



west virginia department of environmental protection

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

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

Monday, October 22, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for KEITH STERN N-7HM
47-051-02101-00-00

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

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

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

James A. Martin
Chief

Operator's Well Number: KEITH STERN N-7HM
Farm Name: TH EXPLORATION, LLC
U.S. WELL NUMBER: 47-051-02101-00-00
Horizontal 6A New Drill
Date Issued: 10/22/2018

Promoting a healthy environment.



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**ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Tug Hill Operating
380 Southpointe Boulevard, Plaza II, Suite 200
Cannonsburg, Pa 15317

DATE: July 25, 2018
ORDER NO.: 2018-W-4

INTRODUCTION

This Order (hereinafter "Order") is issued by the Office of Oil and Gas (hereinafter "OOG"), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to Tug Hill Operating (hereinafter "Tug Hill" or "Operator"), collectively the "Parties."

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. Tug Hill is a "person" as defined by W. Va. Code §22-6-1(n), with a corporate address as 380 Southpointe Boulevard, Plaza II, Suite 200, Cannonsburg, Pa 15317
3. On May 5, 2018 Tug Hill submitted a well work permit application identified as API# 47-051-02041. The proposed well is to be located on the Keith Stern Pad in the Meade District of Marshall County, West Virginia.
4. On May 5, 2018 Tug Hill requested a waiver for Perennial Stream S1, Wetland W1 and Wetland W2 outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-051-02041.

CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “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 Office of Oil and Gas 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 Office of Oil and Gas 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.”

ORDER

West Virginia Code §22-6A-12(b) requires, in part, that “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. The Office of Oil and Gas grants the request for a waiver for Perennial Stream S1, Wetland W1 and Wetland W2 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-051-02041. The Office of Oil and Gas hereby **ORDERS** that Tug Hill shall meet the following site construction and operational requirements for the Keith Stern Well Pad:

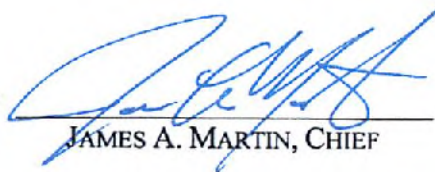
- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Stream 1 shall be protected by twenty-four-inch (24”) compost filter sock and super silt fence. SedCatch inlet protection for existing culverts shall also be provided. This along with temporary and permanent vegetative cover will prevent sediment from reaching the stream.
- d. Wetlands W1 and W2 shall be protected by twenty-four-inch (24”) compost filter sock and super silt fence. This along with temporary and permanent vegetative cover will prevent sediment from reaching the wetlands
- e. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- f. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- g. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- h. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- i. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- j. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (1/2”) rain within any twenty-four (24) hour period;
- k. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- l. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 25th day of July, 2018.

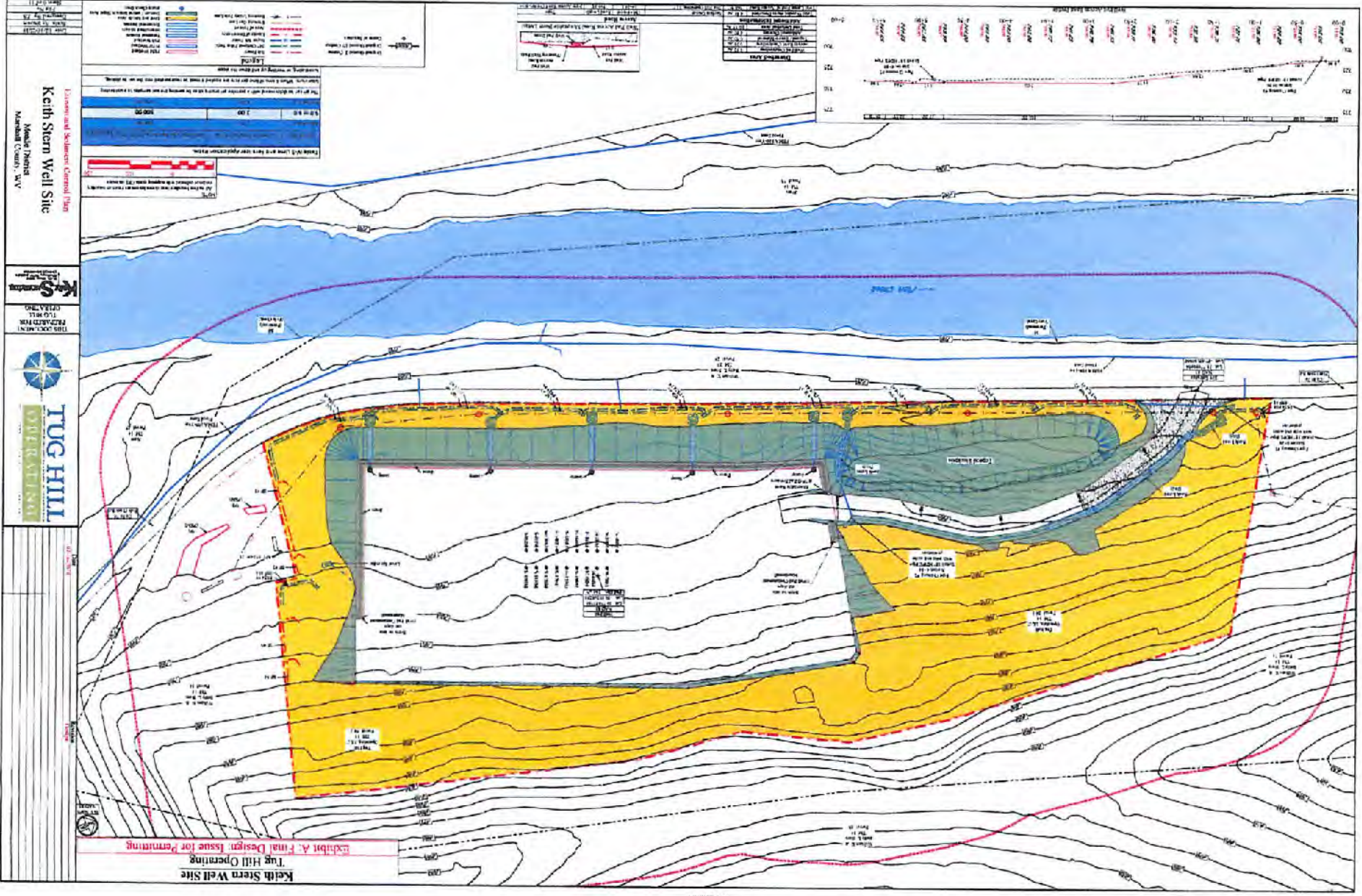
IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By:



JAMES A. MARTIN, CHIEF



Keith Stern Well Site
 Meade District
 Marshall County, WV



Keith Stern Well Site
 Tug Hill Operating
 Exhibit A: Final Design Issue for Permitting

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

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

2) Operator's Well Number: Keith Stern N-7HM Well Pad Name: Keith Stern

3) Farm Name/Surface Owner: TH Exploration, LLC Public Road Access: Fish Creek Road (County Route 74)

4) Elevation, current ground: 741.50' Elevation, proposed post-construction: 744.65'

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6263' - 6314', thickness of 51' and an anticipated approximate pressure of 3800 psi

8) Proposed Total Vertical Depth: 6414' ✓

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 14,187' ✓

11) Proposed Horizontal Leg Length: 6,424.73' ✓

12) Approximate Fresh Water Strata Depths: 70'; 460'

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

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: Sewickley Coal - 369' and Pittsburgh Coal - 454'

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

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

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

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CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259ft^3(CTS)
Fresh Water	13 3/8"	NEW	J55	54.5#	560'	560'	739ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	560'	560'	739ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,220'	2,200'	738ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	14,187'	14,187'	3637ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#	7,420'		
Liners							

8/1/18

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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

Drill through the Marcellus tagging less than 100' from the top of the Onondaga to get depths and log data. Plug back to proposed kick off point. Drill the horizontal section to planned and proposed TD. Run casing and cement to surface. Run Bond Log from app. 60 deg to surface. Make clean out run and stimulate.

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

Well to completed with approximately 16,060,000 lb. proppant and 248,299 barrels of water.
Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.35 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

25) Proposed borehole conditioning procedures:

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

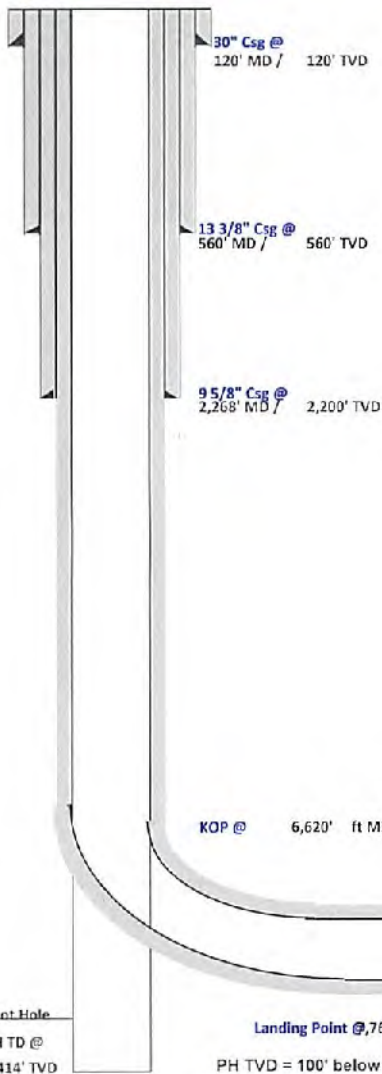
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*Note: Attach additional sheets as needed.



WELL NAME: Keith Stern N-7HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade GL Elev: 744'
 DF Elev: 744'
 TD: 14,187'
 TH Latitude: 39.77491863
 TH Longitude: -80.69202368
 BH Latitude: 39.79058354
 BH Longitude: -80.69228318



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	460
Sewickley Coal	369
Pittsburgh Coal	454
Big Lime	1611
Weir	1924
Berea	2116
Gordon	2381
Rhinestreet	5592
Genesee/Burkett	6106
Tully	6137
Hamilton	6172
Marcellus	6263
Landing Depth	6303
Onondaga	6314
Pilot Hole Depth	6414

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	17.5	13 3/8	560'	560'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,268'	2,200'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	14,187'	6,191'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	721	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	747	A	15	Air	1 Centralizer every other jt
Production	3,215	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc

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Pilot Hole
PH TD @
6,414' TVD

Landing Point @ 753' MD / 5,303' TVD
PH TVD = 100' below Onondaga Top

Lateral TD @ 14,187' ft MD
6,191' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Keith Stern N-7HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	560'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,268'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	14,187'	CTS

Cement

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

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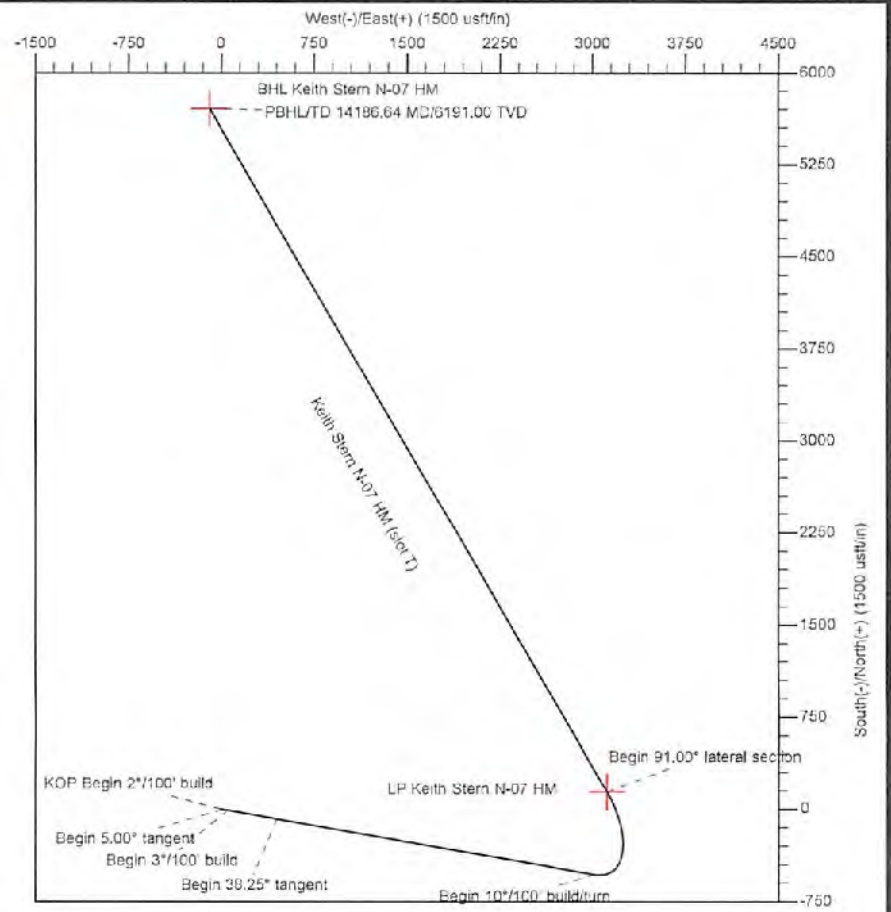
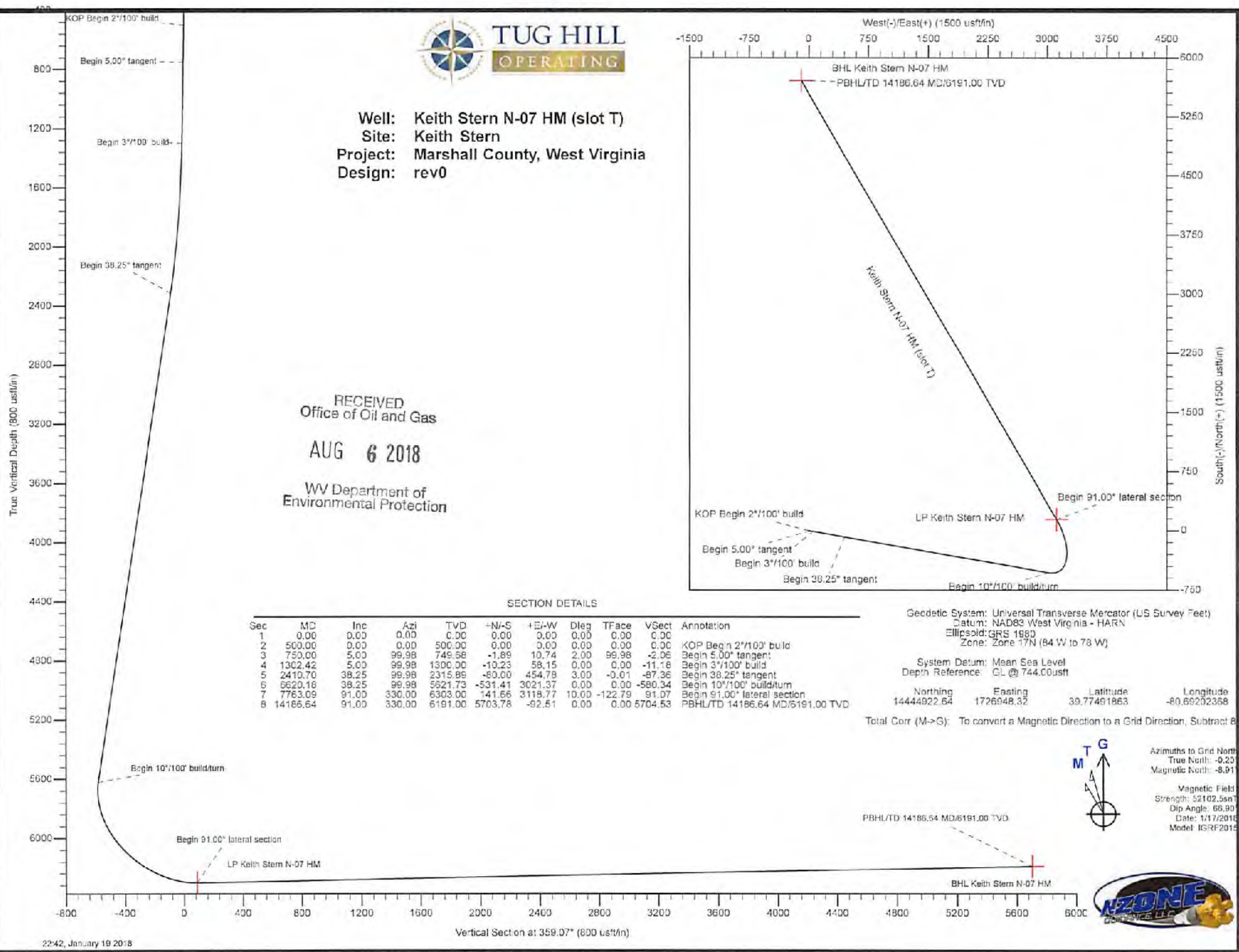
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Well: Keith Stern N-07 HM (slot T)
 Site: Keith Stern
 Project: Marshall County, West Virginia
 Design: rev0

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SECTION DETAILS

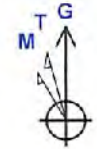
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	750.00	5.00	99.98	745.58	-1.89	10.74	2.00	99.98	-2.06	Begin 5.00° tangent
4	1302.42	5.00	99.98	1300.00	-10.23	58.15	0.00	0.00	-11.18	Begin 3°/100' build
5	2410.70	38.25	99.98	2315.89	-60.00	454.78	3.00	-0.01	-87.36	Begin 38.25° tangent
6	6620.18	38.25	99.98	5521.73	-531.41	3021.37	0.00	0.00	-580.34	Begin 10°/100' build/turn
7	7763.09	91.00	330.00	6303.00	141.66	3118.77	10.00	-122.79	91.07	Begin 91.00° lateral section
8	14186.64	91.00	330.00	6191.00	5703.78	-92.51	0.00	0.00	5704.53	PBHLTD 14186.64 MD/6191.00 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: CL @ 744.00ustf

Northing: 14444922.64 Easting: 1726948.32 Latitude: 39.77491863 Longitude: -80.69202358

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.91°



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.91°
 Magnetic Field
 Strength: 52102.5snT
 Dip Angle: 66.80°
 Date: 1/17/2018
 Model: IGRF2015





Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stern N-07 HM (slot T)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern N-07 HM (slot T)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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

WV Department of Environmental Protection

Site	Keith Stern				
Site Position:		Northing:	14,444,890.33 usft	Latitude:	39.77483004
From:	Lat/Long	Easting:	1,726,932.47 usft	Longitude:	-80.69208048
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 "

Well	Keith Stern N-07 HM (slot T)					
Well Position	+N/-S	0.00 usft	Northing:	14,444,922.64 usft	Latitude:	39.77491853
	+E/-W	0.00 usft	Easting:	1,726,948.32 usft	Longitude:	-80.69202388
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	744.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/17/2018	-8.71	66.90	52,102.54613207

Design	rev0				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.07	

Plan Survey Tool Program	Date	1/19/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	14,186.64 rev0 (Original Hole)	MWD	MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
750.00	5.00	99.98	749.68	-1.89	10.74	2.00	2.00	0.00	99.98	
1,302.42	5.00	99.98	1,300.00	-10.23	58.15	0.00	0.00	0.00	0.00	
2,410.70	38.25	99.98	2,315.89	-80.00	454.78	3.00	3.00	0.00	-0.01	
6,620.18	38.25	99.98	5,621.73	-531.41	3,021.37	0.00	0.00	0.00	0.00	
7,763.09	91.00	330.00	6,303.00	141.66	3,118.77	10.00	4.62	-11.37	-122.79	LP Keith Stern N-07 F
14,186.64	91.00	330.00	6,191.00	5,703.78	-92.51	0.00	0.00	0.00	0.00	BHL Keith Stern N-07



Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Keith Stern
 Well: Keith Stern N-07 HM (slot T)
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference: Well Keith Stern N-07 HM (slot T)
 TVD Reference: GL @ 744.00usft
 MD Reference: GL @ 744.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
100.00	0.00	0.00	100.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
200.00	0.00	0.00	200.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
300.00	0.00	0.00	300.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
400.00	0.00	0.00	400.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
500.00	0.00	0.00	500.00	0.00	0.00	14,444,922.64	1,726,948.32	39.77491863	-80.69202368
KOP Begin 2°/100' build									
600.00	2.00	99.98	599.98	-0.30	1.72	14,444,922.34	1,726,950.04	39.77491778	-80.69201757
700.00	4.00	99.98	699.84	-1.21	6.87	14,444,921.43	1,726,955.19	39.77491525	-80.69199923
750.00	5.00	99.98	749.68	-1.89	10.74	14,444,920.75	1,726,959.05	39.77491334	-80.69198549
Begin 5.00° tangent									
800.00	5.00	99.98	799.49	-2.64	15.03	14,444,919.99	1,726,963.35	39.77491123	-80.69197023
900.00	5.00	99.98	899.11	-4.15	23.61	14,444,918.48	1,726,971.93	39.77490700	-80.69183970
1,000.00	5.00	99.98	998.73	-5.67	32.20	14,444,916.97	1,726,980.51	39.77490277	-80.69190916
1,100.00	5.00	99.98	1,098.35	-7.18	40.78	14,444,915.46	1,726,989.10	39.77489854	-80.69187883
1,200.00	5.00	99.98	1,197.97	-8.69	49.36	14,444,913.95	1,726,997.68	39.77489431	-80.69184810
1,300.00	5.00	99.98	1,297.59	-10.20	57.95	14,444,912.44	1,727,006.26	39.77489008	-80.69181757
1,302.42	5.00	99.98	1,300.00	-10.23	58.15	14,444,912.41	1,727,006.47	39.77488998	-80.69181683
Begin 3°/100' build									
1,400.00	7.93	99.98	1,396.95	-12.14	68.97	14,444,910.50	1,727,017.29	39.77488465	-80.69177835
1,500.00	10.93	99.98	1,495.59	-14.97	85.10	14,444,907.67	1,727,033.42	39.77487670	-80.69172098
1,600.00	13.93	99.98	1,593.23	-18.70	106.29	14,444,903.94	1,727,054.61	39.77486627	-80.69164560
1,700.00	18.93	99.98	1,689.62	-23.31	132.49	14,444,899.33	1,727,080.81	39.77485336	-80.69155242
1,800.00	19.93	99.98	1,784.48	-28.79	163.62	14,444,893.85	1,727,111.94	39.77483603	-80.69144170
1,900.00	22.93	99.98	1,877.56	-35.11	199.59	14,444,887.53	1,727,147.91	39.77482031	-80.69131374
2,000.00	25.93	99.98	1,968.59	-42.28	240.32	14,444,880.36	1,727,188.64	39.77480026	-80.69116689
2,100.00	28.93	99.98	2,057.34	-50.25	285.68	14,444,872.38	1,727,234.00	39.77477792	-80.69100755
2,200.00	31.93	99.98	2,143.56	-59.03	335.55	14,444,863.61	1,727,283.87	39.77475336	-80.69083015
2,300.00	34.93	99.98	2,227.01	-68.57	389.80	14,444,854.07	1,727,338.12	39.77472684	-80.69063720
2,400.00	37.93	99.98	2,307.46	-78.85	448.28	14,444,843.79	1,727,396.59	39.77469784	-80.69042920
2,410.70	38.25	99.98	2,315.89	-80.00	454.78	14,444,842.64	1,727,403.10	39.77469463	-80.69040608
Begin 38.25° tangent									
2,500.00	38.25	99.98	2,386.01	-89.57	509.22	14,444,833.07	1,727,457.54	39.77466782	-80.69021242
2,599.99	38.25	99.98	2,464.55	-100.30	570.20	14,444,822.34	1,727,518.51	39.77463779	-80.68999555
2,699.99	38.25	99.98	2,543.08	-111.02	631.17	14,444,811.62	1,727,579.49	39.77460776	-80.68977868
2,799.99	38.25	99.98	2,621.61	-121.74	692.14	14,444,800.90	1,727,640.46	39.77457773	-80.68956181
2,899.99	38.25	99.98	2,700.14	-132.47	753.11	14,444,790.17	1,727,701.43	39.77454770	-80.68934494
2,999.99	38.25	99.98	2,778.68	-143.19	814.08	14,444,779.45	1,727,762.40	39.77451767	-80.68912808
3,099.99	38.25	99.98	2,857.21	-153.91	875.05	14,444,768.73	1,727,823.37	39.77448764	-80.68891121
3,199.99	38.25	99.98	2,935.74	-164.64	936.02	14,444,758.00	1,727,884.34	39.77445761	-80.68869434
3,299.99	38.25	99.98	3,014.28	-175.36	997.00	14,444,747.28	1,727,945.31	39.77442757	-80.68847747
3,399.99	38.25	99.98	3,092.81	-186.09	1,057.97	14,444,736.55	1,728,006.29	39.77439754	-80.68826061
3,499.99	38.25	99.98	3,171.34	-196.81	1,118.94	14,444,725.83	1,728,067.26	39.77436751	-80.68804374
3,599.99	38.25	99.98	3,249.88	-207.53	1,179.91	14,444,715.11	1,728,128.23	39.77433747	-80.68782687
3,699.99	38.25	99.98	3,328.41	-218.26	1,240.88	14,444,704.38	1,728,189.20	39.77430744	-80.68761001
3,799.99	38.25	99.98	3,406.94	-228.98	1,301.85	14,444,693.66	1,728,250.17	39.77427741	-80.68739314
3,899.99	38.25	99.98	3,485.48	-239.70	1,362.82	14,444,682.94	1,728,311.14	39.77424737	-80.68717627
3,999.99	38.25	99.98	3,564.01	-250.43	1,423.80	14,444,672.21	1,728,372.11	39.77421734	-80.68695941
4,099.99	38.25	99.98	3,642.54	-261.15	1,484.77	14,444,661.49	1,728,433.09	39.77418730	-80.68674254
4,199.99	38.25	99.98	3,721.07	-271.87	1,545.74	14,444,650.76	1,728,494.06	39.77415726	-80.68652568
4,299.99	38.25	99.98	3,799.61	-282.60	1,606.71	14,444,640.04	1,728,555.03	39.77412723	-80.68630881
4,399.99	38.25	99.98	3,878.14	-293.32	1,667.68	14,444,629.32	1,728,616.00	39.77409719	-80.68609195
4,499.99	38.25	99.98	3,956.67	-304.05	1,728.65	14,444,618.59	1,728,676.97	39.77406715	-80.68587508
4,599.99	38.25	99.98	4,035.21	-314.77	1,789.62	14,444,607.87	1,728,737.94	39.77403712	-80.68565822



Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Keith Stern
 Well: Keith Stern N-07 HM (slot T)
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference: Well Keith Stern N-07 HM (slot T)
 TVD Reference: GL @ 744.00usft
 MD Reference: GL @ 744.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,699.99	38.25	99.98	4,113.74	-325.49	1,850.60	14,444,597.15	1,728,798.91	39.77400708	-80.68544135
4,799.99	38.25	99.98	4,192.27	-336.22	1,911.57	14,444,566.42	1,728,859.89	39.77397704	-80.68522449
4,899.99	38.25	99.98	4,270.81	-346.94	1,972.54	14,444,575.70	1,728,920.86	39.77394700	-80.68500762
4,999.99	38.25	99.98	4,349.34	-357.66	2,033.51	14,444,564.97	1,728,981.83	39.77391696	-80.68479076
5,099.99	38.25	99.98	4,427.87	-368.39	2,094.48	14,444,554.25	1,729,042.80	39.77388692	-80.68457390
5,199.99	38.25	99.98	4,506.41	-379.11	2,155.45	14,444,543.53	1,729,103.77	39.77385688	-80.68435703
5,299.99	38.25	99.98	4,584.94	-389.84	2,216.43	14,444,532.80	1,729,164.74	39.77382684	-80.68414017
5,399.99	38.25	99.98	4,663.47	-400.56	2,277.40	14,444,522.08	1,729,225.71	39.77379680	-80.68392330
5,499.99	38.25	99.98	4,742.00	-411.28	2,338.37	14,444,511.36	1,729,286.69	39.77376676	-80.68370644
5,599.99	38.25	99.98	4,820.54	-422.01	2,399.34	14,444,500.63	1,729,347.66	39.77373672	-80.68348958
5,699.99	38.25	99.98	4,899.07	-432.73	2,460.31	14,444,489.91	1,729,408.63	39.77370668	-80.68327272
5,799.99	38.25	99.98	4,977.60	-443.45	2,521.28	14,444,479.19	1,729,469.60	39.77367663	-80.68305585
5,899.99	38.25	99.98	5,056.14	-454.18	2,582.25	14,444,468.46	1,729,530.57	39.77364659	-80.68283899
5,999.99	38.25	99.98	5,134.67	-464.90	2,643.23	14,444,457.74	1,729,591.54	39.77361655	-80.68262213
6,099.99	38.25	99.98	5,213.20	-475.62	2,704.20	14,444,447.01	1,729,652.51	39.77358650	-80.68240527
6,199.99	38.25	99.98	5,291.74	-486.35	2,765.17	14,444,436.29	1,729,713.49	39.77355646	-80.68218841
6,299.99	38.25	99.98	5,370.27	-497.07	2,826.14	14,444,425.57	1,729,774.46	39.77352642	-80.68197154
6,399.99	38.25	99.98	5,448.80	-507.80	2,887.11	14,444,414.84	1,729,835.43	39.77349637	-80.68175468
6,499.99	38.25	99.98	5,527.34	-518.52	2,948.08	14,444,404.12	1,729,896.40	39.77346633	-80.68153782
6,599.99	38.25	99.98	5,605.87	-529.24	3,009.05	14,444,393.40	1,729,957.37	39.77343628	-80.68132096
6,620.18	38.25	99.98	5,621.73	-531.41	3,021.37	14,444,391.23	1,729,969.69	39.77343021	-80.68127716
Begin 10°/100' build/turn									
6,699.99	34.48	88.08	5,686.06	-534.94	3,068.35	14,444,387.70	1,730,016.67	39.77342007	-80.68110999
6,799.99	31.74	70.42	5,770.01	-525.15	3,121.58	14,444,397.49	1,730,069.88	39.77344643	-80.68092051
6,899.99	31.70	51.33	5,855.29	-499.85	3,166.96	14,444,422.79	1,730,115.28	39.77351545	-80.68075859
6,999.99	34.38	33.59	5,939.32	-459.82	3,203.19	14,444,462.82	1,730,151.50	39.77362503	-80.68062916
7,099.99	39.21	18.93	6,019.53	-408.27	3,229.13	14,444,516.37	1,730,177.44	39.77377185	-80.68053616
7,199.99	45.52	7.37	6,093.49	-340.82	3,244.00	14,444,581.82	1,730,192.31	39.77395143	-80.68048241
7,299.99	52.75	358.22	6,158.95	-285.47	3,247.34	14,444,657.17	1,730,195.66	39.77415834	-80.68046954
7,399.99	60.56	350.73	6,213.93	-182.50	3,239.07	14,444,740.13	1,730,187.39	39.77438626	-80.68049794
7,499.99	68.73	344.33	6,256.76	-94.44	3,218.42	14,444,828.20	1,730,167.74	39.77462830	-80.68056676
7,599.99	77.11	338.62	6,286.12	-3.96	3,188.99	14,444,918.68	1,730,137.31	39.77487707	-80.68067389
7,699.99	85.61	333.29	6,301.13	86.19	3,148.72	14,445,008.83	1,730,097.04	39.77512504	-80.68081609
7,763.09	91.00	330.00	6,303.00	141.66	3,118.77	14,445,064.30	1,730,067.09	39.77527769	-80.68092166
Begin 91.00° lateral section									
7,799.98	91.00	330.00	6,302.36	173.61	3,100.33	14,445,096.25	1,730,046.65	39.77536561	-80.68098721
7,899.98	91.00	330.00	6,300.61	280.20	3,050.34	14,445,182.84	1,729,998.65	39.77560390	-80.68116404
7,999.98	91.00	330.00	6,298.87	346.79	3,000.34	14,445,269.43	1,729,948.66	39.77584218	-80.68134087
8,099.98	91.00	330.00	6,297.13	433.38	2,950.35	14,445,356.02	1,729,898.67	39.77608047	-80.68151770
8,199.98	91.00	330.00	6,295.38	519.97	2,900.36	14,445,442.61	1,729,848.68	39.77631875	-80.68169453
8,299.98	91.00	330.00	6,293.64	606.56	2,850.37	14,445,529.20	1,729,798.69	39.77655704	-80.68187137
8,399.98	91.00	330.00	6,291.90	693.15	2,800.37	14,445,615.79	1,729,748.69	39.77679532	-80.68204820
8,499.98	91.00	330.00	6,290.15	779.74	2,750.38	14,445,702.38	1,729,698.70	39.77703360	-80.68222504
8,599.98	91.00	330.00	6,288.41	866.33	2,700.39	14,445,788.97	1,729,648.71	39.77727189	-80.68240188
8,699.98	91.00	330.00	6,286.66	952.92	2,650.40	14,445,875.56	1,729,598.72	39.77751017	-80.68257872
8,799.98	91.00	330.00	6,284.92	1,039.51	2,600.40	14,445,962.14	1,729,548.72	39.77774845	-80.68275556
8,899.98	91.00	330.00	6,283.18	1,126.09	2,550.41	14,446,048.73	1,729,498.73	39.77798674	-80.68293240
8,999.98	91.00	330.00	6,281.43	1,212.66	2,500.42	14,446,135.32	1,729,448.74	39.77822502	-80.68310925
9,099.98	91.00	330.00	6,279.69	1,299.27	2,450.43	14,446,221.91	1,729,398.75	39.77846330	-80.68328609
9,199.98	91.00	330.00	6,277.95	1,385.86	2,400.44	14,446,308.50	1,729,348.75	39.77870158	-80.68346294
9,299.98	91.00	330.00	6,276.20	1,472.45	2,350.44	14,446,395.09	1,729,298.76	39.77893986	-80.68363978
9,399.98	91.00	330.00	6,274.46	1,559.04	2,300.45	14,446,481.68	1,729,248.77	39.77917814	-80.68381663
9,499.98	91.00	330.00	6,272.72	1,645.63	2,250.46	14,446,568.27	1,729,198.78	39.77941642	-80.68399346
9,599.98	91.00	330.00	6,270.97	1,732.22	2,200.47	14,446,654.86	1,729,148.78	39.77965471	-80.68417033



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stem N-07 HM (slot T)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stem	North Reference:	Grid
Well:	Keith Stem N-07 HM (slot T)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,699.98	91.00	330.00	6,269.23	1,818.81	2,150.47	14,446,741.45	1,729,058.79	39.77989299	-80.68434718
9,799.98	91.00	330.00	6,267.49	1,905.40	2,100.48	14,446,828.04	1,729,048.80	39.78013127	-80.68452403
9,899.98	91.00	330.00	6,265.74	1,991.99	2,050.49	14,446,914.63	1,728,998.81	39.78036955	-80.68470089
9,999.98	91.00	330.00	6,264.00	2,078.58	2,000.50	14,447,001.22	1,728,948.82	39.78060782	-80.68487774
10,099.98	91.00	330.00	6,262.25	2,165.17	1,950.50	14,447,087.80	1,728,898.82	39.78084610	-80.68505460
10,199.98	91.00	330.00	6,260.51	2,251.75	1,900.51	14,447,174.39	1,728,848.83	39.78108438	-80.68523146
10,299.98	91.00	330.00	6,258.77	2,338.34	1,850.52	14,447,260.98	1,728,798.84	39.78132266	-80.68540832
10,399.98	91.00	330.00	6,257.02	2,424.93	1,800.53	14,447,347.57	1,728,748.85	39.78156094	-80.68558518
10,499.98	91.00	330.00	6,255.28	2,511.52	1,750.54	14,447,434.16	1,728,698.85	39.78179922	-80.68576204
10,599.98	91.00	330.00	6,253.54	2,598.11	1,700.54	14,447,520.75	1,728,648.86	39.78203750	-80.68593890
10,699.98	91.00	330.00	6,251.79	2,684.70	1,650.55	14,447,607.34	1,728,598.87	39.78227577	-80.68611577
10,799.98	91.00	330.00	6,250.05	2,771.29	1,600.56	14,447,693.93	1,728,548.88	39.78251405	-80.68629263
10,899.98	91.00	330.00	6,248.31	2,857.88	1,550.57	14,447,780.52	1,728,498.88	39.78275233	-80.68646950
10,999.98	91.00	330.00	6,246.56	2,944.47	1,500.57	14,447,867.11	1,728,448.89	39.78299060	-80.68664636
11,099.98	91.00	330.00	6,244.82	3,031.06	1,450.58	14,447,953.70	1,728,398.90	39.78322888	-80.68682323
11,199.98	91.00	330.00	6,243.08	3,117.65	1,400.59	14,448,040.29	1,728,348.91	39.78346716	-80.68700010
11,299.98	91.00	330.00	6,241.33	3,204.24	1,350.60	14,448,126.87	1,728,298.92	39.78370543	-80.68717697
11,399.98	91.00	330.00	6,239.59	3,290.82	1,300.60	14,448,213.46	1,728,248.92	39.78394371	-80.68735385
11,499.98	91.00	330.00	6,237.84	3,377.41	1,250.61	14,448,300.05	1,728,198.93	39.78418198	-80.68753072
11,599.98	91.00	330.00	6,236.10	3,464.00	1,200.62	14,448,386.64	1,728,148.94	39.78442026	-80.68770760
11,699.98	91.00	330.00	6,234.36	3,550.59	1,150.63	14,448,473.23	1,728,098.95	39.78465853	-80.68788447
11,799.98	91.00	330.00	6,232.61	3,637.18	1,100.64	14,448,559.82	1,728,048.95	39.78489681	-80.68806135
11,899.98	91.00	330.00	6,230.87	3,723.77	1,050.64	14,448,646.41	1,727,998.96	39.78513508	-80.68823823
11,999.98	91.00	330.00	6,229.13	3,810.36	1,000.65	14,448,733.00	1,727,948.97	39.78537335	-80.68841511
12,099.98	91.00	330.00	6,227.38	3,896.95	950.66	14,448,819.59	1,727,898.98	39.78561163	-80.68859199
12,199.98	91.00	330.00	6,225.64	3,983.54	900.67	14,448,906.18	1,727,848.99	39.78584990	-80.68876887
12,299.98	91.00	330.00	6,223.90	4,070.13	850.67	14,448,992.77	1,727,798.99	39.78608817	-80.68894575
12,399.98	91.00	330.00	6,222.15	4,156.72	800.68	14,449,079.36	1,727,749.00	39.78632645	-80.68912264
12,499.98	91.00	330.00	6,220.41	4,243.31	750.69	14,449,165.95	1,727,699.01	39.78656472	-80.68929952
12,599.98	91.00	330.00	6,218.66	4,329.90	700.70	14,449,252.53	1,727,649.02	39.78680299	-80.68947641
12,699.97	91.00	330.00	6,216.92	4,416.48	650.70	14,449,339.12	1,727,599.02	39.78704126	-80.68965330
12,799.97	91.00	330.00	6,215.18	4,503.07	600.71	14,449,425.71	1,727,549.03	39.78727954	-80.68983019
12,899.97	91.00	330.00	6,213.43	4,589.66	550.72	14,449,512.30	1,727,499.04	39.78751781	-80.69000708
12,999.97	91.00	330.00	6,211.69	4,676.25	500.73	14,449,598.89	1,727,449.05	39.78775608	-80.69018397
13,099.97	91.00	330.00	6,209.95	4,762.84	450.74	14,449,685.48	1,727,399.05	39.78799435	-80.69036086
13,199.97	91.00	330.00	6,208.20	4,849.43	400.74	14,449,772.07	1,727,349.06	39.78823262	-80.69053776
13,299.97	91.00	330.00	6,206.46	4,936.02	350.75	14,449,858.66	1,727,299.07	39.78847089	-80.69071465
13,399.97	91.00	330.00	6,204.72	5,022.61	300.76	14,449,945.25	1,727,249.08	39.78870916	-80.69089155
13,499.97	91.00	330.00	6,202.97	5,109.20	250.77	14,450,031.84	1,727,199.09	39.78894743	-80.69106845
13,599.97	91.00	330.00	6,201.23	5,195.79	200.77	14,450,118.43	1,727,149.09	39.78918570	-80.69124535
13,699.97	91.00	330.00	6,199.49	5,282.38	150.78	14,450,205.02	1,727,099.10	39.78942397	-80.69142225
13,799.97	91.00	330.00	6,197.74	5,368.97	100.79	14,450,291.60	1,727,049.11	39.78966224	-80.69159915
13,899.97	91.00	330.00	6,196.00	5,455.55	50.80	14,450,378.19	1,726,999.12	39.78990051	-80.69177605
13,999.97	91.00	330.00	6,194.25	5,542.14	0.80	14,450,464.78	1,726,949.12	39.79013878	-80.69195296
14,099.97	91.00	330.00	6,192.51	5,628.73	-49.19	14,450,551.37	1,726,899.13	39.79037704	-80.69212986
14,186.64	91.00	330.00	6,191.00	5,703.78	-92.51	14,450,626.42	1,726,855.80	39.79058354	-80.69228318

PBHL/TD 14186.64 MD/6191.00 TVD



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stern N-07 HM (slot T)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern N-07 HM (slot T)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
BHL Keith Stern N-07 HI - plan hits target center - Point	0.00	0.00	6,191.00	5,703.78	-92.51	14,450,626.42	1,726,855.80	39.79058354	-80.69228318
LP Keith Stern N-07 HM - plan hits target center - Point	0.00	0.00	6,303.00	141.66	3,118.77	14,445,064.30	1,730,067.09	39.77527769	-80.68092196

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	KOP Begin 2°/100' build
750.00	749.68	-1.89	10.74	Begin 5.00° tangent
1,302.42	1,300.00	-10.23	58.15	Begin 3°/100' build
2,410.70	2,315.89	-80.00	454.78	Begin 38.25° tangent
6,620.18	5,621.73	-531.41	3,021.37	Begin 10°/100' build/turn
7,763.09	6,303.00	141.66	3,118.77	Begin 91.00° lateral section
14,186.64	6,191.00	5,703.78	-92.51	PBHL/TD 14186.64 MD/6191.00 TVD

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WV Department of
Environmental Protection

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0103185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#138642E)

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

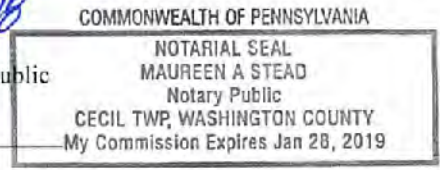
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Environmental Protection

Subscribed and sworn before me this 2 day of Aug., 2018
Maureen A Stead Notary Public

My commission expires 1/28/19



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 19.18 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *John M. ...*

Comments: _____

Title: Oil and Gas Inspector

Date: 5/1/18

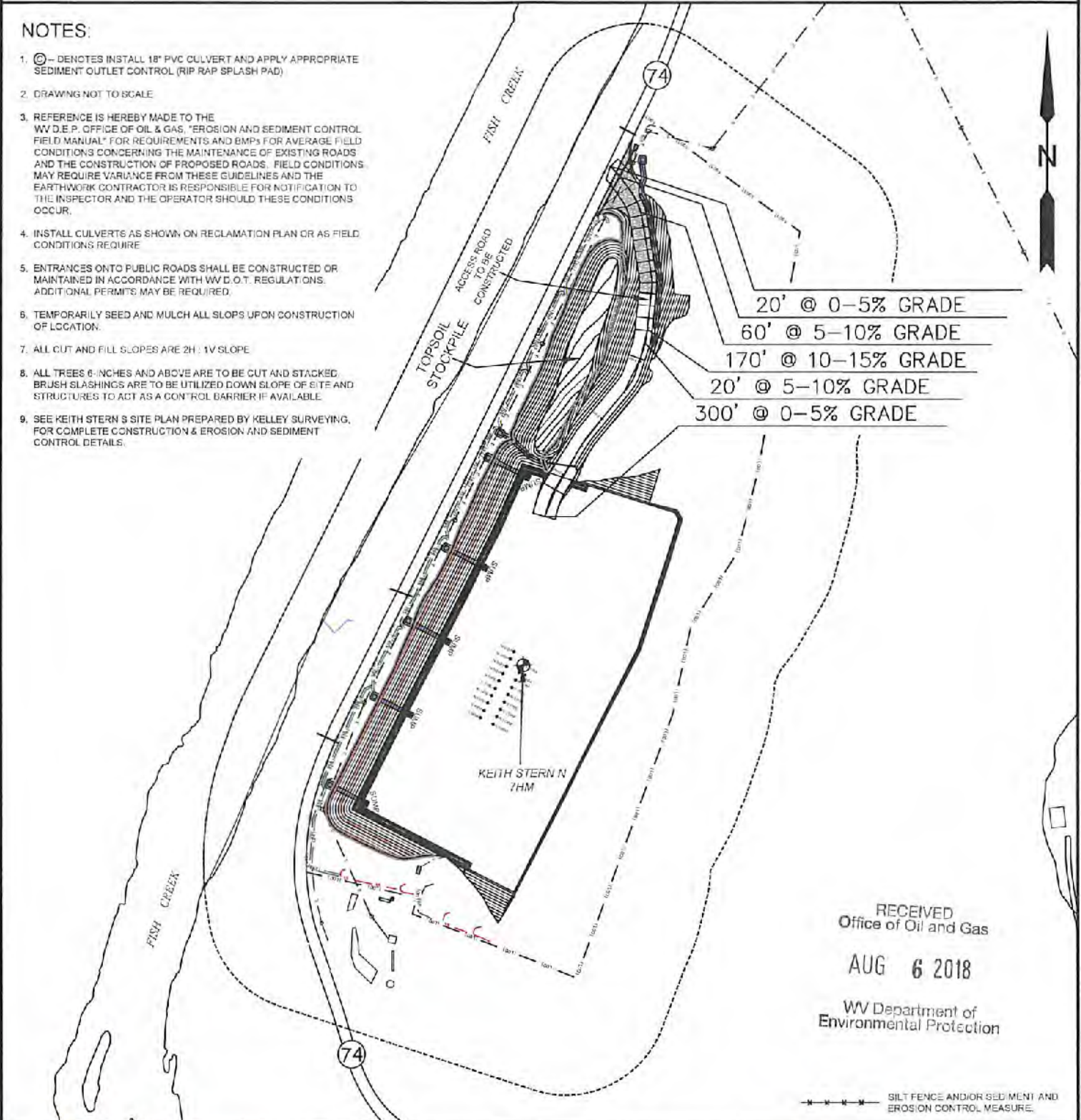
Field Reviewed? Yes No

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WV Department of
Environmental Protection

PROPOSED KEITH STERN N - 7HM

NOTES:

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



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----- SILT FENCE AND/OR SEDIMENT AND EROSION CONTROL MEASURE

TOPO SECTION:

OPERATOR:

GLEN EASTON 7.5'

PREPARED FOR:
TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD
SUITE 200
CANONSBURG, PA 15317

COUNTY DISTRICT
MARSHALL MEADE

DRAWN BY JOB NO.
K.G.M. 8811

DATE SCALE
07/31/2018 NONE



**TUG HILL
OPERATING**



Land & Energy Development

Solutions from the ground up.

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www.slsurveys.com



Well Site Safety Plan

Tug Hill Operating, LLC

Ju
8/1/18

Well Name: Keith Stern N-7HM

Pad Location: Keith Stern Pad

Marshall County, West Virginia

UTM meters , NADD83, Zone
17: Northing: 4,402,821.23
Easting: 526,374.90

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August 2018

AUG 6 2018

WV Department of
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WW-9

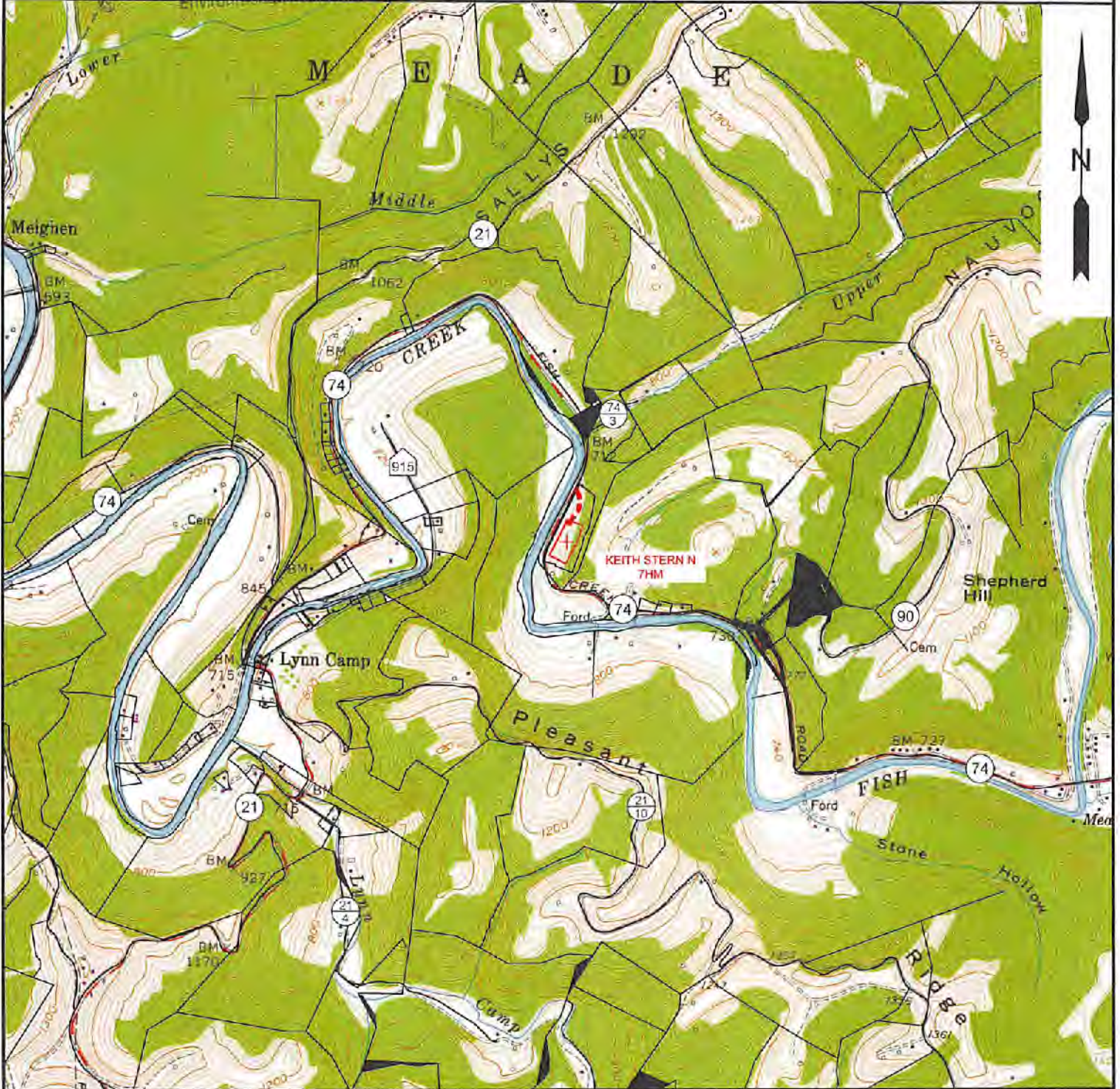
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PROPOSED KEITH STERN N - 7HM

SUPPLEMENT PG. 2

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

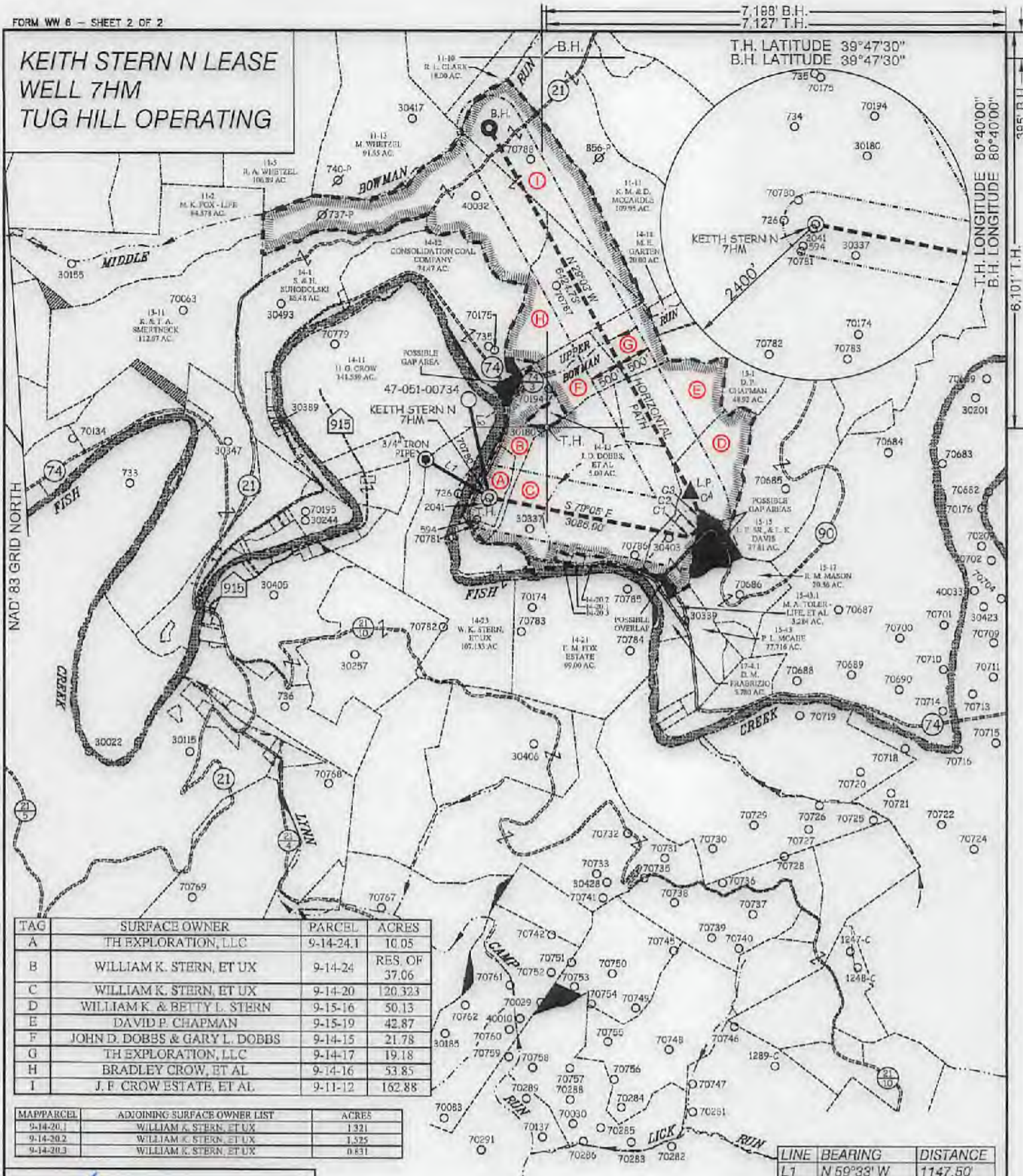
LAT: 39 7137712
 LON: -80 8258327
 LOCATED: S 60°11'49" W AT 43,719.31' FROM THE CENTER OF KEITH STERN N WELL PAD LOCATION.

SLS
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www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	BB11	07/31/2018	1" = 2000'

TUG HILL
OPERATING

**KEITH STERN N LEASE
WELL 7HM
TUG HILL OPERATING**



T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°47'30"

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

NAD 83 GRID NORTH

TAG	SURFACE OWNER	PARCEL	ACRES
A	TH EXPLORATION, LLC	9-14-24.1	10.05
B	WILLIAM K. STERN, ET UX	9-14-24	RES. OF 37.06
C	WILLIAM K. STERN, ET UX	9-14-20	120.323
D	WILLIAM K. & BETTY L. STERN	9-15-16	50.13
E	DAVID P. CHAPMAN	9-15-19	42.87
F	JOHN D. DOBBS & GARY L. DOBBS	9-14-15	21.78
G	TH EXPLORATION, LLC	9-14-17	19.18
H	BRADLEY CROW, ET AL	9-14-16	53.85
I	J. F. CROW ESTATE, ET AL	9-11-12	162.88

MAPPARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-14-20.1	WILLIAM K. STERN, ET UX	1.321
9-14-20.2	WILLIAM K. STERN, ET UX	1.525
9-14-20.3	WILLIAM K. STERN, ET UX	0.831

LINE	BEARING	DISTANCE
L1	N 59°33' W	1147.50'
L2	N 12°02' W	1546.18'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	135.40'	177.72'	N 76°01' E	132.15'
C2	181.34'	232.06'	N 26°48' E	176.76'
C3	249.36'	622.68'	N 04°44' W	247.70'
C4	257.35'	1074.19'	N 22°08' W	256.73'

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www.slsurveyors.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 466,597.52 E. 1,939,473.70
 NAD'83 GEO. LAT-(N) 39.774919 LONG-(W) 80.692024
 NAD'83 UTM (M) N. 4,402,821.23 E. 526,374.90

LANDING POINT
 NAD'83 S.P.C.(FT) N. 466,677.1 E. 1,936,695.4
 NAD'83 GEO. LAT-(N) 39.775278 LONG-(W) 80.689922
 NAD'83 UTM (M) N. 4,402,864.4 E. 527,325.5

BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 472,294.0 E. 1,833,476.5
 NAD'83 GEO. LAT-(N) 39.790584 LONG-(W) 80.692283
 NAD'83 UTM (M) N. 4,404,559.7 E. 526,346.7

GREGORY A. SMITH
LICENSED
No. 677
STATE OF
WEST VIRGINIA
PROFESSIONAL SURVEYOR

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

P.S. 677
Gregory A. Smith

LEGEND

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

SCALE 1" = 2000' FILE NO. 8811P7HM.dwg
 DATE JULY 31, 2018
 REVISED _____, 20____
 OPERATORS WELL NO. KEITH STERN N-7HM
 API WELL 47 - 051 - 02101
 NO. STATE COUNTY PERMIT

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

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

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

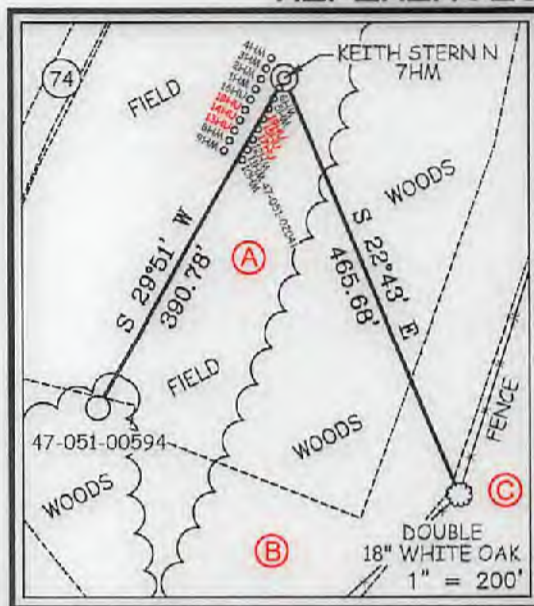
COUNTY NAME
PERMIT

**KEITH STERN N LEASE
WELL 7HM
TUG HILL OPERATING**

	7,198' B.H.	
	7,127' T.H.	
B.H.	T.H. LATITUDE 39°47'30"	B.H. LATITUDE 39°47'30"
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 466,587.52	E. 1,633,473.70
NAD'83 GEO.	LAT-(N) 39.774919	LONG-(W) 80.682024
NAD'83 UTM (M)	N. 4,402,821.23	E. 526,374.80
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 466,577.1	E. 1,636,595.4
NAD'83 GEO.	LAT-(N) 39.775278	LONG-(W) 80.680922
NAD'83 UTM (M)	N. 4,402,864.4	E. 527,325.5
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 472,294.0	E. 1,633,476.5
NAD'83 GEO.	LAT-(N) 39.790584	LONG-(W) 80.692263
NAD'83 UTM (M)	N. 4,404,559.7	E. 526,346.7

T.H. LONGITUDE 80°40'00"
 B.H. LONGITUDE 80°40'00"
 395' B.H.
 8,101' T.H.

REFERENCES



NOTES ON SURVEY

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

Gregory A. Smith
8/1/18



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

P.S. 677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JULY 31, 20 18
 REVISED _____, 20 ____
 OPERATORS WELL NO. KEITH STERN N-7HM
 API WELL NO. 47 - 051 - 02101
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8811P7HM.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

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

LOCATION: ELEVATION GROUND = 741.20' PROPOSED = 744.65' WATERSHED FISH CREEK (HUC 10)
 DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER TH EXPLORATION, LLC ACREAGE 10.05±
 ROYALTY OWNER ISAAC CROW, ET AL - SEE WW-6A1 ACREAGE 10.05±
 PROPOSED WORK: LEASE NO. SEE WW-6A1

DRILL X CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION _____ PERFORATE NEW FORMATION _____ PLUG AND ABANDON _____ CLEAN OUT AND REPLUG _____ OTHER _____
 PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH TVD: 6,414' / TMD: 14,187'

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

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

COUNTY NAME PERMIT

WW-6A1
(5/13)

Operator's Well No. Keith Stern N-7HM

**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

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WV Department of
Environmental Protection

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

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

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

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

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

PARTIAL ASSIGNMENT OF OIL AND GAS LEASES

This **PARTIAL ASSIGNMENT OF OIL AND GAS LEASES** (hereinafter, "**Assignment**"), made the 31 day of May, 2018 (hereinafter, "**Effective Date**"), is by and between **CNX GAS COMPANY LLC**, a Virginia limited liability company, whose address is 1000 CONSOL Energy Drive, Suite 400, Canonsburg, Pennsylvania 15317 (hereinafter "**Assignor**") and **TH EXPLORATION, LLC**, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignee**"). All references in this Assignment to "**Party**" or "**Parties**" shall be deemed at all times to mean Assignor or Assignee or both. Capitalized terms used but not defined herein shall have the meaning given such terms in the Acreage Trade Agreement, by and between Assignor and Assignee dated April 9, 2018 (the "**ATA**").

WHEREAS, Assignor desires to assign all of Assignor's right, title and interest in and to those Oil and Gas Lease(s) as same may have been previously or will in the future be modified, extended, or amended (hereinafter, "**Lease**" or "**Leases**"), covering certain tracts of land (hereinafter, "**Lands**") located in Marshall County, West Virginia; such Leases and Lands covered thereby being more particularly described on **Exhibit "A"** attached hereto and made a part hereof insofar and only insofar as such Leases cover the Target Formations (as defined below).

NOW, THEREFORE, for and in consideration of TEN AND NO/100 DOLLARS (\$10.00) and other valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor does hereby **GRANT, BARGAIN, ASSIGN, TRANSFER, AND CONVEY** unto Assignee the following "**Assigned Rights**":

- (a) All of Assignor's right, title, and interest in and to those Leases set forth on **Exhibit A** attached hereto **INSOFAR AND ONLY INSOFAR** as to the particular Target Formation(s) (defined below) described and delineated on **Exhibit A** for each Lease:
- i. "**Target Formation(s)**" means, with respect to each Lease, two hundred feet (200') above the top and two hundred feet (200') below the base of the Marcellus Formation or the Utica Formation or both, as specified for each Lease on **Exhibit A**. For the purposes of this Assignment, the Marcellus Formation shall be defined as the formation commonly known as the Marcellus Shale Formation, with the top of the Marcellus Shale Formation defined as the correlative stratigraphic equivalent to that point found at 6517 feet (6517') measured depth on the Halliburton Simms U-5H Composite_DLL_DEN_NEU Log dated June 14, 2014 (the "**Log**")

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STATE OF WEST VIRGINIA §
 COUNTY OF MARSHALL §

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 Pages Recorded 20
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ASSIGNMENT AND CONVEYANCE

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

WITNESSETH:

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

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

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

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

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

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

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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on August 22, 2016 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated June 19, 2016 (the "*Acreage Trade Agreement*").

ARTICLE 1 ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") INsofar AND ONLY INsofar as they cover the Target Formations and INsofar AND ONLY INsofar as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*"). Assignor does hereby reserve unto itself the right and subsurface easement to drill through the Leasehold Rights to access the those depths and formations in the Leases other than the Target Formations and (y) to shoot seismic, sonic, or other energy or waves through the Leasehold Rights and to receive, record and evaluate such energy or waves, including those reflected from or in any way pertaining to the reserved depths, and to utilize any and all other exploration technologies that image the subsurface of the leasehold including the reserved depths and to receive, record and evaluate all images resulting therefrom.

TO HAVE AND TO HOLD the Conveyed Assets, together with all and singular the rights, privileges, contracts and appurtenances, in any way appertaining or belonging thereto, unto Assignee, its successors and assigns, forever, subject, to the terms and conditions of this Assignment.

Section 1.4 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

Section 2.1 Special Warranty of Title. Assignor hereby agrees to warrant and defend Defensible Title to the Leases unto Assignee, its successors and assigns, against every Person whomsoever lawfully claiming or to claim the same or any part thereof by, through or under Assignor or any of its Affiliates, but not otherwise.

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR WARRANTY, EXPRESS, IMPLIED OR STATUTORY, INCLUDING AS TO (I) TITLE TO THE LEASEHOLD RIGHTS, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY DESCRIPTIVE MEMORANDUM, OR ANY REPORT OF ANY OF ITS PETROLEUM

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10*15605	A	9-14-24.1	ISAAC CROW ET UX	JOHN G CRAWFORD	1/8+	74	394	148/389 Wheeling Natural Gas Company to Manufacturers Light & Heat Company	197/120 Manufacturers Light & Heat Company to Union Gasoline & Oil Corporation	2/136 Union Gasoline & Oil Corporation to Preston Oil Company	2/225 Preston Oil Company to Manufacturers Light & Heat Company	422/204 Manufacturers Light & Heat Company to Columbia Gas Transmission Corporation	537/518 Columbia Gas Transmission Corporation to Columbia Natural Resources, Inc	13/623 Columbia Natural Resources, Inc. to Nicole Gas Production, LTD	619/499 Nicole Gas Production, LTD to and Nicole Energy Marketing, Inc. to Pennsylvania Land Holdings Corporation	14/471 Dennis N. Broglio, Successor Trustee to Tri-County Oil & Gas, Inc.	Certificate of Merger Tri-County Oil and Gas, Inc. and Leatherwood, Inc.	42/140 CNX Gas Company LLC to TH Exploration, LLC	
10*15605	B	9-14-24	ISAAC CROW ET UX	JOHN G CRAWFORD	1/8+	74	394	148/389 Wheeling Natural Gas Company to Manufacturers Light & Heat Company	197/120 Manufacturers Light & Heat Company to Union Gasoline & Oil Corporation	2/136 Union Gasoline & Oil Corporation to Preston Oil Company	2/225 Preston Oil Company to Manufacturers Light & Heat Company	422/204 Manufacturers Light & Heat Company to Columbia Gas Transmission Corporation	537/518 Columbia Gas Transmission Corporation to Columbia Natural Resources, Inc	13/623 Columbia Natural Resources, Inc. to Nicole Gas Production, LTD	619/499 Nicole Gas Production, LTD to and Nicole Energy Marketing, Inc. to Pennsylvania Land Holdings Corporation	14/471 Dennis N. Broglio, Successor Trustee to Tri-County Oil & Gas, Inc.	Certificate of Merger Tri-County Oil and Gas, Inc. and Leatherwood, Inc.	42/140 CNX Gas Company LLC to TH Exploration, LLC	
10*15509	C	9-14-20	WILLIAM K STERN AND BETTY L STERN	NPAR, LLC	1/8+	718	320	NA	NA	NA	NA	NA	NA	NA	24/466 NPAR, LLC and AB Resources, LLC to Chief Exploration & Development, LLC and Radler 2000 Limited Partnership, and Enerplus Resources (USA) Corporation to Chevron U.S.A., Inc.	26/130 Chief Exploration & Development, LLC, Radler 2000 Limited Partnership, and Enerplus Resources (USA) Corporation to Chevron U.S.A., Inc.	756/332 NPAR, LLC to Chevron U.S.A., Inc.	36/148 Chevron U.S.A., Inc. to TH Exploration, LLC	
10*15813	D	9-15-16	ROBERT B THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	692	235	NA	NA	NA	NA	NA	NA	32/247 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	
10*21814	D	9-15-16	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	953	335	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21862	D	9-15-16	NOBLE MARCELLUS LP	TH EXPLORATION LLC	1/8+	961	641	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15818	D	9-15-16	ELIZABETH ANN STRAUSBAUGH	CHESAPEAKE APPALACHIA LLC	1/8+	703	578	NA	NA	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	
10*15819	D	9-15-16	JANET LEA BLANKENSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	708	114	NA	NA	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	
10*15814	D	9-15-16	MARY E BASSETT	CHESAPEAKE APPALACHIA LLC	1/8+	694	499	NA	NA	NA	NA	NA	NA	24/84 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	
10*21818	D	9-15-16	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	953	337	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17445	D	9-15-16	GENEVA BASSETT SANCHEZ	TH EXPLORATION LLC	1/8+	929	292	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15817	D	9-15-16	RUTH MEADOWS	CHESAPEAKE APPALACHIA LLC	1/8+	703	583	NA	NA	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	
10*15815	D	9-15-16	FORREST M THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	694	516	NA	NA	NA	NA	NA	NA	23/479 Chesapeake Appalachia LLC to Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC merger	36/431 SWN Production Company, LLC to TH Exploration, LLC	

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10*15816	D		SALLY CYNTHIA HOPKINS	CHESAPEAKE APPALACHIA LLC	1/8+	697	116	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
10*15813	E		ROBERT B THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	692	235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*21814	E		STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	953	335	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*21862	E		NOBLE MARCELLUS LP	TH EXPLORATION LLC	1/8+	961	641	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*15818	E		EUZABETH ANN STRAUSBAUGH	CHESAPEAKE APPALACHIA LLC	1/8+	703	578	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*15819	E		JANET LEA BLANKENSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	708	114	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*15814	E		MARY E BASSETT	CHESAPEAKE APPALACHIA LLC	1/8+	694	499	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
10*21818	E		STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	953	337	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
10*17445	E		GENEVA BASSETT SANCHEZ	TH EXPLORATION LLC	1/8+	929	292	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
10*15817	E		RUTH MEADOWS	CHESAPEAKE APPALACHIA LLC	1/8+	703	583	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
10*15815	E		FOREST M THOMAS	CHESAPEAKE APPALACHIA LLC	1/8+	694	516	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
10*15816	E		SALLY CYNTHIA HOPKINS	CHESAPEAKE APPALACHIA LLC	1/8+	697	116	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*15592	F		JOHN DANIEL DOBBS	CHESAPEAKE APPALACHIA LLC	1/8+	694	125	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*15593	F	9-14-15	GARY L DOBBS	CHESAPEAKE APPALACHIA LLC	1/8+	693	289	NA	NA	NA	NA	NA	NA	NA	23/479 Chesapeake Appalachia LLC to Statoil USA Onshore Properties	24/84 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	30/427 Statoil USA Onshore Properties, Inc (formerly StatoilHydro) to Chevron U.S.A., Inc.	30/461 Chesapeake Appalachia LLC to Chevron U.S.A., Inc.	36/148 Chevron U.S.A., Inc. to TH Exploration, LLC
10*19614	F	9-14-15	KAREN SUE BLAKE	TH EXPLORATION LLC	1/8+	937	318	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18297	F	9-14-15	ROBERT E WEST	TH EXPLORATION LLC	1/8+	929	279	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18189	F	9-14-15	WILLIAM C WEST AND DEBRA WEST	TH EXPLORATION LLC	1/8+	928	622	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17929	G	9-14-17	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	931	372	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22629	H	9-14-16	LISA R GODDARD	TH EXPLORATION LLC	1/8+	966	588	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22782	H	9-14-16	JULIE LYNN SCOTT	TH EXPLORATION LLC	1/8+	972	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22543	H	9-14-16	MITCHELL FORRESTER AND CECELIA FORRESTER	TH EXPLORATION LLC	1/8+	966	188	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22544	H	9-14-16	MELODIE J HOFF AND DOUGLAS T HOFF	TH EXPLORATION LLC	1/8+	966	191	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22602	H	9-14-16	CYNTHIA JO MOORE	TH EXPLORATION LLC	1/8+	966	484	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22603	H	9-14-16	APRIL BERISFORD AND MICHAEL BERISFORD	TH EXPLORATION LLC	1/8+	966	487	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22628	H	9-14-16	JAMES C BALL	TH EXPLORATION LLC	1/8+	966	586	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23005	H	9-14-16	VIRGINIA AND MICHAEL A CLUNGAN	TH EXPLORATION LLC	1/8+	984	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*23331	H	9-14-16	JACQUELINE & CHARLES PATTERSON	TH EXPLORATION LLC ✓	1/8+	988	82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21611	H	9-14-16	KEITH GOUDY AND NANCY GOUDY	TH EXPLORATION LLC ✓	1/8+	959	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22522	H	9-14-16	JAMES D COCHRAN AND LINDA M COCHRAN	TH EXPLORATION LLC ✓	1/8+	966	493	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22523	H	9-14-16	DEBRA E MOORE AND SCOTT MOORE	TH EXPLORATION LLC ✓	1/8+	966	490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22456	H	9-14-16	MICHAEL V GODDARD	TH EXPLORATION LLC ✓	1/8+	964	460	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22457	H	9-14-16	CATHERINE M MESSNER	TH EXPLORATION LLC ✓	1/8+	964	462	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22409	H	9-14-16	LORI ANN OAKS AND LARRY D OAKS	TH EXPLORATION LLC ✓	1/8+	963	121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22416	H	9-14-16	ADA M MOORE	TH EXPLORATION LLC ✓	1/8+	963	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22399	H	9-14-16	WILLIAM T SCHMITT AND PENNY E SCHMITT	TH EXPLORATION LLC ✓	1/8+	963	118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22400	H	9-14-16	NANCY A CHURCH & RALPH E CHURCH	TH EXPLORATION LLC ✓	1/8+	963	115	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22401	H	9-14-16	DEBORAH L ONEAL	TH EXPLORATION LLC ✓	1/8+	963	113	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22402	H	9-14-16	RUSSELL B GODDARD	TH EXPLORATION LLC ✓	1/8+	963	111	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22403	H	9-14-16	DONNA M TAYLOR	TH EXPLORATION LLC ✓	1/8+	963	109	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*22289	H	9-14-16	KAREN ELAINE WOLFE AND JAMES BRENT WOLFE	TH EXPLORATION LLC	1/8+	962	285	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22290	H	9-14-16	DAVID W HUMMEL SR	TH EXPLORATION LLC	1/8+	962	281	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22297	H	9-14-16	MARK L ADAMS	TH EXPLORATION LLC	1/8+	962	283	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22151	H	9-14-16	GERALD W LUNA AND CHERI E LUNA	TH EXPLORATION LLC	1/8+	954	342	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21933	H	9-14-16	BRENDA WEEKLEY BEAVER & DANIEL T BEAVER	TH EXPLORATION LLC	1/8+	960	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21881	H	9-14-16	HELEN LOUISE HUGHES	TH EXPLORATION LLC	1/8+	953	221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17598	H	9-14-16	TERRY LEE PETTIT AND STEPHANIE LYNN PETTIT	TH EXPLORATION LLC	1/8+	921	288	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17904	H	9-14-16	RICKY LEE AND TAMMY J WATSON	TH EXPLORATION LLC	1/8+	921	213	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18311	H	9-14-16	JOYCE D JONES	TH EXPLORATION LLC	1/8+	929	339	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21612	H	9-14-16	YANCY R ARRINGTON AND TERESA C ARRINGTON	TH EXPLORATION LLC	1/8+	959	457	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16867	H	9-14-16	APRIL M WEED	TH EXPLORATION LLC	1/8+	921	279	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21610	H	9-14-16	THERESA E CREEGER AND GREGORY J CREEGER	TH EXPLORATION LLC	1/8+	958	467	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21555	H	9-14-16	HOWARD A BLAKE & HOWARD A BLAKE POA FOR SHARON ANN BLAKE	TH EXPLORATION LLC	1/8+	957	390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*17410	H	9-14-16	LILLIE L GAREY	TH EXPLORATION LLC ✓	1/8+	924	567	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21477	H	9-14-16	PAUL EUGENE SUTTON SR	TH EXPLORATION LLC ✓	1/8+	944	136	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21446	H	9-14-16	LAURA L GORBY	TH EXPLORATION LLC ✓	1/8+	956	594	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21447	H	9-14-16	GINA L UPDEGRAFF	TH EXPLORATION LLC ✓	1/8+	956	596	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21413	H	9-14-16	CHIKAKO YAMASHIRO HIZER	TH EXPLORATION LLC ✓	1/8+	956	598	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21340	H	9-14-16	MARY ANN BURNS AND SIDNEY P BURNS	TH EXPLORATION LLC ✓	1/8+	953	214	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21338	H	9-14-16	DOROTHY I WHITE	TH EXPLORATION LLC ✓	1/8+	953	217	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21339	H	9-14-16	MICHAEL W SMITH	TH EXPLORATION LLC ✓	1/8+	953	212	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21247	H	9-14-16	GLORIA LUCAS	TH EXPLORATION LLC ✓	1/8+	953	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21248	H	9-14-16	ESSIE BUCHANAN	TH EXPLORATION LLC ✓	1/8+	953	219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21249	H	9-14-16	PEGGY HARTLEY	TH EXPLORATION LLC ✓	1/8+	953	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18713	H	9-14-16	GEORGE A JOHNS JR AND KAREN L JOHNS	TH EXPLORATION LLC ✓	1/8+	938	275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19836	H	9-14-16	SUSAN E MARTIN	TH EXPLORATION LLC ✓	1/8+	945	582	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*19837	H	9-14-16	SHARON K LEONARD	TH EXPLORATION LLC	1/8+	944	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19839	H	9-14-16	PAMELA DOYLE BROWN	TH EXPLORATION LLC	1/8+	945	584	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19890	H	9-14-16	JO ANN FORRESTER	TH EXPLORATION LLC	1/8+	948	569	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19891	H	9-14-16	TWILA J GORDON AND ALEXANDER J GORDON	TH EXPLORATION LLC	1/8+	945	475	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19974	H	9-14-16	RONDA L SKILTON AND THOMAS A SKILTON	TH EXPLORATION LLC	1/8+	948	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21049	H	9-14-16	JOHN J HENRY III	TH EXPLORATION LLC	1/8+	951	175	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21134	H	9-14-16	NANCY J ULLOM	TH EXPLORATION LLC	1/8+	951	179	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21135	H	9-14-16	CHARLES K NATIONS	TH EXPLORATION LLC	1/8+	953	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21136	H	9-14-16	STEVEN J KIM AND LIGIA B KIM	TH EXPLORATION LLC	1/8+	953	51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21137	H	9-14-16	GLORIA JEAN SELMON	TH EXPLORATION LLC	1/8+	951	177	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21187	H	9-14-16	JEFFREY S HIZER AND BONNIE LYNN HIZER	TH EXPLORATION LLC	1/8+	951	183	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21188	H	9-14-16	TERRY S WEEKLEY AND KRISTAL D WEEKLEY	TH EXPLORATION LLC	1/8+	951	181	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19609	H	9-14-16	LLOYD T HALL AND LORNA K HALL	TH EXPLORATION LLC	1/8+	937	320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18575	H	9-14-16	DEAN P PENNINGTON	TH EXPLORATION LLC	1/8+	935	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17403	H	9-14-16	JAMES B CROW AND PENNY G CROW	TH EXPLORATION LLC	1/8+	925	187	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17404	H	9-14-16	BRIAN K CROW	TH EXPLORATION LLC	1/8+	925	185	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17381	H	9-14-16	CINDY J AND DARNELL L FULKS	TH EXPLORATION LLC	1/8+	921	268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17390	H	9-14-16	HAROLD B CROW AND CONNIE SUE CROW	TH EXPLORATION LLC	1/8+	921	207	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17358	H	9-14-16	KAREN LOUISE AND ROGER L DUNHAM	TH EXPLORATION LLC	1/8+	921	254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21059	H	9-14-16	JOHN B HIZER AND SONYA L HIZER	TH EXPLORATION LLC	1/8+	951	172	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21060	H	9-14-16	PETER DOMINICK DENOON & DENISE J DENOON	TH EXPLORATION LLC	1/8+	951	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21038	H	9-14-16	LAURA A WALSH AND MICHAEL P WALSH SR	TH EXPLORATION LLC	1/8+	951	188	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21040	H	9-14-16	VICKIE L POND AND SIDNEY P POND	TH EXPLORATION LLC	1/8+	949	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21010	H	9-14-16	LISA A HALL AND KYLE W HALL	TH EXPLORATION LLC	1/8+	951	185	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15469	H	9-14-16	HARRIET J ANDERSON	TH EXPLORATION LLC	1/8+	920	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15476	H	9-14-16	CURTIS W WEST JR AND DIANE WEST	TH EXPLORATION LLC	1/8+	921	263	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*19840	H	9-14-16	PHYLUS JEAN CROW HEWITT	TH EXPLORATION LLC	1/8+	945	586	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19664	H	9-14-16	PAUL EUGENE SUTTON JR & NICKIE L SUTTON	TH EXPLORATION LLC	1/8+	944	436	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19665	H	9-14-16	GAIL L SUTTON	TH EXPLORATION LLC	1/8+	944	138	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19603	H	9-14-16	JAMES KEITH NATIONS BY GUARDIAN AD LITEM DAVID C WHITE ESQ	TH EXPLORATION LLC	1/8+	944	134	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18953	H	9-14-16	CYNTHIA M GROSS AND MICHAEL D GROSS	TH EXPLORATION LLC	1/8+	941	299	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18954	H	9-14-16	ROBERT E TOEPFFER JR AND ELIZABETH A TOEPFFER	TH EXPLORATION LLC	1/8+	941	295	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18955	H	9-14-16	CHARLES W LADNER	TH EXPLORATION LLC	1/8+	941	293	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18956	H	9-14-16	MICHELE T VALYKEO	TH EXPLORATION LLC	1/8+	941	297	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18939	H	9-14-16	PEGGY J CROW	TH EXPLORATION LLC	1/8+	939	384	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18940	H	9-14-16	STEVEN T JOHNS AND KAREN A JOHNS	TH EXPLORATION LLC	1/8+	939	277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18941	H	9-14-16	MARGARET E JONES AND CHARLES T JONES	TH EXPLORATION LLC	1/8+	939	393	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18942	H	9-14-16	MARY JO ROCKEY	TH EXPLORATION LLC	1/8+	939	391	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18831	H	9-14-16	JACQUELYN A ROBERTS	TH EXPLORATION LLC	1/8+	937	395	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18832	H	9-14-16	DAN HELTON AND PEGGY ANNA HELTON	TH EXPLORATION LLC ✓	1/8+	937	397	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18833	H	9-14-16	WILLIAM J ULLOM	TH EXPLORATION LLC ✓	1/8+	937	399	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18834	H	9-14-16	JAMES R ROCKEY	TH EXPLORATION LLC ✓	1/8+	938	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18830	H	9-14-16	GERALD Q MOORE AND SLYVIA JUDITH MOORE	TH EXPLORATION LLC ✓	1/8+	937	393	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18705	H	9-14-16	DOLORES JEAN POLAND	TH EXPLORATION LLC ✓	1/8+	938	535	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18708	H	9-14-16	DELORES KOLAKOWSKI	TH EXPLORATION LLC ✓	1/8+	938	540	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18709	H	9-14-16	CONSTANCE M SIMPSON AND DANIEL L SIMPSON	TH EXPLORATION LLC ✓	1/8+	938	537	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18710	H	9-14-16	LEWIS M QUIGLEY AND MAXINE V QUIGLEY	TH EXPLORATION LLC ✓	1/8+	938	267	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18711	H	9-14-16	H GLENN CROW	TH EXPLORATION LLC ✓	1/8+	938	269	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18712	H	9-14-16	KENNETH R BURCH	TH EXPLORATION LLC ✓	1/8+	938	272	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18310	H	9-14-16	VIRGINIA A PASQUALUCCI	TH EXPLORATION LLC ✓	1/8+	945	478	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18303	H	9-14-16	WILLIAM E MOORE AND CYNTHIA M MOORE	TH EXPLORATION LLC ✓	1/8+	944	438	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18303	H	9-14-16	WILLIAM E MOORE AND CYNTHIA M MOORE	TH EXPLORATION LLC ✓	1/8+	944	438	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18627	H	9-14-16	GERALDINE MAY SPONAUGLE AND JUNIOR RICHARD SPONAUGLE	TH EXPLORATION LLC	1/8+	936	234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18629	H	9-14-16	THOMAS D ULLOM AND CATHERINE A ULLOM	TH EXPLORATION LLC	1/8+	936	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18630	H	9-14-16	TIMOTHY D ULLOM AND NANCY M ULLOM	TH EXPLORATION LLC	1/8+	936	232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18634	H	9-14-16	KATHRYN E SIBURT	TH EXPLORATION LLC	1/8+	936	236	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18635	H	9-14-16	GLADYS CROW	TH EXPLORATION LLC	1/8+	936	238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18576	H	9-14-16	SCOTT D VANNEWHOUSE	TH EXPLORATION LLC	1/8+	935	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18611	H	9-14-16	DARYL MCGUFFIN AND NALENA H MCGUFFIN	TH EXPLORATION LLC	1/8+	934	598	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19506	H	9-14-16	MARK R MOORE AND ASHTYN C MOORE	TH EXPLORATION LLC	1/8+	942	610	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18577	H	9-14-16	KELLY ANN DENOON	TH EXPLORATION LLC	1/8+	935	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18578	H	9-14-16	KIMBERLY ELLEN DENOON	TH EXPLORATION LLC	1/8+	935	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18579	H	9-14-16	ROGER EDWARD DENOON JR	TH EXPLORATION LLC	1/8+	935	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18580	H	9-14-16	BRADLEY R CROW	TH EXPLORATION LLC	1/8+	935	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18574	H	9-14-16	DAE MARIE WARDEN	TH EXPLORATION LLC	1/8+	935	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18457	H	9-14-16	SHEILA M KRULL AND JAMES W KRULL	TH EXPLORATION LLC	1/8+	933	177	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17359	H	9-14-16	JULIA ALLISON CROW	TH EXPLORATION LLC	1/8+	921	224	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18523	H	9-14-16	KENT R HARRIS	TH EXPLORATION LLC	1/8+	933	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18525	H	9-14-16	WAYNE M CERMAX	TH EXPLORATION LLC	1/8+	933	594	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17490	H	9-14-16	CONNIE SUE DOUGLAS AND RONNIE J DOUGLAS	TH EXPLORATION LLC	1/8+	924	578	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17491	H	9-14-16	THOMAS LEE AND CLARA J HAUGHT	TH EXPLORATION LLC	1/8+	924	575	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18466	H	9-14-16	REBECCA M PENNINGTON	TH EXPLORATION LLC	1/8+	933	154	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18467	H	9-14-16	SAMANTHA L BOYLES AND DARRELL L BOYLES	TH EXPLORATION LLC	1/8+	933	145	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18468	H	9-14-16	PATTY J LICHTS AND GEORGE LICHTS	TH EXPLORATION LLC	1/8+	933	142	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18459	H	9-14-16	SANDRA K NELSON AND RICKEY A NELSON	TH EXPLORATION LLC	1/8+	933	174	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18460	H	9-14-16	ROBERT W CERMAX AND PATRICIA LYNN CERMA	TH EXPLORATION LLC	1/8+	933	171	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18461	H	9-14-16	STEVEN E RUNION AND JAN M RUNION	TH EXPLORATION LLC	1/8+	933	168	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18462	H	9-14-16	NANCY L PAULETTE AND JOSEPH L PAULETTE	TH EXPLORATION LLC	1/8+	933	165	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18463	H	9-14-16	MILANA L REDLINGER AND ROBERT W REDLINGER	TH EXPLORATION LLC /	1/8+	933	162	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18464	H	9-14-16	ROBERTA J EDDY AND RONALD D EDDY	TH EXPLORATION LLC /	1/8+	933	159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18465	H	9-14-16	GAYLE C HATHAWAY	TH EXPLORATION LLC /	1/8+	933	156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17420	H	9-14-16	DAVID LEE AND ANN F BAKER	TH EXPLORATION LLC /	1/8+	924	564	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17391	H	9-14-16	BETTY LOU AND OLLIE CHARLES HUGGINS	TH EXPLORATION LLC /	1/8+	921	210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17392	H	9-14-16	BEVERLY KATHRYN GODDARD	TH EXPLORATION LLC /	1/8+	920	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17393	H	9-14-16	CHARLIE M TURNER AND BESSIE M TURNER	TH EXPLORATION LLC /	1/8+	920	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17394	H	9-14-16	JUDY LOUISE GLOVER	TH EXPLORATION LLC /	1/8+	921	232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17397	H	9-14-16	PAT DARRELL TURNER AND TINA DENISE TURNER	TH EXPLORATION LLC /	1/8+	925	117	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17399	H	9-14-16	RONALD EDWARD WATSON AND DIANA L WATSON	TH EXPLORATION LLC /	1/8+	925	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17408	H	9-14-16	WILLIAM JAMES HEDGEPETH AND ERIN ELIZABETH HEDGEPETH	TH EXPLORATION LLC /	1/8+	924	572	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17382	H	9-14-16	HELEN MARIE AND DAVID E MCCRAY	TH EXPLORATION LLC /	1/8+	920	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17389	H	9-14-16	MELBA EILEEN HUDDLESTUN	TH EXPLORATION LLC /	1/8+	920	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*17368	H	9-14-16	DONALD PAUL CROW AND CRYSTAL LYNN CROW	TH EXPLORATION LLC ✓	1/8+	921	201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17369	H	9-14-16	DELORES A WALLACE	TH EXPLORATION LLC ✓	1/8+	920	63	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17371	H	9-14-16	MACK A AND CAROL A CROW	TH EXPLORATION LLC ✓	1/8+	921	204	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17372	H	9-14-16	DONNIE JASON HEDGEPEETH AND KAREN L HEDGEPEETH	TH EXPLORATION LLC ✓	1/8+	920	42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17373	H	9-14-16	NILA F HEDGEPEETH	TH EXPLORATION LLC ✓	1/8+	920	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17374	H	9-14-16	EZRA HOWARD COCHRAN	TH EXPLORATION LLC ✓	1/8+	920	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17380	H	9-14-16	DEBORAH IRENE PIERCE AND BARRETT LEE PIERCE	TH EXPLORATION LLC ✓	1/8+	920	34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17361	H	9-14-16	SHEILA RAMONA CROW	TH EXPLORATION LLC ✓	1/8+	920	78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17362	H	9-14-16	NILA VIRGINIA AND FREDERICK EUGENE STREIGHT	TH EXPLORATION LLC ✓	1/8+	921	251	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17366	H	9-14-16	SYLVIA DEE WOOD	TH EXPLORATION LLC ✓	1/8+	921	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17367	H	9-14-16	JERRY HOWELL	TH EXPLORATION LLC ✓	1/8+	920	37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18400	H	9-14-16	CHERYL ANN VYHNAL AND FRANK T VYHNAL	TH EXPLORATION LLC ✓	1/8+	932	609	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16971	H	9-14-16	LEONA M SIBURT	TH EXPLORATION LLC ✓	1/8+	921	238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*16972	H	9-14-16	SCOTT BRADLEY GRIMM & SHERRY AHN GRIMM	TH EXPLORATION LLC	1/8+	921	242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16973	H	9-14-16	NANCY C KESSELRING & CARLE KESSELRING	TH EXPLORATION LLC	1/8+	920	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16916	H	9-14-16	ROGER LEE WEST	TH EXPLORATION LLC	1/8+	921	277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16883	H	9-14-16	VICKIE LYNN PAPE AND JOHN EDWARD PAPE	TH EXPLORATION LLC	1/8+	921	248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16884	H	9-14-16	DELORES A BOWERS & LEONARD B BOWERS	TH EXPLORATION LLC	1/8+	921	281	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18348	H	9-14-16	FORREST N SIBURT AND ARLENE G SIBURT	TH EXPLORATION LLC	1/8+	931	362	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18349	H	9-14-16	DAWN C GOSKY AND GLENN P GOSKY	TH EXPLORATION LLC	1/8+	931	365	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18347	H	9-14-16	ELMA LOU LADNER	TH EXPLORATION LLC	1/8+	931	397	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18304	H	9-14-16	EVA L FAWCETT	TH EXPLORATION LLC	1/8+	929	321	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18305	H	9-14-16	MARY L WOLFRILL AND HARRY H WOLFRILL	TH EXPLORATION LLC	1/8+	929	324	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18306	H	9-14-16	MILAN B MARINCOV AND ELIZABETH E MARINCOV	TH EXPLORATION LLC	1/8+	929	327	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18307	H	9-14-16	DEBORAH S KACKLEY AND ROBERT A KACKLEY	TH EXPLORATION LLC	1/8+	929	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18308	H	9-14-16	LUNDA A DAVIS AND JAMES M DAVIS	TH EXPLORATION LLC	1/8+	929	333	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*18309	H	9-14-16	LARRY W HOBOKEN AND KATHRYN J HOBOKEN	TH EXPLORATION LLC	1/8+	929	336	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16550	H	9-14-16	CHARLES LEROY LEACH AND MARTHA G LEACH	TH EXPLORATION LLC	1/8+	920	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16551	H	9-14-16	JACK L CROW JR AND VIRGINIA L CROW	TH EXPLORATION LLC	1/8+	921	260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18285	H	9-14-16	KATHERINE LYNN SMITH	TH EXPLORATION LLC	1/8+	929	637	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16469	H	9-14-16	JAMES EARL AND MARGARET L SIBURT	TH EXPLORATION LLC	1/8+	921	245	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16470	H	9-14-16	CAROLYN SUE FRANKLIN AND RAYMOND EUGENE FRANKLIN	TH EXPLORATION LLC	1/8+	921	219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16472	H	9-14-16	JUDY DELORIS SIBURT	TH EXPLORATION LLC	1/8+	929	643	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16473	H	9-14-16	LUNDA ELAINE AND RICHARD LEROY LITTELL	TH EXPLORATION LLC	1/8+	929	256	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16474	H	9-14-16	BARBARA KAY SIBURT	TH EXPLORATION LLC	1/8+	921	266	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16475	H	9-14-16	MARY LOUISE GORBY	TH EXPLORATION LLC	1/8+	921	234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16476	H	9-14-16	ROGER ALLAN AND CYNTHIA L JOHNSON	TH EXPLORATION LLC	1/8+	921	257	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16477	H	9-14-16	BRENDA K YOHO	TH EXPLORATION LLC	1/8+	921	228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16425	H	9-14-16	WILLIAM A MASON JR AND ROBIN MASON	TH EXPLORATION LLC	1/8+	920	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*16428	H	9-14-16	BRUCE LYNN JOHNSON AND KIMBERLY A JOHNSON	TH EXPLORATION LLC /	1/8+	920	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16438	H	9-14-16	ALICE MARLENE PERSINGER	TH EXPLORATION LLC /	1/8+	921	236	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18250	H	9-14-16	BRENDA KAY COFFIELD AND WILLIAM E COFFIELD	TH EXPLORATION LLC /	1/8+	928	546	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18251	H	9-14-16	BARBARA JEAN TOMASZCZYK AND LAWRENCE M TOMASZCZYK	TH EXPLORATION LLC /	1/8+	928	575	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18252	H	9-14-16	SHARON L AND DONALD N KAISER	TH EXPLORATION LLC /	1/8+	928	572	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18253	H	9-14-16	JOAN M SCHRANTZ	TH EXPLORATION LLC /	1/8+	928	569	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16407	H	9-14-16	JANICE F BROOKOVER	TH EXPLORATION LLC /	1/8+	920	74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16408	H	9-14-16	KATHLEEN I FRANCIS	TH EXPLORATION LLC /	1/8+	921	196	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16409	H	9-14-16	JEANETTE M HEATH	TH EXPLORATION LLC /	1/8+	920	72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16403	H	9-14-16	WILLIAM C EDGAR AND CHRISTY E EDGAR	TH EXPLORATION LLC /	1/8+	920	61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16404	H	9-14-16	KATHRYN M WHIPKEY	TH EXPLORATION LLC /	1/8+	921	194	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16406	H	9-14-16	ARELENA B HORNER AND QUAY ALLEN HORNER	TH EXPLORATION LLC /	1/8+	921	240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16186	H	9-14-16	DEBORAH KAY COOLEY AND ROBERT T BECK	TH EXPLORATION LLC /	1/8+	920	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*16187	H	9-14-16	PATRICIA D BABL AND JOHN I BABL	TH EXPLORATION LLC	1/8+	920	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16152	H	9-14-16	CONNIE HECKLE	TH EXPLORATION LLC	1/8+	920	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16153	H	9-14-16	LARRY JACK EMERY	TH EXPLORATION LLC	1/8+	920	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17409	H	9-14-16	JUDY A AND CLYDE E ELZEY	TH EXPLORATION LLC	1/8+	924	569	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15741	H	9-14-16	LOHRN S GORBY	TH EXPLORATION LLC	1/8+	929	641	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15694	H	9-14-16	DEBORAH L MERCER	TH EXPLORATION LLC	1/8+	921	271	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15695	H	9-14-16	JOHN R AND LOIS L GORBY	TH EXPLORATION LLC	1/8+	929	259	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15696	H	9-14-16	JOSEPH JEREMY PALMER	TH EXPLORATION LLC	1/8+	921	275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15488	H	9-14-16	NANCY F FYE & STEPHEN M FYE	TH EXPLORATION LLC	1/8+	921	226	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15495	H	9-14-16	BARBARA BARNHART AND WALTER BARNHART	TH EXPLORATION LLC	1/8+	921	222	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15470	H	9-14-16	BETTY L LOGES	TH EXPLORATION LLC	1/8+	921	286	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*15473	H	9-14-16	WILLIAM F MCDONALD AND SHIRLEY MCDONALD	TH EXPLORATION LLC	1/8+	921	198	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17401	H	9-14-16	JOHN M HAUGHT JR AND CHERYL A HAUGHT	TH EXPLORATION LLC	1/8+	925	182	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*17402	H	9-14-16	DIANA LYNN BUMGARDNER	TH EXPLORATION LLC	1/8+	920	68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17958	H	9-14-16	SANDRA KAY RICHMOND	TH EXPLORATION LLC	1/8+	929	632	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17902	H	9-14-16	SUSAN LYNN SEDGMER	TH EXPLORATION LLC	1/8+	920	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17821	H	9-14-16	GREGORY S CROW	TH EXPLORATION LLC	1/8+	929	639	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17811	H	9-14-16	PANSY M ASTON AND ELMER L ASTON	TH EXPLORATION LLC	1/8+	921	216	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19564	H	9-14-16	ANNA MAY FOLTZ	TH EXPLORATION LLC	1/8+	934	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19517	H	9-14-16	EARL B FOLTZ III	TH EXPLORATION LLC	1/8+	934	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*17710	H	9-14-16	DEBRA JEAN LANCASTER AND DARRELL R LANCASTER	TH EXPLORATION LLC	1/8+	929	634	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16191	H	9-14-16	MADELYN E MOSSOR DO NOT USE	TH EXPLORATION LLC	1/8+	920	76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16468	H	9-14-16	LARRY W JOHNSON	TH EXPLORATION LLC	1/8+	920	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16716	H	9-14-16	BERNARD O CROW AND KAREN S CROW	TH EXPLORATION LLC	1/8+	913	385	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16548	H	9-14-16	JULIE KAY OKEL AND JEFFREY S OKEL	TH EXPLORATION LLC	1/8+	909	77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16584	H	9-14-16	SHERWOOD O CROW AND GOLDIE CROW	TH EXPLORATION LLC	1/8+	908	544	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*16338	H	9-14-16	HILDA LEE BLAKE	TH EXPLORATION LLC	1/8+	910	351	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16339	H	9-14-16	ROBERT E HARTLEY	TH EXPLORATION LLC	1/8+	910	343	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*16337	H	9-14-16	WANDA L EMERY AND ELMER H EMERY	TH EXPLORATION LLC	1/8+	910	347	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22771	I	9-11-12	KATHARINE B SILBAUGH AND DANIEL JURAY	TH EXPLORATION LLC	1/8+	970	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23427	I	9-11-12	SANDY AND STEVEN VINCENT	TH EXPLORATION LLC	1/8+			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22608	I	9-11-12	SARAH BAIRD LINN	TH EXPLORATION LLC	1/8+	966	620	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23389	I	9-11-12	LEESA O THOMPSON	TH EXPLORATION LLC	1/8+	972	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22855	I	9-11-12	KIM O MAGHAN AND JAMES G MAGHAN	TH EXPLORATION LLC	1/8+	977	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22666	I	9-11-12	JOSEPH W LINN JR AND TAMMY S LINN	TH EXPLORATION LLC	1/8+	968	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23322	I	9-11-12	JOHN E MEAD	TH EXPLORATION LLC	1/8+	968	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21495	I	9-11-12	E JEN BAIRD AND GEORGE S BAIRD AMENDED REVOCABLE TRUST AGREEMENT	TH EXPLORATION LLC	1/8+	966	618	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22462	I	9-11-12	ROBERT CALDWELL MEAD	TH EXPLORATION LLC	1/8+	964	490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22153	I	9-11-12	JODY A SCHOTTLER AND THOMAS A SCHOTTLER	TH EXPLORATION LLC	1/8+	953	470	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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10*22090	I	9-11-12	KATHERINE ANN BOYD BLAKE	TH EXPLORATION LLC	1/8+	953	473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23165	I	9-11-12	EDITH L AND WENDELL F ORR	TH EXPLORATION LLC	1/8+	984	68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23169	I	9-11-12	INA GALE CARPENTER	TH EXPLORATION LLC	1/8+	965	425	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23059	I	9-11-12	GAIL W STEWART	TH EXPLORATION LLC	1/8+	977	287	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21923	I	9-11-12	DOROTHY JEAN BURKLE BOYD	TH EXPLORATION LLC	1/8+	953	468	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21843	I	9-11-12	JOHN B HOAGLAND AND PATRICIA A HOAGLAND	TH EXPLORATION LLC	1/8+	959	620	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23024	I	9-11-12	KATHRYN A AND EVERETT TAGGART	TH EXPLORATION LLC	1/8+	977	289	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21492	I	9-11-12	JUDITH FISK	TH EXPLORATION LLC	1/8+	957	282	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21494	I	9-11-12	EILEEN M SLATE AND DALE A SLATE	TH EXPLORATION LLC	1/8+	957	284	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*21093	I	9-11-12	DUNCAN S LINN AND POLLY LU BROWN	TH EXPLORATION LLC	1/8+	952	157	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19685	I	9-11-12	MORGAN H MOSSER AND NANCY MOSSER	TH EXPLORATION LLC	1/8+	944	445	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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August 3, 2018

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

RE: Keith Stern N-7HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Keith Stern N-7HM well plat.

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

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

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

Date of Notice Certification: 08/03/2018

API No. 47- 051 -

Operator's Well No. Keith Stern N-7HM

Well Pad Name: Keith Stern

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>526,374.90</u>
County:	<u>Marshall</u>		Northing:	<u>4,402,821.23</u>
District:	<u>Meade</u>	Public Road Access:	<u>Fish Creek Road (County Route 74)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>TH Exploration, LLC</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
<p>RECEIVED Office of Oil and Gas AUG 6 2018 WV Department of Environmental Protection</p>	

Required Attachments:

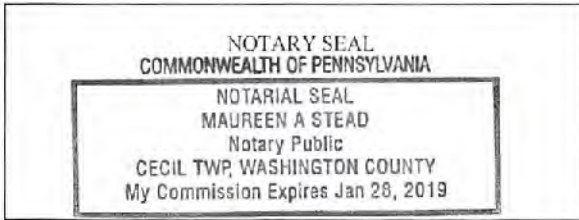
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

Certification of Notice is hereby given:

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

Well Operator: Tug Hill Operating, LLC
By: Amy L. Miller *Amy Miller*
Its: Permitting Specialist - Appalachia Region
Telephone: 724-749-8388

Address: 360 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
Email: amiller@tug-hillop.com



Subscribed and sworn before me this 3 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.

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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: 8/2/2018 **Date Permit Application Filed:** 8/3/2018

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: TH Exploration, LLC (Access Road and Well Pad)
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15318
Name: _____
Address: _____

Same as Tug Hill Operating

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: _____
Address: _____
Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: CONSOL Energy, Inc. Attn: Casey Saunders
Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317
 COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: *See attached list
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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WV Department of
Environmental Protection

WW-6A
(8-13)

AUG 6 2018

API NO. 47-051 -
OPERATOR WELL NO. Keith Stern N-711M
Well Pad Name: Keith SternWV Department of
Environmental Protection**Notice is hereby given:**

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

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

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

Written Comment:

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

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

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Office of Oil and Gas

AUG 6 2018

WV Department of
Environmental Protection

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

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WV Department of
Environmental Protection

WW-6A
(8-13)

API NO. 4705102101
OPERATOR WELL NO. Keith Stern N-7HM
Well Pad Name: Keith Stern

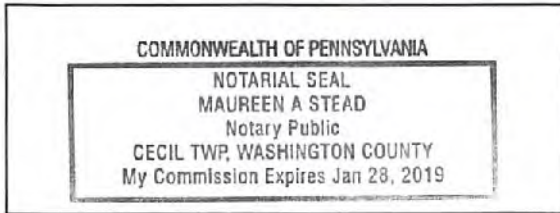
Notice is hereby given by:

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

Address: 360 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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 2 day of Aug. 2018.

Maureen A Stead Notary Public

My Commission Expires 1/28/19

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WV Department of
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Exhibit WW-6A**Supplement Pg. 1A**

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

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

Well: KEITH STERN N – 7HM
 District: Meade (House #'s 1-5)
 State: WV

There are five (5) residences, no businesses, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p>House 1 TM 14 Pcl. 20 William K. Stern, Et Ux Phone: 304-843-1478 (Per Address – Keith, Betty & Ginger Sue Stern) Physical Address: 14912 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: Same</p>	<p>House 2 TM 14 Pcl. 20.1 William K. Stern, Et Ux Phone: 304-843-1478 (Per Address – Keith, Betty & Ginger Sue Stern) Physical Address: 15056 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 14912 Fish Creek Rd. Glen Easton, WV 26039</p>	<p>House 3 TM 14 Pcl. 21 Eleanore M. Fox Est. Phone: 304-845-6016 (Per Tax Address – Thomas Fox) Physical Address: None Found – Appears to be an old home. Tax Address: 100 Lynn Camp Ln. Glen Easton, WV 26039-9707</p>
<p>House 4 TM 14 Pcl. 27 Patrick J. Shellhase Phone: 304-845-0742; 304-810-0258 Physical Address: 593 Crow Dr. Glen Easton, WV 26039 Tax Address: 2300 7th St. Moundsville, WV 26041</p>	<p>House 5 TM 14 Pcl. 25 Patricia A. Dugas Phone: None Found Physical Address: 681 Crow Dr. Glen Easton, WV 26039 Tax Address: Same</p>	

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WW-6A

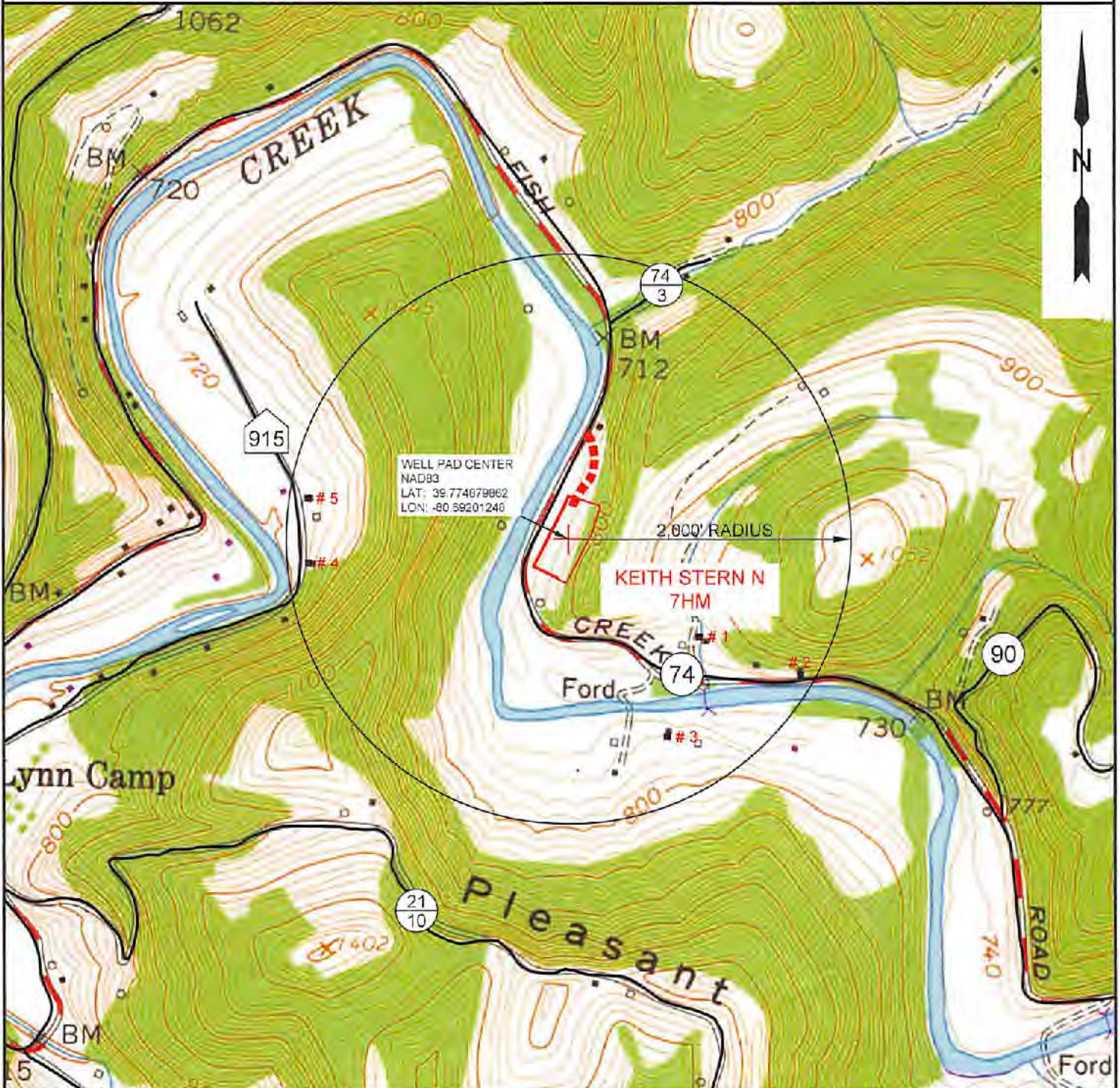
AUG 6 2018

PROPOSED

SUPPLEMENT PG. 1B

WV Department of
Environmental Protection

KEITH STERN N - 7HM



NOTE: THERE APPEARS TO BE FIVE (5) POSSIBLE WATER SOURCES WITHIN 2,000'.

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 462-5634
www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8811	07/31/2018	1" = 1000'



TUG HILL
OPERATING

WW-70
Rev. 7/01

Affidavit of Personal Service

State Of Pennsylvania
County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) / WW-3(A) / WW-4(A) / WW-5(A) / WW-6(A) X, WW-6A5
- (2) Application on Form WW-2(B) / WW-3(B) / WW-4(B) / WW-5(B) / WW-6(B) X
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Keith Stern N-6HM located in Meade District, Marshall County, West Virginia, upon the person or organization named--

TH Exploration, LLC

--by delivering the same in Washington County, State of Pennsylvania on the 3rd day of August, 2018 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him / her / or, because he / she / refused to take it when offered it, by leaving it in his / her / presence.

Handing it to a member of his or her family above the age of 16 years named who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to , a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named , or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

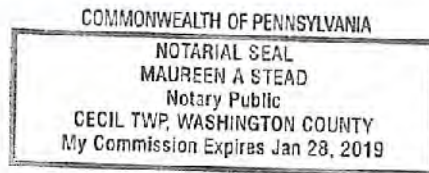
Handing it to the corporation's employee / officer / director / attorney in fact / named David DeLallo.

Amy Muller
(Signature of person executing service)

Taken, subscribed and sworn before me this 3 day of AUG. 2018.
My commission expires 1/28/19

Maureen A Stead
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)



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WV Department of
Environmental Protection

WW-6A3
(1/12)

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

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

Date of Notice: 12/11/17 **Date of Planned Entry:** 12/18/17

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)
Name: TH Exploration, LLC (Access Road and Well Pad)
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15318
Name: _____
Address: _____
Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: Consol Energy, Inc.
Address: CNX Center, 1000 Consol Energy Drive
Canonsburg, PA 15317
 RECEIVED
 Office of Oil and Gas
 AUG 6 2018

MINERAL OWNER(s)
Name: William K. and Betty L. Stern
Address: 14912 Fish Creek Road
Glen Easton, WV 26039
 WV Department of
 Environmental Protection
 *please attach additional forms if necessary

Notice is hereby given:

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

State:	<u>West Virginia</u>	Approx. Latitude & Longitude:	<u>39.7748667, -80.6920362</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Fish Creek Road (County Route 74)</u>
District:	<u>Meade</u>	Watershed:	<u>Fish Creek (HUC 10)</u>
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>TH Exploration, LLC</u>

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

Notice is hereby given by:

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
Telephone:	<u>724-749-8398</u>		<u>Canonsburg, PA 15317</u>
Email:	<u>amiller@tug-hilltop.com</u>	Facsimile:	<u>724-338-2030</u>

Oil and Gas Privacy Notice:

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

WW-6A5
(1/12)

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: 08/02/2018 **Date Permit Application Filed:** 08/03/2018

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Office of Oil and Gas

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

AUG 6 2018

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

WV Department of
Environmental Protection

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

Notice is hereby provided to the SURFACE OWNER(s)

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

Name: TH Exploration, LLC

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15318

Name: _____

Address: _____

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>526,374.90</u>
County:	<u>Marshall</u>		Northing:	<u>4,402,821.23</u>
District:	<u>Meade</u>	Public Road Access:	<u>Fish Creek Road (County Route 74)</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>TH Exploration, LLC</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

This Notice Shall Include:

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

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hillcop.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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WW-70
Rev. 7/01

Affidavit of Personal Service

State Of Pennsylvania

County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) ___ / WW-3(A) ___ / WW-4(A) ___ / WW-5(A) ___ / WW-6(A) X, WW-4A5
- (2) Application on Form WW-2(B) ___ / WW-3(B) ___ / WW-4(B) ___ / WW-5(B) ___ / WW-6(B) ___
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Keith Stern N-7HM located in Meade District, Marshall County, West Virginia, upon the person or organization named--

TH Exploration, LLC

--by delivering the same in Washington County, State of Pennsylvania on the 3rd day of August, 2018 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him ___ / her ___ / or, because he ___ / she ___ / refused to take it when offered it, by leaving it in his ___ / her ___ / presence.

Handing it to a member of his or her family above the age of 16 years named _____ who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to _____, a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named _____, or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

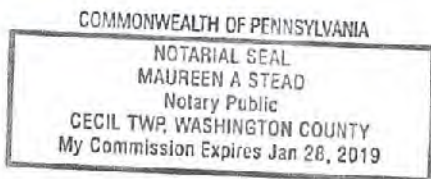
Handing it to the corporation's employee Y / officer ___ / director ___ / attorney in fact ___ / named David DeLallo

amy stead
(Signature of person executing service)

Taken, subscribed and sworn before me this 3 day of Aug., 2018.
My commission expires 1/28/19

Maureen A Stead
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)



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Office of Oil and Gas

AUG 6 2018

WV Department of
Environmental Protection



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

February 20, 2018

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permit for the Keith Stern Pad, Marshall County

Keith Stern 1HM	Keith Stern 2HM	Keith Stern 3HM	Keith Stern 4HM
Keith Stern 5HM	Keith Stern 6HM	Keith Stern 7HM	Keith Stern 8HM
Keith Stern 9HM	Keith Stern 10HM	Keith Stern 11HM	Keith Stern 12HM
Keith Stern 13HU	Keith Stern 14HU	Keith Stern 15HU	Keith Stern 16HU
Keith Stern 17HU	Keith Stern 18HU	Keith Stern 19HU	

Dear Mr. Martin,

This well pad will be accessed from a DOH permit #06-2018-0068 which has been issued to Tug Hill Operating, LLC for access to the State Road for well sites located off of Marshall County Route 74 SLS.

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

Very Truly Yours,

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

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

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AUG 6 2018

WV Department of
Environmental Protection



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Keith Stern N-7HM

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

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Office of Oil and Gas

AUG 6 2018

WV Department of
Environmental Protection



APPROVED WVDEP OOG 7/30/2018

Keith Stern Well Site
Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Meade District
Latitude 39.77487986°
Longitude -80.69201248°
Middle Fish Creek Watershed

Pertinent Site Information
Keith Stern Well Site
Emergency Number: 304-845-1920
Meade District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Site 911 Address:
Tug Hill Contact Number: 1-817-632-3400

Exhibit A: Final Design: Issue for Permitting

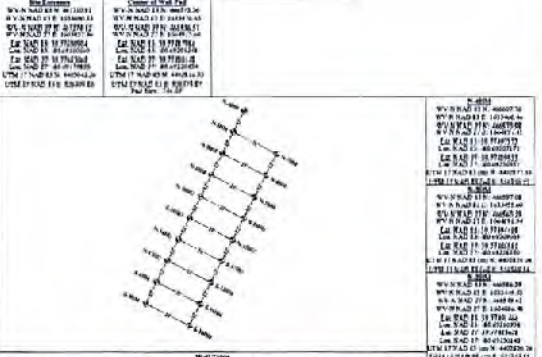


Table of well locations with columns for Well ID, Easting, Northing, and other coordinates.



Property Owner Information - Keith Stern Well Site table with columns for Owner, Parcel Number, etc.

Access Road table with columns for Station, Type, and Notes.

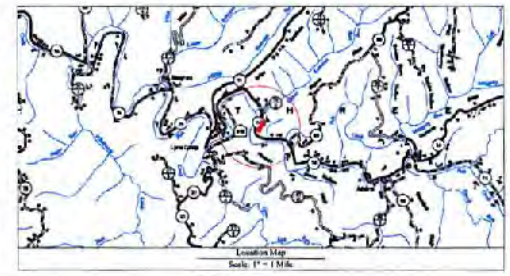
Disturb Area table with columns for Area Type and Quantity.

Keith Stern Well Site Quantities table with columns for Material, Volume, and Units.



Well Locations (NAD 83) table for both NW and SE locations with coordinates.

APPROVED SURVEY
From the intersection of OH R17 and WV R13 near New Marlinton, WV, Travel North on WV R13 for 138.00 feet...
Scale: 1" = 1 Mile



Well Location Details
All well construction complies with the following minimum standards:
200' from an existing well or an adjacent spring used for human consumption...
100' from an adjacent building or any structure that is not used for poultry or dairy...
100' from the edge of disturbance to an adjacent riparian forest stream...
300' of buffer or greater is required to protect water supply...
Well Location Restrictions of WV Code 24-4-15

Table with columns for Sheet number and Description of items included in the design package.

Project Contacts
Tug Hill Operating
Marshall County
Meade District
Marshall County

Drawings and Exemptions
Tug Hill Operating will obtain an Environmental Permit (Form EPA-001) from the WV Department of Transportation, Division of Highways...
The WV Mine Safety and Health Division (MSHD) has approved this project as a 'low hazard' project...
Miss Utility of West Virginia
811
Know what's below.
Call before you dig.

CONSTRUCTION REQUIREMENTS

- 1. Water utility service shall be provided to the site.
- 2. Construction shall be in accordance with the following:
- 3. All construction shall be in accordance with the following:
- 4. All construction shall be in accordance with the following:
- 5. All construction shall be in accordance with the following:
- 6. All construction shall be in accordance with the following:
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- 49. All construction shall be in accordance with the following:
- 50. All construction shall be in accordance with the following:

APPROVED
 W/DEP OOG
 7/30/2018

