



---

west virginia department of environmental protection

---

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

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

Friday, October 26, 2018  
WELL WORK PERMIT  
Horizontal 6A / Re-Work

TUG HILL OPERATING, LLC  
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for LACKAWANNA NO 3H  
47-103-03006-00-00

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

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

Operator's Well Number: LACKAWANNA NO 3H  
Farm Name: M.B. INVESTMENTS  
U.S. WELL NUMBER: 47-103-03006-00-00  
Horizontal 6A Re-Work  
Date Issued: 10/26/2018

Promoting a healthy environment.

# PERMIT CONDITIONS

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

## CONDITIONS

---

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

API Number: 4710303006

## 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](mailto:DEPOOGNotify@wv.gov).

**4710303006**

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 Wetzel Magnolia Porters Falls  
Operator ID County District Quadrangle

2) Operator's Well Number: Lackawanna 3H Well Pad Name: Lackawanna

3) Farm Name/Surface Owner: Wetzel County Sanitary Landfill Public Road Access: County Route 30

4) Elevation, current ground: 1306' Elevation, proposed post-construction: 1306'

5) Well Type (a) Gas  Oil  Underground Storage

Other

(b) If Gas Shallow  Deep

Horizontal   Drill Deeper

DMH  
8-17-18

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus is the target formation at a depth of 6760 - 6811' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,911'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 15,119'

11) Proposed Horizontal Leg Length: 7,651.41'

12) Approximate Fresh Water Strata Depths: 70', 1116'

13) Method to Determine Fresh Water Depths: Use shallow offset wells to determine deepest freshwater. Or determine using predrill tests, testing while drilling or petrophysical evaluation of resistivity.

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 1016' and Pittsburgh Coal - 1111'

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

RECEIVED  
Office of Oil and Gas

AUG 21 2018

WV Department of  
Environmental Protection

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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	26"	NEW	PE	85.68	set	40'	set
Fresh Water	20"	NEW	H40	94#	set	1,300'	set
Coal	20"	NEW	H40	94#	set	1,300'	set
Intermediate	9 5/8"	NEW	J55	36#	2,800'	2,800'	937ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,119'	15,119'	3862ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,055'	
Liners							

*DMH  
8-17-18*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	26"	30"	.312	740	1,866	CLASS A	1.2
Fresh Water	20"	24"	.33	1,530	1,384	SEE #24	1.2
Coal	20"	24"	.33	1,530	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	9,000	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

**PACKERS**

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

RECEIVED  
Office of Oil and Gas

AUG 21 2018

WV Department of  
Environmental Protection

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

Drill through the Marcellus utilizing existing csg 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.

DMH  
8-17-18

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

Well to be completed with approximately 19,125,000 lb proppant and 295,686 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 26.69 acres

22) Area to be disturbed for well pad only, less access road (acres): 4.32 acres

23) Describe centralizer placement for each casing string:

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

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

\*See Attachment

RECEIVED  
Office of Oil and Gas

AUG 21 2018

WV Department of  
Environmental Protection

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

\*Note: Attach additional sheets as needed.



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

**Lackawanna 3H**

**Casing**

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	26"	BW	30"	<b>40'</b>	CTS
Surface	20"	J55	24"	<b>1,300'</b>	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,800'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	15,119'	CTS

**Cement**

Conductor: Previously set

Surface: Previously set

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

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

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

*DMH  
8-17-18*

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

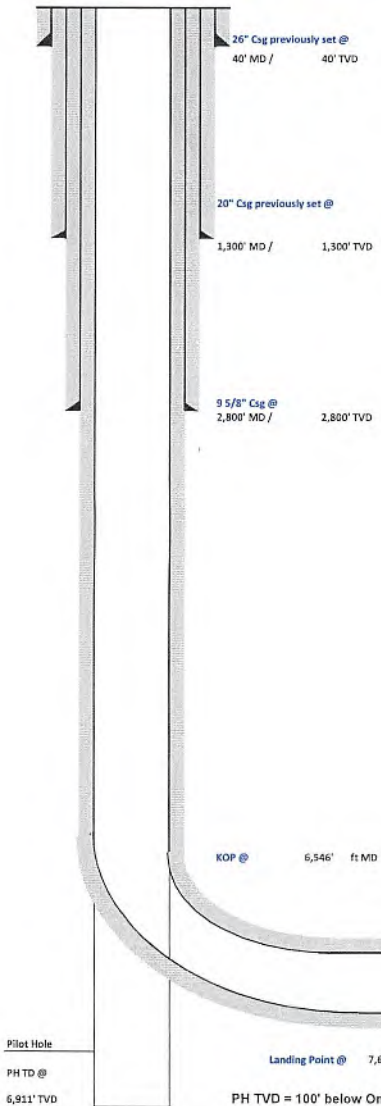


WELL NAME: Lackawanna 3H  
 STATE: WV COUNTY: Wetzel  
 DISTRICT: Magnolia  
 DF Elev: 1,306' GI Elev: 1,306'  
 TD: 15,119'  
 TH Latitude: 39.60603303  
 TH Longitude: -80.85670914  
 BH Latitude: 39.61862965  
 BH Longitude: -80.87237136

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1116
Sewickley Coal	1016
Pittsburgh Coal	1111
Big Lime	2141
Weir	2602
Berea	2794
Gordon	3175
Rhinestreet	6085
Genesee/Burkett	6588
Tully	6640
Hamilton	6653
Marcellus	6760
Landing Depth	6774
Onondaga	6811
Pilot Hole Depth	6911

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	30	26	40'	40'	8W	BW	Surface
Surface	24	20	1,300'	1,300'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,800'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	15,119'	6,648'	20	CYHP110	Surface

CEMENT SUMMARY			DRILLING DETAILS		
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	151	A	15.6	Air	None
Surface	-1,854	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	3,108	A	15	Air	1 Centralizer every other jt
Production	3,410	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to s/c



DMH  
8-17-18

4710303006

RECEIVED  
 Office of Oil and Gas  
 AUG 21 2018  
 WV Department of  
 Environmental Protection

PH TVD = 100' below Onondaga





Well: Lackawanna 3H (slot Z)  
 Site: Lackawanna  
 Project: Wetzel County, West Virginia (UTM17 NAD83)  
 Design: rev1  
 Rig:

SECTION DETAILS

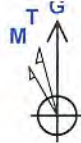
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	3500.00	0.09	247.71	3499.99	-3.00	-7.30	0.00	0.00	1.11	S/T Begin 6°/100' build/turn
2	4007.17	30.42	151.31	3983.67	-118.52	55.45	6.00	-96.55	-130.28	Begin 30.42° tangent
3	8254.57	30.42	151.31	5921.69	-1116.76	601.73	0.00	0.00	-1267.71	Begin 10°/100' build/turn
4	7468.68	91.00	330.00	6784.51	-686.09	339.42	10.00	178.46	-763.51	Begin 91.00° lateral
5	15118.68	91.00	330.00	6651.00	5938.00	-3484.99	0.00	0.00	6885.13	PBHL/TD 15118.68 MD/6651.00 TVD

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

System Datum: Mean Sea Level  
 Depth Reference: GL @ 1306.00ft

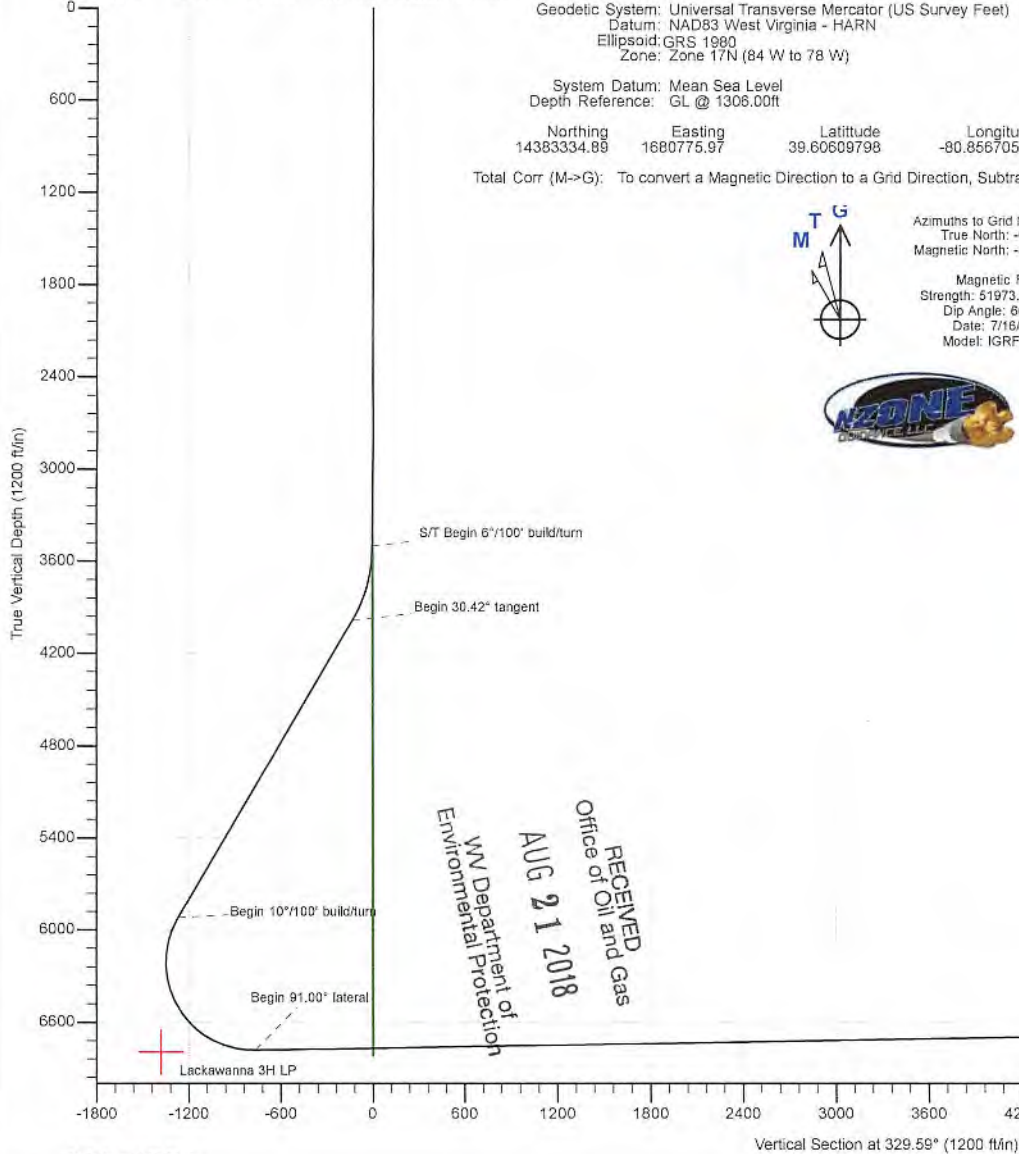
Northing: 14383334.89    Easting: 1680775.97    Latitude: 39.60609798    Longitude: -80.85670585

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.68°

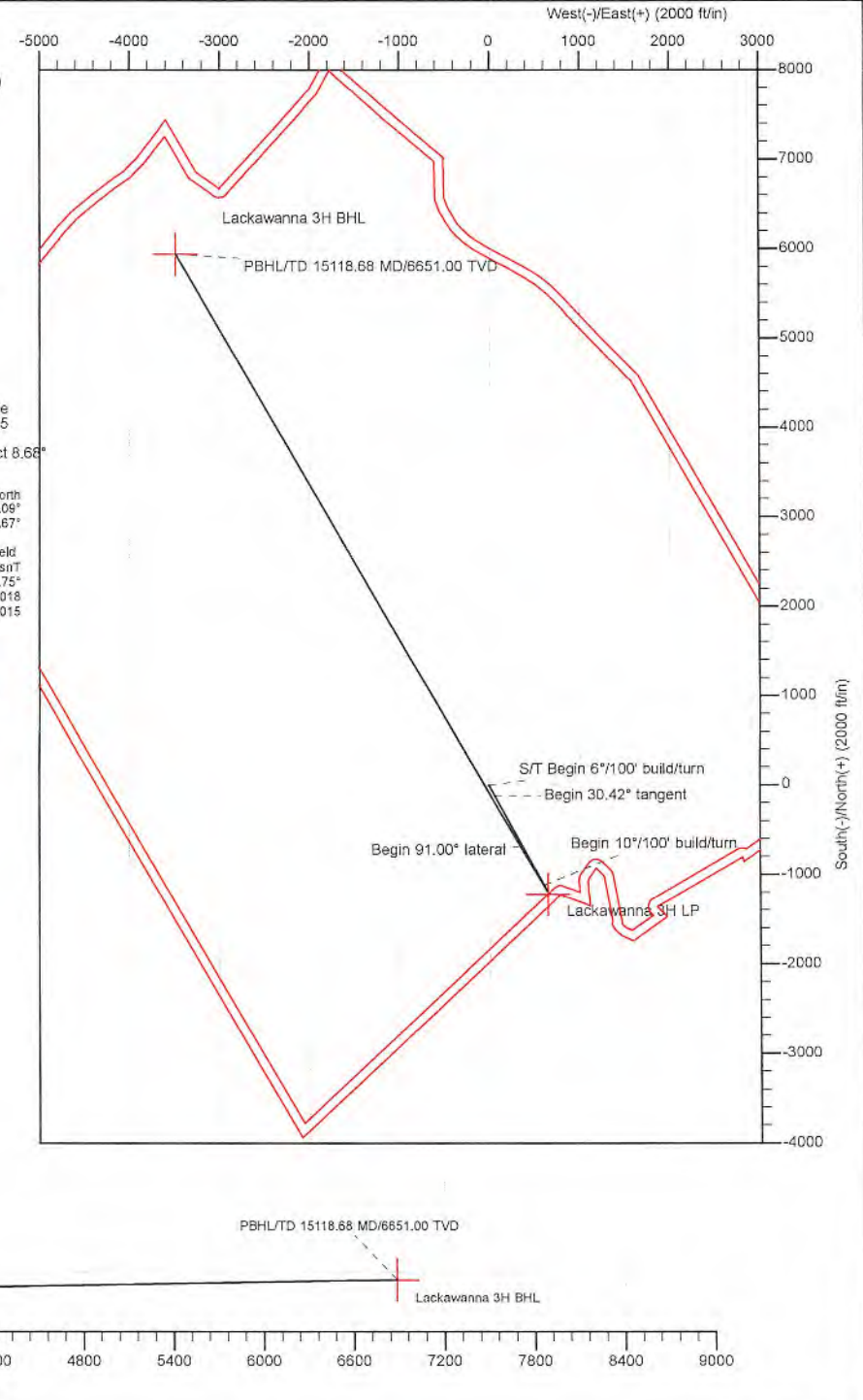


Azimuths to Grid North  
 True North: -0.06°  
 Magnetic North: -8.67°

Magnetic Field  
 Strength: 51973.5nT  
 Dip Angle: 66.75°  
 Date: 7/16/2018  
 Model: IGRF2015



RECEIVED  
 Office of Oil and Gas  
 AUG 21 2018  
 WV Department of  
 Environmental Protection



4710303006



Planning Report - Geographic

<b>Database:</b>	DB_Aug0116_LT_v14	<b>Local Co-ordinate Reference:</b>	Well Lackawanna 3H (slot Z)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1306.00ft
<b>Project:</b>	Wetzel County, West Virginia (UTM17 NAD83)	<b>MD Reference:</b>	GL @ 1306.00ft
<b>Site:</b>	Lackawanna	<b>North Reference:</b>	Grid
<b>Well:</b>	Lackawanna 3H (slot Z)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Sidetrack 02 Lateral		
<b>Design:</b>	rev1		

<b>Project</b>	Wetzel County, West Virginia (UTM17 NAD83)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 West Virginia - HARN		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Lackawanna				
<b>Site Position:</b>		<b>Northing:</b>	14,383,374.84 usft	<b>Latitude:</b>	39.60620769
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,680,777.71 usft	<b>Longitude:</b>	-80.85669942
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.09 °

<b>Well</b>	Lackawanna 3H (slot Z)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,383,334.89 usft	<b>Latitude:</b>	39.60609798
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,680,775.97 usft	<b>Longitude:</b>	-80.85670585
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	1,306.00 ft

<b>Wellbore</b>	Sidetrack 02 Lateral				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/16/2018	-8.58	66.75	51,973.52146553

<b>Design</b>	rev1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	3,500.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	329.59

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/17/2018		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	3,500.00	15,118.68 rev1 (Sidetrack 02 Lateral)	MWD	MWD - Standard

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

<b>Plan Sections</b>											
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>	
3,500.00	0.09	247.71	3,499.99	-3.00	-7.30	0.00	0.00	0.00	0.00	0.00	
4,007.17	30.42	151.31	3,983.67	-118.52	55.45	6.00	5.98	-19.01	-96.55		
6,254.57	30.42	151.31	5,921.69	-1,116.76	601.73	0.00	0.00	0.00	0.00		
7,468.68	91.00	330.00	6,784.51	-686.09	339.42	10.00	4.99	14.72	178.46		
15,118.68	91.00	330.00	6,651.00	5,938.00	-3,484.99	0.00	0.00	0.00	0.00	0.00	Lackawanna 3H BHL







Planning Report - Geographic

<b>Database:</b>	DB_Aug0116_LT_v14	<b>Local Co-ordinate Reference:</b>	Well Lackawanna 3H (slot Z)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1306.00ft
<b>Project:</b>	Wetzel County, West Virginia (UTM17 NAD83)	<b>MD Reference:</b>	GL @ 1306.00ft
<b>Site:</b>	Lackawanna	<b>North Reference:</b>	Grid
<b>Well:</b>	Lackawanna 3H (slot Z)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Sidetrack 02 Lateral		
<b>Design:</b>	rev1		

RECEIVED  
Office of Oil and Gas  
AUG 21 2018

Planned Survey

WV Department of Environmental Protection

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,500.00	91.00	330.00	6,679.25	4,536.39	-2,675.78	14,387,871.28	1,678,100.19	39.61856790	-80.86618207
13,600.00	91.00	330.00	6,677.50	4,622.98	-2,725.77	14,387,957.87	1,678,050.20	39.61880591	-80.86635914
13,700.00	91.00	330.00	6,675.76	4,709.57	-2,775.76	14,388,044.46	1,678,000.21	39.61904392	-80.86653621
13,800.00	91.00	330.00	6,674.01	4,796.16	-2,825.75	14,388,131.05	1,677,950.22	39.61928193	-80.86671328
13,900.00	91.00	330.00	6,672.27	4,882.75	-2,875.75	14,388,217.63	1,677,900.22	39.61951994	-80.86689035
14,000.00	91.00	330.00	6,670.52	4,969.34	-2,925.74	14,388,304.22	1,677,850.23	39.61975795	-80.86706743
14,100.00	91.00	330.00	6,668.78	5,055.93	-2,975.73	14,388,390.81	1,677,800.24	39.61999596	-80.86724450
14,200.00	91.00	330.00	6,667.03	5,142.52	-3,025.72	14,388,477.40	1,677,750.25	39.62023397	-80.86742158
14,300.00	91.00	330.00	6,665.29	5,229.11	-3,075.72	14,388,563.99	1,677,700.25	39.62047197	-80.86759866
14,400.00	91.00	330.00	6,663.54	5,315.70	-3,125.71	14,388,650.58	1,677,650.26	39.62070998	-80.86777574
14,500.00	91.00	330.00	6,661.80	5,402.29	-3,175.70	14,388,737.17	1,677,600.27	39.62094799	-80.86795282
14,600.00	91.00	330.00	6,660.05	5,488.88	-3,225.69	14,388,823.76	1,677,550.28	39.62118600	-80.86812990
14,700.00	91.00	330.00	6,658.31	5,575.47	-3,275.69	14,388,910.35	1,677,500.29	39.62142400	-80.86830698
14,800.00	91.00	330.00	6,656.56	5,662.06	-3,325.68	14,388,996.94	1,677,450.29	39.62166201	-80.86848407
14,900.00	91.00	330.00	6,654.82	5,748.65	-3,375.67	14,389,083.53	1,677,400.30	39.62190002	-80.86866115
15,000.00	91.00	330.00	6,653.07	5,835.23	-3,425.66	14,389,170.12	1,677,350.31	39.62213802	-80.86883824
15,100.00	91.00	330.00	6,651.33	5,921.82	-3,475.66	14,389,256.70	1,677,300.32	39.62237603	-80.86901533
15,118.68	91.00	330.00	6,651.00	5,938.00	-3,484.99	14,389,272.88	1,677,290.98	39.62242049	-80.86904841

PBHL/TD 15118.68 MD/6651.00 TVD

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lackawanna 3H BHL - hit/miss target - Shape - Point	0.00	0.00	6,651.00	5,938.00	-3,484.99	14,389,272.88	1,677,290.98	39.62242049	-80.86904841
Lackawanna 3H LP - plan misses target center by 268.57ft at 7000.00ft MD (6610.61 TVD, -1049.65 N, 552.17 E) - Point	0.00	0.01	6,795.00	-1,219.92	647.79	14,382,114.98	1,681,423.75	39.62074478	-80.85441294

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,500.00	3,499.99	-3.00	-7.30	S/T Begin 6°/100' build/turn
4,007.17	3,983.67	-118.52	55.45	Begin 30.42° tangent
6,254.57	5,921.69	-1,116.76	601.73	Begin 10°/100' build/turn
7,468.68	6,784.51	-686.09	339.42	Begin 91.00° lateral
15,118.68	6,651.00	5,938.00	-3,484.99	PBHL/TD 15118.68 MD/6651.00 TVD

WW-9  
(4/16)

API Number 47 - 103 - 03006  
Operator's Well No. Lackawanna 3H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

RECEIVED  
Office of Oil and Gas  
AUG 21 2018

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Outlet Middle Island Creek Quadrangle Porter Falls 7.5'

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

DMH  
8-17-18

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? Welzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1366426)

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.

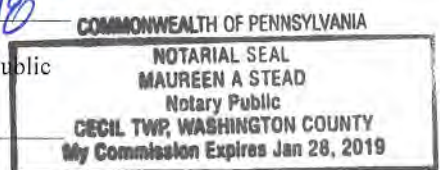
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 *Jim Pancake*  
Company Official (Typed Name) Jim Pancake  
Company Official Title Vice President Geoscience

Subscribed and sworn before me this 7 day of AUG., 2018  
Maureen A Stead Notary Public

My commission expires 1/28/19



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 26.69 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 1/3 ton lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Fox Tail / Grassy	40
		Perennial Rye	30
		Crown Vetch	20

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: [Signature]

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

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

Title: Oil and Gas Inspector Date: 8-17-18

Field Reviewed?  Yes  No

WW-9

MATCHLINE 2  
MATCHLINE 1

SUPPLEMENT PG 1

# PROPOSED LACKAWANNA 3H

REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.

INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.



TM 12 - PAR. 122  
LACKAWANNA TRANS. CO.  
94.5 ACRES

TM 12 - PAR. 130  
LACKAWANNA TRANS. CO.  
25.64 ACRES

SEDIMENT POND

1,387' @ 4% TO 10% GRADE

EXISTING ACCESS ROAD

LANDFILL ROAD

PERMITTED CLEARING LIMITS

SWAMP

SEDIMENT POND

1,803' @ 2% TO 9% GRADE

OVERHEAD UTILITY

TRUCK WASH AREA

TM 17 - PAR. 6.3  
LACKAWANNA TRANS. CO.  
4.13 ACRES

POND

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

TM 17 - PAR. 6  
JERRY W. &  
DELORIS THOMPSON  
30.71 ACRES

STORM SEWER POND

TM 17 - PAR. 7.1  
LACKAWANNA TRANS. CO.  
21.37 ACRES

LANDFILL OFFICE

SEDIMENT POND

LANDFILL ROAD

TM 17 - PAR. 10.1  
LACKAWANNA TRANS. CO.  
13 ACRES

TO ST. RT. 100

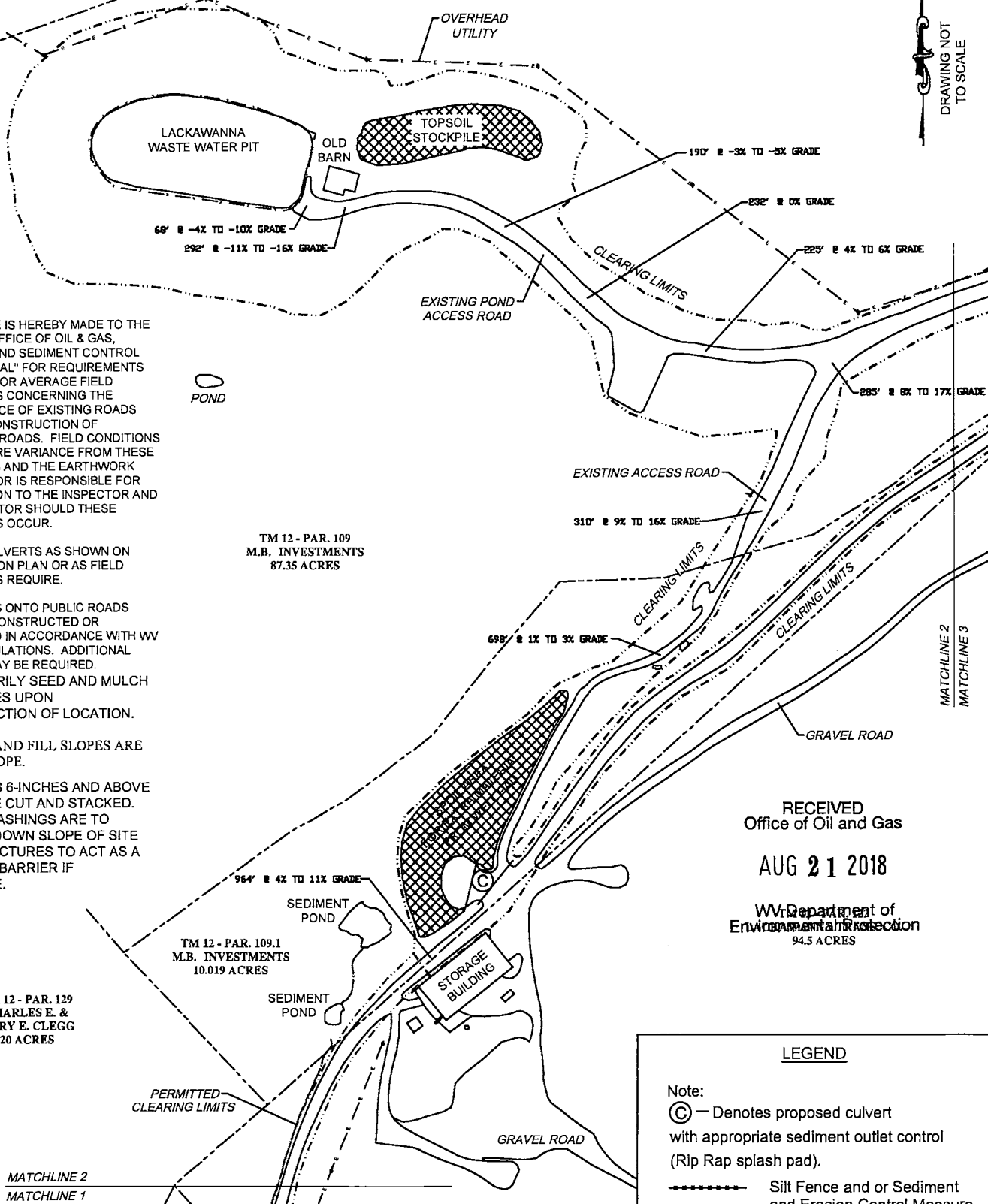
TO CO. RT. 28

**LEGEND**

Note:  
 (C) — Denotes proposed culvert with appropriate sediment outlet control (Rip Rap splash pad).  
 - - - - - Silt Fence and or Sediment and Erosion Control Measure.  
 - - - - - Surface Boundary



# PROPOSED LACKAWANNA 3H



REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.



INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.

TM 12 - PAR. 109  
M.B. INVESTMENTS  
87.35 ACRES

TM 12 - PAR. 109.1  
M.B. INVESTMENTS  
10.019 ACRES

TM 12 - PAR. 129  
CHARLES E. &  
MARY E. CLEGG  
20 ACRES

RECEIVED  
Office of Oil and Gas

AUG 21 2018

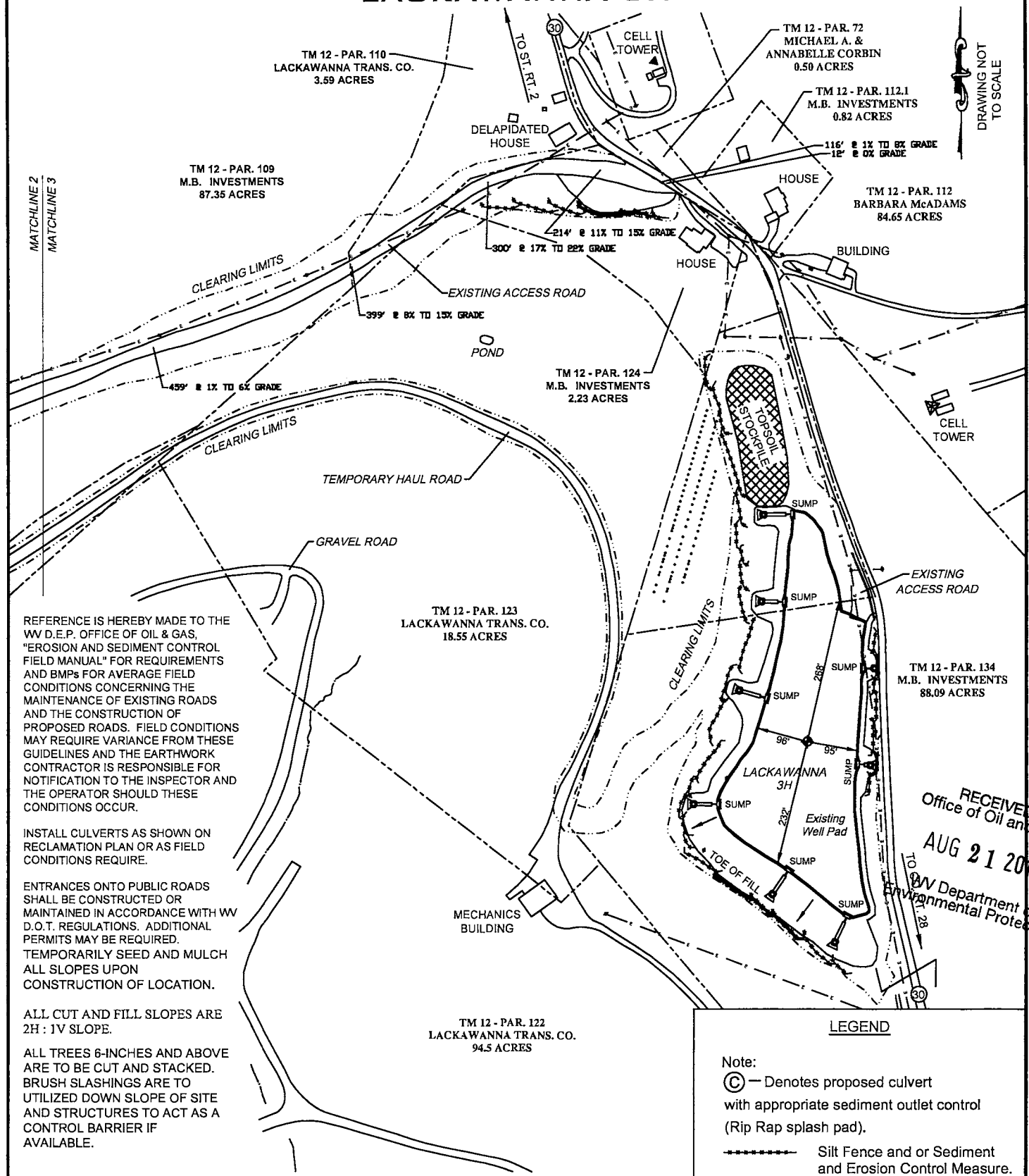
WV Department of  
Environmental Protection  
94.5 ACRES

### LEGEND

- Note:
- ⊙ - Denotes proposed culvert with appropriate sediment outlet control (Rip Rap splash pad).
  - Silt Fence and or Sediment and Erosion Control Measure.
  - Surface Boundary

# PROPOSED LACKAWANNA 3H

DRAWING NOT TO SCALE



REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.

INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of Environmental Protection

**LEGEND**

Note:  
 (C) — Denotes proposed culvert with appropriate sediment outlet control (Rip Rap splash pad).  
 - - - - - Silt Fence and or Sediment and Erosion Control Measure.  
 - - - - - Surface Boundary

4710503006



## Well Site Safety Plan

### Tug Hill Operating, LLC

Well Name: Lackawanna 3H

Pad Location: Lackawanna Pad

Wetzel County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,384,049.34

Easting: 512,301.60

*DMH*  
8-17-18

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

4710303006

Permit well - Lackawanna 3HM

Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4710302982	Tug Hill Operating	5685' MD 5616' TVD	None	None	Yes, existing Marcellus top hole wellbore. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	This is a shallow top hole wellbore for an undrilled lateral Marcellus well.
4710302983	Tug Hill Operating	5530' MD	None	None	Yes, existing Marcellus top hole wellbore. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	This is a shallow top hole wellbore for an undrilled lateral Marcellus well.
4710303006	Tug Hill Operating	2480' MD	None	None	No, existing shallow top hole well bore. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	This is a shallow top hole wellbore for an undrilled lateral Utica well
4705901140	Scott Oil Company	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

Well Summary  
 Well Location  
 Well Status  
 Well Production  
 Well Ownership  
 Well Lease  
 Well Completion  
 Well History  
 Well Details  
 Well Maps  
 Well Data  
 Well Reports  
 Well Documents  
 Well Images  
 Well Links

Well: County = 103 Permit = 02983

Location Information: View Map  
 COUNTY PERMIT TAX DISTRICT QUAD18 QUAD19 LAT ID LOG NO URBNE UTMN  
 (11002000 1142 1147 100000 0000 27.050000 51.500000 41427200)

**Owner Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

**Completion Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Production Gas data for this well.  
 There is no Production Oil data for this well.  
 There is no Production NGL data for this well.  
 There is no Production Water data for this well.

**Regulatory Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Vialine (E-Log) data for this well.  
 There is no Plugging data for this well.  
 There is no Sample data for this well.

Well Summary  
 Well Location  
 Well Status  
 Well Production  
 Well Ownership  
 Well Lease  
 Well Completion  
 Well History  
 Well Details  
 Well Maps  
 Well Data  
 Well Reports  
 Well Documents  
 Well Images  
 Well Links

Well: County = 103 Permit = 02983

Location Information: View Map  
 COUNTY PERMIT TAX DISTRICT QUAD18 QUAD19 LAT ID LOG NO URBNE UTMN  
 (11002000 1142 1147 100000 0000 27.050000 51.500000 41427200)

**Owner Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

**Completion Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Production Gas data for this well.  
 There is no Production Oil data for this well.  
 There is no Production NGL data for this well.  
 There is no Production Water data for this well.

**Regulatory Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Vialine (E-Log) data for this well.  
 There is no Plugging data for this well.  
 There is no Sample data for this well.

Well Summary  
 Well Location  
 Well Status  
 Well Production  
 Well Ownership  
 Well Lease  
 Well Completion  
 Well History  
 Well Details  
 Well Maps  
 Well Data  
 Well Reports  
 Well Documents  
 Well Images  
 Well Links

Well: County = 103 Permit = 02096

Location Information: View Map  
 COUNTY PERMIT TAX DISTRICT QUAD18 QUAD19 LAT ID LOG NO URBNE UTMN  
 (11002000 1142 1147 100000 0000 27.050000 51.500000 41427200)

**Owner Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

**Completion Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Production Gas data for this well.  
 There is no Production Oil data for this well.  
 There is no Production NGL data for this well.  
 There is no Production Water data for this well.

**Regulatory Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Vialine (E-Log) data for this well.  
 There is no Plugging data for this well.  
 There is no Sample data for this well.

Well Summary  
 Well Location  
 Well Status  
 Well Production  
 Well Ownership  
 Well Lease  
 Well Completion  
 Well History  
 Well Details  
 Well Maps  
 Well Data  
 Well Reports  
 Well Documents  
 Well Images  
 Well Links

Well: County = 59 Permit = 01140

Location Information: View Map  
 COUNTY PERMIT TAX DISTRICT QUAD18 QUAD19 LAT ID LOG NO URBNE UTMN  
 (11002000 1142 1147 100000 0000 27.050000 51.500000 41427200)

**Owner Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

**Completion Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

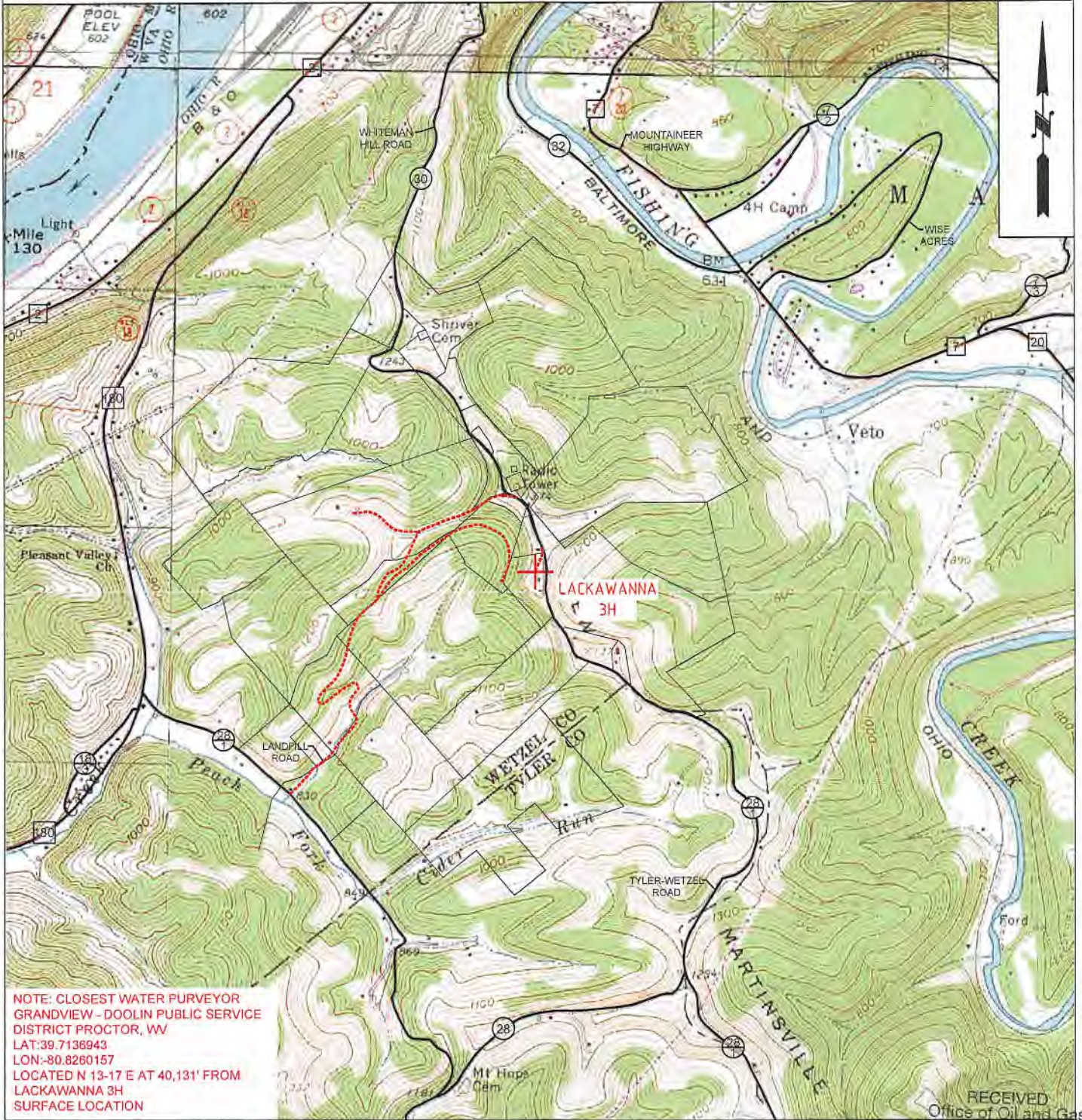
There is no Pay data for this well.  
 There is no Production Gas data for this well.  
 There is no Production Oil data for this well.  
 There is no Production NGL data for this well.  
 There is no Production Water data for this well.

**Regulatory Information**  
 CURR\_OPR: OPERATOR AT COMPLETION PREP\_VO PREP\_TOTY\_FN TRF\_EST\_PH  
 (11002000 01 00 00 00)

There is no Vialine (E-Log) data for this well.  
 There is no Plugging data for this well.  
 There is no Sample data for this well.

RECEIVED  
 Office of Oil and Gas  
 AUG 21 2018  
 WV Department of  
 Environmental Protection

# PROPOSED LACKAWANNA 3H



NOTE: CLOSEST WATER PURVEYOR  
 GRANDVIEW - DOOLIN PUBLIC SERVICE  
 DISTRICT PROCTOR, WV  
 LAT: 39.7136943  
 LON: -80.8260157  
 LOCATED N 13-17 E AT 40,131' FROM  
 LACKAWANNA 3H  
 SURFACE LOCATION

RECEIVED  
 Office of Oil and Gas



**TUG HILL**  
 OPERATING

**OPERATOR** 494510851  
 TUG HILL OPERATING, LLC  
 380 SOUTHPOINTE BLVD  
 SUITE 200  
 CANONSBURG, PA 15317

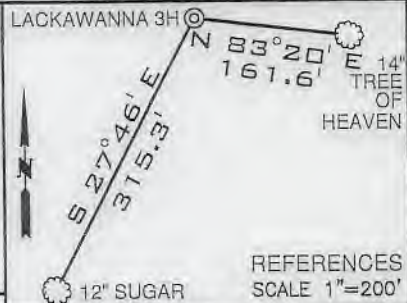
**TOPO SECTION**  
 PORTERS FALLS 7.5'  
**SCALE:**  
 1" = 2000'

**LEASE NAME** AUG 21 2018  
 LACKAWANNA  
 WV Department of  
**DATE:** Environmental Pro  
**DATE:** 08-01-2018

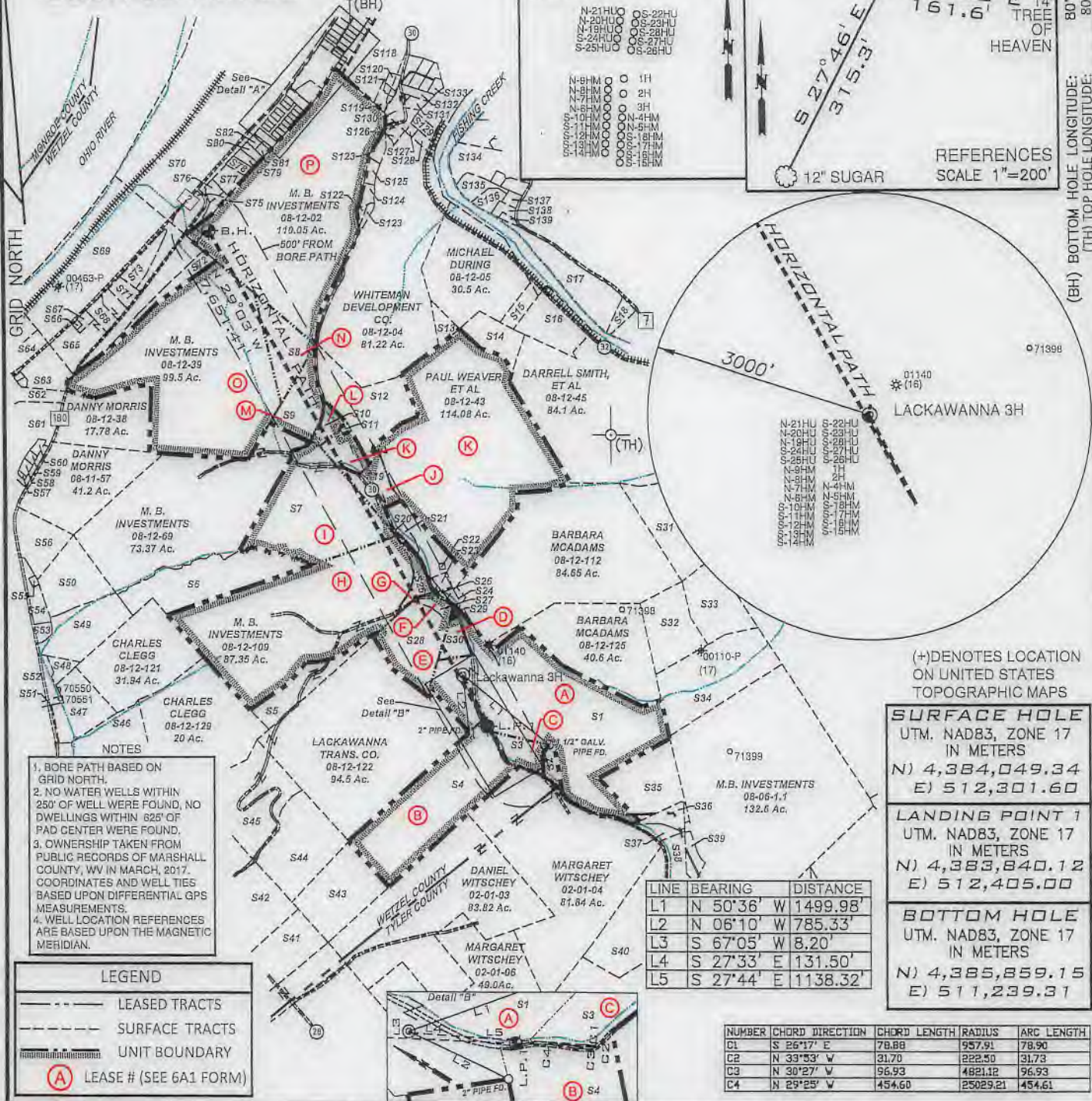
# LACKAWANNA LEASE WELL 3H 656.18± ACRES

TOP HOLE LATITUDE: 39°37'30"  
BOTTOM HOLE LATITUDE: 39°37'30"

DETAIL SCALE 1"=100'  
SKETCH "A"



REFERENCES  
SCALE 1"=200'



- NOTES**
1. BORE PATH BASED ON GRID NORTH.
  2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
  3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
  4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

**LEGEND**

- LEASED TRACTS
- SURFACE TRACTS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

<b>SURFACE HOLE</b>	UTM, NAD83, ZONE 17 IN METERS N) 4,384,049.34 E) 512,301.60
<b>LANDING POINT 1</b>	UTM, NAD83, ZONE 17 IN METERS N) 4,383,840.12 E) 512,405.00
<b>BOTTOM HOLE</b>	UTM, NAD83, ZONE 17 IN METERS N) 4,385,859.15 E) 511,239.31

LINE	BEARING	DISTANCE
L1	N 50°36' W	1499.98'
L2	N 06°10' W	785.33'
L3	S 67°05' W	8.20'
L4	S 27°33' E	131.50'
L5	S 27°44' E	1138.32'

NUMBER	CHORD DIRECTION	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 26°17' E	78.88	957.91	78.90
C2	N 33°53' W	31.70	222.50	31.73
C3	N 30°27' W	96.93	482.12	96.93
C4	N 29°25' W	454.60	25029.21	454.61

FILE NUMBER \_\_\_\_\_

DRAWING NUMBER LACKAWANNA\_WP\_3H

SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

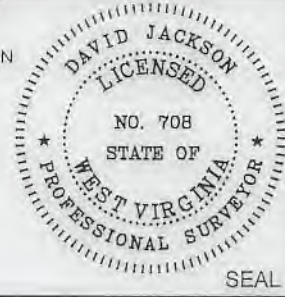
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING  
GRADE GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

*David L Jackson*



JACKSON SURVEYING INC.  
P.O. Box 1460  
Clarksburg, WV 26302  
304-623-5851



WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET, SE  
CHARLESTON, WV 25304

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

DATE: AUGUST 2, 2018

OPERATORS WELL NO. LACKAWANNA 3H

API WELL NO. 47-103-03006 HGA

STATE WV COUNTY WETZEL PERMIT SEE WW-6A1 Form

LOCATION ELEVATION 1306.26' WATERSHED (HUC 10) OUTLET MIDDLE ISLAND CREEK

DISTRICT MAGNOLIA COUNTY WETZEL

QUADRANGLE PORTER FALLS 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER M. B. INVESTMENTS ACREAGE 88.09

OIL & GAS ROYALTY OWNER M. B. INVESTMENTS, ET AL LEASE ACREAGE 88.09

PROPOSED WORK: DRILL X CONVERT X DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_  
PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE (SPECIFY) \_\_\_\_\_

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 6,911' TMD: 15,119'

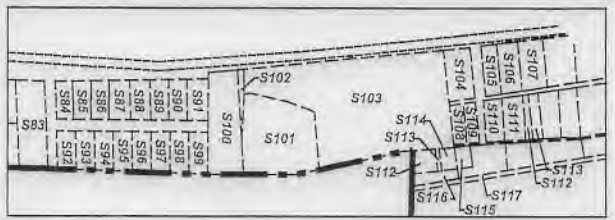
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
CT CORPORATION SYSTEM

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD  
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME  
PERMIT

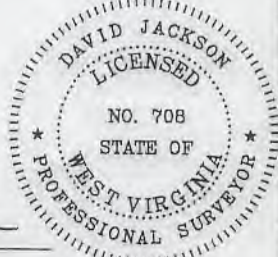
form wwg

**LACKAWANNA LEASE  
WELL 3H  
656.18± ACRES**



Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S1	08-12-134	M. B. Investments	88.09
S2	08-12-134.1	Raymond L. & Elizabeth Pribble	2.14
S3	08-12-134.3	M. B. Investments	5.55
S4	08-17-04	M. B. Investments	46.75
S5	08-12-109.1	M. B. Investments	10.019
S6	08-12-108	M. B. Investments	24.0
S7	08-12-70	M. B. Investments	50.37
S8	08-12-14	Thomas & Helena McLaughlin	10.5
S9	08-12-40	Timothy Doty & Helena McLaughlin	8.83
S10	08-12-41	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	3.39
S11	08-12-42	Shriver Cemetery	1.0
S12	08-12-43.1	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	22.25
S13	08-12-15	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	2.6
S14	08-12-44	Richard L. Armstrong, et al	8.0
S15	08-12-5.1	Michael & Joyce Durig	4.0
S16	08-12-16	Russell Dalrymple, et al	11.87
S17	08-12-08	Calvin Dean Cross	14.96
S18	08-12-17	Virgie E. Kuhns	1.25
S19	08-12-43.2	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	7.25
S20	08-12-43.5	M. B. Investments	8.774
S21	08-12-43.4	M. B. Investments	0.996
S22	08-12-43.3	Geraldine C. Cross	0.13
S23	08-12-111	WV Conservation Comm.	1.0
S24	08-12-112.1	M. B. Investments	0.82
S25	08-12-110	Lackawanna Transport Company	3.59
S26	08-12-72	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	0.50
S27	08-12-124	M. B. Investments	2.23
S28	08-12-123	Lackawanna Transport Company	18.55
S29	08-12-134.2	M. B. Investments	0.23
S30	08-12-134.4	M. B. Investments	3.51
S31	08-12-113	Jacob Presley Morgan III	16.30
S32	08-12-126	Jacob Presley Morgan III	16.06
S33	08-12-127	Jacob Presley Morgan III	10.0
S34	08-12-136	Jacob Presley Morgan III	28.25
S35	08-12-135	Timothy J. Haynes & Gary W. Woofter	21.0
S36	02-01-5.2	Mark K. & Teresa J. Loy	2.945
S37	02-01-5.3	Mark K. & Teresa J. Loy	1.939
S38	02-01-5.1	Mark K. & Teresa J. Loy	4.56
S39	05-06-01	Mark K. & Teresa J. Loy	2.37
S40	02-01-05	Daniel A. Witschey	21.5
S41	08-17-14	Sharon Manion	16.12
S42	08-17-10.1	Lackawanna Transport Company	13.0
S43	08-17-07	Daniel A. Witschey	21.375
S44	08-17-7.1	Lackawanna Transport Company	21.37
S45	08-12-130	Lackawanna Transport Company	25.64
S46	08-17-02	M. B. Investments	74.0
S47	08-12-120	Charles E. & Mary E. Clegg	12.61
S48	08-11-82	Mary Elizabeth Clegg	3.24
S49	08-12-106	Thomas C. Pennell	15.96
S50	08-12-106.1	Thomas R. & Tamera D. Pennell	14.04
S51	08-11-82.1	Pleasant Valley Church of Christ	0.77
S52	08-11-81	Timothy M. Clegg	0.75
S53	08-11-79	Floyd E. Lewis, Jr. & Floyd E. Lewis, Sr.	0.67
S54	08-11-73.2	Floyd E. Lewis, Jr. & Floyd E. Lewis, Sr.	3.88
S55	08-11-74	Vada Hart Est., et al	0.31
S56	08-11-61	Hunter B. McAdams & Doug McAdams	7.61
S57	08-11-57.2	Erick L. & Jessica Kibbey	28.51
S58	08-11-57.4	Ralph & Velinda Phillips	0.61
S59	08-11-57.1	Ralph & Velinda Phillips	0.48
S60	08-11-57.3	Martha L. Graham	1.8
S61	08-11-42	Martha L. Graham	5.0
S62	08-11-39.1	William L. & Beulah Talkington	1.83
S63	08-11-41	A+A Supply, LLC	1.63
S64	08-11-35	Lisa Straight & Edwin Rial	5.9
S65	08-12-11	Calvin T. Hedrick	6.64
S66	08-12-11.1	Larry D. McCaman	0.23

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S67	08-12-11.3	Larry McCaman	0.807
S68	08-12-11.4	Paul Andrew James Simmons, Jr.	1.94
S69	08-12-01	Mount Clare Properties, Inc	50.71
S70	08-07-105	Mount Clare Properties, Inc	106.08
S71	08-12-11.2	Ascent Resources Marcellus Minerals, LLC	1.811
S72	08-12-13	M. B. Investments	8.18
S73	08-12-139	Department of Public Safety	3.86
S75	08-07-87.2	H. Lee Scott Jr.	1.110
S76	08-07-87.1	H. Lee Scott Jr.	0.955
S77	08-07-87	H. Lee Scott Jr. & Colleen D., Stephen A. & Betty A. Davis	2.221
S78	08-07-88	Living Quarters, LLC	1.08
S79	08-07-89.3	Living Quarters, LLC	0.87
S80	08-07-89.2	Barbara S. Nice	0.89
S81	08-07-89	Barbara S. Nice	0.40
S82	08-07-89.1	Barbara S. Nice	0.35
S83	08-07-90	Barbara Shank	0.69
S84	08-07-91	Dennis Phillips	0.20
S85	08-07-92	Karen D. Pugh	0.20
S86	08-07-93	Darrell S. & Diana Lynn Hartwig	0.21
S87	08-07-94	Ronald D. & Carole Dawson	0.21
S88	08-07-95	Debra Barrile	0.21
S89	08-07-96	Rita E. Barrick	0.21
S90	08-07-102	Michael Vaughn Skeen & Patricia Ann Sawyer	0.22
S91	08-07-103.1	Charlotte M. Adams	0.22
S92	08-07-97	Ray H. Booher	0.20
S93	08-07-98	Ray H. Booher	0.20
S94	08-07-98.1	Lionel Kent, Helen A. Potts & Deloris Potts (Life)	0.20
S95	08-07-99	Lionel Kent, Helen A. Potts & Deloris Potts (Life)	0.20
S96	08-07-100	James J. & Carol Clark	0.21
S97	08-07-101	Doris A. Fannin & Richard S. Williamson	0.21
S98	08-07-102.1	Ronald E. Jr. & Lori J. McCoy	0.21
S99	08-07-103	Michael L. & Joyce D. Durig	0.21
S100	08-07-104	Lisa Denise Bridge	0.12
S101	08-07-106.1	Tiona Henthorn	1.49
S102	08-07-104.1	Lisa Denise Bridge	0.06
S103	08-07-106	Route 2 South, LLC	4.33
S104	08-07-107	Route 2 South, LLC	0.36
S105	08-07-108	Donald W. Owens, Jr.	0.21
S106	08-07-109	Douglas E. & Amber L. Straight	0.21
S107	08-07-110	Allen R. & Malinda J. Laugh	0.34
S108	08-07-114	Ruth Leek	0.14
S109	08-07-115	William J. Leek	0.14
S110	08-07-116	Betty J. Yoho (Life), Sandra M. Hardman	0.20
S111	08-07-117	Jerry W. & Elizabeth Southerly	0.21
S112	08-07-123.1	Ruth Ann Leek	0.23
S113	08-07-123.2	Ruth Ann Leek	0.07
S114	08-07-124	Ruth Ann Leek	0.08
S115	08-07-125	Ruth Ann Leek	0.07
S116	08-07-126	Ruth Ann Leek	0.30
S117	08-07-129	John William Burton, et al	1.10
S118	08-07-131.3	Nancy J. Todd	9.726
S119	08-07-131.1	Edgar W. Whiteman, Jr.	1.25
S120	08-07-131.4	Nancy J. Todd	0.989
S121	08-07-137.4	Nancy J. Todd	0.06
S122	08-12-03	O. Terrell Coffield Family Trust	0.98
S123	08-12-4.1	Whiteman Development Co., LLC & PRN, LLC	2.59
S124	08-07-142	Pamela E. Weisenbarger	1.35
S125	08-07-142.1	Thomas W. II & Teena B. Emch	1.35
S126	08-07-160	Frank L. Price, Jr.	1.28
S127	08-07-144	Bennie D. Lewis, et al	5.58
S128	08-07-143	Dominic D. Yost	1.0
S129	08-07-144.1	Donald J. & Debby J. Powell	2.25
S130	08-07-137	462 Properties, LLC	1.836
S131	08-07-137.2	Steven D. Folmar	1.0
S132	08-07-138	Frederick W. & Leslie M. Emch	1.11
S133	08-07-137.1	Steven D. Folmar	0.94
S134	08-07-145	Lois J. Day	8.008
S135	08-07-145.5	Jodi Forni	3.65
S136	08-07-145.3	Jodi Forni	2.641
S137	08-07-145.2	David J. Jackson, (Life), James & Ruth Jackson	0.813
S138	08-12-06	David J. Jackson, (Life), James & Ruth Jackson	1.74
S139	08-12-07	David J. Jackson, (Life), James & Ruth Jackson	0.35



P.S. 708 *David L Jackson*



**TUG HILL  
OPERATING**

OPERATOR'S  
WELL #: LACKAWANNA 3H  
DISTRICT: Magnolia  
COUNTY: Wetzel  
STATE: WV

WELL PLAT  
PAGE 2 OF 2  
DATE: 08/02/2018



Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*47103.061.2	8-12-134	A	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*47103.061.2	8-17-4	B	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*47103.061.2	8-12-134.3	C	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*47103.061.2	8-12-134.4	D	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*47103.060.6	8-12-123	E	WILLIAM JOSEPH GAMBLE AND LINDA ELAINE GAMBLE	TH EXPLORATION LLC	1/8+	179A	466	N/A	N/A	N/A
10*47103.060.7	8-12-123	E	JOHN BRENT GAMBLE	TH EXPLORATION LLC	1/8+	179A	469	N/A	N/A	N/A
10*47103.060.8	8-12-123	E	JANE ANN GAMBLE	TH EXPLORATION LLC	1/8+	179A	472	N/A	N/A	N/A
10*15436	8-12-124	F	WETZEL COUNTY BOARD OF EDUCATIOION	GASTAR EXPLORATION INC	1/8+	156A	422	N/A	N/A	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*47103.061.2	8-12-124	F	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*15436	8-12-110	G	WETZEL COUNTY BOARD OF EDUCATION	GASTAR EXPLORATION INC	1/8+	156A	422	N/A	N/A	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*47103.060.5	8-12-110	G	LACKAWANNA TRANSPORT CO	TH EXPLORATION LLC	1/8+	179A	462	N/A	N/A	N/A
10*47103.061.2	8-12-109	H	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*47103.061.2	8-12-70	I	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*15191	8-12-43.2	J	MICHAEL A CORBIN	GASTAR EXPLORATION USA INC	1/8+	127A	392	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15192	8-12-43.2	J	PAUL E WEAVER	GASTAR EXPLORATION USA INC	1/8+	127A	395	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15191	8-12-43	K	MICHAEL A CORBIN	GASTAR EXPLORATION USA INC	1/8+	127A	392	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15192	8-12-43	K	PAUL E WEAVER	GASTAR EXPLORATION USA INC	1/8+	127A	395	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15191	8-12-41	L	MICHAEL A CORBIN	GASTAR EXPLORATION USA INC	1/8+	127A	392	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15192	8-12-41	L	PAUL E WEAVER	GASTAR EXPLORATION USA INC	1/8+	127A	395	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 129A/217	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*16768	8-12-40	M	TIMOTHY L DOTY AND HELENA M DOTY	TH EXPLORATION LLC	1/8+	183A	940	N/A	N/A	N/A
10*16754	8-12-14	N	HELENA MCLAUGHLIN	TH EXPLORATION LLC	1/8+	183A	938	N/A	N/A	N/A
10*47103.061.2	8-12-39	O	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A
10*15187	8-12-2	P	PAMELA E. & PHILLIP C. WEISENBARGER	GASTAR EXPLORATION USA INC	1/8+	145A	914	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 126A/423	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*15188	8-12-2	P	REBECCA E. SULLIVAN	GASTAR EXPLORATION USA INC	1/8+	146A	401	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 126A/423	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 13/270	Gastar Exploration Inc to TH Exploration II, LLC: 173A/431
10*47103.061.2	8-12-2	P	M B INVESTMENTS	TH EXPLORATION LLC	1/8+	179A	475	N/A	N/A	N/A

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

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

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

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

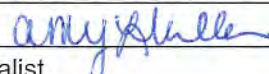
\*See attached pages

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

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

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

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

Well Operator: Tug Hill Operating, LLC  
 By: Amy L. Miller   
 Its: Permitting Specialist

DPS LAND SERVICES-CORP-TIM SCHULTZ  
6000 TOWN CENTER BLVD STE 145  
CANDONSBURG, PA 15317-5841

WHEN RECORDED RETURN TO:  
TH Exploration II, LLC  
1320 South University Drive, Suite 500  
Fort Worth, Texas 76107  
Attn: David Kalish

*Execution Version*

**ASSIGNMENT AND BILL OF SALE**

STATE OF WV §  
  §     KNOW ALL MEN BY THESE PRESENTS:  
COUNTY OF WETZEL                             §

THIS ASSIGNMENT AND BILL OF SALE (this "*Assignment*"), dated April 7, 2016, but effective as of 7:00 A.M. Houston time on January 1, 2016 (the "*Effective Time*"), is between Gastar Exploration Inc., a Delaware corporation, whose address is 1331 Lamar Street, Suite 650 Houston, Texas 77010 ("*Assignor*"), and TH Exploration II, LLC, a Texas limited liability company, whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107 ("*Assignee*"). Assignor and Assignee are each, individually, referred to herein as a "*Party*" and, collectively, as the "*Parties*".

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Purchase and Sale Agreement (the "*Purchase Agreement*"), dated as of February 19, 2016, by and between Assignor and Assignee (as successor-in-interest).

Section 1. Assignment. The conveyance and assignment herein shall be deemed effective as of the Effective Time.

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, all of Assignor's right, title and interest in and to the following interests and properties (such right, title and interest described in subsections (a) through (k) of this Section 1, less and except the Excluded Assets, collectively, the "*Conveyed Interests*");

(a) all oil, gas and/or mineral leases of Assignor, together with any and all other right, title and interest of Assignor in and to the leasehold estates created thereby, including subleases, royalties, overriding royalties, net profits interest, carried interests or similar rights or interests in such leases, and together with all rights, privileges, benefits and powers conferred upon Assignor with respect to the use and occupation of the lands covered thereby that may be necessary, convenient or incidental to the possession and enjoyment of such leases, located in Marshall, Wetzels, Doddridge, Harrison, Lewis, Marion, and Monongalia Counties, West Virginia and Greene, Butler, Fayette, Somerset, and Clearfield Counties, Pennsylvania, including those described on Exhibit A—Part 1 attached hereto (subject to any reservations, limitations or dependencies described on Exhibit A—Part 1), (Assignor's interest in such leases and other right, title and interest as so limited, the "*Leases*");

RECEIVED  
Office of Oil and Gas  
AUG 21 2018

WV Department of  
Environmental Protection



August 17, 2018

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

RE: Lackawanna 3H

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 Wetzel County Route 30 in the area reflected on the Lackawanna 3H 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](mailto:amiller@tug-hilop.com).

Sincerely,

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

Amy L. Miller  
Permit Specialist – Appalachia

RECEIVED  
Office of Oil and Gas

AUG 21 2018

WV Department of  
Environmental Protection

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

**Date of Notice Certification:** 08/17/2018

**API No.** 47- 103 - 03006

**Operator's Well No.** Lackawanna 3H

**Well Pad Name:** Lackawanna

**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>512,301.60</u>
County: <u>Wetzel</u>		Northing: <u>4,384,049.34</u>
District: <u>Magnolia</u>	Public Road Access:	<u>County Route 30</u>
Quadrangle: <u>Porter Falls</u>	Generally used farm name:	<u>Wetzel County Sanitary Landfill</u>
Watershed: <u>Outlet Middle Island 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 type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><b>RECEIVED</b> Office of Oil and Gas</p> <p><b>AUG 21 2018</b></p> <p>WV Department of Environmental Protection</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
---	---

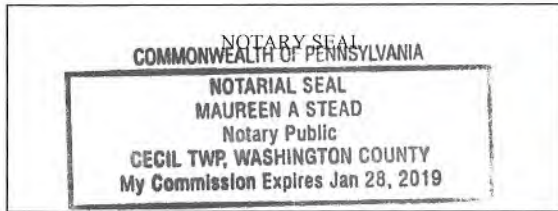
**Required Attachments:**

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

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



Subscribed and sworn before me this 17 day of AUG. 2018.  
Maureen A Stead Notary Public  
 My Commission Expires 1/28/19

**Oil and Gas Privacy Notice:**

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

RECEIVED  
Office of Oil and Gas  
  
AUG 21 2018  
  
WV Department of  
Environmental Protection

**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:** 8/17/2018 **Date Permit Application Filed:** 8/17/2018

**Notice of:**

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

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

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

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

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

SURFACE OWNER(s)  
 Name: M.B. Investments  
 Address: 2650 Audubon Road  
Audubon, PA 19493  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: M.B. Investments  
 Address: 2650 Audubon Road  
Audubon, PA 19493

RECEIVED  
Office of Oil and Gas

AUG 21 2018

WV Department of  
Environmental Protection

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: Lackawanna Transport Company  
 Address: 2650 Audubon Road  
Audubon, PA 19493  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL  
 AND/OR WATER PURVEYOR(s)  
 Name: \*See attachment  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

\*Please attach additional forms if necessary

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

RECEIVED  
Office of Oil and Gas  
AUG 21 2018

**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

WV Department of  
Environmental Protection



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

**Water Well Testing:**

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

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the 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.

RECEIVED  
Office of Oil and Gas  
APR 21 2018  
WV Department of  
Environmental Protection

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

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

**Written Comment:**

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

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

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

### **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.

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

### **Permit Denial or Condition**

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

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

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

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

WW-6A  
(8-13)

API NO. 47- 103 - 03006  
OPERATOR WELL NO. Lackawanna 3H  
Well Pad Name: Lackawanna

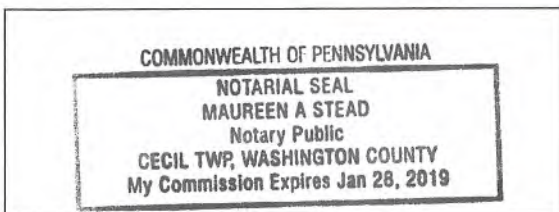
**Notice is hereby given by:**

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

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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 17 day of AUG. 2018.

Maureen A Stead Notary Public

My Commission Expires 4/29/18

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

Tug Hill Operating, LLC  
 380 Southpointe BLVD, Suite 200  
 Canonsburg, PA 15317

**WATER WELL REPORT**

Well: LACKAWANNA 3H  
 District: Magnolia  
 County: Wetzel  
 State: WV

There appears to be Seven ( 7 ) possible water sources within 2,000 feet of the above referenced well location.

Topo Spot # 1 TM 12 Par. 112 Barbara McAdams 304-455-2350 6289 Veterans Hwy. New Martinsville, WV 26155	Topo Spot # 2 (Business) TM 12 Par. 112 Barbara McAdams 304-455-2350 6289 Veterans Hwy. New Martinsville, WV 26155	Topo Spot # 3 TM 12 Par. 124 M B Investments c/o J.P. Mascaro & Sons 267-933-6142 2650 Audubon Rd. Audubon, PA 19403
Topo Spot # 4 TM 12 Par. 112.1 M B Investments c/o J.P. Mascaro & Sons 267-933-6142 2650 Audubon Rd. Audubon, PA 19403	Topo Spot # 5 TM 12 Par. 43.4 M B Investments c/o J.P. Mascaro & Sons 267-933-6142 2650 Audubon Rd. Audubon, PA 19403	Topo Spot # 6 TM 12 Par. 134.1 Raymond L. & Elizabeth Pribble 304-546-3366 966 Doolin Run Rd. New Martinsville, WV 26155
Topo Spot # 7 TM 12 Par. 134.3 M B Investments c/o J.P. Mascaro & Sons 267-933-6142 2650 Audubon Rd. Audubon, PA 19403		

RECEIVED  
 Office of Oil and Gas  
 AUG 21 2018  
 WV Department of  
 Environmental Protection

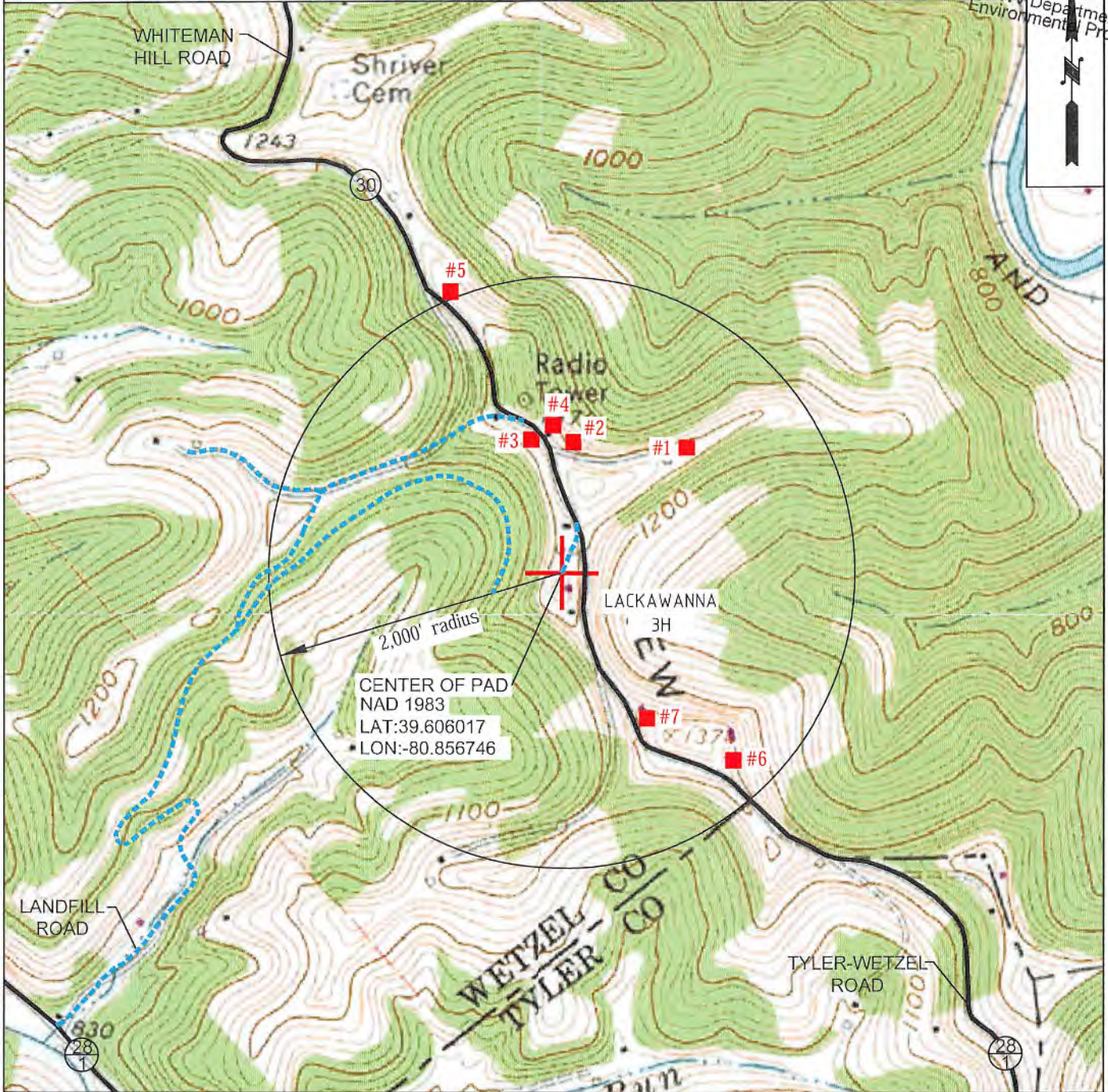
# PROPOSED LACKAWANNA 3H

RECEIVED  
Office of Oil and Gas

AUG 21 2018

PA Department of  
Environmental Protection

*There appears to be Seven ( 7 ) possible water sources within 2,000'.*



**TUG HILL**  
OPERATING

OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		PORTERS FALLS 7.5'	LACKAWANNA
		SCALE:	DATE:
		1" = 1000'	DATE: 08-01-2018

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

**Date of Notice:** 07/26/2018      **Date Permit Application Filed:** 08/17/2018

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

HAND DELIVERY       CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: M.B. Investments, a West Virginia Partnership  
Address: 2650 Audubon Road  
Audubon, PA 19403

Name: Lackawanna Transport Company, a West Virginia Corporation  
Address: 2650 Audubon Road  
Audubon, PA 19403

**Notice is hereby given:**

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

State: West Virginia      UTM NAD 83      Easting: 512,301.60  
County: Wetzel      Northing: 4,384,049.34  
District: Magnolia      Public Road Access: County Route 30  
Quadrangle: Porters Falls      Generally used farm name: Wetzel County Sanitary Landfill  
Watershed: Outlet Middle Island Creek (Undefined)

RECEIVED  
Office of Oil and Gas  
**AUG 21 2018**  
WV Department of  
Environmental Protection

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Telephone: 724-749-8388  
Email: amiller@tug-hillop.com  
Facsimile: 724-338-2030

Authorized Representative: Sean Cotter  
Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Telephone: 724-749-8388  
Email: scotter@tug-hillop.com  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

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

**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:** 08/17/2018      **Date Permit Application Filed:** 08/17/2018

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

CERTIFIED MAIL       HAND  
RETURN RECEIPT REQUESTED      DELIVERY

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

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

Name: M.B. Investments, a West Virginia Partnership  
Address: 2650 Audubon Road  
Audubon, PA 19403

Name: Lackawanna Transport Company, A West Virginia Corporation  
Address: 2650 Audubon Road  
Audubon, PA 19403

**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: West Virginia  
County: Wetzel  
District: Magnolia  
Quadrangle: Porters Falls  
Watershed: Outlet Middle Island Creek

UTM NAD 83      Easting: 512,301.60  
  Northing: 4,384,049.34  
Public Road Access: County Route 30  
Generally used farm name: Wetzel County Sanitary Landfill

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

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

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

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

**Oil and Gas Privacy Notice:**

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



4710 \* 03006

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

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

August 6, 2018

Jill M. Newman  
Deputy Commissioner

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

Subject: DOH Permits for the Lackawanna Well Pad, Wetzel County  
Lackawanna N-3H Well

Dear Mr. Martin,

This well site will be accessed from Permit #06-2013-0527 transferred to Tug Hill Operating for access to the State Road for a well site located off of Wetzel County Route 30 SLS.

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

Very Truly Yours,

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

RECEIVED  
Office of Oil and Gas  
AUG 21 2018  
WV Department of  
Environmental Protection

Cc: Amy Miller  
Tug Hill Operating  
CH, OM, D-6  
File



4710303006



TUG HILL

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Lackawanna 3H

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# 000111-30-8

RECEIVED  
Office of Oil and Gas  
AUG 21 2018

Department of  
Environmental Protection  
001111-30-8

WEST VIRGINIA COUNTY MAP



WVDEP DOG ACCEPTED AS-BUILT

10 / 23 / 2018

Lackawanna Well Site

Site Design, Construction Plan, & Erosion and Sediment Control Plans

Tug Hill Operating Wetzel County

Magnolia District

Latitude -39.60601695°

Longitude -80.85674612°

Outlet Middle Island Creek Watershed

Pertinent Site Information

Lackawanna Well Site, Permit Number: 2018-02982, Magnolia District, Wetzel County, WV, Watershed: Outlet Middle Island Creek Watershed, Tug Hill Contact Number: 304-253-2340

Property Owner Information - Lackawanna Well Site

Table with columns: Name, Parcel ID, Area (Acres), and other property details.

Exhibit A: Final Design: Issue for Permitting



WV State Plane (Foot-Cat) Spheroid North Zone, NAD 83, Datum: North American 1983, Contour Interval: 5 Feet, Contour Interval: 5 Feet

Table with columns: Area, Description, and other details for various areas on the site.

Table with columns: Area, Description, and other details for disturbed areas.

Table with columns: Location, Area, and other details for Lackawanna Well Site Quantities.

EXISTING API NUMBERS: 47-103-02982, 47-103-02983, 47-103-03006



Tables for Site Locations (NAD 27) and (NAD 83) with columns for UTM, Easting, Northing, and other coordinates.

Large grid of tables containing detailed site information, including coordinates, elevations, and other technical data for various points on the site.

Project Contacts: Lists names and contact information for the project manager and other key personnel.

Notes and other project-related information, including a disclaimer and contact details for the engineering firm.

MISS UTILITY OF WEST VIRGINIA: Information regarding utility services and contact details.

WVDEP Website information and other regulatory references.

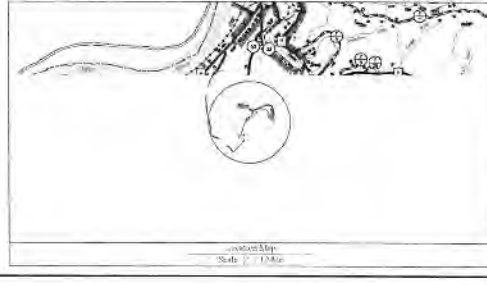


Table with columns: Sheet, Description, and other details for the project's sheet set.

Vertical sidebar containing logos for Tug Hill, K&S Surveying, and other project-related entities, along with project title and location information.

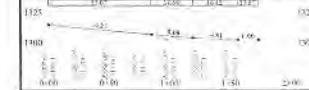
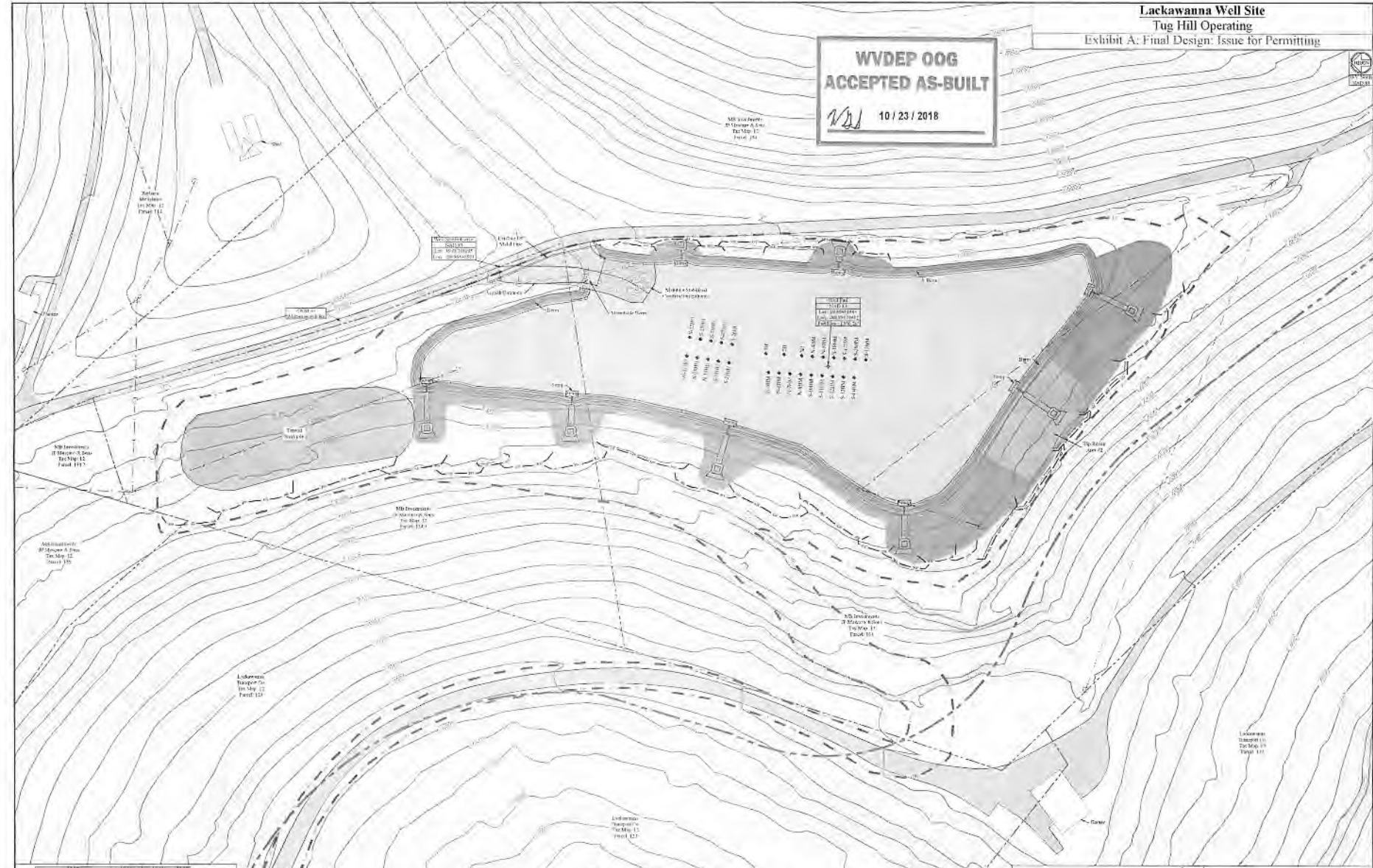
**Lackawanna Well Site  
Tug Hill Operating**

Exhibit A: Final Design: Issue for Permitting

**WVDEP 00G  
ACCEPTED AS-BUILT**

*WJ* 10 / 23 / 2018

All well points  
on Coverage 4 are  
to Map 12  
Point 36



Disturbed Area			
WVDEP 00G	11/10/18		
WVDEP 00G	11/10/18		
WVDEP 00G	11/10/18		

Avenue Road			
WVDEP 00G	11/10/18		
WVDEP 00G	11/10/18		
WVDEP 00G	11/10/18		



**Legend**

	National Flood Hazard Zone
	Flood Plain
	City of Station
	Electric Power
	12\"/>
	15\"/>
	18\"/>
	24\"/>
	36\"/>
	48\"/>
	60\"/>
	72\"/>
	84\"/>
	96\"/>
	108\"/>
	120\"/>
	144\"/>
	180\"/>
	216\"/>
	288\"/>
	360\"/>
	432\"/>
	504\"/>
	576\"/>
	648\"/>
	720\"/>
	792\"/>
	864\"/>
	936\"/>
	1008\"/>
	1080\"/>
	1152\"/>
	1224\"/>
	1296\"/>
	1368\"/>
	1440\"/>
	1512\"/>
	1584\"/>
	1656\"/>
	1728\"/>
	1800\"/>
	1872\"/>
	1944\"/>
	2016\"/>
	2088\"/>
	2160\"/>
	2232\"/>
	2304\"/>
	2376\"/>
	2448\"/>
	2520\"/>
	2592\"/>
	2664\"/>
	2736\"/>
	2808\"/>
	2880\"/>
	2952\"/>
	3024\"/>
	3096\"/>
	3168\"/>
	3240\"/>
	3312\"/>
	3384\"/>
	3456\"/>
	3528\"/>
	3600\"/>

Notes:  
 1. All well points are shown on this map as per the most recent approved AS-Built drawings and ADS records.  
 2. All well points are shown on this map as per the most recent approved AS-Built drawings and ADS records.

**TUG HILL  
OPERATING**

**K&S Engineering**

**Lackawanna Well Site**  
Marion County District  
Waynes County, WV

THIS DOCUMENT  
PREPARED FOR  
TUG HILL  
OPERATING

Date: 10/23/2018  
 Drawn: J. Smith  
 Checked: M. Jones  
 Title: Final Design: Issue for Permitting

Sheet 11 of 25