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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Thursday, March 15, 2018  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

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

Re: Permit Modification Approval for TEN HIGH 1N-1HM  
47-051-01943-00-00

**Modified Lateral by Extension**

TUG HILL OPERATING, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin  
Chief

Operator's Well Number: TEN HIGH 1N-1HM  
Farm Name: LAWRENCE & SHIRLEY CONKLE ESTS  
U.S. WELL NUMBER: 47-051-01943-00-00  
Horizontal 6A New Drill  
Date Modification Issued: March 15, 2018

Promoting a healthy environment.

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-1HM      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    X      Oil                                Underground Storage                            
Other                          

(b) If Gas    Shallow    x      Deep                            
Horizontal    X                          

6) Existing Pad: Yes or No      No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus is the target formation at a depth of 6713' - 6765', thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,865'

9) Formation at Total Vertical Depth: Onondoga

10) Proposed Total Measured Depth: 16,501'

11) Proposed Horizontal Leg Length: 9,200'

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: 2180'

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      X      No                          

(a) If Yes, provide Mine Info:    Name: Marshall County Coal Co. / Marshall County Mine  
Depth: 1020' TVD and 301' 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	13 3/8"	NEW	H40	48#	1,076'	1,076'	1098ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,076'	1,076'	1098ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,804'	2,804'	917ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	16,501'	16,501'	4212ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,809'	
Liners	N/A						

*John*  
2/21/18

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	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	10,112	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8960		
Liners	N/A						

**PACKERS**

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

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WW-6B  
(10/14)

API NO. 47-051 - 01943  
OPERATOR WELL NO. Ten High 1N-1HM  
Well Pad Name: Ten High

*Dec 2/21/18*

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

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

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

Well to be completed with approximately 23,000,000 lb proppant and 355,597 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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 other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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

\*See Attached

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.

WW-6B Attachment to #24

**Conductor, Coal and Fresh Water Casing Cement:**

*Premium NE-1 + 2% CaCl*

- Premium NE-1 – Class A Portland API Spec
- CaCl – Calcium Chloride

*JW  
2/21/18*

**Intermediate Casing:**

*Premium NE-1 + 2% bwoc CaCl<sub>2</sub> + 46.5% Fresh Water*

- Premium NE-1 – Class A Portland API spec
- CaCl<sub>2</sub> – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

**Kick Off Plug:**

*Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L + 38% Fresh Water*

- Class H – Increased Compressive Strength Cement
- Sodium Metasilicate – Free Water Control; Early Strength Additive
- R-3 – Cement Retarder
- FP-13L – Anti-Foaming Agent
- CaCl<sub>2</sub> – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

**Production Casing Cement:**

*Lead: 50:50 (Poz:Premium NE-1) + .2% R-3 + .2% MPA-170 + .75 gal/100sk FP-13L*

*Tail: 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*

- Poz – Fly Ash
- Premium NE-1 – Class A Portland API spec
- R-3 – Cement Retarder
- MPA-170 – Gelling Agent
- FP-13L – Anti-Foaming Agent
- ASA-301 – Free Water Control Agent
- BA-10A – Bonding Agent
- ASCA-1 – Solubility Additive

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*Handwritten signature and date: 2/21/18*

**Tug Hill Operating, LLC Casing and Cement Program**

**Ten High 1N-1HM**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	H40	17 1/2"	1,076'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,804'	CTS
Production	5 1/2"	P110	8 7/8 x 8 3/4"	16,501'	CTS

**Cement**

- Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
- Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
- Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
- Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
- Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

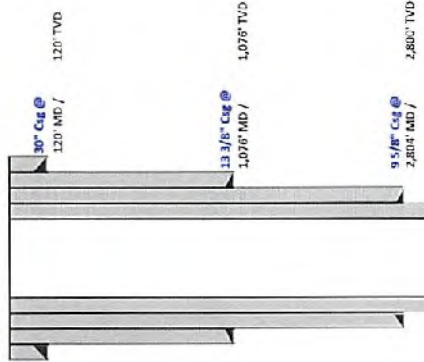
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**WELL NAME:** Ten High 1N-1HM  
**STATE:** West Virginia **COUNTY:** Marshall  
**DISTRICT:** Meade  
**DEPT:** 1,310' **Oil Flow:** 1,310'  
**TD:** 16,501'  
**TH Latitude:** 39.80676042  
**TH Longitude:** -80.6810703  
**DL Latitude:** 39.82761969  
**DL Longitude:** -80.69714673



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1025
Sewickley Coal	935
Pittsburgh Coal	1020
Big Lime	2040
Weir	2475
Berea	2673
Cowdin	2935
Rhinestreet	6057
Groves/Sunkett	6575
Tully	6606
Hamilton	6639
Marshall	6713
Landing Depth	6786
Onondaga	6765
Pilot Hole Depth	6865

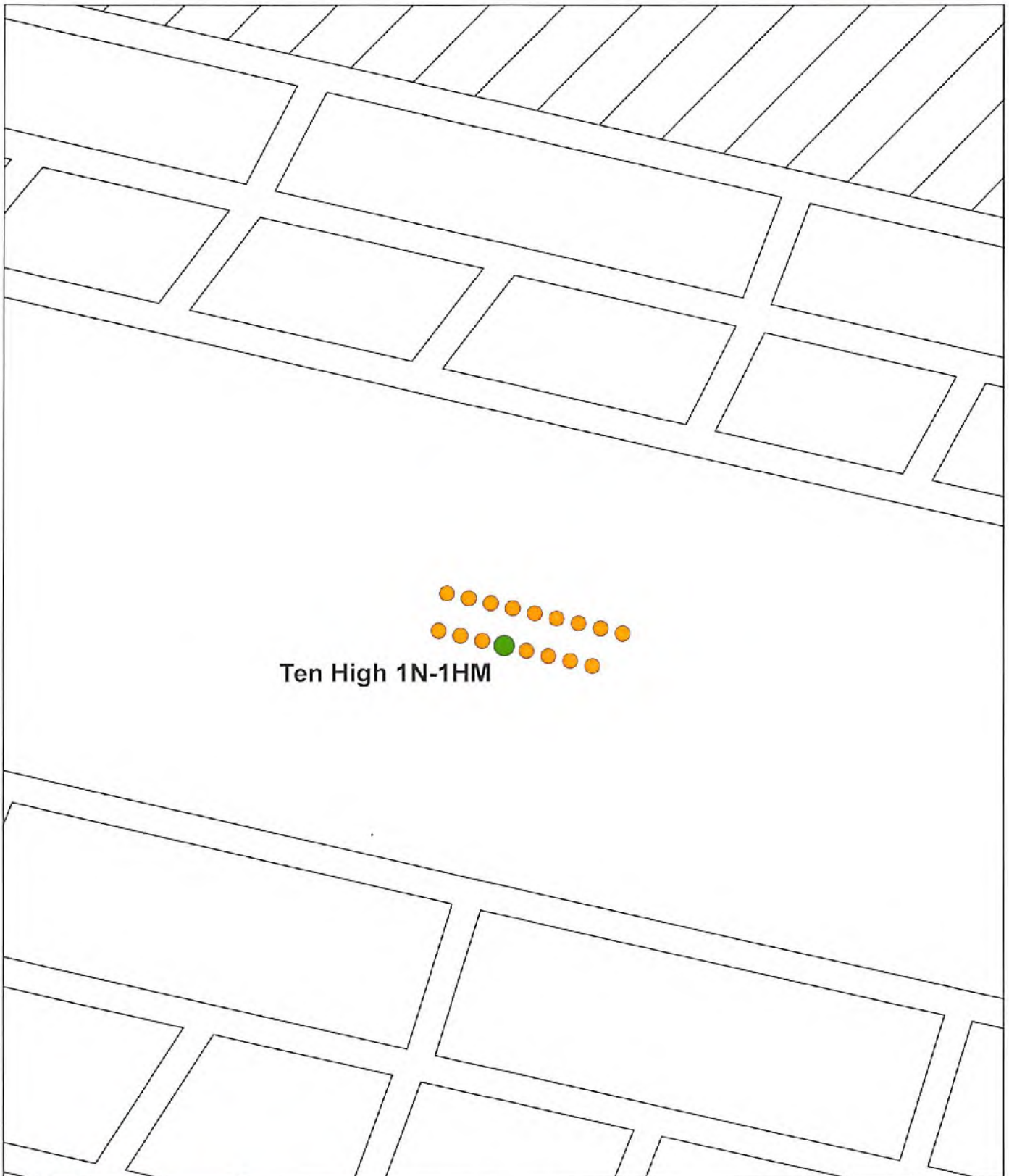
CASING SUMMARY						
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade
Conductor	36	30	120'	120'	BW	Surface
Surface	17.5	13 3/8	1,076'	1,076'	48	H40
Intermediate 1	12 1/4	9 5/8	2,804'	2,800'	36	J55
Production	8 7/8 x 8 3/4	5 1/2	16,501'	6,575'	20	P110

CEMENT SUMMARY				DRILLING DETAILS	
Sections	Class	Density	Field Type	Centralizer Notes	
Conductor	A	15.6	Air	None	
Surface	A	15.6	Air	3 Centralizers at equal distance	
Intermediate 1	A	15	Air	1 Centralizer every other ft	
Production	A	14.5	Air / SOBIM	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to stc	

*Handwritten signature and date: Jw 2/21/18*

Pilot Hole  
 PH TD @ 6,885' TVD  
 Landing Point @ 7,301' MD / 6,736' TVD  
 PH TVD = 100' below Onondaga Top  
 Lateral TD @ 16,501' ft MD  
 6,575' ft TVD

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Ten High 1N-1HM

**CONFIDENTIAL**

0 5 10 20 30 40 Feet

### Ten High Pad Ten High 1N-1HM Well Location

- Surface Location
- Coal Mined Area



**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](mailto: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

## 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-1HM

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

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
4705101934	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, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101945	Tug Hill Operating	6737' TVD planned	None	None	No, Permitted 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
4705140024	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be a coal test bore hole or CBM well	Well records are incomplete. A field survey was conducted to locate this well and no evidence of this well was found.
4705100833	McElroy Coal Company	Unknown	Gordon	Unknown	Unknown but unlikely, Benson SS listed as deepest formation encountered. Well was plugged originally, then other formations were completed	Well records incomplete. Well plugged 7/22/1998. A field survey was conducted to locate this well and it was found plugged at the location shown on the well plat.

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**Area of Review**

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

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Permit well - Ten High 1N-1HM

Wells within 500' Buffer


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**"Pipeline"**

Select County: (051) Marshall

Enter Permit #: 40024

Get Data    Reset

Select datatypes:  (Check All)

Location     Production     Plugging

Owner/Completion     Stratigraphy     Sample

Pay/ShowWater     Logs     Btm Hole Loc.

[Table Descriptions](#)

[County Code Translations](#)

[Permit Number Series](#)

[Unsub Nodes](#)

[Contact Information](#)

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WV Geological & Economic Survey. Well: County = 51 Permit = 40024

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4725140024	Marshall	40024	Meade	Qian Easton	Cameron	39.910926	-90.690728	526472.1	4406918

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil


Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4725140024	Original Log	Pittsburgh coal	CBM Oil Hole	1235	Reasonable	7	Reasonable	1243	unknown

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

There is no Plugging data for this well

There is no Sample data for this well



**"Pipeline"**

Select County: (051) Marshall

Enter Permit #: 00833

Get Data    Reset

Select datatypes:  (Check All)

Location     Production     Plugging

Owner/Completion     Stratigraphy     Sample

Pay/ShowWater     Logs     Btm Hole Loc.

[Table Descriptions](#)

[County Code Translations](#)

[Permit Number Series](#)

[Unsub Nodes](#)

[Contact Information](#)

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WV Geological & Economic Survey. Well: County = 51 Permit = 00833

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	20592	51	822

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705100833	Marshall	833	Meade	Qian Easton	Cameron	39.85992	-90.690183	525530.6	4406700.5

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	PLAT	COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST
4705100833	9/22/1907	Original Log	Completed	Denise Jones	1	142			Denise Jones	Beran, I. H.					
4705100833	7/22/1909	Plugging	Completed	Denise P & Sessie Hall	69-41M-221					McKinney Coal Company					

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_PMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	TMD	NEW_FYD	G_BEF
4705100833	9/22/1907	7/15/1907	1230	Barometer	Cameron-Beran	UDev undr BenLoHURN	Gordon	unclassified	unclassified	Oil	Cable Tool	Shot	2979		2975	
4705100833	7/22/1909	7/7/1909	1228	Ground Level						Gas	unknown	unknown				

Pay/ShowWater Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4705100833	9/22/1907	Pay	Oil	vertical	Gordon	2930	Gordon	0	0				

There is no Production Gas data for this well

There is no Production Oil data for this well \*\* some operators may have reported NGL under Oil

There is no Production NGL data for this well \*\* some operators may have reported NGL under Oil

There is no Stratigraphy data for this well

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

Plugging Information:

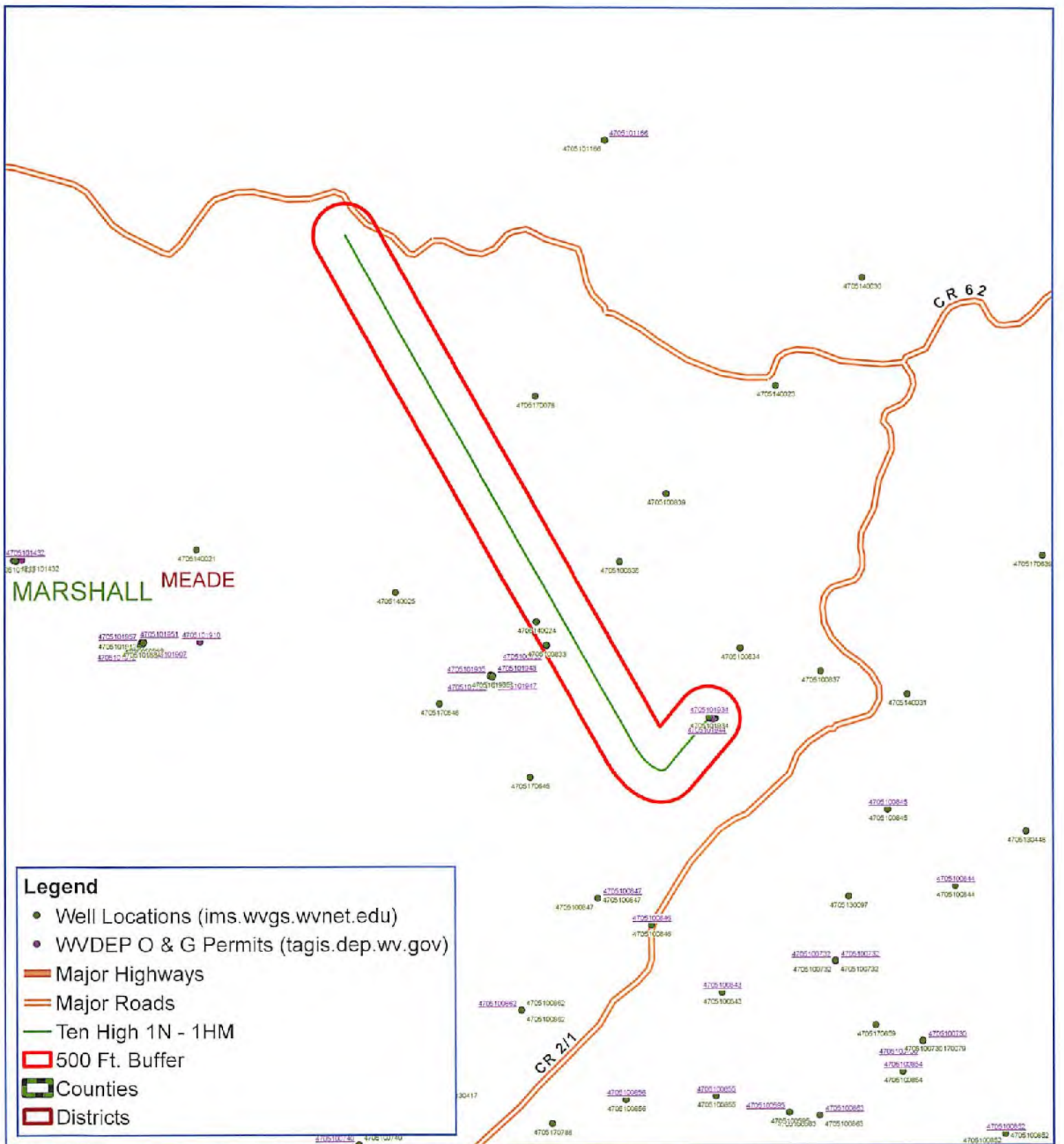
API	PLO_DT	DEPTH_PBT
4705100833	8/13/1929	0
4705100833	7/22/1909	0

There is no Sample data for this well

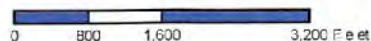
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## Ten High 1N-1HM Meade District Marshall County, WV



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

Map Created: February 15, 2018  
Map Current As Of: February 15, 2018

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Environmental Protection



<b>Database:</b>	DB_Jul2216dt_v14	<b>Local Co-ordinate Reference:</b>	Well Ten High 1N-01HM (T)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL=1310 @ 1310.00usft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL=1310 @ 1310.00usft
<b>Site:</b>	Ten High	<b>North Reference:</b>	Grid
<b>Well:</b>	Ten High 1N-01HM (T)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev3		

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

<b>Site</b>	Ten High				
<b>Site Position:</b>		<b>Northing:</b>	14,456,545.60 usft	<b>Latitude:</b>	39.80690885
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,730,001.41 usft	<b>Longitude:</b>	-80.68101011
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.20 °

<b>Well</b>	Ten High 1N-01HM (T)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,456,527.91 usft	<b>Latitude:</b>	39.80676042
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,729,984.57 usft	<b>Longitude:</b>	-80.68107030
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft	<b>Ground Level:</b>	1,310.00 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	3/11/2017	-8.70	66.99	52,211.51711042

<b>Design</b>	rev3				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	322.81	

<b>Plan Survey Tool Program</b>	<b>Date</b>	2/14/2018			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	16,500.74 rev3 (Original Hole)	MWD		
			MWD - Standard		

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<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
1,800.00	5.00	220.55	1,799.37	-16.57	-14.17	1.00	1.00	0.00	220.55	
4,009.04	5.00	220.55	4,000.00	-162.86	-139.34	0.00	0.00	0.00	0.00	
5,013.48	25.09	220.55	4,965.05	-359.95	-307.97	2.00	2.00	0.00	0.00	
6,309.46	25.09	220.55	6,138.76	-777.49	-665.23	0.00	0.00	0.00	0.00	
7,300.82	91.00	330.25	6,736.00	-410.40	-1,184.23	10.00	6.65	11.07	107.56	Ten High 1N-01HM LF
16,500.74	91.00	330.25	6,575.00	7,575.85	-5,748.49	0.00	0.00	0.00	0.00	Ten High 1N-01HM BI



Planning Report - Geographic



Database: DB\_Jul2218dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Ten High  
 Well: Ten High 1N-01HM (T)  
 Wellbore: Original Hole  
 Design: rev3

Local Co-ordinate Reference: Well Ten High 1N-01HM (T)  
 TVD Reference: GL=1310 @ 1310.00usft  
 MD Reference: GL=1310 @ 1310.00usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

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Planned Survey										WV Department of Environmental Protection
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	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
100.00	0.00	0.00	100.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
200.00	0.00	0.00	200.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
300.00	0.00	0.00	300.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
400.00	0.00	0.00	400.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
500.00	0.00	0.00	500.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
600.00	0.00	0.00	600.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
700.00	0.00	0.00	700.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
800.00	0.00	0.00	800.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
900.00	0.00	0.00	900.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,456,527.91	1,729,984.57	39.80876042	-80.68107030	
<b>KOP Begin 1°/100' build</b>										
1,400.00	1.00	220.55	1,399.99	-0.86	-0.57	14,456,527.24	1,729,984.01	39.80875861	-80.68107233	
1,500.00	2.00	220.55	1,499.86	-2.65	-2.27	14,456,525.26	1,729,982.31	39.80875316	-80.68107841	
1,600.00	3.00	220.55	1,599.86	-5.97	-5.10	14,456,521.94	1,729,979.47	39.80874409	-80.68108855	
1,700.00	4.00	220.55	1,699.68	-10.81	-9.07	14,456,517.30	1,729,975.50	39.80873139	-80.68110274	
1,800.00	5.00	220.55	1,799.37	-16.57	-14.17	14,456,511.34	1,729,970.40	39.80871506	-80.68112098	
<b>Begin 5.00° tangent</b>										
1,900.00	5.00	220.55	1,898.99	-23.19	-19.84	14,456,504.72	1,729,964.73	39.80868693	-80.68114124	
2,000.00	5.00	220.55	1,998.60	-29.81	-25.51	14,456,498.10	1,729,959.07	39.80867890	-80.68116150	
2,100.00	5.00	220.55	2,098.22	-36.43	-31.17	14,456,491.47	1,729,953.40	39.80866067	-80.68118176	
2,200.00	5.00	220.55	2,197.84	-43.06	-36.84	14,456,484.85	1,729,947.74	39.80864254	-80.68120202	
2,300.00	5.00	220.55	2,297.46	-49.68	-42.50	14,456,478.23	1,729,942.07	39.80862441	-80.68122228	
2,400.00	5.00	220.55	2,397.08	-56.30	-48.17	14,456,471.61	1,729,936.40	39.80860628	-80.68124254	
2,500.00	5.00	220.55	2,496.70	-62.92	-53.84	14,456,464.98	1,729,930.74	39.80858815	-80.68126280	
2,600.00	5.00	220.55	2,596.32	-69.55	-59.50	14,456,458.36	1,729,925.07	39.80857001	-80.68128305	
2,700.00	5.00	220.55	2,695.94	-76.17	-65.17	14,456,451.74	1,729,919.41	39.80855188	-80.68130331	
2,800.00	5.00	220.55	2,795.56	-82.79	-70.84	14,456,445.12	1,729,913.74	39.80853375	-80.68132357	
2,900.00	5.00	220.55	2,895.18	-89.41	-76.50	14,456,438.49	1,729,908.07	39.80851562	-80.68134383	
3,000.00	5.00	220.55	2,994.80	-96.04	-82.17	14,456,431.87	1,729,902.41	39.80849749	-80.68136409	
3,100.00	5.00	220.55	3,094.42	-102.66	-87.83	14,456,425.25	1,729,896.74	39.80847936	-80.68138435	
3,200.00	5.00	220.55	3,194.04	-109.28	-93.50	14,456,418.63	1,729,891.07	39.80846123	-80.68140461	
3,300.00	5.00	220.55	3,293.66	-115.90	-99.17	14,456,412.00	1,729,885.41	39.80844309	-80.68142487	
3,400.00	5.00	220.55	3,393.28	-122.53	-104.83	14,456,405.38	1,729,879.74	39.80842496	-80.68144513	
3,500.00	5.00	220.55	3,492.90	-129.15	-110.50	14,456,398.76	1,729,874.08	39.80840683	-80.68146539	
3,600.00	5.00	220.55	3,592.52	-135.77	-116.16	14,456,392.14	1,729,868.41	39.80838870	-80.68148565	
3,700.00	5.00	220.55	3,692.14	-142.39	-121.83	14,456,385.51	1,729,862.74	39.80837057	-80.68150591	
3,800.00	5.00	220.55	3,791.76	-149.02	-127.50	14,456,378.89	1,729,857.08	39.80835244	-80.68152616	
3,900.00	5.00	220.55	3,891.37	-155.64	-133.16	14,456,372.27	1,729,851.41	39.80833431	-80.68154642	
4,000.00	5.00	220.55	3,990.99	-162.26	-138.83	14,456,365.65	1,729,845.75	39.80831617	-80.68156668	
4,009.04	5.00	220.55	4,000.00	-162.86	-139.34	14,456,365.05	1,729,845.23	39.80831453	-80.68156651	
<b>Begin 2°/100' build</b>										
4,100.00	6.82	220.55	4,090.47	-169.97	-145.43	14,456,357.93	1,729,839.15	39.80829505	-80.68159028	
4,200.00	8.82	220.55	4,189.54	-180.31	-154.27	14,456,347.60	1,729,830.30	39.80826675	-80.68162190	
4,300.00	10.82	220.55	4,288.07	-193.27	-165.36	14,456,334.64	1,729,819.21	39.80823128	-80.68166154	
4,400.00	12.82	220.55	4,385.94	-208.83	-178.87	14,456,319.08	1,729,805.90	39.80818867	-80.68170915	
4,500.00	14.82	220.55	4,483.04	-226.99	-194.20	14,456,300.93	1,729,790.37	39.80813898	-80.68176467	
4,600.00	16.82	220.55	4,579.25	-247.69	-211.92	14,456,280.22	1,729,772.65	39.80808227	-80.68182604	
4,700.00	18.82	220.55	4,674.45	-270.94	-231.82	14,456,256.97	1,729,752.76	39.80801862	-80.68189917	
4,800.00	20.82	220.55	4,768.52	-296.70	-253.86	14,456,231.20	1,729,730.71	39.80594808	-80.68197797	
4,900.00	22.82	220.55	4,861.35	-324.94	-278.02	14,456,202.96	1,729,705.55	39.80587077	-80.68206437	



<b>Database:</b>	DB_Jul2216dt_v14	<b>Local Co-ordinate Reference:</b>	Well Ten High 1N-01HM (T)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL=1310 @ 1310.00usft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL=1310 @ 1310.00usft
<b>Site:</b>	Ten High	<b>North Reference:</b>	Grid
<b>Well:</b>	Ten High 1N-01HM (T)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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	
5,000.00	24.62	220.55	4,952.83	-355.63	-304.28	14,456,172.28	1,729,680.30	39.80578676	-80.68215824	
5,013.48	25.09	220.55	4,965.05	-359.95	-307.97	14,456,167.96	1,729,676.60	39.80577493	-80.68217146	
<b>Begin 25.09° tangent</b>										
5,100.00	25.09	220.55	5,043.41	-387.82	-331.82	14,456,140.08	1,729,652.75	39.80569881	-80.68225673	
5,200.00	25.09	220.55	5,133.97	-420.04	-359.39	14,456,107.87	1,729,625.18	39.80561040	-80.68235530	
5,300.00	25.09	220.55	5,224.54	-452.26	-386.96	14,456,075.65	1,729,597.62	39.80552218	-80.68245386	
5,400.00	25.09	220.55	5,315.10	-484.48	-414.53	14,456,043.43	1,729,570.05	39.80543397	-80.68255242	
5,500.00	25.09	220.55	5,405.67	-516.70	-442.09	14,456,011.21	1,729,542.48	39.80534576	-80.68265098	
5,600.00	25.09	220.55	5,496.23	-548.92	-469.66	14,455,978.99	1,729,514.92	39.80525755	-80.68274955	
5,700.00	25.09	220.55	5,586.80	-581.13	-497.23	14,455,946.77	1,729,487.35	39.80516934	-80.68284811	
5,800.00	25.09	220.55	5,677.36	-613.35	-524.79	14,455,914.56	1,729,459.78	39.80508113	-80.68294667	
5,900.00	25.09	220.55	5,767.93	-645.57	-552.36	14,455,882.34	1,729,432.21	39.80499292	-80.68304523	
6,000.00	25.09	220.55	5,858.50	-677.79	-579.93	14,455,850.12	1,729,404.65	39.80490471	-80.68314379	
6,100.00	25.09	220.55	5,949.06	-710.01	-607.49	14,455,817.90	1,729,377.08	39.80481650	-80.68324235	
6,200.00	25.09	220.55	6,039.63	-742.23	-635.06	14,455,785.68	1,729,349.51	39.80472828	-80.68334091	
6,300.00	25.09	220.55	6,130.19	-774.44	-662.63	14,455,753.46	1,729,321.95	39.80464007	-80.68343947	
6,309.46	25.09	220.55	6,138.76	-777.49	-665.24	14,455,750.41	1,729,319.34	39.80463172	-80.68344880	
<b>Begin 10°/100' build/turn</b>										
6,400.00	23.87	242.32	6,221.33	-800.63	-893.99	14,455,727.27	1,729,290.58	39.80456845	-80.68355149	
6,500.00	26.13	265.52	6,312.17	-811.78	-733.96	14,455,716.13	1,729,250.61	39.80453823	-80.68369394	
6,600.00	31.37	283.35	6,399.98	-807.48	-781.36	14,455,720.42	1,729,203.21	39.80455049	-80.68388266	
6,700.00	38.38	295.89	6,482.07	-787.87	-834.76	14,455,740.04	1,729,149.82	39.80460488	-80.68405252	
6,800.00	46.36	304.88	6,555.96	-753.53	-892.52	14,455,774.37	1,729,092.06	39.80469973	-80.68425775	
6,900.00	54.87	311.69	6,619.39	-705.52	-952.89	14,455,822.39	1,729,031.69	39.80483216	-80.68447212	
7,000.00	63.69	317.18	6,670.46	-645.29	-1,014.04	14,455,882.61	1,728,970.53	39.80499816	-80.68468911	
7,100.00	72.69	321.89	6,707.59	-574.68	-1,074.12	14,455,953.23	1,728,910.45	39.80519267	-80.68490213	
7,200.00	81.79	326.15	6,729.67	-495.82	-1,131.29	14,456,032.09	1,728,853.28	39.80540979	-80.68510471	
7,300.00	90.93	330.22	6,738.01	-411.11	-1,183.82	14,456,116.80	1,728,800.75	39.80564292	-80.68529069	
7,300.81	91.00	330.25	6,736.00	-410.41	-1,184.22	14,456,117.50	1,728,800.35	39.80564485	-80.68529211	
<b>Begin 91.00° lateral section</b>										
7,400.00	91.00	330.25	6,734.26	-324.30	-1,233.43	14,456,203.60	1,728,751.14	39.80588179	-80.68546625	
7,500.00	91.00	330.25	6,732.51	-237.50	-1,283.05	14,456,290.41	1,728,701.53	39.80612067	-80.68564182	
7,600.00	91.00	330.25	6,730.76	-150.69	-1,332.66	14,456,377.22	1,728,651.92	39.80635954	-80.68581739	
7,700.00	91.00	330.25	6,729.01	-63.88	-1,382.27	14,456,464.03	1,728,602.31	39.80659841	-80.68599295	
7,800.00	91.00	330.25	6,727.26	22.93	-1,431.88	14,456,550.83	1,728,552.69	39.80683729	-80.68616852	
7,900.00	91.00	330.25	6,725.51	109.74	-1,481.49	14,456,637.64	1,728,503.08	39.80707616	-80.68634409	
8,000.00	91.00	330.25	6,723.76	196.54	-1,531.10	14,456,724.45	1,728,453.47	39.80731503	-80.68651967	
8,100.00	91.00	330.25	6,722.01	283.35	-1,580.72	14,456,811.26	1,728,403.86	39.80755391	-80.68669524	
8,200.00	91.00	330.25	6,720.26	370.16	-1,630.33	14,456,898.07	1,728,354.25	39.80779278	-80.68687081	
8,300.00	91.00	330.25	6,718.51	456.97	-1,679.94	14,456,984.87	1,728,304.63	39.80803165	-80.68704639	
8,400.00	91.00	330.25	6,716.76	543.77	-1,729.55	14,457,071.68	1,728,255.02	39.80827052	-80.68722196	
8,500.00	91.00	330.25	6,715.01	630.58	-1,779.16	14,457,158.49	1,728,205.41	39.80850939	-80.68739754	
8,600.00	91.00	330.25	6,713.26	717.39	-1,828.78	14,457,245.30	1,728,155.80	39.80874826	-80.68757312	
8,700.00	91.00	330.25	6,711.51	804.20	-1,878.39	14,457,332.10	1,728,106.19	39.80898714	-80.68774870	
8,800.00	91.00	330.25	6,709.76	891.01	-1,928.00	14,457,418.91	1,728,056.57	39.80922601	-80.68792428	
8,900.00	91.00	330.25	6,708.01	977.81	-1,977.61	14,457,505.72	1,728,006.96	39.80946488	-80.68809967	
9,000.00	91.00	330.25	6,706.26	1,064.62	-2,027.22	14,457,592.53	1,727,957.35	39.80970375	-80.68827545	
9,100.00	91.00	330.25	6,704.51	1,151.43	-2,076.84	14,457,679.34	1,727,907.74	39.80994262	-80.68845103	
9,200.00	91.00	330.25	6,702.76	1,238.24	-2,126.45	14,457,766.14	1,727,858.13	39.81018149	-80.68862662	
9,300.00	91.00	330.25	6,701.01	1,325.04	-2,176.06	14,457,852.95	1,727,808.51	39.81042035	-80.68880221	
9,400.00	91.00	330.25	6,699.26	1,411.85	-2,225.67	14,457,939.76	1,727,758.90	39.81065922	-80.68897780	
9,500.00	91.00	330.25	6,697.51	1,498.66	-2,275.28	14,458,026.57	1,727,709.29	39.81089809	-80.68915339	
9,600.00	91.00	330.25	6,695.76	1,585.47	-2,324.90	14,458,113.38	1,727,659.68	39.81113696	-80.68932898	
9,700.00	91.00	330.25	6,694.01	1,672.28	-2,374.51	14,458,200.18	1,727,610.07	39.81137583	-80.68950457	



Planning Report - Geographic



Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Ten High  
 Well: Ten High 1N-01HM (T)  
 Wellbore: Original Hole  
 Design: rev3

Local Co-ordinate Reference: Well Ten High 1N-01HM (T)  
 TVD Reference: GL=1310 @ 1310.00usft  
 MD Reference: GL=1310 @ 1310.00usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

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WV Department of  
 Environmental Protection

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,800.00	91.00	330.25	6,692.26	1,759.08	-2,424.12	14,458,286.99	1,727,560.45	39.81161470	-80.68968016	
9,900.00	91.00	330.25	6,690.51	1,845.89	-2,473.73	14,458,373.80	1,727,510.84	39.81185356	-80.68985576	
10,000.00	91.00	330.25	6,688.76	1,932.70	-2,523.34	14,458,460.61	1,727,461.23	39.81209243	-80.69003136	
10,100.00	91.00	330.25	6,687.01	2,019.51	-2,572.96	14,458,547.41	1,727,411.62	39.81233130	-80.69020695	
10,200.00	91.00	330.25	6,685.26	2,106.31	-2,622.57	14,458,634.22	1,727,362.01	39.81257017	-80.69038255	
10,300.00	91.00	330.25	6,683.51	2,193.12	-2,672.18	14,458,721.03	1,727,312.39	39.81280903	-80.69055815	
10,400.00	91.00	330.25	6,681.76	2,279.93	-2,721.79	14,458,807.84	1,727,262.78	39.81304790	-80.69073375	
10,500.00	91.00	330.25	6,680.01	2,366.74	-2,771.40	14,458,894.65	1,727,213.17	39.81328676	-80.69090935	
10,600.00	91.00	330.25	6,678.26	2,453.55	-2,821.02	14,458,981.45	1,727,163.56	39.81352563	-80.69108496	
10,700.00	91.00	330.25	6,676.51	2,540.35	-2,870.63	14,459,068.26	1,727,113.95	39.81376450	-80.69126056	
10,800.00	91.00	330.25	6,674.76	2,627.16	-2,920.24	14,459,155.07	1,727,064.34	39.81400338	-80.69143617	
10,900.00	91.00	330.25	6,673.01	2,713.97	-2,969.85	14,459,241.88	1,727,014.72	39.81424223	-80.69161177	
11,000.00	91.00	330.25	6,671.26	2,800.78	-3,019.46	14,459,328.68	1,726,965.11	39.81448109	-80.69178738	
11,100.00	91.00	330.25	6,669.51	2,887.58	-3,069.07	14,459,415.49	1,726,915.50	39.81471995	-80.69196299	
11,200.00	91.00	330.25	6,667.76	2,974.39	-3,118.69	14,459,502.30	1,726,865.89	39.81495882	-80.69213860	
11,300.00	91.00	330.25	6,666.01	3,061.20	-3,168.30	14,459,589.11	1,726,816.28	39.81519768	-80.69231421	
11,400.00	91.00	330.25	6,664.26	3,148.01	-3,217.91	14,459,675.92	1,726,766.66	39.81543655	-80.69248983	
11,500.00	91.00	330.25	6,662.51	3,234.82	-3,267.52	14,459,762.72	1,726,717.05	39.81567541	-80.69266544	
11,600.00	91.00	330.25	6,660.76	3,321.62	-3,317.13	14,459,849.53	1,726,667.44	39.81591427	-80.69284106	
11,700.00	91.00	330.25	6,659.01	3,408.43	-3,366.75	14,459,936.34	1,726,617.83	39.81615313	-80.69301667	
11,800.00	91.00	330.25	6,657.26	3,495.24	-3,416.36	14,460,023.15	1,726,568.22	39.81639200	-80.69319229	
11,900.00	91.00	330.25	6,655.51	3,582.05	-3,465.97	14,460,109.95	1,726,518.60	39.81663088	-80.69336791	
12,000.00	91.00	330.25	6,653.76	3,668.86	-3,515.58	14,460,196.76	1,726,468.99	39.81686972	-80.69354353	
12,100.00	91.00	330.25	6,652.01	3,755.66	-3,565.19	14,460,283.57	1,726,419.38	39.81710858	-80.69371915	
12,200.00	91.00	330.25	6,650.26	3,842.47	-3,614.81	14,460,370.38	1,726,369.77	39.81734744	-80.69389477	
12,300.00	91.00	330.25	6,648.51	3,929.28	-3,664.42	14,460,457.19	1,726,320.16	39.81758631	-80.69407040	
12,400.00	91.00	330.25	6,646.76	4,016.09	-3,714.03	14,460,543.99	1,726,270.54	39.81782517	-80.69424602	
12,500.00	91.00	330.25	6,645.01	4,102.89	-3,763.64	14,460,630.80	1,726,220.93	39.81806403	-80.69442165	
12,600.00	91.00	330.25	6,643.26	4,189.70	-3,813.25	14,460,717.61	1,726,171.32	39.81830289	-80.69459728	
12,700.00	91.00	330.25	6,641.51	4,276.51	-3,862.87	14,460,804.42	1,726,121.71	39.81854175	-80.69477290	
12,800.00	91.00	330.25	6,639.76	4,363.32	-3,912.48	14,460,891.22	1,726,072.10	39.81878061	-80.69494853	
12,900.00	91.00	330.25	6,638.01	4,450.13	-3,962.09	14,460,978.03	1,726,022.49	39.81901947	-80.69512417	
13,000.00	91.00	330.25	6,636.26	4,536.93	-4,011.70	14,461,064.84	1,725,972.87	39.81925833	-80.69529980	
13,100.00	91.00	330.25	6,634.51	4,623.74	-4,061.31	14,461,151.65	1,725,923.26	39.81949718	-80.69547543	
13,200.00	91.00	330.25	6,632.76	4,710.55	-4,110.93	14,461,238.46	1,725,873.65	39.81973604	-80.69565107	
13,300.00	91.00	330.25	6,631.01	4,797.36	-4,160.54	14,461,325.26	1,725,824.04	39.81997490	-80.69582670	
13,400.00	91.00	330.25	6,629.26	4,884.16	-4,210.15	14,461,412.07	1,725,774.42	39.82021376	-80.69600234	
13,500.00	91.00	330.25	6,627.51	4,970.97	-4,259.76	14,461,498.88	1,725,724.81	39.82045262	-80.69617796	
13,600.00	91.00	330.25	6,625.76	5,057.78	-4,309.37	14,461,585.69	1,725,675.20	39.82069147	-80.69635362	
13,700.00	91.00	330.25	6,624.01	5,144.59	-4,358.99	14,461,672.49	1,725,625.59	39.82093033	-80.69652926	
13,800.00	91.00	330.25	6,622.26	5,231.40	-4,408.60	14,461,759.30	1,725,575.98	39.82116919	-80.69670490	
13,900.00	91.00	330.25	6,620.51	5,318.20	-4,458.21	14,461,846.11	1,725,526.37	39.82140805	-80.69688054	
14,000.00	91.00	330.25	6,618.76	5,405.01	-4,507.82	14,461,932.92	1,725,476.75	39.82164690	-80.69705619	
14,100.00	91.00	330.25	6,617.01	5,491.82	-4,557.43	14,462,019.73	1,725,427.14	39.82188576	-80.69723183	
14,200.00	91.00	330.25	6,615.26	5,578.63	-4,607.04	14,462,106.53	1,725,377.53	39.82212461	-80.69740748	
14,300.00	91.00	330.25	6,613.51	5,665.43	-4,656.66	14,462,193.34	1,725,327.92	39.82236347	-80.69758313	
14,400.00	91.00	330.25	6,611.76	5,752.24	-4,706.27	14,462,280.15	1,725,278.31	39.82260233	-80.69775878	
14,500.00	91.00	330.25	6,610.01	5,839.05	-4,755.88	14,462,366.96	1,725,228.69	39.82284118	-80.69793443	
14,600.00	91.00	330.25	6,608.26	5,925.86	-4,805.49	14,462,453.76	1,725,179.08	39.82308004	-80.69811008	
14,700.00	91.00	330.25	6,606.51	6,012.67	-4,855.10	14,462,540.57	1,725,129.47	39.82331889	-80.69828573	
14,800.00	91.00	330.25	6,604.76	6,099.47	-4,904.72	14,462,627.38	1,725,079.86	39.82355774	-80.69846139	
14,900.00	91.00	330.25	6,603.01	6,186.28	-4,954.33	14,462,714.19	1,725,030.25	39.82379660	-80.69863704	
15,000.00	91.00	330.25	6,601.26	6,273.09	-5,003.94	14,462,801.00	1,724,980.63	39.82403545	-80.69881270	
15,100.00	91.00	330.25	6,599.51	6,359.90	-5,053.55	14,462,887.80	1,724,931.02	39.82427431	-80.69898836	
15,200.00	91.00	330.25	6,597.76	6,446.70	-5,103.16	14,462,974.61	1,724,881.41	39.82451316	-80.69916402	



Planning Report - Geographic



Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Ten High  
 Well: Ten High 1N-01HM (T)  
 Wellbore: Original Hole  
 Design: rev3

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

Well Ten High 1N-01HM (T)  
 GL=1310 @ 1310.00usft  
 GL=1310 @ 1310.00usft  
 Grid  
 Minimum Curvature

RECEIVED  
 Office of Oil and Gas

FEB 23 2018

WV Department of  
 Environmental Protection

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,300.00	91.00	330.25	6,596.01	6,533.51	-5,152.78	14,463,061.42	1,724,831.80	39.82475201	-80.69933968	
15,400.00	91.00	330.25	6,594.26	6,620.32	-5,202.39	14,483,148.23	1,724,782.19	39.82499086	-80.69951534	
15,500.00	91.00	330.25	6,592.51	6,707.13	-5,252.00	14,463,235.04	1,724,732.57	39.82522972	-80.69969100	
15,600.00	91.00	330.25	6,590.76	6,793.94	-5,301.61	14,483,321.84	1,724,682.96	39.82546857	-80.69986667	
15,700.00	91.00	330.25	6,589.01	6,880.74	-5,351.22	14,463,408.65	1,724,633.35	39.82570742	-80.70004233	
15,800.00	91.00	330.25	6,587.26	6,967.55	-5,400.84	14,483,495.46	1,724,583.74	39.82594627	-80.70021800	
15,900.00	91.00	330.25	6,585.51	7,054.36	-5,450.45	14,463,582.27	1,724,534.13	39.82618512	-80.70039366	
16,000.00	91.00	330.25	6,583.76	7,141.17	-5,500.06	14,463,669.07	1,724,484.51	39.82642398	-80.70056933	
16,100.00	91.00	330.25	6,582.01	7,227.97	-5,549.67	14,463,755.88	1,724,434.90	39.82666283	-80.70074500	
16,200.00	91.00	330.25	6,580.26	7,314.78	-5,599.28	14,463,842.69	1,724,385.29	39.82690168	-80.70092067	
16,300.00	91.00	330.25	6,578.51	7,401.59	-5,648.90	14,463,929.50	1,724,335.68	39.82714053	-80.70109635	
16,400.00	91.00	330.25	6,576.76	7,488.40	-5,698.51	14,464,016.31	1,724,286.07	39.82737938	-80.70127202	
16,500.00	91.00	330.25	6,575.01	7,575.21	-5,748.12	14,464,103.11	1,724,236.45	39.82761823	-80.70144769	
16,500.74	91.00	330.25	6,575.00	7,575.85	-5,748.49	14,464,103.76	1,724,236.09	39.82761999	-80.70144899	
PBHL/TD 16500.74 MD/6575.00 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-01HM BHL - hit/miss target - Shape - Point	0.00	0.01	6,575.00	7,575.85	-5,748.49	14,464,103.76	1,724,236.09	39.82762000	-80.70144900	
Ten High 1N-01HM LP 2 - plan hits target center - Point	0.00	0.01	6,736.00	-410.40	-1,184.23	14,458,117.50	1,728,800.35	39.80564487	-80.68529212	
Ten High 1N-01HM LP - plan misses target center by 24.89usft at 7299.24usft MD (6736.03 TVD, -411.77 N, -1183.44 E) - Point	0.00	0.00	6,736.00	-398.65	-1,162.29	14,456,129.26	1,728,822.29	39.80567693	-80.68521386	

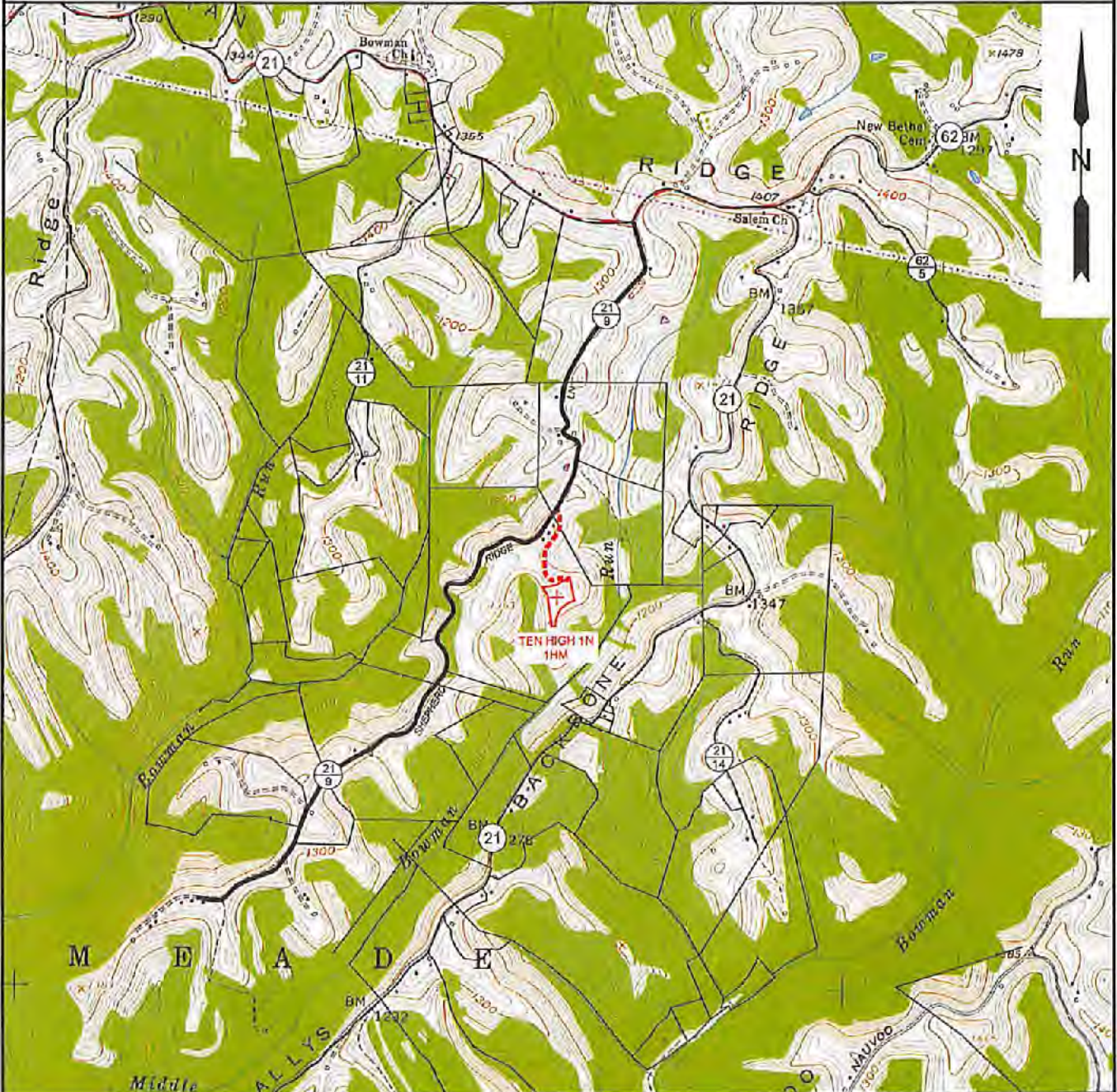
Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,175.00	1,175.00	13 3/8" casing @ 1175 TVD	13-3/8	17-1/2		
2,985.14	2,980.00	9 5/8" Casing @ 2980 TVD	9-5/8	12-1/4		

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 1°/100' build	
1,800.00	1,799.37	-18.57	-14.17	Begin 5.00° tangent	
4,009.04	4,000.00	-162.86	-139.34	Begin 2°/100' build	
5,013.48	4,985.05	-359.95	-307.97	Begin 25.09° tangent	
6,309.46	6,138.76	-777.49	-665.24	Begin 10°/100' build/turn	
7,300.81	6,736.00	-410.41	-1,184.22	Begin 91.00° lateral section	
16,500.74	6,575.00	7,575.85	-5,748.49	PBHL/TD 16500.74 MD/6575.00 TVD	

WW-9

# PROPOSED TEN HIGH 1N - 1HM

SUPPLEMENT PG. 2



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

LAT: 39.7137712  
LON: -80.8258327  
LOCATED: S 51°01'33" W AT 52.972' FROM TEN HIGH 1N - 1HM SURFACE LOCATION

*McGinnis*  
JAN 2 2018

**SLS**  
Land & Energy Development  
Solutions from the ground up.  
P.O. Box 150 • 12 Vankon Drive • Glenville, WV 26035 • (304) 452-5534  
www.slsurveys.com

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.		06/15/2017	1" = 2000'

**TUG HILL**  
OPERATING



# Well Site Safety Plan

## Tug Hill Operating, LLC

*Jan*  
*12/29/17*

Well Name: Ten High 1N-1HM

Pad Location: Ten High

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing-4,406,358.52

Easting -527,300.35

December 2017

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Office of Air Quality

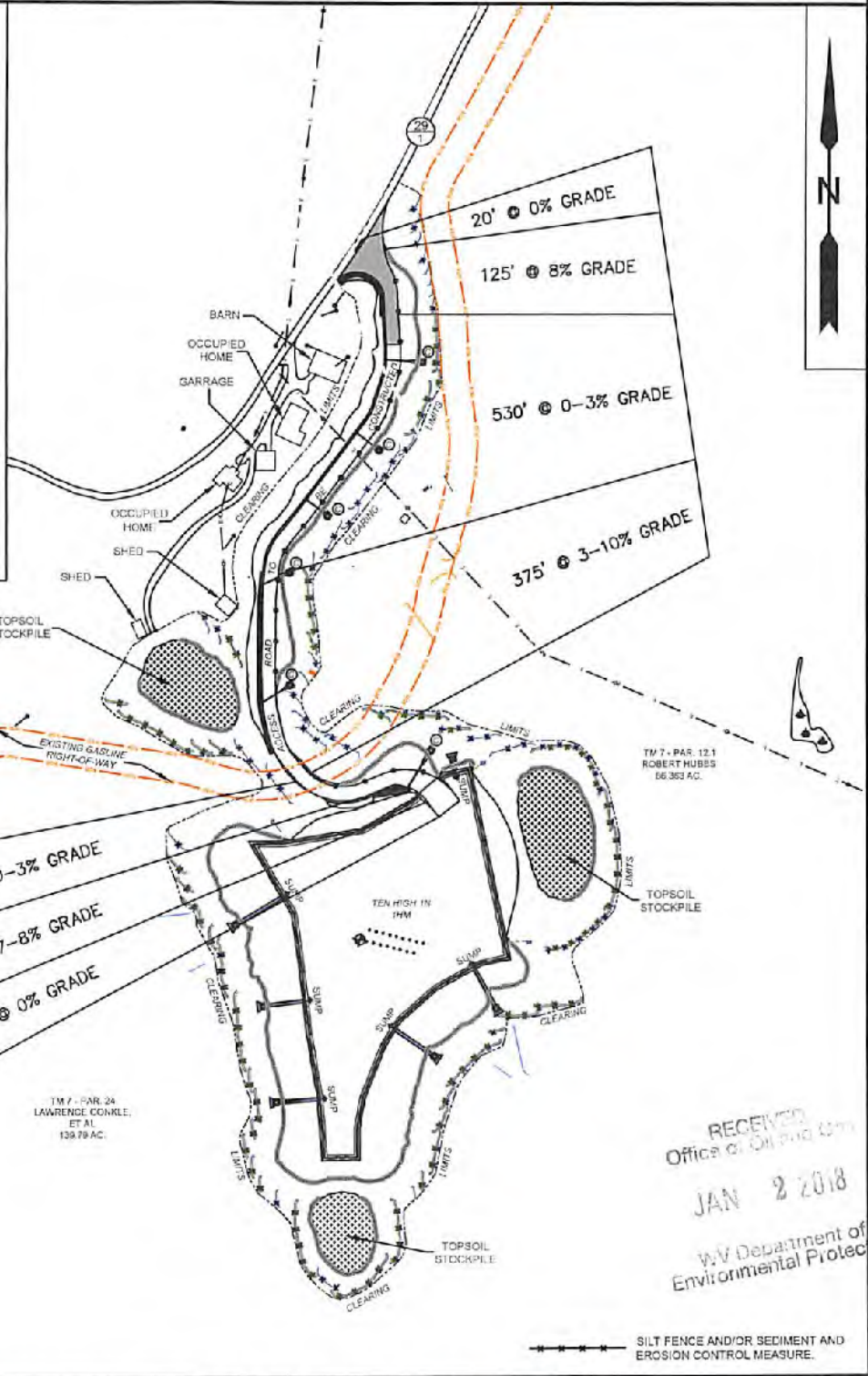
JAN 2 2018

WV Department of  
Environmental Protection

# PROPOSED TEN HIGH 1N - 1HM

**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.



**SLS**  
Land & Energy Development  
Solutions from the ground up.  
P.O. Box 150 • 412 Venhorn Drive • Gilesville, WV 26351 • (304) 462-5534  
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, I.L.C. 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8655	12-28-17	1" = 300'

**TUG HILL**  
OPERATING

WW-9  
(4/16)

API Number 47 - 051 - 01943  
Operator's Well No. Ten High 1N-1HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) 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 containment

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC 2459, UIC 965, UIC 356, UIC 2D0732540, UIC 2D0732523 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

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

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

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

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

Company Official Signature \_\_\_\_\_  
Company Official (Typed Name) Sean Gasser  
Company Official Title Engineer

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Environmental Protection

Subscribed and sworn before me this 20th day of June, 2017

Jennifer Lupi Notary Public

My commission expires March 12, 2018

COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
Jennifer Lupi, Notary Public  
Cecil Twp., Washington County  
My Commission Expires March 12, 2018  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Form WW-9

Operator's Well No. Ten High 1N-1HM

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.20 Prevegetation pH 6.0

Line 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jim Nicholas

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Title: Oil & Gas Inspector Date: 6/19/17

Field Reviewed? (  ) Yes (  ) No

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Environmental Protection



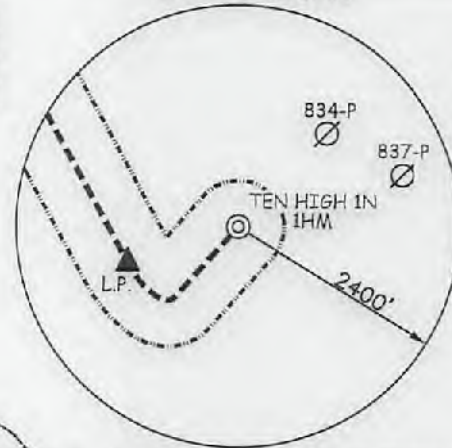
TEN HIGH 1N LEASE  
WELL 1HM  
TUG HILL OPERATING

LINE	BEARING	DISTANCE
L1	N 09°25' W	1584.56'
L2	N 78°54' E	1024.63'
L3	S 41°31' W	1023.59'

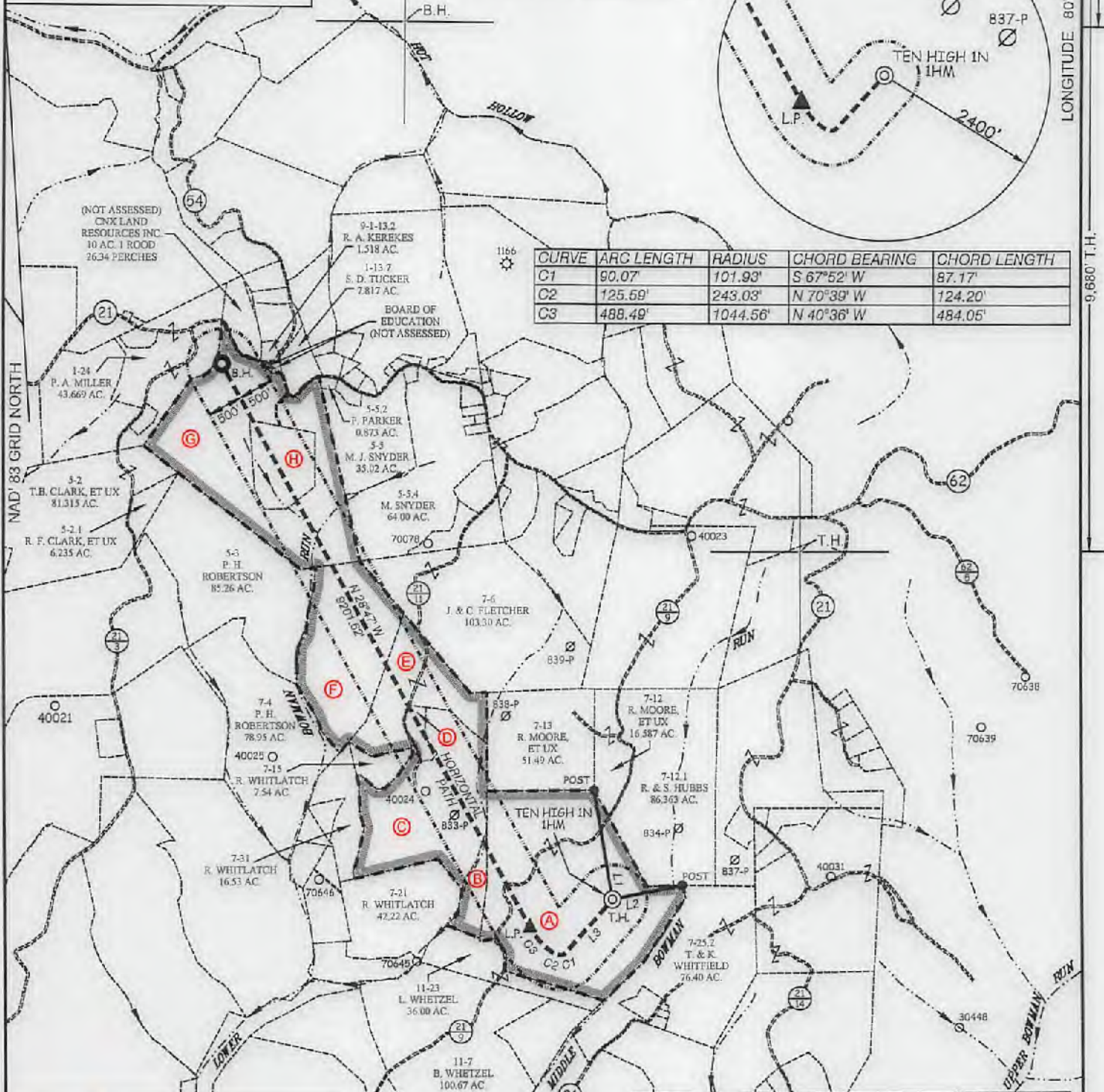
LATITUDE 39°50'00"

LONGITUDE 80°40'00"

9,680' T.H.



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	90.07'	101.93'	S 67°52' W	87.17'
C2	125.69'	243.03'	N 70°39' W	124.20'
C3	488.49'	1044.56'	N 40°36' W	484.05'



TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-24	139.79
B	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-22	12.00
C	RICKY L. WHITLATCH	9-7-30	72.82
D	ANDREW COREY WHITLATCH	9-7-30.1	4.55
E	ARNIE GOODNIGHT, ET UX	9-7-14	39.55
F	ARNIE GOODNIGHT, ET UX	9-7-5	62.18
G	ELMER ASTON	9-5-4	108.225
H	CONSOLIDATION COAL COMPANY	9-5-4.1	22.775

P.O. Box 150 • 12 Vanham Drive • Glenville, WV 26031 • (304) 462-5634  
www.slsurveys.com



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

P.S. 677 *Gregory A. Smith*

**LEGEND**

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

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'83 S.P.C.(FT) N. 478,144.32 E. 1,696,704.52  
 NAD'83 GEO. LAT-(N) 39.803760 LONG-(W) 80.681070  
 NAD'83 UTM (M) N. 4,406,368.52 E. 527,300.35  
**LANDING POINT**  
 NAD'83 S.P.C.(FT) N. 477,753.8 E. 1,635,613.2  
 NAD'83 GEO. LAT-(N) 39.805645 LONG-(W) 80.685292  
 NAD'83 UTM (M) N. 4,406,283.4 E. 525,939.4  
**BOTTOM HOLE**  
 NAD'83 S.P.C.(FT) N. 485,817.8 E. 1,631,081.5  
 NAD'83 GEO. LAT-(N) 39.827620 LONG-(W) 80.701449  
 NAD'83 UTM (M) N. 4,408,667.8 E. 525,648.2

SCALE 1" = 2000' FILE NO. 8656P1HMR3.dwg  
 DATE JUNE 15, 20 17  
 REVISED 09/12/2017, 12/28/2017 & 02/19/18  
 OPERATORS WELL NO. TEN HIGH 1N-1HM  
 API WELL NO. 47 — **OSI** — **01943** *MOO*  
 NO. STATE COUNTY PERMIT

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

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

COUNTY NAME PERMIT

9,769' B.H.

4,048' T.H.

LATITUDE 39°50'00"

TEN HIGH 1N LEASE  
WELL 1HM  
TUG HILL OPERATING

B.H.

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C. (FT)	N. 476,144.92	E. 1,838,704.52
NAD'83 GEO.	LAT-(N) 39.806760	LONG-(W) 80.681070
NAD'83 UTM (M)	N. 4,406,358.52	E. 527,300.35
LANDING POINT		
NAD'83 S.P.C. (FT)	N. 477,753.8	E. 1,835,513.2
NAD'83 GEO.	LAT-(N) 39.805645	LONG-(W) 80.685292
NAD'83 UTM (M)	N. 4,406,233.4	E. 526,939.4
BOTTOM HOLE		
NAD'83 S.P.C. (FT)	N. 485,817.8	E. 1,831,081.5
NAD'83 GEO.	LAT-(N) 39.827620	LONG-(W) 80.701449
NAD'83 UTM (M)	N. 4,408,657.6	E. 525,548.2

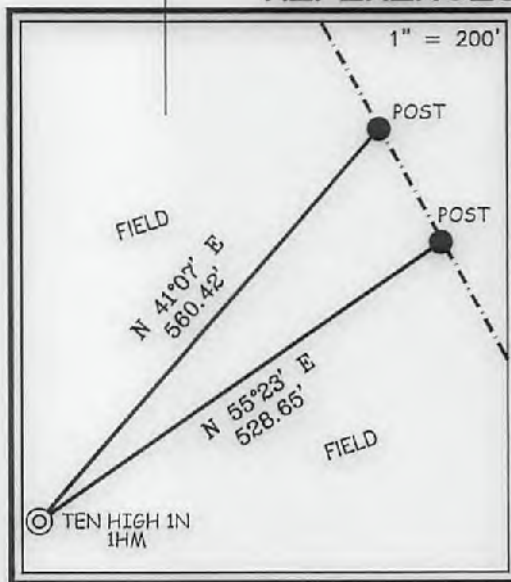
LONGITUDE 80°40'00"

2,081' B.H.

NOTES ON SURVEY

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

REFERENCES



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



P.S. 677 *Gregory A. Smith*

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

DATE JUNE 15, 20 17

REVISED 09/12/2017, 12/26/2017 & 02/19/18

OPERATORS WELL NO. TEN HIGH 1N-1HM

API WELL NO. 47-051-01943 *MOD*  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8655P1HMR3.dwg  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION GROUND = 1,320.30' 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 WW-6A1 ACREAGE 139.79±

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH TVD: 6,865' / TMD: 16,501'

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

COUNTY NAME

PERMIT

51-01943MOD

WW-6A1  
(5/13)

Operator's Well No. Ten High 1N-1HM

**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 sheets

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FEB 23 2018

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

WV Department of  
Environmental Protection

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 Miller *Amy Miller*  
 Its: Permit Specialist - Appalachia

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FEB 23 2018  
WV Department of  
Environmental Protection

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	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	Chevron to Tug Hill: 36/148
10*15663	A	9-7-24	ROY A CONKLE SR	CHEVRON USA INC	1/8+	863 311	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	Chevron to Tug Hill: 36/148
10*15666	A	9-7-24	BRENDA J WHEITZEL	CHEVRON USA INC	1/8+	863 635	N/A	N/A	Chevron to Tug Hill: 36/148
10*16049	A	9-7-24	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905 518	N/A	N/A	N/A
10*16820	A	9-7-24	ROBERTA ANN AND DAVID S GIBB	TH EXPLORATION LLC	1/8+	919 237	N/A	N/A	N/A
10*17365	A	9-7-24	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927 468	N/A	N/A	N/A
10*17370	A	9-7-24	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927 470	N/A	N/A	N/A
10*47051.295.10	A	9-7-24	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905 470	N/A	N/A	N/A
10*47051.295.11	A	9-7-24	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905 435	N/A	N/A	N/A
10*47051.295.12	A	9-7-24	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905 432	N/A	N/A	N/A
10*47051.295.13	A	9-7-24	THE DOLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE	TH EXPLORATION LLC	1/8+	904 641	N/A	N/A	N/A
10*47051.295.3	A	9-7-24	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904 632	N/A	N/A	N/A
10*47051.295.4	A	9-7-24	LLOYD D MOORE	TH EXPLORATION LLC	1/8+	904 459	N/A	N/A	N/A
10*47051.295.5	A	9-7-24	DALE R MOORE	TH EXPLORATION LLC	1/8+	904 635	N/A	N/A	N/A
10*47051.295.6	A	9-7-24	MARY I BURKHART	TH EXPLORATION LLC	1/8+	904 638	N/A	N/A	N/A
10*47051.295.7	A	9-7-24	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904 462	N/A	N/A	N/A
10*47051.295.9	A	9-7-24	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	904 465	N/A	N/A	N/A
10*15486	B	9-7-22	RICHARD NEAL NORRIS AND CAROL NORRIS	TH EXPLORATION LLC	1/8+	890 403	N/A	N/A	N/A
10*15487	B	9-7-22	WILLIAM C RUTAN	TH EXPLORATION LLC	1/8+	905 430	N/A	N/A	N/A
10*15489	B	9-7-22	DONALD T SNODGRASS AND LILA F SNODGRASS	TH EXPLORATION LLC	1/8+	915 189	N/A	N/A	N/A
10*15492	B	9-7-22	HEATHER WHORTON STILLION AND CHRISTOPHER STILLION	TH EXPLORATION LLC	1/8+	905 473	N/A	N/A	N/A
10*15609	B	9-7-22	MICHELLE R WILHELM	CHEVRON USA INC	1/8+	834 456	N/A	N/A	Chevron to Tug Hill: 36/148
10*15610	B	9-7-22	SARAH STEVENS	CHEVRON U.S.A. INC.	1/8+	834 432	N/A	N/A	Chevron to Tug Hill: 36/148
10*15611	B	9-7-22	ROBERT S ZEHNDER	CHEVRON U.S.A. INC.	1/8+	834 437	N/A	N/A	Chevron to Tug Hill: 36/148
10*15612	B	9-7-22	VERA SHIRLENE & ARTHUR WORKMAN	CHEVRON U.S.A. INC.	1/8+	837 361	N/A	N/A	Chevron to Tug Hill: 36/148
10*15613	B	9-7-22	THOMAS L STEVENS	CHEVRON U.S.A. INC.	1/8+	836 290	N/A	N/A	Chevron to Tug Hill: 36/148
10*15614	B	9-7-22	DAVID F RINE	CHEVRON U.S.A. INC.	1/8+	837 130	N/A	N/A	Chevron to Tug Hill: 36/148
10*15615	B	9-7-22	PAUL WAYNE RINE	CHEVRON USA INC	1/8+	837 133	N/A	N/A	Chevron to Tug Hill: 36/148
10*15616	B	9-7-22	PHILLIP C RINE	CHEVRON U.S.A. INC.	1/8+	836 332	N/A	N/A	Chevron to Tug Hill: 36/148
10*15617	B	9-7-22	GLADYS M RINE	CHEVRON U.S.A. INC.	1/8+	836 329	N/A	N/A	Chevron to Tug Hill: 36/148
10*15618	B	9-7-22	CHARLES A RINE	CHEVRON U.S.A. INC.	1/8+	835 22	N/A	N/A	Chevron to Tug Hill: 36/148
10*15619	B	9-7-22	SHARON M REYNOLDS	CHEVRON U.S.A. INC.	1/8+	840 322	N/A	N/A	Chevron to Tug Hill: 36/148
10*15620	B	9-7-22	GLADYS RUCKMAN	CHEVRON U.S.A. INC.	1/8+	840 319	N/A	N/A	Chevron to Tug Hill: 36/148
10*15621	B	9-7-22	KATHERINE A STALNAKER	CHEVRON U.S.A. INC.	1/8+	840 325	N/A	N/A	Chevron to Tug Hill: 36/148
10*15622	B	9-7-22	JAY LEROY RINE	CHEVRON U.S.A. INC.	1/8+	840 351	N/A	N/A	Chevron to Tug Hill: 36/148
10*15623	B	9-7-22	SUSAN JANE WHEELER	CHEVRON U.S.A. INC.	1/8+	847 473	N/A	N/A	Chevron to Tug Hill: 36/148
10*15624	B	9-7-22	RONALD A ZEHNDER	CHEVRON U.S.A. INC.	1/8+	847 213	N/A	N/A	Chevron to Tug Hill: 36/148
10*15625	B	9-7-22	LAWRENCE W STRILING	CHEVRON U.S.A. INC.	1/8+	852 384	N/A	N/A	Chevron to Tug Hill: 36/148
10*15626	B	9-7-22	ROBERT J SEAVER	CHEVRON U.S.A. INC.	1/8+	854 77	N/A	N/A	Chevron to Tug Hill: 36/148
10*15627	B	9-7-22	PAULA R SEAVER	CHEVRON U.S.A. INC.	1/8+	853 483	N/A	N/A	Chevron to Tug Hill: 36/148
10*15628	B	9-7-22	JENNIFER SEAVER	CHEVRON U.S.A. INC.	1/8+	853 272	N/A	N/A	Chevron to Tug Hill: 36/148

**WW-6A1 Supplement**

**Operator's Well No. Ten High 1N - 1HM**

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FEB 23 2018

WV Department of  
Environmental Protection

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15629	B	9-7-22	DANIEL L RINE	CHEVRON U.S.A. INC.	1/8+	860 86	N/A	N/A	Chevron to Tug Hill: 36/148
10*15630	B	9-7-22	JANE L HELFER	CHEVRON U.S.A. INC.	1/8+	836 342	N/A	N/A	Chevron to Tug Hill: 36/148
10*15631	B	9-7-22	DAVID HEINZEROTH	CHEVRON U.S.A. INC.	1/8+	836 219	N/A	N/A	Chevron to Tug Hill: 36/148
10*15632	B	9-7-22	MARIAN D JONES	CHEVRON U.S.A. INC.	1/8+	835 38	N/A	N/A	Chevron to Tug Hill: 36/148
10*15633	B	9-7-22	ROGER W GATTS	CHEVRON U.S.A. INC.	1/8+	835 35	N/A	N/A	Chevron to Tug Hill: 36/148
10*15634	B	9-7-22	JAMES W DAYTON	CHEVRON U.S.A. INC.	1/8+	847 567	N/A	N/A	Chevron to Tug Hill: 36/148
10*15635	B	9-7-22	ELEN L BETTINAZZI	CHEVRON U.S.A. INC.	1/8+	847 496	N/A	N/A	Chevron to Tug Hill: 36/148
10*15636	B	9-7-22	JOSEPH ASTON JR BY HIS ATTORNEY-IN-FACT MELVIN J. ASTON	CHEVRON U.S.A. INC.	1/8+	848 280	N/A	N/A	Chevron to Tug Hill: 36/148
10*15637	B	9-7-22	DONALD ASTON	CHEVRON U.S.A. INC.	1/8+	848 274	N/A	N/A	Chevron to Tug Hill: 36/148
10*15638	B	9-7-22	PAUL J ASTON A/K/A JACK ASTON	CHEVRON U.S.A. INC.	1/8+	848 277	N/A	N/A	Chevron to Tug Hill: 36/148
10*15639	B	9-7-22	DELLA M BURKEY A/K/A MAXINE ASTON	CHEVRON U.S.A. INC.	1/8+	848 435	N/A	N/A	Chevron to Tug Hill: 36/148
10*15640	B	9-7-22	EMMA JANE DAVIS A/K/A EMA ASTON	CHEVRON U.S.A. INC.	1/8+	848 271	N/A	N/A	Chevron to Tug Hill: 36/148
10*15641	B	9-7-22	HENRY W ASTON	CHEVRON U.S.A. INC.	1/8+	847 138	N/A	N/A	Chevron to Tug Hill: 36/148
10*15642	B	9-7-22	KENNETH L DAYTON	CHEVRON U.S.A. INC.	1/8+	852 366	N/A	N/A	Chevron to Tug Hill: 36/148
10*15643	B	9-7-22	NORMAN G JOHNSON	CHEVRON U.S.A. INC.	1/8+	848 363	N/A	N/A	Chevron to Tug Hill: 36/148
10*15644	B	9-7-22	RONALD BEN LAUGHTON	CHEVRON U.S.A. INC.	1/8+	852 360	N/A	N/A	Chevron to Tug Hill: 36/148
10*15645	B	9-7-22	KAREN K OLDFIELD	CHEVRON U.S.A. INC.	1/8+	854 111	N/A	N/A	Chevron to Tug Hill: 36/148
10*15646	B	9-7-22	JUDITH A CIRONE	CHEVRON U.S.A. INC.	1/8+	848 428	N/A	N/A	Chevron to Tug Hill: 36/148
10*15647	B	9-7-22	KENNETH WENDELL OLDFIELD	CHEVRON U.S.A. INC.	1/8+	861 589	N/A	N/A	Chevron to Tug Hill: 36/148
10*15648	B	9-7-22	MARTHA CRAWFORD	CHEVRON U.S.A. INC.	1/8+	863 542	N/A	N/A	Chevron to Tug Hill: 36/148
10*15649	B	9-7-22	MARY JANIE DANIEL	CHEVRON U.S.A. INC.	1/8+	858 28	N/A	N/A	Chevron to Tug Hill: 36/148
10*15650	B	9-7-22	MARY GLADYS KUHN BY ATTORNEY IN FACT CONNIE LYONS	CHEVRON U.S.A. INC.	1/8+	860 89	N/A	N/A	Chevron to Tug Hill: 36/148
10*15651	B	9-7-22	THOMAS G ASTON	CHEVRON U.S.A. INC.	1/8+	860 83	N/A	N/A	Chevron to Tug Hill: 36/148
10*15652	B	9-7-22	ISAAC R ASTON A/K/A IKE ASTON	CHEVRON U.S.A. INC.	1/8+	886 136	N/A	N/A	Chevron to Tug Hill: 36/148
10*15653	B	9-7-22	EMILY M HENCEROOTH	CHEVRON U.S.A. INC.	1/8+	862 574	N/A	N/A	Chevron to Tug Hill: 36/148
10*15654	B	9-7-22	GEORGE E HENNINGER	CHEVRON U.S.A. INC.	1/8+	863 612	N/A	N/A	Chevron to Tug Hill: 36/148
10*15655	B	9-7-22	ANNA EMERSON A/K/A ANNIE ASTON	CHEVRON U.S.A. INC.	1/8+	864 603	N/A	N/A	Chevron to Tug Hill: 36/148
10*15656	B	9-7-22	PATTY L MYERS	CHEVRON U.S.A. INC.	1/8+	867 100	N/A	N/A	Chevron to Tug Hill: 36/148
10*15657	B	9-7-22	MARY MARGARET ASTON	CHEVRON U.S.A. INC.	1/8+	868 283	N/A	N/A	Chevron to Tug Hill: 36/148
10*15658	B	9-7-22	GLEN MATTHEW LAUGHTON	CHEVRON U.S.A. INC.	1/8+	873 324	N/A	N/A	Chevron to Tug Hill: 36/148
10*15659	B	9-7-22	WILLIAM E DAYTON BY HIS AIF	CHEVRON U.S.A. INC.	1/8+	871 190	N/A	N/A	Chevron to Tug Hill: 36/148
10*15660	B	9-7-22	DOUGLAS PAUL HENCEROOTH BY HIS AIF	CHEVRON U.S.A. INC.	1/8+	871 193	N/A	N/A	Chevron to Tug Hill: 36/148
10*15662	B	9-7-22	LARRY LEE CONKLE	CHEVRON U.S.A. INC.	1/8+	863 354	N/A	N/A	Chevron to Tug Hill: 36/148
10*15663	B	9-7-22	ROY A CONKLE SR	CHEVRON U.S.A. INC.	1/8+	863 311	N/A	N/A	Chevron to Tug Hill: 36/148
10*15664	B	9-7-22	THERESA ANNE HUGHES	CHEVRON U.S.A. INC.	1/8+	863 343	N/A	N/A	Chevron to Tug Hill: 36/148
10*15666	B	9-7-22	BRENDA J WHETZEL	CHEVRON U.S.A. INC.	1/8+	863 635	N/A	N/A	Chevron to Tug Hill: 36/148
10*15673	B	9-7-22	DIANE B ASTON	CHEVRON U.S.A. INC.	1/8+	864 595	N/A	N/A	Chevron to Tug Hill: 36/148
10*15679	B	9-7-22	CARA BONAR FREESE AND GEORGE H FREESE	TH EXPLORATION LLC	1/8+	905 481	N/A	N/A	N/A
10*15680	B	9-7-22	ROBERTA JANE CLAYTON	TH EXPLORATION LLC	1/8+	905 485	N/A	N/A	N/A
10*15688	B	9-7-22	JOSH GARY AND CHRISTINA M GARY	TH EXPLORATION LLC	1/8+	905 487	N/A	N/A	N/A
10*15689	B	9-7-22	JOHN LEROY BAKER AND CNITHIA A BAKER	TH EXPLORATION LLC	1/8+	905 491	N/A	N/A	N/A
10*15690	B	9-7-22	ROBERT WHORTON AND LINDSAY WHORTON	TH EXPLORATION LLC	1/8+	905 489	N/A	N/A	N/A
10*15728	B	9-7-22	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	TH EXPLORATION LLC	1/8+	905 483	N/A	N/A	N/A

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Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15729	B	9-7-22	DONNA KAV ALLEN AND ROGER ALLEN	TH EXPLORATION LLC	1/8+	905 493	N/A	N/A	N/A
10*15747	B	9-7-22	WILLIAM H BAKER	TH EXPLORATION LLC	1/8+	905 499	N/A	N/A	N/A
10*15748	B	9-7-22	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	905 495	N/A	N/A	N/A
10*15749	B	9-7-22	DIANA SMITH KNIGHT	TH EXPLORATION LLC	1/8+	905 497	N/A	N/A	N/A
10*16019	B	9-7-22	ROGER E GALLAGHER AND CONIE M GALLAGHER	TH EXPLORATION LLC	1/8+	905 503	N/A	N/A	N/A
10*16029	B	9-7-22	MARTHA ASHWORTH KNIGHT	TH EXPLORATION LLC	1/8+	905 505	N/A	N/A	N/A
10*16049	B	9-7-22	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905 518	N/A	N/A	N/A
10*16050	B	9-7-22	WILLIAM L GALLAGHER	TH EXPLORATION LLC	1/8+	905 512	N/A	N/A	N/A
10*16114	B	9-7-22	ROBERT SANDFORD BLACK AND JOAN BLACK	TH EXPLORATION LLC	1/8+	905 510	N/A	N/A	N/A
10*16123	B	9-7-22	PHYLLIS R GATTO	TH EXPLORATION LLC	1/8+	905 520	N/A	N/A	N/A
10*16177	B	9-7-22	JOSEPHINE BROWN	TH EXPLORATION LLC	1/8+	905 530	N/A	N/A	N/A
10*16179	B	9-7-22	DANA BERRY COPELAND	TH EXPLORATION LLC	1/8+	905 532	N/A	N/A	N/A
10*16287	B	9-7-22	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	905 534	N/A	N/A	N/A
10*16384	B	9-7-22	DANIELLE BONAR OSTER AND LOUIS MICHAEL OSTER	TH EXPLORATION LLC	1/8+	905 501	N/A	N/A	N/A
10*16389	B	9-7-22	CHARLES BERRY	TH EXPLORATION LLC	1/8+	905 508	N/A	N/A	N/A
10*16426	B	9-7-22	RENE J RUTAN	TH EXPLORATION, LLC	1/8+	905 538	N/A	N/A	N/A
10*16440	B	9-7-22	MELANIE C WILKINS AND ROBERT WILKINS	TH EXPLORATION LLC	1/8+	927 462	N/A	N/A	N/A
10*16513	B	9-7-22	LOWELL D AND JANICE L KNIGHT	TH EXPLORATION LLC	1/8+	927 458	N/A	N/A	N/A
10*16546	B	9-7-22	WALTER C AND CHERYL A RINE	TH EXPLORATION LLC	1/8+	927 456	N/A	N/A	N/A
10*16558	B	9-7-22	PAUL BONAR KNIGHT AND SUZANNE L HOPKINS-KNIGHT	TH EXPLORATION LLC	1/8+	927 460	N/A	N/A	N/A
10*16820	B	9-7-22	ROBERTA ANN AND DAVID S GIBB	TH EXPLORATION LLC	1/8+	919 237	N/A	N/A	N/A
10*16844	B	9-7-22	HOLLY A LONGFELLOW	TH EXPLORATION LLC	1/8+	927 454	N/A	N/A	N/A
10*16845	B	9-7-22	TRACY L AND KEITH W BARNBV	TH EXPLORATION LLC	1/8+	927 452	N/A	N/A	N/A
10*16896	B	9-7-22	MARTHA J BLACK	TH EXPLORATION LLC	1/8+	927 450	N/A	N/A	N/A
10*17365	B	9-7-22	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927 468	N/A	N/A	N/A
10*17370	B	9-7-22	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927 470	N/A	N/A	N/A
10*17497	B	9-7-22	SUZANNA DOOLING AND MICHAEL DOOLING	TH EXPLORATION LLC	1/8+	927 464	N/A	N/A	N/A
10*17584	B	9-7-22	WILLIAM T & MONICA BONAR	TH EXPLORATION LLC	1/8+	927 466	N/A	N/A	N/A
10*47051.295.10	B	9-7-22	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905 470	N/A	N/A	N/A
10*47051.295.11	B	9-7-22	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905 435	N/A	N/A	N/A
10*47051.295.12	B	9-7-22	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905 432	N/A	N/A	N/A
THE DOLLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE									
10*47051.295.13	B	9-7-22	TRUSTEE	TH EXPLORATION LLC	1/8+	904 641	N/A	N/A	N/A
10*47051.295.3	B	9-7-22	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904 632	N/A	N/A	N/A
10*47051.295.4	B	9-7-22	LLOYD D MOORE	TH EXPLORATION LLC	1/8+	904 459	N/A	N/A	N/A
10*47051.295.5	B	9-7-22	DALE R MOORE	TH EXPLORATION LLC	1/8+	904 635	N/A	N/A	N/A
10*47051.295.6	B	9-7-22	MARY I BURKHART	TH EXPLORATION LLC	1/8+	904 638	N/A	N/A	N/A
10*47051.295.7	B	9-7-22	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904 462	N/A	N/A	N/A
10*47051.295.9	B	9-7-22	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	661 449	N/A	N/A	N/A
10*15557	C	9-7-30	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	Chevron to Tug Hill: 36/148
10*15557	D	9-7-30.1	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A	Chevron to Tug Hill: 36/148
10*15558	E	9-7-14	ARNIE GOODNIGHT	CHEVRON USA INC	1/8+	777 59	N/A	N/A	Chevron to Tug Hill: 36/148
10*15558	F	9-7-5	ARNIE GOODNIGHT	CHEVRON USA INC	1/8+	777 59	N/A	N/A	Chevron to Tug Hill: 36/148

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10*15481	G	9-5-4	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908 197	N/A	N/A	N/A
10*15482	G	9-5-4	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908 203	N/A	N/A	N/A
10*15594	G	9-5-4	IVAN F GORBY	CHESAPEAKE APPALACHIA LLC	1/8+	695 527	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15595	G	9-5-4	JOSEPH D DAKAN	CHESAPEAKE APPALACHIA LLC	1/8+	695 519	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15596	G	9-5-4	JOHN E GORBY	CHESAPEAKE APPALACHIA LLC	1/8+	695 523	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15597	G	9-5-4	KAREN S GAST	CHESAPEAKE APPALACHIA LLC	1/8+	694 534	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15598	G	9-5-4	ADA HAZEL GONTA	CHESAPEAKE APPALACHIA LLC	1/8+	695 133	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15599	G	9-5-4	PATSY JO RAJU	CHESAPEAKE APPALACHIA LLC	1/8+	694 561	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
10*15686	G	9-5-4	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908 160	N/A	N/A	N/A
10*15750	G	9-5-4	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908 229	N/A	N/A	N/A
10*16058	G	9-5-4	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908 231	N/A	N/A	N/A
10*16118	G	9-5-4	RUBY RIDDE JACKSON	TH EXPLORATION LLC	1/8+	908 233	N/A	N/A	N/A
10*16383	G	9-5-4	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908 224	N/A	N/A	N/A
10*16414	G	9-5-4	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908 208	N/A	N/A	N/A
10*16416	G	9-5-4	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908 219	N/A	N/A	N/A
10*16424	G	9-5-4	ROBERT J RIGBY	TH EXPLORATION, LLC	1/8+	908 241	N/A	N/A	N/A
10*16448	G	9-5-4	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908 584	N/A	N/A	N/A
10*16478	G	9-5-4	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908 245	N/A	N/A	N/A
10*16514	G	9-5-4	ALEX RUSSELL AND JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908 248	N/A	N/A	N/A
10*16515	G	9-5-4	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908 251	N/A	N/A	N/A
10*16516	G	9-5-4	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908 253	N/A	N/A	N/A
10*16545	G	9-5-4	ROBERT G & ELLEN FOUNDS	TH EXPLORATION LLC	1/8+	908 260	N/A	N/A	N/A
10*16662	G	9-5-4	RICHARD THOMAS AND VICKI J MIMS	TH EXPLORATION LLC	1/8+	908 263	N/A	N/A	N/A
10*16666	G	9-5-4	MICHAEL P PYLE	TH EXPLORATION LLC	1/8+	908 255	N/A	N/A	N/A
10*16667	G	9-5-4	CHARLES F AND GAIL ANN PYLE	TH EXPLORATION LLC	1/8+	908 266	N/A	N/A	N/A
10*16668	G	9-5-4	JACK I AND MERRILEE PYLE	TH EXPLORATION LLC	1/8+	908 257	N/A	N/A	N/A
10*16669	G	9-5-4	JOHN S AND PATRICIA S DADO	TH EXPLORATION LLC	1/8+	908 269	N/A	N/A	N/A
10*16686	G	9-5-4	CHERYLE M TRACEY	TH EXPLORATION LLC	1/8+	927 475	N/A	N/A	N/A
10*16688	G	9-5-4	SHERRYL PYLE BAIR	TH EXPLORATION LLC	1/8+	927 481	N/A	N/A	N/A
10*16689	G	9-5-4	JOHN C FOUNDS	TH EXPLORATION LLC	1/8+	927 478	N/A	N/A	N/A
10*16690	G	9-5-4	RICARDO ORTIZ	TH EXPLORATION LLC	1/8+	921 352	N/A	N/A	N/A
10*16720	G	9-5-4	DONNA ELAINE BRASKETT	TH EXPLORATION LLC	1/8+	921 152	N/A	N/A	N/A
10*16747	G	9-5-4	WILLIAM DALE BRASKETT	TH EXPLORATION LLC	1/8+	921 96	N/A	N/A	N/A
10*16798	G	9-5-4	PATRICK A RANKIN AND ROBIN A RANKIN	TH EXPLORATION LLC	1/8+	921 364	N/A	N/A	N/A
10*16800	G	9-5-4	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921 93	N/A	N/A	N/A
10*16802	G	9-5-4	CHRISTOPHER AND TAMMY RICHARDSON	TH EXPLORATION LLC	1/8+	921 495	N/A	N/A	N/A
10*16804	G	9-5-4	WILLIAM N AND SHERRY D TAYLOR	TH EXPLORATION LLC	1/8+	921 510	N/A	N/A	N/A
10*16806	G	9-5-4	VIRGINIA I WHITMAN	TH EXPLORATION LLC	1/8+	921 528	N/A	N/A	N/A
10*16807	G	9-5-4	DAVID TULLER AND SUSAN STORTS TULLER	TH EXPLORATION LLC	1/8+	921 513	N/A	N/A	N/A
10*16808	G	9-5-4	MICHAEL L ORTIZ	TH EXPLORATION LLC	1/8+	921 349	N/A	N/A	N/A
10*16815	G	9-5-4	HAROLD W PYLE	TH EXPLORATION LLC	1/8+	921 357	N/A	N/A	N/A
10*16819	G	9-5-4	TERESA ORTIZ BIGGS	TH EXPLORATION LLC	1/8+	921 147	N/A	N/A	N/A
10*16821	G	9-5-4	SHEILA BRASKETT WEICHEY	TH EXPLORATION LLC	1/8+	921 516	N/A	N/A	N/A

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10*16836	G	9-5-4	RICK A AND LENORE A STORTS	TH EXPLORATION LLC	1/8+	921 507	N/A	N/A	N/A
10*16837	G	9-5-4	TERRY L AND THELMA A POFF	TH EXPLORATION LLC	1/8+	927 472	N/A	N/A	N/A
10*16838	G	9-5-4	ROBERT G FUNARI	TH EXPLORATION LLC	1/8+	921 82	N/A	N/A	N/A
10*16839	G	9-5-4	JAMES B FOUNDS AND LYNN M MOWERY	TH EXPLORATION LLC	1/8+	921 73	N/A	N/A	N/A
10*16863	G	9-5-4	TINA MOORE	TH EXPLORATION LLC	1/8+	921 334	N/A	N/A	N/A
10*16868	G	9-5-4	MICHAEL W STORTS AND JESSICA M STORTS	TH EXPLORATION LLC	1/8+	921 504	N/A	N/A	N/A
10*16879	G	9-5-4	MARK E AND LESLEY A STORTS	TH EXPLORATION LLC	1/8+	921 501	N/A	N/A	N/A
10*16880	G	9-5-4	BEVERLY ANN STORTS	TH EXPLORATION LLC	1/8+	921 498	N/A	N/A	N/A
10*16902	G	9-5-4	MARY BARCAW DUKE	TH EXPLORATION LLC	1/8+	921 105	N/A	N/A	N/A
10*16962	G	9-5-4	DENNIS P AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921 70	N/A	N/A	N/A
10*16976	G	9-5-4	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921 343	N/A	N/A	N/A
10*16977	G	9-5-4	JEREMY COCHENOUR	TH EXPLORATION LLC	1/8+	921 102	N/A	N/A	N/A
10*16987	G	9-5-4	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921 355	N/A	N/A	N/A
10*16989	G	9-5-4	BRITTANY RICHARDSON	TH EXPLORATION LLC	1/8+	921 376	N/A	N/A	N/A
10*16991	G	9-5-4	MARYELLEN FOUNDS AND LAUREN FOUNDS	TH EXPLORATION LLC	1/8+	921 79	N/A	N/A	N/A
10*16996	G	9-5-4	THOMAS RANKIN	TH EXPLORATION LLC	1/8+	917 75	N/A	N/A	N/A
10*17130	G	9-5-4	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921 137	N/A	N/A	N/A
10*17155	G	9-5-4	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921 118	N/A	N/A	N/A
10*17156	G	9-5-4	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921 139	N/A	N/A	N/A
10*17157	G	9-5-4	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921 367	N/A	N/A	N/A
10*17198	G	9-5-4	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921 141	N/A	N/A	N/A
10*17205	G	9-5-4	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921 524	N/A	N/A	N/A
10*17208	G	9-5-4	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	TH EXPLORATION LLC	1/8+	921 86	N/A	N/A	N/A
10*17274	G	9-5-4	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921 474	N/A	N/A	N/A
10*17275	G	9-5-4	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921 373	N/A	N/A	N/A
10*17276	G	9-5-4	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921 526	N/A	N/A	N/A
10*17278	G	9-5-4	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921 121	N/A	N/A	N/A
10*17339	G	9-5-4	JOSEPH W FOUNDS	TH EXPLORATION LLC	1/8+	921 76	N/A	N/A	N/A
10*17377	G	9-5-4	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921 123	N/A	N/A	N/A
10*17416	G	9-5-4	ANDREW M. ORTIZ	TH EXPLORATION, LLC	1/8+	921 346	N/A	N/A	N/A
10*17438	G	9-5-4	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921 476	N/A	N/A	N/A
10*17440	G	9-5-4	KENDRA WALISA	TH EXPLORATION LLC	1/8+	927 484	N/A	N/A	N/A
10*17441	G	9-5-4	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921 522	N/A	N/A	N/A
10*17442	G	9-5-4	SHANE ALLEN AND MENDY JEAN ALLEN	TH EXPLORATION LLC	1/8+	921 134	N/A	N/A	N/A
10*17443	G	9-5-4	MICHELLE MORROW-BACK	TH EXPLORATION LLC	1/8+	921 337	N/A	N/A	N/A
10*17444	G	9-5-4	KELLY FOUNDS CAMPBELL	TH EXPLORATION LLC	1/8+	921 99	N/A	N/A	N/A
10*17449	G	9-5-4	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921 150	N/A	N/A	N/A
10*17482	G	9-5-4	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927 487	N/A	N/A	N/A
10*17483	G	9-5-4	RICHARD I PYLE	TH EXPLORATION LLC	1/8+	921 359	N/A	N/A	N/A
10*17484	G	9-5-4	NEILDA S JACKSON	TH EXPLORATION LLC	1/8+	921 330	N/A	N/A	N/A
10*17485	G	9-5-4	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921 91	N/A	N/A	N/A
10*17526	G	9-5-4	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921 370	N/A	N/A	N/A
10*17527	G	9-5-4	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921 111	N/A	N/A	N/A



**WW-6A1 Supplement**

**Operator's Well No. Ten High 1N - 1HM**

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WV Department of  
Environmental Protection

Lease Name or No.	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17552	G	9-5-4	JOHN BEVACQUA AND PATRICIA A BEVACQUA	TH EXPLORATION LLC	1/8+	921 144	N/A	N/A	N/A
10*17554	G	9-5-4	MICHAEL T RANKIN	TH EXPLORATION LLC	1/8+	921 361	N/A	N/A	N/A
10*17561	G	9-5-4	KATHRYN L & ROGER L TYRELL	TH EXPLORATION, LLC	1/8+	921 519	N/A	N/A	N/A
10*17564	G	9-5-4	JAMES R & TRACEY E NICKOLSON	TH EXPLORATION, LLC	1/8+	921 340	N/A	N/A	N/A
10*17565	G	9-5-4	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921 327	N/A	N/A	N/A
10*17566	G	9-5-4	NATHAN P & BARBARA T ERDOSSY	TH EXPLORATION, LLC	1/8+	921 108	N/A	N/A	N/A
10*17588	G	9-5-4	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921 325	N/A	N/A	N/A
10*17589	G	9-5-4	MARY CHRISTINE MCKENNA	TH EXPLORATION, LLC	1/8+	921 332	N/A	N/A	N/A
10*17744	G	9-5-4	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921 116	N/A	N/A	N/A
10*47051.223.15	G	9-5-4	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908 14	N/A	N/A	N/A
10*47051.223.20	G	9-5-4	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908 24	N/A	N/A	N/A
10*47051.223.21	G	9-5-4	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908 19	N/A	N/A	N/A
10*47051.223.30	G	9-5-4	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908 165	N/A	N/A	N/A
10*47051.223.6	G	9-5-4	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907 634	N/A	N/A	N/A
	H	9-5-4.1	GORBY IVAN F - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	695 527	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	GONTA ADA HAZEL - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	695 183	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	RAJU PATSY JO - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	694 561	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	SCHIEFER STEPHANIE L ET VIR - SFX	TH EXPLORATION LLC	1/8+	885 321	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409
	H	9-5-4.1	GORBY JOHN E - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	695 523	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	DAKAN JOSEPH D - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	695 519	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	STORCH JEAN A AIF JOHN HERMAN STORCH - SFX	TH EXPLORATION LLC	1/8+	877 216	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409
	H	9-5-4.1	GAST KAREN S - SFX	CHESAPEAKE APPALACHIA LLC	1/8+	694 534	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148	Chevron to Tug Hill: 960/409
	H	9-5-4.1	LEADBETTER ROBERT A ET UX - SFX	TH EXPLORATION LLC	1/8+	885 324	N/A	Tug Hill to Chevron: 36/168	Chevron to Tug Hill: 960/409

**COPY**

AFFIDAVIT

STATE OF TEXAS §  
  § SS  
COUNTY OF TARRANT §

On this 18<sup>th</sup> day of October, 2016, before me, the undersigned authority, personally appeared David D. Kalish ("Affiant") who being first duly sworn under oath, deposes and saith:

1. TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC are wholly owned subsidiaries of THQ Appalachia I, LLC.
2. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under an Operating Services Agreement dated July 23, 2014.
3. David D. Kalish, the Affiant, is the Vice President of Tug Hill Operating, LLC, THQ Appalachia I, LLC, TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC, and;
3. Tug Hill Operating, LLC is authorized to operate and maintain the assets owned by THQ Appalachia I, LLC, including, as referenced above, TH Exploration, LLC, TH Exploration II, LLC, and TH Exploration III, LLC, including oil and gas leases, wells, pipelines, surface facilities, and other all other assets that support the business of THQ Appalachia I, LLC, and;
4. Specifically, Tug Hill Operating, LLC is authorized to submit and obtain well work permits and carry out all activities pursuant to such work permits for assets owned by TH Exploration, LLC, TH Exploration II, LLC, TH Exploration III, LLC.

FURTHER, AFFIANT SAITH NOT.

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FEB 23 2018

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18<sup>th</sup> day of October, 2016, WV Department of Environmental Protection

David D. Kalish  
Affiant: David D. Kalish

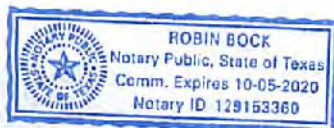
Jan Pest  
MARSHALL County 03:44:28 PM  
Instrument No 1416299  
Date Recorded 10/19/2016  
Document Type NIS  
Pages Recorded 1  
Book-Page 28-62  
Recording Fee \$5.00  
Additional \$6.00

JURAT

STATE OF TEXAS §  
  § SS  
COUNTY OF TARRANT §

Sworn and subscribed to (or affirmed) before me on this, the 18<sup>th</sup> day of October, 2016, by David D. Kalish

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



My Commission Expires: 10-05-2020

Signature/Notary Public: Robin Bock

Name/Notary Public (Print): Robin Bock

**MEMORANDUM OF AGREEMENT**

This Memorandum of Agreement is entered into this 16<sup>th</sup> 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 14<sup>th</sup>, 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.

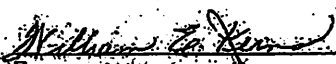
2. **MEMORANDUM FOR RECORDING PURPOSES ONLY:** This Memorandum is for recording purposes only and does not supplement or supersede the parties' respective rights set forth in the Letter Agreement or other agreements.

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. Kems  
Its: Attorney-in-Fact

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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FEB 23 2018

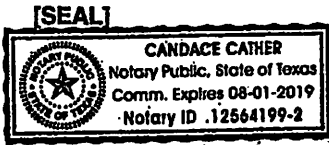
WV Department of  
Environmental Protection

Prepared by Tug Hill Operating, LLC  
1320 S. University Dr., Suite 500, Fort Worth, TX 76107

STATE OF Texas \_\_\_\_\_;

COUNTY OF Tarrant \_\_\_\_\_;

Before me, Sean Willis <sup>cc</sup> Cardace Cather, a Notary Public, on this day personally appeared Sean Willis, known to me to be the VP Engineering & Development Manager Tug Hill Operating LLC, subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this 14<sup>th</sup> day of February, 2018. My Commission expires: 08/01/2019.

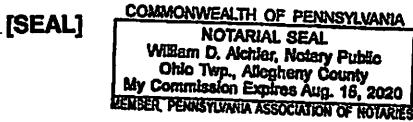


Cardace Cather  
Notary Public

STATE OF Pennsylvania \_\_\_\_\_;

COUNTY OF Allegheny \_\_\_\_\_;

Before me, William D. Aehler, a Notary Public, on this day personally appeared William F. Keros, known to me to be the Attorney-in-Fact of Chairon U.S.A. Inc., subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this 14<sup>th</sup> day of February, 2018. My Commission expires: 8-15-2020.



William D. Aehler  
Notary Public

STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 14<sup>th</sup> day of February, 2018, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 16<sup>th</sup> day of February, 2018 at 2:16 o'clock P. M.

TESTE: Jan Pest Clerk.

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FEB 23 2018

WV Department of  
Environmental Protection

51-01943Mob

DPS LAND SERVICE  
6000 TOWN CENTER BLVD STE 145  
CANONSBURG, PA 15317-5841

BOOK 0036 PAGE 0148

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 ASN  
Pages Recorded 20  
Book-Page 36-148  
Recording Fee \$20.00  
Additional \$8.00

**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.

#217  
for now

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Office of Oil and Gas

FEB 23 2018

WV Department of  
Environmental Protection



June 21, 2017

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

RE: Ten High 1N-1HM

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-1HM well plat. THO has conducted a full title search in the relevant Court House to confirm its' ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me at 304-376-0111 or by email at [amiller@tug-hillop.com](mailto:amiller@tug-hillop.com).

Sincerely,

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

Amy L. Miller  
Permit Specialist – Appalachia

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JAN 2 2018

WV Department of  
Environmental Protection

WW-PN  
(11-18-2015)

## Horizontal Natural Gas Well Work Permit Application Notice By Publication

**Notice is hereby given:**

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

**Paper:** Moundsville Daily Echo

**Public Notice Date:** May 26 & June 02, 2017

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

**Applicant:** Tug Hill Operating, LLC **Well Number:** TEN HIGH 1N-1HM

**Address:** 380 Southpointe Blvd, Southpointe Plaza II, Suite 200  
Canonsburg, PA 15317

**Business Conducted:** Natural gas production.

**Location –**

State:	<u>West Virginia</u>	County:	<u>Marshall</u>
District:	<u>Meade</u>	Quadrangle:	<u>Glen Easton 7.5'</u>
UTM Coordinate NAD83 Northing:	<u>4,406,355.14</u>		
UTM coordinate NAD83 Easting:	<u>527,315.21</u>		
Watershed:	<u>(HUC-10) Fish Creek</u>		

**Coordinate Conversion:**

To convert the coordinates above into longitude and latitude, visit: [http://tagis.dep.wv.gov/convert/llutm\\_conus.php](http://tagis.dep.wv.gov/convert/llutm_conus.php)

**Electronic notification:**

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

**Reviewing Applications:**

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to [DEP.comments@wv.gov](mailto:DEP.comments@wv.gov).

**Submitting Comments:**

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57<sup>th</sup> Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)



(304) 845-2660  
P.O. BOX 369  
MOUNDSVILLE  
WEST VIRGINIA  
26041

AFFIDAVIT OF PUBLICATION

STATE OF WEST VIRGINIA,  
COUNTY OF MARSHALL, to wit

I, Melanie S. Murdock being first duly sworn upon my oath, do depose and say:

- that I am Legal Advertising Manager of the MOUNDSVILLE DAILY ECHO, a Republican newspaper;
- that I have been duly authorized to execute this affidavit;
- that such newspaper has been published for over 119 years, is regularly published afternoons daily except Saturdays and Sundays, for at least fifty weeks during the calendar year, in the municipality of Moundsville, Marshall County, West Virginia.
- that such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Moundsville and Marshall County;
- that such newspaper averages in length four or more pages, exclusive of any cover, per issue;
- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events of a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Legal Advertisement

PARTY(ies)

Gas Well Permit / TEN HIGH 1N-1HM

NATURE (and agency if heard before one)

CERTIF-BILL TO

Tug Hill Operating, LLC  
380 Southpointe Blvd.  
Southpointe Plaza II, Suite 200  
Canonsburg, PA 15317

WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS

Times	Dates
2	May 26, June 2, 2017

BY WORDS	PUBLICATION CHARGES
512.5	\$103.12

(signed) Melanie S. Murdock

NOTARIAL OFFICIAL SEAL  
NOTARY PUBLIC  
Taken, sworn and subscribed before me this 2nd  
day of June 2017  
Amy M. Glumphy  
Moundsville, WV 26041  
My Commission Expires August 29, 2023  
Notary Public

LEGAL ADVERTISEMENT

Horizontal Natural Gas Well Work Permit

Application Notice By Publication Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: Moundsville Daily Echo

Public Notice Date: May 26 & June 2, 2017.

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Tug Hill Operating, LLC

Address: 380 Southpointe Blvd., Southpointe Plaza II, Suite 200, Canonsburg, PA 15317

Well Number: TENHIGH1N-1HM  
Business Conducted: Natural gas production.

Location -

State: West Virginia

County: Marshall

District: Meade

Quadrangle: Glen Easton 7.5'

UTM Coordinate: NAD83 North-  
ing: 4,406,355.14

UTM coordinate NAD83 Easting:  
527,315.21

Watershed: (HUC-10) Fish Creek

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: [http://tagis.dep.wv.gov/convert/lutm\\_conus.php](http://tagis.dep.wv.gov/convert/lutm_conus.php)

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For information related to horizontal drilling visit: [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

PUBLISH: May 26, June 2, 2017.

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Office of Oil and Gas

JAN 2 2018

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

Date of Notice Certification: 12/29/2017

API No. 47- 051 - 01943 mod  
Operator's Well No. Ten High 1N-1HM  
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>527,300.35</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,358.52</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 &amp; 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.

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

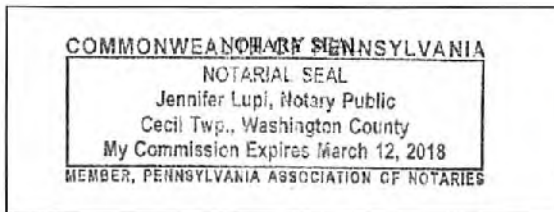
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

WW-6AC  
(1/12)

**Certification of Notice is hereby given:**

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

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Blvd, Southpointe Plaza II, Suite 200</u>
By:	<u>Amy Miller</u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permit Specialist - Appalachia</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 20th day of Dec. 2014.  
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](mailto:deprivacyofficer@wv.gov).

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WV Department of  
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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:** 12/29/2017 **Date Permit Application Filed:** 12/29/2017

**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 Loria 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: 46226 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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**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

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

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API NO. 47-051 - 01943  
OPERATOR WELL NO. Ten High 1N-1HM  
Well Pad Name: Ten High

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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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

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**Time Limits and Methods for Filing Comments.**

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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WW-6A  
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API NO. 47-051 - 01943MOD  
OPERATOR WELL NO. Ten High 1N-1HM  
Well Pad Name: Ten High

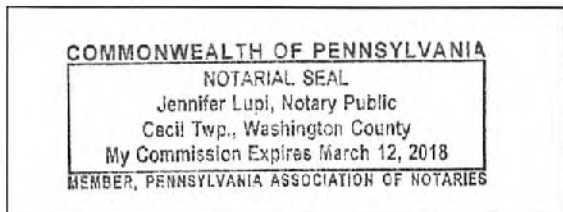
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amiller@tug-hilltop.com *Amy 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](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 29<sup>th</sup> day of Dec., 2017.  
Jennifer Lupi Notary Public  
My Commission Expires March 12, 2018

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Operator Well Nos. TEN HIGH 1N-1HM

**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

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

**Mineral Owner(s):**

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

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

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

Brenda Joyce Whetzel  
1863 Shepherds Ridge Lane  
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')**

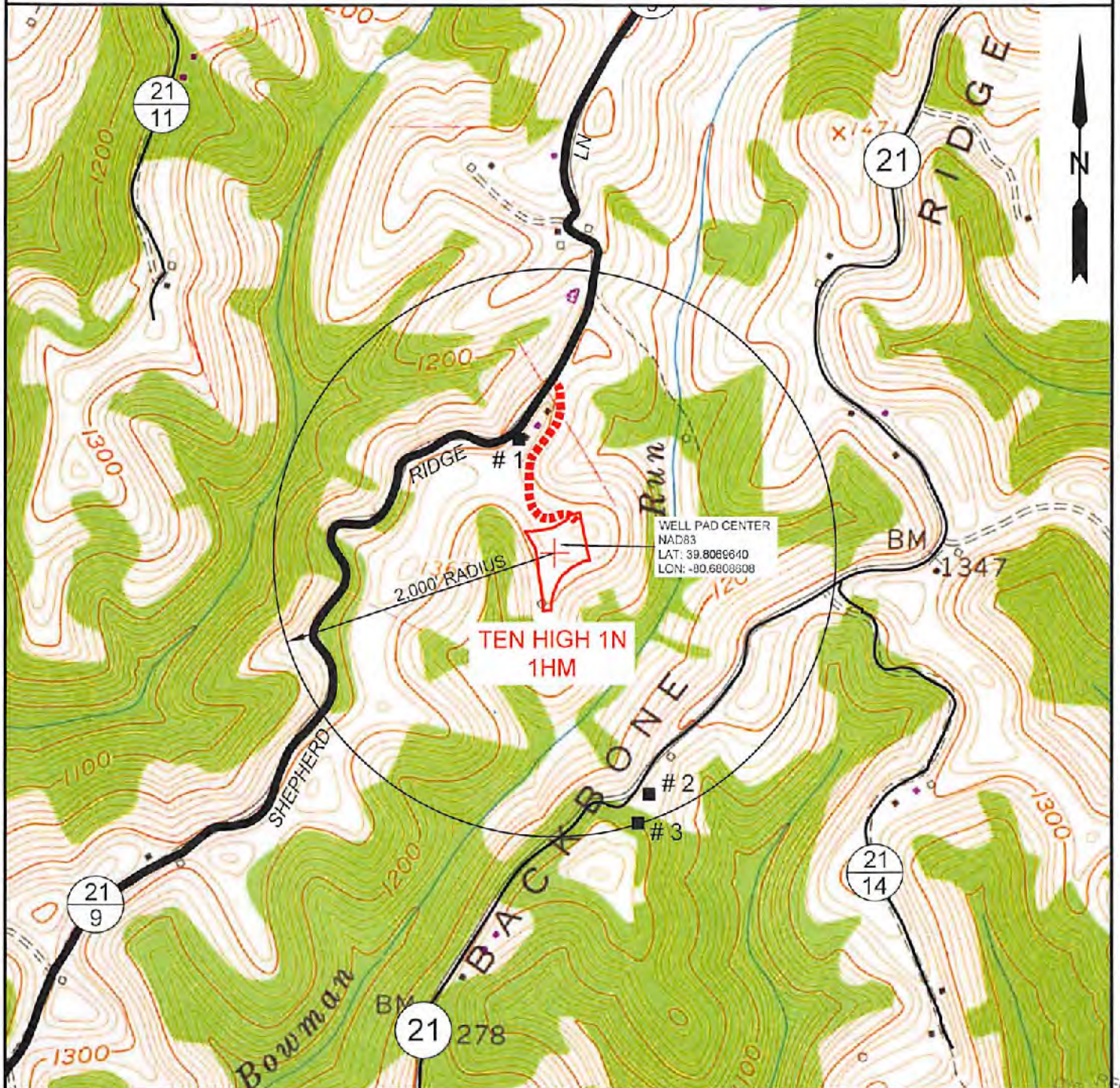
Well: Ten High 1N – 1HM  
 District: Meade (House #'s 1-3)  
 State: WV

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



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

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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	06/15/2017	1" = 1000'

**TUG HILL**  
OPERATING

U.S. Postal Service™  
**CERTIFIED MAIL® RECEIPT**  
 Domestic Mail Only

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Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

To: Teresa Anne & Michael J. Hughes  
 252 Conkle Drive  
 Glen Easton, WV 26039

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL® RECEIPT**  
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**OFFICIAL USE**

Certified Mail Fee \$

Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

To: Larry Lee & Donna D. Conkle  
 154 Conkle Drive  
 Glen Easton, WV 26039

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

To: Roy A. Conkle, Sr. & Lorie A. Conkle  
 75 Arlington Avenue  
 Moundsville, WV 26041

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™  
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Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

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

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

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

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™  
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Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

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

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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**OFFICIAL USE**

Certified Mail Fee \$

Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

To: Murray Energy Corporation  
 46226 National Road  
 St. Clairsville, OH 43950

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

WW-6A Receipts for:  
 Ten High 1N-1HM, 1N-2HM, 1N-3HM and  
 1N-4HM

RECEIVED  
 Office of Oil and Gas  
 JAN 2 2018  
 WV Department of  
 Environmental Protection

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

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

**Date of Notice:** February 9, 2017      **Date of Planned Entry:** February 17, 2017

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

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

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

**Notice is hereby provided to:**

SURFACE OWNER(S)

Name: 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

Name: Larry Lee Conkle and Donna D.

Address: 154 Conkle Drive  
Glen Eason, WV 26039      \*See Attached

COAL OWNER OR LESSEE

Name: Murray Energy Corporation

Address: 46226 National Road  
St. Clairsville, OH 43950      \*See Attached

MINERAL OWNER(S)

Name: Estate of Lawrence & Shirley Mae Conkle c/o Roy Conkle

Address: 75 Arlington Avenue  
Glen Easton, WV 26039      \*See Attached

\*please attach additional forms if necessary

**Notice is hereby given:**

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

State: WEST VIRGINIA

County: MARSHALL

District: MEADE

Quadrangle: GLEN EASTON 7.5'

Approx. Latitude & Longitude: LAT 39.8067775 LONG -80.6809192

Public Road Access: SHEPHERD RIDGE LANE (Co. RT. 21/9)

Watershed: HUC-10 FISH CREEK

Generally used farm name: LAWRENCE & SHIRLEY CONKLE, ESTS

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

**Notice is hereby given by:**

Well Operator: TUG HILL OPERATING, LLC

Telephone: 724-749-8388

Email: JWHITE@TUG-HILLOP.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](mailto:depprivacyofficer@wv.gov).

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Office of Oil and Gas  
JAN 2 2018  
WV Department of  
Environmental Protection

Operator Well Nos. TEN HIGH 1N-1HM

**WW-6A3 Notice of Entry for Plat Survey ..... 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

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

**Mineral Owner(s):**

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

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

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

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

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Environmental Protection

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**MOUNDSVILLE WV 26041**  
**OFFICIAL USE**

Certified Mail Fee	\$3.35	0518
Extra Services & Fees (check box, add fee as appropriate)	\$2.75	17
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: ESTATE OF LAWRENCE & SHIRLEY MAE CONKLE  
C/O ROY CONKLE  
75 ARLINGTON AVENUE  
MOUNDSVILLE WV 26041

Postmark Here: FEB 9 2017

PS Form 3800, April 2015 PSN 7539-02-000-9047 See Reverse for Instructions

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**SAINT CLAIRSVILLE OH 43950**  
**OFFICIAL USE**

Certified Mail Fee	\$3.35	0518
Extra Services & Fees (check box, add fee as appropriate)	\$2.75	17
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: MURRAY ENERGY CORPORATION  
46226 NATIONAL ROAD  
SAINT CLAIRSVILLE OH 43950

Postmark Here: FEB 9 2017

PS Form 3800, April 2015 PSN 7539-02-000-9047 See Reverse for Instructions

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**MOUNDSVILLE WV 26041**  
**OFFICIAL USE**

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<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: ROY A CONKLE SR AND LORIE A  
75 ARLINGTON AVENUE  
MOUNDSVILLE WV 26041

Postmark Here: FEB 9 2017

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**OFFICIAL USE**

Certified Mail Fee	\$3.35	0518
Extra Services & Fees (check box, add fee as appropriate)	\$2.75	17
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: LARRY LEE CONKLE AND DONNA D  
154 CONKLE DRIVE  
GLEN EASTON WV 26039

Postmark Here: FEB 9 2017

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<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: TERESA ANNE HUGHES AND MICHAEL  
252 CONKLE DRIVE  
GLEN EASTON WV 26039

Postmark Here: FEB 9 2017

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: BRENDA JOYCE WRETZEL  
1853 SHEPHERDS RIDGE LANE  
GLEN EASTON WV 26039

Postmark Here: FEB 9 2017

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<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$1.40	
Total Postage and Fees	\$7.50	

Sent To: ROBERT G HUBBS AND SCARLETT OTTE  
132 SHEPHERDS RIDGE LANE  
GLEN EASTON WV 26039

Postmark Here: FEB 9 2017

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Certified Mail Receipts for WW-6A5  
 Ten High 1N-1HM  
 1N-3HM  
 1N-4HM

7016 2140 0000 9580 5772

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SAINT CLAIRSVILLE, OH 43950	
Certified Mail Fee	\$3.35
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>
Sent To:	Murray Energy Corporation
Street:	46226 National Road
City/State:	St. Clairsville, OH 43950
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	



7016 2140 0000 9580 5703

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MOUNDSVILLE, WV 26041	
Certified Mail Fee	\$3.35
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>
Sent To:	Estate of Lawrence & Shirley Conkle
Street:	c/o Roy Conkle
City/State:	75 Arlington Avenue Moundsville, WV 26041
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	



7016 2140 0000 9580 5727

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GLEN EASTON, WV 26039	
Certified Mail Fee	\$3.35
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$7.80
<b>Total Postage and Fees</b>	<b>\$13.90</b>
Sent To:	Robert G. Hubbs & Scarlett E. Otte
Street:	132 Shepherds Ridge Lane
City/State:	Glen Easton, WV 26039
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	



7016 2140 0000 9580 5710

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MOUNDSVILLE, WV 26041	
Certified Mail Fee	\$3.35
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<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>
Sent To:	Roy A. Conkle, Sr. & Lorie A. Conkle
Street:	75 Arlington Avenue
City/State:	Moundsville, WV 26041
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	



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 WV Department of  
 Environmental Protection  
 JUN 21 2017



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GLEN EASTON WV 26039

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>

Postmark Here  
 JUN 21 2017  
 0518 06  
 GLEN EASTON PA 15317

Sent To: Larry Lee & Donna D. Conkle  
 Street and Apt. No.: 154 Conkle Drive  
 City, State, ZIP+4®: Glen Easton, WV 26039

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<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>

Postmark Here  
 JUN 21 2017  
 0518 06  
 GLEN EASTON PA 15317

Sent To: Brenda Joyce Whetzel  
 Street and Apt. No.: 1863 Shepherds Ridge Lane  
 City, State, ZIP+4®: Glen Easton, WV 26039

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$8.50
<b>Total Postage and Fees</b>	<b>\$14.60</b>

Postmark Here  
 JUN 21 2017  
 0518 06  
 GLEN EASTON PA 15317

Sent To: Teresa Anne & Michael J. Hughes  
 Street and Apt. No.: 252 Conkle Drive  
 City, State, ZIP+4®: Glen Easton, WV 26039

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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 Office of Oil and Gas  
 JAN 2 2013  
 WV Department of  
 Environmental Protection

Operator Well Nos. TEN HIGH 1N-1HM

**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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WV Department of  
Environmental Protection



## 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

May 16, 2017

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

Subject: DOH Permit for the Ten High 1N Pad, Marshall County  
 Ten High 1N Unit-1HM 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

RECEIVED  
 Office of Oil and Gas  
 JAN 2 2018  
 WV Department of  
 Environmental Protection



**PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION**

Well No. Ten High 1N-1HM

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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Office of Oil and Gas  
JAN 2 2018  
WV Department of  
Environmental Protection

# National Flood Hazard Layer FIRMette

39°48'39.03"N

80°41'10.98"W



USGS The National Map: Orthoimagery

39°48'10.28"N

## Legend

- Cross-Sections
- ~ Base Flood Elevations
- Flood Hazard Zones**
  - 1% Annual Chance Flood
  - Regulatory Floodway
  - Special Floodway
  - Area of Undetermined Flood Hazard
  - 0.2% Annual Chance Flood
  - Future Conditions 1% Annual Chance Flood Hazard
  - Area with Reduced Risk Due to Levee

## LOMRs

- Effective
- Map Panels**
  - Digital Data
  - Unmodernized Maps
  - Unmapped

This map complies with FEMA's standards for the use of digital flood maps. The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. The base map shown complies with FEMA's base map accuracy standards.

The NFHL is a living database, updated daily, and this map represents a snapshot of information at a specific time.

Flood risks are dynamic and can change frequently due to a variety of factors, including weather patterns, erosion, and new development. FEMA flood maps are continually updated through a variety of processes. Users should always verify through the Map Service Center (<http://msc.fema.gov>) or the Community Map Repository that they have the current effective information.

NFHL maps should not be created for unmapped or unmodernized areas.

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# FEMA