.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
2,900.00	0.00	0.000	2,897.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,000.00	0.00	0.000	2,997.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,100.00	0.00	0.000	3,097.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,200.00	0.00	0.000	3,197.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,300.00	0.00	0.000	3,297.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,400.00	0.00	135.000	3,397.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,500.00	0.00	0.000	3,497.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,600.00	0.00	0.000	3,597.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,700.00	0.00	0.000	3,697.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,800.00	0.00	0.000	3,797.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
3,900.00	0.00	0.000	3,897.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
4,000.00	0.00	0.000	3,997.92	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
4,002.08	0.00	0.000	4,000.00	-50.72	50.72	14,447,388.63	1,717,380.62	39.78177627	-80.72604900
Begin 2°/100' build									
4,100.00	1.96	150.965	4,097.90	-52.19	51.54	14,447,387.17	1,717,381.43	39.78177225	-80.72604613
4,200.00	3.96	150.965	4,197.76	-56.70	54.04	14,447,382.66	1,717,383.94	39.78175984	-80.72603726
4,300.00	5.96	150.965	4,297.38	-64.26	58.24	14,447,375.10	1,717,388.13	39.78173905	-80.72602241
4,400.00	7.96	150.965	4,396.64	-74.85	64.12	14,447,364.51	1,717,394.01	39.78170991	-80.72600160



Planning Report - Geographic

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Database: DB_Aug1919_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Van Winkle
Well: Van Winkle N-06 HM (slot U)
Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Well Van Winkle N-06 HM (slot U)
TVD Reference: GL @ 754.00ft
MD Reference: GL @ 754.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,500.00	9.96	150.965	4,495.41	-88.46	71.67	14,447,350.90	1,717,401.57	39.78167246	-80.72597485	
4,600.00	11.96	150.965	4,593.59	-105.08	80.90	14,447,334.28	1,717,410.79	39.78162674	-80.72594219	
4,700.00	13.96	150.965	4,691.03	-124.69	91.78	14,447,314.67	1,717,421.68	39.78157281	-80.72590367	
4,725.97	14.48	150.965	4,716.20	-130.26	94.88	14,447,309.10	1,717,424.77	39.78155747	-80.72589271	
Begin 14.48° tangent										
4,736.73	14.69	150.965	4,726.62	-132.63	96.19	14,447,306.72	1,717,426.09	39.78155095	-80.72588805	
4,800.00	14.69	150.965	4,787.82	-146.66	103.98	14,447,292.69	1,717,433.88	39.78151235	-80.72586048	
4,900.00	14.69	150.965	4,884.55	-168.84	116.29	14,447,270.52	1,717,446.19	39.78145135	-80.72581691	
5,000.00	14.69	150.965	4,981.28	-191.02	128.60	14,447,248.34	1,717,458.50	39.78139034	-80.72577333	
5,100.00	14.69	150.965	5,078.01	-213.19	140.91	14,447,226.17	1,717,470.81	39.78132934	-80.72572976	
5,200.00	14.69	150.965	5,174.74	-235.37	153.22	14,447,203.99	1,717,483.12	39.78126833	-80.72568618	
5,300.00	14.69	150.965	5,271.47	-257.54	165.53	14,447,181.81	1,717,495.43	39.78120733	-80.72564260	
5,344.74	14.69	150.965	5,314.75	-267.47	171.04	14,447,171.89	1,717,500.94	39.78118003	-80.72562311	
5,346.96	14.52	150.969	5,316.90	-267.95	171.31	14,447,171.40	1,717,501.21	39.78117869	-80.72562215	
Begin 8°/100' build/tum										
5,400.00	10.27	151.118	5,368.69	-277.91	176.83	14,447,161.45	1,717,506.72	39.78115130	-80.72560263	
5,500.00	2.27	152.884	5,468.01	-287.50	182.04	14,447,151.86	1,717,511.94	39.78112492	-80.72558416	
5,600.00	5.73	329.728	5,567.88	-284.95	180.43	14,447,154.41	1,717,510.33	39.78113193	-80.72558988	
5,700.00	13.73	330.255	5,666.37	-270.32	172.01	14,447,169.04	1,717,501.91	39.78117220	-80.72561968	
5,800.00	21.73	330.397	5,761.54	-243.88	156.96	14,447,195.48	1,717,486.85	39.78124494	-80.72567298	
5,900.00	29.73	330.465	5,851.55	-206.15	135.56	14,447,233.21	1,717,465.45	39.78134873	-80.72574874	
6,000.00	37.73	330.506	5,934.65	-157.87	108.23	14,447,281.49	1,717,438.12	39.78148155	-80.72584549	
6,100.00	45.73	330.535	6,009.22	-99.97	75.50	14,447,339.39	1,717,405.40	39.78164082	-80.72596135	
6,152.82	49.95	330.547	6,044.67	-65.89	56.25	14,447,373.47	1,717,386.15	39.78173458	-80.72602950	
Begin 10°/100' build/tum										
6,153.40	50.00	330.547	6,045.04	-65.50	56.03	14,447,373.86	1,717,385.93	39.78173565	-80.72603028	
6,200.00	54.66	330.492	6,073.51	-33.40	37.88	14,447,405.96	1,717,367.78	39.78182396	-80.72609453	
6,300.00	64.66	330.392	6,123.96	41.58	-4.64	14,447,480.93	1,717,325.25	39.78203022	-80.72624507	
6,400.00	74.66	330.308	6,158.68	122.96	-50.97	14,447,562.32	1,717,278.93	39.78225411	-80.72640909	
6,500.00	84.66	330.231	6,176.60	208.28	-99.70	14,447,647.63	1,717,230.20	39.78248882	-80.72658160	
6,562.82	90.94	330.184	6,179.01	262.72	-130.87	14,447,702.08	1,717,199.03	39.78263861	-80.72669197	
Begin 91.00° lateral										
6,563.40	91.00	330.184	6,179.00	263.23	-131.16	14,447,702.59	1,717,198.74	39.78264000	-80.72669300	
6,600.00	91.00	330.184	6,178.37	294.98	-149.35	14,447,734.34	1,717,180.54	39.78272734	-80.72675741	
6,700.00	91.00	330.184	6,176.62	381.73	-199.07	14,447,821.08	1,717,130.83	39.78296600	-80.72693343	
6,800.00	91.00	330.184	6,174.88	468.48	-248.78	14,447,907.83	1,717,081.11	39.78320465	-80.72710945	
6,900.00	91.00	330.184	6,173.14	555.23	-298.50	14,447,994.58	1,717,031.40	39.78344330	-80.72728546	
7,000.00	91.00	330.184	6,171.39	641.98	-348.21	14,448,081.33	1,716,981.68	39.78368195	-80.72746148	
7,100.00	91.00	330.184	6,169.65	728.73	-397.93	14,448,168.08	1,716,931.97	39.78392060	-80.72763750	
7,200.00	91.00	330.184	6,167.91	815.48	-447.64	14,448,254.83	1,716,882.26	39.78415926	-80.72781352	
7,300.00	91.00	330.184	6,166.16	902.22	-497.35	14,448,341.58	1,716,832.54	39.78439791	-80.72798955	
7,400.00	91.00	330.184	6,164.42	988.97	-547.07	14,448,428.33	1,716,782.83	39.78463656	-80.72816557	
7,500.00	91.00	330.184	6,162.68	1,075.72	-596.78	14,448,515.08	1,716,733.11	39.78487521	-80.72834159	
7,600.00	91.00	330.184	6,160.93	1,162.47	-646.50	14,448,601.83	1,716,683.40	39.78511386	-80.72851762	
7,700.00	91.00	330.184	6,159.19	1,249.22	-696.21	14,448,688.58	1,716,633.68	39.78535251	-80.72869365	
7,800.00	91.00	330.184	6,157.45	1,335.97	-745.93	14,448,775.33	1,716,583.97	39.78559116	-80.72886968	
7,900.00	91.00	330.184	6,155.70	1,422.72	-795.64	14,448,862.07	1,716,534.26	39.78582981	-80.72904571	
8,000.00	91.00	330.184	6,153.96	1,509.47	-845.36	14,448,948.82	1,716,484.54	39.78606846	-80.72922174	
8,100.00	91.00	330.184	6,152.22	1,596.22	-895.07	14,449,035.57	1,716,434.83	39.78630711	-80.72939777	
8,200.00	91.00	330.184	6,150.47	1,682.97	-944.78	14,449,122.32	1,716,385.11	39.78654575	-80.72957380	
8,300.00	91.00	330.184	6,148.73	1,769.72	-994.50	14,449,209.07	1,716,335.40	39.78678440	-80.72974984	
8,400.00	91.00	330.184	6,146.99	1,856.47	-1,044.21	14,449,295.82	1,716,285.69	39.78702305	-80.72992587	
8,500.00	91.00	330.184	6,145.24	1,943.22	-1,093.93	14,449,382.57	1,716,235.97	39.78726170	-80.73010191	
8,600.00	91.00	330.184	6,143.50	2,029.97	-1,143.64	14,449,469.32	1,716,186.26	39.78750035	-80.73027795	



Planning Report - Geographic

4705102364



Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Van Winkle
 Well: Van Winkle N-06 HM (slot U)
 Wellbore: Original Hole
 Design: rev1

Local Co-ordinate Reference: Well Van Winkle N-06 HM (slot U)
 TVD Reference: GL @ 754.00ft
 MD Reference: GL @ 754.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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
8,700.00	91.00	330.184	6,141.76	2,116.72	-1,193.36	14,449,556.07	1,716,136.54	39.78773899	-80.73045399
8,800.00	91.00	330.184	6,140.01	2,203.46	-1,243.07	14,449,642.82	1,716,086.83	39.78797764	-80.73063003
8,900.00	91.00	330.184	6,138.27	2,290.21	-1,292.78	14,449,729.57	1,716,037.11	39.78821629	-80.73080607
9,000.00	91.00	330.184	6,136.53	2,376.96	-1,342.50	14,449,816.32	1,715,987.40	39.78845493	-80.73098211
9,100.00	91.00	330.184	6,134.78	2,463.71	-1,392.21	14,449,903.06	1,715,937.69	39.78869358	-80.73115816
9,200.00	91.00	330.184	6,133.04	2,550.46	-1,441.93	14,449,989.81	1,715,887.97	39.78893223	-80.73133420
9,300.00	91.00	330.184	6,131.30	2,637.21	-1,491.64	14,450,076.56	1,715,838.26	39.78917087	-80.73151025
9,400.00	91.00	330.184	6,129.55	2,723.96	-1,541.36	14,450,163.31	1,715,788.54	39.78940952	-80.73168630
9,500.00	91.00	330.184	6,127.81	2,810.71	-1,591.07	14,450,250.06	1,715,738.83	39.78964816	-80.73186235
9,600.00	91.00	330.184	6,126.07	2,897.46	-1,640.78	14,450,336.81	1,715,689.11	39.78988681	-80.73203840
9,700.00	91.00	330.184	6,124.32	2,984.21	-1,690.50	14,450,423.56	1,715,639.40	39.79012545	-80.73221445
9,800.00	91.00	330.184	6,122.58	3,070.96	-1,740.21	14,450,510.31	1,715,589.69	39.79036410	-80.73239050
9,900.00	91.00	330.184	6,120.84	3,157.71	-1,789.93	14,450,597.06	1,715,539.97	39.79060274	-80.73256656
10,000.00	91.00	330.184	6,119.09	3,244.46	-1,839.64	14,450,683.81	1,715,490.26	39.79084138	-80.73274261
10,100.00	91.00	330.184	6,117.35	3,331.21	-1,889.36	14,450,770.56	1,715,440.54	39.79108003	-80.73291867
10,200.00	91.00	330.184	6,115.61	3,417.96	-1,939.07	14,450,857.31	1,715,390.83	39.79131867	-80.73309473
10,300.00	91.00	330.184	6,113.86	3,504.70	-1,988.78	14,450,944.05	1,715,341.12	39.79155731	-80.73327079
10,400.00	91.00	330.184	6,112.12	3,591.45	-2,038.50	14,451,030.80	1,715,291.40	39.79179596	-80.73344685
10,500.00	91.00	330.184	6,110.38	3,678.20	-2,088.21	14,451,117.55	1,715,241.69	39.79203460	-80.73362291
10,600.00	91.00	330.184	6,108.63	3,764.95	-2,137.93	14,451,204.30	1,715,191.97	39.79227324	-80.73379897
10,700.00	91.00	330.184	6,106.89	3,851.70	-2,187.64	14,451,291.05	1,715,142.26	39.79251188	-80.73397503
10,800.00	91.00	330.184	6,105.15	3,938.45	-2,237.36	14,451,377.80	1,715,092.54	39.79275052	-80.73415110
10,900.00	91.00	330.184	6,103.40	4,025.20	-2,287.07	14,451,464.55	1,715,042.83	39.79298916	-80.73432716
11,000.00	91.00	330.184	6,101.66	4,111.95	-2,336.78	14,451,551.30	1,714,993.12	39.79322781	-80.73450323
11,100.00	91.00	330.184	6,099.92	4,198.70	-2,386.50	14,451,638.05	1,714,943.40	39.79346645	-80.73467930
11,200.00	91.00	330.184	6,098.17	4,285.45	-2,436.21	14,451,724.80	1,714,893.69	39.79370509	-80.73485537
11,300.00	91.00	330.184	6,096.43	4,372.20	-2,485.93	14,451,811.55	1,714,843.97	39.79394373	-80.73503144
11,400.00	91.00	330.184	6,094.69	4,458.95	-2,535.64	14,451,898.30	1,714,794.26	39.79418237	-80.73520751
11,500.00	91.00	330.184	6,092.94	4,545.70	-2,585.36	14,451,985.04	1,714,744.54	39.79442101	-80.73538359
11,600.00	91.00	330.184	6,091.20	4,632.45	-2,635.07	14,452,071.79	1,714,694.83	39.79465965	-80.73555966
11,700.00	91.00	330.184	6,089.46	4,719.20	-2,684.78	14,452,158.54	1,714,645.12	39.79489828	-80.73573574
11,800.00	91.00	330.184	6,087.71	4,805.94	-2,734.50	14,452,245.29	1,714,595.40	39.79513692	-80.73591181
11,900.00	91.00	330.184	6,085.97	4,892.69	-2,784.21	14,452,332.04	1,714,545.69	39.79537556	-80.73608789
12,000.00	91.00	330.184	6,084.23	4,979.44	-2,833.93	14,452,418.79	1,714,495.97	39.79561420	-80.73626397
12,100.00	91.00	330.184	6,082.48	5,066.19	-2,883.64	14,452,505.54	1,714,446.26	39.79585284	-80.73644005
12,200.00	91.00	330.184	6,080.74	5,152.94	-2,933.36	14,452,592.29	1,714,396.54	39.79609148	-80.73661613
12,300.00	91.00	330.184	6,079.00	5,239.69	-2,983.07	14,452,679.04	1,714,346.83	39.79633011	-80.73679222
12,400.00	91.00	330.184	6,077.25	5,326.44	-3,032.79	14,452,765.79	1,714,297.12	39.79656875	-80.73696830
12,500.00	91.00	330.184	6,075.51	5,413.19	-3,082.50	14,452,852.54	1,714,247.40	39.79680739	-80.73714439
12,600.00	91.00	330.184	6,073.77	5,499.94	-3,132.21	14,452,939.29	1,714,197.69	39.79704602	-80.73732047
12,700.00	91.00	330.184	6,072.02	5,586.69	-3,181.93	14,453,026.03	1,714,147.97	39.79728466	-80.73749656
12,800.00	91.00	330.184	6,070.28	5,673.44	-3,231.64	14,453,112.78	1,714,098.26	39.79752330	-80.73767265
12,900.00	91.00	330.184	6,068.54	5,760.19	-3,281.36	14,453,199.53	1,714,048.55	39.79776193	-80.73784874
13,000.00	91.00	330.184	6,066.79	5,846.94	-3,331.07	14,453,286.28	1,713,998.83	39.79800057	-80.73802483
13,100.00	91.00	330.184	6,065.05	5,933.69	-3,380.79	14,453,373.03	1,713,949.12	39.79823920	-80.73820093
13,200.00	91.00	330.184	6,063.31	6,020.44	-3,430.50	14,453,459.78	1,713,899.40	39.79847784	-80.73837702
13,300.00	91.00	330.184	6,061.56	6,107.18	-3,480.21	14,453,546.53	1,713,849.69	39.79871647	-80.73855312
13,400.00	91.00	330.184	6,059.82	6,193.93	-3,529.93	14,453,633.28	1,713,799.97	39.79895511	-80.73872921
13,500.00	91.00	330.184	6,058.08	6,280.68	-3,579.64	14,453,720.03	1,713,750.26	39.79919374	-80.73890531
13,600.00	91.00	330.184	6,056.33	6,367.43	-3,629.36	14,453,806.78	1,713,700.55	39.79943238	-80.73908141
13,700.00	91.00	330.184	6,054.59	6,454.18	-3,679.07	14,453,893.53	1,713,650.83	39.79967101	-80.73925751
13,800.00	91.00	330.184	6,052.85	6,540.93	-3,728.79	14,453,980.28	1,713,601.12	39.79990964	-80.73943361
13,900.00	91.00	330.184	6,051.10	6,627.68	-3,778.50	14,454,067.02	1,713,551.40	39.80014828	-80.73960971
14,000.00	91.00	330.184	6,049.36	6,714.43	-3,828.21	14,454,153.77	1,713,501.69	39.80038691	-80.73978582
14,100.00	91.00	330.184	6,047.62	6,801.18	-3,877.93	14,454,240.52	1,713,451.97	39.80062554	-80.73996192



Database: DB_Aug1919_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Van Winkle
Well: Van Winkle N-06 HM (slot U)
Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Well Van Winkle N-06 HM (slot U)
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	
14,200.00	91.00	330.184	6,045.87	6,887.93	-3,927.64	14,454,327.27	1,713,402.26	39.80086417	-80.74013803	
14,300.00	91.00	330.184	6,044.13	6,974.68	-3,977.36	14,454,414.02	1,713,352.55	39.80110280	-80.74031414	
14,400.00	91.00	330.184	6,042.39	7,061.43	-4,027.07	14,454,500.77	1,713,302.83	39.80134144	-80.74049025	
14,500.00	91.00	330.184	6,040.65	7,148.18	-4,076.79	14,454,587.52	1,713,253.12	39.80158007	-80.74066635	
14,600.00	91.00	330.184	6,038.90	7,234.93	-4,126.50	14,454,674.27	1,713,203.40	39.80181870	-80.74084247	
14,700.00	91.00	330.184	6,037.16	7,321.68	-4,176.21	14,454,761.02	1,713,153.69	39.80205733	-80.74101858	
14,800.00	91.00	330.184	6,035.42	7,408.42	-4,225.93	14,454,847.77	1,713,103.98	39.80229596	-80.74119469	
14,900.00	91.00	330.184	6,033.67	7,495.17	-4,275.64	14,454,934.52	1,713,054.26	39.80253459	-80.74137081	
15,000.00	91.00	330.184	6,031.93	7,581.92	-4,325.36	14,455,021.27	1,713,004.55	39.80277322	-80.74154692	
15,100.00	91.00	330.184	6,030.19	7,668.67	-4,375.07	14,455,108.01	1,712,954.83	39.80301185	-80.74172304	
15,200.00	91.00	330.184	6,028.44	7,755.42	-4,424.79	14,455,194.76	1,712,905.12	39.80325048	-80.74189916	
15,300.00	91.00	330.184	6,026.70	7,842.17	-4,474.50	14,455,281.51	1,712,855.40	39.80348911	-80.74207528	
15,400.00	91.00	330.184	6,024.96	7,928.92	-4,524.21	14,455,368.26	1,712,805.69	39.80372774	-80.74225140	
15,500.00	91.00	330.184	6,023.21	8,015.67	-4,573.93	14,455,455.01	1,712,755.98	39.80396637	-80.74242752	
15,600.00	91.00	330.184	6,021.47	8,102.42	-4,623.64	14,455,541.76	1,712,706.26	39.80420500	-80.74260364	
15,683.65	91.00	330.184	6,020.01	8,174.99	-4,665.23	14,455,614.33	1,712,664.68	39.80440461	-80.74275097	
PBHL/TD 15683.65 MD/6020.00 TVD										
15,684.23	91.00	330.184	6,020.00	8,175.49	-4,665.52	14,455,614.83	1,712,664.39	39.80440600	-80.74275200	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Van Winkle N-06HM PBI - hit/miss target - Shape - Point	0.00	0.000	6,020.00	8,175.49	-4,665.52	14,455,614.83	1,712,664.39	39.80440600	-80.74275200	
Van Winkle N-06HM LP - plan hits target center - Point	0.00	0.000	6,179.00	263.23	-131.16	14,447,702.59	1,717,198.73	39.78264000	-80.72669300	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,300.00	1,300.00	0.00	0.00	KOP Begin 2°/100' build	
1,475.00	1,474.89	-3.78	3.78	Begin 3.50° tangent	
2,475.00	2,473.03	-46.95	46.95	Begin 2°/100' drop	
2,650.00	2,647.92	-50.72	50.72	Begin vertical hold	
4,002.08	4,000.00	-50.72	50.72	Begin 2°/100' build	
4,725.97	4,716.20	-130.26	94.88	Begin 14.48° tangent	
5,346.96	5,316.90	-267.95	171.31	Begin 8°/100' build/turn	
6,152.82	6,044.67	-65.89	56.25	Begin 10°/100' build/turn	
6,562.82	6,179.01	262.72	-130.87	Begin 91.00° lateral	
15,683.65	6,020.01	8,174.99	-4,665.23	PBHL/TD 15683.65 MD/6020.00 TVD	

WW-9
(4/16)

4705102364

API Number 47 - 051 - _____
Operator's Well No. Van Winkle N-6HM

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

Will closed loop system be used? If so, describe: Yes - For vertical 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#1386426)

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

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

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

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

Subscribed and sworn before me this 13 day of JANUARY, 20 21

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

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WV Department of Environmental Protection

03/19/2021

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
Annual Ryegrass	40
Spring Oats	96

Seed Type	lbs/acre
Orchard Grass	12
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: Benny Stubbins

Comments: _____

Title: Oil and Gas Inspector

Date: 1-20-21

Field Reviewed? Yes No

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FEB 03 2021

WV Department of
Environmental Protection

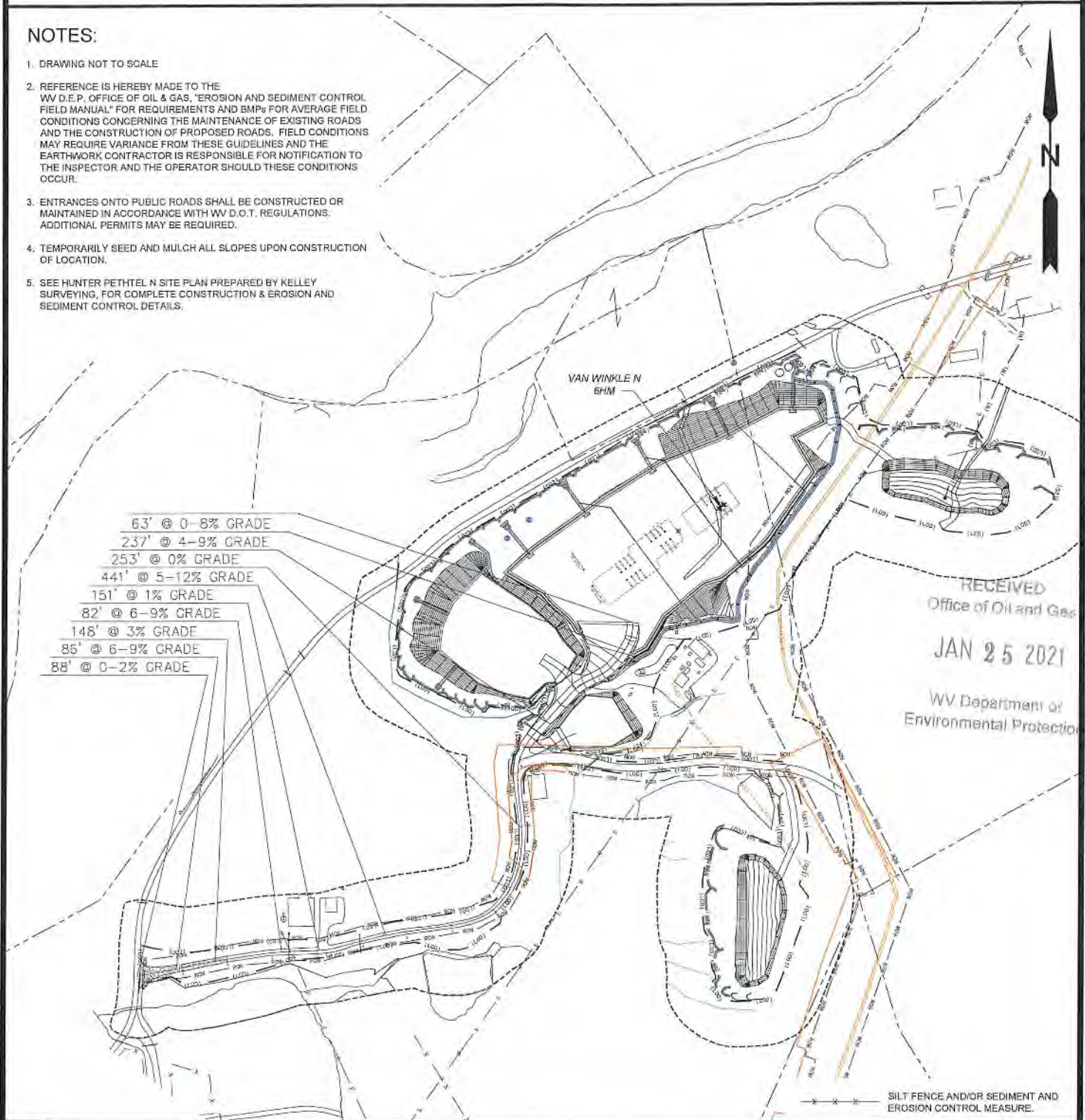
03/19/2021

PROPOSED VAN WINKLE N - 6HM

4705102364

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 Vanhook Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
sllsvv.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**

03/19/2021

4705102364



Well Site Safety Plan

Tug Hill Operating, LLC

Bang Stelly 1-20-21

Well Name: Van Winkle N-6HM

Pad Name: Hunter Pethel

UTM (meters), NAD83, Zone 17:

Northing: 4,403,588.27

Easting: 523,443.20

January 2021

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

03/19/2021

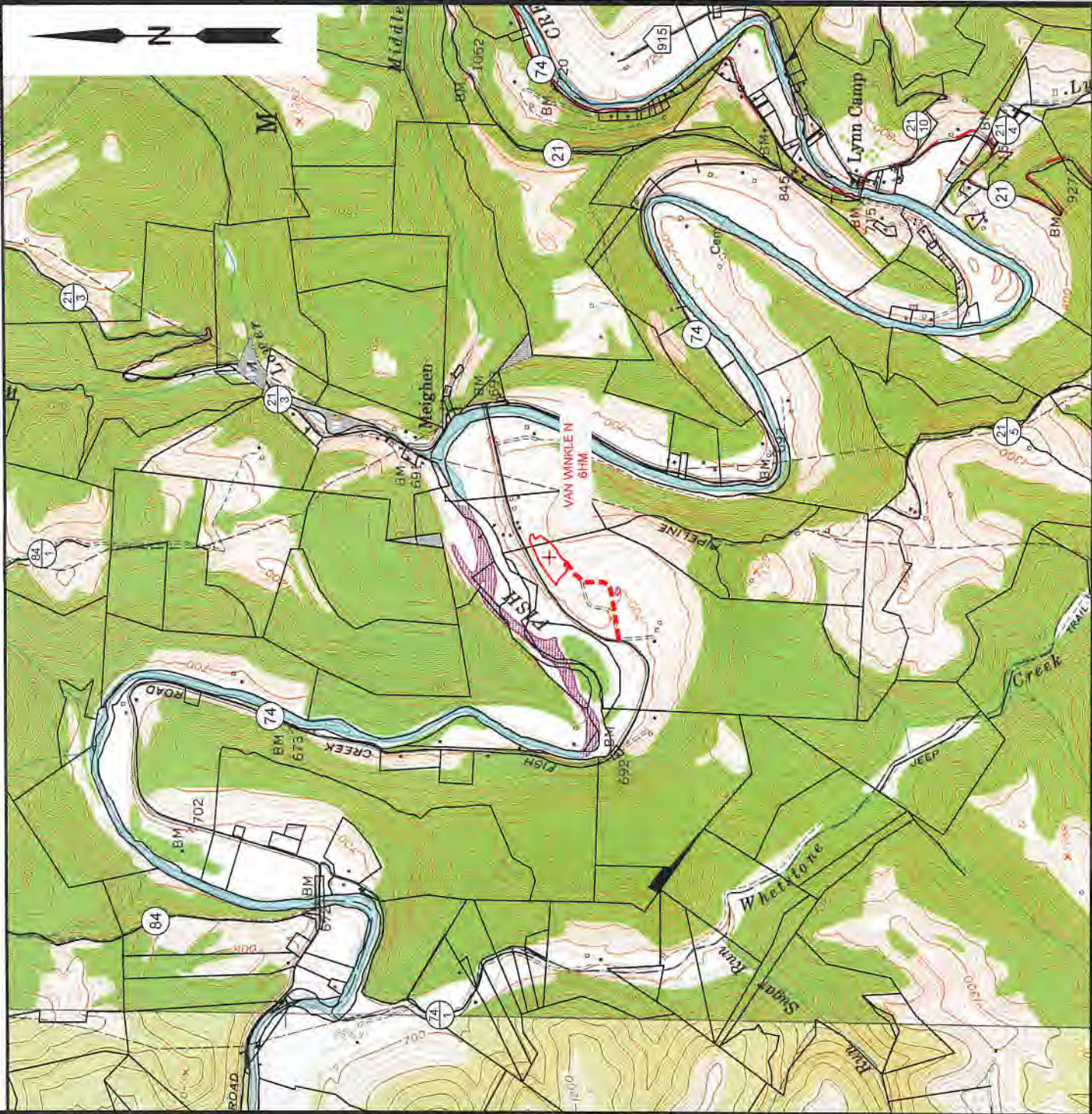
4705102364

Office of Oil and Gas
 SUPPLEMENT PG. 2
 JAN 25 2021

WW-9

PROPOSED VAN WINKLE N - 6HM

WV Department of
 Environmental Protection



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

LAT: 39.7137712
 LON: -80.8256327
 LOCATED: S 49°13'48" W AT 37,316.19' FROM THE CENTER OF HUNTER PETHTEL N WELL PAD LOCATION.

12 VanHorn Drive | P.O. Box 150 | Clayville, WV 26251 | 304.462.5534
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.546.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON	7.5'	PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY	JOB NO.	SUITE 200	
K.G.M.	8952	CANONSBURG, PA 15317	
		DATE	SCALE
		12/24/2020	1" = 2000'

**HUNTER PETHTEL LEASE
VAN WINKLE N 6HM WELL
TUG HILL OPERATING**

9,670' B.H.

5,029' T.H.

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°50'00"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)			
NAD'83 S.P.C.(FT)	N. 469,265.90	E. 1,623,895.43	
NAD'83 GEO.	LAT-(N) 39.781916	LONG-(W) 80.726229	
NAD'83 UTM (M)	N. 4,403,588.27	E. 523,443.20	
LANDING POINT			
NAD'83 S.P.C.(FT)	N. 469,530.9	E. 1,623,768.7	
NAD'83 GEO.	LAT-(N) 39.782640	LONG-(W) 80.726693	
NAD'83 UTM (M)	N. 4,403,668.6	E. 523,403.2	
BOTTOM HOLE			
NAD'83 S.P.C.(FT)	N. 477,520.6	E. 1,619,365.6	
NAD'83 GEO.	LAT-(N) 39.804406	LONG-(W) 80.742752	
NAD'83 UTM (M)	N. 4,406,080.2	E. 522,021.1	

T.H. LONGITUDE 80°42'30"
B.H. LONGITUDE 80°42'30"
3,553' T.H.

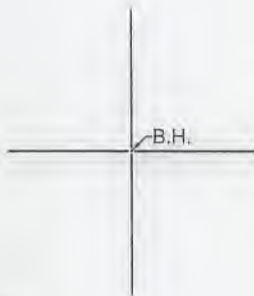
10,537' B.H.

NOTES ON SURVEY

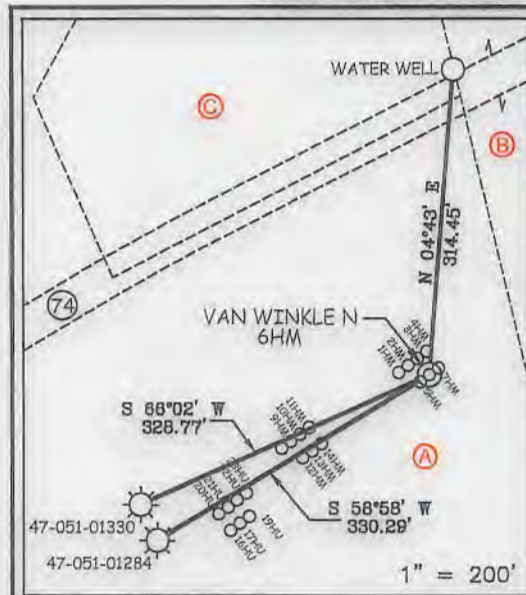
1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
3. BASED ON WV DOT COUNTY ROUTE 74 IS A 40' STRIP OF LAND ACQUIRED IN NUMEROUS DEEDS.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.256.8296
slsww.com



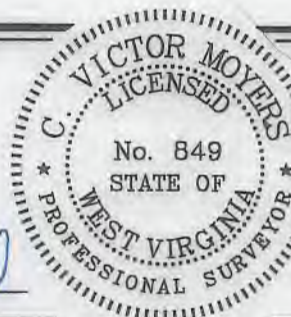
REFERENCES



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 22, 20 21

REVISED _____

OPERATORS WELL NO. VAN WINKLE N 6HM

API WELL NO. 47 - 051 - 02364
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500
FILE NO. 8952P6HM.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
SCALE 1" = 2000'
VAN WINKLE N 6HM-REV1

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



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

LOCATION: GROUND: 756.80'
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 03/19/2021

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 MARCELLUS
ESTIMATED DEPTH TVD: 6,294' / TMD: 15,684'

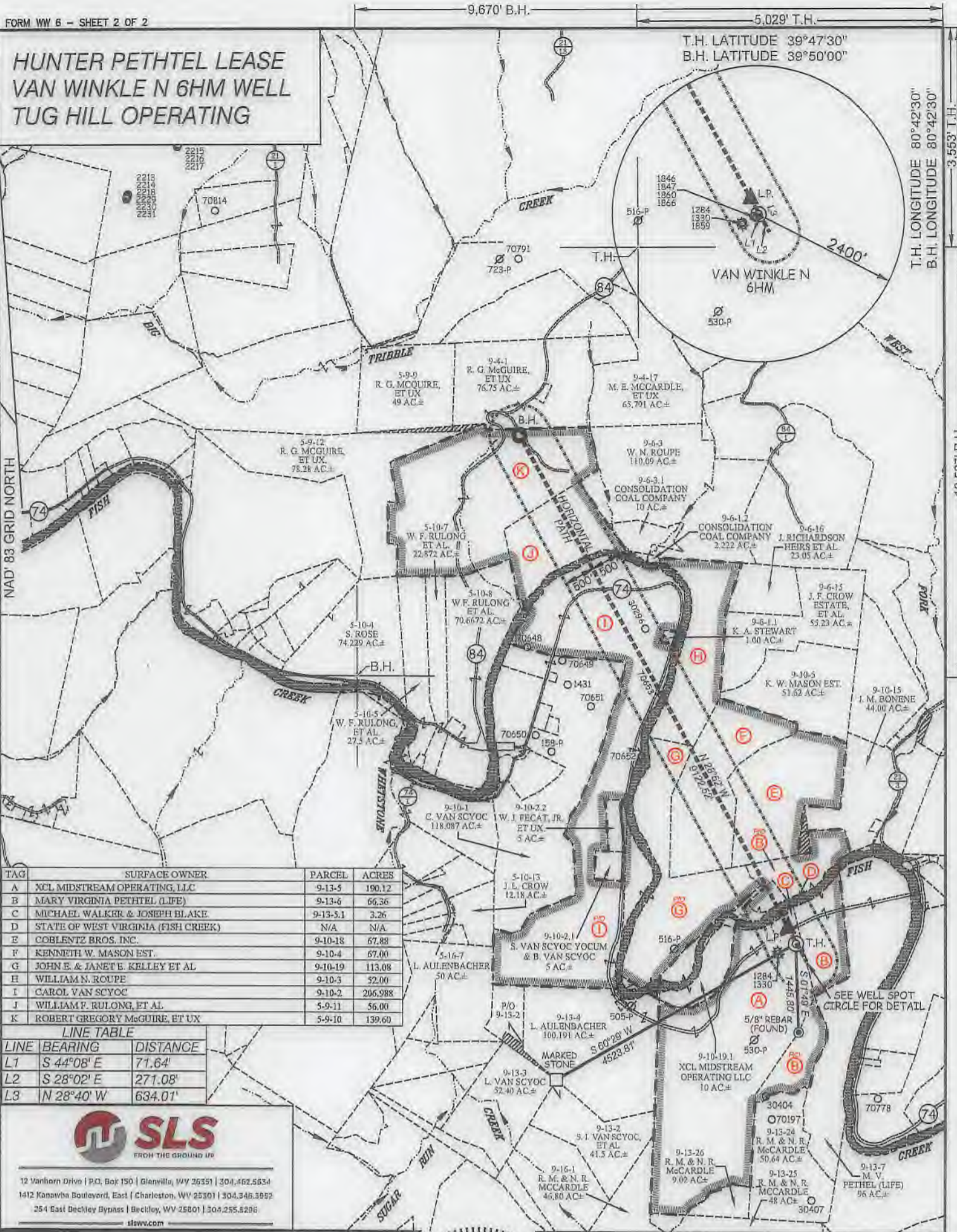
WELL OPERATOR TUG HILL OPERATING, LLC
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76107

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

COUNTY NAME

PERMIT

HUNTER PETHTEL LEASE VAN WINKLE N 6HM WELL TUG HILL OPERATING



TAG	SURFACE OWNER	PARCEL	ACRES
A	XCL MIDSTREAM OPERATING, LLC	9-13-5	190.12
B	MARY VIRGINIA PETHTEL (LIFE)	9-13-6	66.36
C	MICHAEL WALKER & JOSEPH BLAKE	9-13-5.1	3.26
D	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
E	COBLENZ BROS. INC.	9-10-18	67.88
F	KENNETH W. MASON EST.	9-10-4	67.00
G	JOHN E. & JANET E. KELLEY ET AL	9-10-19	113.08
H	WILLIAM N. ROUPE	9-10-3	52.00
I	CAROL VAN SCYOC	9-10-2	206.988
J	WILLIAM F. RULONG, ET AL	5-9-11	56.00
K	ROBERT GREGORY McGUIRE, ET UX	5-9-10	139.60

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 44°08' E	71.64'
L2	S 28°02' E	271.08'
L3	N 28°40' W	634.01'



12 Vanhorn Drive | P.O. Box 190 | Glenview, WV 26351 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slsw.com

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

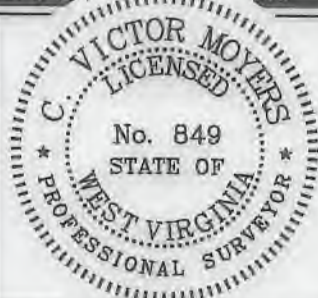
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BOTTOM HOLE

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

P.S. 849 *C. Victor Moyers*

SCALE 1" = 2000' FILE NO. 8952P6HM.dwg
 VAN WINKLE N 6HM-REV1
 DATE JANUARY 22, 20 21
 OPERATORS WELL NO. VAN WINKLE N 6HM
 API WELL NO. 47-051-02364
 NO. STATE COUNTY PERMIT

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

LEGEND

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

03/19/2021

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

WW-6A1
(5/13)

Operator's Well No. Van Winkle N-6HM

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

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

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

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

*See attached pages

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

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

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

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

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

WW-6A1
(5/13)

Operator's Well No. Van Winkle N-6HM

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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	Assignment	Assignment
10*31312	9-13-5	A	DENNIS W HUNTER AND KATHY A HUNTER	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	155	N/A	Central Michigan Exploraiton LLC to Stone Energy Corporation: 21/288 & 21/356	Stone Energy Corporation to EQT Production Company: 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31303	9-13-6	B	MARY V PETHTEL AND FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	525	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/356	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31304	9-13-6	B	MARY V PETHTEL AND FRANK E PETHTEL	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	675	171	N/A	Central Michigan Exploration LLC to Stone Energy Corp.: AB 21/288 & 21/356	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31306	9-13-6	B	RICHARD CUNNINGHAM	STONE ENERGY CORPORATION	1/8+	859	595	N/A	N/A	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31307	9-13-6	B	LINDA DANLEY	STONE ENERGY CORPORATION	1/8+	859	593	N/A	N/A	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31308	9-13-6	B	SUZY WALKER	STONE ENERGY CORPORATION	1/8+	859	591	N/A	N/A	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31312	9-13-5.1	C	DENNIS W HUNTER AND KATHY A HUNTER	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	668	155	N/A	Central Michigan Exploraiton LLC to Stone Energy Corporation: 21/288 & 21/356	Stone Energy Corporation to EQT Production Company: 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*23458	FISH CREEK	D	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	TH EXPLORATION LLC	1/8+	1019	373	N/A	N/A	N/A	N/A
10*17383	9-10-18	E	JACQUES ROY	TH EXPLORATION LLC	1/8+	919	631	N/A	N/A	N/A	N/A
10*17385	9-10-18	E	GABRIEL ARTHUR KRAUSE ROY	TH EXPLORATION LLC	1/8+	919	633	N/A	N/A	N/A	N/A
10*17386	9-10-18	E	LYNNE MERYL KRAUSE	TH EXPLORATION LLC	1/8+	919	629	N/A	N/A	N/A	N/A
10*17387	9-10-18	E	JACINTHE KRAUSE-ROY	TH EXPLORATION LLC	1/8+	919	636	N/A	N/A	N/A	N/A
10*19749	9-10-4	F	JOHN CALVERT	TH EXPLORATION LLC	1/8+	944	428	N/A	N/A	N/A	N/A
10*19750	9-10-4	F	DELORES J MYERS	TH EXPLORATION LLC	1/8+	944	430	N/A	N/A	N/A	N/A
10*19824	9-10-4	F	ROBERT BRADLEY HIGGINS	TH EXPLORATION LLC	1/8+	946	57	N/A	N/A	N/A	N/A
10*19972	9-10-4	F	ALBERT J WARSINKY AIF ELLEN K NYLES	TH EXPLORATION LLC	1/8+	948	209	N/A	N/A	N/A	N/A
10*27947	9-10-4	F	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568	N/A	N/A	N/A	N/A
10*29814	9-10-4	F	DAVID P WARSINSKY	TH EXPLORATION LLC	1/8+	1101	29	N/A	N/A	N/A	N/A
10*29816	9-10-4	F	ELLEN K NYLES	TH EXPLORATION LLC	1/8+	1101	31	N/A	N/A	N/A	N/A
PENDING	9-10-4	F	JAMES W MASON AND VICKIE J MASON, ET AL	AB RESOURCES LLC	1/8+	692	461	AB Resources LLC to Chevron USA Inc: 756/397	Chevron USA Inc to Stone Energy Corporation: 33/325	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*31384	9-10-19	G	JOHN E KELLEY AND JANET E KELLEY	STONE ENERGY CORPORATION	1/8+	693	6	N/A	N/A	Stone Energy Corp. to EQT Production Company: AB 38/75	EQT Production Company to TH Exploration LLC: 48/21
10*23561	9-10-3	H	VINCENT PATRELLO AND AMANDA PATRELLO	TH EXPLORATION LLC	1/8+	988	97	N/A	N/A	N/A	N/A
10*23562	9-10-3	H	WILLIAM B ROUPE AND KATHERINE A ROUPE	TH EXPLORATION LLC	1/8+	988	94	N/A	N/A	N/A	N/A
10*23563	9-10-3	H	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TH EXPLORATION LLC	1/8+	1009	317	N/A	N/A	N/A	N/A
10*23564	9-10-3	H	CHRISTOPHER A ROUPE AND KARI S ROUPE	TH EXPLORATION LLC	1/8+	988	100	N/A	N/A	N/A	N/A
10*19894	9-10-2	I	CAROL L VANSYOC	TH EXPLORATION LLC	1/8+	941	392	N/A	N/A	N/A	N/A

RECEIVED
 Office of Conservation
 JAN 25 2021
 WV Department of Environmental Protection

4705102364

10*18726	5-9-11	J	EMILY K RULONG AND WILLIAM F RULONG SR	TH EXPLORATION LLC	1/8+	941	441	N/A	N/A	N/A	N/A
10*47051.305.0	5-9-10	K	ROBERT G & TERRI L MCGUIRE	TH EXPLORATION LLC	1/8+	895	45	N/A	N/A	N/A	N/A

RECEIVED
Office of Oil and Gas
JAN 25 2021
WV Department of
Environmental Protection

4705102364

6000 MAIN CENTER BUILDING, SUITE 145
DALLAS, TEXAS 75201

01/13/2021 4:48 PM

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 THE EXPLORATION, L.L.C., a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("THE EXPLORATION II, L.L.C." ("THE II")), dated July 8, 2020 (the "Agreement"). EQT and THE II are referred to herein together as the "Parties", and each individually as a "Party".

RECITALS

WHEREAS, EQT desires to transfer, convey and assign to THE 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;

WHEREAS, THE 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 THE all of the right title and interest 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 THE 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 25 2021
WV Department of
Environmental Protection

2021/01/13



March 5, 2021

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

RE: Van Winkle N-6HM

Subject: Marshall County Route 74 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 in the area reflected on the Van Winkle N-6HM 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,

A handwritten signature in black ink that reads "Amy Morris".

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

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

Date of Notice Certification: 01/22/2021

API No. 47- 051 -
Operator's Well No. Van Winkle N-6HM
Well Pad Name: Hunter Pethel

Notice has been given:

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

State:	West Virginia	UTM NAD 83	Easting:	523,443.20
County:	Marshall		Northing:	4,403,588.27
District:	Meade	Public Road Access:	County Route 74	
Quadrangle:	Glen Easton 7.5'	Generally used farm name:	XcL Midstream Operating, LLC	
Watershed:	Fish Creek (HUC 10)			

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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Office of Oil and Gas
JAN 25 2021
WV Department of
Environmental Protection

Required Attachments:

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

03/19/2021

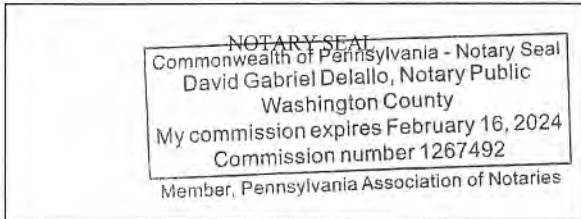
4705102364

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: Tug Hill Operating, LLC
By: *Amy L. Morris*
Its: Permitting Specialist - Appalachia Region
Telephone: 724-749-8388

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
Email: amorris@tug-hill.com



Subscribed and sworn before me this 21 day of JANUARY, 2021.

David Gabriel Delallo Notary Public

My Commission Expires 2/16/2024

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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Environmental Protection

03/19/2021

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WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle N-6HM
Well Pad Name: Hunter Pethtel

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: 1/22/2021

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 Pethtel, 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

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Office of Oil and Gas

FEB 03 2021

WV Department of
Environmental Protection

03/19/2021

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 or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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

Environmental Protection

03/19/2021

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WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Van Winkle N-6HM
Well Pad Name: Hunter Pethel

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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WV Department of
Environmental Protection

03/19/2021

WW-6A
(8-13)

4705102364
API NO. 47-051
OPERATOR WELL NO. Van Winkle N-6HM
Well Pad Name: Hunter Pethel

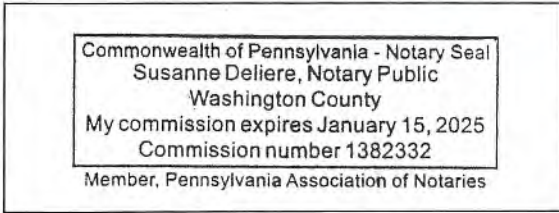
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



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

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WV Department of
Environmental Protection

03/19/2021

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

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

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

Well: Van Winkle N – 6HM
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>

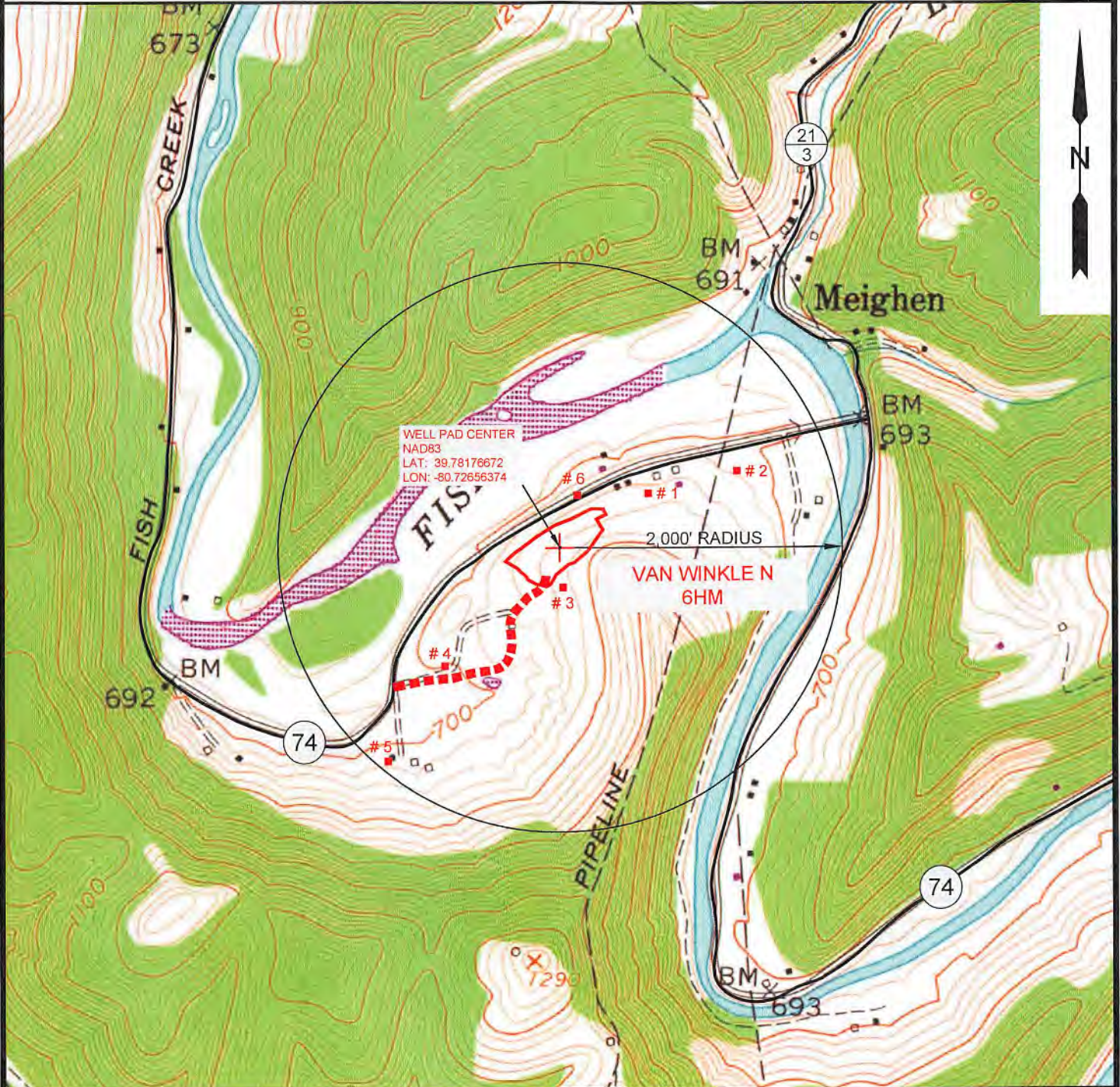
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WV Department of
Environmental Protection

03/19/2021

PROPOSED
VAN WINKLE N - 6HM 4705102364



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

 FROM THE GROUND UP 12 Vanhorn Drive P.O. Box 150 Glenville, WV 26351 304.462.5634 1412 Kanawha Boulevard, East Charleston, WV 25301 304.346.3952 254 East Beckley Bypass Beckley, WV 25801 304.255.5296 slswv.com	TOPO SECTION:		OPERATOR:	
	GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
	COUNTY	DISTRICT	 TUG HILL OPERATING	
	MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE	
K.G.M.	8952	12/24/2020	1" = 1000'	

03/19/2021

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 Pethtel, 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 Pethtel, 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: 39.78176850; -80.72661368
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.

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JAN 25 2021

Notice is hereby given by:

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

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

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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

03/19/2021

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

4705102364

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

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Environmental Protection

03/19/2021

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: 01/22/2021 **Date Permit Application Filed:** 01/22/2021

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> CERTIFIED MAIL
RETURN RECEIPT REQUESTED | <input checked="" type="checkbox"/> HAND
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 Pethtel (Life Estate)
Address: 9845 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>523,443.20</u>
County: <u>Marshall</u>	Northing: <u>4,403,588.27</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: 724-749-8388
Email: amorris@tug-hillop.com

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

Oil and Gas Privacy Notice:

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

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4705102364

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

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

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03/19/2021



4705102364

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

January 20, 2021

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

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-Pethel Pad, Marshall County
Van Winkle N-6HM 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. This letter is valid for permitting purposes for one year from this letter's date.

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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Office of Oil and Gas
JAN 25 2021
WV Department of
Environmental Protection
03/19/2021



TUG HILL

4705102364

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

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JAN 25 2021

WV Department of
Environmental Protection

03/19/2021

OPERATOR: Tug Hill Operating, LLC WELL NO: Van Winkle N-6HM

PAD NAME: Hunter Pethtel

REVIEWED BY: Amy L. Morris SIGNATURE: *Amy L. Morris*

WELL RESTRICTIONS CHECKLIST

HORIZONTAL 6A WELL

Well Restrictions

At Least 100 Feet from Pad and LOD (including any E&S Control Feature) to any Perennial Stream, Lake, Pond, Reservoir or Wetland; OR

DEP Waiver and Permit Conditions

At Least 300 Feet from Pad and LOD (including any E&S Control Feature) to any Naturally Producing Trout Stream; OR

DEP Waiver and Permit Conditions

At Least 1000 Feet from Pad and LOD (including any E&S Control Feature) to any Groundwater Intake or Public Water Supply; OR

DEP Waiver and Permit Conditions

At Least 250 Feet from an Existing Water Well or Developed Spring to Well Being Drilled; OR

Surface Owner Waiver and Recorded with County Clerk, OR

DEP Variance and Permit Conditions

At Least 625 Feet from an Occupied Dwelling Structure to Center of the Pad; OR

Surface Owner Waiver and Recorded with County Clerk, OR

DEP Variance and Permit Conditions

At Least 625 Feet from Agricultural Buildings Larger than 2500 Square Feet to the Center of the Pad; OR

Surface Owner Waiver and Recorded with County Clerk, OR

DEP Variance and Permit Conditions

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JAN 25 2021
WV Department of
Environmental Protection
03/19/2021

Hunter Pethel Well Pad Site

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Meade District
Latitude 39.78176672°
Longitude -80.72656374°
Middle Fish Creek Watershed

Pertinent Site Information
Hunter Pethel Well Pad Site
Emergency Number: 304-845-1920
Meade District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Tug Hill Contact Number: 1-817-632-3400

WEST VIRGINIA
COUNTY MAP



Property Owner Information - Hunter Pethel Well Site

Owner	TM Point	Well Pad	Well Pad	Well Pad	Access Road	Impervious Area	ASAP	ASAP	ASAP	ASAP
NYC Midstream Operating, LLC	13.5	443	132	5.40	1.36	0.00	4.00	12.74		
Project	1.0	28.1	2.00	2.00	0.30	0.00	2.0	1.0		
Site 50MG (ASAP)	4.81	1.31	3.40	1.30	1.17	7.18	18.43			

Exhibit A: Final Design: Issue for Permitting

Site Features	Corner of Well Pad	Corner of Production Pad	Corner of Storage Pad
WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29
WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29
WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29	WV N NAD 83 11 82284.29



Well Pad	Production Pad	Storage Pad	Access Road	Impervious Area	ASAP	ASAP	ASAP	ASAP
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3

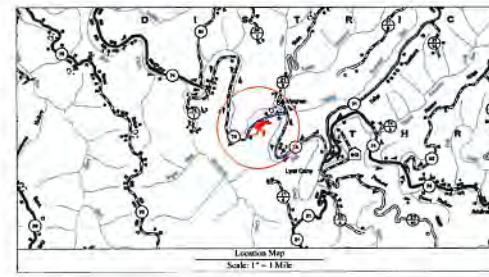
APPROVED
WVDEP OOG
[Signature]
2/24/2021



Site Locations (NAD 83)			Site Locations (NAD 83)		
Number	Latitude (N)	Longitude (W)	Number	Latitude (N)	Longitude (W)
1	39.78176672	-80.72656374	2	39.78176672	-80.72656374
3	39.78176672	-80.72656374	4	39.78176672	-80.72656374
5	39.78176672	-80.72656374	6	39.78176672	-80.72656374

Approach Routes:

From the intersection of WV Rt 2 and 12th Street in Meadsville, WV. Travel South on WV Rt 2 for 3.3 mi. Turn Left onto WV AD Rt 2 (Pound Bottom Hill Rd.). Follow WV AD Rt 2 for 1.5 mi. Turn Right onto Co Rt 88.5 (Linsley Lick). Follow Co Rt 88.5 for 1.8 mi. Turn Right onto Co Rt 21 (Roberts Ridge). Follow Co Rt 21 for 9.1 mi. Turn Right onto East Rt 2 (Sally Backbones). Follow East Rt 2 for 4.3 mi. Turn Left into the Knob Creek Well Pad on turn around. When exiting the Knob Creek Well Pad, turn Right onto East Rt 2 (backtracking on East Rt 2) and follow East Rt 2 for 0.2 mi. Turn Left onto Co Rt 74 (Fish Creek). Follow Co Rt 74 for 2.1 mi. Turn Left (crossing the bridge) to stay on Co Rt 74. Follow Co Rt 74 for 0.8 mi. The site entrance will be on the Left (East) side of the road.



WV Location Restrictions:

- All Pad construction complies with the following restrictions:
 - *20' from existing well or development spring used for human or domestic water.
 - *20' from existing, developing or inactive (over 2,000 ft) used for poultry or dairy contained from the center of the pad.
 - *200' of surface or ground water used for a public water supply.
- WV Location Restrictions of WV Code 22-6A-12)
 - Under Construction



The State of West Virginia is a professional design and construction firm, established by the State of West Virginia, Division of Professional Regulation, Office of Registration. All Plans, Specifications, and Reports prepared by this firm are prepared in compliance with the laws and regulations of the State of West Virginia. The State of West Virginia is a professional design and construction firm, established by the State of West Virginia, Division of Professional Regulation, Office of Registration.

Sheet	Description
1	Cover Sheet
1-1	Schedule of Quantities
1-1-1	Site Plan
2	Site Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-7	EAS Plan View
8	The Key Exhibit
9-10	Plan View
11-12	Cross Sections - Site
13	Cross Sections - Access Road
14-15	Geotechnical Exhibit
16	Landowner Disturbed Area Exhibit
17	Site Reclamation
18-19	Production Exhibit
20-21	Erosion and Sediment Control Details
22	Access Road Details
23	Pad Detail

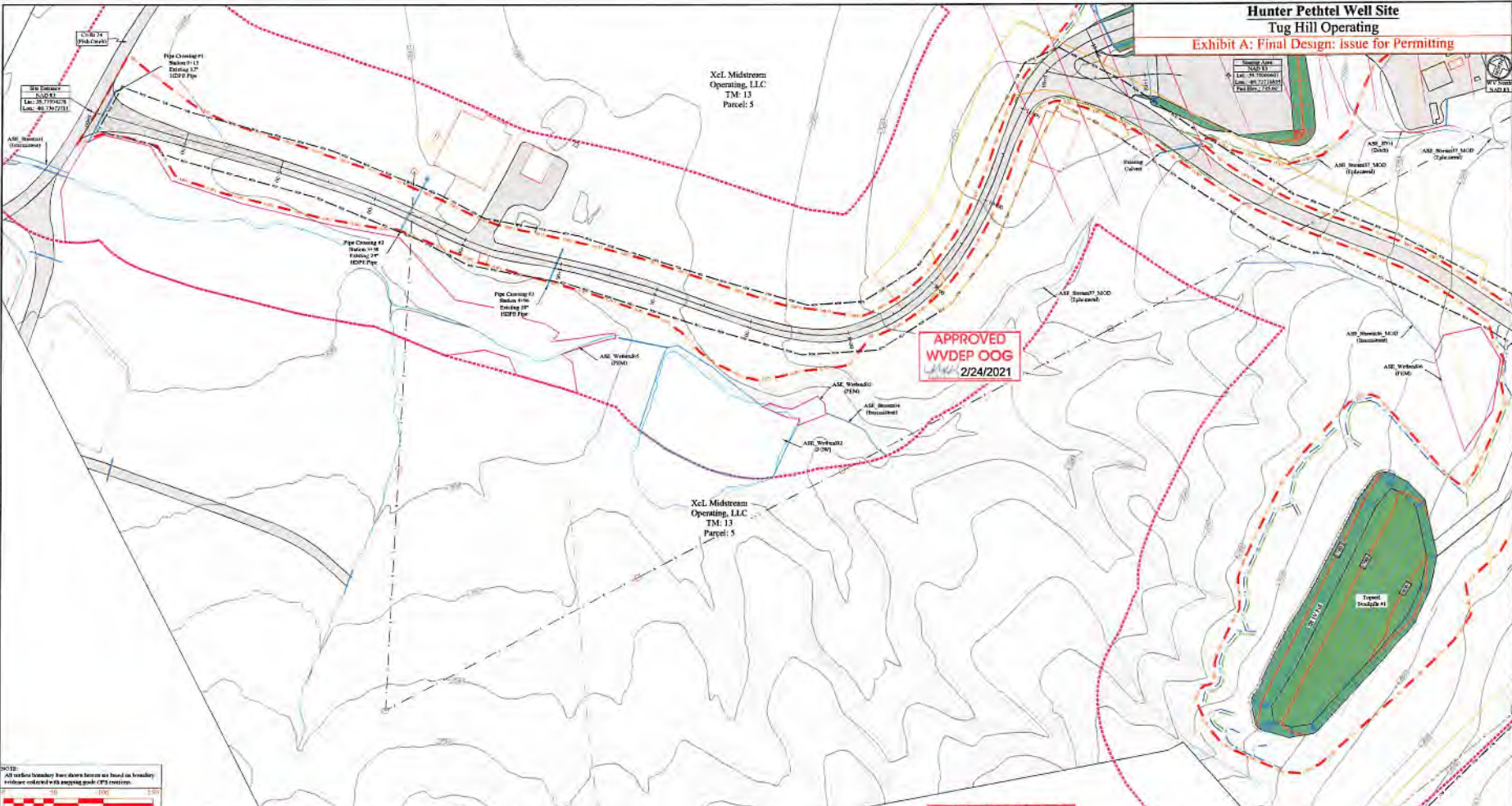
Project Contacts:
The PTH Operator: Kevan Kelly, 248.436.4643 OIG
Client: J. P. For, 204.482.5709 OIG
Tug Hill Operating, LLC: 204.482.5709 OIG
Environmental: 204.482.5709 OIG
MISS UTILITY OF WEST VIRGINIA: 1-800-245-4848
K&S CONSULTANTS: 304.426.1111
IT'S THE LAW: Call before you dig!

Tug Hill Operating will obtain an Interconnection Permit from M&E (M&E) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities.
The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOL.
WVDEP Website files show that there are active and/or abandoned gas wells within the AOL.

Flowpath Condition	DO any construction activities near place to a flowpath?	DO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO
Flowpath Condition	DO any construction activities near place to a flowpath?	NO

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING
K&S CONSULTANTS
Kevan Kelly, P.E.
Hunter Pethel Well Pad Site
Meade District, Marshall County, WV
Date: 1/24/2021
Scale: As Shown
Designed By: JES
File No:
Sheet 1 of 13

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



NOTE: All outside boundary lines shown herein are based on boundary evidence collected with approved GPS systems.

Legend

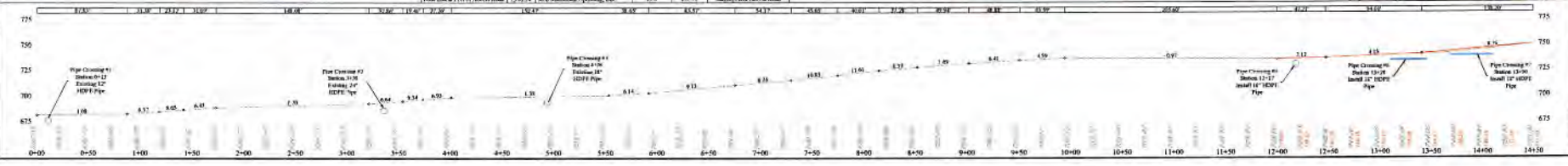
Original Owned 2" Conduit	2" Conduit Fiber Cook	12" Wetland	12" Wetland
Original Owned 12" Conduit	12" Conduit Fiber Cook	12" Wetland	12" Wetland
Design 2" Conduit	Design 2" Conduit	Design 2" Conduit	Design 2" Conduit
Design 12" Conduit	Design 12" Conduit	Design 12" Conduit	Design 12" Conduit
Area of Interest	Area of Interest	Area of Interest	Area of Interest
Design 2" Conduit	Design 2" Conduit	Design 2" Conduit	Design 2" Conduit
Design 12" Conduit	Design 12" Conduit	Design 12" Conduit	Design 12" Conduit
Proposed Area	Proposed Area	Proposed Area	Proposed Area

Detached Area

WV Parcel Contention	1,117.76
Production 2nd Contention	1,117.76
Design Area Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76
Acres/Total Contention	1,117.76

Access Road

Station	Point	Point Length	Type
1+00	1+00	100.00	WV Parcel Access Road
1+50	1+50	100.00	Production 2nd Access Road
1+50	1+50	100.00	Production 2nd Access Road
1+50	1+50	100.00	Production 2nd Access Road



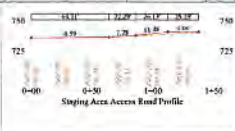
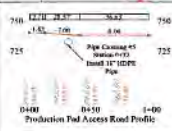
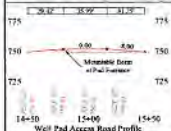
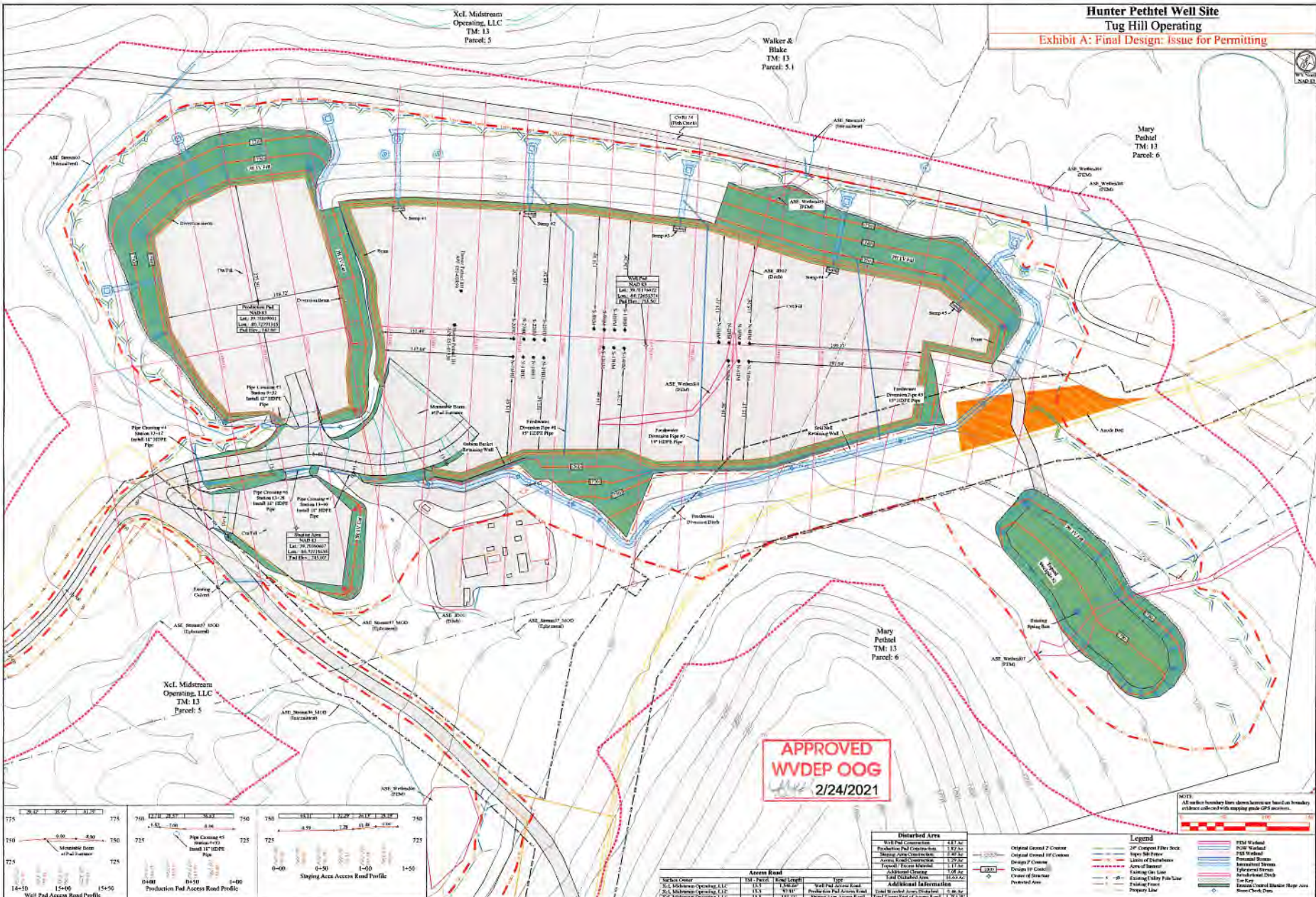
TUG HILL
OPERATING
Hunter Pethel Well Site
Marshall County, WV
Sheet 9 of 17

APPROVED WVDEP OOG
2/24/2021

APPROVED WVDEP OOG
2/24/2021

DATE: 12/04/2020
SCALE: As Shown
DESIGNED BY: J.S.
FILE NO.:
SHEET 9 OF 17

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



Surface Owner	TM Parcel	TM Length	Well Pad Access Road	Production Pad Access Road	Staging Area Access Road	Additional Information
Xcel Midstream Operating, LLC	13	1.5	1.5	1.5	1.5	Parcel 5
Xcel Midstream Operating, LLC	13	1.5	1.5	1.5	1.5	Parcel 5
Xcel Midstream Operating, LLC	13	1.5	1.5	1.5	1.5	Parcel 5

Disturbed Area	Area
WV Pad Construction	4,877.20
Production Pad Construction	1,872.20
Staging Area Construction	2,807.20
Access Road Construction	1,117.20
Production Pad Construction	1,117.20
Staging Area Construction	1,117.20
Production Pad Construction	1,117.20
Staging Area Construction	1,117.20

Legend	Description
Original Ground 2' Contour	Original Ground 2' Contour
Original Ground 10' Contour	Original Ground 10' Contour
Design 2' Contour	Design 2' Contour
Design 10' Contour	Design 10' Contour
Center of Stream	Center of Stream
Proposed Area	Proposed Area
2" Contour Pipe Deck	2" Contour Pipe Deck
4" Contour Pipe Deck	4" Contour Pipe Deck
8" Contour Pipe Deck	8" Contour Pipe Deck
12" Contour Pipe Deck	12" Contour Pipe Deck
16" Contour Pipe Deck	16" Contour Pipe Deck
20" Contour Pipe Deck	20" Contour Pipe Deck
24" Contour Pipe Deck	24" Contour Pipe Deck
28" Contour Pipe Deck	28" Contour Pipe Deck
32" Contour Pipe Deck	32" Contour Pipe Deck
36" Contour Pipe Deck	36" Contour Pipe Deck
40" Contour Pipe Deck	40" Contour Pipe Deck
44" Contour Pipe Deck	44" Contour Pipe Deck
48" Contour Pipe Deck	48" Contour Pipe Deck
52" Contour Pipe Deck	52" Contour Pipe Deck
56" Contour Pipe Deck	56" Contour Pipe Deck
60" Contour Pipe Deck	60" Contour Pipe Deck
64" Contour Pipe Deck	64" Contour Pipe Deck
68" Contour Pipe Deck	68" Contour Pipe Deck
72" Contour Pipe Deck	72" Contour Pipe Deck
76" Contour Pipe Deck	76" Contour Pipe Deck
80" Contour Pipe Deck	80" Contour Pipe Deck
84" Contour Pipe Deck	84" Contour Pipe Deck
88" Contour Pipe Deck	88" Contour Pipe Deck
92" Contour Pipe Deck	92" Contour Pipe Deck
96" Contour Pipe Deck	96" Contour Pipe Deck
100" Contour Pipe Deck	100" Contour Pipe Deck

NOTE: All surface boundaries have been verified or based on boundary evidence collected with mapping grade GPS accuracy.



THIS DOCUMENT
 PREPARED FOR
TUG HILL OPERATING

K&S
 CONSULTANTS

Hunter Pethel Well Site
 Meade District
 Marshall County, WV

Date: 12/04/2020
 Scale: As Shown
 Designed By: ZS
 EITC No. 12000
 Sheet 16 of 13