



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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, September 18, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
550 BAILEY AVENUE, SUITE 510

FORT WORTH, TX 76107

Re: Permit approval for TEN HIGH 1N-4HM
47-051-01945-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: TEN HIGH 1N-4HM
Farm Name: LAWRENCE & SHIRLEY CONKLE ESTS
U.S. WELL NUMBER: 47-051-01945-00-00
Horizontal 6A / New Drill
Date Issued: 9/18/2017

Promoting a healthy environment.

09/22/2017

PERMIT CONDITIONS

047-051-01945

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

09/22/2017

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

WW-6B
(04/15)

JUN 26 2017

API NO. 47-051 -
OPERATOR WELL NO. Ten High 1N-4HM
Well Pad Name: Ten High

WV Department of
Environmental Protection

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-4HM 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: 1317' Elevation, proposed post-construction: 1310'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

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6/19/17

6) Existing Pad: Yes or No No

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

8) Proposed Total Vertical Depth: 6,865'

9) Formation at Total Vertical Depth: Onondoga

10) Proposed Total Measured Depth: 13,908'

11) Proposed Horizontal Leg Length: 6,658'

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

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

14) Approximate Saltwater Depths: 2180'

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

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

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

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine
Depth: 1020' TVD and 297' subsea level
Seam: Pittsburgh #8
Owner: Murray Energy / Consolidated Coal Co.

WW-6B
(04/15)

JUN 26 2017

API NO. 47- 051 - _____
OPERATOR WELL NO. Ten High 1N-4HM
Well Pad Name: Ten High

WV Department of
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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	125'	120'	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	1,086'	1,076'	1098ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,086'	1,076'	1098ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,814'	2,804'	916ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	13,908'	13,898'	3554ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,408'	
Liners	N/A						

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6/19/17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_ 8 3/4	.361	12,640	10,112	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8960		
Liners	N/A						

PACKERS

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

WW-6B
(10/14)

API NO. 47- 051 - _____
OPERATOR WELL NO. Ten High 1N-4HM
Well Pad Name: Ten High

8/19/17

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 16,645,000 lb proppant and 257,344 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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

23) Describe centralizer placement for each casing string:

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

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

*See Attached

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

Conductor, Coal and Fresh Water Casing Cement:

Premium NE-1 + 2% CaCl

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

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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

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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

Operator's Well No. Ten High 1N-4HM**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

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Permit well - Ten High 1N-4HM

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map (page 3) are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots

Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Comments
4705100839	Manufacturer's Light and Heat/McElroy Coal Co.	Unknown	Unknown	Unknown	Well records are incomplete. Well plugged 1/20/1999. A field survey was conducted to locate this well and no evidence of this well was found. Well records incomplete. Listed as art of Orphan well program. Well plugged 8/6/1998. A field survey was conducted to locate this well and no evidence of this well was found.
4705100834	McElroy Coal Co.	Unknown	Unknown	Unknown	Unknown but unlikely, probably an old shallow well. Plugged back and reentered at least once. Now plugged

WV Geological & Economic Survey

Well Reassignment Information: Reassigned From
 OLD_COUNTY OLD_PERMIT NEW_COUNTY NEW_PERMIT
 61 10043 61 832

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_EXTRACT	QUAD_75	QUAD_75	LAT_DD	LONG_DD	UTM_E	UTM_N
4705100839	Marshall	829	None	None	None	229.15421	-30.02224	827097.6	4421481

There is no Bottom Hole Location data for this well

Owner Information

API	CMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PRO
4705100839	1-02-1699		Plugging	Completed	Jerry B. Conroy	Platcher	810-01-04			McElroy Coal Company		

Completion Information

API	CMP_ID	SPUD_DT	ELEV DATUM	FIELD DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	BD	CMP_MTHD	TVD	EMD	NEW
4705100839	1-02-1699	12/14/1998	1140	Ground Level						Not available	Unknown	Unknown	

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Stratigraphy data for this well

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

Plugging Information

API	PLUG_DT	DEPTH_FBT
4705100839	1-20-1999	3

There is no Sample data for this well

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WV Geological & Economic Survey

Well Reassignment Information: Reassigned From
 OLD_COUNTY OLD_PERMIT NEW_COUNTY NEW_PERMIT
 61 22492 61 834

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_EXTRACT	QUAD_75	QUAD_75	LAT_DD	LONG_DD	UTM_E	UTM_N
4705100834	Marshall	824	None	None	None	229.02776	-30.01209	827454.3	4400883

There is no Bottom Hole Location data for this well

Owner Information

API	CMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PRO
4705100834	1-02-1699		Completed	None	None	None	None	None	None	None	None	None

Completion Information

API	CMP_ID	SPUD_DT	ELEV DATUM	FIELD DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	BD	CMP_MTHD	TVD	EMD	NEW
4705100834	1-02-1699	7/28/1998	1182	Ground Level						Not available	Unknown	Unknown	

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Stratigraphy data for this well

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

Plugging Information

API	PLUG_DT	DEPTH_FBT
4705100834	1-10-1998	3

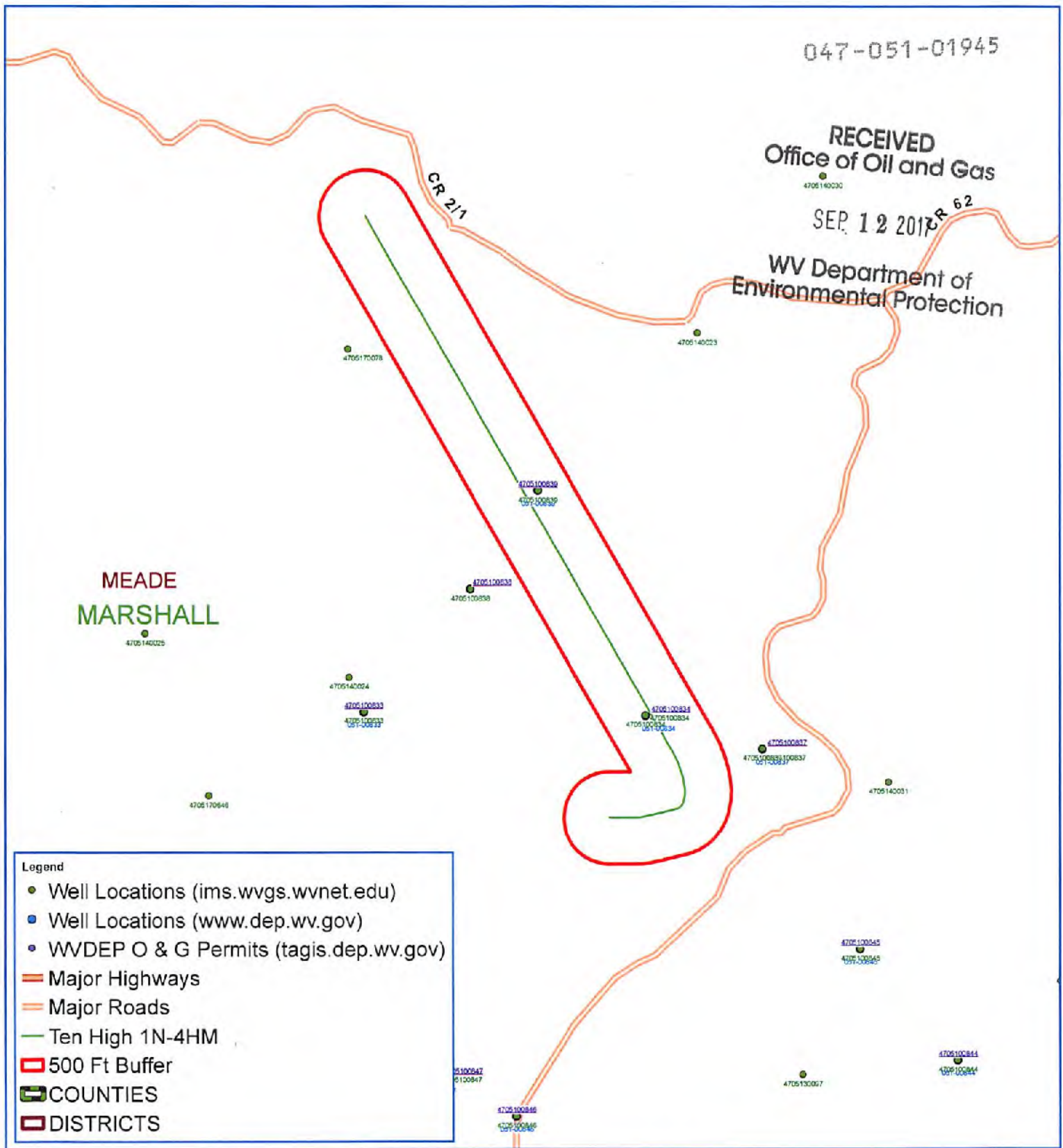
There is no Sample data for this well

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MEADE
MARSHALL
4705140025

- Legend
- Well Locations (ims.wvgs.wvnet.edu)
 - Well Locations (www.dep.wv.gov)
 - WVDEP O & G Permits (tagis.dep.wv.gov)
 - Major Highways
 - Major Roads
 - Ten High 1N-4HM
 - 500 Ft Buffer
 - COUNTIES
 - DISTRICTS



Ten High 1N-4HM Meade District Marshall County, WV



Map Created: June 1, 2017
Map Current As Of: June 1, 2017

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



WELL NAME: Ten High 1N-4HM
 STATE: West Virginia COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 1,310' GL Elev: 1,310'
 TD: 13,898'
 TH Latitude: 39.80674699
 TH Longitude: -80.68066331
 BH Latitude: 39.82460971
 BH Longitude: -80.69004467

John
6/19/17



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1026
Sewickley Coal	935
Pittsburgh Coal	1020
Big Lime	2049
Weir	2475
Berea	2673
Gordon	2935
Rhinestreet	6057
Genesee/Burkett	5575
Tully	5606
Hamilton	5639
Marcellus	5733
Landing Depth	6742
Onondaga	6755
Pilot Hole Depth	6855

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	39W	39W	Surface
Surface	17.5	13 3/8	1,076'	1,076'	48	H40	Surface
Intermediate 1	12 1/4	9 5/8	2,804'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	13,896'	6,626'	20	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,129	A	15.8	Air	3 Centralizers at equal distance
Intermediate 1	897	A	15	Air	1 Centralizer every other jt
Production	3,134	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to stc

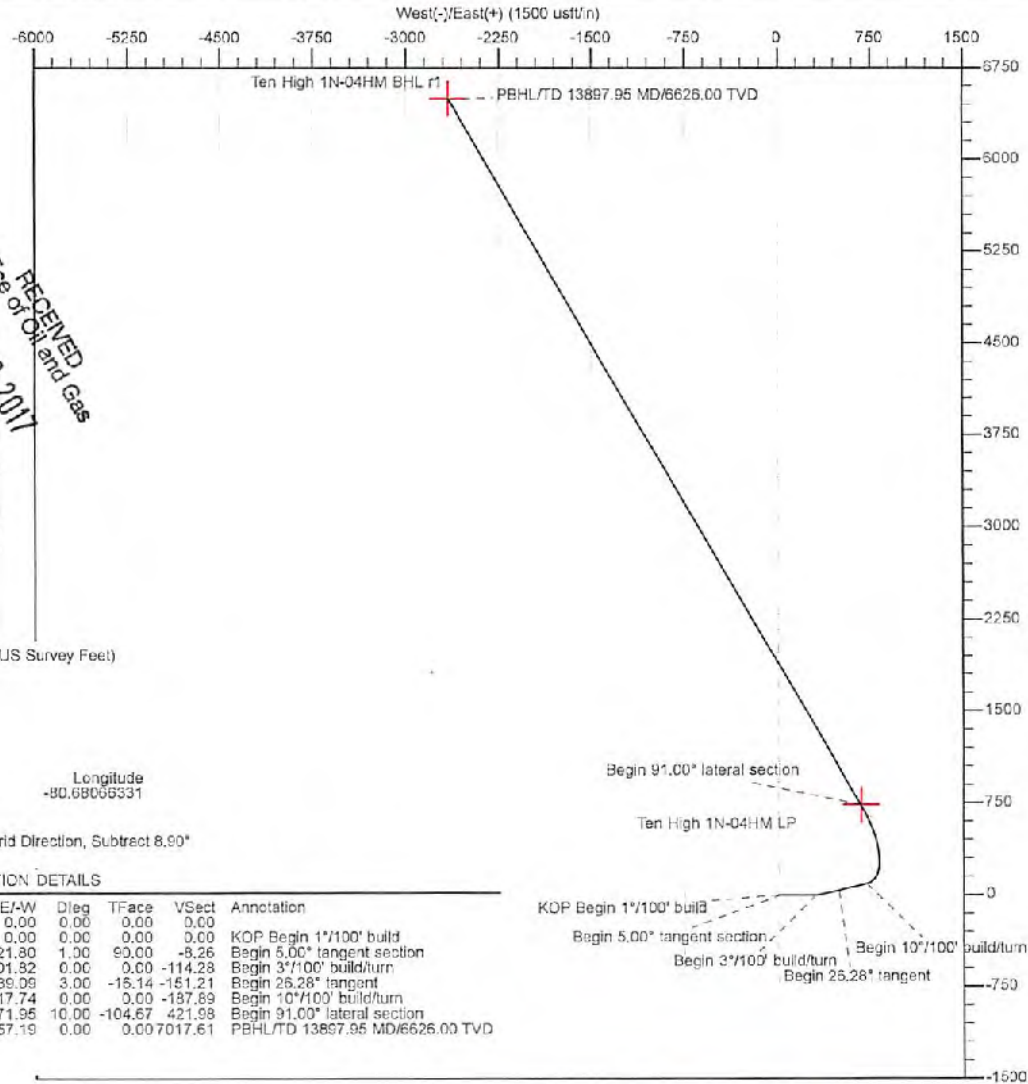
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TUG HILL
OPERATING

Well: Ten High 1N-04HM (I)
Site: Ten High
Project: Marshall County, West Virginia
Design: rev1



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

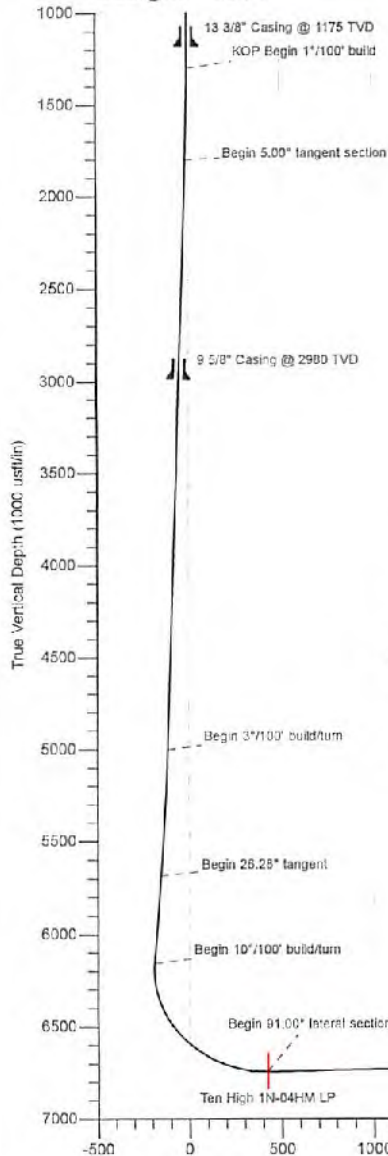
System Datum: Mean Sea Level
Depth Reference: GL=1310 @ 1310.00usft

Northing 14466523.42 Easting 1730098.89 Latitude 39.60574998 Longitude -80.68066331

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.90°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1'100' build
3	1800.00	5.00	90.00	1799.37	0.00	21.30	1.00	90.00	-8.26	Begin 5.00° tangent section
4	5012.66	5.00	90.00	5000.00	0.00	301.32	0.00	0.00	-114.28	Begin 3'100' build/turn
5	5727.43	26.28	76.73	5694.29	35.72	489.09	3.00	-15.14	-151.21	Begin 26.28° tangent
6	6258.09	26.28	76.73	6160.13	90.63	717.74	0.00	0.00	-187.89	Begin 10'100' build/turn
7	7240.38	91.00	329.99	6742.00	730.83	671.95	10.00	-104.67	421.98	Begin 91.00° lateral section
8	13897.95	91.00	329.99	6626.00	6495.09	-2657.19	0.00	0.00	7017.61	PBHL/TD 13897.95 MD/6626.00 TVD



Azimuths to Grid North
True North: -0.20°
Magnetic North: -8.90°

Magnetic Field
Strength: 52211.5nT
Dip Angle: 66.99°
Date: 3/11/2017
Model: IGRF2015

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Planning Report - Geographic

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Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-04HM (I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1310 @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1310 @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-04HM (I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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

Site	Ten High				
Site Position:		Northing:	14,456,545.60 usft	Latitude:	39.80680865
From:	Lat/Long	Easting:	1,730,001.41 usft	Longitude:	-80.68101011
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	Ten High 1N-04HM (I)					
Well Position	+N-S	0.00 usft	Northing:	14,456,523.42 usft	Latitude:	39.80574699
	+E-W	0.00 usft	Easting:	1,730,098.89 usft	Longitude:	-80.68066331
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level:	1,310.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/11/2017	-8.70	66.99	52,211.46455334

Design	rev1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	337.75	

Plan Survey Tool Program	Date	5/25/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	13,897.95 rev1 (Original Hole)	MWD	MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	5.00	90.00	1,799.37	0.00	21.80	1.00	1.00	0.00	90.00	
5,012.86	5.00	90.00	5,000.00	0.00	301.82	0.00	0.00	0.00	0.00	
5,727.43	26.28	76.73	5,684.29	36.72	489.09	3.00	2.98	-1.86	-16.14	
6,258.09	26.28	76.73	6,160.13	90.83	717.74	0.00	0.00	0.00	0.00	
7,240.36	91.00	329.99	6,742.00	730.83	671.95	10.00	6.59	-10.87	-104.67	Ten High 1N-04HM Lf
13,897.95	91.00	329.99	6,626.00	6,495.09	-2,657.19	0.00	0.00	0.00	0.00	Ten High 1N-04HM Bl

JUN 26 2017



Planning Report - Geographic

WV Department of
Environmental Protection

Database: DB_Jul2216dt_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Ten High
Well: Ten High 1N-04HM (I)
Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Well Ten High 1N-04HM (I)
TVD Reference: GL=1310 @ 1310.00usft
MD Reference: GL=1310 @ 1310.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
100.00	0.00	0.00	100.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
200.00	0.00	0.00	200.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
300.00	0.00	0.00	300.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
400.00	0.00	0.00	400.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
500.00	0.00	0.00	500.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
600.00	0.00	0.00	600.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
700.00	0.00	0.00	700.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
800.00	0.00	0.00	800.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
900.00	0.00	0.00	900.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,456,523.42	1,730,098.89	39.80674699	-80.68066331
KOP Begin 1°/100' build									
1,400.00	1.00	90.00	1,399.99	0.00	0.87	14,456,523.42	1,730,099.76	39.80674698	-80.68068020
1,500.00	2.00	90.00	1,499.86	0.00	3.49	14,456,523.42	1,730,102.38	39.80674696	-80.68065088
1,600.00	3.00	90.00	1,599.86	0.00	7.85	14,456,523.42	1,730,106.74	39.80674691	-80.68063535
1,700.00	4.00	90.00	1,699.88	0.00	13.96	14,456,523.42	1,730,112.85	39.80674686	-80.68061361
1,800.00	5.00	90.00	1,799.37	0.00	21.80	14,456,523.42	1,730,120.69	39.80674678	-80.68058568
Begin 5.00° tangent section									
1,900.00	5.00	90.00	1,898.99	0.00	30.52	14,456,523.42	1,730,129.41	39.80674669	-80.68055464
2,000.00	5.00	90.00	1,998.60	0.00	39.23	14,456,523.42	1,730,138.12	39.80674661	-80.68052361
2,100.00	5.00	90.00	2,098.22	0.00	47.95	14,456,523.42	1,730,146.84	39.80674652	-80.68049258
2,200.00	5.00	90.00	2,197.84	0.00	56.67	14,456,523.42	1,730,155.56	39.80674644	-80.68046154
2,300.00	5.00	90.00	2,297.46	0.00	65.38	14,456,523.42	1,730,164.27	39.80674635	-80.68043051
2,400.00	5.00	90.00	2,397.08	0.00	74.10	14,456,523.42	1,730,172.99	39.80674627	-80.68039948
2,500.00	5.00	90.00	2,496.70	0.00	82.81	14,456,523.42	1,730,181.70	39.80674618	-80.68036844
2,600.00	5.00	90.00	2,596.32	0.00	91.53	14,456,523.42	1,730,190.42	39.80674609	-80.68033741
2,700.00	5.00	90.00	2,695.94	0.00	100.24	14,456,523.42	1,730,199.13	39.80674601	-80.68030637
2,800.00	5.00	90.00	2,795.56	0.00	108.96	14,456,523.42	1,730,207.85	39.80674592	-80.68027534
2,900.00	5.00	90.00	2,895.18	0.00	117.67	14,456,523.42	1,730,216.56	39.80674584	-80.68024431
3,000.00	5.00	90.00	2,994.80	0.00	126.39	14,456,523.42	1,730,225.28	39.80674575	-80.68021327
3,100.00	5.00	90.00	3,094.42	0.00	135.11	14,456,523.42	1,730,234.00	39.80674567	-80.68018224
3,200.00	5.00	90.00	3,194.04	0.00	143.82	14,456,523.42	1,730,242.71	39.80674558	-80.68015121
3,300.00	5.00	90.00	3,293.66	0.00	152.54	14,456,523.42	1,730,251.43	39.80674550	-80.68012017
3,400.00	5.00	90.00	3,393.28	0.00	161.25	14,456,523.42	1,730,260.14	39.80674541	-80.68008914
3,500.00	5.00	90.00	3,492.90	0.00	169.97	14,456,523.42	1,730,268.86	39.80674532	-80.68005811
3,600.00	5.00	90.00	3,592.52	0.00	178.68	14,456,523.42	1,730,277.57	39.80674524	-80.68002707
3,700.00	5.00	90.00	3,692.14	0.00	187.40	14,456,523.42	1,730,286.29	39.80674515	-80.67999604
3,800.00	5.00	90.00	3,791.76	0.00	196.11	14,456,523.42	1,730,295.00	39.80674507	-80.67996501
3,900.00	5.00	90.00	3,891.37	0.00	204.83	14,456,523.42	1,730,303.72	39.80674498	-80.67993397
4,000.00	5.00	90.00	3,990.99	0.00	213.55	14,456,523.42	1,730,312.44	39.80674490	-80.67990294
4,100.00	5.00	90.00	4,090.61	0.00	222.26	14,456,523.42	1,730,321.15	39.80674481	-80.67987190
4,200.00	5.00	90.00	4,190.23	0.00	230.98	14,456,523.42	1,730,329.87	39.80674473	-80.67984087
4,300.00	5.00	90.00	4,289.85	0.00	239.69	14,456,523.42	1,730,338.58	39.80674464	-80.67980984
4,400.00	5.00	90.00	4,389.47	0.00	248.41	14,456,523.42	1,730,347.30	39.80674455	-80.67977880
4,500.00	5.00	90.00	4,489.09	0.00	257.12	14,456,523.42	1,730,356.01	39.80674447	-80.67974777
4,600.00	5.00	90.00	4,588.71	0.00	265.84	14,456,523.42	1,730,364.73	39.80674438	-80.67971674
4,700.00	5.00	90.00	4,688.33	0.00	274.55	14,456,523.42	1,730,373.44	39.80674430	-80.67968570
4,800.00	5.00	90.00	4,787.95	0.00	283.27	14,456,523.42	1,730,382.16	39.80674421	-80.67965467
4,900.00	5.00	90.00	4,887.57	0.00	291.99	14,456,523.42	1,730,390.88	39.80674413	-80.67962364
5,000.00	5.00	90.00	4,987.19	0.00	300.70	14,456,523.42	1,730,399.59	39.80674404	-80.67959260

JUN 26 2017



Planning Report - Geographic

WV Department of
Environmental Protection

Database: DB_Jul2216dt_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Ten High
Well: Ten High 1N-04HM (I)
Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Well Ten High 1N-04HM (I)
TVD Reference: GL=1310 @ 1310.00usft
MD Reference: GL=1310 @ 1310.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,012.86	5.00	90.00	5,000.00	0.00	301.82	14,456,523.42	1,730,400.71	39.80674403	-80.67958861
Begin 3°/100' build/tum									
5,100.00	7.55	84.46	5,086.61	0.55	311.32	14,456,523.98	1,730,410.21	39.80674545	-80.67955480
5,200.00	10.51	81.43	5,185.36	2.55	326.87	14,456,525.97	1,730,425.76	39.80675078	-80.67949938
5,300.00	13.49	79.72	5,283.17	5.99	347.37	14,456,529.41	1,730,446.26	39.80676003	-80.67942835
5,400.00	16.48	78.62	5,379.78	10.87	372.75	14,456,534.29	1,730,471.64	39.80677318	-80.67933591
5,500.00	19.47	77.85	5,474.87	17.17	402.95	14,456,540.60	1,730,501.64	39.80679020	-80.67922831
5,600.00	22.46	77.28	5,568.24	24.89	437.88	14,456,548.31	1,730,536.77	39.80681104	-80.67910383
5,700.00	25.45	76.84	5,659.61	33.99	477.45	14,456,557.41	1,730,576.34	39.80683564	-80.67896283
5,727.43	26.28	76.73	5,684.30	36.72	489.09	14,456,560.15	1,730,587.96	39.80684303	-80.67892132
Begin 26.28° tangent									
5,800.00	26.28	76.73	5,749.37	44.09	520.36	14,456,567.52	1,730,619.25	39.80688297	-80.67880989
5,900.00	26.28	76.73	5,838.04	54.25	563.45	14,456,577.68	1,730,662.34	39.80689044	-80.67865634
6,000.00	26.28	76.73	5,928.70	64.41	606.54	14,456,587.83	1,730,705.43	39.80691791	-80.67850278
6,100.00	26.28	76.73	6,018.37	74.57	649.62	14,456,597.99	1,730,748.51	39.80694538	-80.67834924
6,200.00	26.28	76.73	6,108.04	84.73	692.71	14,456,608.15	1,730,791.60	39.80697286	-80.67819569
6,258.09	26.28	76.73	6,160.13	90.63	717.74	14,456,614.05	1,730,816.63	39.80698961	-80.67810649
Begin 10°/100' build/tum									
6,300.00	25.52	87.29	6,197.85	96.24	735.10	14,456,619.67	1,730,833.99	39.80700407	-80.67804460
6,400.00	26.26	44.32	6,286.04	120.45	770.52	14,456,643.67	1,730,869.41	39.80707019	-80.67791819
6,500.00	30.25	24.83	6,376.30	159.23	796.61	14,456,682.66	1,730,895.50	39.80717644	-80.67782476
6,600.00	36.42	10.43	6,459.94	211.42	812.60	14,456,734.84	1,730,911.50	39.80731960	-80.67776715
6,700.00	43.86	0.02	6,536.42	275.42	818.00	14,456,798.84	1,730,916.89	39.80748531	-80.67774712
6,800.00	52.01	352.19	6,603.42	349.29	812.64	14,456,872.72	1,730,911.53	39.80769823	-80.67776526
6,900.00	60.58	345.97	6,658.90	430.79	796.69	14,456,954.21	1,730,895.58	39.80792220	-80.67782102
7,000.00	69.38	340.73	6,701.17	517.44	770.62	14,457,040.86	1,730,869.51	39.80816042	-80.67791273
7,100.00	78.33	336.06	6,728.96	606.60	735.24	14,457,130.03	1,730,834.13	39.80840563	-80.67803758
7,200.00	87.35	331.72	6,741.42	695.58	691.61	14,457,219.00	1,730,790.50	39.80865041	-80.67819178
7,240.38	91.00	329.99	6,742.00	730.83	671.95	14,457,254.28	1,730,770.84	39.80874743	-80.67826133
Begin 91.00° lateral section									
7,300.00	91.00	329.99	6,740.96	782.45	642.14	14,457,305.88	1,730,741.03	39.80888948	-80.67836693
7,400.00	91.00	329.99	6,739.22	869.03	592.13	14,457,392.46	1,730,691.02	39.80912775	-80.67854378
7,500.00	91.00	329.99	6,737.48	955.62	542.13	14,457,479.04	1,730,641.02	39.80936802	-80.67872074
7,600.00	91.00	329.99	6,735.73	1,042.20	492.12	14,457,565.62	1,730,591.01	39.80960429	-80.67889769
7,700.00	91.00	329.99	6,733.99	1,128.76	442.12	14,457,652.20	1,730,541.01	39.80984255	-80.67907465
7,800.00	91.00	329.99	6,732.25	1,215.36	392.11	14,457,738.79	1,730,491.00	39.81008082	-80.67925161
7,900.00	91.00	329.99	6,730.51	1,301.94	342.11	14,457,825.37	1,730,441.00	39.81031909	-80.67942856
8,000.00	91.00	329.99	6,728.76	1,388.53	292.10	14,457,911.95	1,730,390.99	39.81055735	-80.67960552
8,100.00	91.00	329.99	6,727.02	1,475.11	242.10	14,457,998.53	1,730,340.99	39.81079562	-80.67978248
8,200.00	91.00	329.99	6,725.28	1,561.89	192.09	14,458,085.11	1,730,290.98	39.81103389	-80.67995945
8,300.00	91.00	329.99	6,723.54	1,648.27	142.09	14,458,171.70	1,730,240.98	39.81127215	-80.68013641
8,400.00	91.00	329.99	6,721.80	1,734.85	92.08	14,458,258.28	1,730,190.97	39.81151042	-80.68031337
8,500.00	91.00	329.99	6,720.05	1,821.44	42.07	14,458,344.86	1,730,140.96	39.81174868	-80.68049034
8,600.00	91.00	329.99	6,718.31	1,908.02	-7.93	14,458,431.44	1,730,090.96	39.81198695	-80.68066731
8,700.00	91.00	329.99	6,716.57	1,994.60	-57.94	14,458,518.02	1,730,040.95	39.81222521	-80.68084428
8,800.00	91.00	329.99	6,714.83	2,081.18	-107.94	14,458,604.61	1,729,990.95	39.81246348	-80.68102124
8,900.00	91.00	329.99	6,713.08	2,167.76	-157.95	14,458,691.19	1,729,940.94	39.81270174	-80.68119822
9,000.00	91.00	329.99	6,711.34	2,254.35	-207.95	14,458,777.77	1,729,890.94	39.81294000	-80.68137519
9,100.00	91.00	329.99	6,709.60	2,340.93	-257.96	14,458,864.35	1,729,840.93	39.81317827	-80.68155216
9,200.00	91.00	329.99	6,707.86	2,427.51	-307.96	14,458,950.93	1,729,790.93	39.81341653	-80.68172913
9,300.00	91.00	329.99	6,706.11	2,514.09	-357.97	14,459,037.52	1,729,740.92	39.81365479	-80.68190611
9,400.00	91.00	329.99	6,704.37	2,600.67	-407.97	14,459,124.10	1,729,690.92	39.81389306	-80.68208309
9,500.00	91.00	329.99	6,702.63	2,687.26	-457.98	14,459,210.68	1,729,640.91	39.81413132	-80.68226006
9,600.00	91.00	329.99	6,700.89	2,773.84	-507.98	14,459,297.26	1,729,590.91	39.81436958	-80.68243704



Planning Report - Geographic

WV Department of
Environmental Protection

Database:	DB_Jul2216d_t_v14	Local Co-ordinate Reference:	Well Ten High 1N-04HM (I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1310 @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1310 @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-04HM (I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,700.00	91.00	329.99	6,699.14	2,860.42	-557.99	14,459,383.84	1,729,540.90	39.81460784	-80.68281402	
9,800.00	91.00	329.99	6,697.40	2,947.00	-608.00	14,459,470.43	1,729,490.90	39.81484610	-80.68279101	
9,900.00	91.00	329.99	6,695.66	3,033.58	-658.00	14,459,557.01	1,729,440.89	39.81508437	-80.68296799	
10,000.00	91.00	329.99	6,693.92	3,120.16	-708.01	14,459,643.59	1,729,390.88	39.81532263	-80.68314497	
10,100.00	91.00	329.99	6,692.17	3,205.75	-758.01	14,459,730.17	1,729,340.88	39.81556089	-80.68332196	
10,200.00	91.00	329.99	6,690.43	3,293.33	-808.02	14,459,816.75	1,729,290.87	39.81579915	-80.68349894	
10,300.00	91.00	329.99	6,688.69	3,379.91	-858.02	14,459,903.34	1,729,240.87	39.81603741	-80.68367593	
10,400.00	91.00	329.99	6,686.95	3,466.49	-908.03	14,459,989.92	1,729,190.86	39.81627567	-80.68385292	
10,500.00	91.00	329.99	6,685.21	3,553.07	-958.03	14,460,076.50	1,729,140.86	39.81651393	-80.68402991	
10,600.00	91.00	329.99	6,683.46	3,639.66	-1,008.04	14,460,163.08	1,729,090.85	39.81675219	-80.68420690	
10,700.00	91.00	329.99	6,681.72	3,726.24	-1,058.04	14,460,249.66	1,729,040.85	39.81698945	-80.68438390	
10,800.00	91.00	329.99	6,679.98	3,812.82	-1,108.05	14,460,336.24	1,728,990.84	39.81722871	-80.68456089	
10,900.00	91.00	329.99	6,678.24	3,899.40	-1,158.05	14,460,422.83	1,728,940.84	39.81746696	-80.68473788	
11,000.00	91.00	329.99	6,676.49	3,985.98	-1,208.06	14,460,509.41	1,728,890.83	39.81770522	-80.68491488	
11,100.00	91.00	329.99	6,674.75	4,072.57	-1,258.06	14,460,595.99	1,728,840.83	39.81794348	-80.68509188	
11,200.00	91.00	329.99	6,673.01	4,159.15	-1,308.07	14,460,682.57	1,728,790.82	39.81818174	-80.68526888	
11,300.00	91.00	329.99	6,671.27	4,245.73	-1,358.08	14,460,769.15	1,728,740.82	39.81842000	-80.68544588	
11,400.00	91.00	329.99	6,669.52	4,332.31	-1,408.08	14,460,855.74	1,728,690.81	39.81865825	-80.68562288	
11,500.00	91.00	329.99	6,667.78	4,418.89	-1,458.09	14,460,942.32	1,728,640.80	39.81889651	-80.68579988	
11,600.00	91.00	329.99	6,666.04	4,505.48	-1,508.09	14,461,028.90	1,728,590.80	39.81913477	-80.68597688	
11,700.00	91.00	329.99	6,664.30	4,592.06	-1,558.10	14,461,115.48	1,728,540.79	39.81937302	-80.68615389	
11,800.00	91.00	329.99	6,662.55	4,678.64	-1,608.10	14,461,202.06	1,728,490.79	39.81961128	-80.68633089	
11,900.00	91.00	329.99	6,660.81	4,765.22	-1,658.11	14,461,288.65	1,728,440.78	39.81984954	-80.68650790	
12,000.00	91.00	329.99	6,659.07	4,851.80	-1,708.11	14,461,375.23	1,728,390.78	39.82008779	-80.68668491	
12,100.00	91.00	329.99	6,657.33	4,938.39	-1,758.12	14,461,461.81	1,728,340.77	39.82032605	-80.68686192	
12,200.00	91.00	329.99	6,655.58	5,024.97	-1,808.12	14,461,548.39	1,728,290.77	39.82056430	-80.68703893	
12,300.00	91.00	329.99	6,653.84	5,111.55	-1,858.13	14,461,634.97	1,728,240.76	39.82080255	-80.68721594	
12,400.00	91.00	329.99	6,652.10	5,198.13	-1,908.13	14,461,721.56	1,728,190.76	39.82104081	-80.68739296	
12,500.00	91.00	329.99	6,650.36	5,284.71	-1,958.14	14,461,808.14	1,728,140.75	39.82127907	-80.68756997	
12,600.00	91.00	329.99	6,648.62	5,371.29	-2,008.14	14,461,894.72	1,728,090.75	39.82151732	-80.68774699	
12,700.00	91.00	329.99	6,646.87	5,457.88	-2,058.15	14,461,981.30	1,728,040.74	39.82175557	-80.68792400	
12,800.00	91.00	329.99	6,645.13	5,544.46	-2,108.16	14,462,067.88	1,727,990.74	39.82199383	-80.68810102	
12,900.00	91.00	329.99	6,643.39	5,631.04	-2,158.16	14,462,154.47	1,727,940.73	39.82223208	-80.68827804	
13,000.00	91.00	329.99	6,641.65	5,717.62	-2,208.17	14,462,241.05	1,727,890.72	39.82247033	-80.68845506	
13,100.00	91.00	329.99	6,639.90	5,804.20	-2,258.17	14,462,327.63	1,727,840.72	39.82270858	-80.68863208	
13,200.00	91.00	329.99	6,638.16	5,890.79	-2,308.18	14,462,414.21	1,727,790.71	39.82294684	-80.68880911	
13,300.00	91.00	329.99	6,636.42	5,977.37	-2,358.18	14,462,500.79	1,727,740.71	39.82318509	-80.68898613	
13,400.00	91.00	329.99	6,634.68	6,063.95	-2,408.19	14,462,587.37	1,727,690.70	39.82342334	-80.68916316	
13,500.00	91.00	329.99	6,632.93	6,150.53	-2,458.19	14,462,673.96	1,727,640.70	39.82366159	-80.68934018	
13,600.00	91.00	329.99	6,631.19	6,237.11	-2,508.20	14,462,760.54	1,727,590.69	39.82389984	-80.68951721	
13,700.00	91.00	329.99	6,629.45	6,323.70	-2,558.20	14,462,847.12	1,727,540.69	39.82413809	-80.68969424	
13,800.00	91.00	329.99	6,627.71	6,410.28	-2,608.21	14,462,933.70	1,727,490.68	39.82437634	-80.68987127	
13,897.95	91.00	329.99	6,626.00	6,495.09	-2,657.19	14,463,018.51	1,727,441.70	39.82460971	-80.69004827	

PBHL/TD 13897.95 MD/6626.00 TVD



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Ten High 1N-04HM (I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1310 @ 1310.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1310 @ 1310.00usft
Site:	Ten High	North Reference:	Grid
Well:	Ten High 1N-04HM (I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Ten High 1N-04HM BHL - plan hits target center - Point	0.00	0.00	6,626.00	6,495.09	-2,657.19	14,463,018.51	1,727,441.70	39.82460972	-80.69004468
Ten High 1N-04HM LP - plan hits target center - Point	0.00	0.00	6,742.00	730.83	671.95	14,457,254.26	1,730,770.84	39.80874742	-80.67826133

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

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,300.00	1,300.00	0.00	0.00	KOP Begin 1"/100' build	
1,800.00	1,799.37	0.00	21.80	Begin 5.00° tangent section	
5,012.86	5,000.00	0.00	301.82	Begin 3"/100' build/turn	
5,727.43	5,664.30	36.72	489.09	Begin 26.26° tangent	
6,258.09	6,160.13	90.63	717.74	Begin 10"/100' build/turn	
7,240.38	6,742.00	730.83	671.95	Begin 91.00° lateral section	
13,897.95	6,626.00	6,495.09	-2,657.19	PBHL/TD 13897.95 MD/6626.00 TVD	

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Environmental Protection

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Ten High 1N-4HM

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

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FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

JUN 26 2017

Operator Name Tug Hill Operating, LLC OP Code 494510851 WV Department of Environmental Protection

Watershed (HUC 10) Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386425)

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.

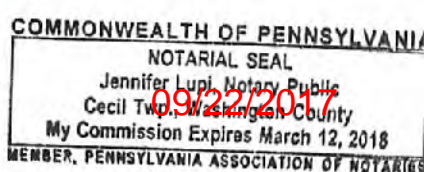
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 8th day of June, 20 17

Jennifer Lupi Notary Public
My commission expires March 12, 2018



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.20 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

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WV Department of
Environmental Protection

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Spring Oats	96

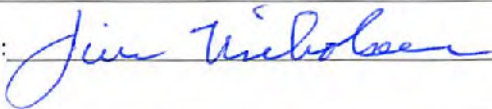
Seed Type	lbs/acre
Orchard Grass	12
Ladino	3
White Clover	2

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:



Comments:

Title:

Oil + Gas Inspector

Date:

6/19/17

Field Reviewed?

() Yes

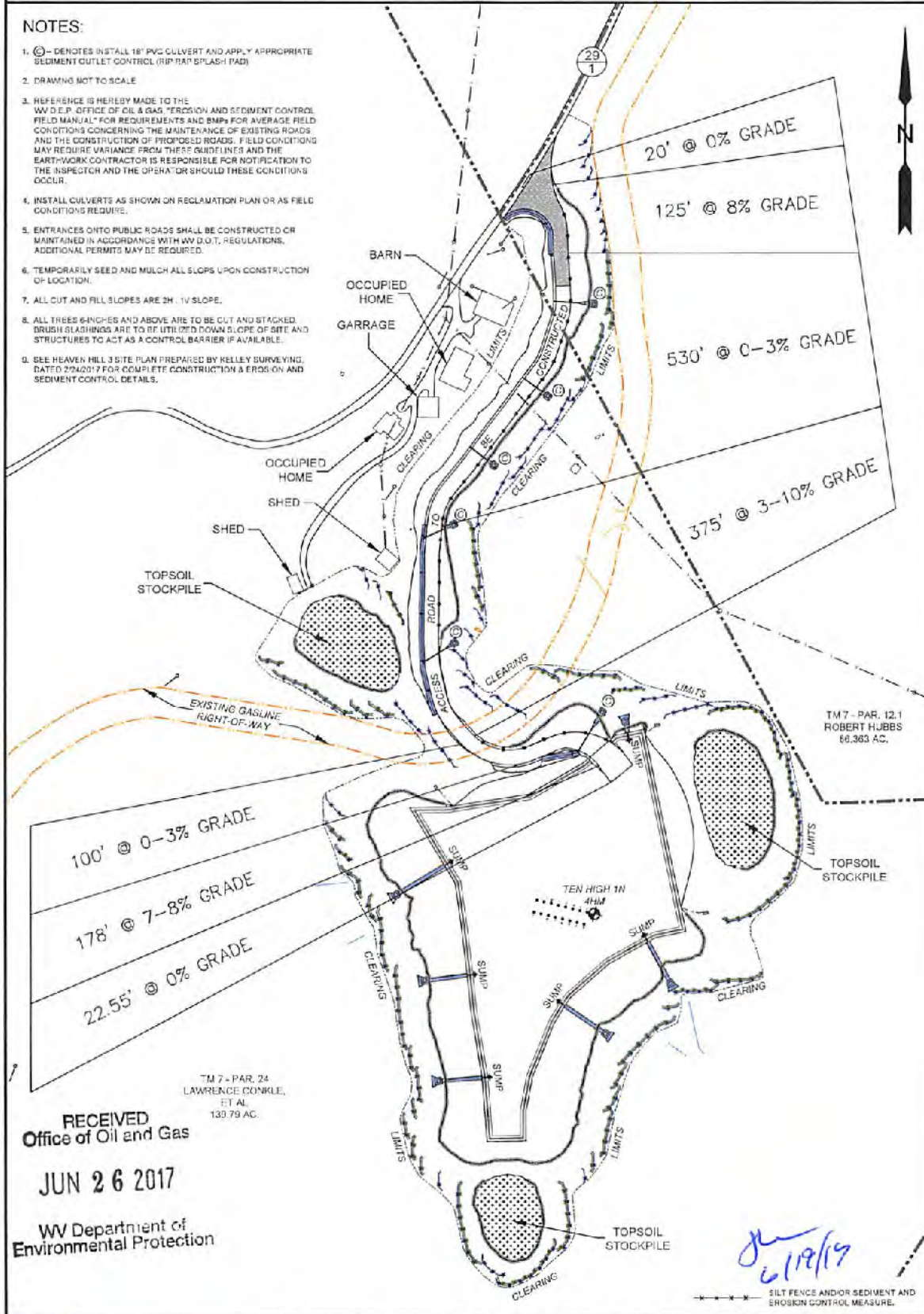
() No

PROPOSED TEN HIGH 1N - 4HM

047-051-01945

NOTES:

1. (C) - 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 DEP. 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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Environmental Protection

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 H2 Vardos Drive Glen Dale, WV 26031 1-304-482-5634
www.slsurvey.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8655	06/15/2017	NONE

**TUG HILL
OPERATING**

09/22/2017



Well Site Safety Plan

Tug Hill Operating, LLC

ju
6/19/17

Well Name: Ten High 1N-4HM

Pad Location: Ten High

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:
Northing-4,406,357.15
Easting-527,335.20

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WV Department of
Environmental Protection

June 2017

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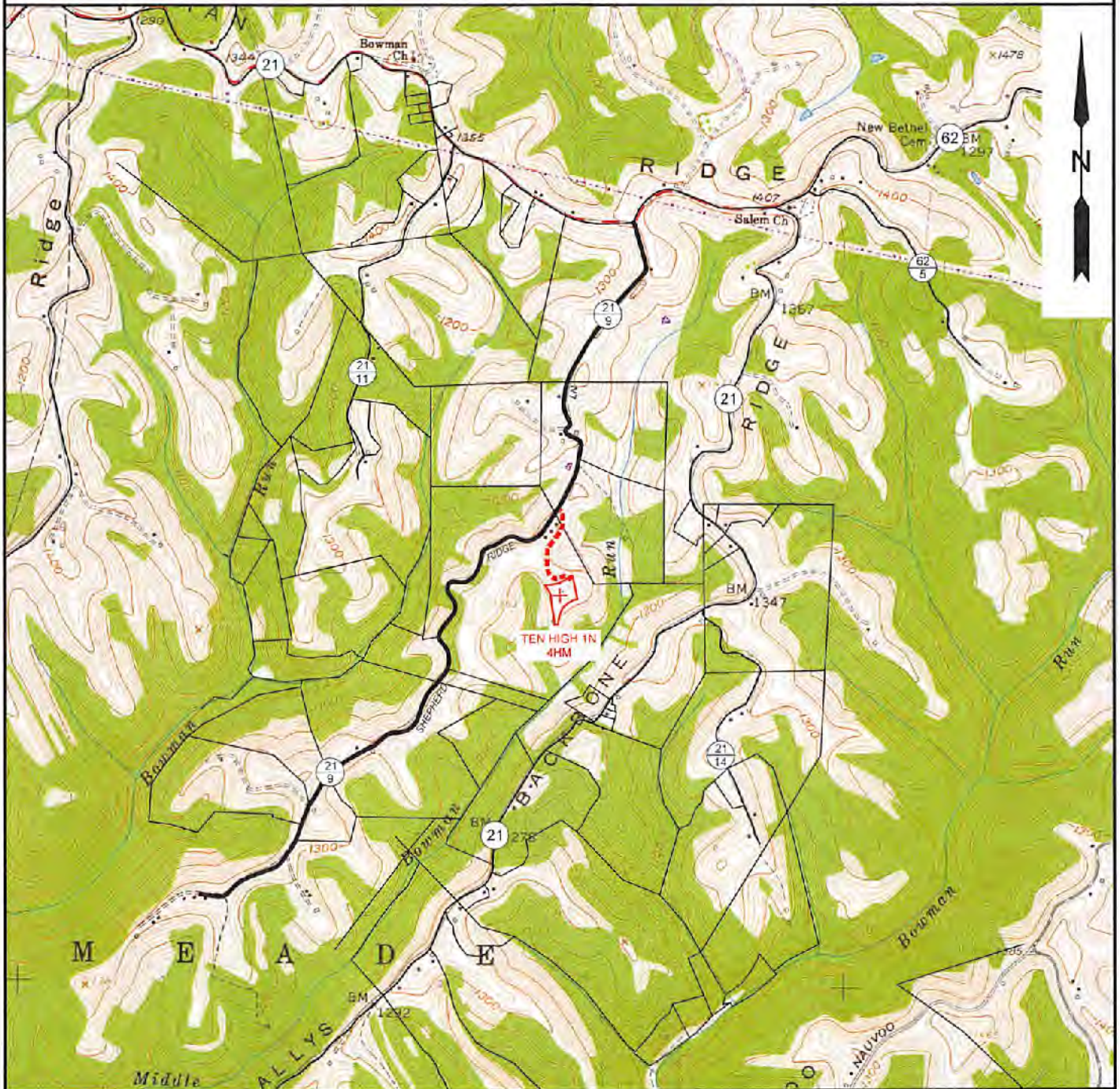
WW-9

PROPOSED
TEN HIGH 1N - 4HM

JUN 26 2017

SUPPLEMENT PG. 2



WV Department of
Environmental Protection



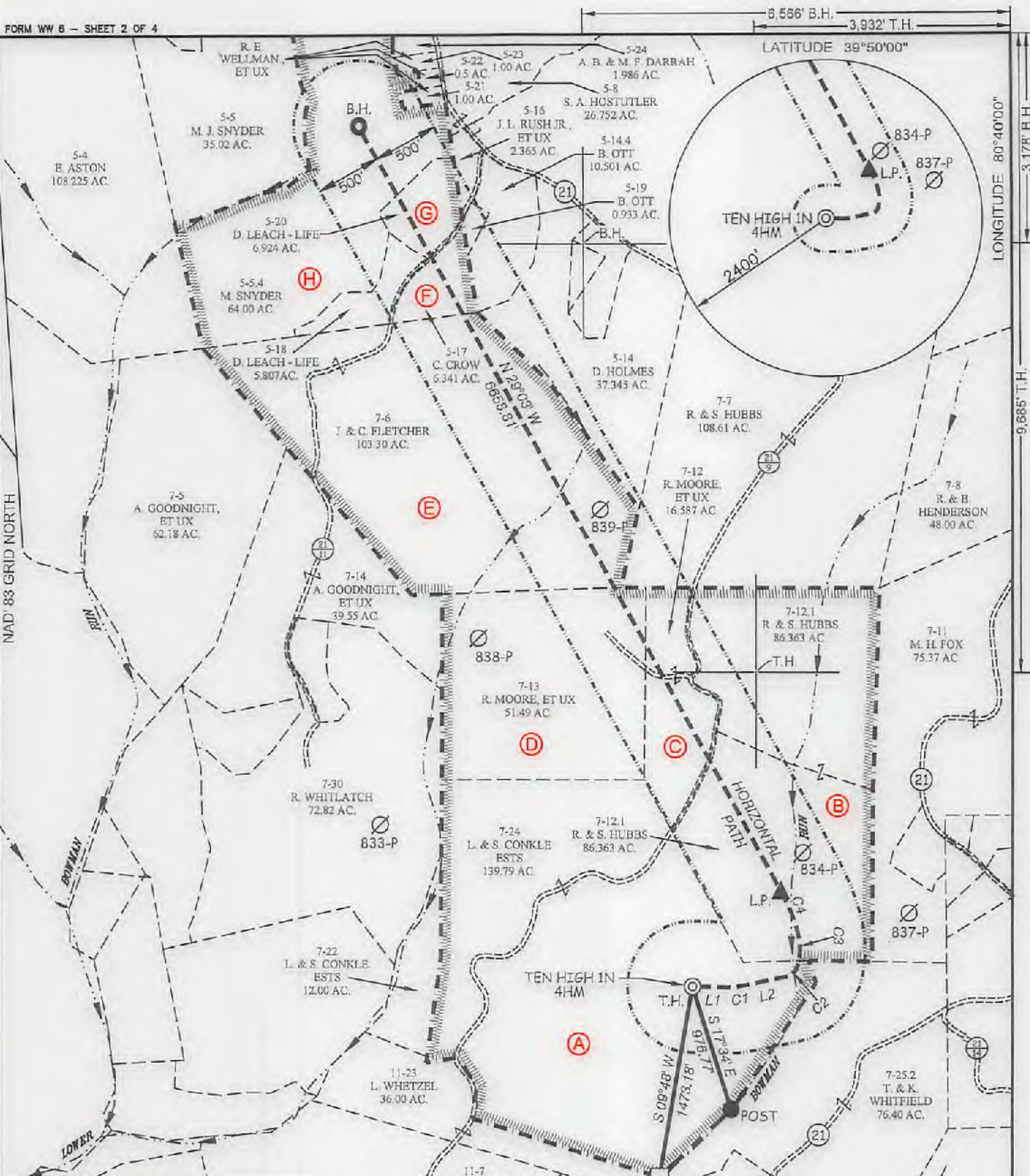
NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT
PROCTOR, WV

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 51°01'33" W AT 52,972' FROM TEN HIGH 1N - 4HM SURFACE LOCATION

Handwritten signature and date: 6/19/17

 Solutions from the ground up. P.O. Box 150 • 12 Warhorn Drive • Glenville, WV 20351 • (304) 462-6534 www.slsurveys.com	TOPO SECTION: GLEN EASTON 7.5'		OPERATOR: PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		
	COUNTY	DISTRICT	DATE	SCALE	
	MARSHALL	MEADE	06/15/2017	1" = 2000'	
	DRAWN BY	JOB NO.			
		K.G.M.	8655		

09/22/2017



SLS
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 P.O. Box 150 • 12 Vanhook Drive • Glenville, WV 25351 • (304) 462-8634
www.slsurveyors.com

**TEN HIGH 1N LEASE
 WELL 4HM
 TUG HILL OPERATING**

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

NAD83 S.P.C. (FT)	N. 478,137.92	E. 1,638,818.78
NAD83 GEO.	LAT-(N) 39.806747	LONG-(W) 80.680663
NAD83 UTM (M)	N. 4,408,357.15	E. 527,335.20
LANDING POINT		
NAD83 S.P.C. (FT)	N. 478,857.7	E. 1,637,803.1
NAD83 GEO.	LAT-(N) 39.808747	LONG-(W) 80.679261
NAD83 UTM (M)	N. 4,408,579.9	E. 527,540.0
BOTTOM HOLE		
NAD83 S.P.C. (FT)	N. 484,678.7	E. 1,634,269.6
NAD83 GEO.	LAT-(N) 39.824610	LONG-(W) 80.680045
NAD83 UTM (M)	N. 4,408,388.8	E. 526,525.3



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

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
LEASE # (SEE PAGES 1,3,4)	(A)

SCALE 1" = 1000' FILE NO. 8655P4HMR.dwg
 DATE JUNE 15, 2017
 REVISED SEPTEMBER 12, 2017
 OPERATORS WELL NO. TEN HIGH 1N-4HM
 API WELL NO. 47-051-01945
 STATE COUNTY PERMIT

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

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

COUNTY NAME PERMIT

09/22/2017

TEN HIGH 1N LEASE
WELL 4HM
TUG HILL OPERATING

LINE	BEARING	DISTANCE
L1	S 89°03' E	301.92'
L2	N 77°49' E	323.35'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	102.69'	755.85'	N 81°19' E	102.61'
C2	121.58'	118.21'	N 46°53' E	116.29'
C3	307.38'	507.08'	N 02°09' W	302.60'
C4	281.6'	1236.23'	N 22°45' W	280.99'

6,566' B.H. 3,932' T.H.
LATITUDE 39°50'00"
LONGITUDE 80°40'00"
3,178' B.H.
9,685' T.H.

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'83 S.P.C.(FT) N. 478,137.92 E. 1,636,818.78
NAD'83 GEC. LAT-(N) 39.806747 LONG-(W) 80.680683
NAD'83 UTM (M) N. 4,406,357.15 E. 527,935.20

LANDING POINT
NAD'83 S.P.C.(FT) N. 478,857.7 E. 1,637,503.1
NAD'83 GEC. LAT-(N) 39.808747 LONG-(W) 80.678281
NAD'83 UTM (M) N. 4,406,579.9 E. 527,540.0

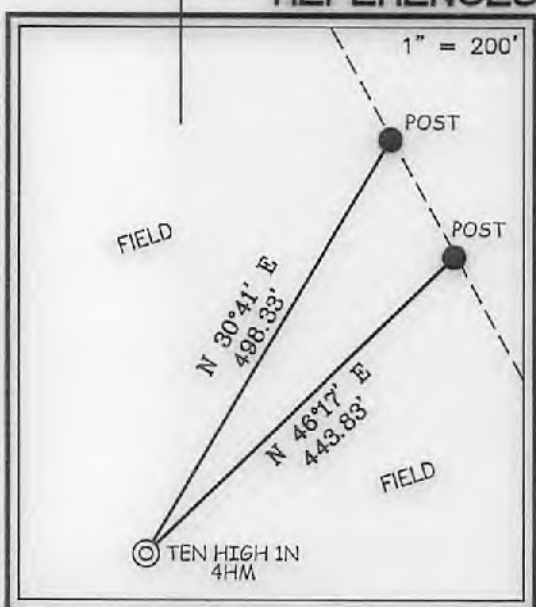
BOTTOM HOLE
NAD'83 S.P.C.(FT) N. 484,678.7 E. 1,634,269.6
NAD'83 GEC. LAT-(N) 39.824610 LONG-(W) 80.690045
NAD'83 UTM (M) N. 4,408,336.9 E. 525,525.3

No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owners	Deed Book/Page
1	10*15662	A	9-7-24	LARRY LEE CONKLE	863 354
2	10*15663	A	9-7-24	ROY A CONKLE SR	863 311
3	10*15664	A	9-7-24	THERESA ANN HUGHES	863 343
4	10*15666	A	9-7-24	BRENDA J WHITZEL	863 635
5	10*16049	A	9-7-24	DANNY SHAWN KERNS AND AMY LYNN KERNS	905 518
6	10*16820	A	9-7-24	ROBERTA ANN AND DAVID S GIBB	919 237
7	10*17365	A	9-7-24	MYSTI JOANNE GOODMAN	927 468
8	10*17370	A	9-7-24	KELLY JUNE GOODMAN	927 470
9	10*47051.295.10	A	9-7-24	DEENA J PALOMO	905 470
10	10*47051.295.11	A	9-7-24	REGINA D FIGUEROA AND DAVID FIGUEROA	905 432
11	10*47051.295.12	A	9-7-24	EARL D WELLMAN	905 435
12	10*47051.295.13	A	9-7-24	THE DO LLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE	904 641
13	10*47051.295.3	A	9-7-24	HAZEL ARIZONA MOORE REYNOLDS	904 632
14	10*47051.295.4	A	9-7-24	LLOYD D MOORE	904 459
15	10*47051.295.5	A	9-7-24	DALE R MOORE	904 635
16	10*47051.295.6	A	9-7-24	MARY I BURKHART	904 638
17	10*47051.295.7	A	9-7-24	JEANNE V MELCHIONI	904 462
18	10*47051.295.9	A	9-7-24	JAMES E HIMELRICK JR AND KAREN HIMELRICK	904 465
19	10*15501	B	9-7-12	RONALD AND EDNA MOORE	661 449
20	10*15501	C	9-7-12	RONALD AND EDNA MOORE	661 449
21	10*15501	D	9-7-12	RONALD AND EDNA MOORE	661 449
22	10*15500	E	9-7-6	JERRY FLETCHER AND CAROLYN FLETCHER, HUSBAND AND WIFE	661 154
23	10*15502	E	9-7-6	SHERWOOD YEATER	661 454
24	10*15481	F	9-5-17	DEAN P RIGBY AND SUSAN RIGBY	908 197
25	10*15482	F	9-5-17	SUSAN NELSON	908 203
26	10*15522	F	9-5-17	CARLA S CROW	725 412
27	10*15686	F	9-5-17	JOHN OMER BOLTZ	908 160
28	10*15750	F	9-5-17	SANDRA K TRULL	908 229
29	10*16058	F	9-5-17	MATTIE RUTH JACKSON PRESCOTT	908 231
30	10*16138	F	9-5-17	RUBY RIDDLE JACKSON	908 233
31	10*16383	F	9-5-17	ROBERT STEPHEN DRIGGERS	908 224
32	10*16414	F	9-5-17	MARY ELIZABETH DRIGGERS	908 208
33	10*16416	F	9-5-17	CYNTHIA HUSON	908 219
34	10*16424	F	9-5-17	ROBERT J RIGBY	908 241
35	10*16448	F	9-5-17	RALPH LAND JUANITA L CRIM	908 584
36	10*16478	F	9-5-17	MARION LAND EMILY CAMPBELL	908 245
37	10*16514	F	9-5-17	ALEX RUSSELL AND JOYCE A CAMPBELL	908 248
38	10*16515	F	9-5-17	ANNA MARIE JACKSON	908 251
39	10*16516	F	9-5-17	WILSON ANDREW JACKSON	908 253
40	10*16662	F	9-5-17	RICHARD THOMAS AND VICKI J MIMS	908 263

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



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

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



P.S. 677
Gregory A. Smith

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JUNE 15, 20 17
REVISED _____, 20 ____
OPERATORS WELL NO. TEN HIGH 1N-4HM
API WELL NO. 47 - 051 - 01945
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8655P4HM.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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

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

LOCATION: ELEVATION GROUND = 1,317.00' 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 TABLE ABOVE ACREAGE 139.79±

PROPOSED WORK: LEASE NO. SEE TABLE ABOVE
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD: 6,865' / TMD: 13,908'

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

COUNTY NAME PERMIT

09/22/2017

TEN HIGH 1N LEASE
WELL 4HM
TUG HILL OPERATING



No.	Lease Name or No.	Tag	Parcel	Oil & Gas Royalty Owner - Continued	Deed Book/Page
41	10*16800	F	9-5-17	JAMES KENNETH JACKSON AND JULIE JACKSON	921 93
42	10*16806	F	9-5-17	VIRGINIA I WHITMAN	921 526
43	10*16262	F	9-5-17	DENNIS P AND BARBARA EZELL FLORY	921 70
44	10*16976	F	9-5-17	LESTER G AND CONSTANCE B NICKOLSON	921 343
45	10*16987	F	9-5-17	LAURIE EZELL PERRY	921 355
46	10*17130	F	9-5-17	CINDY L BARGER	921 137
47	10*17155	F	9-5-17	JESSE LEON JR AND TERESA GAIL EZELLE	921 118
48	10*17196	F	9-5-17	HENRI NELL JACKSON KENT BARNES	921 139
49	10*17157	F	9-5-17	JAMES N REEVES JR AND RITA M REEVES	921 367
50	10*17198	F	9-5-17	THOMAS G AND DIANE W BAYLESS	921 141
51	10*17205	F	9-5-17	SANDRA JEAN WILSON	921 524
52	10*17274	F	9-5-17	DAVID H WILSON	921 474
53	10*17275	F	9-5-17	JOHN R REEVES AND MONA G REEVES	921 373
54	10*17276	F	9-5-17	BERTHA EZELL WYATT	921 526
55	10*17278	F	9-5-17	MICHAEL L EZELLE	921 121
56	10*17377	F	9-5-17	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	921 123
57	10*17438	F	9-5-17	DENNIS M WILSON	921 476
58	10*17441	F	9-5-17	RALPH J WILSON	921 522
59	10*17449	F	9-5-17	PHYLLIS J BLAKE	921 150
60	10*17482	F	9-5-17	TERESA EZELLE RALVA AND DAVID L RALVA	927 487
61	10*17484	F	9-5-17	NELDA S JACKSON	921 330
62	10*17485	F	9-5-17	MARGIE ANN JACKSON ROBBINS GRAHAM	921 91
63	10*17526	F	9-5-17	JEFFREY L REEVES AND JODY L REEVES	921 370
64	10*17527	F	9-5-17	JAMES MICHAEL EZELL AND LUCILLE D EZELL	921 111
65	10*17561	F	9-5-17	KATHRYN L & ROGER L TYRELL	921 519
66	10*17564	F	9-5-17	JAMES R & TRACEY E NICKOLSON	921 340
67	10*17565	F	9-5-17	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	921 327
68	10*17566	F	9-5-17	NATHAN P & BARBARA T ERDOSSY	921 108
69	10*17588	F	9-5-17	JAMES M JACKSON	921 325
70	10*17589	F	9-5-17	MARY CHRISTINE MCKENNA	921 332
71	10*17744	F	9-5-17	SAM PRESLEY EZELL	921 116
72	10*47051.223.1	F	9-5-17	JEAN ANNE GORBY STORCH	877 216
73	10*47051.223.15	F	9-5-17	LARRY D TAUNT AND NANCY L TAUNT	908 14
74	10*47051.223.20	F	9-5-17	BARBARA A BUZZARD	908 24
75	10*47051.223.21	F	9-5-17	GARY T WARD AND SHARON D WARD	908 19
76	10*47051.223.2	F	9-5-17	STEPHANIE SCHIEFER AND GEOFFREY SCHIEFER	885 321
77	10*47051.223.30	F	9-5-17	LAURIE DRIGGERS MANDERSON	908 165
78	10*47051.223.3	F	9-5-17	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	885 324
79	10*47051.223.6	F	9-5-17	JOSHUA RINE AND REBECCA RINE	907 634
80	10*15481	G	9-5-20	DEAN P RIGBY AND SUSAN RIGBY	908 197
81	10*15482	G	9-5-20	SUSAN NELSON	908 208
82	10*15674	G	9-5-20	DONALD E LEACH ET AL	882 209
83	10*15686	G	9-5-20	JOHN OMER BOLTZ	908 160
84	10*15750	G	9-5-20	SANDRA K TRULL	908 229
85	10*16298	G	9-5-20	MATTIE RUTH JACKSON PRESCOTT	908 231
86	10*16118	G	9-5-20	RUBY RIDDEE JACKSON	908 233
87	10*16983	G	9-5-20	ROBERT STEPHEN DRIGGERS	908 224
88	10*16414	G	9-5-20	MARY ELIZABETH DRIGGERS	908 208
89	10*16416	G	9-5-20	CYNTHIA HUDSON	908 219
90	10*16424	G	9-5-20	ROBERT J RIGBY	908 241
91	10*16448	G	9-5-20	RALPH L AND JUANITA L CRIM	908 584
92	10*16478	G	9-5-20	MARION L AND EMILY CAMPBELL	908 245
93	10*16514	G	9-5-20	ALEX RUSSELL AND JOYCE A CAMPBELL	908 248
94	10*16515	G	9-5-20	ANNA MARIE JACKSON	908 251
95	10*16516	G	9-5-20	WILSON ANDREW JACKSON	908 253
96	10*16662	G	9-5-20	RICHARD THOMAS AND VICKI J MIMS	908 263
97	10*16800	G	9-5-20	JAMES KENNETH JACKSON AND JULIE JACKSON	921 93
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138	10*15668	H	9-5-5.4	MICHAEL J SNYDER	855 186
139	10*15686	H	9-5-5.4	JOHN OMER BOLTZ	908 160
140	10*15750	H	9-5-5.4	SANDRA K TRULL	908 229

FILE NO. 8655P4HM.dwg

DATE JUNE 15, 20 17

REVISED _____, 20 _____

OPERATORS WELL NO. TEN HIGH 1N-4HM

API WELL NO. 47 — 051 — 01945
STATE COUNTY PERMIT



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



09/22/2017

COUNTY NAME PERMIT

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

DESIGNATED AGENT DIANNA STAMPER
ADDRESS CT CORPORATION SYSTEM
4500 D BIG TYLER ROAD
CHARLESTON, WV 25313

TEN HIGH 1N LEASE
WELL 4HM
TUG HILL OPERATING



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190	10*47051.223.3	H	9-5-5.4	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	885 324
191	10*47051.223.6	H	9-5-5.4	JOSHUA RINE AND REBECCA RINE	907 634

FILE NO. 8665P4HM.dwg

DATE JUNE 15, 20 17

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OPERATORS WELL NO. TEN HIGH 1N-4HM

API WELL NO. 47 — 051 — 01945
STATE COUNTY PERMIT



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



09/22/2017

COUNTY NAME

PERMIT

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

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

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

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

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

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

*See attached sheets

RECEIVED
Office of Oil and Gas

JUN 26 2017

WV Department of
Environmental Protection

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

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

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

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

Well Operator: Tug Hill Operating, LLC
 By: Amy Miller *Amy Miller*
 Its: Permit Specialist - Appalachia

WW-6A1 Supplement

Operator's Well No. Ten High 1N - 4HM

Lease Name or No.	Tag Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15501	C 9-7-12	RONALD AND EDNA MOORE	TRIENERGY INC	1/8+	661	449 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15501	B 9-7-12.1	RONALD AND EDNA MOORE	TRIENERGY INC	1/8+	661	449 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15501	D 9-7-13	RONALD AND EDNA MOORE	TRIENERGY INC	1/8+	661	449 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15500	E 9-7-6	JERRY FLETCHER AND CAROLYN FLETCHER, HUSBAND AND WIFE	TRIENERGY INC	1/8+	661	154 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15502	E 9-7-6	SHERWOOD YEATER	TRIENERGY INC	1/8+	661	454 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15662	A 9-7-24	LARRY LEE CONKLE	CHEVRON U.S.A. INC.	1/8+	863	354 N/A	N/A	Chevron to Tug Hill: 36/148
10*15663	A 9-7-24	ROY A CONKLE SR	CHEVRON USA INC	1/8+	863	311 N/A	N/A	Chevron to Tug Hill: 36/148
10*15664	A 9-7-24	THERESA ANNE HUGHES	CHEVRON USA INC	1/8+	863	343 N/A	N/A	Chevron to Tug Hill: 36/148
10*15666	A 9-7-24	BRENDA J WHETZEL	CHEVRON USA INC	1/8+	863	635 N/A	N/A	Chevron to Tug Hill: 36/148
10*16049	A 9-7-24	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905	518 N/A	N/A	N/A
10*16820	A 9-7-24	ROBERTA ANN AND DAVID S GIBB	TH EXPLORATION LLC	1/8+	919	237 N/A	N/A	N/A
10*17365	A 9-7-24	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927	468 N/A	N/A	N/A
10*17370	A 9-7-24	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927	470 N/A	N/A	N/A
10*47051.295.10	A 9-7-24	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905	470 N/A	N/A	N/A
10*47051.295.11	A 9-7-24	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905	432 N/A	N/A	N/A
10*47051.295.12	A 9-7-24	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905	435 N/A	N/A	N/A
10*47051.295.13	A 9-7-24	THE DOLLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE	TH EXPLORATION LLC	1/8+	904	641 N/A	N/A	N/A
10*47051.295.3	A 9-7-24	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904	632 N/A	N/A	N/A
10*47051.295.4	A 9-7-24	LLOYD D MOORE	TH EXPLORATION LLC	1/8+	904	459 N/A	N/A	N/A
10*47051.295.5	A 9-7-24	DALE R MOORE	TH EXPLORATION LLC	1/8+	904	635 N/A	N/A	N/A
10*47051.295.6	A 9-7-24	MARY I BURKHART	TH EXPLORATION LLC	1/8+	904	638 N/A	N/A	N/A
10*47051.295.7	A 9-7-24	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904	462 N/A	N/A	N/A
10*47051.295.9	A 9-7-24	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	904	465 N/A	N/A	N/A
10*15481	F 9-5-17	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908	197 N/A	N/A	N/A
10*15482	F 9-5-17	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908	203 N/A	N/A	N/A
10*15522	F 9-5-17	CARLA S CROW	TRIENERGY HOLDINGS, LLC	1/8+	728	412 TriEnergy to NPAR: 24/196	NPAR to Chevron: 756/332	Chevron to Tug Hill: 36/148
10*15686	F 9-5-17	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908	160 N/A	N/A	N/A
10*15750	F 9-5-17	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908	229 N/A	N/A	N/A
10*16058	F 9-5-17	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908	231 N/A	N/A	N/A
10*16118	F 9-5-17	RUBY RIDDLE JACKSON	TH EXPLORATION LLC	1/8+	908	233 N/A	N/A	N/A
10*16383	F 9-5-17	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908	224 N/A	N/A	N/A
10*16414	F 9-5-17	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908	208 N/A	N/A	N/A
10*16416	F 9-5-17	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908	219 N/A	N/A	N/A
10*16424	F 9-5-17	ROBERT J RIGBY	TH EXPLORATION, LLC	1/8+	908	241 N/A	N/A	N/A
10*16448	F 9-5-17	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908	584 N/A	N/A	N/A
10*16478	F 9-5-17	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908	245 N/A	N/A	N/A
10*16514	F 9-5-17	ALEX RUSSELL AND JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908	248 N/A	N/A	N/A
10*16515	F 9-5-17	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908	251 N/A	N/A	N/A
10*16516	F 9-5-17	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908	253 N/A	N/A	N/A
10*16662	F 9-5-17	RICHARD THOMAS AND VICKI J MIMS	TH EXPLORATION LLC	1/8+	908	263 N/A	N/A	N/A
10*16800	F 9-5-17	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921	93 N/A	N/A	N/A

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10*16806	F 9-5-17	VIRGINIA I WHITMAN	TH EXPLORATION LLC	1/8+	921	528 N/A	N/A	N/A
10*16962	F 9-5-17	DENNIS P AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921	70 N/A	N/A	N/A
10*16976	F 9-5-17	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921	343 N/A	N/A	N/A
10*16987	F 9-5-17	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921	355 N/A	N/A	N/A
10*17130	F 9-5-17	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921	137 N/A	N/A	N/A
10*17155	F 9-5-17	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921	118 N/A	N/A	N/A
10*17156	F 9-5-17	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921	139 N/A	N/A	N/A
10*17157	F 9-5-17	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921	367 N/A	N/A	N/A
10*17198	F 9-5-17	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921	141 N/A	N/A	N/A
10*17205	F 9-5-17	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921	524 N/A	N/A	N/A
10*17274	F 9-5-17	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921	474 N/A	N/A	N/A
10*17275	F 9-5-17	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921	373 N/A	N/A	N/A
10*17276	F 9-5-17	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921	526 N/A	N/A	N/A
10*17278	F 9-5-17	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921	121 N/A	N/A	N/A
10*17377	F 9-5-17	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921	123 N/A	N/A	N/A
10*17438	F 9-5-17	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921	476 N/A	N/A	N/A
10*17441	F 9-5-17	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921	522 N/A	N/A	N/A
10*17449	F 9-5-17	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921	150 N/A	N/A	N/A
10*17482	F 9-5-17	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927	487 N/A	N/A	N/A
10*17484	F 9-5-17	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921	330 N/A	N/A	N/A
10*17485	F 9-5-17	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921	91 N/A	N/A	N/A
10*17526	F 9-5-17	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921	370 N/A	N/A	N/A
10*17527	F 9-5-17	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921	111 N/A	N/A	N/A
10*17561	F 9-5-17	KATHRYN L & ROGER L TYRELL	TH EXPLORATION, LLC	1/8+	921	519 N/A	N/A	N/A
10*17564	F 9-5-17	JAMES R & TRACEY E NICKOLSON	TH EXPLORATION, LLC	1/8+	921	340 N/A	N/A	N/A
10*17565	F 9-5-17	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921	327 N/A	N/A	N/A
10*17566	F 9-5-17	NATHAN P & BARBARA T ERDOSSY	TH EXPLORATION, LLC	1/8+	921	108 N/A	N/A	N/A
10*17588	F 9-5-17	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921	325 N/A	N/A	N/A
10*17589	F 9-5-17	MARY CHRISTINE MCKENNA	TH EXPLORATION, LLC	1/8+	921	332 N/A	N/A	N/A
10*17744	F 9-5-17	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921	116 N/A	N/A	N/A
10*47051.223.1	F 9-5-17	JEAN ANNE GORBY STORCH	TH EXPLORATION LLC	1/8+	877	216 N/A	N/A	N/A
10*47051.223.15	F 9-5-17	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908	14 N/A	N/A	N/A
10*47051.223.20	F 9-5-17	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908	24 N/A	N/A	N/A
10*47051.223.21	F 9-5-17	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908	19 N/A	N/A	N/A
10*47051.223.2	F 9-5-17	STEPHANIE SCHIEFER AND GEOFFREY SCHIEFER	TH EXPLORATION LLC	1/8+	885	321 N/A	N/A	N/A
10*47051.223.30	F 9-5-17	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908	165 N/A	N/A	N/A
10*47051.223.3	F 9-5-17	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	885	324 N/A	N/A	N/A
10*47051.223.6	F 9-5-17	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907	634 N/A	N/A	N/A
10*15481	G 9-5-20	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908	197 N/A	N/A	N/A
10*15482	G 9-5-20	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908	203 N/A	N/A	N/A
10*15674	G 9-5-20	DONALD E LEACH ET AL	CHEVRON U.S.A. INC.	1/8+	882	209 N/A	N/A	Chevron to Tug Hill: 36/148

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10*15686	G 9-5-20	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908	160 N/A	N/A	N/A
10*15750	G 9-5-20	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908	229 N/A	N/A	N/A
10*16058	G 9-5-20	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908	231 N/A	N/A	N/A
10*16118	G 9-5-20	RUBY RIDDLE JACKSON	TH EXPLORATION LLC	1/8+	908	233 N/A	N/A	N/A
10*16383	G 9-5-20	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908	224 N/A	N/A	N/A
10*16414	G 9-5-20	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908	208 N/A	N/A	N/A
10*16416	G 9-5-20	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908	219 N/A	N/A	N/A
10*16424	G 9-5-20	ROBERT J RIGBY	TH EXPLORATION, LLC	1/8+	908	241 N/A	N/A	N/A
10*16448	G 9-5-20	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908	584 N/A	N/A	N/A
10*16478	G 9-5-20	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908	245 N/A	N/A	N/A
10*16514	G 9-5-20	ALEX RUSSELL AND JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908	248 N/A	N/A	N/A
10*16515	G 9-5-20	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908	251 N/A	N/A	N/A
10*16516	G 9-5-20	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908	253 N/A	N/A	N/A
10*16662	G 9-5-20	RICHARD THOMAS AND VICKI J MIMS	TH EXPLORATION LLC	1/8+	908	263 N/A	N/A	N/A
10*16800	G 9-5-20	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921	93 N/A	N/A	N/A
10*16806	G 9-5-20	VIRGINIA I WHITMAN	TH EXPLORATION LLC	1/8+	921	528 N/A	N/A	N/A
10*16962	G 9-5-20	DENNIS P AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921	70 N/A	N/A	N/A
10*16976	G 9-5-20	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921	343 N/A	N/A	N/A
10*16987	G 9-5-20	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921	355 N/A	N/A	N/A
10*17130	G 9-5-20	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921	137 N/A	N/A	N/A
10*17155	G 9-5-20	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921	118 N/A	N/A	N/A
10*17156	G 9-5-20	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921	139 N/A	N/A	N/A
10*17157	G 9-5-20	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921	367 N/A	N/A	N/A
10*17198	G 9-5-20	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921	141 N/A	N/A	N/A
10*17205	G 9-5-20	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921	524 N/A	N/A	N/A
10*17274	G 9-5-20	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921	474 N/A	N/A	N/A
10*17275	G 9-5-20	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921	373 N/A	N/A	N/A
10*17276	G 9-5-20	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921	526 N/A	N/A	N/A
10*17278	G 9-5-20	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921	121 N/A	N/A	N/A
10*17377	G 9-5-20	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921	123 N/A	N/A	N/A
10*17438	G 9-5-20	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921	476 N/A	N/A	N/A
10*17441	G 9-5-20	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921	522 N/A	N/A	N/A
10*17449	G 9-5-20	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921	150 N/A	N/A	N/A
10*17482	G 9-5-20	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927	487 N/A	N/A	N/A
10*17484	G 9-5-20	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921	330 N/A	N/A	N/A
10*17485	G 9-5-20	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921	91 N/A	N/A	N/A
10*17526	G 9-5-20	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921	370 N/A	N/A	N/A
10*17527	G 9-5-20	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921	111 N/A	N/A	N/A
10*17561	G 9-5-20	KATHRYN L & ROGER L TYRELL	TH EXPLORATION, LLC	1/8+	921	519 N/A	N/A	N/A
10*17564	G 9-5-20	JAMES R & TRACEY E NICKOLSON	TH EXPLORATION, LLC	1/8+	921	340 N/A	N/A	N/A
10*17565	G 9-5-20	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921	327 N/A	N/A	N/A

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10*17588	G	9-5-20	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921	325 N/A	N/A	N/A
10*17589	G	9-5-20	MARY CHRISTINE MCKENNA	TH EXPLORATION, LLC	1/8+	921	332 N/A	N/A	N/A
10*17744	G	9-5-20	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921	116 N/A	N/A	N/A
10*47051.223.1	G	9-5-20	JEAN ANNE GORBY STORCH	TH EXPLORATION LLC	1/8+	877	216 N/A	N/A	N/A
10*47051.223.15	G	9-5-20	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908	14 N/A	N/A	N/A
10*47051.223.20	G	9-5-20	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908	24 N/A	N/A	N/A
10*47051.223.21	G	9-5-20	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908	19 N/A	N/A	N/A
10*47051.223.2	G	9-5-20	STEPHANIE SCHIEFER AND GEOFFREY SCHIEFER	TH EXPLORATION LLC	1/8+	885	321 N/A	N/A	N/A
10*47051.223.30	G	9-5-20	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908	165 N/A	N/A	N/A
10*47051.223.3	G	9-5-20	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	885	324 N/A	N/A	N/A
10*47051.223.6	G	9-5-20	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907	634 N/A	N/A	N/A
10*15481	H	9-5-5.4	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908	197 N/A	N/A	N/A
10*15482	H	9-5-5.4	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908	203 N/A	N/A	N/A
10*15668	H	9-5-5.4	MICHAEL J SNYDER	CHEVRON U.S.A. INC.	1/8+	865	186 N/A	N/A	Chevron to Tug Hill: 36/148
10*15686	H	9-5-5.4	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908	160 N/A	N/A	N/A
10*15750	H	9-5-5.4	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908	229 N/A	N/A	N/A
10*16058	H	9-5-5.4	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908	231 N/A	N/A	N/A
10*16118	H	9-5-5.4	RUBY RIDDLE JACKSON	TH EXPLORATION LLC	1/8+	908	233 N/A	N/A	N/A
10*16383	H	9-5-5.4	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908	224 N/A	N/A	N/A
10*16414	H	9-5-5.4	MARY ELIZABETH DRIGGERS	TH EXPLORATION LLC	1/8+	908	208 N/A	N/A	N/A
10*16416	H	9-5-5.4	CYNTHIA HUDSON	TH EXPLORATION LLC	1/8+	908	219 N/A	N/A	N/A
10*16424	H	9-5-5.4	ROBERT J RIGBY	TH EXPLORATION, LLC	1/8+	908	241 N/A	N/A	N/A
10*16448	H	9-5-5.4	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908	584 N/A	N/A	N/A
10*16478	H	9-5-5.4	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908	245 N/A	N/A	N/A
10*16514	H	9-5-5.4	ALEX RUSSELL AND JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908	248 N/A	N/A	N/A
10*16515	H	9-5-5.4	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908	251 N/A	N/A	N/A
10*16516	H	9-5-5.4	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908	253 N/A	N/A	N/A
10*16662	H	9-5-5.4	RICHARD THOMAS AND VICKI J MIMS	TH EXPLORATION LLC	1/8+	908	263 N/A	N/A	N/A
10*16800	H	9-5-5.4	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921	93 N/A	N/A	N/A
10*16806	H	9-5-5.4	VIRGINIA I WHITMAN	TH EXPLORATION LLC	1/8+	921	528 N/A	N/A	N/A
10*16962	H	9-5-5.4	DENNIS P AND BARBARA EZELL FLORY	TH EXPLORATION LLC	1/8+	921	70 N/A	N/A	N/A
10*16976	H	9-5-5.4	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921	343 N/A	N/A	N/A
10*16987	H	9-5-5.4	LAURIE EZELL PERRY	TH EXPLORATION LLC	1/8+	921	355 N/A	N/A	N/A
10*17130	H	9-5-5.4	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921	137 N/A	N/A	N/A
10*17155	H	9-5-5.4	JESSE LEON JR AND TERESA GAIL EZELLE	TH EXPLORATION LLC	1/8+	921	118 N/A	N/A	N/A
10*17156	H	9-5-5.4	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921	139 N/A	N/A	N/A
10*17157	H	9-5-5.4	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921	367 N/A	N/A	N/A
10*17198	H	9-5-5.4	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921	141 N/A	N/A	N/A
10*17205	H	9-5-5.4	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921	524 N/A	N/A	N/A
10*17274	H	9-5-5.4	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921	474 N/A	N/A	N/A

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047-051-01945

WW-6A1 Supplement

Operator's Well No. Ten High 1N - 4HM

Lease Name or No.	Tag Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17275	H 9-5-5.4	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921	373 N/A	N/A	N/A
10*17276	H 9-5-5.4	BERTHA EZELL WYATT	TH EXPLORATION LLC	1/8+	921	526 N/A	N/A	N/A
10*17278	H 9-5-5.4	MICHAEL L EZELLE	TH EXPLORATION LLC	1/8+	921	121 N/A	N/A	N/A
10*17377	H 9-5-5.4	MILTON HOWARD EZELLE JR AND ELIZABETH A EZELLE	TH EXPLORATION LLC	1/8+	921	123 N/A	N/A	N/A
10*17438	H 9-5-5.4	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921	476 N/A	N/A	N/A
10*17441	H 9-5-5.4	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921	522 N/A	N/A	N/A
10*17449	H 9-5-5.4	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921	150 N/A	N/A	N/A
10*17482	H 9-5-5.4	TERESA EZELLE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927	487 N/A	N/A	N/A
10*17484	H 9-5-5.4	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921	330 N/A	N/A	N/A
10*17485	H 9-5-5.4	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921	91 N/A	N/A	N/A
10*17526	H 9-5-5.4	JEFFREY L REEVES AND JODY L REEVES	TH EXPLORATION LLC	1/8+	921	370 N/A	N/A	N/A
10*17527	H 9-5-5.4	JAMES MICHAEL EZELL AND LUCILLE D EZELL	TH EXPLORATION LLC	1/8+	921	111 N/A	N/A	N/A
10*17561	H 9-5-5.4	KATHRYN L & ROGER L TYRELL	TH EXPLORATION, LLC	1/8+	921	519 N/A	N/A	N/A
10*17564	H 9-5-5.4	JAMES R & TRACEY E NICKOLSON	TH EXPLORATION, LLC	1/8+	921	340 N/A	N/A	N/A
10*17565	H 9-5-5.4	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921	327 N/A	N/A	N/A
10*17566	H 9-5-5.4	NATHAN P & BARBARA T ERDOSSY	TH EXPLORATION, LLC	1/8+	921	108 N/A	N/A	N/A
10*17588	H 9-5-5.4	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921	325 N/A	N/A	N/A
10*17589	H 9-5-5.4	MARY CHRISTINE MCKENNA	TH EXPLORATION, LLC	1/8+	921	332 N/A	N/A	N/A
10*17744	H 9-5-5.4	SAM PRESLEY EZELL	TH EXPLORATION LLC	1/8+	921	116 N/A	N/A	N/A
10*47051.223.1	H 9-5-5.4	JEAN ANNE GORBY STORCH	TH EXPLORATION LLC	1/8+	877	216 N/A	N/A	N/A
10*47051.223.15	H 9-5-5.4	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908	14 N/A	N/A	N/A
10*47051.223.20	H 9-5-5.4	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908	24 N/A	N/A	N/A
10*47051.223.21	H 9-5-5.4	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908	19 N/A	N/A	N/A
10*47051.223.2	H 9-5-5.4	STEPHANIE SCHIEFER AND GEOFFREY SCHIEFER	TH EXPLORATION LLC	1/8+	885	321 N/A	N/A	N/A
10*47051.223.30	H 9-5-5.4	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908	165 N/A	N/A	N/A
10*47051.223.3	H 9-5-5.4	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	885	324 N/A	N/A	N/A
10*47051.223.6	H 9-5-5.4	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907	634 N/A	N/A	N/A

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AFFIDAVIT

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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

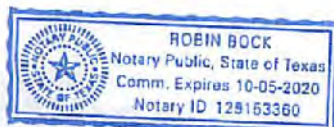
JURAT

Jan Post
MARSHALL County 03:44:28 PM
Instrument No 1416299
Date Recorded 10/19/2016
Document Type HIS
Pages Recorded 1
Book-Page 29-62
Recording Fee \$5.00
Additional \$5.00

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



June 21, 2017

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

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JUN 26 2017
WV Department of
Environmental Protection

RE: Ten High 1N-4HM

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-4HM well plat. THO has conducted a full title search in the relevant Court House to confirm its' ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

Amy L. Miller
Permit Specialist – Appalachia

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

Date of Notice Certification: 06/21/2017

API No. 47- 051 -
Operator's Well No. Ten High 1N-4HM
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>527,335.20</u>
County: <u>Marshall</u>		Northing: <u>4,406,357.15</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.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
<p>RECEIVED Office of Oil and Gas</p> <p>JUN 26 2017</p> <p>WV Department of Environmental Protection</p>	

Required Attachments:

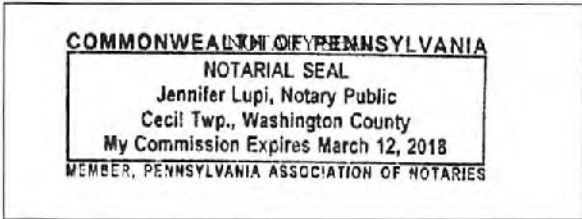
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

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: Tug Hill Operating, LLC
By: Amy Miller
Its: Permit Specialist - Appalachia
Telephone: 724-749-8388

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



Subscribed and sworn before me this 21st day of June, 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 deprivacvofficer@wv.gov.

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Environmental Protection

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Ten High 1N-4HM
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: 6/21/2017 **Date Permit Application Filed:** 6/22/2017

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

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Delivery method pursuant to West Virginia Code § 22-6A-10(b)

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

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

- SURFACE OWNER(s)
Name: Estate of Lawrence & Shirley Mae Conkle c/o Roy Conkle ✓
Address: 75 Arlington Avenue
Moundsville, WV 26041 ✓
- Name: Roy A. Conkle, Sr., and Lorie A. ✓
Address: 75 Arlington Avenue
Moundsville, WV 26041 *See Attached*
- SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Robert G. Hubbs and Scarlett E. Otte ✓
Address: 132 Shepherds Ridge Lane
Glen Easton, WV 26039
- Name: None
Address: _____
- SURFACE OWNER(s) (Impoundments or Pits)
Name: None
Address: _____

- COAL OWNER OR LESSEE ✓
Name: Murray Energy Corporation ✓
Address: 46226 National Road
St. Clairsville, OH 43950
- COAL OPERATOR
Name: Same as above coal owner
Address: _____
- SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: *See supplement page 1A attached
Address: _____
- OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: None
Address: _____

*Please attach additional forms if necessary

JUN 26 2017

WV Department of
Environmental Protection

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

09/22/2017

WW-6A
(8-13)

JUN 26 2017

API NO. 47- 051

OPERATOR WELL NO. Ten High 1N-4HM

Well Pad Name: Ten High

examined in the study required by this subsection, the ~~West Virginia Department of Environmental Protection~~ has 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.**

09/22/2017

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Ten High 1N-4HM
Well Pad Name: Ten High

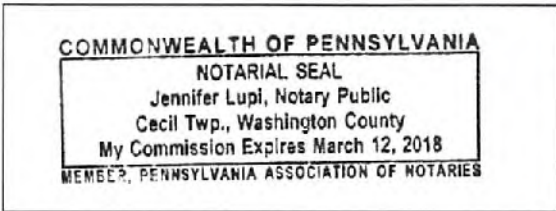
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8368
Email: amiller@tug-hill-op.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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 21st day of June, 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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WW-6A Notice of Application Attachment 1 of 1

Surface Owner(s):

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

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

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

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Exhibit WW-6A

Supplement Pg. 1A

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

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

Well: Ten High 1N – 4HM
 District: Meade (House #'s 1-3)
 State: WV

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

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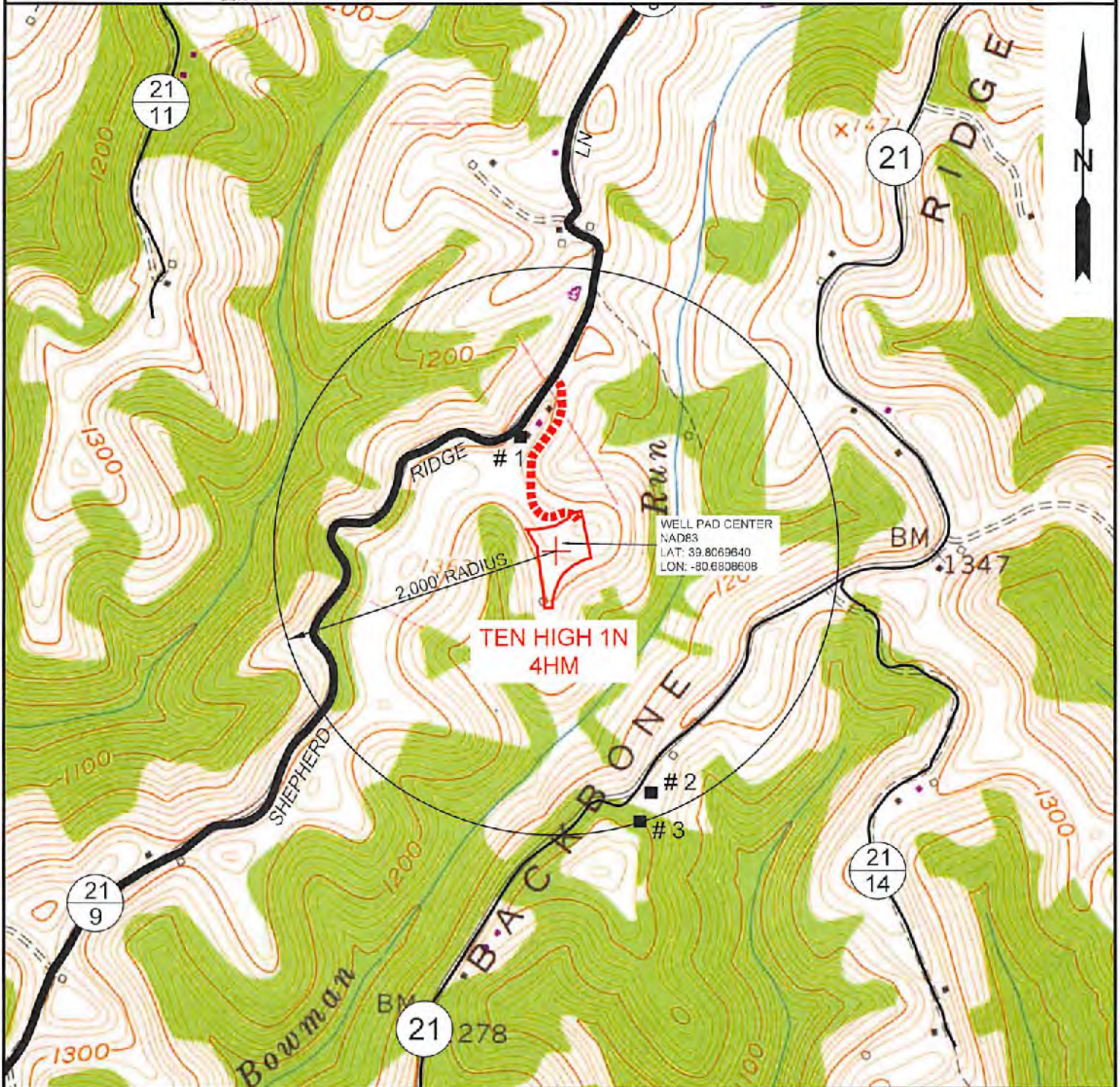
SUPPLEMENT PG. 1B

JUN 26 2017

PROPOSED

TEN HIGH 1N - 4HM

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

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 462-6634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8655	06/15/2017	1" = 1000'



TUG HILL
OPERATING

09/22/2017

047-051-01945

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:

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Office of Oil and Gas

JUN 26 2017

SURFACE OWNER(s)

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

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

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

COAL OWNER OR LESSEE

Name: Murray Energy Corporation ✓
 Address: 46226 National Road
St. Clairsville, OH 43950 *See Attached

WV Department of
Environmental Protection

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 -80.6809192</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.

09/22/2017

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

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 Environmental Protection

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

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: 06/21/2017 **Date Permit Application Filed:** 06/22/2017

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

WV Department of
Environmental Protection

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

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

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

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

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>527,335.20</u>
County:	<u>Marshall</u>		Northing:	<u>4,406,357.15</u>
District:	<u>Meads</u>	Public Road Access:	<u>Shepherd Ridge Lane (Co. RL 21/9)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>LAWRENCE & SHIRLEY CONKLE, ESTS</u>	
Watershed:	<u>(HUC 10) Fish Creek</u>			

This Notice Shall Include:

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

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

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

Oil and Gas Privacy Notice:

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

Operator Well Nos. TEN HIGH 1N-4HM

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

Surface Owner(s):

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

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



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

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

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047-051-01945

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Jim Justice
Governor

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

May 16, 2017

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

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JUN 26 2017

WV Department of
Environmental Protection

Subject: DOH Permit for the Ten High IN Pad, Marshall County
Ten High IN Unit-4HM Well site

47-051-01945

Dear Mr. Martin,

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

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

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

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

09/22/2017



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Ten High 1N-4HM

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS# 000064-17-5 Water – CAS# 007732-18-5
FRAC SAND	Silica Sand (various Mesh sizes)	Proppant	Crystalline silica (quartz) CAS# 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS# 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS# 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS# 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS# 000107-21-1 Diethylene glycol – CAS# 000111-46-6

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WV Department of
Environmental Protection



APPROVED
WVDEP OOG
 5/18/2017

Ten High Well Site
 Site Design, Construction Plan, &
 Erosion and Sediment Control Plans
 Tug Hill Operating
 Marshall County
 Meade District
 Latitude 39.8069640°
 Longitude -80.6808608°
 Middle Fish Creek Watershed

Pertinent Site Information
 Ten High Well Site
 Emergency Number: 304-845-1920
 Meade District, Marshall County, WV
 Watershed: Middle Fish Creek Watershed
 Tug Hill Contact Number: 1-817-652-3400

Exhibit A: Final Design: Issue for Permitting

Site Location

County	Section	Range	Township
Marshall	12	12	1

Project Location



Property Owner Information - Ten High Well Site

Property	Area (Acres)	Value
10-11-11-1	1.96	11,120
10-11-11-2	1.96	11,120
Total	3.92	22,240

Access Road

Property	Area (Acres)	Value
10-11-11-1	0.12	1,112
10-11-11-2	0.12	1,112
Total	0.24	2,224

Undeveloped Area

Category	Area (Acres)
Forest	1.74
Open Field	0.18
Other	0.00
Total	1.92

Ten High Well Site Quantities

Item	Quantity	Unit
Well Pits	1	Each
Well Pits (incl. 10' x 10' x 10')	1	Each
Access Road	1	Linear Foot
Erosion and Sediment Control	1	Linear Foot
Total	4	Linear Foot

Well Locations (OAD 27)

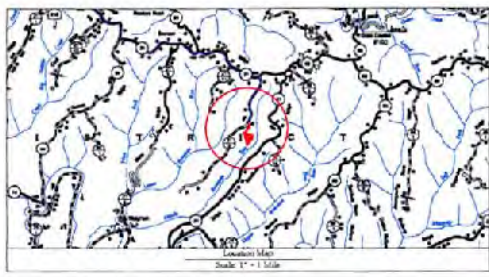
Well No.	Coordinates
1	39.8069640, -80.6808608

Well Locations (NAD 83)

Well No.	Coordinates
1	39.8069640, -80.6808608

Approach Route

From the intersection of WV Rt 262 (1) to Turn New Marshall, WV. Travel North on WV Rt 262 for 13.8 mi. Turn Right onto Co. Rd 21 (1) (Sherman Ridge Rd) Follow Co. Rd 21 for 1.2 mi. Turn Left to continue onto 20-21. Follow Co. Rd 21 for 1.2 mi. Turn Right onto Co. Rd 21 (Sherman Ridge Rd) Follow Co. Rd 21 for 0.3 mi. Turn Right onto Co. Rd 21 (9) (Sherman Ridge). Follow Co. Rd 21 for 0.9 mi. The well location will be on the left-hand side of the road.



Well Location Description

- All well construction shall follow the following provisions.
- Well construction shall be in accordance with the current state code.
- Well construction shall be in accordance with the current state code.
- Well construction shall be in accordance with the current state code.

Sheet

Sheet No.	Description
1	Access Road
2	Site Plan
3	Site Plan
4	Site Plan
5	Site Plan
6	Site Plan
7	Site Plan
8	Site Plan
9	Site Plan
10	Site Plan
11	Site Plan
12	Site Plan
13	Site Plan
14	Site Plan
15	Site Plan
16	Site Plan
17	Site Plan
18	Site Plan
19	Site Plan
20	Site Plan

Project Contacts

Tug Hill Operating
 Joshua White, Regulatory Admin
 304-845-1920

WVDEP
 Jeff P. H. 304-845-1920
 Zachary Rosenfield 304-845-1920

Environmental
 Tug Hill Operating will obtain an Interagency Permit from the MDA/MSD. Scan the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities.

MISS UTILITY OF WEST VIRGINIA
 1-800-244-4444

811
 Call before you dig.

TUG HILL OPERATING

Ten High Well Site
 Meade District
 Marshall County, WV

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

K&S CONSULTANTS

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

Scale 1" = 1 Mile

Date: 05/18/2017

