



west virginia department of environmental protection

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

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

Tuesday, July 24, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

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

Re: Permit Modification Approval for TEN HIGH 1N-2HM
47-051-01934-00-00

Lateral Extension and Surface Move

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.



James A. Martin
Chief

Operator's Well Number: TEN HIGH 1N-2HM
Farm Name: LAWRENCE & SHIRLEY CONKLE ESTS
U.S. WELL NUMBER: 47-051-01934-00-00
Horizontal 6A New Drill
Date Modification Issued: July 24, 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-2HM Well Pad Name: Ten High

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

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

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

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No Yes

JW
2/21/18

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: Onondaga

10) Proposed Total Measured Depth: 15,329'

11) Proposed Horizontal Leg Length: 8,219'

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

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

14) Approximate Saltwater Depths: 2,180'

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

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

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

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine
Depth: 1020' TVD and 303' 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	J55	54.5#	1,175'	1,175' ✓	1166ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	1,175'	1,175'	1166ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,980'	2,980'	993ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	13,9'	15,329'	3911ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,618'	
Liners							

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	2,730	2,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	2,730	2,384	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	8,960		
Liners							

PACKERS

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

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Environmental Protection

WW-6B
(10/14)

API NO. 47- 051 - 01934 MOD
OPERATOR WELL NO. Ten High 1N-2HM
Well Pad Name: Ten High

Ju
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 20,547,500 lb proppant and 317,679 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.20

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 Attachment

25) Proposed borehole conditioning procedures:

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

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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

Intermediate Casing:*Premium NE-1 + 2% bwoc CaCl₂ + 46.5% Fresh Water*

- Premium NE-1 – Class A Portland API spec
- CaCl₂ – 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
- CaCl₂ – 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

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

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

Data Sources Reviewed:

1. IHS Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (12/19/2016) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with IHS All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

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Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits



Handwritten signature and date: 2/21/18

Tug Hill Operating, LLC Casing and Cement Program

Ten High 1N-2HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	1,175'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,985'	CTS
Production	5 1/2"	P110	8 7/8 x 8 3/4"	15,329'	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-2HM
STATE: West Virginia **COUNTY:** Marshall
DISTRICT: Meade
DEEP: 1,310' **GL Elev:** 1,310'
TD: 15,329'
TH Latitude: 39.80675268
TH Longitude: -80.68102695
BL Latitude: 39.82620699
BL Longitude: -80.69743599

30" Csg @ 120' MD / 120' TVD

13 3/8" Csg @ 1,175' MD / 1,175' TVD

9 5/8" Csg @ 2,985' MD / 2,980' TVD

KOP @ 6,118' ft MD

Landing Point @ 7,110' MD / 6,737' TVD
 PH TVD = 100' below Onondaga Top

Pilot Hole
 PH TD @ 5,865' TVD

Formation	Depth (MD)	Depth (TVD)
Deepest Fresh Water	1036	1036
Sewickley coal	935	935
Pittsburgh coal	1020	1020
Big Limestone	2019	2019
Wep	2475	2475
Berks	2673	2673
Gardens	2935	2935
Rhinoceros	6057	6057
Genesee/Burkett	6575	6575
Tully	6605	6605
Hamilton	6539	6539
Marcellus	6713	6713
Landing Depth	6737	6737
Onondaga	6765	6765
Pilot Hole Depth	6865	6865

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	30	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,175'	1,175'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,985'	2,980'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	15,329'	6,594'	20	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Surfs	Class	Density	Fluid 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 jt	
Production	A	14.5	Air / SODIM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to etc	

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SI-01934H00

Lateral TD @ 15,329' ft MD
 6,594' ft TVD

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SI-01934 MOD

Well: Ten High 1N-02HM (J)
 Site: Ten High
 Project: Marshall County, West Virginia
 Design: rev5



SECTION DETAILS

MD	Inc	Azi	+N-S	+E-W	Dip	TFace	V-Sect	Annnotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2'100" build
1693.00	5.00	182.96	549.68	-10.94	5.38	2.00	192.60	Begin 3'100" lateral section
2413.86	5.00	182.85	540.00	-241.70	-76.78	0.00	0.00	Begin 11.15" lateral section
3116.41	11.15	182.87	5089.22	-473.77	-106.45	0.00	0.00	Begin 10'100" build/turn
37109.54	91.00	329.84	5737.00	-50.88	-474.95	10.00	136.26	Begin 31.00" lateral section
15326.89	91.00	329.84	5654.00	-4632.26	0.00	0.00	0.00	PBHLTD 15326.89 MD/6594.00 TVD

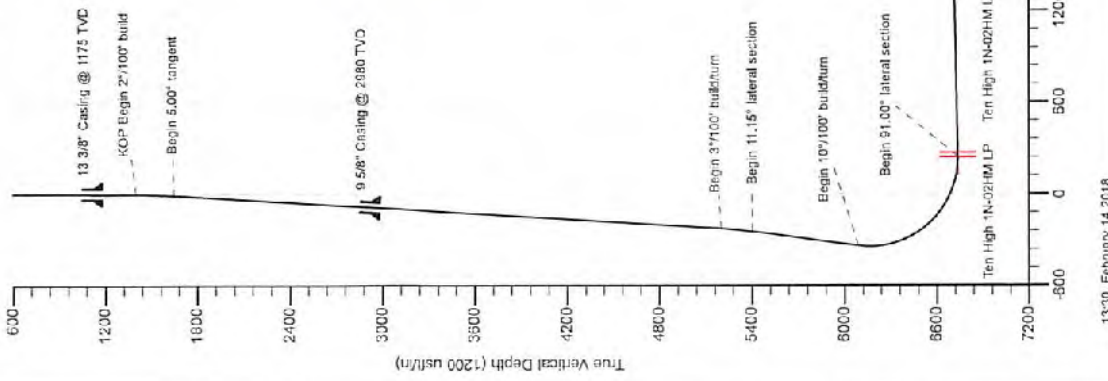
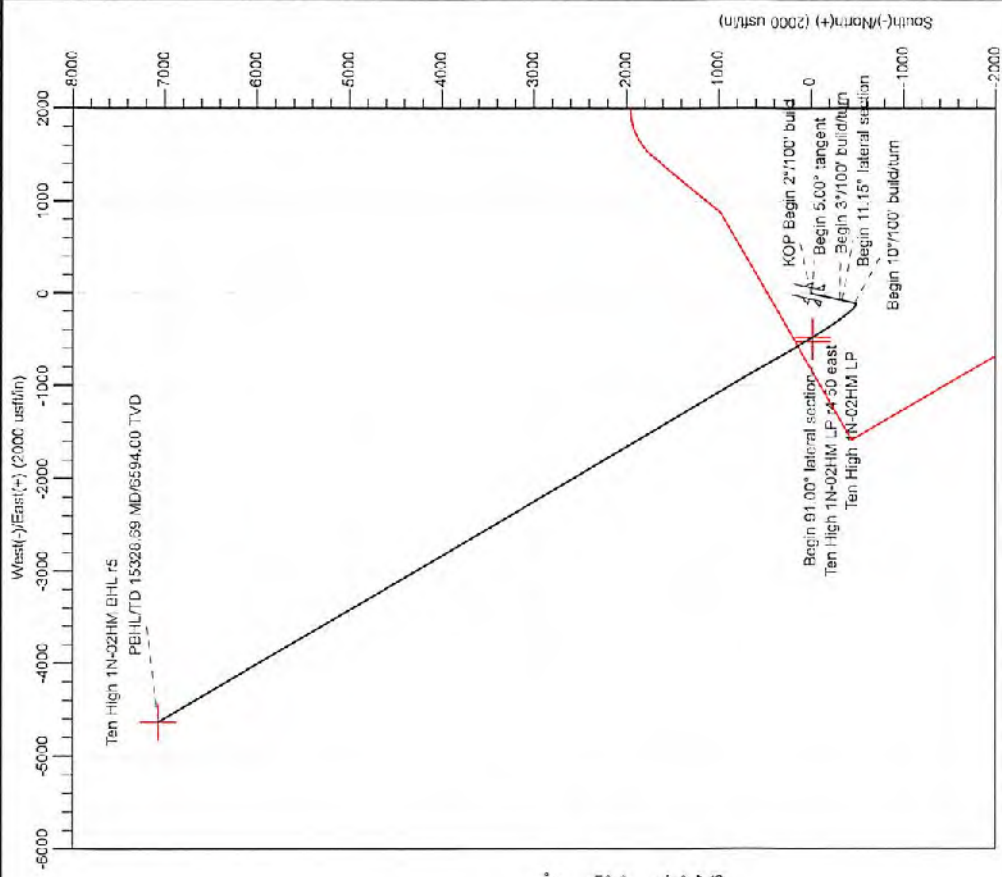
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: GL @ 1310.00usft
 Northing 14456325.13
 Easting 3630675263
 Longitude -80.69102695

Total Cor (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 0.92°



Adjust to Grid North
 True North -0.20°
 Magnetic North -0.92°
 Magnetic Field
 Strength: 52188.50nT
 Dip Angle: 66.89°
 Date: 06/2017
 Model: IGRF2015



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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

Intermediate Casing:

Premium NE-1 + 2% bwoc CaCl₂ + 46.5% Fresh Water

- Premium NE-1 – Class A Portland API spec
- CaCl₂ – 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
- CaCl₂ – 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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Permit well - Ten High 1N-2HM

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
4705100838	Hope Natural Gas	Unknown	Unknown	Unknown	Unknown but unlikely, Appears to be an old shallow producing well that has since been plugged	Old well, records are incomplete. A field survey was conducted to locate this well and evidence of this well was found.



"Pipeline"

Select County: (051) Marshall
 Enter Permit #: 00838
 [Get Data] [Reset]

Select data types: (Check All)
 Location Production Plugging
 Depth/Correlation Stratigraphy Sample
 Pay/Show Water Logs Blm Hole Log

[Table Descriptions](#)
[County Code Translations](#)
[Permit Numbering System](#)
[License Types](#)
[Geology Information](#)
[Customer Assistance](#)
[WVGeology.com](#)
[Pipeline.org](#) **New**

WV Geological & Economic Survey **Well: County = 51 Permit = 00838**

Well Reassignment Information: Reassigned From
 OLD_COUNTY: 051 PERMIT: 00838 NEW_COUNTY: 51 NEW_PERMIT: 00838

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705100838	Marshall	00838	Marshall	124-1998	1175	79.12527	-80.59527	528173.4	4407109

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPI
4705100838	12-4-1998		Plugging	Completed: Ronald & Theresa Moore	94-2	(A-3)				McBryon Coal Company
4705100838				Original Log: Completed: A M Anguish						Hope Natural Gas Company

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTH
4705100838	12-4-1998	11/15/1998	1175	Ground Level					not available	unknown
4705100838						unclassified	unclassified		not available	unknown

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Stratigraphy data for this well

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

Plugging Information:
 API: 4705100838
 PUG_DT: 12-4-1998
 DEPTH_PBT: 0

There is no Sample data for this well

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WVGES
"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](#)
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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	Meigs	Glen Easton	Camden	32.810036	-80.600723	526472.1	4406812

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 Drift Hole	1025	Reasonable	7	Reasonable	1343	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

WVGES
"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](#)
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[Pipeline Plus - New](#)

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

Well Reassignment Information: Reassigned From

OLD_COUNTY	OLD_PERMIT	NEW_COUNTY	NEW_PERMIT
51	30023	51	833

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4725100833	Marshall	833	Meigs	Glen Easton	Camden	29.80095	-80.600153	525530.6	4426700.9

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TRM_EST
4725100833	8/22/1907	Original Log	Completed	Daniel Jones	1	142			Daniel Jones	Beran, L.H.				
4725100833	7/22/1908	Plugging	Completed	Dexter F & Besse Hall	55-4 (M-22)					Milroy Coal Company				

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMI	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TYD	1MD	NEW_FTO	O_B6	
4725100833	9/22/1907	7/19/1907	1230	Barometer	Camden-Camden	UDev	und	BerLsHURN	Gordon	Unclassified	Unclassified	Oil	Cable Tool	Shot	2973	2973	
4725100833	7/22/1908	7/7/1908	1229	Ground Level						Gas	unknown	unknown					

Pay/ShowWater Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	O_BEF	O_AFT	O_BEF	O_AFT	WATER_QNTY
4725100833	8/22/1907	Pay	Oil	Vertical	Gordon		2920	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:

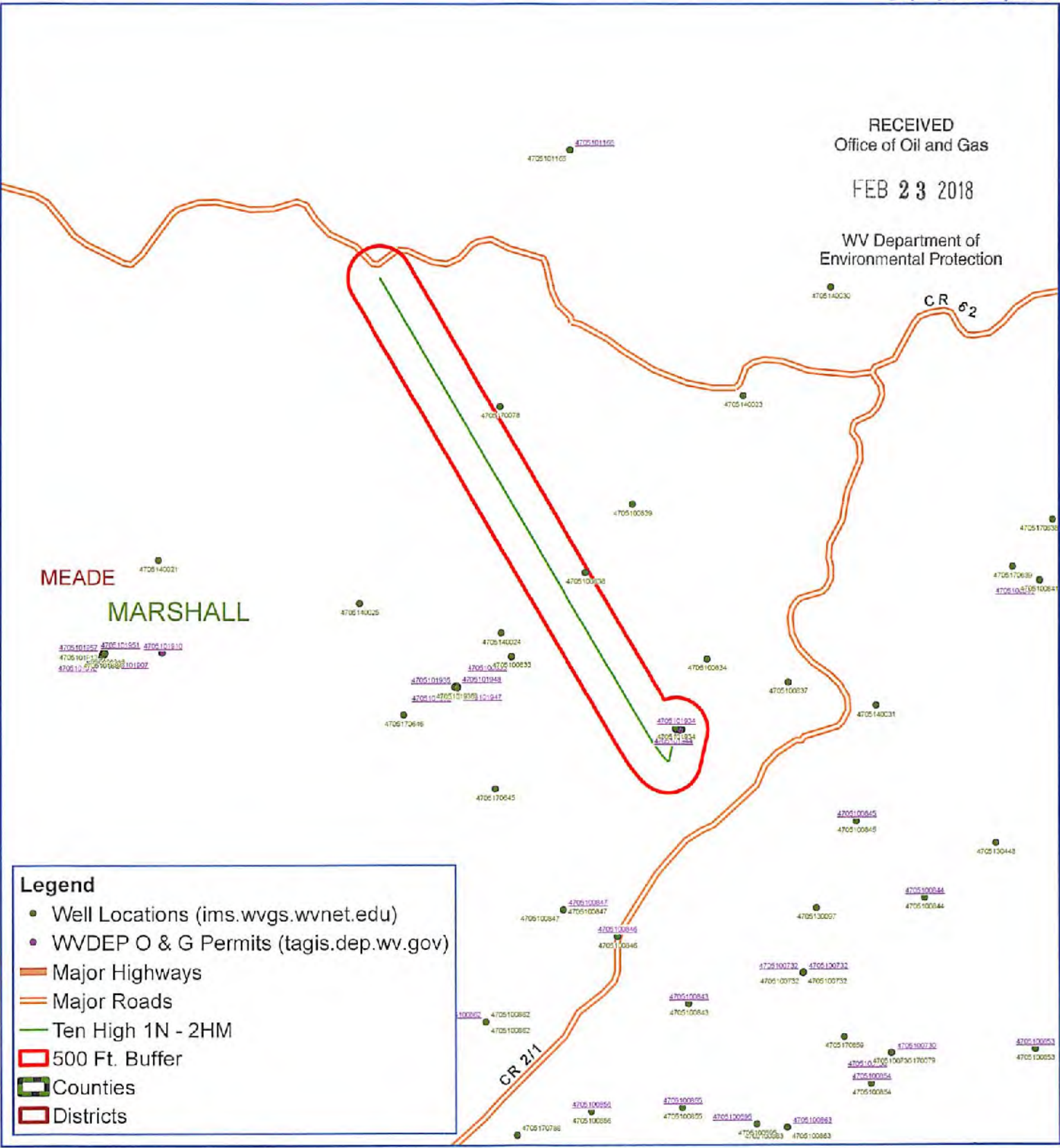
API	PLG_DT	DEPTH_PBT
4725100833	5/13/1928	0
4725100833	7/22/1908	0

There is no Sample data for this well

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Legend

- Well Locations (ims.wvgs.wvnet.edu)
- WVDEP O & G Permits (tagis.dep.wv.gov)
- Major Highways
- Major Roads
- Ten High 1N - 2HM
- 500 Ft. Buffer
- Counties
- Districts



Ten High 1N-2HM Meade District Marshall County, WV



Map Created: February 15, 2016
Map Current As Of: February 15, 2018

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



WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Ten High 1N-2HM

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 liners

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SNF-1021 / WV0106186) and Westmoreland Sanitary Landfill, LLC (SAV1406 / PA DEP BCP1366426)

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

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

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

Company Official Signature _____

Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

Subscribed and sworn before me this 18th day of April, 2017

My commission expires _____

Annette Jenkin
9/24/2019



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Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.20 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

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: *Janie Trichsel*

Comments: _____

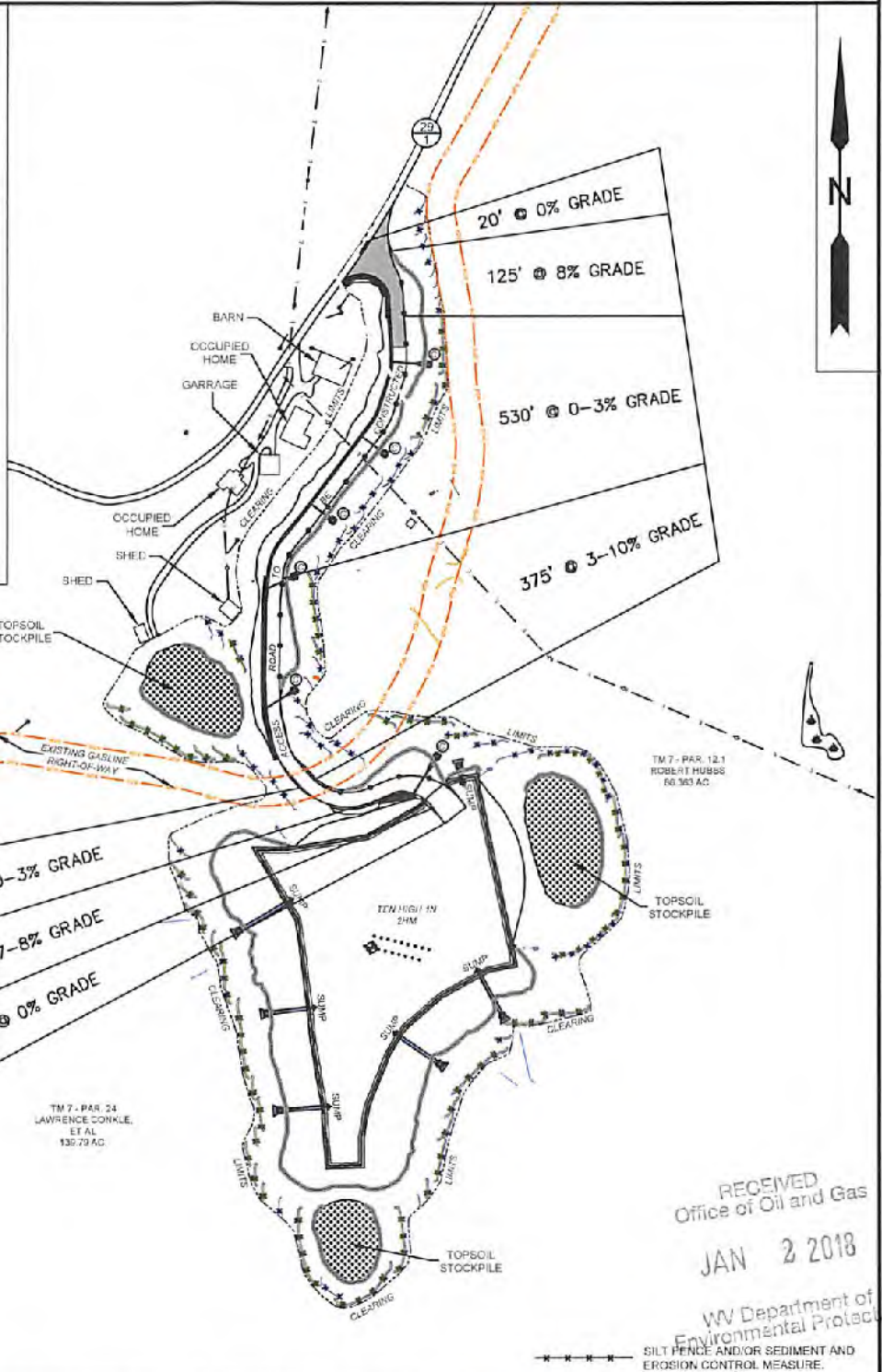
Title: *Oil + Gas Inspector* Date: *4/21/17*
Field Reviewed? Yes No

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PROPOSED TEN HIGH 1N - 2HM

NOTES:

1. - DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.
8. ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE HEAVEN HILL 3 SITE PLAN PREPARED BY KELLEY SURVEYING, DATED 2/24/2017 FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.



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Land & Energy Development
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www.slsurveys.com

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

TUG HILL
OPERATING



Well Site Safety Plan
Tug Hill Operating, LLC

jm
12/29/17

Well Name: Ten High 1N-2HM

Pad Location: Ten High

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing-4,406,357.67

Easting -527,304.07

December 2017

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**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
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*See attached

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

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

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

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

Well Operator: Tug Hill Operating, LLC
 By: Amy L. Miller *Amy Miller*
 Its: Regulatory Analyst - Appalachia Region

WW-6A1 Supplement

Well Name or No.	Parcel	Grantor, Lessee, est.	Grantee, Lessee, est.	Royalty	Dead Body/Pg	Assignment	Assignment	Assignment
1071610	A	Granton, Lessee, est.	Granton, Lessee, est.	1/8th	305			
1071611	A	AMY PAUL & JACQUE MUMF	THE EXPLORATION LLC	1/8th	326			
1071612	A	AMBER GOODENOUGH	CHEVRON USA INC	1/8th	777			
1071613	A	BRIDGEMAN WINETZ	CHEVRON USA INC	1/8th	649			
1071614	A	DALE BRIAN GOODMAN	THE EXPLORATION LLC	1/8th	509			
1071615	A	DALE MOORE	THE EXPLORATION LLC	1/8th	304			
1071616	A	DALE MOORE	THE EXPLORATION LLC	1/8th	635			
1071617	A	DALE MOORE	THE EXPLORATION LLC	1/8th	518			
1071618	A	DALE MOORE	THE EXPLORATION LLC	1/8th	505			
1071619	A	DALE MOORE	THE EXPLORATION LLC	1/8th	470			
1071620	A	DALE MOORE	THE EXPLORATION LLC	1/8th	525			
1071621	A	DALE MOORE	THE EXPLORATION LLC	1/8th	432			
1071622	A	DALE MOORE	THE EXPLORATION LLC	1/8th	692			
1071623	A	DALE MOORE	THE EXPLORATION LLC	1/8th	528			
1071624	A	DALE MOORE	THE EXPLORATION LLC	1/8th	524			
1071625	A	DALE MOORE	THE EXPLORATION LLC	1/8th	465			
1071626	A	DALE MOORE	THE EXPLORATION LLC	1/8th	482			
1071627	A	DALE MOORE	THE EXPLORATION LLC	1/8th	384			
1071628	A	DALE MOORE	THE EXPLORATION LLC	1/8th	322			
1071629	A	DALE MOORE	THE EXPLORATION LLC	1/8th	459			
1071630	A	DALE MOORE	THE EXPLORATION LLC	1/8th	592			
1071631	A	DALE MOORE	THE EXPLORATION LLC	1/8th	81			
1071632	A	DALE MOORE	THE EXPLORATION LLC	1/8th	618			
1071633	A	DALE MOORE	THE EXPLORATION LLC	1/8th	485			
1071634	A	DALE MOORE	THE EXPLORATION LLC	1/8th	287			
1071635	A	DALE MOORE	THE EXPLORATION LLC	1/8th	511			
1071636	A	DALE MOORE	THE EXPLORATION LLC	1/8th	641			
1071637	A	DALE MOORE	THE EXPLORATION LLC	1/8th	343			
1071638	A	DALE MOORE	THE EXPLORATION LLC	1/8th	449			
1071639	A	DALE MOORE	THE EXPLORATION LLC	1/8th	59			
1071640	A	DALE MOORE	THE EXPLORATION LLC	1/8th	777			
1071641	A	DALE MOORE	THE EXPLORATION LLC	1/8th	661			
1071642	A	DALE MOORE	THE EXPLORATION LLC	1/8th	154			
1071643	A	DALE MOORE	THE EXPLORATION LLC	1/8th	268			
1071644	A	DALE MOORE	THE EXPLORATION LLC	1/8th	197			
1071645	A	DALE MOORE	THE EXPLORATION LLC	1/8th	203			
1071646	A	DALE MOORE	THE EXPLORATION LLC	1/8th	259			
1071647	A	DALE MOORE	THE EXPLORATION LLC	1/8th	160			
1071648	A	DALE MOORE	THE EXPLORATION LLC	1/8th	229			
1071649	A	DALE MOORE	THE EXPLORATION LLC	1/8th	231			
1071650	A	DALE MOORE	THE EXPLORATION LLC	1/8th	299			
1071651	A	DALE MOORE	THE EXPLORATION LLC	1/8th	224			
1071652	A	DALE MOORE	THE EXPLORATION LLC	1/8th	219			
1071653	A	DALE MOORE	THE EXPLORATION LLC	1/8th	208			
1071654	A	DALE MOORE	THE EXPLORATION LLC	1/8th	241			
1071655	A	DALE MOORE	THE EXPLORATION LLC	1/8th	246			
1071656	A	DALE MOORE	THE EXPLORATION LLC	1/8th	251			
1071657	A	DALE MOORE	THE EXPLORATION LLC	1/8th	253			
1071658	A	DALE MOORE	THE EXPLORATION LLC	1/8th	263			
1071659	A	DALE MOORE	THE EXPLORATION LLC	1/8th	93			
1071660	A	DALE MOORE	THE EXPLORATION LLC	1/8th	70			
1071661	A	DALE MOORE	THE EXPLORATION LLC	1/8th	630			
1071662	A	DALE MOORE	THE EXPLORATION LLC	1/8th	243			
1071663	A	DALE MOORE	THE EXPLORATION LLC	1/8th	243			
1071664	A	DALE MOORE	THE EXPLORATION LLC	1/8th	255			
1071665	A	DALE MOORE	THE EXPLORATION LLC	1/8th	137			
1071666	A	DALE MOORE	THE EXPLORATION LLC	1/8th	221			
1071667	A	DALE MOORE	THE EXPLORATION LLC	1/8th	221			
1071668	A	DALE MOORE	THE EXPLORATION LLC	1/8th	118			
1071669	A	DALE MOORE	THE EXPLORATION LLC	1/8th	921			
1071670	A	DALE MOORE	THE EXPLORATION LLC	1/8th	307			
1071671	A	DALE MOORE	THE EXPLORATION LLC	1/8th	921			
1071672	A	DALE MOORE	THE EXPLORATION LLC	1/8th	143			
1071673	A	DALE MOORE	THE EXPLORATION LLC	1/8th	921			
1071674	A	DALE MOORE	THE EXPLORATION LLC	1/8th	524			

Operator's Well No. Ten High 1N - 2HM

WW-6A1 Supplement

Operator's Well No. Ten High 1N - 2HM

License Name or No.	Tax	Parent	Genitor, Assgn, etc.	Genitor, Lessee, etc.	Realty	Deed Book/Pg	Assignment	Assignment
LO-17274	E	9-5-4	DAVID H WILSON	THE EXPLORATION LLC	1/8-	921	474	N/A
LO-17275	E	9-5-4	JOHN I BEVES AND MONA S BEVES	THE EXPLORATION LLC	1/8-	921	579	N/A
LO-17276	E	9-5-4	BERTHA EBEL WVAIT	THE EXPLORATION LLC	1/8-	921	526	N/A
LO-17277	E	9-5-4	MARCEL EBEL	THE EXPLORATION LLC	1/8-	921	121	N/A
LO-17278	E	9-5-4	MILTON HOWARD EBEL JR AND OLIVETH A EBEL	THE EXPLORATION LLC	1/8-	921	129	N/A
LO-17279	E	9-5-4	DEBRA M WILSON	THE EXPLORATION LLC	1/8-	921	476	N/A
LO-17280	E	9-5-4	DAVID JACOBSON	THE EXPLORATION LLC	1/8-	921	522	N/A
LO-17281	E	9-5-4	PHILIP EBEL	THE EXPLORATION LLC	1/8-	921	150	N/A
LO-17282	E	9-5-4	TERESA EBEL GALVA AND DAVID L GALVA	THE EXPLORATION LLC	1/8-	921	487	N/A
LO-17283	E	9-5-4	MARION JACOBSON ROBERT GOLDBAU	THE EXPLORATION LLC	1/8-	921	320	N/A
LO-17284	E	9-5-4	LESTER T BEVES AND LOREY BEVES	THE EXPLORATION LLC	1/8-	921	379	N/A
LO-17285	E	9-5-4	JAMES WICKERT EBEL AND DUCILE D EBEL	THE EXPLORATION LLC	1/8-	921	121	N/A
LO-17286	E	9-5-4	KATHRYN L ROBERT EBEL	THE EXPLORATION LLC	1/8-	921	529	N/A
LO-17287	E	9-5-4	JAMES R H WICKERT EBEL	THE EXPLORATION LLC	1/8-	921	540	N/A
LO-17288	E	9-5-4	HESE ALLEN JACOBSON AND ELZBERTH O JACOBSON	THE EXPLORATION LLC	1/8-	921	209	N/A
LO-17289	E	9-5-4	MARYLAIN B BARBARA T BOSSAY	THE EXPLORATION LLC	1/8-	921	345	N/A
LO-17290	E	9-5-4	JAMES M JACOBSON	THE EXPLORATION LLC	1/8-	921	352	N/A
LO-17291	E	9-5-4	MARY CHRISTINE WICKERVA	THE EXPLORATION LLC	1/8-	921	116	N/A
LO-17292	E	9-5-4	PAUL PRESLEY EBEL	THE EXPLORATION LLC	1/8-	877	216	N/A
LO-47051, 223, 1	E	9-5-4	LEANN ANNE GOBBY STORCH	THE EXPLORATION LLC	1/8-	885	14	N/A
LO-47051, 223, 2	E	9-5-4	STEPHANIE SCHREIER AND GEORREY SCHREIER	THE EXPLORATION LLC	1/8-	885	321	N/A
LO-47051, 223, 3	E	9-5-4	BARBARA A BUZZARD	THE EXPLORATION LLC	1/8-	885	24	N/A
LO-47051, 223, 20	E	9-5-4	GARY T WARD AND SHARON D WARD	THE EXPLORATION LLC	1/8-	885	19	N/A
LO-47051, 223, 21	E	9-5-4	ROBERT T LEADBETTER AND M REBECCA LEADBETTER	THE EXPLORATION LLC	1/8-	885	125	N/A
LO-47051, 223, 3	E	9-5-4	JASHELIA NINE AND REBECCA NINE	THE EXPLORATION LLC	1/8-	885	694	N/A
LO-47051, 223, 5	E	9-5-4	BEVAN P RIBBY AND STEVAN RIBBY	THE EXPLORATION LLC	1/8-	885	197	N/A
LO-15481	F	9-5-5	SILVIA NELSON	THE EXPLORATION LLC	1/8-	885	203	N/A
LO-15482	F	9-5-5	MICHAEL SINTNER	CHERON U.S.A. INC.	1/8-	465	186	N/A
LO-15483	F	9-5-5	JOHN ONI R DOUZ	THE EXPLORATION LLC	1/8-	885	229	N/A
LO-15484	F	9-5-5	MARIE EUNTI JACOBSON FIBROTT	THE EXPLORATION LLC	1/8-	885	231	N/A
LO-16058	F	9-5-5	ELLY RIBBY JACOBSON	THE EXPLORATION LLC	1/8-	885	239	N/A
LO-16137	F	9-5-5	ROBERT STEPHEN BERGGES	THE EXPLORATION LLC	1/8-	885	234	N/A
LO-16143	F	9-5-5	MARY ELIZABETH BERGGES	THE EXPLORATION LLC	1/8-	885	228	N/A
LO-16144	F	9-5-5	CONTRIA WILSON	THE EXPLORATION LLC	1/8-	885	239	N/A
LO-16145	F	9-5-5	ROBERT RIBBY	THE EXPLORATION LLC	1/8-	885	241	N/A
LO-16244	F	9-5-5	DAVID L AND ELAURAL LOMA	THE EXPLORATION LLC	1/8-	885	584	N/A
LO-16273	F	9-5-5	MARGON AND PAUL CAMERL	THE EXPLORATION LLC	1/8-	885	248	N/A
LO-16315	F	9-5-5	ALICE EBEL AND JOYCE A CAMERL	THE EXPLORATION LLC	1/8-	885	251	N/A
LO-16316	F	9-5-5	WILSON ANDREW JACOBSON	THE EXPLORATION LLC	1/8-	885	353	N/A
LO-16317	F	9-5-5	RICHARD THOMAS AND VICKI J HANS	THE EXPLORATION LLC	1/8-	885	363	N/A
LO-16318	F	9-5-5	JAMES KEITHEN JACOBSON AND PAUL JACOBSON	THE EXPLORATION LLC	1/8-	885	93	N/A
LO-16319	F	9-5-5	WENGLIA WHITMAN	THE EXPLORATION LLC	1/8-	885	528	N/A
LO-16320	F	9-5-5	DEBRA P AND BARBARA EBEL HEART	THE EXPLORATION LLC	1/8-	885	70	N/A
LO-16321	F	9-5-5	LESTER G AND CONSTANCE B WICKERSON	THE EXPLORATION LLC	1/8-	885	343	N/A
LO-16322	F	9-5-5	LAURE EBEL PERRY	THE EXPLORATION LLC	1/8-	885	355	N/A
LO-16323	F	9-5-5	OSBY OLAVSEN	THE EXPLORATION LLC	1/8-	885	337	N/A
LO-17155	F	9-5-5	HESE LEON JR AND TERESA GAL EBEL	THE EXPLORATION LLC	1/8-	885	118	N/A
LO-17156	F	9-5-5	HEIDI WEL JACOBSON KEAT BARVES	THE EXPLORATION LLC	1/8-	885	197	N/A
LO-17157	F	9-5-5	JAMES M BEVES JR AND MIRA M BEVES	THE EXPLORATION LLC	1/8-	885	159	N/A
LO-17158	F	9-5-5	THOMAS G AND DAVID W BARVES	THE EXPLORATION LLC	1/8-	885	341	N/A
LO-17205	F	9-5-5	SANDRA DEAN WILSON	THE EXPLORATION LLC	1/8-	921	524	N/A
LO-17274	F	9-5-5	DAVID H WILSON	THE EXPLORATION LLC	1/8-	921	474	N/A

Cherov to the DEB 308748

51-01939 MOD

WW-6A1 Supplement

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

Lease Name or No.	Trg	Prctd	Genltn, Lessee, etc.	Genltn, Lessee, etc.	Royalty	Direct Cost/yr	Assignment	Assignment	Assignment
107-16900	G	9-4	RICARDO ORTIZ	TH DEVELOPMENT LLC	1/8	921	352	N/A	N/A
107-16730	G	9-4	DOHNA EARLE BRASSETT	TH DEVELOPMENT LLC	1/8	921	155	N/A	N/A
107-16738	G	9-4	CHARLES EARLE AND ALVIN K. RINE	TH DEVELOPMENT LLC	1/8	808	274	N/A	N/A
107-16747	G	9-4	WILLIAM DALE BRASSETT	TH DEVELOPMENT LLC	1/8	921	96	N/A	N/A
107-16753	G	9-4	HARRICK B CAMPBELL & BOBINA O CAMPBELL	TH DEVELOPMENT LLC	1/8	942	491	N/A	N/A
107-16800	G	9-4	PATRICK A MARION AND ROBYN A MARION	TH DEVELOPMENT LLC	1/8	921	564	N/A	N/A
107-16802	G	9-4	JAMES ROBERT JACKSON AND JULIE JACKSON	TH DEVELOPMENT LLC	1/8	921	485	N/A	N/A
107-16804	G	9-4	CHRISTOPHER AND TAMMAY DEJARDONSON	TH DEVELOPMENT LLC	1/8	921	510	N/A	N/A
107-16806	G	9-4	WILLIAM N AND SHEREN D MARION	TH DEVELOPMENT LLC	1/8	921	528	N/A	N/A
107-16807	G	9-4	VERNONA WIRTHMAH	TH DEVELOPMENT LLC	1/8	921	513	N/A	N/A
107-16808	G	9-4	DANIEL TULLER AND SUSAN STORIS TULLER	TH DEVELOPMENT LLC	1/8	921	513	N/A	N/A
107-16810	G	9-4	MICHAEL LORETT	TH DEVELOPMENT LLC	1/8	921	349	N/A	N/A
107-16811	G	9-4	HAROLD W. FYLE	TH DEVELOPMENT LLC	1/8	921	857	N/A	N/A
107-16812	G	9-4	TERESA LORETT BORG	TH DEVELOPMENT LLC	1/8	921	147	N/A	N/A
107-16821	G	9-4	SHEILA BARRETT HERCOT	TH DEVELOPMENT LLC	1/8	921	516	N/A	N/A
107-16827	G	9-4	DENNIS D & HELENE G ANDERSON	TH DEVELOPMENT LLC	1/8	921	203	N/A	N/A
107-16836	G	9-4	ROD A AND LORNA F STORIS	TH DEVELOPMENT LLC	1/8	921	497	N/A	N/A
107-16837	G	9-4	ROBERT F AND MELBA A TORF	TH DEVELOPMENT LLC	1/8	921	472	N/A	N/A
107-16838	G	9-4	ROBERT F ORMAN	TH DEVELOPMENT LLC	1/8	921	52	N/A	N/A
107-16839	G	9-4	JAMES B FOUNDS AND LYNN M MCKOVERY	TH DEVELOPMENT LLC	1/8	921	73	N/A	N/A
107-16843	G	9-4	TRIA WOODRE	TH DEVELOPMENT LLC	1/8	921	394	N/A	N/A
107-16848	G	9-4	MICHAEL W STORIS AND JESSICA M STORIS	TH DEVELOPMENT LLC	1/8	921	504	N/A	N/A
107-16879	G	9-4	MARIE E AND LESTER A STORIS	TH DEVELOPMENT LLC	1/8	921	501	N/A	N/A
107-16880	G	9-4	BEVERLY ANN STORIS	TH DEVELOPMENT LLC	1/8	921	498	N/A	N/A
107-16882	G	9-4	MARY BARCROW OLIVE	TH DEVELOPMENT LLC	1/8	921	105	N/A	N/A
107-16883	G	9-4	LESTER G AND CONSTANCE B RICHMOND	TH DEVELOPMENT LLC	1/8	921	70	N/A	N/A
107-16887	G	9-4	REBEY COCHRANUM	TH DEVELOPMENT LLC	1/8	921	943	N/A	N/A
107-16889	G	9-4	LAUREE EZZEL PERNY	TH DEVELOPMENT LLC	1/8	921	555	N/A	N/A
107-16891	G	9-4	BRIETANN RICHMONDSON	TH DEVELOPMENT LLC	1/8	921	578	N/A	N/A
107-16895	G	9-4	MARTELLAN FOUNDS AND LAUREN FOUNDS	TH DEVELOPMENT LLC	1/8	921	79	N/A	N/A
107-17130	G	9-4	THOMAS BARNER	TH DEVELOPMENT LLC	1/8	912	75	N/A	N/A
107-17135	G	9-4	CHERYL L BARNER	TH DEVELOPMENT LLC	1/8	921	137	N/A	N/A
107-17156	G	9-4	JESSE LEON JR AND TERESA GAIL EZZEL	TH DEVELOPMENT LLC	1/8	921	118	N/A	N/A
107-17157	G	9-4	HERN NEIL JACKSON KENT DAKES	TH DEVELOPMENT LLC	1/8	921	139	N/A	N/A
107-17198	G	9-4	JAMES H REEVES JR AND MIRA M REEVES	TH DEVELOPMENT LLC	1/8	921	567	N/A	N/A
107-17199	G	9-4	THOMAS G AND DEANNE W BARTLESS	TH DEVELOPMENT LLC	1/8	921	141	N/A	N/A
107-17208	G	9-4	SANDRA JEAN WILSON	TH DEVELOPMENT LLC	1/8	921	524	N/A	N/A
107-17274	G	9-4	DAVID H WILSON	TH DEVELOPMENT LLC	1/8	921	96	N/A	N/A
107-17275	G	9-4	IGOR H REEVES AND MONA G REEVES	TH DEVELOPMENT LLC	1/8	921	474	N/A	N/A
107-17276	G	9-4	BERTHA EZZEL WYATT	TH DEVELOPMENT LLC	1/8	921	973	N/A	N/A
107-17278	G	9-4	MICHAEL EZZEL	TH DEVELOPMENT LLC	1/8	921	526	N/A	N/A
107-17307	G	9-4	JOSEPH W FOUNDS	TH DEVELOPMENT LLC	1/8	921	121	N/A	N/A
107-17316	G	9-4	MICHAEL LORETT	TH DEVELOPMENT LLC	1/8	921	76	N/A	N/A
107-17318	G	9-4	ANDREW M. ORTIZ	TH DEVELOPMENT LLC	1/8	921	128	N/A	N/A
107-17348	G	9-4	FRANK S WILSON	TH DEVELOPMENT LLC	1/8	921	346	N/A	N/A
107-17440	G	9-4	TERESA WATSON	TH DEVELOPMENT LLC	1/8	921	478	N/A	N/A
107-17441	G	9-4	ROBERT WILSON	TH DEVELOPMENT LLC	1/8	921	464	N/A	N/A
107-17442	G	9-4	SCOTT ALLEN AND MARGY JEAN ALLEN	TH DEVELOPMENT LLC	1/8	921	522	N/A	N/A
107-17443	G	9-4	HELENE HONOROVICK	TH DEVELOPMENT LLC	1/8	921	534	N/A	N/A
107-17444	G	9-4	MICHAEL HONOROVICK	TH DEVELOPMENT LLC	1/8	921	557	N/A	N/A
107-17449	G	9-4	PHILLIS BOICE	TH DEVELOPMENT LLC	1/8	921	99	N/A	N/A
107-17482	G	9-4	TERESA EZZEL POLYA AND DAVID L POLYA	TH DEVELOPMENT LLC	1/8	921	130	N/A	N/A
107-17483	G	9-4	RICHAUD PINE	TH DEVELOPMENT LLC	1/8	921	487	N/A	N/A
107-17484	G	9-4	WELDON JACKSON	TH DEVELOPMENT LLC	1/8	921	859	N/A	N/A
107-17485	G	9-4	MARGIE ANN JACKSON ROBBINS GRAYMAN	TH DEVELOPMENT LLC	1/8	921	91	N/A	N/A

15 - 01934 MOD

WW-6A1 Supplement

Operator's Well No. Ten High 1N - 2HM

Lease Name or No.	Tag	Period	Operator/Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Pg	Assignment	Assignment	Assignment
LD-17256	G	9-5-4	JERRY L. REEVES AND JOEY REEVES	TH DEVELOPMENT LLC	1/8	921	370	N/A	N/A
LD-17257	G	9-5-4	JAMES MICHAEL EZZEL AND LUCILLE D EZZEL	TH DEVELOPMENT LLC	1/8	921	311	N/A	N/A
LD-17258	G	9-5-4	CHERYL BARNHART KING	TH DEVELOPMENT LLC	1/8	952	160	N/A	N/A
LD-17259	G	9-5-4	JOHN BREVOLIA AND PATRICIA BREVOLIA	TH DEVELOPMENT LLC	1/8	921	144	N/A	N/A
LD-17260	G	9-5-4	MICHAEL T. BARKIN	TH DEVELOPMENT LLC	1/8	921	381	N/A	N/A
LD-17261	G	9-5-4	MARTIN L. & ROBERT L. TREL	TH DEVELOPMENT LLC	1/8	921	519	N/A	N/A
LD-17262	G	9-5-4	JAMES R. & THAYER E. BRIDGEMAN	TH DEVELOPMENT LLC	1/8	921	340	N/A	N/A
LD-17263	G	9-5-4	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH DEVELOPMENT LLC	1/8	921	306	N/A	N/A
LD-17264	G	9-5-4	JAMES M. JACKSON	TH DEVELOPMENT LLC	1/8	921	325	N/A	N/A
LD-17265	G	9-5-4	SCOTT SUE CUTSHIRT	TH DEVELOPMENT LLC	1/8	921	332	N/A	N/A
LD-17266	G	9-5-4	CHRISTOPHER A. HARRMAN AND JACQUE F. HARRMAN	TH DEVELOPMENT LLC	1/8	925	80	N/A	N/A
LD-17267	G	9-5-4	DALE WARD AND CYNTHIA WARD	TH DEVELOPMENT LLC	1/8	927	267	N/A	N/A
LD-17268	G	9-5-4	THE ESTATE OF AGNES REBE EZZEL CLARK BY DANIEL M. EDWARDS, EXECUTOR	TH DEVELOPMENT LLC	1/8	942	324	N/A	N/A
LD-17269	G	9-5-4	ROBERT W. WELLS & SHERAL SUE WELLS	TH DEVELOPMENT LLC	1/8	942	484	N/A	N/A
LD-17270	G	9-5-4	ROBERT L. WELLS AND MARCEL T. WELLS	TH DEVELOPMENT LLC	1/8	948	212	N/A	N/A
LD-17271	G	9-5-4	DAVID D. WARD AND SHARON D. WARD	TH DEVELOPMENT LLC	1/8	958	24	N/A	N/A
LD-17272	G	9-5-4	BRADMAN N. BUDZIO	TH DEVELOPMENT LLC	1/8	958	19	N/A	N/A
LD-17273	G	9-5-4	DAVID T. WARD	TH DEVELOPMENT LLC	1/8	958	136	N/A	N/A
LD-17274	G	9-5-4	JOYCE K. OWENS	TH DEVELOPMENT LLC	1/8	958	141	N/A	N/A
LD-17275	G	9-5-4	DOANNE WELCH	TH DEVELOPMENT LLC	1/8	958	99	N/A	N/A
LD-17276	G	9-5-4	WENDY J. SMAYERS	TH DEVELOPMENT LLC	1/8	958	277	N/A	N/A
LD-17277	G	9-5-4	LUKE DUGGINS HARRISON	TH DEVELOPMENT LLC	1/8	958	185	N/A	N/A
LD-17278	G	9-5-4	MARCY CAMPBELL HODGSON	TH DEVELOPMENT LLC	1/8	958	187	N/A	N/A
LD-17279	G	9-5-4	DEBRA L. CAMPBELL	TH DEVELOPMENT LLC	1/8	958	192	N/A	N/A
LD-17280	G	9-5-4	ROBERTA BONE AND REBECCA BONE	TH DEVELOPMENT LLC	1/8	957	634	N/A	N/A
LD-17281	H	9-5-4.1	GONITA ADA HAZEL - SR	CHESSVALE APPALACHIA LLC	1/8	695	527	Chessvale to Chevron: 50/451	Chevron to Tag H10: 56/148
LD-17282	H	9-5-4.1	PAUL PATRY JO - SR	CHESSVALE APPALACHIA LLC	1/8	695	519	Chevron to Tag H10: 56/148	Chevron to Tag H10: 56/148
LD-17283	H	9-5-4.1	SCOTT STEPHAN L. FT. VN. - SR	CHESSVALE APPALACHIA LLC	1/8	695	521	Chevron to Tag H10: 56/148	Chevron to Tag H10: 56/148
LD-17284	H	9-5-4.1	GOLBY JOHN E. - SR	CHESSVALE APPALACHIA LLC	1/8	695	529	Chevron to Tag H10: 56/148	Chevron to Tag H10: 56/148
LD-17285	H	9-5-4.1	DANIEL JOSEPH D. - SR	CHESSVALE APPALACHIA LLC	1/8	695	519	Chevron to Tag H10: 56/148	Chevron to Tag H10: 56/148
LD-17286	H	9-5-4.1	STONCI JAZA AIF JOHN HERMAN STONCH - SR	TH DEVELOPMENT LLC	1/8	694	216	N/A	Chevron to Tag H10: 56/148
LD-17287	H	9-5-4.1	DAVID TADEN S. - SR	CHESSVALE APPALACHIA LLC	1/8	694	534	Chevron to Tag H10: 56/148	Chevron to Tag H10: 56/148
LD-17288	H	9-5-4.1	LEONETTE ROBERT A ET UX. - SR	TH DEVELOPMENT LLC	1/8	835	524	N/A	Chevron to Tag H10: 56/148

STATE OF WEST VIRGINIA §
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COUNTY OF MARSHALL §

Jan Pest
MARSHALL County 12:43:01 PM
Instrument No 1404676
Date Recorded 05/20/2016
Document Type AGN
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.

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WV Department of
Environmental Protection

COPY

AFFIDAVIT

STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

On this 18th 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.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18th day of October, 2016.

David D. Kalish
Affiant: David D. Kalish

Jan Post
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 \$5.00

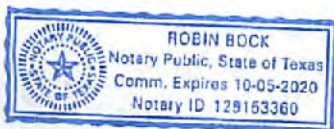
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STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

Sworn and subscribed to (or affirmed) before me on this, the 18th 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



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WV Department of Environmental Protection

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STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

On this 18th 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.

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FEB 23 2018

FURTHER, AFFIANT SAITH NOT.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18th day of October, 2016.

WV Department of
Environmental Protection

David D. Kalish
Affiant: David D. Kalish

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

STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

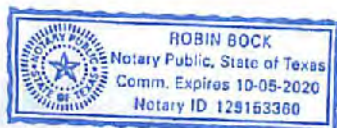
Sworn and subscribed to (or affirmed) before me on this, the 18th day of October, 2016, by David D. Kalish

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

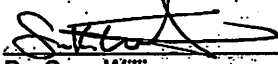
This Memorandum of Agreement is entered into this 16th day of February, 2018, between TUG HILL OPERATING, LLC (THQ), a Texas limited liability company, whose address is 1320 S. University Blvd., Suite 500, Fort Worth, TX 76107 and CHEVRON U.S.A., INC. (Chevron), a Pennsylvania corporation, whose address is 700 Cherrington Parkway, Coraopolis, PA 15108.

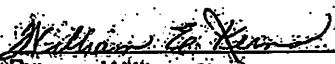
PARTIES AND AGREEMENT REFERENCE: THQ and Chevron entered into a letter agreement ("Letter Agreement") dated February 16th, 2018 (the "Commencement Date") outlining pursuit of definitive agreements to allow THQ the right to permit, drill, extract, produce and market oil and gas from those certain oil and gas interests controlled by Chevron in the Meade District of Marshall County, West Virginia, as more fully described in Exhibit A attached hereto, made a part hereof, and incorporated herein by reference.

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

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

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

Tug Hill Operating, LLC

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

Chevron U.S.A., Inc.

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

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FEB 23 2018

WV Department of Environmental Protection

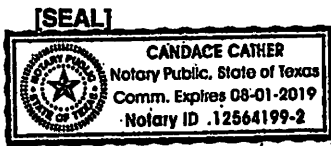
Marshall County
Jan Pest, Clerk
Instrument 1436705
02/16/2018 @ 02:16:57 PM
AGREEMENT
Book 960 @ Page 409
Pages Recorded 2
Recording Cost \$ 11.00

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

STATE OF Texas :

COUNTY OF Tarrant :

Before me, ^{cgc} Sean Willis Candace 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 14th day of February, 2018. My Commission expires: 08/01/2019.



Candace Cather
Notary Public

STATE OF Pennsylvania :

COUNTY OF Allegheny :

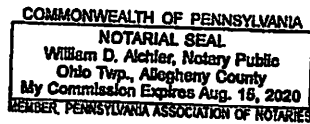
Before me, William D. Acheier, a Notary Public, on this day personally appeared William F. Kelos, known to me to be the Attorney-in-Fact of Chevron U.S.A. Inc., subscribed to the foregoing instrument, and acknowledged to me that he/she executed the instrument for the purposes and consideration therein expressed as his/her free act and deed. Given under my hand and seal of office this 12th day of February, 2018. My Commission expires: 8-15-2020.

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[SEAL]



William D. Acheier
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 14th 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 16th day of February, 2018 at 2:10 o'clock P. M.

TESTE: Jan Pest Clerk.

STATE OF WEST VIRGINIA §
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COUNTY OF MARSHALL §

Jon Post
MARSHALL County 12:43:01 PM
Instrument No 1404876
Date Recorded 05/20/2016
Document Type ASH
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.

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Office of Oil and Gas

FEB 23 2018

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.

WV Department of
Environmental Protection

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 new

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: February 23 & March 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-2HM

Address: 380 Southpointe Blvd, Southpointe Plaza II, Suite 200

Canonsburg, PA 15317

Business Conducted: Natural gas production.

Location –

State: West Virginia

County: Marshall

District: Meade

Quadrangle: Glen Easton 7.5'

UTM Coordinate NAD83 Northing: 4,406,363.91

UTM coordinate NAD83 Easting: 527,305.49

Watershed: Fish Creek

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: 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 57th 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.

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 57th Street, SE Charleston, WV 25304. Please reference the county, well number and operator when using this option.

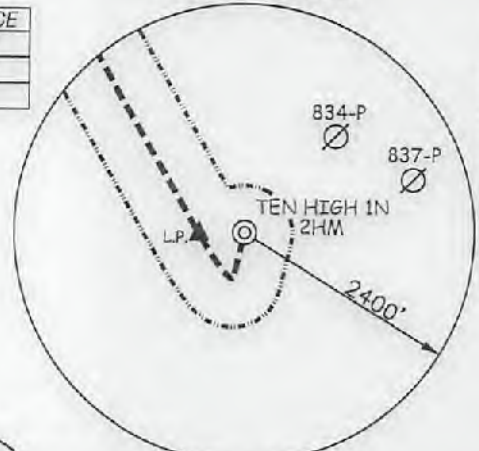
Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

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

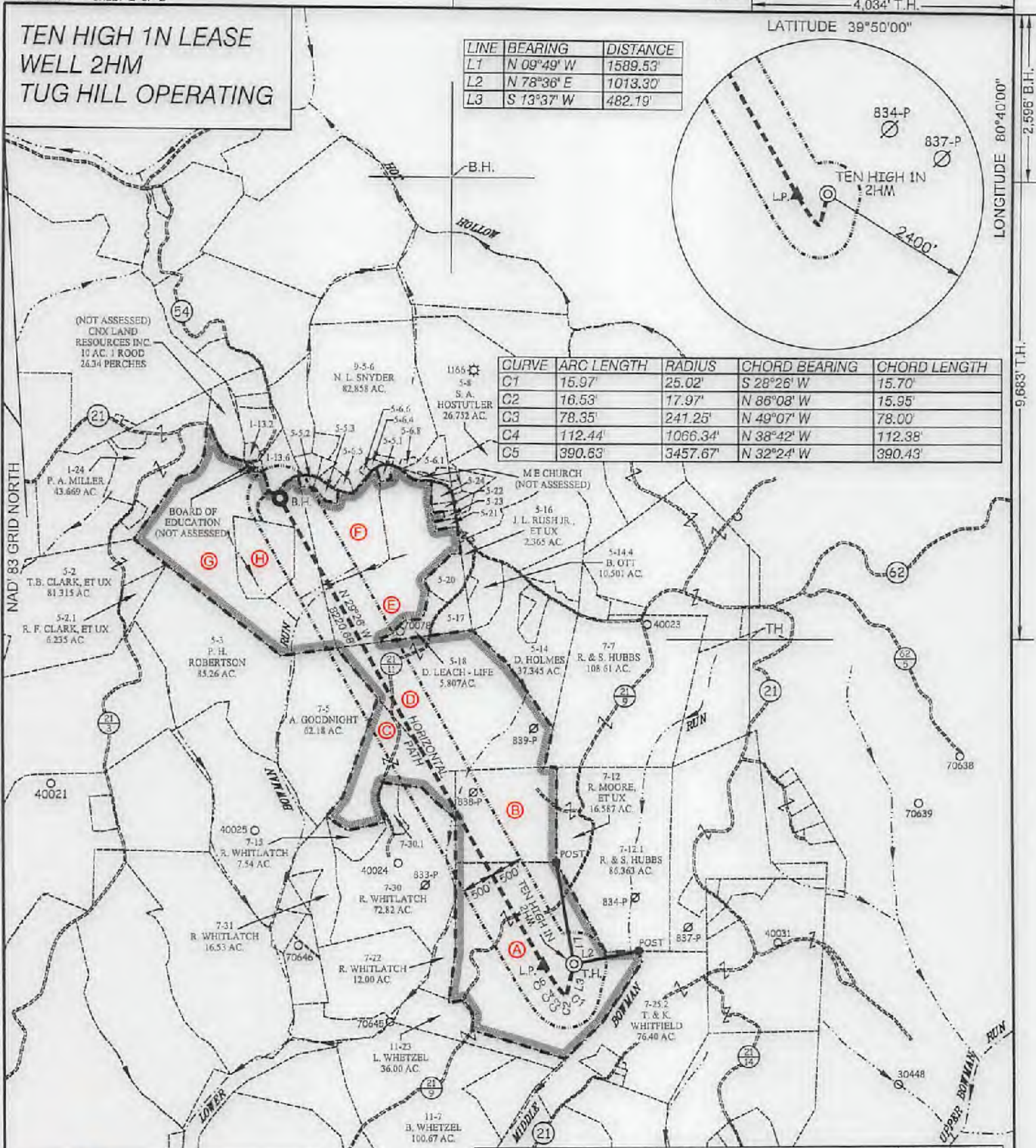
RECEIVED
Office of Oil and Gas
JAN 2 2018
WV Department of
Environmental Protection

**TEN HIGH 1N LEASE
WELL 2HM
TUG HILL OPERATING**

LINE	BEARING	DISTANCE
L1	N 09°49' W	1589.53'
L2	N 78°36' E	1013.30'
L3	S 13°37' W	482.19'



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	15.97'	25.02'	S 28°26' W	15.70'
C2	16.53'	17.97'	N 86°08' W	15.95'
C3	78.35'	241.25'	N 49°07' W	78.00'
C4	112.44'	1066.34'	N 38°42' W	112.38'
C5	390.63'	3457.67'	N 32°24' W	390.43'



SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 482-5634
www.slsurveys.com

TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-24	139.79
B	RONALD MOORE, ET UX	9-7-13	51.49
C	ARNIE GOODNIGHT, ET UX	9-7-14	39.55
D	TERESA L. HORNER WITH JERRY G. & CAROLYN K. FLETCHER (LIFE ESTATE)	9-7-6	103.30
E	MICHAEL JOSEPH SNYDER	9-5-5.4	64.00
F	MICHAEL JOSEPH SNYDER	9-5-5	35.02
G	ELMER ASTON	9-5-4	108.225
H	CONSOLIDATION COAL COMPANY	9-5-4.1	22.775

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 478,141.34 E. 1,636,716.66
 NAD'83 GEO. LAT.(N) 39.806753 LONG.(W) 80.681027
 NAD'83 UTM (M) N. 4,408,357.67 E. 527,304.07

LANDING POINT
 NAD'83 S.P.C.(FT) N. 478,128.4 E. 1,636,241.3
 NAD'83 GEO. LAT.(N) 39.806700 LONG.(W) 80.682718
 NAD'83 UTM (M) N. 4,408,351.3 E. 527,159.3

BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 485,266.1 E. 1,632,201.6
 NAD'83 GEO. LAT.(N) 39.828207 LONG.(W) 80.697438
 NAD'83 UTM (M) N. 4,408,512.0 E. 525,692.2



(+) 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)	

SCALE 1" = 2000' FILE NO. 8655P2HMR5.dwg
 DATE APRIL 20, 20 17
 REVISED 06/15/17, 09/12/17, 12/28/17 & 02/19/18
 OPERATORS WELL NO. TEN HIGH 1N-2HM
 API WELL NO. 47-051-01934 MOD
 NO. STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 H6A

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

TEN HIGH 1N LEASE
WELL 2HM
TUG HILL OPERATING

8,642' B.H. 4,034' T.H.

LATITUDE 39°50'00"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 478,141.34 E. 1,636,716.86
 NAD'83 GEO. LAT-(N) 39.806753 LONG-(W) 80.681027
 NAD'83 UTM (M) N. 4,406,357.67 E. 527,304.07
LANDING POINT
 NAD'83 S.P.C.(FT) N. 478,128.4 E. 1,636,241.3
 NAD'83 GEO. LAT-(N) 39.806700 LONG-(W) 80.682718
 NAD'83 UTM (M) N. 4,406,351.3 E. 527,159.3
BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 485,289.1 E. 1,632,201.6
 NAD'83 GEO. LAT-(N) 39.826207 LONG-(W) 80.697436
 NAD'83 UTM (M) N. 4,408,512.0 E. 525,892.2

B.H.

LONGITUDE 80°40'00"

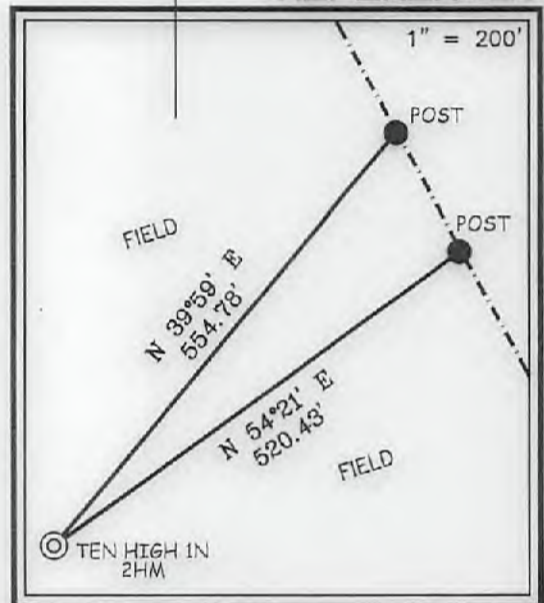
2,596' B.H.

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-1-13.2	RANDALL A. KEREKES	1.518
9-1-13.6	GERALD E. LOGSDON, ET UX	7.621
9-5-5.1	DAVID M. TOLER, ET UX	0.985
9-5-5.2	PETER PARKER	0.873
9-5-5.3	MICHAEL J. & NANCY L. SNYDER	1.870
9-5-6.1	JON B. CRAWFORD	4.679
9-5-6.4	NANCY L. SNYDER	0.694
9-5-6.5	LINDA GORBY DELBERT	1.087
9-5-6.6	NANCY L. SNYDER	0.420
9-5-6.8	NANCY L. SNYDER	0.691
9-5-17	CARLA SUE CROW	6.341
9-5-20	KEITH WILSON - DONALD E. LEACH (LIFE ESTATE)	6.924
9-5-21	RALPH E. WELLMAN, ET UX	1.00
9-5-22	RALPH E. WELLMAN, ET UX	0.5
9-5-23	RALPH E. WELLMAN, ET UX	1.00
9-5-24	ALVIE & MARCELLA DARRAH	1.986
9-7-30.1	ANDREW COREY WHITLATCH	4.55

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 APRIL 20, 20 17
 REVISED 06/15/17, 09/12/17, 12/28/17 & 02/19/18
 OPERATORS WELL NO. TEN HIGH 1N-2HM
 API WELL NO. 47 - D51 - 01934 moo
 STATE COUNTY PERMIT H6A

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8655P2HMR5.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 X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: GROUND = 1,321.00' ELEVATION PROPOSED = 1,310.06' WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC-10)
 DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'
 SURFACE OWNER LAWRENCE & SHIRLEY CONKLE ESTS ACREAGE 139.79±
 ROYALTY OWNER ANDY PAUL & JACKIE KUHN, ET AL - SEE WW-6A1 ACREAGE 139.79±
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
 PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,865' / TMD: 15,329'

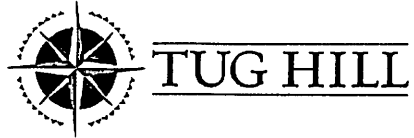
COUNTY NAME

PERMIT

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

Supplemental

51-01934



April 18, 2017

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

RE: Ten High 1N-2HM

Subject: Marshall County Route 21/9 and 21/11 Road Crossing Letter

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-2HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 304-689-7676, or by email at jwhite@tug-hilop.com.

Sincerely,

A handwritten signature in cursive script that reads "Jonathan White".

Jonathan White
Regulatory Analyst – Appalachia Region
Cell 304-689-7676
Email: jwhite@tug-hilop.com

51-01934

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: February 23 & March 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-2HM

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

Business Conducted: Natural gas production.

Location –

State: West Virginia **County:** Marshall
District: Meade **Quadrangle:** Glen Easton 7.5'
UTM Coordinate NAD83 Northing: 4,406,363.91
UTM coordinate NAD83 Easting: 527,305.49
Watershed: Fish Creek

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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



Thursday, February 23, 2017 - Mound

LEGAL ADVERTISEMENT

Horizontal Natural Gas Well Work Permit

Application Notice By Publication Notice is hereby given: Pursuant to West Virginia Code 23-6A-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: February 23 & March 02, 2017

The following applicant intends to apply for a horizontal natural well permit which disturbs three acres or more of surface including 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, Camonsburg, PA 15317 Well Number: TEN HIGH 1N-21M Business Conducted: Natural gas production.

Location - State: West Virginia County: Marshall District: Meade Quadrangle: Glen Easton 7.5

UTM Coordinate NAD83 Northing: 4,606,363.91 UTM coordinate NAD83 Easting: 527,305.49

Watershed: Fish Creek Coordinate Conversion: To convert the coordinates above into longitude and latitude, visit: http://egis.dep.wv.gov/convert/latutm_convus.php

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For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx PUBLISH: February 23, March 2, 2017.

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. 49 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-2HM

NATURE (and agency if heard before one)

CERTIFICATE TO

Tug Hill Operating, LLC Attn: Jonathan White 380 Southpointe Blvd, Southpointe Plaza II - Suite 200 Camonsburg, PA 15317

WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS

Table with columns: Times, Dates, BY WORDS, PUBLICATION CHARGES. Values: 2, February 23, March 2, 2017, 502.25, \$101.05

(Signed)

Melanie S. Murdock

NOTARIAL SEAL OFFICIAL PUBLIC NOTARY STATE OF WEST VIRGINIA AMY W. LUPPHY Notary Public

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 - 01934
Operator's Well No. Ten High 1N-2HM
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>527,304.07</u>
County: <u>Marshall</u>	Northing: <u>4,408,357.67</u>
District: <u>Meade</u>	Public Road Access: <u>Shepherd Ridge Lane (Co. Rt. 21/9)</u>
Quadrangle: <u>Glen Easton 7.5</u>	Generally used farm name: <u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>
Watershed: <u>(HUC 10) Fish Creek</u>	

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

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

Required Attachments:

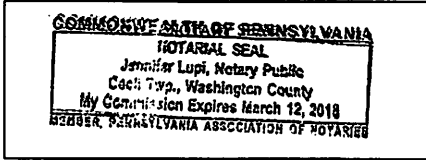
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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 Miller Amy Miller, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

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



Subscribed and sworn before me this 19th day of Dec. 2017.
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.

WW-6A
(9-13)

APINO. 47- 051 - 01934 MOD
OPERATOR WELL NO. Ten High 1N-21M
Well Pad Name: Ten High

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 Lorie A.
Address: 75 Arlington Avenue
Moundsville, WV 26041 *See Attached*

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

Name: Robert G. Hubbs and Scarlett E. Otta
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: 48228 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

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

WW-6A
(8-13)

API NO. 47-051 - 01934 MOD
OPERATOR WELL NO. Ten High 1N-2HM
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 57th 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.**

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.

WW-6A
(8-13)

API NO. 47-051 - 01934 MOD
OPERATOR WELL NO. Ten High 1N-2FM
Well Pad Name: Ten High

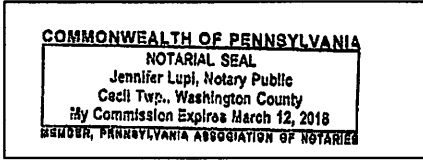
Notice is hereby given by:

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



Subscribed and sworn before me this 20th day of Dec. 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

WW-6A Notice of Application Attachment 1 of 1

Surface Owner(s):

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

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

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

Exhibit WW-6A

Supplement Pg. 1A

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

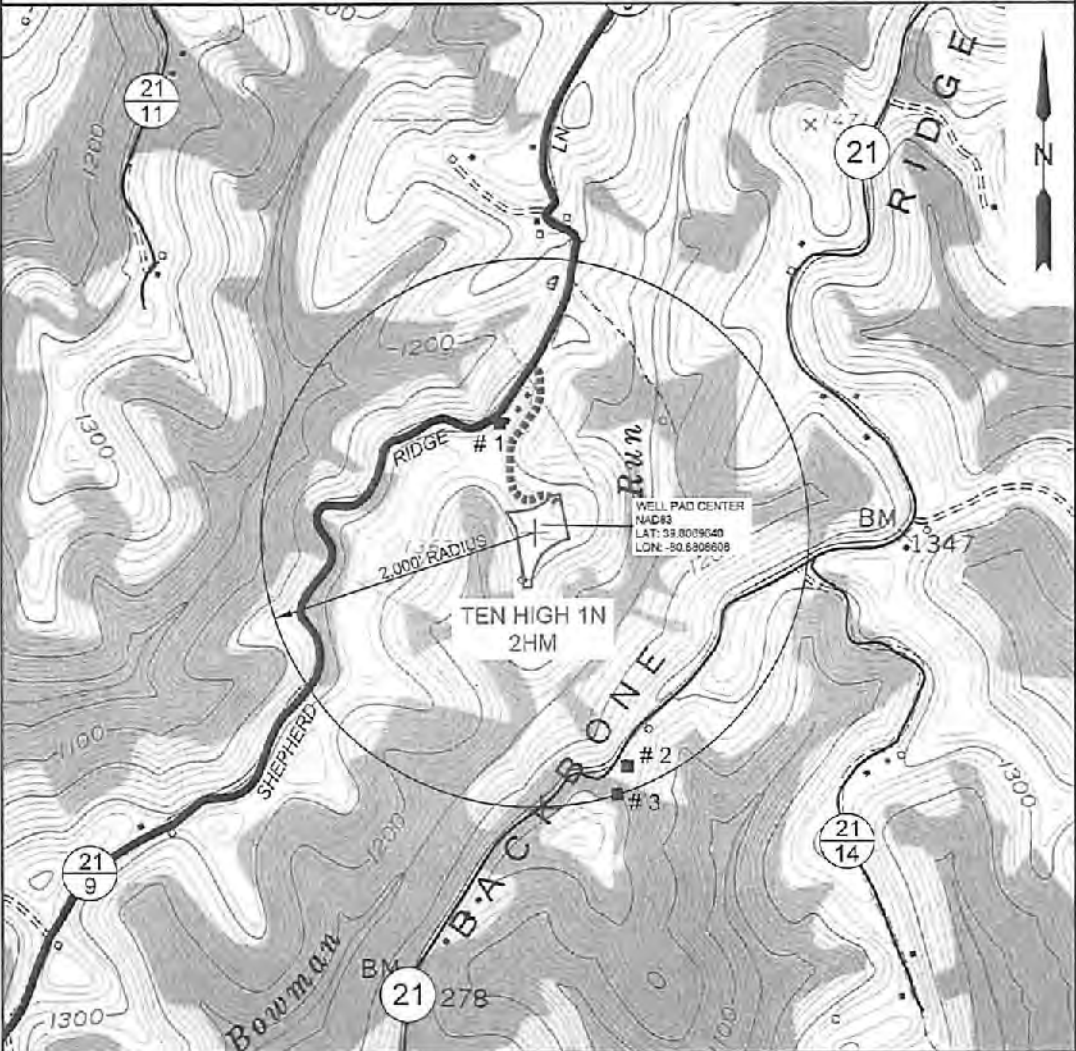
Residences within Two-Thousand Feet (2,000')

Well: Ten High 1N – 2HM
 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.

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

WW-6A **PROPOSED** SUPPLEMENT PG. 1B
TEN HIGH 1N - 2HM



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

 SLS Land & Energy Development Solutions from the ground up. <small>P.O. Box 112 • 12 Vantage Drive • Glenville, WV 26031 • (204) 482-9824 www.slsurvey1.com</small>	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	 TUG HILL OPERATING
K.G.M.	8655	04/13/2017	1" = 1000'	

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

For delivery information, visit our website at www.usps.com

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

Postmark Here

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For delivery information, visit our website at www.usps.com

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

Postmark Here

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OFFICIAL USE

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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

Postmark Here

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For delivery information, visit our website at www.usps.com

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
 46236 National Road
 St. Clairsville, OH 43950

Postmark Here

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 Domestic Mail Only

For delivery information, visit our website at www.usps.com

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

Postmark Here

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

For delivery information, visit our website at www.usps.com

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

Postmark Here

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

For delivery information, visit our website at www.usps.com

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

Postmark Here

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

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 Loris A.
 Address: 75 Arlington Avenue
Moundsville, WV 26041

Name: Larry Leo Conkle and Donna D.
 Address: 154 Conkle Drive
Glen Easton, WV 26039 *See Attached

COAL OWNER OR LESSEE

Name: Murray Energy Corporation
 Address: 45226 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:	<u>WEST VIRGINIA</u>	Approx. Latitude & Longitude:	<u>LAT 39.8067775 LONG -80.8809192</u>
County:	<u>MARSHALL</u>	Public Road Access:	<u>SHEPHERD RIDGE LANE (Co. RT. 21/9)</u>
District:	<u>MEADE</u>	Watershed:	<u>HUC-10 FISH CREEK</u>
Quadrangle:	<u>GLEN EASTON 7.5</u>	Generally used farm name:	<u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>

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

Notice is hereby given by:

Well Operator:	<u>TUG HILL OPERATING, LLC</u>	Address:	<u>380 SOUTHPOINTE BLVD, SOUTHPOINTE PLAZA II, SUITE 200</u>
Telephone:	<u>724-749-8388</u>		<u>CANONSBURG, PA 15317</u>
Email:	<u>JWHITE@TUG-HILLOP.COM</u>	Facsimile:	<u>724-338-2030</u>

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.

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

7016 2140 0000 9580 5338

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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	\$1.40	
Total Postage and Fees	\$9.50	

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

PS Form 3800, April 2015 PSN 753004994001 See Reverse for Instructions

Ten High 1N-1HM
Ten High 1N-2HM
Ten High 1N-3HM
Ten High 1N-4HM
Ten High 1N-11HU
Ten High 1N-12HU
Ten High 1N-13HU
WW-A63

7016 2140 0000 9580 5345

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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	\$9.50	

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

PS Form 3800, April 2015 PSN 753004994001 See Reverse for Instructions

7016 2140 0000 9580 5352

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Extra Services & Fees (check box, add fee as appropriate)	\$0.75	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	\$9.50	

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

PS Form 3800, April 2015 PSN 753004994001 See Reverse for Instructions

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SAINT CLAIRSVILLE OH 43950

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Certified Mail Fee	\$3.35	0518
Extra Services & Fees (check box, add fee as appropriate)	\$0.75	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 ENERGEY CORPORATION
45225 NATIONAL ROAD
ST CLAIRSVILLE OH 43950

PS Form 3800, April 2015 PSN 753004994001 See Reverse for Instructions

7016 2140 0000 9580 5369

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GLEN EASTON WV 26039

OFFICIAL USE

Certified Mail Fee	\$7.35	0518
Extra Services & Fees (check box, add fee as appropriate)	\$0.75	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	\$9.50	

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

PS Form 3800, April 2015 PSN 753004994001 See Reverse for Instructions

7076 2140 0000 9580 9376

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GLEN EASTON WV 26039	
Certified Mail Fee	\$3.25
	\$7.75
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$11.00
<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	BRENDA JOYCE WHETZEL
Street and Apt.	1853 SHEPHERDS RIDGE LANE
City, State, ZIP+4	GLEN EASTON WV 26039
PS Form 3800, April 2015 PSN 753002-000-9047 See Reverse for Instructions	

Ten High 1N-1HM
 Ten High 1N-2HM
 Ten High 1N-3HM
 Ten High 1N-4HM
 Ten High 1N-11HU
 Ten High 1N-12HU
 Ten High 1N-13HU
 WW-A63

7076 2140 0000 9580 9383

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GLEN EASTON WV 26039	
Certified Mail Fee	\$3.25
	\$7.75
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$11.00
<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	ROBERT G HUBBS AND SCARLETT OTTE
Street and Apt.	132 SHEPHERDS RIDGE LANE
City, State, ZIP+4	GLEN EASTON WV 26039
PS Form 3800, April 2015 PSN 753002-000-9047 See Reverse for Instructions	

WW-6A5
(1/12)Operator Well No. Ten High 1N-2HM

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

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

Date of Notice: 04/21/2017 **Date Permit Application Filed:** 04/24/2017

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

CERTIFIED MAIL **HAND**
RETURN RECEIPT REQUESTED **DELIVERY**

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

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

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

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

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>527,305.49</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,363.91</u>
District:	<u>Meado</u>	Public Road Access:	<u>Shepherd Ridge Lane (Co. Rt. 21/9)</u>	
Quadrangle:	<u>Glen Easton 7.5</u>	Generally used farm name:	<u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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

Operator Well Nos. TEN HIGH 1N-2HM

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

51-01934900

Ten High 1N-2H WW-6A5

7016 2140 0000 9580 5567

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Extra Services & Fees (check box, add fee to postage)	\$0.00
<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 \$9.85
Total Postage \$13.20

0518
1
Postmark Here
04/22/2017

Sent To: Estate of Lawrence & Shirley Conkle
C/O Roy Conkle
75 Arlington Ave
Moundsville, WV 26041

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

7016 2140 0000 9580 5574

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Extra Services & Fees (check box, add fee to postage)	\$0.00
<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 \$9.85
Total Postage \$13.20

0518
1
Postmark Here
04/22/2017

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

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

7016 2140 0000 9580 5581

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Extra Services & Fees (check box, add fee to postage)	\$0.00
<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 \$9.85
Total Postage \$13.20

0518
1
Postmark Here
04/22/2017

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

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

7016 2140 0000 9580 5598

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GLEN EASTON, WV 26039

POSTAL USE

Certified Mail Fee	\$3.35
Extra Services & Fees (check box, add fee to postage)	\$0.00
<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 \$9.85
Total Postage \$13.20

0518
1
Postmark Here
04/22/2017

Sent 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

51-01934

Ten High 1N-2H WW-6A5

7016 2140 0000 9560 5611

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Certified Mail Fee	\$3.35
Extra Services & Fees (check box, add fee to postage)	\$0.00
<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 \$9.85

Total Postage and \$13.20

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

0518
 1
 Postmark Here

04/22/2017

PS Form 3800, April 2015 PSN 7509-02-900-9047 See Reverse for Instructions

7016 2140 0000 9560 5611

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$9.85

Total Postage and \$13.20

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

0518
 1
 Postmark Here

04/22/2017

PS Form 3800, April 2015 PSN 7509-02-900-9047 See Reverse for Instructions



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505Jim Justice
GovernorThomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

March 13, 2017

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304Subject: DOH Permit for the Ten High 1N Pad, Marshall County
Ten High 1N Unit-2HM Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permits #06-2017-0127 which have 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,

Handwritten signature of Gary K. Clayton in cursive.

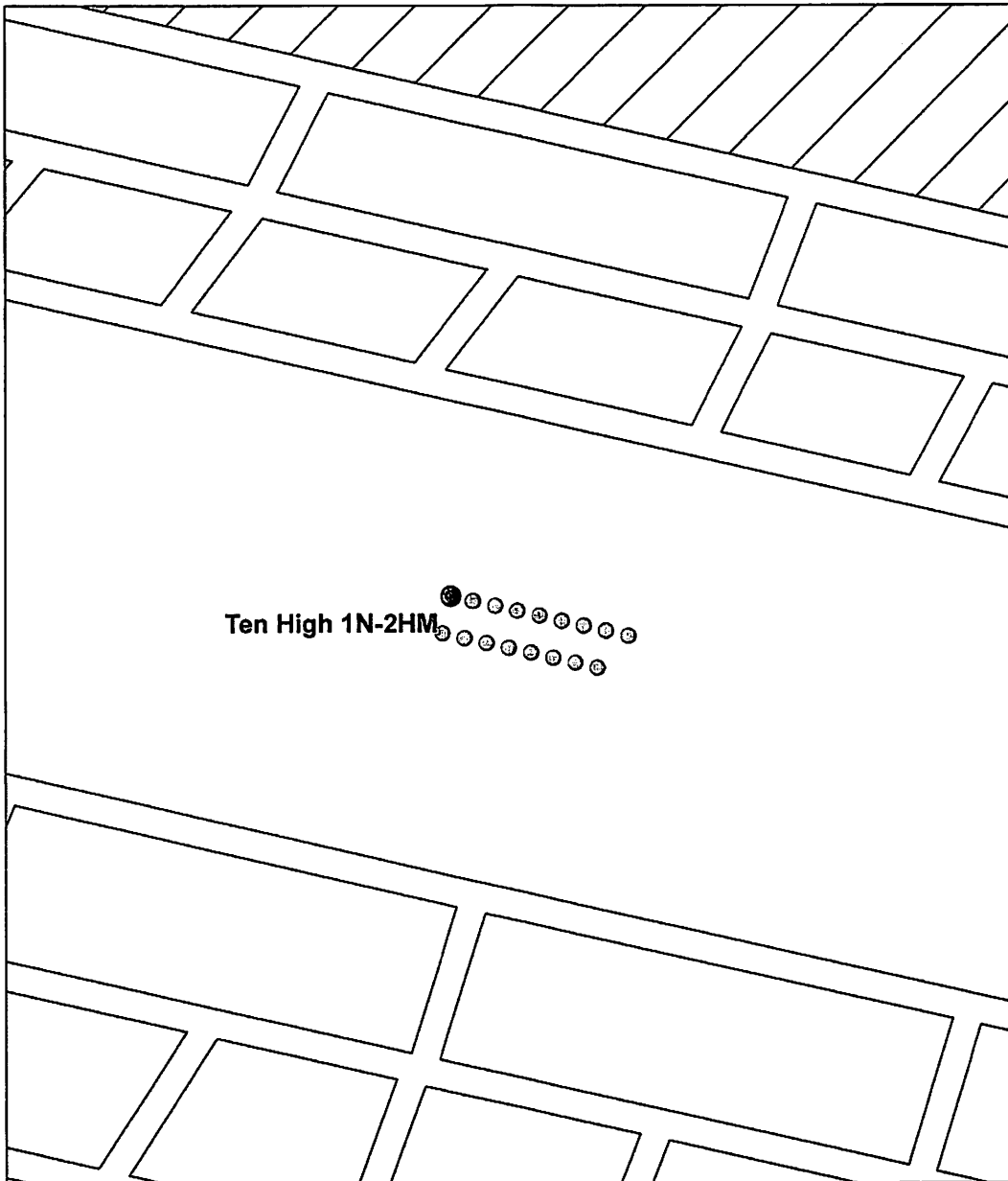
Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G CoordinatorCc: Jonathan White
Tug Hill Operating, LLC
CH, OM, D-6
File



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Ten High 1N-2HM

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



	<p>CONFIDENTIAL</p>	<p>Ten High Pad Ten High 1N-2HM Well Location</p> <p> Surface Location Coal Mined Area</p>	
--	----------------------------	---	--

Map Created By: [unreadable] on 06/20/17

National Flood Hazard Layer FIRMette



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**
- Efficative
- 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.



WW-6A7
(6-12)

OPERATOR: Tug Hill Operating, LLC WELL NO: Ten High 1N-2HM

PAD NAME: Ten High

REVIEWED BY: Amy Miller SIGNATURE: *Amy Miller*

WELL RESTRICTIONS CHECKLIST

HORIZONTAL 6A WELL

Well Restrictions

- At Least 100 Feet from Pad and LOD (including any E&S Control Feature) to any Perennial Stream, Lake, Pond, Reservoir or Wetland; OR
- DEP Waiver and Permit Conditions
- At Least 300 Feet from Pad and LOD (including any E&S Control Feature) to any Naturally Producing Trout Stream; OR
- DEP Waiver and Permit Conditions
- At Least 1000 Feet from Pad and LOD (including any E&S Control Feature) to any Groundwater Intake or Public Water Supply; OR
- DEP Waiver and Permit Conditions
- At Least 250 Feet from an Existing Water Well or Developed Spring to Well Being Drilled; OR
- Surface Owner Waiver and Recorded with County Clerk, OR
- DEP Variance and Permit Conditions
- At Least 625 Feet from an Occupied Dwelling Structure to Center of the Pad; OR
- Surface Owner Waiver and Recorded with County Clerk, OR
- DEP Variance and Permit Conditions
- At Least 625 Feet from Agricultural Buildings Larger than 2500 Square Feet to the Center of the Pad; OR
- Surface Owner Waiver and Recorded with County Clerk, OR
- DEP Variance and Permit Conditions
-

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

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

Data Sources Reviewed:

1. IHS Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases

2. Farm Maps

3. Topo Maps: Recent and older (contact WVGES)

4. Check with DPS

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (12/19/2016) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with IHS All Wells Layer

2. Map with Farm lines overlain and any well spots identified on Farm Maps

3. More recent (1970s vintage) topos and older topos

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-2HM
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	5737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101944	Tug Hill Operating	5737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101945	Tug Hill Operating	5737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101943	Tug Hill Operating	5737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101964	Tug Hill Operating	5737' TVD planned	None	None	No, Permitted Marcellus well	Permitted Marcellus well. Not yet drilled
4705101973	Tug Hill Operating	5737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101974	Tug Hill Operating	5737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101975	Tug Hill Operating	5737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101976	Tug Hill Operating	5737' TVD planned	None	None	No, Permit submitted Marcellus well	Permit submitted Marcellus well. Not yet drilled
4705101950	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
4705100838	Hope Natural Gas	Unknown	Unknown	Unknown	Unknown but unlikely. Appears to be an old shallow producing well that has since been plugged	Old well records are incomplete. A field survey was conducted to locate this well and evidence of this well was found.

Select County: **0511 Marshall**

Check All

Well Name: **00336**

Location
 Production
 Permit

County/Commission
 Geography
 Lease

Show Well
 Links
 Edit Well List

Well: County = 01 Permit = 00836

Well Reassignment Information: Reassigned From
0511 COUNTY SUB PERMIT NEW COUNTY NEW PLANT

Location Information: **Map View**

API: **05110838** County: **001** Well: **00336** State: **WV** Section: **04** Range: **04** Township: **04** Meridian: **04**

There is no Bottom Hole Location data for this well

Owner Information:

API: **05110838** State: **WV** County: **001** Well: **00336** Lease: **00336** Owner: **00336** Operator: **00336**

Completion Information:

API: **05110838** State: **WV** County: **001** Well: **00336** Well Type: **00336** Completion: **00336**

There is no Pay data for this well

There is no Production Gas data for this well

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

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

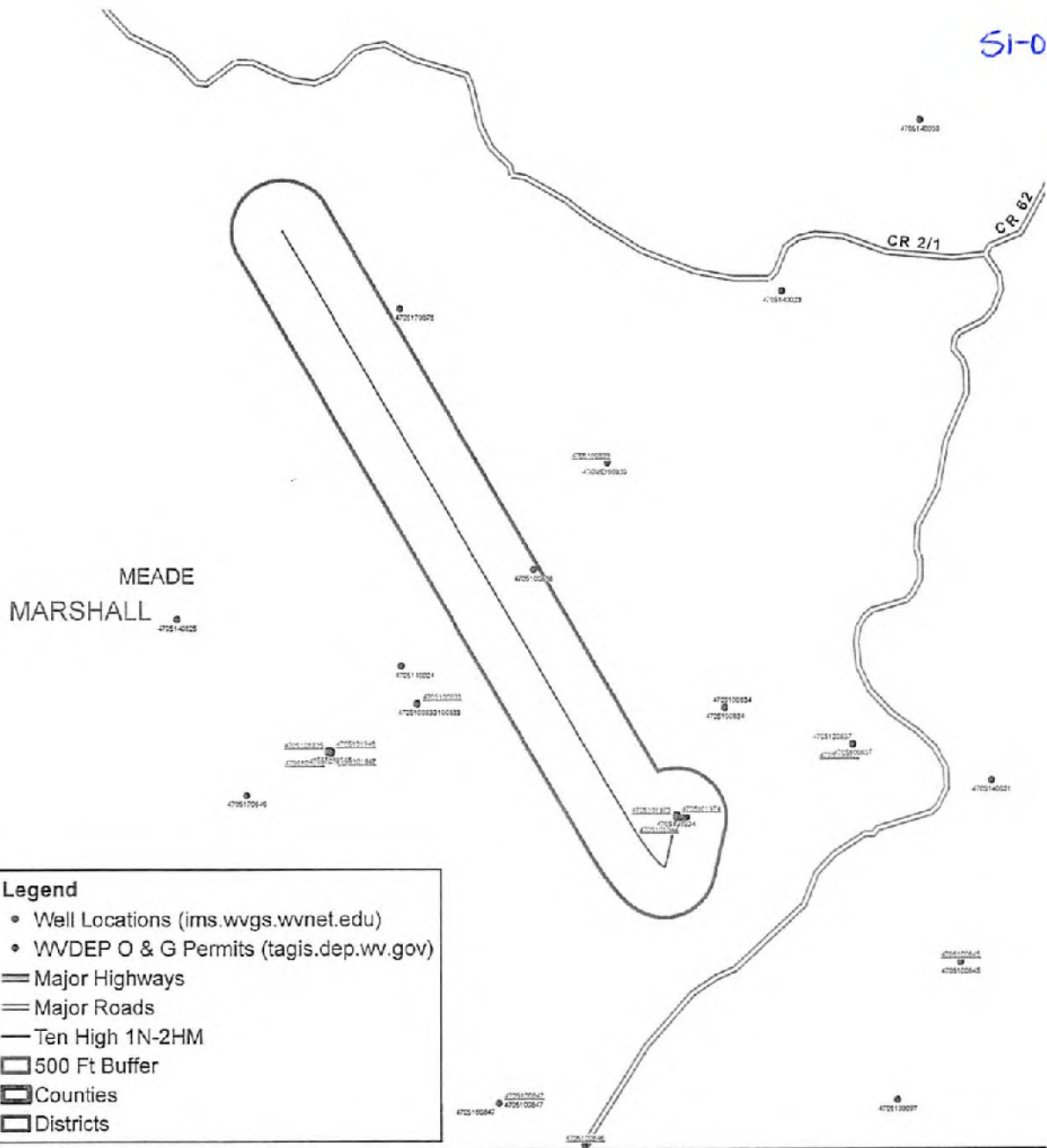
There is no Density data for this well

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

Plugged Information:

API: **05110838** State: **WV** County: **001** Well: **00336**

SI-01934400

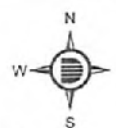


Legend

- Well Locations (ims.wvgs.wvnet.edu)
- WVDEP O & G Permits (tags.dep.wv.gov)
- == Major Highways
- == Major Roads
- Ten High 1N-2HM
- 500 Ft Buffer
- ▭ Counties
- ▭ Districts



Ten High 1N - 2HM
Meade District
Marshall County, WV





December 29, 2017

WVDEP Office of Oil & Gas
Attn: Laura Adkins
601 57th Street, SE
Charleston, WV 25304-2345

Subject: **Permit Modification Request** for Ten High 1N-2HM API 47-051-01934 located in Meade District; Marshall County, WV
Changes to Permit: Well Head Location, Slight Landing Point Change, Bottom Hole Location Revision

Dear Laura:

As you know, we are revising all our permits / applications on our Ten High Pad. At your request, enclosed is an entirely new permit application package for the Ten High 1N-2HM, which is an **approved well work permit**. Although an entirely new package, the only sections of the permit that are revised are as follows:

- Revised WW-6B (approved by Jim Nicholson)
- Revised Well Site Safety Plan (prevailing wind map update, updated plat section, updated casing information and updated spider plot map) (Approved by Jim Nicholson)
- Revised Mylar Well Plat (Approved by Jim Nicholson)
- Revised Water Management Plan
- Revised supplemental map for WW-9
- Revised Well Plat
- Updated Area of Review for Communication
- Surface owners and Coal Owner/Operator were sent new WW-6A forms and required information.

If you have any question or need any additional information please feel free to call me at 304-376-0111. Thank you for your consideration in this matter.

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

380 SOUTHPOINTE BLVD • SUITE 200 • CANONSBURG, PA 15317 • T 724.485-2000 • F
724.338.2030

51-01934603

OPERATOR: Tug Hill Operating, LLC

PAD NAME: Ten High WELL: Ten High 1N-2HM

PAD BUILT: YES NO DATE REVIEWED: 12-29-2017 INT. AM

REVIEWED BY (APPLICANT): Amy Miller

CONTACT PHONE: 304-376-0111 EMAIL: amiller@tug-hilop.com

APPLICANT SIGNATURE: *Amy Miller*

CHECKLIST FOR FILING A PERMIT HORIZONTAL 6A WELL

Please include these required elements in the Horizontal Well 6A applications, in order listed below.
Do not use staples.

First Well	Subsequent Well
\$10,150.00 <input type="checkbox"/>	\$5,150.00 <input type="checkbox"/>

Fee already submitted

Fees

Checklist / Cover letter

WW-6B Notice of Application

Field Approved

Cement Additives

Well Bore Schematic

WW-9 Fluids/Cuttings Disposal and Reclamation Plan

Field Approved

Site Safety Plan See CD

Field Approved

Water Management Plan

Please Permit DWWM Approval

Topographic Map w/water purveyors, showing access road

Mylar Plat (Signed and sealed) (Surface Owner matches WW-6A)

WW-6A1 Lease Information See attached Affidavit for Tug Hill Operating, LLC subsidiary Companies

Road Crossing Letter

WW-PN Application Notice by Publication

Public Notice (dated copy of advertisement or affidavit of publication)

- WW-6AC Notice Certifications, notarized
- WW-6A Notice of Application notarized w/ any attachments
- Topographic Map with labeled surrounding water wells
- Certified Mail receipts for WW-6A
- WW-6A3 Notice of Entry for Plat Survey
- Certified Mail receipts for WW-6A3
- WW-6A4 Notice of Intent to Drill
- Certified Mail receipts for WW-6A4
- WW-6A5 Notice of Planned Operation
- Certified Mail receipts for WW-6A5
- WW-6RW Well Location Restriction Waiver
- WW-6AW Voluntary Statement of No Objection
- Waiver for Surface Owner at Wellhead
- Waiver for Surface Owner for Roads or other Disturbances
- Waiver for Coal Owner, Operator or Lessee
- Waiver for surface owner for Impoundment or Pit
- Waiver for Surface Owner or Water Purveyor within 1500 feet of Center of Pad
- Waiver for Natural gas Storage Field Operator
- Road Bonding Agreement / DOH Certification
- Frac Additives List of Chemical Names & CAS #s
- Site Construction, Reclamation, Erosion & Sediment Control Plans Field Approved
- Copy of To Scale Plans Note: Updated As-Built plans submitted on 12/21/2017
- Mailed in Field Inspector packet mailed to inspector (Plat, Topographic Map, WW-6B, WW-9, All Plans)
- Bond (\$250,000)
- Operator is registered with the SOS

X Workers Compensation / Unemployment Insurance account is OK

X Professional Engineer/Company has COA

X Check for Mine Data at proposed coordinates

X Check for Floodplain Data at proposed coordinates

N/A IMP-1A Associated Pit or Impoundment

X WW-6A7 Well Restrictions Form w/ Signature

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

____ DEP Waiver and Permit Conditions

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

____ DEP Waiver and Permit Conditions

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

____ DEP Waiver and Permit Conditions

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

____ Surface Owner Waiver and Recorded with County Clerk, OR

____ DEP Variance and Permit Conditions

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

____ Surface Owner Waiver and Recorded with County Clerk, OR

____ DEP Variance and Permit Conditions

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

____ Surface Owner Waiver and Recorded with County Clerk, OR

____ DEP Variance and Permit Conditions

X Area of Review for Communication Purposes