



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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Tuesday, July 17, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for TEN HIGH 1N-20HU
47-051-02021-00-00

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: TEN HIGH 1N-20HU
Farm Name: LAWRENCE & SHIRLEY CON.
U.S. WELL NUMBER: 47-051-02021-00-00
Horizontal 6A New Drill
Date Issued: 7/17/2018

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.



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Barry K. Lay, Chairman
dep.wv.gov

June 21, 2018

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

RE: Application for Deep Well Permit – API #47-051-02021

COMPANY: Tug Hill Operating, LLC

FARM: Tug Hill Operating, LLC Ten High 1N-20HU

COUNTY: Marshall DISTRICT: Meade QUAD: Glen Easton 7.5'

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

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

1. Comments to Notice of Deviation filed? No
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: Heaven Hill 3-8HU 47-051-01967; Ten High 1N-11HU 47-051-01960; Ten High 1N-12HU 47-051-01961; Ten High 1N-13HU 47-051-01965
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,


Susan Rose
Administrator

WW-6B
(04/15)

API NO. 47-051 - 02021
OPERATOR WELL NO. Ten High 1N-20HU
Well Pad Name: Ten High

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

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

2) Operator's Well Number: Ten High 1N-20HU Well Pad Name: Ten High

3) Farm Name/Surface Owner: Lawrence & Shirley Conkle, ests Public Road Access: Shepherd Ridge Lane CR 21/9

4) Elevation, current ground: 1310' Elevation, proposed post-construction: 1310'

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

(b) If Gas Shallow Deep
Horizontal

JN 7/17/18

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,635' - 11,744' thickness of 139' and anticipated pressure of approximately 9500 psi

8) Proposed Total Vertical Depth: 11,924'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 22,002'

11) Proposed Horizontal Leg Length: 9,534'

12) Approximate Fresh Water Strata Depths: 70'; 1026'

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: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 935' and Pittsburgh Coal - 1020'

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: Murray County Coal Co. / Marshall County Mine
Depth: 1020' TVD and 290' subsea level
Seam: Pittsburgh #8
Owner: Murray Energy / Consolidated Coal Co.

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259ft^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	1,086'	1,086"	1,725ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2,803'	2,803'	1,977ft^3(CTS)
Intermediate	9 5/8"	NEW	HP110	47#	10,811'	10,811'	3,525ft^3(CTS)
Production	5 1/2"	NEW	P110	23#	22,002'	22,002'	4,502ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#			
Liners							

JN 7/17/18

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	20"	26"	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.99
Production	5 1/2"	8 1/2"	.415	16,510	10,864	SEE #24	1.18
Tubing	2 7/8"			11,385	11,624		
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B
(10/14)

API NO. 47-051 - 02021
OPERATOR WELL NO. Ten High 1N-20HU
Well Pad Name: Ten High

JN 7/17/18

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

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

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

Well to be completed with approximately 23,835,000 lb proppant and 368,506 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.2

22) Area to be disturbed for well pad only, less access road (acres): 5.92

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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.

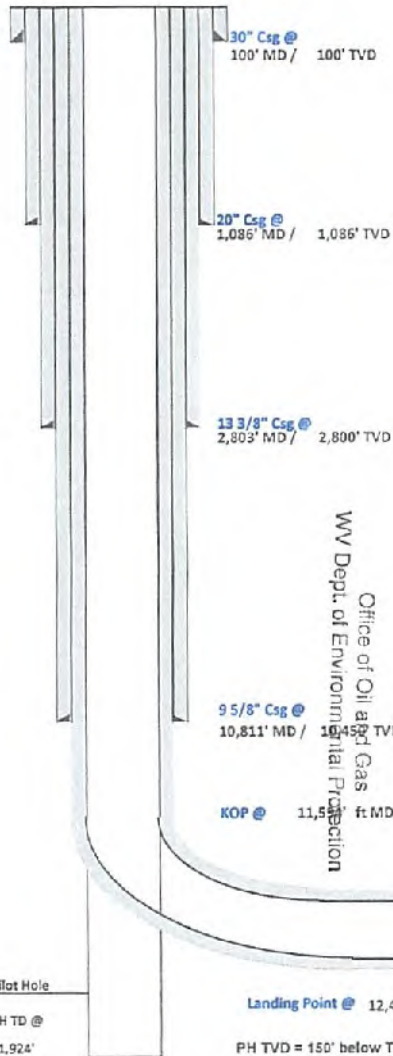


WELL NAME: Ten High 1N-20HU
 STATE: West Virginia COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 1,310' GL Elev: 1,310'
 TD: 22,002'
 TH Latitude: 39.80672175
 TH Longitude: -80.6808535
 BH Latitude: 6 39.834712
 BH Longitude: -80.691144

Formation	Depth (TVD)
Deepest Fresh Water	1,026'
Sewickley Coal	935'
Pittsburgh Coal	1,020'
Big Lime	2,090'
Berea	2,653'
Tully	6,591'
Marcellus	6,702'
Onondaga	6,753'
Salina	7,492'
Lockport	8,507'
Utica	11,362'
Point Pleasant	11,635'
Landing Depth	11,690'
Trenton	11,774'
Pilot Hole TD	11,924'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	1,086'	1,086'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,803'	2,800'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,811'	10,450'	47	HP110	Surface
Production	8 1/2	5 1/2	22,002'	11,524'	23	P110	Surface

	CEMENT SUMMARY			DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	291	A	15.6	Air	None
Surface	1,874	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,146	A	15	Air	1 Centralizer every other jt
Intermediate 2	2,856	A	14.5	Air	1 Centralizer every other jt
Production	4,502	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



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 Initial Production

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9/27/18

51-0202-1



Tug Hill Operating, LLC Casing and Cement Program

Ten High 1N-20HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,086'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,803'	CTS
Intermediate 2	9 5/8"	HP110	12 1/4"	10,811'	CTS
Production	5 1/2"	P110	8 1/2"	22,002'	CTS

Cement

JN 7/17/18

Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate 1:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2
Intermediate 2:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.99
Production:	50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.18

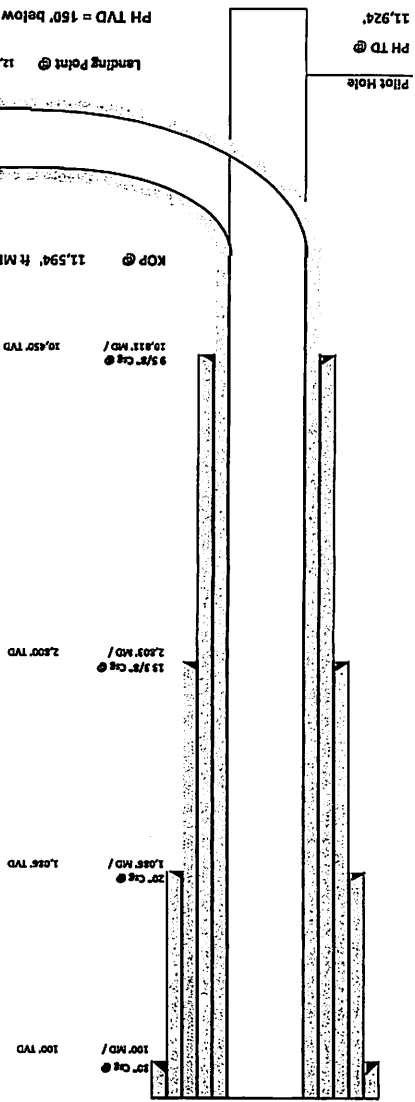
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07/20/2018

51-02021



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1,026'
Swinkley Coal	935'
Pittsburgh Coal	1,020'
Dlg Lime	2,090'
Berea	2,653'
Tully	6,591'
Marcellus	6,702'
Chondaga	6,753'
Sabina	7,492'
Lodport	8,507'
Utica	11,362'
Point Pleasant	11,635'
Landing Depth	11,690'
Trenton	11,774'
Pilot Hole TD	11,924'

WELL NAME:	Ten High IN-20HU
STATE:	West Virginia
COUNTY:	Marshall
DISTRICT:	Meade
DP Elev:	1,310'
TD:	22,002'
TH Length:	39,80672175
TH Length:	40,68085356
BH Length:	39,834712
BH Length:	40,691144

CASING SUMMARY									
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement		
Conductor	36	30	100'	100'	BW	BW	Surface		
Surface	26	20	1,026'	1,026'	J55	J55	Surface		
Intermediate 1	17 1/2	13 3/8	2,607'	2,607'	J55	J55	Surface		
Intermediate 2	12 1/8	9 5/8	10,811'	10,450'	HP110	HP110	Surface		
Production	8 1/2	5 1/2	22,002'	11,524'	HCP110	HCP110	Surface		

CEMENT SUMMARY									
Sacks	Class	Density	Field Type	Conductor Notes					
291	A	15.6	AP	None					
Conductor									
Surface									
Intermediate 1									
Intermediate 2									
Production									

DRILLING DETAILS									
Field Type	Conductor Notes								
AP	None								
AP	3 Centrifuges at equal distance								
AP	1 Centrifuge every other ft								
AP	1 Centrifuge every other ft								
AP	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to etc								

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Lateral TD @ 22,002' R MD
11,524' R TVD

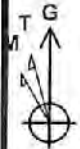
Landing Point @ 12,465' MD / 11,690' TVD
PH TVD = 150' below Trenton Top

2/21/18

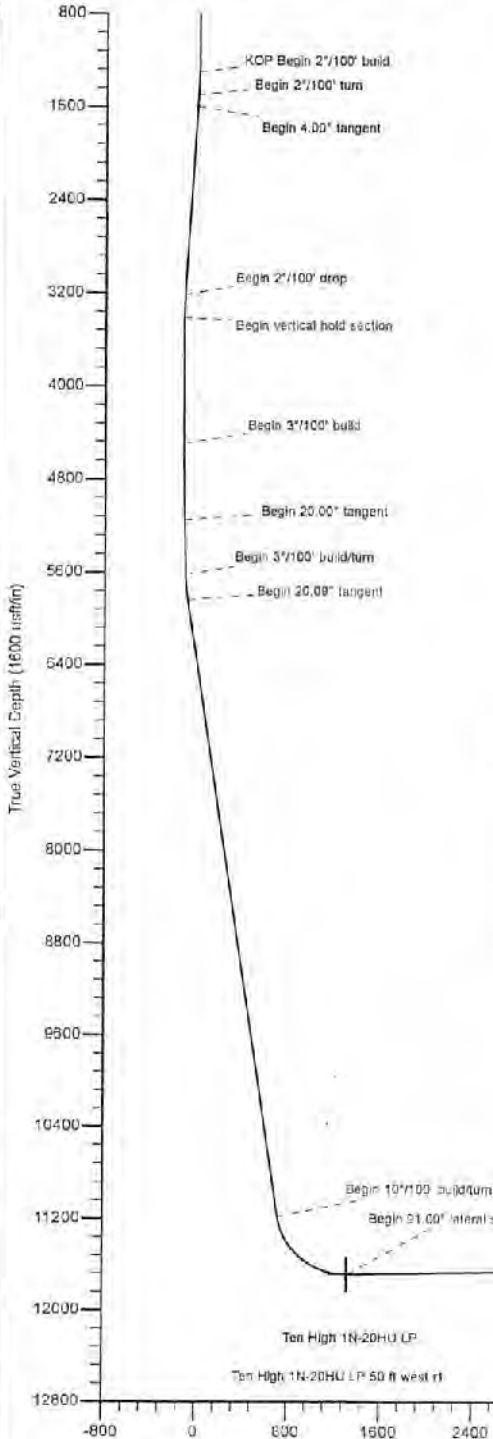
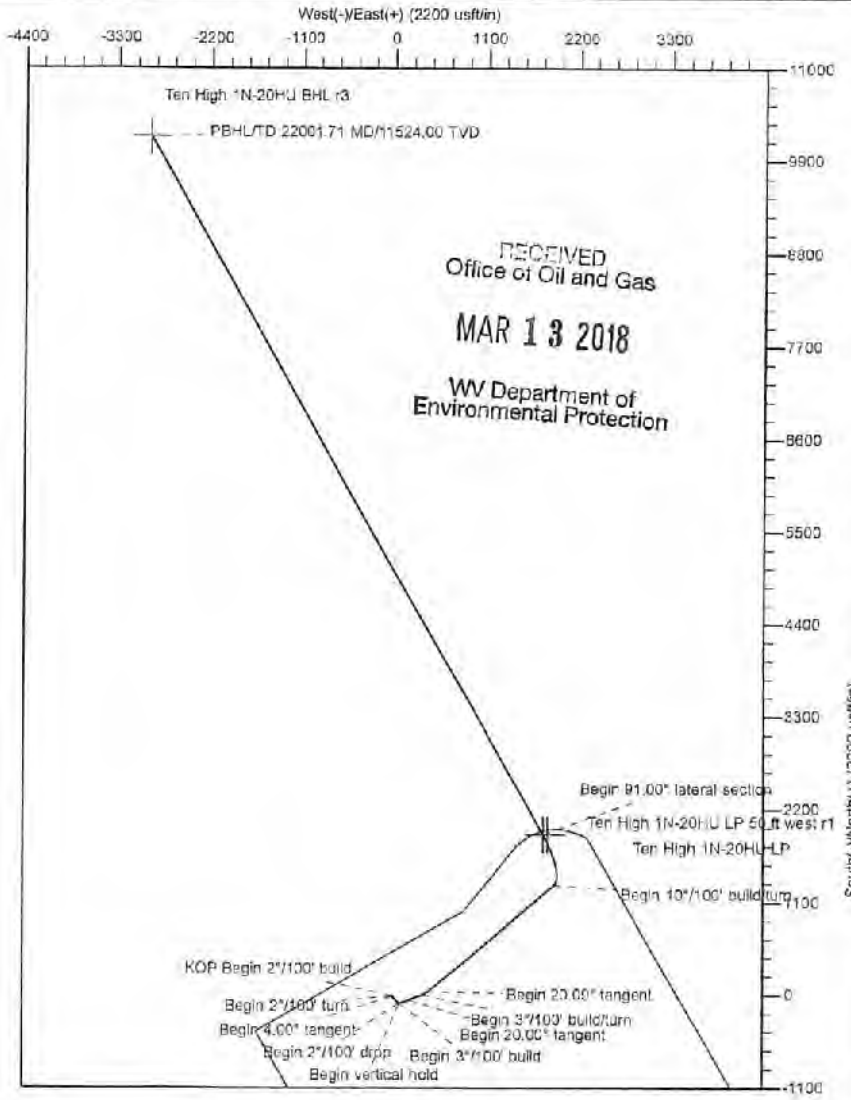


TUG HILL OPERATING

Well: Ten High 1N-20HU (N)
 Site: Ten High
 Project: Marshall County, West Virginia
 Design: rev3



Admits to Grid North
 True North: -0.20°
 Magnetic North: -8.93°
 Magnetic Field
 Strength: 52131.8nT
 Dip Angle: 66.63°
 Date: 11/16/2017
 Model: IGRF2015



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Ddeg	TFace	VSec	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 1/100' build
3	1500.00	4.00	166.00	1495.84	-6.74	1.31	2.00	165.00	-6.98	Begin 2 1/100' turn
4	1603.48	4.00	135.00	1503.05	-12.76	5.29	2.00	-104.97	-13.74	Begin 4.00' tangent
5	3220.69	4.00	135.00	3216.34	-22.55	85.06	0.00	0.00	-112.44	Begin 2 1/100' drop
6	3420.69	0.00	135.00	3416.16	-27.48	90.00	2.00	180.00	-118.54	Begin vertical hold section
7	4604.51	0.00	135.00	4500.00	-27.48	90.00	0.00	135.00	-118.54	Begin 3 1/100' build
8	5171.17	20.00	70.00	5153.21	-58.06	198.23	3.00	70.00	-110.57	Begin 20.00' tangent
9	5871.17	20.00	70.00	5823.06	0.40	358.93	0.00	0.00	-88.72	Begin 3 1/100' build/turn
10	5901.05	20.00	49.79	5839.27	39.38	426.10	3.00	-88.74	-78.80	Begin 20.00' tangent
11	11694.19	20.00	49.79	11165.31	1302.04	1919.75	0.00	0.00	721.34	Begin 10 1/100' build/turn
12	12487.52	91.00	330.34	11690.00	1896.49	1792.31	10.00	-79.74	1329.71	Begin 91.00' lateral section
13	22001.71	91.00	330.34	11524.00	10181.95	-2925.15	0.00	0.00	0593.60	PBHLTD 22001.71 MD/11524.00 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 @ 1310.00usft

Northing	14456514.04	Easting	1730045.49	Latitude	39.80672175	Longitude	-80.68086356
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Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.93

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 Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (12/19/2016) 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

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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

Permit well - Ten High 1N-13HU

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map (page 3) 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

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

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
4705101935	Tug Hill Operating	6737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101944	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101945	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101943	Tug Hill Operating	6737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101964	Tug Hill Operating	6737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101973	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101974	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101975	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101976	Tug Hill Operating	6737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101960	Tug Hill Operating	11878' TVD planned	None	None	No, Permit submitted Utica well	Permit submitted Utica well. Not yet drilled
4705101961	Tug Hill Operating	11878' TVD planned	None	None	No, Permit submitted Utica well	Permit submitted Utica well. Not yet drilled
4705101965	Tug Hill Operating	11878' TVD planned	None	None	No, Permit submitted Utica well	Permit submitted Utica well. Not yet drilled
4705101966	Tug Hill Operating	11878' TVD planned	None	None	No, Permit submitted Utica well	Permit submitted Utica well. Not yet drilled
4705101934	Tug Hill	6737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101934	Tug Hill	6737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705100837	Manufacturer's Light and Heat/McElroy Coal Co.	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be an old shallow well, now plugged	Well records are incomplete. Well plugged 1/20/1999

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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

Site	Ten High				
Site Position:		Northing:	14,456,545.80 usft	Latitude:	39.80680885
From:	Lat/Long	Easting:	1,730,001.41 usft	Longitude:	-80.68101011
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	Ten High 1N-20HU (N)					
Well Position	+N/-S	0.00 usft	Northing:	14,456,514.04 usft	Latitude:	39.80672175
	+E/-W	0.00 usft	Easting:	1,730,045.49 usft	Longitude:	-80.68085356
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	1,310.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/18/2017	-8.72	66.93	52,131.76013545

Design	rev3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	343.97

Plan Survey Tool Program	Date	2/16/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,001.71 rev3 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	4.00	165.00	1,499.84	-6.74	1.81	2.00	2.00	0.00	165.00	
1,603.45	4.00	135.00	1,603.05	-12.78	5.29	2.00	0.00	-29.00	-104.97	
3,220.69	4.00	135.00	3,216.34	-92.55	65.06	0.00	0.00	0.00	0.00	
3,420.69	0.00	135.00	3,416.18	-97.48	90.00	2.00	-2.00	0.00	180.00	
4,504.51	0.00	135.00	4,500.00	-97.48	90.00	0.00	0.00	0.00	135.00	
5,171.17	20.00	70.00	5,153.21	-58.09	198.23	3.00	3.00	0.00	70.00	
5,671.17	20.00	70.00	5,623.06	0.40	358.93	0.00	0.00	0.00	0.00	
5,901.05	20.09	49.79	5,839.27	39.38	426.10	3.00	0.04	-8.79	-98.74	
11,594.19	20.09	49.79	11,185.91	1,302.04	1,919.75	0.00	0.00	0.00	0.00	
12,467.53	91.00	330.34	11,690.00	1,896.49	1,792.61	10.00	8.12	-9.10	-79.74	Ten High 1N-20HU LF
22,001.71	91.00	330.34	11,524.00	10,181.95	-2,925.15	0.00	0.00	0.00	0.00	Ten High 1N-20HU B

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Planning Report - Geographic

WV Department of Environmental Protection

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
100.00	0.00	0.00	100.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
200.00	0.00	0.00	200.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
300.00	0.00	0.00	300.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
400.00	0.00	0.00	400.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
500.00	0.00	0.00	500.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
600.00	0.00	0.00	600.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
700.00	0.00	0.00	700.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
800.00	0.00	0.00	800.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
900.00	0.00	0.00	900.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,456,514.04	1,730,045.49	39.80672175	-80.68085356	
KOP Begin 2°/100' build										
1,400.00	2.00	165.00	1,399.98	-1.69	0.45	14,456,512.36	1,730,045.95	39.80671712	-80.68085197	
1,500.00	4.00	165.00	1,499.84	-6.74	1.81	14,456,507.30	1,730,047.30	39.80670322	-80.68084721	
Begin 2°/100' turn										
1,600.00	3.98	135.96	1,599.61	-12.61	5.12	14,456,501.44	1,730,050.62	39.80668708	-80.68083548	
1,603.45	4.00	135.00	1,603.05	-12.78	5.29	14,456,501.27	1,730,050.79	39.80668661	-80.68083468	
Begin 4.00° tangent										
1,700.00	4.00	135.00	1,699.36	-17.54	10.05	14,456,496.50	1,730,055.55	39.80667348	-80.68081798	
1,800.00	4.00	135.00	1,799.12	-22.47	14.99	14,456,491.57	1,730,060.48	39.80665989	-80.68080048	
1,900.00	4.00	135.00	1,898.87	-27.41	19.92	14,456,486.64	1,730,065.41	39.80664630	-80.68078298	
2,000.00	4.00	135.00	1,998.63	-32.34	24.85	14,456,481.71	1,730,070.35	39.80663270	-80.68076548	
2,100.00	4.00	135.00	2,098.39	-37.27	29.78	14,456,476.77	1,730,075.28	39.80661911	-80.68074798	
2,200.00	4.00	135.00	2,198.14	-42.20	34.72	14,456,471.84	1,730,080.21	39.80660551	-80.68073048	
2,300.00	4.00	135.00	2,297.90	-47.14	39.65	14,456,466.91	1,730,085.14	39.80659192	-80.68071298	
2,400.00	4.00	135.00	2,397.66	-52.07	44.58	14,456,461.98	1,730,090.08	39.80657832	-80.68069548	
2,500.00	4.00	135.00	2,497.41	-57.00	49.51	14,456,457.04	1,730,095.01	39.80656473	-80.68067798	
2,600.00	4.00	135.00	2,597.17	-61.93	54.45	14,456,452.11	1,730,099.94	39.80655114	-80.68066048	
2,700.00	4.00	135.00	2,696.93	-66.87	59.38	14,456,447.18	1,730,104.87	39.80653754	-80.68064298	
2,800.00	4.00	135.00	2,796.68	-71.80	64.31	14,456,442.25	1,730,109.81	39.80652395	-80.68062548	
2,900.00	4.00	135.00	2,896.44	-76.73	69.24	14,456,437.31	1,730,114.74	39.80651035	-80.68060798	
3,000.00	4.00	135.00	2,996.19	-81.66	74.18	14,456,432.38	1,730,119.67	39.80649676	-80.68059048	
3,100.00	4.00	135.00	3,095.95	-86.60	79.11	14,456,427.45	1,730,124.60	39.80648316	-80.68057298	
3,200.00	4.00	135.00	3,195.71	-91.53	84.04	14,456,422.52	1,730,129.54	39.80646957	-80.68055547	
3,220.69	4.00	135.00	3,216.34	-92.55	85.06	14,456,421.49	1,730,130.56	39.80646676	-80.68055185	
Begin 2°/100' drop										
3,300.00	2.41	135.00	3,295.53	-95.69	88.20	14,456,418.36	1,730,133.69	39.80645811	-80.68054072	
3,400.00	0.41	135.00	3,395.50	-97.43	89.94	14,456,416.61	1,730,135.44	39.80645330	-80.68053453	
3,420.69	0.00	135.00	3,416.18	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
Begin vertical hold section										
3,500.00	0.00	0.00	3,495.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
3,600.00	0.00	0.00	3,595.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
3,700.00	0.00	0.00	3,695.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
3,800.00	0.00	0.00	3,795.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
3,900.00	0.00	0.00	3,895.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,000.00	0.00	0.00	3,995.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,100.00	0.00	0.00	4,095.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,200.00	0.00	0.00	4,195.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,300.00	0.00	0.00	4,295.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,400.00	0.00	0.00	4,395.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
4,500.00	0.00	0.00	4,495.49	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	



Planning Report - Geographic

WV Department of Environmental Protection

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,504.51	0.00	0.00	4,500.00	-97.48	90.00	14,456,416.56	1,730,135.49	39.80645316	-80.68053435	
Begin 3°/100' build										
4,600.00	2.86	70.00	4,595.46	-96.67	92.24	14,456,417.38	1,730,137.73	39.80645538	-80.68052635	
4,700.00	5.86	70.00	4,695.15	-94.06	99.39	14,456,419.98	1,730,144.88	39.80646246	-80.68050085	
4,800.00	8.86	70.00	4,794.32	-89.68	111.44	14,456,424.36	1,730,156.93	39.80647438	-80.68045791	
4,900.00	11.86	70.00	4,892.67	-83.53	128.34	14,456,430.52	1,730,173.83	39.80649111	-80.68039764	
5,000.00	14.86	70.00	4,989.96	-75.62	150.06	14,456,438.42	1,730,195.55	39.80651260	-80.68032021	
5,100.00	17.86	70.00	5,085.89	-65.99	176.53	14,456,448.06	1,730,222.02	39.80653890	-80.68022682	
5,171.17	20.00	70.00	5,153.21	-58.09	198.23	14,456,455.95	1,730,243.72	39.80656028	-80.68014846	
Begin 20.00° tangent										
5,200.00	20.00	70.00	5,190.30	-54.72	207.49	14,456,459.33	1,730,252.99	39.80656945	-80.68011543	
5,300.00	20.00	70.00	5,274.27	-43.02	239.83	14,456,471.02	1,730,285.13	39.80660126	-80.68000084	
5,400.00	20.00	70.00	5,368.24	-31.32	271.77	14,456,482.72	1,730,317.27	39.80663307	-80.67998625	
5,500.00	20.00	70.00	5,462.21	-19.62	303.91	14,456,494.42	1,730,349.41	39.80666488	-80.67997167	
5,600.00	20.00	70.00	5,556.18	-7.93	336.05	14,456,506.12	1,730,381.55	39.80669669	-80.67965708	
5,671.17	20.00	70.00	5,623.06	0.40	358.93	14,456,514.44	1,730,404.42	39.80671933	-80.67957552	
Begin 3°/100' build/turn										
5,700.00	19.89	67.49	5,650.16	3.96	368.09	14,456,518.01	1,730,413.58	39.80672902	-80.67954288	
5,800.00	19.77	58.64	5,744.25	19.28	398.25	14,456,533.32	1,730,443.74	39.80677079	-80.67943527	
5,900.00	20.09	49.88	5,838.28	39.15	425.83	14,456,553.19	1,730,471.32	39.80682509	-80.67933681	
5,901.03	20.09	49.79	5,839.25	39.38	426.10	14,456,553.42	1,730,471.59	39.80682571	-80.67933585	
Begin 20.09° tangent										
5,901.05	20.09	49.79	5,839.27	39.38	426.10	14,456,553.43	1,730,471.60	39.80682573	-80.67933583	
6,000.00	20.09	49.79	5,932.20	61.33	452.06	14,456,575.37	1,730,497.56	39.80688574	-80.67924311	
6,100.00	20.09	49.79	6,026.11	83.51	478.30	14,456,597.55	1,730,523.79	39.80694639	-80.67914941	
6,200.00	20.09	49.79	6,120.02	105.69	504.54	14,456,619.73	1,730,550.03	39.80700704	-80.67905571	
6,300.00	20.09	49.79	6,213.94	127.86	530.77	14,456,641.91	1,730,576.26	39.80706769	-80.67896201	
6,400.00	20.09	49.79	6,307.85	150.04	557.01	14,456,664.09	1,730,602.50	39.80712834	-80.67886831	
6,500.00	20.09	49.79	6,401.77	172.22	583.24	14,456,686.27	1,730,628.74	39.80718898	-80.67877460	
6,600.00	20.09	49.79	6,495.68	194.40	609.48	14,456,708.44	1,730,654.97	39.80724963	-80.67868090	
6,700.00	20.09	49.79	6,589.59	216.58	635.71	14,456,730.62	1,730,681.21	39.80731028	-80.67858720	
6,800.00	20.09	49.79	6,683.51	238.76	661.95	14,456,752.80	1,730,707.44	39.80737093	-80.67849350	
6,900.00	20.09	49.79	6,777.42	260.94	688.19	14,456,774.98	1,730,733.68	39.80743158	-80.67839979	
7,000.00	20.09	49.79	6,871.33	283.11	714.42	14,456,797.16	1,730,759.92	39.80749223	-80.67830609	
7,100.00	20.09	49.79	6,965.25	305.29	740.66	14,456,819.34	1,730,786.15	39.80755288	-80.67821239	
7,200.00	20.09	49.79	7,059.16	327.47	766.89	14,456,841.51	1,730,812.39	39.80761353	-80.67811869	
7,300.00	20.09	49.79	7,153.08	349.65	793.13	14,456,863.69	1,730,838.62	39.80767417	-80.67802498	
7,400.00	20.09	49.79	7,246.99	371.83	819.37	14,456,885.87	1,730,864.86	39.80773482	-80.67793128	
7,500.00	20.09	49.79	7,340.90	394.01	845.60	14,456,908.05	1,730,891.09	39.80779547	-80.67783757	
7,600.00	20.09	49.79	7,434.82	416.19	871.84	14,456,930.23	1,730,917.33	39.80785612	-80.67774387	
7,700.00	20.09	49.79	7,528.73	438.36	898.07	14,456,952.41	1,730,943.57	39.80791677	-80.67765017	
7,800.00	20.09	49.79	7,622.64	460.54	924.31	14,456,974.59	1,730,969.80	39.80797742	-80.67755646	
7,900.00	20.09	49.79	7,716.56	482.72	950.54	14,456,996.76	1,730,996.04	39.80803806	-80.67746276	
8,000.00	20.09	49.79	7,810.47	504.90	976.78	14,457,018.94	1,731,022.27	39.80809871	-80.67736905	
8,100.00	20.09	49.79	7,904.39	527.08	1,003.02	14,457,041.12	1,731,048.51	39.80815936	-80.67727535	
8,200.00	20.09	49.79	7,998.30	549.26	1,029.25	14,457,063.30	1,731,074.75	39.80822001	-80.67718164	
8,300.00	20.09	49.79	8,092.21	571.44	1,055.49	14,457,085.48	1,731,100.98	39.80828065	-80.67708794	
8,400.00	20.09	49.79	8,186.13	593.61	1,081.72	14,457,107.66	1,731,127.22	39.80834130	-80.67699423	
8,500.00	20.09	49.79	8,280.04	615.79	1,107.96	14,457,129.84	1,731,153.45	39.80840195	-80.67690053	
8,600.00	20.09	49.79	8,373.95	637.97	1,134.20	14,457,152.01	1,731,179.69	39.80846260	-80.67680682	
8,700.00	20.09	49.79	8,467.87	660.15	1,160.43	14,457,174.19	1,731,205.92	39.80852325	-80.67671312	
8,800.00	20.09	49.79	8,561.78	682.33	1,186.67	14,457,196.37	1,731,232.16	39.80858389	-80.67661941	
8,900.00	20.09	49.79	8,655.70	704.51	1,212.90	14,457,218.55	1,731,258.40	39.80864454	-80.67652571	
9,000.00	20.09	49.79	8,749.61	726.69	1,239.14	14,457,240.73	1,731,284.63	39.80870519	-80.67643200	



Planning Report - Geographic

MAR 13 2018

WV Department of Environmental Protection

Database: DB_Jul2216dt_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Ten High
Well: Ten High 1N-20HU (N)
Wellbore: Original Hole
Design: rev3

Local Co-ordinate Reference: Well Ten High 1N-20HU
TVD Reference: GL @ 1310.00usft
MD Reference: GL @ 1310.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,100.00	20.09	49.79	8,843.52	748.86	1,265.37	14,457,262.91	1,731,310.67	39.80876583	-80.67633829
9,200.00	20.09	49.79	8,937.44	771.04	1,291.61	14,457,285.09	1,731,337.10	39.80882648	-80.67624459
9,300.00	20.09	49.79	9,031.35	793.22	1,317.85	14,457,307.26	1,731,363.34	39.80888713	-80.67615088
9,400.00	20.09	49.79	9,125.26	815.40	1,344.08	14,457,329.44	1,731,389.58	39.80894777	-80.67605717
9,500.00	20.09	49.79	9,219.18	837.58	1,370.32	14,457,351.62	1,731,415.81	39.80900842	-80.67596347
9,600.00	20.09	49.79	9,313.09	859.76	1,396.55	14,457,373.80	1,731,442.05	39.80906907	-80.67586976
9,700.00	20.09	49.79	9,407.01	881.94	1,422.79	14,457,395.98	1,731,468.28	39.80912971	-80.67577605
9,800.00	20.09	49.79	9,500.92	904.11	1,449.03	14,457,418.16	1,731,494.52	39.80919036	-80.67568235
9,900.00	20.09	49.79	9,594.83	926.29	1,475.26	14,457,440.34	1,731,520.75	39.80925101	-80.67558864
10,000.00	20.09	49.79	9,688.75	948.47	1,501.50	14,457,462.51	1,731,546.99	39.80931165	-80.67549493
10,100.00	20.09	49.79	9,782.66	970.65	1,527.73	14,457,484.69	1,731,573.23	39.80937230	-80.67540122
10,200.00	20.09	49.79	9,876.57	992.83	1,553.97	14,457,506.87	1,731,599.46	39.80943295	-80.67530751
10,300.00	20.09	49.79	9,970.49	1,015.01	1,580.20	14,457,529.05	1,731,625.70	39.80949359	-80.67521381
10,400.00	20.09	49.79	10,064.40	1,037.19	1,606.44	14,457,551.23	1,731,651.93	39.80955424	-80.67512010
10,500.00	20.09	49.79	10,158.32	1,059.36	1,632.68	14,457,573.41	1,731,678.17	39.80961489	-80.67502639
10,600.00	20.09	49.79	10,252.23	1,081.54	1,658.91	14,457,595.59	1,731,704.41	39.80967553	-80.67493268
10,700.00	20.09	49.79	10,346.14	1,103.72	1,685.15	14,457,617.76	1,731,730.64	39.80973618	-80.67483897
10,800.00	20.09	49.79	10,440.06	1,125.90	1,711.38	14,457,639.94	1,731,756.88	39.80979682	-80.67474526
10,900.00	20.09	49.79	10,533.97	1,148.08	1,737.62	14,457,662.12	1,731,783.11	39.80985747	-80.67465155
11,000.00	20.09	49.79	10,627.88	1,170.26	1,763.86	14,457,684.30	1,731,809.35	39.80991811	-80.67455784
11,100.00	20.09	49.79	10,721.80	1,192.44	1,790.09	14,457,706.48	1,731,835.58	39.80997876	-80.67446413
11,200.00	20.09	49.79	10,815.71	1,214.61	1,816.33	14,457,728.66	1,731,861.82	39.81003941	-80.67437042
11,300.00	20.09	49.79	10,909.63	1,236.79	1,842.56	14,457,750.84	1,731,888.06	39.81010005	-80.67427671
11,400.00	20.09	49.79	11,003.54	1,258.97	1,868.80	14,457,773.01	1,731,914.29	39.81016070	-80.67418300
11,500.00	20.09	49.79	11,097.45	1,281.15	1,895.03	14,457,795.19	1,731,940.53	39.81022134	-80.67408929
11,594.19	20.09	49.79	11,185.91	1,302.04	1,919.75	14,457,816.08	1,731,965.24	39.81027846	-80.67400103
Begin 10°/100' build/turn									
11,600.00	20.20	48.13	11,191.37	1,303.35	1,921.26	14,457,817.40	1,731,966.75	39.81028206	-80.67399564
11,700.00	24.23	23.66	11,284.12	1,333.75	1,942.40	14,457,847.79	1,731,987.90	39.81036531	-80.67391994
11,800.00	30.94	7.51	11,372.83	1,378.14	1,954.03	14,457,892.18	1,731,999.52	39.81048710	-80.67387797
11,900.00	38.98	357.05	11,454.79	1,435.18	1,955.77	14,457,949.22	1,732,001.27	39.81064374	-80.67387101
12,000.00	47.66	349.80	11,527.52	1,503.14	1,947.59	14,458,017.18	1,731,993.08	39.81083044	-80.67389928
12,100.00	56.70	344.35	11,588.80	1,579.95	1,929.72	14,458,083.99	1,731,975.21	39.81104156	-80.67396191
12,200.00	65.92	339.93	11,636.78	1,663.27	1,902.71	14,458,177.32	1,731,948.20	39.81127067	-80.67405700
12,300.00	75.25	336.12	11,689.99	1,750.59	1,867.38	14,458,264.63	1,731,912.88	39.81151080	-80.67418167
12,400.00	84.64	332.63	11,697.43	1,839.23	1,824.81	14,458,353.28	1,731,870.31	39.81175467	-80.67433212
12,467.53	91.00	330.34	11,690.00	1,898.49	1,792.61	14,458,412.53	1,731,838.10	39.81191773	-80.67444602
Begin 91.00° lateral section									
12,500.00	91.00	330.34	11,689.43	1,926.70	1,776.54	14,458,440.74	1,731,822.04	39.81199536	-80.67450287
12,600.00	91.00	330.34	11,687.69	2,013.58	1,727.06	14,458,527.62	1,731,772.55	39.81223445	-80.67467795
12,700.00	91.00	330.34	11,685.95	2,100.46	1,677.58	14,458,614.51	1,731,723.07	39.81247354	-80.67485303
12,800.00	91.00	330.34	11,684.21	2,187.35	1,628.09	14,458,701.39	1,731,673.59	39.81271264	-80.67502812
12,900.00	91.00	330.34	11,682.47	2,274.23	1,578.61	14,458,788.27	1,731,624.11	39.81295173	-80.67520320
13,000.00	91.00	330.34	11,680.73	2,361.11	1,529.13	14,458,875.15	1,731,574.62	39.81319082	-80.67537829
13,100.00	91.00	330.34	11,678.99	2,447.99	1,479.65	14,458,962.03	1,731,525.14	39.81342991	-80.67555338
13,200.00	91.00	330.34	11,677.25	2,534.87	1,430.16	14,459,048.92	1,731,475.66	39.81366900	-80.67572847
13,300.00	91.00	330.34	11,675.51	2,621.75	1,380.68	14,459,135.80	1,731,426.17	39.81390809	-80.67590355
13,400.00	91.00	330.34	11,673.76	2,708.64	1,331.20	14,459,222.68	1,731,376.69	39.81414718	-80.67607865
13,500.00	91.00	330.34	11,672.02	2,795.52	1,281.72	14,459,309.56	1,731,327.21	39.81438627	-80.67625374
13,600.00	91.00	330.34	11,670.28	2,882.40	1,232.23	14,459,396.44	1,731,277.73	39.81462536	-80.67642883
13,700.00	91.00	330.34	11,668.54	2,969.28	1,182.75	14,459,483.32	1,731,228.24	39.81486445	-80.67660393
13,800.00	91.00	330.34	11,666.80	3,056.16	1,133.27	14,459,570.21	1,731,178.76	39.81510354	-80.67677902
13,900.00	91.00	330.34	11,665.06	3,143.04	1,083.79	14,459,657.09	1,731,129.28	39.81534263	-80.67695412
14,000.00	91.00	330.34	11,663.32	3,229.93	1,034.30	14,459,743.97	1,731,079.80	39.81558172	-80.67712922

MAR 13 2018

WV Department of
Environmental Protection



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
14,100.00	91.00	330.34	11,661.58	3,316.81	984.82	14,459,830.85	1,731,030.31	39.81582080	-80.67730432	
14,200.00	91.00	330.34	11,659.84	3,403.69	935.34	14,459,917.73	1,730,980.83	39.81605989	-80.67747942	
14,300.00	91.00	330.34	11,658.10	3,490.57	885.86	14,460,004.61	1,730,931.35	39.81629898	-80.67765452	
14,400.00	91.00	330.34	11,656.35	3,577.45	836.37	14,460,091.50	1,730,881.87	39.81653807	-80.67782962	
14,500.00	91.00	330.34	11,654.61	3,664.34	786.89	14,460,178.38	1,730,832.38	39.81677715	-80.67800473	
14,600.00	91.00	330.34	11,652.87	3,751.22	737.41	14,460,265.26	1,730,782.90	39.81701624	-80.67817983	
14,700.00	91.00	330.34	11,651.13	3,838.10	687.93	14,460,352.14	1,730,733.42	39.81725533	-80.67835494	
14,800.00	91.00	330.34	11,649.39	3,924.98	638.44	14,460,439.02	1,730,683.94	39.81749441	-80.67853005	
14,900.00	91.00	330.34	11,647.65	4,011.86	588.96	14,460,525.91	1,730,634.45	39.81773350	-80.67870516	
15,000.00	91.00	330.34	11,645.91	4,098.74	539.48	14,460,612.79	1,730,584.97	39.81797259	-80.67888027	
15,100.00	91.00	330.34	11,644.17	4,185.63	489.99	14,460,699.67	1,730,535.49	39.81821167	-80.67905538	
15,200.00	91.00	330.34	11,642.43	4,272.51	440.51	14,460,786.55	1,730,486.01	39.81845076	-80.67923049	
15,300.00	91.00	330.34	11,640.68	4,359.39	391.03	14,460,873.43	1,730,436.52	39.81868984	-80.67940561	
15,400.00	91.00	330.34	11,638.94	4,446.27	341.55	14,460,960.31	1,730,387.04	39.81892893	-80.67958072	
15,500.00	91.00	330.34	11,637.20	4,533.15	292.06	14,461,047.20	1,730,337.56	39.81916801	-80.67975584	
15,600.00	91.00	330.34	11,635.46	4,620.03	242.58	14,461,134.08	1,730,288.08	39.81940709	-80.67993096	
15,700.00	91.00	330.34	11,633.72	4,706.92	193.10	14,461,220.96	1,730,238.59	39.81964618	-80.68010608	
15,800.00	91.00	330.34	11,631.98	4,793.80	143.62	14,461,307.84	1,730,189.11	39.81988526	-80.68028120	
15,900.00	91.00	330.34	11,630.24	4,880.68	94.13	14,461,394.72	1,730,139.63	39.82012435	-80.68045632	
16,000.00	91.00	330.34	11,628.50	4,967.56	44.65	14,461,481.61	1,730,090.15	39.82036343	-80.68063144	
16,100.00	91.00	330.34	11,626.76	5,054.44	-4.83	14,461,568.49	1,730,040.66	39.82060251	-80.68080656	
16,200.00	91.00	330.34	11,625.01	5,141.33	-54.31	14,461,655.37	1,729,991.18	39.82084159	-80.68098169	
16,300.00	91.00	330.34	11,623.27	5,228.21	-103.80	14,461,742.25	1,729,941.70	39.82108068	-80.68115681	
16,400.00	91.00	330.34	11,621.53	5,315.09	-153.28	14,461,829.13	1,729,892.21	39.82131976	-80.68133194	
16,500.00	91.00	330.34	11,619.79	5,401.97	-202.76	14,461,916.01	1,729,842.73	39.82155884	-80.68150707	
16,600.00	91.00	330.34	11,618.05	5,488.85	-252.24	14,462,002.90	1,729,793.25	39.82179792	-80.68168220	
16,700.00	91.00	330.34	11,616.31	5,575.73	-301.73	14,462,089.78	1,729,743.77	39.82203700	-80.68185733	
16,800.00	91.00	330.34	11,614.57	5,662.62	-351.21	14,462,176.66	1,729,694.28	39.82227608	-80.68203246	
16,900.00	91.00	330.34	11,612.83	5,749.50	-400.69	14,462,263.54	1,729,644.80	39.82251516	-80.68220760	
17,000.00	91.00	330.34	11,611.09	5,836.38	-450.17	14,462,350.42	1,729,595.32	39.82275424	-80.68238273	
17,100.00	91.00	330.34	11,609.34	5,923.26	-499.66	14,462,437.30	1,729,545.84	39.82299332	-80.68255787	
17,200.00	91.00	330.34	11,607.60	6,010.14	-549.14	14,462,524.19	1,729,496.35	39.82323240	-80.68273300	
17,300.00	91.00	330.34	11,605.86	6,097.03	-598.62	14,462,611.07	1,729,446.87	39.82347148	-80.68290814	
17,400.00	91.00	330.34	11,604.12	6,183.91	-648.10	14,462,697.95	1,729,397.39	39.82371056	-80.68308328	
17,500.00	91.00	330.34	11,602.38	6,270.79	-697.59	14,462,784.83	1,729,347.91	39.82394964	-80.68325842	
17,600.00	91.00	330.34	11,600.64	6,357.67	-747.07	14,462,871.71	1,729,298.42	39.82418872	-80.68343357	
17,700.00	91.00	330.34	11,598.90	6,444.55	-796.55	14,462,958.60	1,729,248.94	39.82442780	-80.68360871	
17,800.00	91.00	330.34	11,597.16	6,531.43	-846.03	14,463,045.48	1,729,199.45	39.82466688	-80.68378385	
17,900.00	91.00	330.34	11,595.42	6,618.32	-895.52	14,463,132.36	1,729,149.98	39.82490596	-80.68395900	
18,000.00	91.00	330.34	11,593.67	6,705.20	-945.00	14,463,219.24	1,729,100.49	39.82514503	-80.68413414	
18,100.00	91.00	330.34	11,591.93	6,792.08	-994.48	14,463,306.12	1,729,051.01	39.82538411	-80.68430929	
18,200.00	91.00	330.34	11,590.19	6,878.96	-1,043.96	14,463,393.00	1,729,001.53	39.82562319	-80.68448444	
18,300.00	91.00	330.34	11,588.45	6,965.84	-1,093.45	14,463,479.89	1,728,952.05	39.82586226	-80.68465959	
18,400.00	91.00	330.34	11,586.71	7,052.72	-1,142.93	14,463,566.77	1,728,902.56	39.82610134	-80.68483474	
18,500.00	91.00	330.34	11,584.97	7,139.61	-1,192.41	14,463,653.65	1,728,853.08	39.82634042	-80.68500990	
18,600.00	91.00	330.34	11,583.23	7,226.49	-1,241.90	14,463,740.53	1,728,803.60	39.82657949	-80.68518505	
18,700.00	91.00	330.34	11,581.49	7,313.37	-1,291.38	14,463,827.41	1,728,754.12	39.82681857	-80.68536021	
18,800.00	91.00	330.34	11,579.75	7,400.25	-1,340.86	14,463,914.30	1,728,704.63	39.82705764	-80.68553536	
18,900.00	91.00	330.34	11,578.00	7,487.13	-1,390.34	14,464,001.18	1,728,655.15	39.82729672	-80.68571052	
19,000.00	91.00	330.34	11,576.26	7,574.02	-1,439.83	14,464,088.06	1,728,605.67	39.82753579	-80.68588568	
19,100.00	91.00	330.34	11,574.52	7,660.90	-1,489.31	14,464,174.94	1,728,556.19	39.82777487	-80.68606084	
19,200.00	91.00	330.34	11,572.78	7,747.78	-1,538.79	14,464,261.82	1,728,506.70	39.82801394	-80.68623600	
19,300.00	91.00	330.34	11,571.04	7,834.66	-1,588.27	14,464,348.70	1,728,457.22	39.82825302	-80.68641116	
19,400.00	91.00	330.34	11,569.30	7,921.54	-1,637.76	14,464,435.59	1,728,407.74	39.82849209	-80.68658633	
19,500.00	91.00	330.34	11,567.56	8,008.42	-1,687.24	14,464,522.47	1,728,358.26	39.82873117	-80.68676149	



Planning Report - Geographic

Database:	DB_Jul2216dt_V14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,600.00	91.00	330.34	11,565.82	8,095.31	-1,736.72	14,464,609.35	1,728,308.77	39.82897024	-80.68693666
19,700.00	91.00	330.34	11,564.08	8,182.19	-1,786.20	14,464,696.23	1,728,259.29	39.82920931	-80.68711163
19,800.00	91.00	330.34	11,562.33	8,269.07	-1,835.69	14,464,783.11	1,728,209.81	39.82944839	-80.68728699
19,900.00	91.00	330.34	11,560.59	8,355.95	-1,885.17	14,464,869.99	1,728,160.32	39.82968746	-80.68746216
20,000.00	91.00	330.34	11,558.85	8,442.83	-1,934.65	14,464,956.88	1,728,110.84	39.82992653	-80.68763733
20,100.00	91.00	330.34	11,557.11	8,529.71	-1,984.13	14,465,043.76	1,728,061.36	39.83016560	-80.68781251
20,200.00	91.00	330.34	11,555.37	8,618.60	-2,033.62	14,465,130.64	1,728,011.88	39.83040467	-80.68798768
20,300.00	91.00	330.34	11,553.63	8,703.48	-2,083.10	14,465,217.52	1,727,962.39	39.83064375	-80.68816285
20,400.00	91.00	330.34	11,551.89	8,790.36	-2,132.58	14,465,304.40	1,727,912.91	39.83088282	-80.68833803
20,500.00	91.00	330.34	11,550.15	8,877.24	-2,182.06	14,465,391.29	1,727,863.43	39.83112189	-80.68851321
20,600.00	91.00	330.34	11,548.41	8,964.12	-2,231.55	14,465,478.17	1,727,813.95	39.83136096	-80.68868839
20,700.00	91.00	330.34	11,546.66	9,051.01	-2,281.03	14,465,565.05	1,727,764.46	39.83160003	-80.68886357
20,800.00	91.00	330.34	11,544.92	9,137.89	-2,330.51	14,465,651.93	1,727,714.98	39.83183910	-80.68903875
20,900.00	91.00	330.34	11,543.18	9,224.77	-2,379.99	14,465,738.81	1,727,665.50	39.83207817	-80.68921393
21,000.00	91.00	330.34	11,541.44	9,311.65	-2,429.48	14,465,825.69	1,727,616.02	39.83231724	-80.68938911
21,100.00	91.00	330.34	11,539.70	9,398.53	-2,478.96	14,465,912.58	1,727,566.53	39.83255631	-80.68956430
21,200.00	91.00	330.34	11,537.96	9,485.41	-2,528.44	14,465,999.46	1,727,517.05	39.83279538	-80.68973948
21,300.00	91.00	330.34	11,536.22	9,572.30	-2,577.92	14,466,086.34	1,727,467.57	39.83303445	-80.68991467
21,400.00	91.00	330.34	11,534.48	9,659.18	-2,627.41	14,466,173.22	1,727,418.09	39.83327351	-80.69008986
21,500.00	91.00	330.34	11,532.74	9,746.06	-2,676.89	14,466,260.10	1,727,368.60	39.83351258	-80.69026504
21,600.00	91.00	330.34	11,530.99	9,832.94	-2,726.37	14,466,346.98	1,727,319.12	39.83375165	-80.69044023
21,700.00	91.00	330.34	11,529.25	9,919.82	-2,775.86	14,466,433.87	1,727,269.64	39.83399072	-80.69061543
21,800.00	91.00	330.34	11,527.51	10,006.71	-2,825.34	14,466,520.75	1,727,220.16	39.83422979	-80.69079062
21,900.00	91.00	330.34	11,525.77	10,093.59	-2,874.82	14,466,607.63	1,727,170.67	39.83446885	-80.69096581
22,000.00	91.00	330.34	11,524.03	10,180.47	-2,924.30	14,466,694.51	1,727,121.19	39.83470792	-80.69114101
22,001.71	91.00	330.34	11,524.00	10,181.95	-2,925.15	14,466,696.00	1,727,120.35	39.83471200	-80.69114400

PBHL/TD 22001.71 MD/11524.00 TVD

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Ten High 1N-20HU BHL - hit/miss target - Shape - Point	0.00	0.00	11,524.00	10,181.95	-2,925.15	14,466,696.00	1,727,120.35	39.83471200	-80.69114400
Ten High 1N-20HU LP - plan misses target center by 43.63usft at 12443.66usft MD (11689.95 TVD, 1877.66 N, 1804.28 E) - Point	0.00	0.00	11,690.00	1,898.49	1,842.61	14,458,412.53	1,731,888.11	39.81191722	-80.67426796
Ten High 1N-20HU LP 5 - plan hits target center - Point	0.00	0.00	11,690.00	1,898.49	1,792.61	14,458,412.53	1,731,838.10	39.81191772	-80.67444602

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-20HU (N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-20HU (N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,300.00	1,300.00	0.00	0.00	KOP Begin 2°/100' build
1,500.00	1,499.84	-8.74	1.81	Begin 2°/100' turn
1,603.45	1,603.05	-12.78	5.29	Begin 4.00° tangent
3,220.69	3,216.34	-92.55	85.06	Begin 2°/100' drop
3,420.69	3,416.18	-97.48	90.00	Begin vertical hold section
4,504.51	4,500.00	-97.48	90.00	Begin 3°/100' build
5,171.17	5,153.21	-58.09	198.23	Begin 20.00° tangent
5,671.17	5,623.06	0.40	358.83	Begin 3°/100' build/turn
5,901.03	5,839.25	39.38	426.10	Begin 20.09° tangent
11,594.19	11,185.91	1,302.04	1,919.75	Begin 10°/100' build/turn
12,467.53	11,690.00	1,898.49	1,792.61	Begin 91.00° lateral section
22,001.71	11,524.00	10,181.95	-2,925.15	PBHL/TD 22001.71 MD/11524.00 TVD

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WW-9
(4/16)

API Number 47 - 051 - 02021
Operator's Well No. Ten High 1N-20HU

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

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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 control

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459, UIC 985, 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 ECP1386426)

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 _____

Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

Subscribed and sworn before me this 20th day of February, 2018

[Signature] Notary Public

My commission expires 8-31-21



07/20/2018

Form WW-9

Operator's Well No. Ten High 1N-20HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.20 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

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Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jan Tubolan*

Comments: _____

Title: *Oil & Gas Inspector*

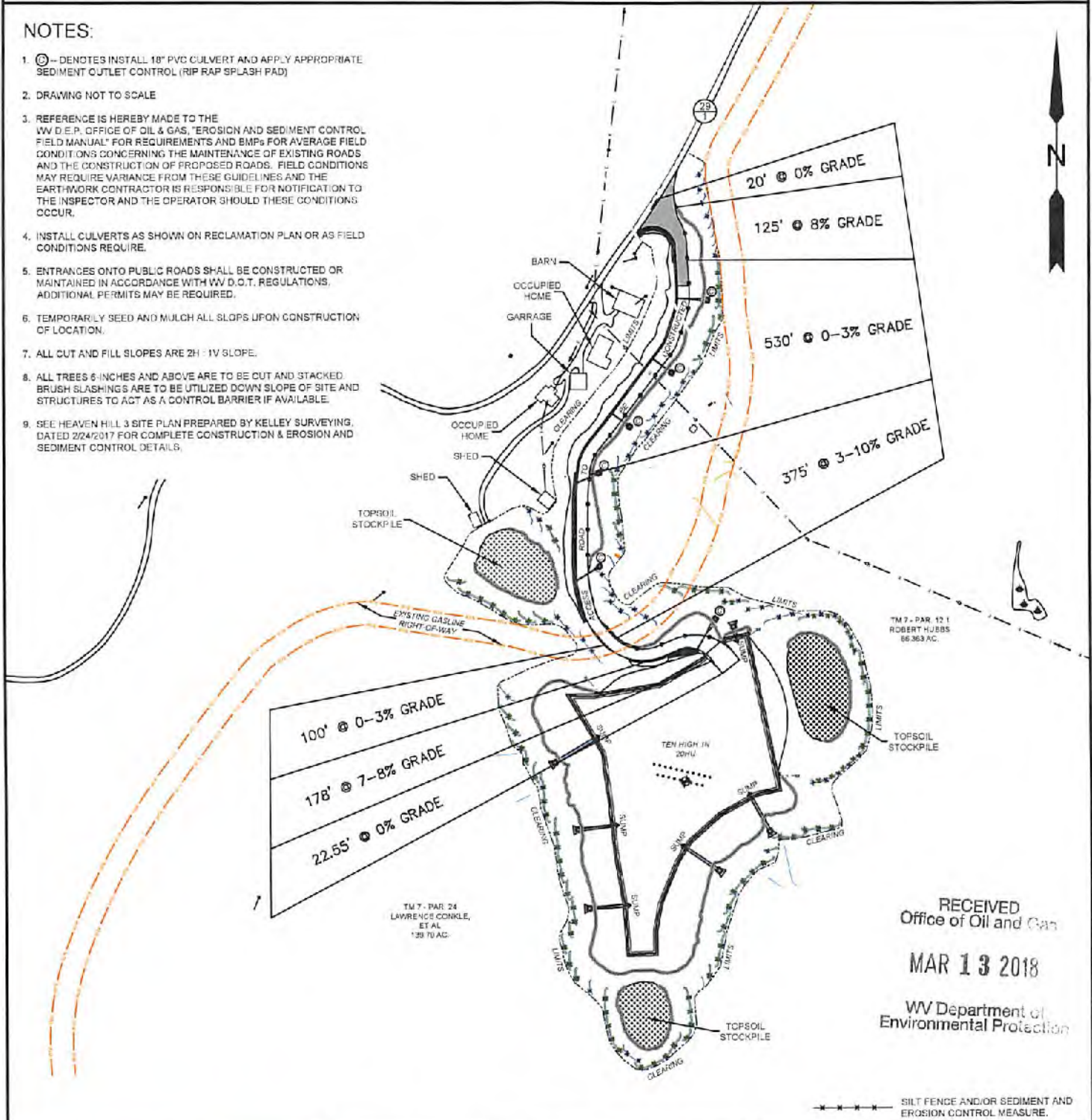
Date: *2/21/18*

Field Reviewed? Yes No

PROPOSED TEN HIGH 1N - 20HU

NOTES:

1. - DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. 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.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.
8. ALL TREES 6 INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE HEAVEN HILL 3 SITE PLAN PREPARED BY KELLEY SURVEYING, DATED 2/24/2017 FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.



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www.slsurvey.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT	DATE	SCALE
MARSHALL	MEADE	01-08-18	NONE
DRAWN BY	JOB NO.		
K.G.M.	8655		

TUG HILL
OPERATING

07/20/2018



Well Site Safety Plan

Tug Hill Operating, LLC

Well Name: Ten High 1N-20HU

Pad Location: Ten High

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

NORTHING -4,406,354.29

EASTING -527,318.92

Jim Nielsen

February 2018

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WV Department of
Environmental Protection

WW-9

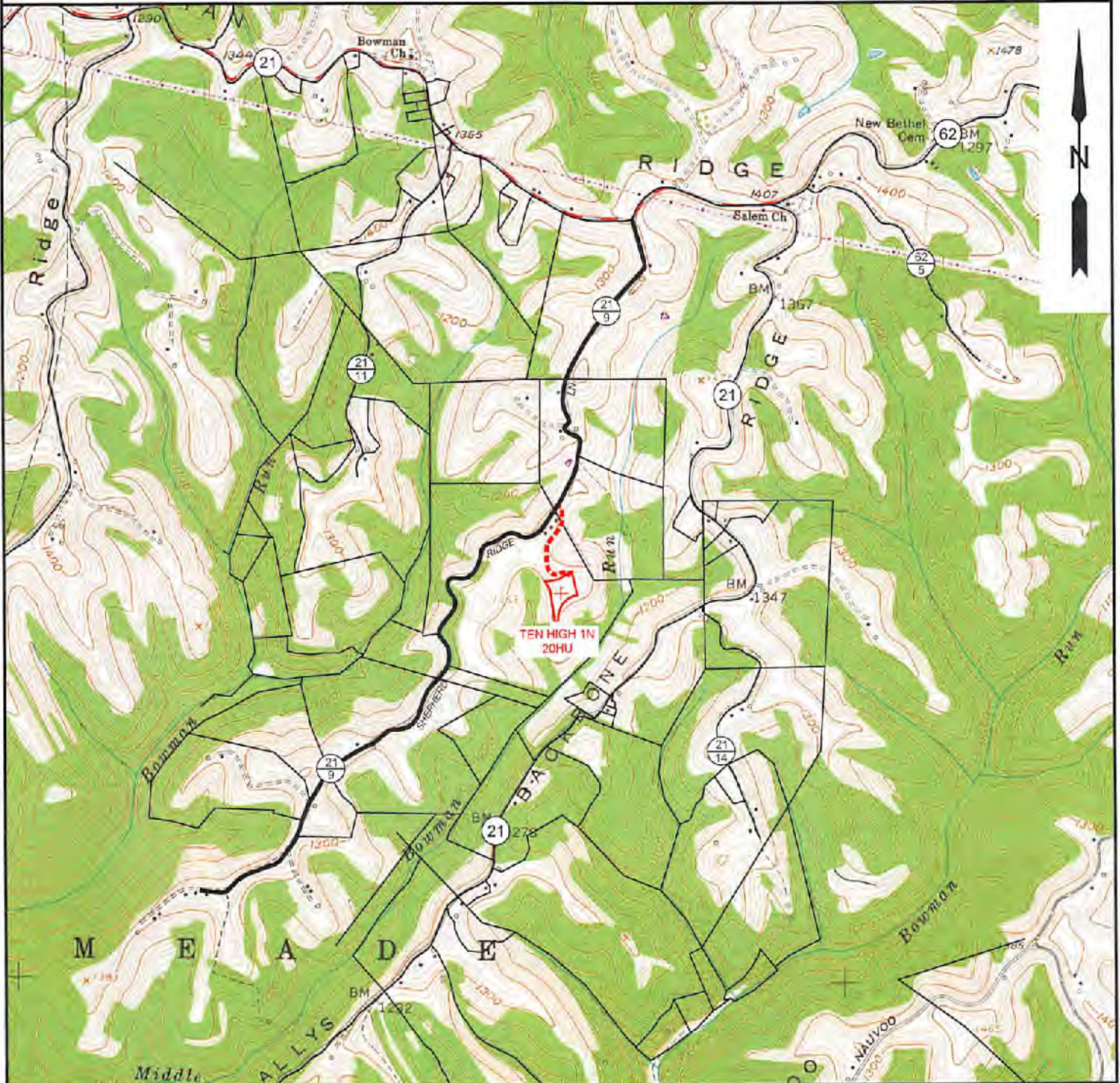
MAR 13 2018

PROPOSED

SUPPLEMENT PG. 2

WV Department of
Environmental Protection

TEN HIGH 1N - 20HU



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

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 51°03'40" W AT 52,970' FROM TEN HIGH 1N - 20HU SURFACE LOCATION

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TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		01-08-18	1" = 2000'

TUG HILL
OPERATING

07/20/2018

**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 list

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MAR 13 2018

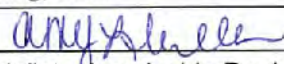
WV Department of
Environmental Protection

**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. Miller 
 Its: Permitting Specialist - Appalachia Region

510202

Lease ID	Tag	Parcel	Grantor, Lessor, etc	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*15662	A	9-7-24	LARRY LEE CONKLE	CHEVRON U.S.A. INC.	1/8+	863 354	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 36/148
10*15663	A	9-7-24	ROY A CONKLE SR AND LORIE A CONKLE	CHEVRON USA INC	1/8+	863 311	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 36/148
10*15664	A	9-7-24	THERESA ANNE HUGHES	CHEVRON USA INC	1/8+	863 343	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 36/148
10*15666	A	9-7-24	BRENDA J WHETZEL	CHEVRON USA INC	1/8+	863 635	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 36/148
10*47051.223.12	B	9-7-25.2	ALICE GORBY MARTIN	TH EXPLORATION LLC	1/8+	908 52	N/A	N/A	N/A	N/A	N/A
10*47051.223.13	B	9-7-25.2	JAMES A GORBY	TH EXPLORATION LLC	1/8+	908 42	N/A	N/A	N/A	N/A	N/A
10*47051.223.9	B	9-7-25.2	LINDA DELBERT	TH EXPLORATION LLC	1/8+	908 32	N/A	N/A	N/A	N/A	N/A
10*47051.303.1	B	9-7-25.2	THOMAS R WHITFIELD	TH EXPLORATION LLC	1/8+	890 401	N/A	N/A	N/A	N/A	N/A
10*47051.303.2	B	9-7-25.2	KIMBERLY A WHITFIELD	TH EXPLORATION LLC	1/8+	890 403	N/A	N/A	N/A	N/A	N/A
10*15481	B	9-7-25.2	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908 197	N/A	N/A	N/A	N/A	N/A
10*15482	B	9-7-25.2	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908 203	N/A	N/A	N/A	N/A	N/A
10*15686	B	9-7-25.2	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908 160	N/A	N/A	N/A	N/A	N/A
10*15750	B	9-7-25.2	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908 229	N/A	N/A	N/A	N/A	N/A
10*16058	B	9-7-25.2	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908 231	N/A	N/A	N/A	N/A	N/A
10*16118	B	9-7-25.2	RUBY RIDDLE JACKSON	TH EXPLORATION LLC	1/8+	908 233	N/A	N/A	N/A	N/A	N/A
10*16297	B	9-7-25.2	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	908 235	N/A	N/A	N/A	N/A	N/A
10*16298	B	9-7-25.2	GEOFFREY A SHEIFER AND STEPHANIE L SCHIEFER	TH EXPLORATION LLC	1/8+	908 238	N/A	N/A	N/A	N/A	N/A
10*16383	B	9-7-25.2	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908 224	N/A	N/A	N/A	N/A	N/A
10*16414	B	9-7-25.2	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908 208	N/A	N/A	N/A	N/A	N/A
10*16415	B	9-7-25.2	TERENCE J ANDERSON AND NANCY J ANDERSON	TH EXPLORATION LLC	1/8+	908 213	N/A	N/A	N/A	N/A	N/A
10*16416	B	9-7-25.2	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908 219	N/A	N/A	N/A	N/A	N/A
10*16424	B	9-7-25.2	ROBERT J RIGBY	TH EXPLORATION LLC	1/8+	908 241	N/A	N/A	N/A	N/A	N/A
10*16448	B	9-7-25.2	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908 584	N/A	N/A	N/A	N/A	N/A
10*16478	B	9-7-25.2	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908 245	N/A	N/A	N/A	N/A	N/A
10*16514	B	9-7-25.2	ALEX R CAMPBELL & JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908 248	N/A	N/A	N/A	N/A	N/A
10*16515	B	9-7-25.2	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908 251	N/A	N/A	N/A	N/A	N/A
10*16516	B	9-7-25.2	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908 253	N/A	N/A	N/A	N/A	N/A
10*16545	B	9-7-25.2	ROBERT G FOUNDS AND ELLEN FOUNDS	TH EXPLORATION LLC	1/8+	908 260	N/A	N/A	N/A	N/A	N/A
10*16662	B	9-7-25.2	RICHARD THOMAS MIMS & VICKIE J MIMS	TH EXPLORATION LLC	1/8+	908 263	N/A	N/A	N/A	N/A	N/A
10*16666	B	9-7-25.2	MICHAEL P PYLE	TH EXPLORATION LLC	1/8+	908 255	N/A	N/A	N/A	N/A	N/A
10*16667	B	9-7-25.2	CHARLES F AND GAIL ANN PYLE	TH EXPLORATION LLC	1/8+	908 266	N/A	N/A	N/A	N/A	N/A
10*16668	B	9-7-25.2	JACK I AND MERRILEE ANN PYLE	TH EXPLORATION LLC	1/8+	908 257	N/A	N/A	N/A	N/A	N/A
10*16669	B	9-7-25.2	JOHN S AND PATRICIA S DADO	TH EXPLORATION LLC	1/8+	908 269	N/A	N/A	N/A	N/A	N/A
10*16686	B	9-7-25.2	CHERYLE M TRACEY	TH EXPLORATION LLC	1/8+	927 475	N/A	N/A	N/A	N/A	N/A
10*16688	B	9-7-25.2	SHERRYL PYLE BAIR	TH EXPLORATION LLC	1/8+	927 481	N/A	N/A	N/A	N/A	N/A
10*16689	B	9-7-25.2	JOHN C FOUNDS	TH EXPLORATION LLC	1/8+	927 478	N/A	N/A	N/A	N/A	N/A
10*16690	B	9-7-25.2	RICARDO ORTIZ	TH EXPLORATION LLC	1/8+	921 352	N/A	N/A	N/A	N/A	N/A
10*16720	B	9-7-25.2	DONNA ELAINE BRASKETT	TH EXPLORATION LLC	1/8+	921 152	N/A	N/A	N/A	N/A	N/A
10*16738	B	9-7-25.2	CHARLES A RINE AND RUTH K RINE	TH EXPLORATION LLC	1/8+	908 274	N/A	N/A	N/A	N/A	N/A
10*16742	B	9-7-25.2	PAUL C WILSON	TH EXPLORATION LLC	1/8+	927 490	N/A	N/A	N/A	N/A	N/A
10*16747	B	9-7-25.2	WILLIAM DALE BRASKETT	TH EXPLORATION LLC	1/8+	921 96	N/A	N/A	N/A	N/A	N/A
10*16787	B	9-7-25.2	HERBERT BRIAN AND DONNA DRU CAMPBELL	TH EXPLORATION LLC	1/8+	942 451	N/A	N/A	N/A	N/A	N/A
10*16798	B	9-7-25.2	PATRICK A RANKIN AND ROBIN A RANKIN	TH EXPLORATION LLC	1/8+	921 364	N/A	N/A	N/A	N/A	N/A
10*16800	B	9-7-25.2	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921 93	N/A	N/A	N/A	N/A	N/A
10*16802	B	9-7-25.2	CHRISTOPHER AND TAMMY RICHARDSON	TH EXPLORATION LLC	1/8+	921 495	N/A	N/A	N/A	N/A	N/A
10*16804	B	9-7-25.2	WILLIAM N AND SHERRY D TAYLOR	TH EXPLORATION LLC	1/8+	921 510	N/A	N/A	N/A	N/A	N/A
10*16827	B	9-7-25.2	DWIGHT D & MELODY G ANDERSON	TH EXPLORATION LLC	1/8+	912 420	N/A	N/A	N/A	N/A	N/A
10*16806	B	9-7-25.2	VIRGINIA WHITMAN TRUST DTD 7-25-1984 JON WHITMAN TRUSTEE	TH EXPLORATION LLC	1/8+	921 528	N/A	N/A	N/A	N/A	N/A
10*16807	B	9-7-25.2	DAVID TULLER AND SUSAN STORTS TULLER	TH EXPLORATION LLC	1/8+	921 513	N/A	N/A	N/A	N/A	N/A
10*16808	B	9-7-25.2	MICHAEL L ORTIZ	TH EXPLORATION LLC	1/8+	921 349	N/A	N/A	N/A	N/A	N/A
10*16815	B	9-7-25.2	HAROLD W PYLE	TH EXPLORATION LLC	1/8+	921 357	N/A	N/A	N/A	N/A	N/A
10*16819	B	9-7-25.2	TERESA ORTIZ BIGGS	TH EXPLORATION LLC	1/8+	921 147	N/A	N/A	N/A	N/A	N/A
10*16821	B	9-7-25.2	SHEILA BRASKETT WEICHEY	TH EXPLORATION LLC	1/8+	921 516	N/A	N/A	N/A	N/A	N/A
10*16836	B	9-7-25.2	RICK A AND LENORE A STORTS	TH EXPLORATION LLC	1/8+	921 507	N/A	N/A	N/A	N/A	N/A
10*16837	B	9-7-25.2	TERRY L AND THELMA A POFF	TH EXPLORATION LLC	1/8+	927 472	N/A	N/A	N/A	N/A	N/A
10*16838	B	9-7-25.2	ROBERT G FUNARI	TH EXPLORATION LLC	1/8+	821 82	N/A	N/A	N/A	N/A	N/A
10*16839	B	9-7-25.2	JAMES B FOUNDS AND LYNN M MOWERY	TH EXPLORATION LLC	1/8+	921 73	N/A	N/A	N/A	N/A	N/A

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10*16863	B	9-7-25.2	TINA MOORE	TH EXPLORATION LLC	1/8+	921 334	N/A	N/A	N/A	N/A	N/A
10*16868	B	9-7-25.2	MICHAEL W STORTS AND JESSICA M STORTS	TH EXPLORATION LLC	1/8+	921 504	N/A	N/A	N/A	N/A	N/A
10*16879	B	9-7-25.2	MARK E AND LESLEY A STORTS	TH EXPLORATION LLC	1/8+	921 501	N/A	N/A	N/A	N/A	N/A
10*16880	B	9-7-25.2	BEVERLY ANN STORTS	TH EXPLORATION LLC	1/8+	921 498	N/A	N/A	N/A	N/A	N/A
10*16902	B	9-7-25.2	MARY BARCAW DUKE	TH EXPLORATION LLC	1/8+	921 105	N/A	N/A	N/A	N/A	N/A
10*16962	B	9-7-25.2	DENNIS P AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921 70	N/A	N/A	N/A	N/A	N/A
10*16976	B	9-7-25.2	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921 343	N/A	N/A	N/A	N/A	N/A
10*16977	B	9-7-25.2	JEREMY COCHENOUR	TH EXPLORATION LLC	1/8+	921 102	N/A	N/A	N/A	N/A	N/A
10*16987	B	9-7-25.2	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921 355	N/A	N/A	N/A	N/A	N/A
10*16989	B	9-7-25.2	BRITTANY RICHARDSON	TH EXPLORATION LLC	1/8+	916 135	N/A	N/A	N/A	N/A	N/A
10*16991	B	9-7-25.2	MARVELLEN FOUNDS AND LAUREN FOUNDS	TH EXPLORATION LLC	1/8+	921 79	N/A	N/A	N/A	N/A	N/A
10*16996	B	9-7-25.2	THOMAS RANKIN	TH EXPLORATION LLC	1/8+	917 75	N/A	N/A	N/A	N/A	N/A
10*17130	B	9-7-25.2	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921 137	N/A	N/A	N/A	N/A	N/A
10*17155	B	9-7-25.2	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921 118	N/A	N/A	N/A	N/A	N/A
10*17156	B	9-7-25.2	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921 139	N/A	N/A	N/A	N/A	N/A
10*17157	B	9-7-25.2	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921 367	N/A	N/A	N/A	N/A	N/A
10*17198	B	9-7-25.2	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921 141	N/A	N/A	N/A	N/A	N/A
10*17205	B	9-7-25.2	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921 524	N/A	N/A	N/A	N/A	N/A
10*17208	B	9-7-25.2	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	TH EXPLORATION LLC	1/8+	921 86	N/A	N/A	N/A	N/A	N/A
10*17274	B	9-7-25.2	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921 474	N/A	N/A	N/A	N/A	N/A
10*17275	B	9-7-25.2	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921 373	N/A	N/A	N/A	N/A	N/A
10*17276	B	9-7-25.2	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921 526	N/A	N/A	N/A	N/A	N/A
10*17278	B	9-7-25.2	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921 121	N/A	N/A	N/A	N/A	N/A
10*17339	B	9-7-25.2	JOSEPH W FOUNDS	TH EXPLORATION LLC	1/8+	921 76	N/A	N/A	N/A	N/A	N/A
10*17377	B	9-7-25.2	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921 123	N/A	N/A	N/A	N/A	N/A
10*17416	B	9-7-25.2	ANDREW M ORTIZ	TH EXPLORATION LLC	1/8+	921 346	N/A	N/A	N/A	N/A	N/A
10*17438	B	9-7-25.2	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921 476	N/A	N/A	N/A	N/A	N/A
10*17440	B	9-7-25.2	KENDRA WALISA	TH EXPLORATION LLC	1/8+	927 484	N/A	N/A	N/A	N/A	N/A
10*17441	B	9-7-25.2	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921 522	N/A	N/A	N/A	N/A	N/A
10*17442	B	9-7-25.2	SHANE ALLEN AND MENDY JEAN ALLEN	TH EXPLORATION LLC	1/8+	921 134	N/A	N/A	N/A	N/A	N/A
10*17443	B	9-7-25.2	MICHELLE MORROW-BACK	TH EXPLORATION LLC	1/8+	921 337	N/A	N/A	N/A	N/A	N/A
10*17444	B	9-7-25.2	KELLY FOUNDS CAMPBELL	TH EXPLORATION LLC	1/8+	921 99	N/A	N/A	N/A	N/A	N/A
10*17449	B	9-7-25.2	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921 150	N/A	N/A	N/A	N/A	N/A
10*17482	B	9-7-25.2	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927 487	N/A	N/A	N/A	N/A	N/A
10*17483	B	9-7-25.2	RICHARD I PYLE	TH EXPLORATION LLC	1/8+	921 359	N/A	N/A	N/A	N/A	N/A
10*17484	B	9-7-25.2	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921 330	N/A	N/A	N/A	N/A	N/A
10*17485	B	9-7-25.2	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921 91	N/A	N/A	N/A	N/A	N/A
10*17526	B	9-7-25.2	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921 370	N/A	N/A	N/A	N/A	N/A
10*17527	B	9-7-25.2	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921 111	N/A	N/A	N/A	N/A	N/A
10*17538	B	9-7-25.2	CHERYL RANKIN-KING	TH EXPLORATION LLC	1/8+	952 160	N/A	N/A	N/A	N/A	N/A
10*17552	B	9-7-25.2	JOHN BEVACQUA AND PATRICIA A BEVACQUA	TH EXPLORATION LLC	1/8+	921 144	N/A	N/A	N/A	N/A	N/A
10*17554	B	9-7-25.2	MICHAEL T RANKIN	TH EXPLORATION LLC	1/8+	921 361	N/A	N/A	N/A	N/A	N/A
10*17561	B	9-7-25.2	ROGER L TYRELL AND KATHRYN L TYRELL	TH EXPLORATION LLC	1/8+	921 519	N/A	N/A	N/A	N/A	N/A
10*17564	B	9-7-25.2	JAMES RONALD NICKOLSON AND TRACEY E NICKOLSON	TH EXPLORATION LLC	1/8+	921 340	N/A	N/A	N/A	N/A	N/A
10*17565	B	9-7-25.2	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921 327	N/A	N/A	N/A	N/A	N/A
10*17566	B	9-7-25.2	NATHAN P ERDOSSY AND BARBARA T ERDOSSY	TH EXPLORATION LLC	1/8+	921 108	N/A	N/A	N/A	N/A	N/A
10*17588	B	9-7-25.2	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921 325	N/A	N/A	N/A	N/A	N/A
10*17589	B	9-7-25.2	MARY CHRISTINE MCKENNA	TH EXPLORATION LLC	1/8+	921 332	N/A	N/A	N/A	N/A	N/A
10*17677	B	9-7-25.2	GEORGE M GONTA JR	TH EXPLORATION LLC	1/8+	921 89	N/A	N/A	N/A	N/A	N/A
10*17744	B	9-7-25.2	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921 116	N/A	N/A	N/A	N/A	N/A
10*17744	B	9-7-25.2	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921 116	N/A	N/A	N/A	N/A	N/A
10*17983	B	9-7-25.2	HOLLY SUE CUTHBERT	TH EXPLORATION LLC	1/8+	925 380	N/A	N/A	N/A	N/A	N/A
10*18021	B	9-7-25.2	CHRISTOPHER A HANIFAN AND JACKIE F HANIFAN	TH EXPLORATION LLC	1/8+	927 267	N/A	N/A	N/A	N/A	N/A
10*18022	B	9-7-25.2	DALE P WARD AND CYNTHIA J WARD	TH EXPLORATION LLC	1/8+	927 264	N/A	N/A	N/A	N/A	N/A
10*19524	B	9-7-25.2	THE ESTATE OF AGNES IRENE EZELL CLARK BY DAVID M EDWARDS, EXECUTOR	TH EXPLORATION LLC	1/8+	942 633	N/A	N/A	N/A	N/A	N/A
10*19692	B	9-7-25.2	KENDRA WALISA	TH EXPLORATION, LLC	1/8+	924 484	N/A	N/A	N/A	N/A	N/A

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10*19693	B	9-7-25.2	MARIO R FUNARI AIF ROBERT G FUNARI	TH EXPLORATION LLC	1/8+	936 145	N/A	N/A	N/A	N/A	N/A
10*19695	B	9-7-25.2	VIRGINIA P FOUNDS KASSERMAN ET	TH EXPLORATION, LLC	1/8+	944 333	N/A	N/A	N/A	N/A	N/A
10*19939	B	9-7-25.2	ROBERT J MILLS & SHERRA SUE MILLS	TH EXPLORATION LLC	1/8+	949 212	N/A	N/A	N/A	N/A	N/A
10*47051.223.15	B	9-7-25.2	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908 14	N/A	N/A	N/A	N/A	N/A
10*47051.223.20	B	9-7-25.2	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908 24	N/A	N/A	N/A	N/A	N/A
10*47051.223.21	B	9-7-25.2	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908 19	N/A	N/A	N/A	N/A	N/A
10*47051.223.24	B	9-7-25.2	JO DEE K DAVIS	TH EXPLORATION LLC	1/8+	908 136	N/A	N/A	N/A	N/A	N/A
10*47051.223.25	B	9-7-25.2	JOANNE WELCH	TH EXPLORATION LLC	1/8+	908 141	N/A	N/A	N/A	N/A	N/A
10*47051.223.26	B	9-7-25.2	WENDY L SMARKEL	TH EXPLORATION LLC	1/8+	908 69	N/A	N/A	N/A	N/A	N/A
10*47051.223.27	B	9-7-25.2	TIMI J HOBBS	TH EXPLORATION LLC	1/8+	908 277	N/A	N/A	N/A	N/A	N/A
10*47051.223.29	B	9-7-25.2	PATSY JO RAJU	TH EXPLORATION LLC	1/8+	908 155	N/A	N/A	N/A	N/A	N/A
10*47051.223.30	B	9-7-25.2	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908 165	N/A	N/A	N/A	N/A	N/A
10*47051.223.33	B	9-7-25.2	NANCY CIAFFAGLIONE HOUSLEY	TH EXPLORATION LLC	1/8+	908 187	N/A	N/A	N/A	N/A	N/A
10*47051.223.35	B	9-7-25.2	DEBRA L CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 192	N/A	N/A	N/A	N/A	N/A
10*47051.223.6	B	9-7-25.2	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907 634	N/A	N/A	N/A	N/A	N/A
10*15501	C	9-7-12.1	RONALD AND EDNA MOORE	TRIENERGY INC	1/8+	661 449	TriEnergy to AB Resources: 20/252	AB Resources to Chevron: 756/397	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*47051.094.0	D	9-7-11	MARK H FOX	TH EXPLORATION LLC	1/8+	864 163	N/A	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 40/127
10*19117	D	9-7-11	MARK H. FOX AND RETTA J. FOX, HIS WIFE	TH EXPLORATION LLC	1/8+	864 163	N/A	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 40/127
	D	9-7-11	MARK H. FOX AND RETTA J. FOX, HIS WIFE	TH EXPLORATION LLC	1/8+	864 163	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*19143	E	9-7-28	VICTOR CAMERON CLAIRE CAMERON	CHEVRON USA INC	1/8+	872 171	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 40/127
10*19565	F	9-7-11.1	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	947 566	N/A	N/A	N/A	N/A	N/A
10*19135	G	9-7-29.1	CAROL J ANDERSON WILLIAM ROBERT ANDERSON	CHEVRON USA INC	1/8+	772 226	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
10*19135	H	9-7-27	CAROL J ANDERSON WILLIAM ROBERT ANDERSON	CHEVRON USA INC	1/8+	772 226	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	I	9-7-8	HENDERSON ROBERT ET AL	AB RESOURCES LLC	1/8+	697 215	N/A	AB Resources to NPAR: 25/484	NPAR to Chevron: 756/332	AB Resources to Chevron: 756/397	Chevron to Tug Hill: 960/409
	I	9-7-8	SALEM CHURCH OF CHRIST OF GLEN EASTON	CHEVRON USA INC	1/8+	867 558	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	I	9-7-8	HILLVIEW TERRACE CHURCH OF CHRIST	CHEVRON USA INC	1/8+	880 400	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
10*19031	J	9-7-7	ROBERT G HUBBS SCARLETT E OTTE HUBBS	CHIEF EXPLORATION & DEVELOPMENT	1/8+	677 521	N/A	N/A	Chief Expl. to Chevron: 25/1	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*47051.075.0	K	9-5-14	DAVID L HOLMES AND TERRI L HOLMES	TH EXPLORATION LLC	1/8+	869 204	N/A	N/A	N/A	N/A	N/A
10*19118	K	9-5-14	DAVID L HOLMES AND TERRI L HOLMES	TH EXPLORATION LLC	1/8+	869 204	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*19118	L	9-5-14.2	DAVID L HOLMES AND TERRI L HOLMES	TH EXPLORATION LLC	1/8+	869 204	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
	M	9-5-12	WHETZEL LARRY J JR	TH EXPLORATION LLC	1/8+	869 216	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	WHETZEL LARRY J JR	TH EXPLORATION LLC	1/8+	869 216	N/A	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409
	N	9-5-11.2	BONAR GRACE LAURA	CHEVRON USA INC	1/8+	865 198	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	HADLEY BARBARA LOIS	CHEVRON USA INC	1/8+	868 21	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	ORTOLL AMBER A	CHEVRON USA INC	1/8+	871 391	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	BONAR ROBERT GLENN	CHEVRON USA INC	1/8+	868 92	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	SCHILLING JAMES MCPHERSON	CHEVRON USA INC	1/8+	868 202	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	FAUST LESTER D	CHEVRON USA INC	1/8+	870 560	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	BOGATKO RICHARD C	CHEVRON USA INC	1/8+	870 557	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	BRUNNER WILL A JR ET UX	CHEVRON USA INC	1/8+	888 30	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	FAUST MARJORIE JARETTA	CHEVRON USA INC	1/8+	888 10	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	DAY FRANK B	CHEVRON USA INC	1/8+	871 583	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	MCWHORTER IDEN SCOTT	CHEVRON USA INC	1/8+	890 475	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	MITCHELL LOTA JO ET VIR	CHEVRON USA INC	1/8+	894 395	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	BONAR DAVID L	CHEVRON USA INC	1/8+	890 475	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	SALO HARRY ET UX - SFX	CHEVRON USA INC	1/8+	894 395	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	ARMIGER STEVEN ALAN - SFX	CHEVRON USA INC	1/8+	891 69	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	FAIRBROTHER KATHERINE ANN LUONGO - SFX	CHEVRON USA INC	1/8+	901 38	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	DURINSKY JOSEPH - SFX	CHEVRON USA INC	1/8+	893 244	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	KACHELE ROBIN - SFX	CHEVRON USA INC	1/8+	893 180	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	SHIREY KATHLEEN - SFX	CHEVRON USA INC	1/8+	901 134	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	EVANS SHARON LOUISE - SFX	CHEVRON USA INC	1/8+	915 597	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	SCHMITT ALBERT JOHN - SFX	CHEVRON USA INC	1/8+	899 484	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	MASSARO ANTHONY - SFX	CHEVRON USA INC	1/8+	899 452	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	FERRANDINO MARLENE R - SFX	CHEVRON USA INC	1/8+	899 461	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	PAPPA PHILIP J - SFX	CHEVRON USA INC	1/8+	899 458	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409

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WV Department of
Environmental Protection

1208-015

15-02021

Lease ID	Tag	Parcel	Grantor, Lessor, etc	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment
	N	9-5-11.2	FELDMAN BARBARA - SFX	CHEVRON USA INC	1/8+	899 455	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	DODARO DENISE R - SFX	CHEVRON USA INC	1/8+	900 49	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	MAZZOLA LOUISE M - SFX	CHEVRON USA INC	1/8+	901 431	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	PAPPA VICTORIA C - SFX	CHEVRON USA INC	1/8+	901 416	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	PAPPAS JAYME - SFX	CHEVRON USA INC	1/8+	905 119	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	PAPPAS ROBYN - SFX	CHEVRON USA INC	1/8+	905 116	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	N	9-5-11.2	IOVACCHINI ADREANNA - SFX	CHEVRON USA INC	1/8+	943 589	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	O	9-5-13	JORDAN GEORGIA	TRIENERGY HOLDINGS LLC	1/8+	687 616	N/A	N/A	TriEnergy to NPAR: 23/74	NPAR to Chevron: 756/332	Chevron to Tug Hill: 960/409
	P	9-5-14.1	WEST SAVANNAH N ET VIR	TH EXPLORATION LLC	1/8+	876 98	N/A	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409
10*19118	Q	9-5-14.5	DAVID L HOLMES AND TERRI L HOLMES	TH EXPLORATION LLC	1/8+	869 204	N/A	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409	Chevron to Tug Hill: 960/409
	R	9-5-11	WHITE FREDDIE ET UX	TRIENERGY INC	1/8+	655 555	N/A	N/A	TriEnergy to TriEnergy Hold: 21/148	TriEnergy Hold, et al to Chevron: 28/356	Chevron to Tug Hill: 960/409
	R	9-5-11	BONAR GRACE LAURA	CHEVRON USA INC	1/8+	865 198	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	HADLEY BARBARA LOIS	CHEVRON USA INC	1/8+	868 21	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	ORTOLL AMBER A	CHEVRON USA INC	1/8+	871 391	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	BONAR ROBERT GLENN	CHEVRON USA INC	1/8+	868 92	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	SCHILLING JAMES MCPHERSON	CHEVRON USA INC	1/8+	868 202	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	FAUST LESTER D	CHEVRON USA INC	1/8+	870 560	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	BOGATKO RICHARD C	CHEVRON USA INC	1/8+	870 557	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	BRUNNER WILL A JR ET UX	CHEVRON USA INC	1/8+	888 30	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	FAUST MARJORIE JARETTA	CHEVRON USA INC	1/8+	888 10	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	DAY FRANK B	CHEVRON USA INC	1/8+	871 583	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	MCWHORTER IDEN SCOTT	CHEVRON USA INC	1/8+	890 475	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	MITCHELL LOTA JO ET VIR	CHEVRON USA INC	1/8+	894 395	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	BONAR DAVID L	CHEVRON USA INC	1/8+	890 475	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	SALO HARRY ET UX - SFX	CHEVRON USA INC	1/8+	894 395	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	ARMIGER STEVEN ALAN - SFX	CHEVRON USA INC	1/8+	891 69	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	FAIRBROTHER KATHERINE ANN LUONGO - SFX	CHEVRON USA INC	1/8+	901 38	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	DURINSKY JOSEPH - SFX	CHEVRON USA INC	1/8+	893 244	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	KACHELE ROBIN - SFX	CHEVRON USA INC	1/8+	893 180	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	SHIREY KATHLEEN - SFX	CHEVRON USA INC	1/8+	901 134	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	EVANS SHARON LOUISE - SFX	CHEVRON USA INC	1/8+	915 597	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	SCHMITT ALBERT JOHN - SFX	CHEVRON USA INC	1/8+	899 484	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	MASSARO ANTHONY - SFX	CHEVRON USA INC	1/8+	899 452	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	FERRANDINO MARLENE R - SFX	CHEVRON USA INC	1/8+	899 461	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	PAPPA PHILIP J - SFX	CHEVRON USA INC	1/8+	899 458	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	FELDMAN BARBARA - SFX	CHEVRON USA INC	1/8+	899 455	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	DODARO DENISE R - SFX	CHEVRON USA INC	1/8+	900 49	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	MAZZOLA LOUISE M - SFX	CHEVRON USA INC	1/8+	901 431	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	PAPPA VICTORIA C - SFX	CHEVRON USA INC	1/8+	901 416	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	PAPPAS JAYME - SFX	CHEVRON USA INC	1/8+	905 119	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	PAPPAS ROBYN - SFX	CHEVRON USA INC	1/8+	905 116	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	R	9-5-11	IOVACCHINI ADREANNA - SFX	CHEVRON USA INC	1/8+	943 589	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
10*19005	S	9-5-14.3	MARK H. FOX AND RETTA J. FOX, HIS WIFE	TRIENERGY HOLDINGS, LLC	1/8+	687 598	N/A	TriEnergy Holdings to NPAR: 23/74	NPAR to Chevron: 756/332	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*15506	T	9-5-14.4	BETTY R. OTT	TRIENERGY HOLDINGS LLC	1/8+	687 604	TriEnergy Holdings to NPAR: 23/74	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*19005	U	9-5-15	MARK H. FOX AND RETTA J. FOX, HIS WIFE	TRIENERGY HOLDINGS, LLC	1/8+	687 598	N/A	TriEnergy Holdings to NPAR: 23/74	NPAR to Chevron: 756/332	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
10*19206	V	9-5-8	SCOTT A HUSTUTLER	TRIENERGY HOLDINGS, LLC	1/8+	724 208	TriEnergy Holdings to NPAR: 25/463	NPAR to Chevron: 26/269	NPAR to Chevron: 756/307	Chevron to Tug Hill: 40/127	Chevron to Tug Hill: 960/409
	W	9-5-8.2	WHETZEL ROBERT L ET UX	CHEVRON USA INC	1/8+	772 523	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	X	9-5-8.1	MCKINNEY ISAAC L ET UX	TRIENERGY HOLDINGS LLC	1/8+	701 472	N/A	N/A	TriEnergy to NPAR: 24/180	NPAR to Chevron: 756/332	Chevron to Tug Hill: 960/409
	Y	NOT ASSESSED	YEAGER ADDITION TO BOWMAN RIDGE CEMETERY FROM PLAT OF SURVEY DB 509/374	CHEVRON USA INC	1/8+	867 110	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
	Z	9-5-7	BOWMAN UNITED METHODIST CHURCH	CHEVRON USA INC	1/8+	867 110	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
AA	9-5-6.1	DAKAN JOSEPH D	CHESAPEAKE APPALACHIA LLC	CHEVRON USA INC	1/8+	694 71	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409
AA	9-5-6.1	RAJU PATSY JO AKA GORBY PATSY JO - SFX	CHESAPEAKE APPALACHIA LLC	CHEVRON USA INC	1/8+	695 175	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409
BB	9-2-12	CRAWFORD HARRY ET AL	TRIENERGY INC	TRIENERGY INC	1/8+	661 156	TriEnergy to AB Resources: 20/252	TriEnergy to TriEnergy Holdings: 21/148	AB Resources to Chevron: 756/397	TriEnergy Holdings to Chevron: 28/356	Chevron to Tug Hill: 960/409
CC	9-5-6	NANCY L. SNYDER	CHEVRON USA INC	CHEVRON USA INC	1/8+	865 191	N/A	N/A	N/A	N/A	Chevron to Tug Hill: 960/409
CC	9-5-6	DAKAN JOSEPH D - SFX	CHESAPEAKE APPALACHIA LLC	CHEVRON USA INC	1/8+	694 71	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409
CC	9-5-6	RAJU PATSY JO AKA GORBY PATSY JO - SFX	CHESAPEAKE APPALACHIA LLC	CHEVRON USA INC	1/8+	695 175	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409

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Lease ID	Tag	Parcel	Grantor, Lessor, etc	Grantee, Lessee, etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
	DD	9-2-12.2	CRAWFORD HARRY ET AL	TRIENERGY INC	1/8+	661	156	TriEnergy to AB Resources: 20/252	TriEnergy to TriEnergy Holdings: 21/148	AB Resources to Chevron: 756/397	TriEnergy Holdings to Chevron: 28/356	Chevron to Tug Hill: 960/409
	EE	9-5-6.9	DAKAN JOSEPH D - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	694	71	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409
	EE	9-5-6.9	RAJU PATSY JO AKA GORBY PATSY JO - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	695	175	N/A	N/A	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 960/409
	FF	9-2-12.1	CRAWFORD HARRY ET AL	TRIENERGY INC	1/8+	661	156	TriEnergy to AB Resources: 20/252	TriEnergy to TriEnergy Holdings: 21/148	AB Resources to Chevron: 756/397	TriEnergy Holdings to Chevron: 28/356	Chevron to Tug Hill: 960/409

51-0202

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MAR 13 2018

WV Department of
Environmental Protection

6,874' B.H.

3,986' T.H.

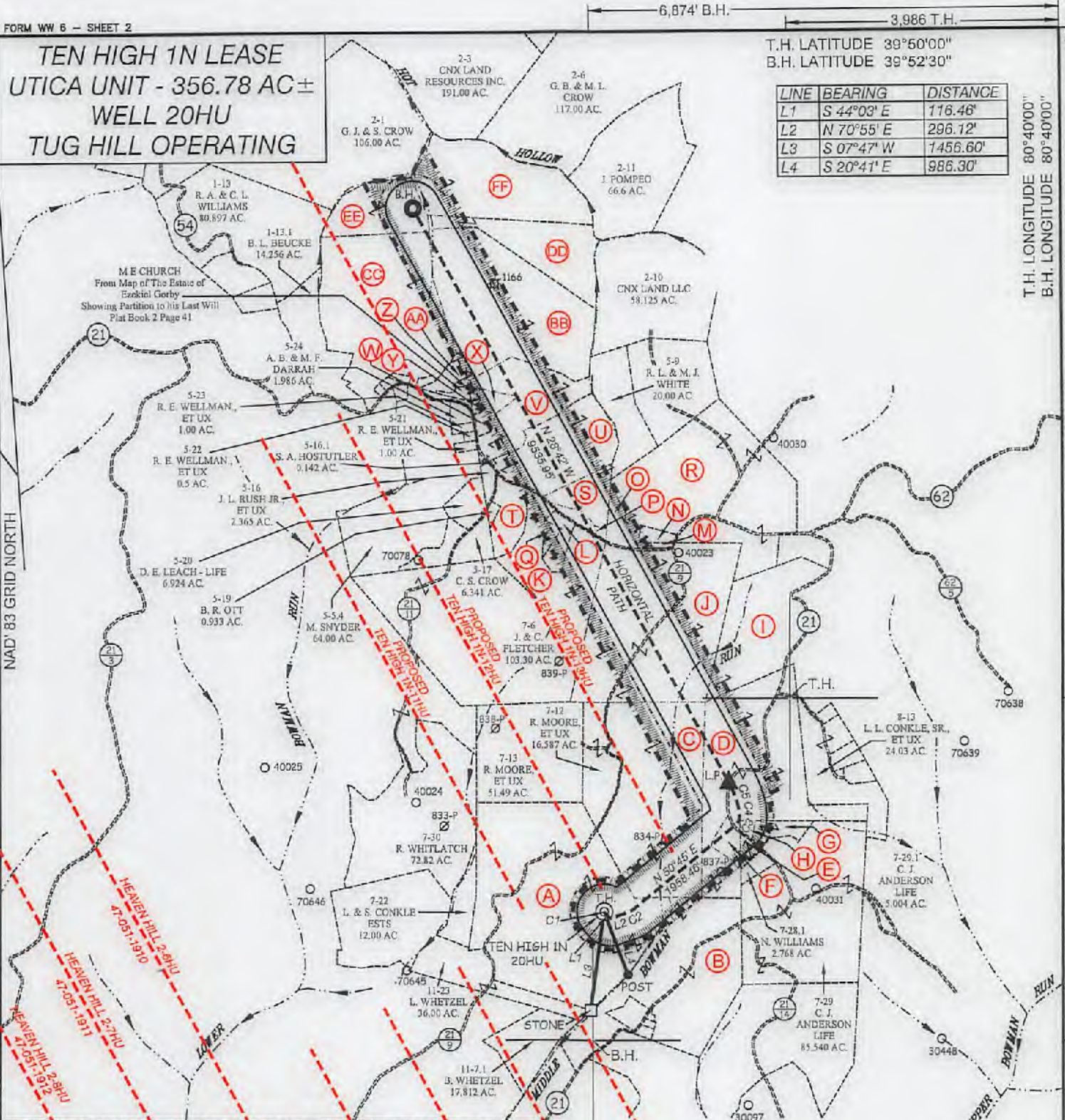
T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°52'30"

**TEN HIGH 1N LEASE
UTICA UNIT - 356.78 AC ±
WELL 20HU
TUG HILL OPERATING**

LINE	BEARING	DISTANCE
L1	S 44°08' E	116.46'
L2	N 70°55' E	296.12'
L3	S 07°47' W	1456.60'
L4	S 20°41' E	986.30'

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

NAD'83 GRID NORTH



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	17.28'	27.68'	S 25°53' E	17.00'
C2	68.27'	219.64'	N 59°33' E	67.99'
C3	71.09'	110.60'	N 26°49' E	69.88'
C4	216.64'	499.69'	N 04°55' W	214.95'
C5	347.77'	1484.78'	N 22°20' W	346.97'

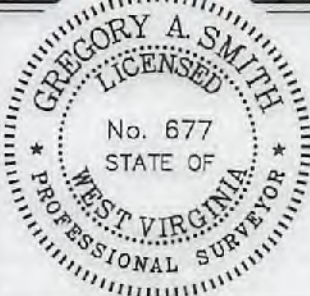
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www.slsurveys.com

P.S. 677

Gregory A. Smith

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

NAD'83 S.P.C.(FT)	N. 476,129.43	E. 1,636,765.22
NAD'83 GEO.	LAT-(N) 39.806722	LONG-(W) 80.680854
NAD'83 UTM (M)	N. 4,406,354.29	E. 627,318.02
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 479,999.3	E. 1,638,589.9
NAD'83 GEO.	LAT-(N) 39.811918	LONG-(W) 80.674446
NAD'83 UTM (M)	N. 4,406,933.0	E. 627,865.3
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 488,962.3	E. 1,634,009.7
NAD'83 GEO.	LAT-(N) 39.834712	LONG-(W) 80.691144
NAD'83 UTM (M)	N. 4,409,467.8	E. 628,427.3



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

LEGEND

UNIT BOUNDARY	
LEASED TRACTS INSIDE UNIT BOUNDARY	
SURFACE LINE	
DEED WELL LATERAL WITHIN 300'	
WELL LATERAL	
400' OFFSET LINE	
500' OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
SURFACE OWNER (SEE TABLE-SHEET 1)	
LEASE # (SEE ADDITIONAL SHEETS)	

SCALE 1" = 2000' FILE NO. 8655P20HUR2.dwg

DATE JANUARY 19 20 18

REVISED FEBRUARY 20 & MARCH 9 20 18

OPERATORS WELL NO. TEN HIGH 1N-20HU

API WELL NO. 47-051-02021-MA

NO. STATE COUNTY PERMIT

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

07/20/2018

WELL OPERATOR TUG HILL OPERATING, LLC	DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 600 FORT WORTH, TX 76107	ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

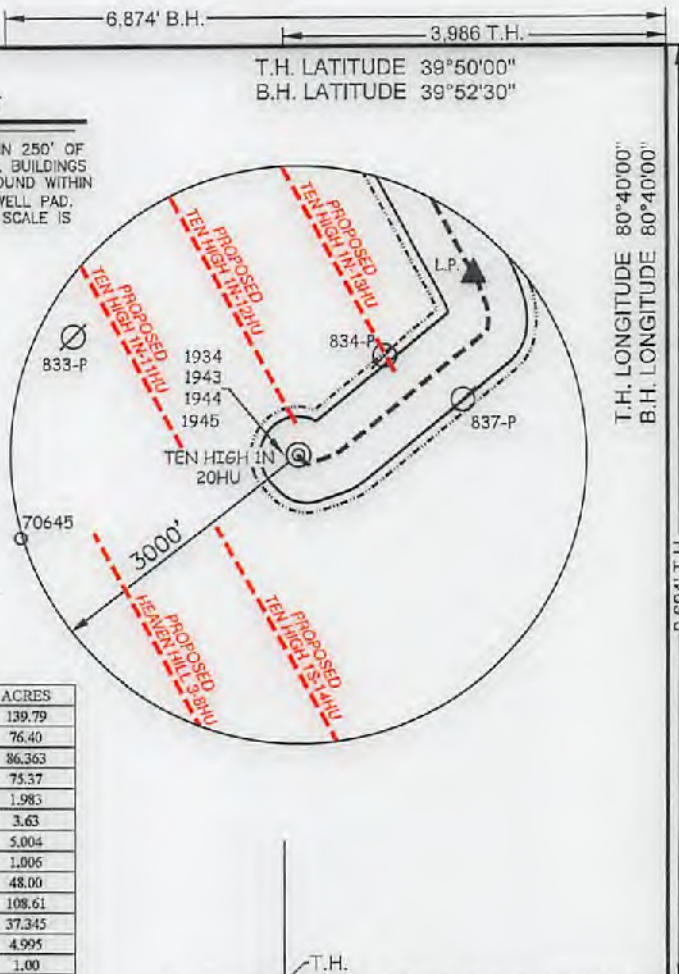
COUNTY NAME PERMIT

**TEN HIGH 1N LEASE
UTICA UNIT - 356.78 AC±
WELL 20HU
TUG HILL OPERATING**

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'

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



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

9,694' T.H.

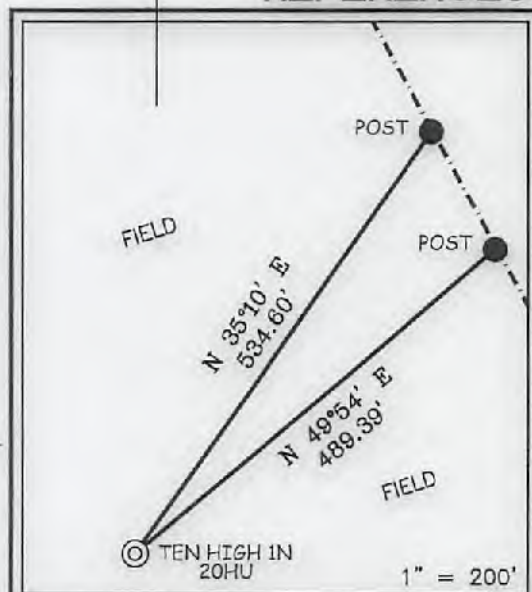
14,676' B.H.

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

NAD'83 S.P.C.(FT)	N. 478,129.43	E. 1,636,765.22
NAD'83 GEO.	LAT-(N) 39.806722	LONG-(W) 80.680854
NAD'83 UTM (M)	N. 4,406,354.29	E. 527,318.92
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 479,998.3	E. 1,638,589.9
NAD'83 GEO.	LAT-(N) 39.811918	LONG-(W) 80.674446
NAD'83 UTM (M)	N. 4,406,933.0	E. 527,895.3
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 488,362.3	E. 1,634,009.7
NAD'83 GEO.	LAT-(N) 39.834712	LONG-(W) 80.691144
NAD'83 UTM (M)	N. 4,409,457.8	E. 526,427.3

TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-24	139.79
B	THOMAS R. & KIMBERLY WHITFIELD	9-7-25.2	76.40
C	ROBERT G. HUBBS & SCARLETTE E. OTTE	9-7-12.1	86.363
D	MARK H. FOX	9-7-11	75.37
E	VICTOR & CLAIRE CAMERON	9-7-28	1.983
F	W.V. DEPT. OF HIGHWAYS	9-7-11.1	3.63
G	CAROL J. ANDERSON - LIFE	9-7-29.1	5.004
H	CAROL J. ANDERSON - LIFE	9-7-27	1.006
I	ROBERT HENDERSON, ET AL	9-7-8	48.00
J	ROBERT GLENN HUBBS, ET AL	9-7-7	108.61
K	DAVID L. HOLMES, ET UX	9-5-14	37.345
L	DAVID L. HOLMES, ET UX	9-5-14.2	4.995
M	LARRY WHETZEL, JR.	9-5-12	1.00
N	LARRY WHETZEL, JR.	9-5-11.2	2.355
O	SHELLY ANN JORDAN, GEORGIA JORDAN LIFE ESTATE	9-5-13	5.51
P	SAVANNA WEST, ET AL.	9-5-14.1	2.819
Q	DAVID L. HOLMES, ET UX	9-5-14.5	1.66
R	ROBERT L. & MELINDA J. WHITE	9-5-11	93.086
S	MARK H. FOX, ET UX	9-5-14.3	10.714
T	BETTY R. OTT	9-5-14.4	10.501
U	MARK H. FOX, ET UX	9-5-15	36.533
V	SCOTT A. HOSTUTLER	9-5-8	26.752
W	MISTY CROW WITH ROBERT & ELSIE WHETZEL (LIFE ESTATE)	9-5-8.2	1.973
X	ISAAC MCKINNEY, ET UX	9-5-8.1	2.875
Y	YEAGER ADDITION TO BOWMAN RIDGE CEMETERY FROM PLAT OF SURVEY DB 509-374	NOT ASSD	NOT ASSD
Z	ME CHURCH	9-5-7	81.5 POLES (6 AC ASSD)
AA	JON B. CRAWFORD	9-5-6.1	4.679
BB	HARRY J. CRAWFORD, ET UX (LIFE ESTATE)	9-2-12	80.718
CC	NANCY L. SNYDER (LIFE ESTATE)	9-5-6	82.858
DD	CNX LAND LLC	9-2-12.2	31.392
EE	CNX LAND LLC	9-5-6.9	22.392
FF	CNX LAND RESOURCES INC.	9-2-12.1	56.00

REFERENCES



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



P.S. 677 Gregory A. Smith

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JANUARY 19, 20 18
REVISED FEBRUARY 20 & MARCH 9, 20 18
OPERATORS WELL NO. TEN HIGH 1N-20HU
API WELL NO. 47 - 051 - 02021
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8655P20HUR2.dwg
SCALE 1" = 2000'
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

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

WELL TYPE:	OIL <input type="checkbox"/>	GAS <input checked="" type="checkbox"/>	LIQUID INJECTION <input type="checkbox"/>	WASTE DISPOSAL <input type="checkbox"/>	IF "GAS" PRODUCTION <input checked="" type="checkbox"/>	STORAGE <input type="checkbox"/>	DEEP <input checked="" type="checkbox"/>	SHALLOW <input type="checkbox"/>
LOCATION:	GROUND = 1,319.90' ELEVATION PROPOSED = 1,310.06' WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC 10)							
DISTRICT:	MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'							
SURFACE OWNER:	LAWRENCE & SHIRLEY CONKLE ESTS				ACREAGE 139.79±			
ROYALTY OWNER:	ANDY PAUL & JACKIE KUHN, ET AL - SEE ADDITIONAL SHEETS				ACREAGE 139.79±			
PROPOSED WORK:	LEASE NO. SEE ADDITIONAL SHEETS							
DRILL:	<input checked="" type="checkbox"/>	CONVERT <input type="checkbox"/>	DRILL DEEPER <input type="checkbox"/>	REDRILL <input type="checkbox"/>	FRACTURE OR STIMULATE <input checked="" type="checkbox"/>	PLUG OFF OLD FORMATION <input type="checkbox"/>	PERFORATE NEW FORMATION <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>
PHYSICAL CHANGE IN WELL (SPECIFY):					TARGET FORMATION	POINT PLEASANT		
					ESTIMATED DEPTH	TVD: 11,924' / TMD: 22,002'		

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

COUNTY NAME PERMIT

07/20/2018

TEN HIGH 1N LEASE
 UTICA UNIT - 356.78 AC±
 WELL 20HU
 TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owners	Deed Book/Page
1	10*15662	A	9-7-24	LARRY LEE CONKLE	863 354
2	10*15663	A	9-7-24	ROY A CONKLE SR AND LORIE A CONKLE	863 311
3	10*15664	A	9-7-24	THERESA ANNE HUGHES	863 343
4	10*15666	A	9-7-24	BRENDA J WHETZEL	863 635
5	10*47051.223.12	B	9-7-25.2	ALICE GORBY MARTIN	908 52
6	10*47051.223.13	B	9-7-25.2	JAMES A GORBY	908 42
7	10*47051.223.9	B	9-7-25.2	LUNDA DELBERT	908 32
8	10*47051.303.1	B	9-7-25.2	THOMAS R WHITFIELD	890 401
9	10*47051.303.2	B	9-7-25.2	KIMBERLY A WHITFIELD	890 403
10	10*15481	B	9-7-25.2	DEAN P RIGBY AND SUSAN R RIGBY	908 197
11	10*15482	B	9-7-25.2	SUSAN NELSON	908 203
12	10*15586	B	9-7-25.2	JOHN OMER BOLTZ	908 160
13	10*15750	B	9-7-25.2	SANDRA K TRULL	908 229
14	10*16058	B	9-7-25.2	MATTIE RUTH JACKSON PRESCOTT	908 231
15	10*16118	B	9-7-25.2	RUBY RIDDLE JACKSON	908 233
16	10*16297	B	9-7-25.2	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	908 235
17	10*16298	B	9-7-25.2	GEOFFREY A SHIEFER AND STEPHANIE L SCHIEFER	908 238
18	10*16383	B	9-7-25.2	ROBERT STEPHEN DRIGGERS	908 224
19	10*16414	B	9-7-25.2	MARY ELIZABETH DRIGGERS	908 208
20	10*16415	B	9-7-25.2	TERENCE J ANDERSON AND NANCY J ANDERSON	908 213
21	10*16416	B	9-7-25.2	CYNTHIA HUDSON	908 219
22	10*16424	B	9-7-25.2	ROBERT J RIGBY	908 241
23	10*16448	B	9-7-25.2	RALPH LAND JUANITA L CRIM	908 584
24	10*16478	B	9-7-25.2	MARION L AND EMILY CAMPBELL	908 245
25	10*16514	B	9-7-25.2	ALEX R CAMPBELL & JOYCE A CAMPBELL	908 248
26	10*16515	B	9-7-25.2	ANNA MARIE JACKSON	908 251
27	10*16516	B	9-7-25.2	WILSON ANDREW JACKSON	908 253
28	10*16545	B	9-7-25.2	ROBERT G FOUNDS AND ELLEN FOUNDS	908 260
29	10*16652	B	9-7-25.2	RICHARD THOMAS MIMS & VICKIE J MIMS	908 263
30	10*16666	B	9-7-25.2	MICHAEL P PYLE	908 255
31	10*16667	B	9-7-25.2	CHARLES F AND GAIL ANN PYLE	908 266
32	10*16668	B	9-7-25.2	JACK I AND MERRILEE ANN PYLE	908 257
33	10*16669	B	9-7-25.2	JOHN S AND PATRICIA S DADO	908 269
34	10*16688	B	9-7-25.2	CHERYLE M TRACEY	927 475
35	10*16888	B	9-7-25.2	SHERRY PYLE BAIR	927 481
36	10*16889	B	9-7-25.2	JOHN C FOUNDS	927 478
37	10*16890	B	9-7-25.2	RICARDO ORTIZ	921 352
38	10*16720	B	9-7-25.2	DONNA ELAINE BRASKETT	921 152
39	10*16738	B	9-7-25.2	CHARLES A RINE AND RUTH K RINE	908 274
40	10*16742	B	9-7-25.2	PAUL C WILSON	927 490
41	10*16747	B	9-7-25.2	WILLIAM DALE BRASKETT	921 96
42	10*16787	B	9-7-25.2	HERBERT BRIAN AND DONNA DRU CAMPBELL	942 451
43	10*16798	B	9-7-25.2	PATRICK A BANKIN AND ROBIN A BANKIN	921 364
44	10*16800	B	9-7-25.2	JAMES KENNETH JACKSON AND JULIE JACKSON	921 98
45	10*16802	B	9-7-25.2	CHRISTOPHER AND TAMMY RICHARDSON	921 495
46	10*16804	B	9-7-25.2	WILLIAM N AND SHERRY D TAYLOR	921 510
47	10*16827	B	9-7-25.2	DWIGHT D & MELODY G ANDERSON	912 420
48	10*16806	B	9-7-25.2	VIRGINIA WHITMAN TRUST DTD 7-25-1984 JON WHITMAN TRUSTEE	921 528
49	10*16807	B	9-7-25.2	DAVID TULLER AND SUSAN STORTS TULLER	921 513
50	10*16808	B	9-7-25.2	MICHAEL L ORTIZ	921 349
51	10*16815	B	9-7-25.2	HAROLD W PYLE	921 357
52	10*16819	B	9-7-25.2	TERESA ORTIZ BIGGS	921 147
53	10*16821	B	9-7-25.2	SHEILA BRASKETT WEICHEY	921 516
54	10*16835	B	9-7-25.2	RICK A AND LENORE A STORTS	921 507
55	10*16837	B	9-7-25.2	TERRY LAND THELMA A POFF	927 472
56	10*16838	B	9-7-25.2	ROBERT G FUNARI	921 82
57	10*16839	B	9-7-25.2	JAMES B FOUNDS AND LYNN M MOWERY	921 75
58	10*16863	B	9-7-25.2	TINA MOORE	921 334
59	10*16868	B	9-7-25.2	MICHAEL W STORTS AND JESSICA M STORTS	921 504
60	10*16879	B	9-7-25.2	MARK E AND LESLEY A STORTS	921 501
61	10*16880	B	9-7-25.2	BEVERLY ANN STORTS	921 498
62	10*16902	B	9-7-25.2	MARY BARCAW DUKE	921 106
63	10*16962	B	9-7-25.2	DENNIS P AND BARBARA EZELL FLORY	921 70
64	10*16976	B	9-7-25.2	LESTER G AND CONSTANCE B NICKOLSON	921 343
65	10*16977	B	9-7-25.2	JEREMY COCHENOUR	921 102
66	10*16987	B	9-7-25.2	LAURIE EZELL PERRY	921 355
67	10*16989	B	9-7-25.2	BRITTANY RICHARDSON	916 135
68	10*16991	B	9-7-25.2	MARYELLEN FOUNDS AND LAUREN FOUNDS	921 79
69	10*16995	B	9-7-25.2	THOMAS RANKIN	917 75
70	10*17130	B	9-7-25.2	CINDY L BARGER	921 137
71	10*17155	B	9-7-25.2	JESSE LEON JR AND TERESA GAIL EZELLE	921 118
72	10*17156	B	9-7-25.2	HENRI NELL JACKSON KENT BARNES	921 139
73	10*17157	B	9-7-25.2	JAMES N REEVES JR AND RITA M REEVES	921 367
74	10*17198	B	9-7-25.2	THOMAS G AND DIANE W BAYLESS	921 141
75	10*17205	B	9-7-25.2	SANDRA JEAN WILSON	921 524
76	10*17208	B	9-7-25.2	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	921 86
77	10*17274	B	9-7-25.2	DAVID H WILSON	921 474
78	10*17275	B	9-7-25.2	JOHN R REEVES AND MONA G REEVES	921 373
79	10*17276	B	9-7-25.2	BERTHA EZELL WYATT	921 526
80	10*17278	B	9-7-25.2	MICHAEL L EZELLE	921 121
81	10*17339	B	9-7-25.2	JOSEPH W FOUNDS	921 76
82	10*17377	B	9-7-25.2	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	921 123
83	10*17416	B	9-7-25.2	ANDREW M ORTIZ	921 348
84	10*17438	B	9-7-25.2	DENNIS M WILSON	921 478
85	10*17440	B	9-7-25.2	KENDRA WALLISA	927 484
86	10*17441	B	9-7-25.2	RALPH J WILSON	921 522
87	10*17442	B	9-7-25.2	SHANE ALLEN AND MENDY JEAN ALLEN	921 134
88	10*17443	B	9-7-25.2	MICHELLE MORROW-BACK	921 337
89	10*17444	B	9-7-25.2	KELLY FOUNDS CAMPBELL	921 99
90	10*17449	B	9-7-25.2	PHYLLIS J BLAKE	921 150
91	10*17482	B	9-7-25.2	TERESA EZELLE RALYA AND DAVID L RALYA	927 487
92	10*17483	B	9-7-25.2	RICHARD I PYLE	921 359
93	10*17484	B	9-7-25.2	NELDA S JACKSON	921 330
94	10*17485	B	9-7-25.2	MARGIE ANN JACKSON ROBBINS GRAHAM	921 91
95	10*17525	B	9-7-25.2	JEFFREY L REEVES AND JODY L REEVES	921 370
96	10*17527	B	9-7-25.2	JAMES MICHAEL EZELL AND LUCILLE D EZELL	921 111
97	10*17538	B	9-7-25.2	CHERYL RANKIN-KING	952 160
98	10*17552	B	9-7-25.2	JOHN BEVACQUA AND PATRICIA A BEVACQUA	921 144
99	10*17554	B	9-7-25.2	MICHAEL T RANKIN	921 361
100	10*17561	B	9-7-25.2	ROGER L TYRELL AND KATHRYN L TYRELL	921 519

FILE NO. 8655P20HUR2.dwg

DATE JANUARY 19, 20 17

REVISED FEBRUARY 20 & MARCH 9, 20 18

OPERATORS WELL NO. TEN HIGH 1N-20HU

API WELL NO. 47 — 051 — 030000
 STATE COUNTY PERMIT



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



07/20/2018

P.S. 677 Gregory A. Smith

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

TEN HIGH 1N LEASE
 UTICA UNIT - 356.78 AC±
 WELL 20HU
 TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owner - Continued	Deed Book/Page
101	10*17564	B	9-7-25.2	JAMES RONALD NICKOLSON AND TRACEY E NICKOLSON	921 340
102	10*17565	B	9-7-25.2	JESSE ALLEN JACKSON AND ELIZABETH C JACKSON	921 327
103	10*17566	B	9-7-25.2	NATHAN P ERDOSSY AND BARBARA T ERDOSSY	921 108
104	10*17568	B	9-7-25.2	JAMES M JACKSON	921 325
105	10*17589	B	9-7-25.2	MARY CHRISTINE MCKENNA	921 332
106	10*17677	B	9-7-25.2	GEORGE M GONTA JR	921 89
107	10*17744	B	9-7-25.2	SAM PRESLEY EZELL	921 116
108	10*17744	B	9-7-25.2	SAM PRESLEY EZELL	921 116
109	10*17983	B	9-7-25.2	HOLLY SUE CUTHBERT	925 380
110	10*18021	B	9-7-25.2	CHRISTOPHER A HANIFAN AND JACKIE F HANIFAN	927 267
111	10*18022	B	9-7-25.2	DALE P WARD AND CYNTHIA J WARD	927 264
112	10*19524	B	9-7-25.2	THE ESTATE OF AGNES IRENE EZELL CLARK BY DAVID M EDWARDS, EXECUTOR	942 633
113	10*19692	B	9-7-25.2	KENDRA WALUSA	924 484
114	10*19693	B	9-7-25.2	MARIO R FUNARI AIF ROBERT G FUNARI	936 145
115	10*19695	B	9-7-25.2	VIRGINIA P FOLUNDS KASSERMAN ET	944 333
116	10*19939	B	9-7-25.2	ROBERT J MILLS & SHERRA SUE MILLS	949 212
117	10*47051.223.15	B	9-7-25.2	LARRY D TAUNT AND NANCY L TAUNT	908 14
118	10*47051.223.20	B	9-7-25.2	BARBARA A BUZZARD	908 24
119	10*47051.223.21	B	9-7-25.2	GARY T WARD AND SHARON D WARD	908 19
120	10*47051.223.24	B	9-7-25.2	JO DEE K DAVIS	908 136
121	10*47051.223.25	B	9-7-25.2	JOANNE WELCH	908 141
122	10*47051.223.26	B	9-7-25.2	WENDY L SMARKEL	908 69
123	10*47051.223.27	B	9-7-25.2	TIMI J HOBBS	908 277
124	10*47051.223.29	B	9-7-25.2	PATSY JO RAUJ	908 155
125	10*47051.223.30	B	9-7-25.2	LAURIE DRIGGERS MANDERSON	908 165
126	10*47051.223.33	B	9-7-25.2	NANCY CIAFFAGNONE HOUSLEY	908 187
127	10*47051.223.35	B	9-7-25.2	DEBRA L CIAFFAGNONE	908 192
128	10*47051.223.6	B	9-7-25.2	JOSHUA RINE AND REBECCA RINE	907 634
129	10*15501	C	9-7-12.1	RONALD AND EDNA MOORE	661 449
130	10*47051.094.0	D	9-7-11	MARK H FOX	864 163
131	10*19117	D	9-7-11	MARK H. FOX AND BETTA J. FOX, HIS WIFE	864 163
132		D	9-7-11	MARK H. FOX AND BETTA J. FOX, HIS WIFE	864 163
133	10*19143	E	9-7-28	VICTOR CAMERON CLAIRE CAMERON	927 171
134	10*19565	F	9-7-11.1	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	947 566
135	10*19135	G	9-7-29.1	CAROL J ANDERSON WILLIAM ROBERT ANDERSON	722 226
136	10*19135	H	9-7-27	CAROL J ANDERSON WILLIAM ROBERT ANDERSON	722 226
137		I	9-7-8	HENDERSON ROBERT ET AL	697 215
138		I	9-7-8	SALEM CHURCH OF CHRIST OF GLEN EASTON	867 558
139		I	9-7-8	HILLVIEW TERRACE CHURCH OF CHRIST	880 400
140	10*19031	J	9-7-7	ROBERT G HUBBS SCARLETT E OTTE HUBBS	677 521
141	10*47051.075.0	K	9-5-14	DAVID L HOLMES AND TERRI L HOLMES	869 204
142	10*19118	K	9-5-14	DAVID L HOLMES AND TERRI L HOLMES	869 204
143	10*19118	L	9-5-14.1	DAVID L HOLMES AND TERRI L HOLMES	869 204
144		M	9-5-12	WHETZEL LARRY J JR	869 216
145		N	9-5-11.2	WHETZEL LARRY J JR	869 216
146		N	9-5-11.2	BONAR GRACE LAURA	865 198
147		N	9-5-11.2	HADLEY BARBARA LOIS	868 21
148		N	9-5-11.2	ORTOLL AMBER A	871 391
149		N	9-5-11.2	BONAR ROBERT GLENN	868 92
150		N	9-5-11.2	SCHILLING JAMES MCPHERSON	868 202
151		N	9-5-11.2	FAUST LESTER D	870 560
152		N	9-5-11.2	BOGATKO RICHARD C	870 557
153		N	9-5-11.2	BRUNNER WILL A JR ET UX	888 30
154		N	9-5-11.2	FAUST MARJORIE JARETTA	888 10
155		N	9-5-11.2	DAY FRANK B	871 583
156		N	9-5-11.2	MCWHORTER IDEN SCOTT	890 475
157		N	9-5-11.2	MITCHELL LOTA JO ET VIR	894 395
158		N	9-5-11.2	BONAR DAVID L	890 475
159		N	9-5-11.2	SALO HARRY ET UX - SFX	894 395
160		N	9-5-11.2	ARMIGER STEVEN ALAN - SFX	891 69
161		N	9-5-11.2	FAIRBROTHER KATHERINE ANN LUONGO - SFX	901 38
162		N	9-5-11.2	DURINSKY JOSEPH - SFX	893 244
163		N	9-5-11.2	KACHELE ROBIN - SFX	893 180
164		N	9-5-11.2	SHIREY KATHLEEN - SFX	901 134
165		N	9-5-11.2	EVANS SHARON LOUISE - SFX	915 597
166		N	9-5-11.2	SCHMITT ALBERT JOHN - SFX	899 404
167		N	9-5-11.2	MASSARO ANTHONY - SFX	899 452
168		N	9-5-11.2	FERRANDINO MARLENE R - SFX	899 461
169		N	9-5-11.2	PAPPA PHILIP J - SFX	899 458
170		N	9-5-11.2	FELDMAN BARBARA - SFX	899 455
171		N	9-5-11.2	DODARD DENISE R - SFX	900 49
172		N	9-5-11.2	MAZZOLA LOUISE M - SFX	901 431
173		N	9-5-11.2	PAPPA VICTORIA C - SFX	901 416
174		N	9-5-11.2	PAPPAS JAYME - SFX	905 119
175		N	9-5-11.2	PAPPAS ROBYN - SFX	905 115
176		N	9-5-11.2	IDVACCHINI ADREANNA - SFX	943 589
177		O	9-5-13	JORDAN GEORGIA	687 615
178		P	9-5-14.1	WEST SAVANNAH N ET VIR	876 98
179	10*19118	Q	9-5-14.5	DAVID L HOLMES AND TERRI L HOLMES	869 204
180		R	9-5-11	WHITE FREDDIE ET UX	655 565
181		R	9-5-11	BONAR GRACE LAURA	865 198
182		R	9-5-11	HADLEY BARBARA LOIS	868 21
183		R	9-5-11	ORTOLL AMBER A	871 391
184		R	9-5-11	BONAR ROBERT GLENN	868 92
185		R	9-5-11	SCHILLING JAMES MCPHERSON	868 202
186		R	9-5-11	FAUST LESTER D	870 560
187		R	9-5-11	BOGATKO RICHARD C	870 557
188		R	9-5-11	BRUNNER WILL A JR ET UX	888 30
189		R	9-5-11	FAUST MARJORIE JARETTA	888 10
190		R	9-5-11	DAY FRANK B	871 583
191		R	9-5-11	MCWHORTER IDEN SCOTT	890 475
192		R	9-5-11	MITCHELL LOTA JO ET VIR	894 395
193		R	9-5-11	BONAR DAVID L	890 475
194		R	9-5-11	SALO HARRY ET UX - SFX	894 395
195		R	9-5-11	ARMIGER STEVEN ALAN - SFX	891 69
196		R	9-5-11	FAIRBROTHER KATHERINE ANN LUONGO - SFX	901 38
197		R	9-5-11	DURINSKY JOSEPH - SFX	893 244
198		R	9-5-11	KACHELE ROBIN - SFX	893 180
199		R	9-5-11	SHIREY KATHLEEN - SFX	901 134
200		R	9-5-11	EVANS SHARON LOUISE - SFX	915 597

FILE NO. 8655P20HUR2.dwg

DATE JANUARY 19, 20 17

REVISED FEBRUARY 20 & MARCH 9, 20 18

OPERATORS WELL NO. TEN HIGH 1N-20HU

API WELL NO. 47 - 051 - 02021464
 STATE COUNTY PERMIT



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



P.S. 677

Gregory A. Smith

COUNTY NAME

PERMIT

07/20/2018

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

TEN HIGH 1N LEASE
 UTICA UNIT - 356.78 AC±
 WELL 20HU
 TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owner - Continued	Deed Book/Page
201		R	9-5-11	SCHMITT ALBERT JOHN - SFX	899 484
202		R	9-5-11	MASSARO ANTHONY - SFX	899 452
203		R	9-5-11	FERRANDINO MARLENE R - SFX	899 461
204		R	9-5-11	PAPPA PHILIP J - SFX	899 458
205		R	9-5-11	FELDMAN BARBARA - SFX	899 455
206		R	9-5-11	DODARO DENISE R - SFX	900 49
207		R	9-5-11	MAZZOLA LOUISE M - SFX	901 431
208		R	9-5-11	PAPPA VICTORIA C - SFX	901 416
209		R	9-5-11	PAPPAS JAYME - SFX	905 119
210		R	9-5-11	PAPPAS ROBYN - SFX	905 116
211		R	9-5-11	IOVACCHINI ADREANNA - SFX	943 589
212	10*19006	S	9-5-14.3	MARK H. FOX AND RETTA J. FOX, HIS WIFE	687 598
213	10*15506	T	9-5-14.4	BETTY R. OTT	687 604
214	10*19006	U	9-5-15	MARK H. FOX AND RETTA J. FOX, HIS WIFE	687 598
215	10*19206	V	9-5-8	SCOTT A HUSTUTLER	724 208
216		W	9-5-8.2	WHITZEL ROBERT LETUX	772 523
217		X	9-5-8.1	MCKINNEY ISAAC LETUX	701 472
218		Y	NOT ASSESSED	YEAGER ADDITION TO BOWMAN RIDGE CEMETERY FROM PLAT OF SURVEY DB 509/374	867 110
219		Z	9-5-7	BOWMAN UNITED METHODIST CHURCH	867 110
220		AA	9-5-6.1	DAKAN JOSEPH D	694 71
221		AA	9-5-6.1	RAJU PATSY JO AKA GORBY PATSY JO - SFX	695 175
222		BB	9-2-12	CRAWFORD HARRY ETAL	661 156
223		CC	9-5-6	NANCY L. SNYDER	695 191
224		CC	9-5-6	DAKAN JOSEPH D - SFX	694 71
225		CC	9-5-6	RAJU PATSY JO AKA GORBY PATSY JO - SFX	695 175
226		DD	9-2-12.2	CRAWFORD HARRY ETAL	661 156
227		EE	9-5-6.9	DAKAN JOSEPH D - SFX	694 71
228		EE	9-5-6.9	RAJU PATSY JO AKA GORBY PATSY JO - SFX	695 175
229		FF	9-2-12.1	CRAWFORD HARRY ETAL	661 156

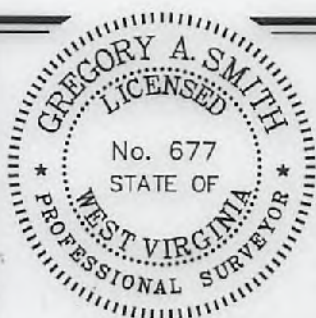
FILE NO. 8655P20HUR2.dwg

DATE JANUARY 19, 20 17

REVISED FEBRUARY 20 & MARCH 9, 20 18

OPERATORS WELL NO. TEN HIGH 1N-20HU

API NO. 47
 WELL NO. 051
 STATE COUNTY PERMIT 02021H6A



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



P.S. 677

Gregory A. Smith

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

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

COUNTY NAME PERMIT

07/29/2018

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

Jan Pest
MARSHALL County 12:43:01 PM
Instrument No 1404876
Date Recorded 05/20/2016
Document Type ASA
Pages Recorded 20
Book-Page 36-148
Recording Fee \$20.00
Additional \$3.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "**Assignment**") is made and entered into this 17th day of May, 2016 (the "**Effective Date**"), by and between **CHEVRON U.S.A. INC.** (hereinafter "**Assignor**") and **TH EXPLORATION, LLC** (hereinafter "**Assignee**") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated May 2, 2016 (the "**Acreage Trade Agreement**"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in Exhibit "A", and as depicted in Exhibits "A-1" and "A-2", attached hereto and made a part hereof (hereinafter the "**Leases**"); and

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

1. **Assignment.** Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon, except that Assignor accepts and reserves from this Assignment the Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia.

TO HAVE AND TO HOLD such right, title and interest in and to the Leases unto Assignee or its designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. **Special Warranty.** Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the Conveyed Interests since the time that Assignor obtained its interests in the Leases. Assignor does covenant, promise and agree, to and with the Assignee, its respective successors and assigns, to forever specially warrant and defend the title to the Leases or portions thereof included under this Assignment, unto the Assignee and its respective successors and assigns, against the lawful claims of Assignor, and all persons claiming, or to claim, the same or any part thereof, by, through or under Assignor.

#27
for now

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Office of Oil and Gas

MAR 13 2018

WV Department of
Environmental Protection

Recd-15

ASSIGNMENT, BILL OF SALE AND CONVEYANCE

STATE OF WEST VIRGINIA }
 }
COUNTY OF MARSHALL }

Marshall County
Jan Pest, Clerk
Instrument 1427133
07/18/2017 @ 10:55:43 AM
ASSIGNMENTS
Book 40 @ Page 26
Pages Recorded 5
Recording Cost \$

11.00

This Assignment, Bill of Sale and Conveyance (this "Assignment"), dated this 16th day of June, 2017, is made by SWN PRODUCTION COMPANY, LLC, a Texas limited liability company with a notice address of 10000 Energy Drive, Spring, Texas 77389-4954, ("Assignor") in favor of STATOIL USA ONSHORE PROPERTIES INC, a Delaware corporation with a notice address of 6300 Bridge Point Parkway, Building 2, Suite 100, Austin, Texas 78730 ("Assignee").

Capitalized terms used herein but not otherwise defined herein shall have the meanings ascribed to such terms in that certain Development Agreement, dated as of December 22, 2014 (the "Development Agreement"), between Assignor and Assignee. If there is a conflict between the terms of this Assignment and the terms of the Development Agreement, the terms of the Development Agreement shall control and nothing in this Assignment shall affect the rights and remedies of Assignor and Assignee pursuant to the Development Agreement.

As used in this Assignment, Effective Time shall mean June 16, 2017.

NOW, THEREFORE, for and in consideration of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee an undivided twenty five percent (25%) interest (the "Conveyed Interest") of all of Assignor's right, title and interest in, to and under the oil, gas and mineral leases shown on Exhibit "A", (the "Acquired Interests"), subject to the terms and reservations hereof:

It is the intent of Assignor to convey (and this Assignment hereby conveys) to Assignee the Conveyed Interest in the Acquired Interests from and after the Effective Time, subject to the terms and reservations hereof, regardless of the omission of any lease or leases, errors in description, any incorrect or misspelled names or any transcribed or incorrect recording references, in each case, of the Acquired Interests.

TO HAVE AND TO HOLD all and singular such Conveyed Interest together with all rights, titles, interests, estates, remedies, powers and privileges thereunto appertaining unto Assignee and Assignee's successors and assigns forever, subject to the terms and conditions of the Development Agreement.

Assignor does hereby bind itself, its successors and assigns, to warrant and forever defend all and singular title to the Acquired Interests unto Assignee and Assignee's successors and assigns, against

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07/20/2018

51-02021

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is entered into this 14th day of February, 2018, between TUG HILL OPERATING, LLC (THQ), a Texas limited liability company, whose address is 1320 S. University Blvd., Suite 500, Fort Worth, TX 76107 and CHEVRON U.S.A., INC. (Chevron), a Pennsylvania corporation, whose address is 700 Cherrington Parkway, Coraopolis, PA 15108.


PARTIES AND AGREEMENT REFERENCE: THQ and Chevron entered into a letter agreement ("Letter Agreement") dated February 14th, 2018 (the "Commencement Date") outlining pursuit of definitive agreements to allow THQ the right to permit, drill, extract, produce and market oil and gas from those certain oil and gas interests controlled by Chevron in the Meade District of Marshall County, West Virginia, as more fully described in Exhibit A attached hereto, made a part hereof, and incorporated herein by reference.

1. **TERM:** The rights granted in the Letter Agreement will terminate upon the earlier of (i) one hundred eighty (180) days from the Commencement Date, (ii) Chevron's revocation of the rights granted in the Letter Agreement, or (iii) the parties entering into the definitive agreement described in the Letter Agreement. Upon termination of the Letter Agreement under subsection (i) or (ii) of the immediately preceding sentence, THQ will record a surrender of this Memorandum and withdraw any related well work permit requests.

2. **MEMORANDUM FOR RECORDING PURPOSES ONLY:** This Memorandum is for recording purposes only and does not supplement or supersede the parties' respective rights set forth in the Letter Agreement or other agreements.

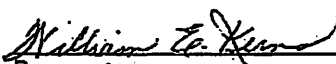
IN WITNESS WHEREOF, the parties have signed their names hereto as of the date first above written.

Tug Hill Operating, LLC



By: Sean Willis
Its: VP, Engineering &
Development Manager – Appalachia

Chevron U.S.A., Inc.



By: William E. Kerns
Its: Attorney-in-Fact

Marshall County
Jan Pest, Clerk
Instrument 1437069
02/27/2018 @ 03:43:58 PM
AGREEMENT
Book 961 @ Page 303
Pages Recorded @
Recording Cost \$ 14.00

Marshall County
Jan Pest, Clerk
Instrument 1436705
02/16/2018 @ 02:16:57 PM
AGREEMENT
Book 960 @ Page 409
Pages Recorded 2
Recording Cost \$ 11.00

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Environmental Protection

07/20/2018



February 28, 2018

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

RE: Ten High 1N-20HU

Dear Laura:

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 21/9 and 21/11 in the area reflected on the Ten High 1N-20HU 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 at 304-376-0111 or by email at amiller@tug-hill.com.

Sincerely,

A handwritten signature in blue ink that reads "Amy L. Miller".

Amy L. Miller
Permit Specialist – Appalachia

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

Date of Notice Certification: 02/27/2018

API No. 47- 051 - 02021
Operator's Well No. Ten High 1N-20HU
Well Pad Name: Ten High

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: <u>West Virginia</u>	UTM NAD 83	Easting: <u>527,318.92</u>
County: <u>Marshall</u>		Northing: <u>4,406,354.29</u>
District: <u>Meade</u>	Public Road Access: <u>Shepherd Ridge Lane (Co. Rt. 21/9)</u>	
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>	
Watershed: <u>(HUC 10) Fish Creek</u>		

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.

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: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <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 <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		RECEIVED Office of Oil and Gas MAR 13 2018	OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
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Required Attachments:

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

51-02021

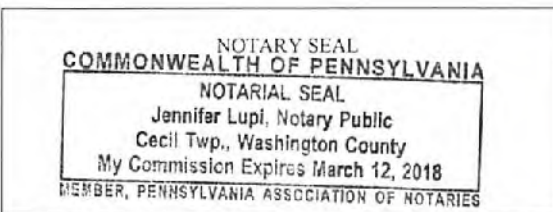
WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Amy L. Miller, 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. Miller *Amy Miller*
Its: Permitting Specialist - Appalachia
Telephone: 724-749-8388

Address: 380 Southpointe Blvd, Southpointe Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
Email: amiller@tug-hillop.com



Subscribed and sworn before me this 27th day of Feb. 2018.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

Oil and Gas Privacy Notice:

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

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

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

Date of Notice: 2/26/2018 **Date Permit Application Filed:** 2/27/2018

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: Estate of Lawrence & Shirley Mae Conkle c/o Roy Conkle
 Address: 75 Arlington Avenue
Moundsville, WV 26041

Name: Roy A. Conkle, Sr., and Lorie A.
 Address: 75 Arlington Avenue
Moundsville, WV 26041 *See Attached*

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Robert G. Hubbs and Scarlett E. Otte
 Address: 132 Shepherds Ridge Lane
Glen Easton, WV 26039

Name: None
 Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
 Name: None
 Address: _____

COAL OWNER OR LESSEE
 Name: Murray Energy Corporation
 Address: 46225 National Road
St. Clairsville, OH 43950

COAL OPERATOR
 Name: Same as above coal owner
 Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: *See supplement page 1A attached
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: None
 Address: _____

*Please attach additional forms if necessary

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WV Department of
Environmental Protection

WW-6A
(8-13)

MAR 13 2018

WV Department of
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Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

07/20/2018

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.**

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47- 051 - 02021
OPERATOR WELL NO. Ten High 1N-20HU
Well Pad Name: Ten High

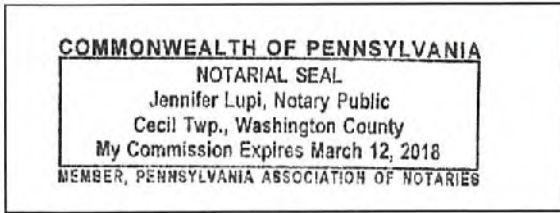
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 26th day of Feb, 2018.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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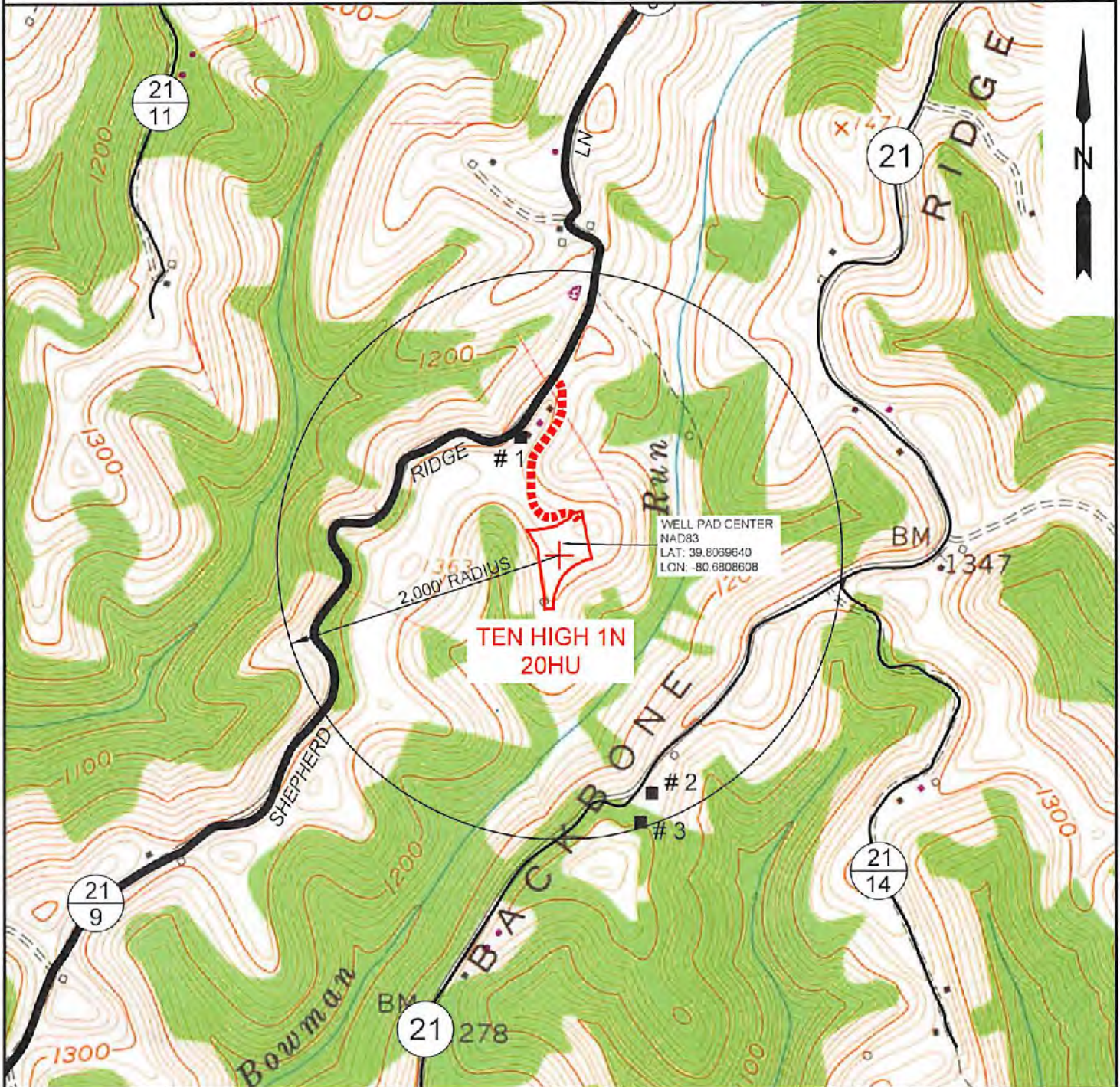
WW-6A

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**PROPOSED
TEN HIGH 1N - 20HU**

SUPPLEMENT PG. 1B



NOTE: THERE APPEARS TO BE THREE (3) POSSIBLE WATER SOURCES WITHIN 2,000'.

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 112 Vanhorn Drive • Glenville, WV 26351 • (304) 482-6834
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8655	01-08-18	1" = 1000'

TUG HILL
OPERATING

07/20/2018

WW-6A Notice of Application Attachment 1 of 1

Surface Owner(s):

Name: Teresa Anne Hughes and Michael J.
Address: 252 Conkle Drive
Glen Easton, WV 26039

Brenda Joyce Whetzel
1863 Shepherds Ridge Lane
Glen Easton, WV 26039

Larry Lee Conkle and Donna D.
154 Conkle Drive
Glen Easton, WV 26039

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Exhibit WW-6A

Supplement Pg. 1A

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

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

Well: Ten High 1N – 20HU
 District: Meade (House #'s 1-3)
 State: WV

There are three (3) residences, no businesses, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p>House 1 TM 7 Pcl. 24 Lawrence & Shirley Conkle Ests Phone: 304-845-1808; 304-848-1808 Physical Address: 77B Shepards Lane 932 Shepherd Ridge Ln. Glen Easton, WV 26039 Tax Address: 75 Arlington Ave. Moundsville, WV 26041</p>	<p>House 2 TM 7 Pcl. 25 Thomas R. & Kimberly Whitfield Phone: 304-843-1753 Physical Address: 53 Sallys Backbone Rd. 1834 Sally's Backbone Rd. Glen Easton, WV 26039 Tax Address: 1838 Sallys Backbone Rd. Glen Easton, WV 26039</p>	<p>House 3 TM 7 Pcl. 25 Thomas R. & Kimberly Whitfield Phone: 304-843-1753 Physical Address: 53 Sallys Backbone Rd. 1838 Sally's Backbone Rd. Glen Easton, WV 26039 Tax Address: Same</p>
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07/20/2018

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: 02/26/2018 **Date Permit Application Filed:** 02/27/2018

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: Estate of Lawrence & Shirley Mae Conkle c/o Roy Conkle
Address: 75 Arlington Avenue
Moundsville, WV 26041

Name: Roy A. Conkle, Sr., and Lorie A ✓
Address: 75 Arlington Avenue
Moundsville, WV 26041 ****See Attached****

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>527,318.92</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,354.29</u>
District:	<u>Meade</u>	Public Road Access:	<u>Shepherd Ridge Lane (Co. Rt. 21/9)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>	
Watershed:	<u>(HUC 10) Fish Creek</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: amiller@tug-hilltop.com

Address: 380 Southpointe Blvd, Southpointe 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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WV Department of
Environmental Protection
07/20/2018

51-02021

Operator Well Nos. TEN HIGH 1N-20HU

WW-6A5 Notice of Planned Operation..... Attachment 1 of 1

Surface Owner(s):

Name: Teresa Anne Hughes and Michael J.
Address: 252 Conkle Drive
Glen Easton, WV 26039

Brenda Joyce Whetzel
1863 Shepherds Ridge Lane
Glen Easton, WV 26039

Larry Lee Conkle and Donna D.
154 Conkle Drive
Glen Easton, WV 26039

Robert G. Hubbs and Scarlett E. Otte
132 Shepherds Ridge Lane
Glen Easton, WV 26039

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51-02021

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

**Jim Justice
Governor**

**Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways**

December 7, 2017

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 Ten High 1N Pad, Marshall County
Ten High 1N Unit-20HU Well site**

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2017-0127 which has been issued to Tug Hill Operating, LLC for access to the State Road for a well site located off of Marshall County Route 21/9 SLS.

The operator has signed a STATEWIDE 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 January 3, 2012.

Very Truly Yours,

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

Cc: Jonathan White
Tug Hill Operating, LLC
CH, OM, D-6
File

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51-02021

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Ten High 1N-20HU

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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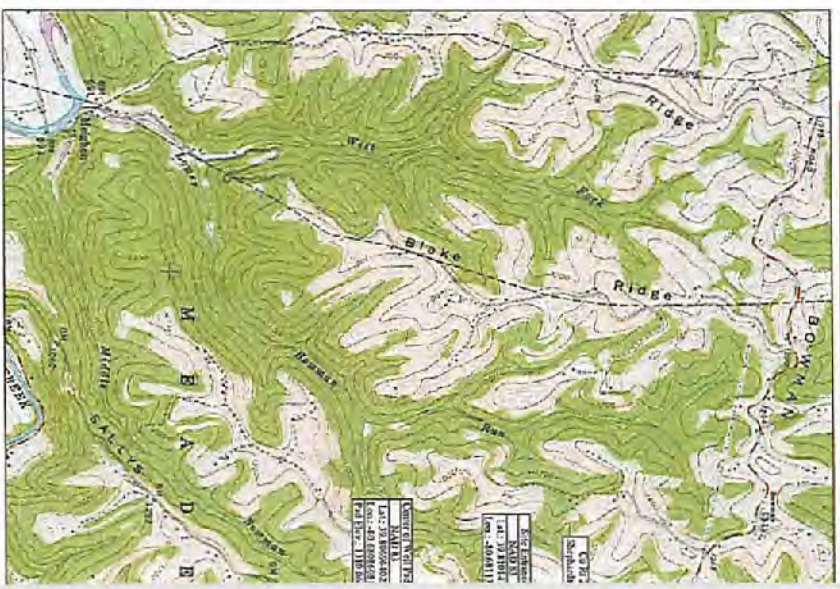
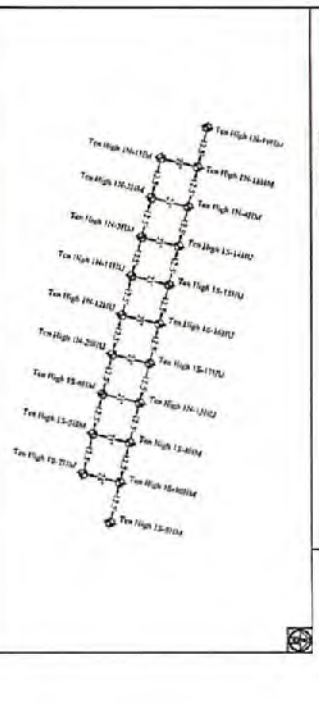
MAR 13 2018

WV Department of
Environmental Protection

Ten Hig

Site Design, C
Erosion and Sec
Tug Hi
Marst
Meat
Latitude
Longitude
Middle Fish

Exhibit



Site Location (MAD 27)	
North	Latitude (NAD 83)
East	Longitude (NAD 83)
Scale	USGS 7.5' C

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Approximate Boundaries:
From the intersection of WV Rt 27 and Old Rt 7 near River Marstonville, WV, Travel North on WV Rt 2 for 13.8 mi. Turn Right onto Co Rt 794 (Fish Creek). Follow Co Rt 794 for 26.1 mi. Turn Left onto Co Rt 271 (Troyer Ridge Rd). Follow Co Rt 271 for 3.7 mi. Turn Left to continue on Co Rt 271. Follow Co Rt 271 for 1.3 mi. Turn Right onto US Rt 211. Follow US Rt 211 for 2.1 mi. Turn Right onto US Rt 211. Follow US Rt 211 for 0.9 mi. The site entrance will be on the Left (East) side of the road.

Project Contacts

Technical Description:
Amelia White - Regulatory Auditor
254-552-5000 EXT. 3246/4600/3404
Gwendolyn - VZ, Protection
610-625-2390 EXT.

Service and Expenses:
Kathryn Kiser
254-552-6099 EXT.
Mike P. Fox
254-552-2029 EXT.
Zachary Stansfield
254-552-6987 EXT.
Gwendolyn Bennett
Amelia White
254-552-6277 EXT.

Top Hat Operating, LLC
800 Foxcroft Lane II, Ste. 200
Fayetteville, VA 24117

Environmental:
Verde Environmental, Inc. (previously Albert Ebersole)
Attn: Kimberly H. Boyd
4801 Mainway II, 8017

Technical Description:
This topographic information shows terrain to be used in and designed by the Mountain Award Mapping Bureau, WV.

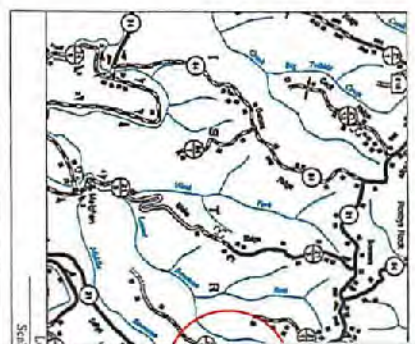
MERS UTILITY OF WEST VIRGINIA
1-800-245-4-6848
Real Virginia Data LLC
8000 Valley View Center
Parkersburg, WV 26101
www.mers.com
11-8-THE-LAW

Keepers & Holroyd
Call before you dig.

The WV Department of Environmental Protection will obtain an Erosion and Sedimentation Permit from SD-1409 prior to the commencement of any construction activities. The WV Maps Website was consulted. Previous (Current) mining activities are shown on the AOT. WVDEP Website also shows that there are no active surface abandoned gas wells within the AOT.

Topographic Information:

Elevation Contours	
Do not construction activities that alter a boundary line.	50'
Do not construct from contour (Elevation Contours).	50'
Do not construct from contour (Elevation Contours).	50'
Do not construct from contour (Elevation Contours).	50'
Do not construct from contour (Elevation Contours).	50'



Well Site

struction Plan, &
ment Control Plans
Operating

l County

District

9,80696402°

0,68086081°

reek Watershed

As-Built

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

WVDEP 00G
ACCEPTED AS-BUILT
1/9/2018



Legend

- 0000
- 4000
- 4000
- 4000

Site Location (NAD 83)

Station	Easting (EAD)	Northing (EAD)
Well Location	3741001.0	4025411.0
Center of Well Pad	3738900.0	4025800.0



WV State Plane Coordinate System
NAD 83, Zone 18N
Elevation Based on NAVD 83
Elevations in Feet Above Sea Level
and GDS 1985 Preseice

Property Owner Information - Ten High Well Site

Meade District - Marshall County

Owner	LN	Depth	WPI	Area (sq ft)	Area (acres)	WPI	Area (sq ft)	Area (acres)	WPI	Area (sq ft)	Area (acres)
Meade District	748	5.92	1.12	1.2	6.6	15.19					
Marshall County	748	5.92	1.12	1.2	6.6	15.19					
Tug Hill	392	7.34	1.19	7.18	16.29						

Access Road

Right-of-Way	12.5	12.5	12.5	12.5
Right-of-Way	7.5	7.5	7.5	7.5
Proposed Right-of-Way	7.5	7.5	7.5	7.5

Identified Area

Well Pad Construction	372.16
Access Road	7.34
Overall Exhibit Material	13.57
Additional Exhibit	2.18
Total Disturbance Area	16.29

Additional Information

Well Pad Construction: 372.16
Access Road: 7.34
Total Disturbance Area: 16.29

Ten High Well Site Quantities

Material	Vol (CY)	Est (CY)	35% (CY)	100% (CY)	Max. Weight	Length of Slope
Well Pad	5,070.54	41,079.10	5,997.14	18,218.9	N/A	N/A
Well Pad Access Road	2,535.18	1,717.11	1,717.11	1,717.11	N/A	N/A
Overall Exhibit Material	9,655.72	40,292.11	9,655.72	18,218.9	N/A	N/A
Total Exhibit Area	17,201.44	71,088.32	17,370.06	36,437.81	N/A	N/A

EXISTING API NUMBERS

- 4705101934
- 4705101943
- 4705101944
- 4705101945
- 4705101964

gr/2/2017

Well Location Restrictions

- All PAD construction compatible with the following restrictions.
- *10' from an existing well or developed spring pad for houses or domestic animals.
- *15' from an occupied dwelling or barn greater than 2,500 SF based on quality of clay measured from the center of the pad.
- *10' from the edge of a discharge or wildlife, perennial stream, natural or artificial lake, pond or reservoir.
- *100' from the edge of a discharge or wildlife, perennial stream, natural or artificial lake, pond or reservoir.
- *1,000' of a surface or ground water body on a public water right.

(WV) Location Restrictions at WV Code 22-2A-423



This is to certify that the design and construction of the well pad and access road shown on this plan meets the requirements of the WV Code 22-2A-423 and the applicable provisions of the WV Code 22-2A-423. The engineer's name and seal are on file with the State of West Virginia.

Zackery C. Summers
Professional Engineer
No. 10773

Sheet	Description
1	Cover Sheet
VI	Schedule of Quantities
VI-N3	Site Access
2	Proposed Construction Site Conditions
3	Cleaning Exhibit
4	Overall Plan View
5	EAS Plan View
6-7	Top Key Exhibit
8-10	Plan View
9-10	Cross Sections - Well Pad
11-12	Cross Sections - Access Road
13	Overall Key Exhibit
14-D2	Landowner Disturbed Area Exhibit
15	Site Reclamation
SI	Production Exhibit
MH-4B	Erosion and Sediment Control Details
DI-D2	Access Road Details
PI	Pad Details

Cover Sheet
Ten High Well Site
Meade District
Marshall County, WV



TUG HILL
OPERATING

THIS DOCUMENT
PREPARED FOR
TUG HILL
OPERATING



Date: 07/17/2017
Scale: As Shown
Designed By: ZS
File No.
Sheet 1 of 13

Date:	02-17-2017
Revision:	Design
	As-Built

