



west virginia department of environmental protection

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

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

Tuesday, August 6, 2019
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for MICHTER N-7HU
47-051-02207-00-00

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: MICHTER N-7HU
Farm Name: LARRY W. DUNLAP, ET AL
U.S. WELL NUMBER: 47-051-02207-00-00
Horizontal 6A New Drill
Date Issued: 8/6/2019

Promoting a healthy environment.

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Barry K. Lay, Chairman
dep.wv.gov

July 10, 2019

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02207

COMPANY: Tug Hill Operating, LLC

FARM: Larry W. Dunlap, et ux Michter N-7HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point

The deep well review of the application for the above company is **Approved to drill to the Trenton for Point Pleasant completion. Pooling Docket No. 282-277**

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? Yes; Chevron U.S.A., Inc., West Virginia Division of Natural Resources, and Certaineed Gypsum West Virginia, Inc. The objections from Chevron U.S.A., Inc. and West Virginia Division of Natural Resources were withdrawn prior to the hearing on July 9, 2019.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes, Docket 282-277 Exception Location Hearing
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

** Michter N-6HU 47-051-02206; MND 6 HHS 47-051-01732; MND20AU 47-051-02011; Old Crow N-19HU 47-051-02190; Old Crow N-18HU 47-051-02123; Old Crow N-17HU 47-051-02122; Bryan N-14HU 47-051-02031; Bryan N-13HU 47-051-02030; Bryan N-12HU 47-051-02029; Woodford -10HU 47-051-02152; Woodford-9HU 47-051-02150; Woodford-8HU 47-051-02149; Woodford-7HU 47-051-02147; Woodford-6HU 47-051-02143



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Barry K. Lay, Chairman
dep.wv.gov

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose". The signature is written in a cursive, flowing style.

Susan Rose
Administrator

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 Franklin Powhatan Point 7
Operator ID County District Quadrangle

2) Operator's Well Number: Michter N-7HU Well Pad Name: Michter

3) Farm Name/Surface Owner: Larry W. Dunlap, et ux Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1136.00' Elevation, proposed post-construction: 1127.11'

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

(b) If Gas Shallow _____ Deep X _____
Horizontal X _____

6) Existing Pad: Yes or No No

JW
2/20/19

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 10,887' - 11,008', thickness of 121' and anticipated pressure of approx. 9,500 psi

8) Proposed Total Vertical Depth: 11,158'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 20,555'

11) Proposed Horizontal Leg Length: 8,973.82'

12) Approximate Fresh Water Strata Depths: 718'

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

14) Approximate Saltwater Depths: 1740'

15) Approximate Coal Seam Depths: Sewickly Coal - 614' and Pittsburgh Coal - 712'

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

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

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

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18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	94#	810'	810'	1,327ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2,602'	2,602'	1,836ft^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	9,980'	9,980'	3,255ft^3(CTS)
Production	5 1/2"	NEW	P110	23#	20,555'	20,555'	4,878ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,927'	
Liners							

2/20/19

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	20"	26"	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE#24	1.99
Production	5 1/2"	8 1/2"	.415	13,580	10,864	SEE#24	1.17/1.19
Tubing	2 7/8"			14,530	11,624		
Liners							

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			RECEIVED Office of Oil and Gas

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2/20/19

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 22,430,325 lb proppant and 346,789 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 21.11 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.49 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attached

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

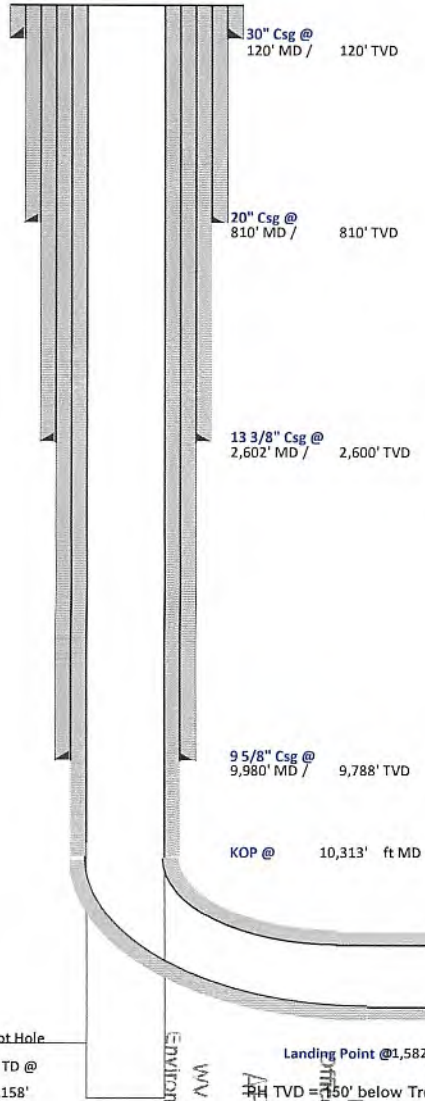


WELL NAME: Michter N-7HU
STATE: WV **COUNTY:** Marshall
DISTRICT: Franklin
DF Elev: 1,130' **GL Elev:** 1,130'
TD: 20,555'
TH Latitude: 39.8029796
TH Longitude: -80.79761552
BH Latitude: 39.82429368
BH Longitude: 80.81186437

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	718'
Sewickley Coal	614'
Pittsburgh Coal	712'
Big Lime	2,017'
Berea	2,531'
Tully	6,189'
Marcellus	6,250'
Onondaga	6,304'
Salina	6,996'
Lockport	8,008'
Utica	10,636'
Point Pleasant	10,887'
Landing Depth	10,937'
Trenton	11,008'
Pilot Hole TD	11,158'

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'	BW	BW	Surface
Surface	26	20	810'	810'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,602'	2,600'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	9,980'	9,788'	47	HPP110	Surface
Production	8 1/2	5 1/2	20,555'	10,780'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,430	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,990	A	15	Air	1 Centralizer every other jt
Intermediate 2	2,696	A	14.5	Air	1 Centralizer every other jt
Production	4,307	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



Handwritten: Jlu 2/7/19

Lateral TD @ 20,555' ft MD
 10,780' ft TVD

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4705 02207



Tug Hill Operating, LLC Casing and Cement Program

Michter N-7HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	810'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,602'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	9,980'	CTS
Production	5 1/2"	HCP110	8 1/2"	20,555'	CTS

Cement

Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2

Intermediate 1: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.99

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 = 1.18

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

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

Data Sources Reviewed:

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

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (07/02/2018) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

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

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

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

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Permit well - Michter N-7HU

Wells within 500' Buffer

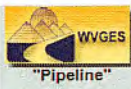
Note: Well spots depicted on Area of Review map (page 3) are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705170216	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Point Pleasant well.	State records are incomplete

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Select County: (051) Marshall
 Enter Permit #: 70216
 Select datatypes: (Check All)
 Location Production Flugging
 Owner/Completion Stratigraphy Sample
 Pay/Show Water Logs Btm Hole Loc

- [Table Descriptions](#)
- [County Code Translations](#)
- [Permit Numbering Series](#)
- [Usage Notes](#)
- [Contract Information](#)
- [Disclaimer](#)
- [WVGES Main](#)
- [Pipeline Plus New](#)

WV Geological & Economic Survey:

Well: County = 51 Permit = 70216

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LONG_DD	UTME	UTMN
4705170216	Marshall	70216	Franklin	Rohathan Point	Clemington	39 21 00.35	-80 50 07.086	516510.7	4407579.4

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST.
4705170216	4/4	4/4	Original Loc. Completed	A.G. Whitaker	1					unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705170216	4/4	4/4						unclassified	unclassified	not available	unknown	unknown						

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

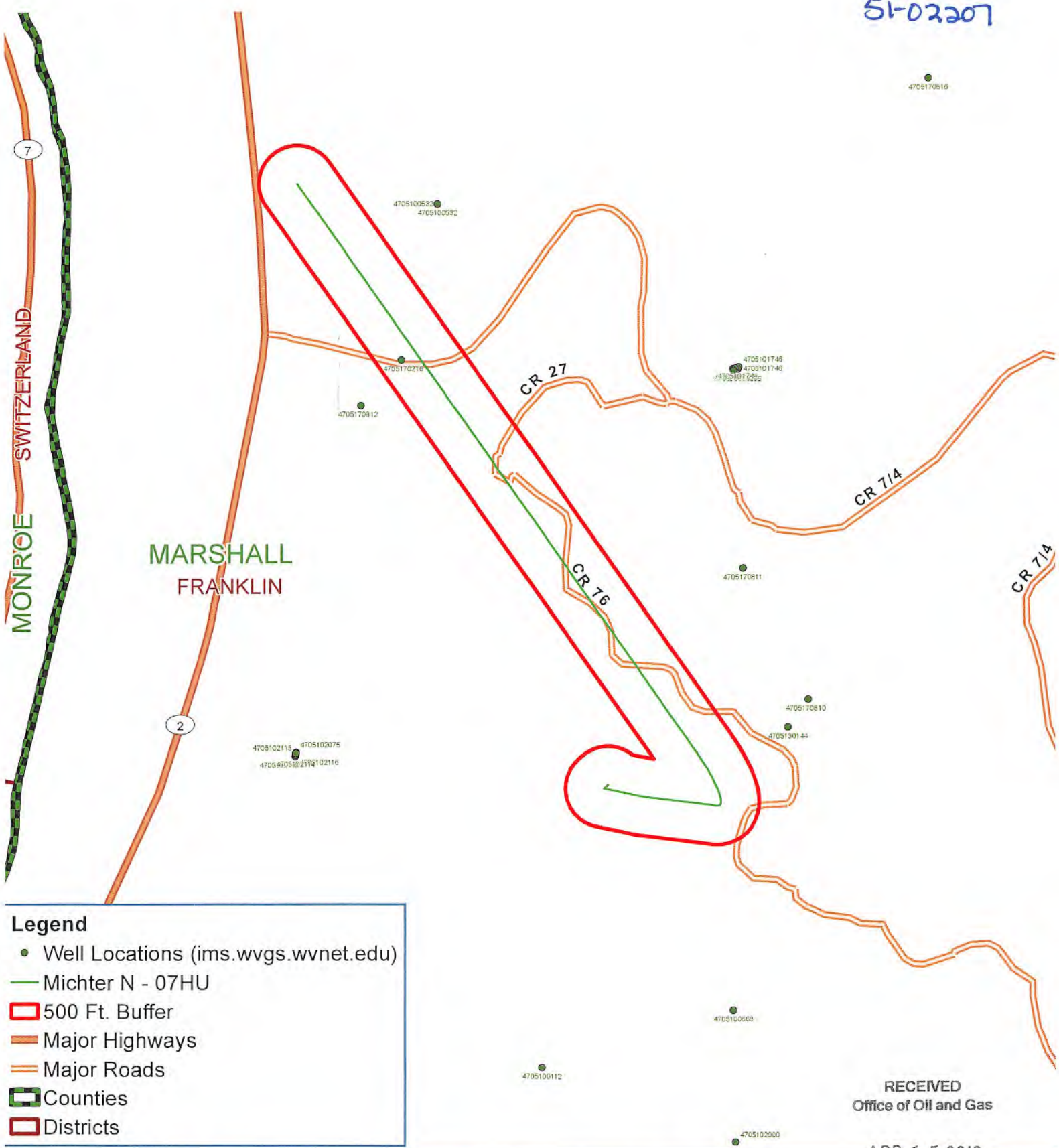
There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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51-02207



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Michter N - 07HU
- ▭ 500 Ft. Buffer
- Major Highways
- Major Roads
- ▭ Counties
- ▭ Districts

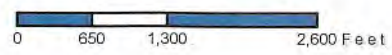
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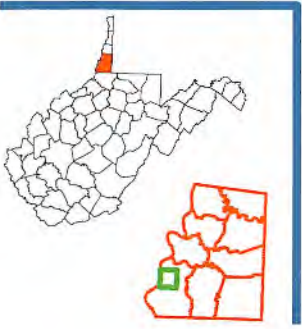
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Michter N - 07HU Franklin District Marshall County, WV



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



Map Created: January 15, 2019





Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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

Site	Michter				
Site Position:		Northing:	14,454,962.42 usft	Latitude:	39.80272253
From:	Lat/Long	Easting:	1,697,325.45 usft	Longitude:	-80.79737330
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	Michter N-07HU (H)					
Well Position	+N/-S	0.00 ft	Northing:	14,455,055.88 usft	Latitude:	39.80297960
	+E/-W	0.00 ft	Easting:	1,697,257.21 usft	Longitude:	-80.79761552
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	1,130.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/12/2018	-8.66	66.91	52,088.98610860

Design	rev1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	332.60

Plan Survey Tool Program	Date	7/20/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,554.61 rev1 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	3.00	230.00	1,599.86	-5.05	-6.02	1.00	1.00	0.00	230.00	
2,600.00	3.00	230.00	2,598.49	-38.69	-46.11	0.00	0.00	0.00	0.00	
2,900.00	0.00	230.00	2,898.36	-43.74	-52.12	1.00	-1.00	0.00	180.00	
4,501.64	0.00	230.00	4,500.00	-43.74	-52.12	0.00	0.00	0.00	230.00	
5,299.64	15.96	102.00	5,287.72	-66.69	55.89	2.00	2.00	0.00	102.00	
6,768.54	15.96	102.00	6,700.00	-150.67	450.96	0.00	0.00	0.00	0.00	
6,838.19	15.92	96.93	6,766.97	-153.81	469.81	2.00	-0.05	-7.28	-93.99	
10,312.74	15.92	96.93	10,108.21	-268.80	1,416.03	0.00	0.00	0.00	0.00	
11,582.48	91.00	324.83	10,937.00	419.58	1,149.49	8.00	5.91	-10.40	-130.78	Michter N-07HU LP
20,554.61	91.00	324.83	10,780.00	7,752.36	-4,018.18	0.00	0.00	0.00	0.00	Michter N-07HU BHL

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
100.00	0.00	0.00	100.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
200.00	0.00	0.00	200.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
300.00	0.00	0.00	300.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
400.00	0.00	0.00	400.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
500.00	0.00	0.00	500.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
600.00	0.00	0.00	600.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
700.00	0.00	0.00	700.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
800.00	0.00	0.00	800.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
900.00	0.00	0.00	900.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,455,055.88	1,697,257.21	39.80297960	-80.79761552
KOP Begin 1°/100' build									
1,400.00	1.00	230.00	1,399.99	-0.56	-0.67	14,455,055.31	1,697,256.54	39.80297807	-80.79761791
1,500.00	2.00	230.00	1,499.96	-2.24	-2.67	14,455,053.63	1,697,254.53	39.80297346	-80.79762506
1,600.00	3.00	230.00	1,599.86	-5.05	-6.02	14,455,050.83	1,697,251.19	39.80296578	-80.79763698
Begin 3.00° tangent									
1,700.00	3.00	230.00	1,699.73	-8.41	-10.02	14,455,047.46	1,697,247.18	39.80295656	-80.79765128
1,800.00	3.00	230.00	1,799.59	-11.78	-14.03	14,455,044.10	1,697,243.17	39.80294735	-80.79766558
1,900.00	3.00	230.00	1,899.45	-15.14	-18.04	14,455,040.74	1,697,239.16	39.80293814	-80.79767988
2,000.00	3.00	230.00	1,999.31	-18.50	-22.05	14,455,037.37	1,697,235.16	39.80292892	-80.79769419
2,100.00	3.00	230.00	2,099.18	-21.87	-26.06	14,455,034.01	1,697,231.15	39.80291971	-80.79770849
2,200.00	3.00	230.00	2,199.04	-25.23	-30.07	14,455,030.64	1,697,227.14	39.80291050	-80.79772279
2,300.00	3.00	230.00	2,298.90	-28.60	-34.08	14,455,027.28	1,697,223.13	39.80290128	-80.79773709
2,400.00	3.00	230.00	2,398.77	-31.96	-38.09	14,455,023.92	1,697,219.12	39.80289207	-80.79775139
2,500.00	3.00	230.00	2,498.63	-35.32	-42.10	14,455,020.55	1,697,215.11	39.80288285	-80.79776570
2,600.00	3.00	230.00	2,598.49	-38.69	-46.11	14,455,017.19	1,697,211.10	39.80287364	-80.79778000
Begin 1°/100' drop									
2,700.00	2.00	230.00	2,698.40	-41.49	-49.45	14,455,014.38	1,697,207.76	39.80286596	-80.79779192
2,800.00	1.00	230.00	2,798.36	-43.17	-51.45	14,455,012.70	1,697,205.75	39.80286135	-80.79779907
2,900.00	0.00	230.00	2,898.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
Begin vertical hold									
3,000.00	0.00	0.00	2,998.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,100.00	0.00	0.00	3,098.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,200.00	0.00	0.00	3,198.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,300.00	0.00	0.00	3,298.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,400.00	0.00	0.00	3,398.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,500.00	0.00	0.00	3,498.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,600.00	0.00	230.00	3,598.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,700.00	0.00	230.00	3,698.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,800.00	0.00	0.00	3,798.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
3,900.00	0.00	0.00	3,898.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,000.00	0.00	0.00	3,998.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,100.00	0.00	0.00	4,098.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,200.00	0.00	0.00	4,198.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,300.00	0.00	0.00	4,298.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,400.00	0.00	0.00	4,398.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,500.00	0.00	0.00	4,498.36	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
4,501.64	0.00	0.00	4,500.00	-43.74	-52.12	14,455,012.14	1,697,205.09	39.80285982	-80.79780145
Begin 2°/100' build									
4,600.00	1.97	102.00	4,598.34	-44.09	-50.47	14,455,011.79	1,697,206.74	39.80285884	-80.79779558
4,700.00	3.97	102.00	4,698.20	-45.16	-45.41	14,455,010.71	1,697,211.80	39.80285586	-80.79777756

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,800.00	5.97	102.00	4,797.82	-46.96	-36.94	14,455,008.91	1,697,220.27	39.80285086	-80.79774742
4,900.00	7.97	102.00	4,897.07	-49.48	-25.07	14,455,006.39	1,697,232.13	39.80284386	-80.79770520
5,000.00	9.97	102.00	4,995.85	-52.73	-9.83	14,455,003.15	1,697,247.38	39.80283487	-80.79765094
5,100.00	11.97	102.00	5,094.01	-56.68	8.78	14,454,999.19	1,697,265.99	39.80282389	-80.79758472
5,200.00	13.97	102.00	5,191.46	-61.35	30.73	14,454,994.53	1,697,287.93	39.80281094	-80.79750661
5,299.64	15.96	102.00	5,287.72	-66.69	55.89	14,454,989.18	1,697,313.10	39.80279609	-80.79741705
Begin 15.96° tangent									
5,300.00	15.96	102.00	5,288.06	-66.71	55.99	14,454,989.16	1,697,313.19	39.80279604	-80.79741671
5,400.00	15.96	102.00	5,384.21	-72.43	82.88	14,454,983.44	1,697,340.09	39.80278017	-80.79732100
5,500.00	15.96	102.00	5,480.35	-78.15	109.78	14,454,977.73	1,697,366.99	39.80276430	-80.79725258
5,600.00	15.96	102.00	5,576.50	-83.87	136.67	14,454,972.01	1,697,393.88	39.80274844	-80.79712956
5,700.00	15.96	102.00	5,672.64	-89.58	163.57	14,454,966.29	1,697,420.78	39.80273257	-80.79703385
5,800.00	15.96	102.00	5,768.79	-95.30	190.47	14,454,960.58	1,697,447.67	39.80271670	-80.79693813
5,900.00	15.96	102.00	5,864.93	-101.02	217.36	14,454,954.86	1,697,474.57	39.80270083	-80.79684241
6,000.00	15.96	102.00	5,961.08	-106.73	244.26	14,454,949.14	1,697,501.46	39.80268497	-80.79674670
6,100.00	15.96	102.00	6,057.23	-112.45	271.15	14,454,943.43	1,697,528.36	39.80266910	-80.79665098
6,200.00	15.96	102.00	6,153.37	-118.17	298.05	14,454,937.71	1,697,555.26	39.80265323	-80.79655526
6,300.00	15.96	102.00	6,249.52	-123.88	324.94	14,454,931.99	1,697,582.15	39.80263736	-80.79645955
6,400.00	15.96	102.00	6,345.66	-129.60	351.84	14,454,926.28	1,697,609.05	39.80262149	-80.79636383
6,500.00	15.96	102.00	6,441.81	-135.32	378.74	14,454,920.56	1,697,635.94	39.80260563	-80.79626811
6,600.00	15.96	102.00	6,537.95	-141.03	405.63	14,454,914.84	1,697,662.84	39.80258976	-80.79617240
6,700.00	15.96	102.00	6,634.10	-146.75	432.53	14,454,909.12	1,697,689.73	39.80257389	-80.79607668
6,768.54	15.96	102.00	6,700.00	-150.67	450.96	14,454,905.21	1,697,708.17	39.80256301	-80.79601107
Begin 2°/100' drop/turn									
6,800.00	15.93	99.71	6,730.25	-152.30	459.45	14,454,903.58	1,697,716.65	39.80255849	-80.79598088
6,838.19	15.92	96.93	6,766.97	-153.81	469.81	14,454,902.06	1,697,727.02	39.80255426	-80.79594398
Begin 15.92° tangent									
6,900.00	15.92	96.93	6,826.41	-155.86	486.65	14,454,900.02	1,697,743.85	39.80254854	-80.79588407
7,000.00	15.92	96.93	6,922.57	-159.17	513.88	14,454,896.71	1,697,771.09	39.80253928	-80.79578713
7,100.00	15.92	96.93	7,018.74	-162.48	541.11	14,454,893.40	1,697,798.32	39.80253002	-80.79569019
7,200.00	15.92	96.93	7,114.90	-165.79	568.34	14,454,890.09	1,697,825.55	39.80252076	-80.79559326
7,300.00	15.92	96.93	7,211.06	-169.10	595.58	14,454,886.78	1,697,852.78	39.80251150	-80.79549632
7,400.00	15.92	96.93	7,307.23	-172.41	622.81	14,454,883.47	1,697,880.02	39.80250224	-80.79539938
7,500.00	15.92	96.93	7,403.39	-175.71	650.04	14,454,880.16	1,697,907.25	39.80249298	-80.79530245
7,600.00	15.92	96.93	7,499.55	-179.02	677.28	14,454,876.85	1,697,934.48	39.80248372	-80.79520551
7,700.00	15.92	96.93	7,595.72	-182.33	704.51	14,454,873.54	1,697,961.72	39.80247446	-80.79510858
7,800.00	15.92	96.93	7,691.88	-185.64	731.74	14,454,870.23	1,697,988.95	39.80246520	-80.79501164
7,900.00	15.92	96.93	7,788.04	-188.95	758.97	14,454,866.92	1,698,016.18	39.80245594	-80.79491470
8,000.00	15.92	96.93	7,884.21	-192.26	786.21	14,454,863.61	1,698,043.41	39.80244668	-80.79481777
8,100.00	15.92	96.93	7,980.37	-195.57	813.44	14,454,860.30	1,698,070.65	39.80243742	-80.79472083
8,200.00	15.92	96.93	8,076.53	-198.88	840.67	14,454,856.99	1,698,097.88	39.80242816	-80.79462390
8,300.00	15.92	96.93	8,172.70	-202.19	867.91	14,454,853.69	1,698,125.11	39.80241890	-80.79452696
8,400.00	15.92	96.93	8,268.86	-205.50	895.14	14,454,850.38	1,698,152.35	39.80240964	-80.79443002
8,500.00	15.92	96.93	8,365.02	-208.81	922.37	14,454,847.07	1,698,179.58	39.80240038	-80.79433309
8,600.00	15.92	96.93	8,461.19	-212.12	949.61	14,454,843.76	1,698,206.81	39.80239112	-80.79423615
8,700.00	15.92	96.93	8,557.35	-215.43	976.84	14,454,840.45	1,698,234.04	39.80238186	-80.79413922
8,800.00	15.92	96.93	8,653.52	-218.74	1,004.07	14,454,837.14	1,698,261.28	39.80237260	-80.79404228
8,900.00	15.92	96.93	8,749.68	-222.05	1,031.30	14,454,833.83	1,698,288.51	39.80236334	-80.79394534
9,000.00	15.92	96.93	8,845.84	-225.36	1,058.54	14,454,830.52	1,698,315.74	39.80235408	-80.79384841
9,100.00	15.92	96.93	8,942.01	-228.67	1,085.77	14,454,827.21	1,698,342.98	39.80234482	-80.79375147
9,200.00	15.92	96.93	9,038.17	-231.97	1,113.00	14,454,823.90	1,698,370.21	39.80233556	-80.79365454
9,300.00	15.92	96.93	9,134.33	-235.28	1,140.24	14,454,820.59	1,698,397.44	39.80232630	-80.79355760
9,400.00	15.92	96.93	9,230.50	-238.59	1,167.47	14,454,817.28	1,698,424.67	39.80231704	-80.79346067
9,500.00	15.92	96.93	9,326.66	-241.90	1,194.70	14,454,813.97	1,698,451.91	39.80230778	-80.79336373

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Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,600.00	15.92	96.93	9,422.82	-245.21	1,221.93	14,454,810.66	1,698,479.14	39.80229851	-80.79326680	
9,700.00	15.92	96.93	9,518.99	-248.52	1,249.17	14,454,807.35	1,698,506.37	39.80228925	-80.79316986	
9,800.00	15.92	96.93	9,615.15	-251.83	1,276.40	14,454,804.04	1,698,533.61	39.80227999	-80.79307292	
9,900.00	15.92	96.93	9,711.31	-255.14	1,303.63	14,454,800.73	1,698,560.84	39.80227073	-80.79297599	
10,000.00	15.92	96.93	9,807.48	-258.45	1,330.87	14,454,797.43	1,698,588.07	39.80226147	-80.79287905	
10,100.00	15.92	96.93	9,903.64	-261.76	1,358.10	14,454,794.12	1,698,615.30	39.80225221	-80.79278212	
10,200.00	15.92	96.93	9,999.80	-265.07	1,385.33	14,454,790.81	1,698,642.54	39.80224295	-80.79268518	
10,300.00	15.92	96.93	10,095.97	-268.38	1,412.56	14,454,787.50	1,698,669.77	39.80223368	-80.79258825	
10,312.74	15.92	96.93	10,108.21	-268.80	1,416.03	14,454,787.08	1,698,673.24	39.80223250	-80.79257590	
Begin 8°/100' build/turn										
10,400.00	12.50	71.77	10,192.88	-267.29	1,436.91	14,454,788.59	1,698,694.12	39.80223653	-80.79250154	
10,500.00	12.77	34.60	10,290.61	-254.78	1,453.50	14,454,801.09	1,698,710.70	39.80227076	-80.79244239	
10,600.00	17.20	8.35	10,387.30	-231.02	1,461.94	14,454,824.86	1,698,719.14	39.80233597	-80.79241216	
10,700.00	23.56	354.19	10,481.04	-196.45	1,462.06	14,454,859.42	1,698,719.27	39.80243090	-80.79241142	
10,800.00	30.66	346.03	10,570.04	-151.76	1,453.87	14,454,904.12	1,698,711.08	39.80255368	-80.79244021	
10,900.00	38.09	340.76	10,652.53	-97.81	1,437.53	14,454,958.06	1,698,694.73	39.80270195	-80.79249795	
11,000.00	45.69	337.01	10,726.94	-35.65	1,413.35	14,455,020.22	1,698,670.56	39.80287280	-80.79258353	
11,100.00	53.38	334.12	10,791.79	33.50	1,381.81	14,455,089.37	1,698,639.01	39.80306291	-80.79269527	
11,200.00	61.13	331.76	10,845.84	108.30	1,343.51	14,455,164.18	1,698,600.72	39.80326859	-80.79283101	
11,300.00	68.92	329.73	10,888.04	187.30	1,299.21	14,455,243.18	1,698,556.41	39.80348583	-80.79298810	
11,400.00	76.73	327.91	10,917.55	268.96	1,249.76	14,455,324.84	1,698,506.97	39.80371039	-80.79316349	
11,500.00	84.55	326.20	10,933.80	351.69	1,196.13	14,455,407.56	1,698,453.34	39.80393792	-80.79335376	
11,582.48	91.00	324.83	10,937.00	419.58	1,149.49	14,455,475.46	1,698,406.70	39.80412467	-80.79351927	
Begin 91.00° lateral										
11,600.00	91.00	324.83	10,936.69	433.90	1,139.40	14,455,489.77	1,698,396.60	39.80416406	-80.79355508	
11,700.00	91.00	324.83	10,934.94	515.63	1,081.80	14,455,571.50	1,698,339.01	39.80438887	-80.79375949	
11,800.00	91.00	324.83	10,933.19	597.36	1,024.21	14,455,653.23	1,698,281.41	39.80461368	-80.79396390	
11,900.00	91.00	324.83	10,931.44	679.09	966.61	14,455,734.96	1,698,223.81	39.80483850	-80.79416831	
12,000.00	91.00	324.83	10,929.69	760.81	909.01	14,455,816.69	1,698,166.22	39.80506331	-80.79437273	
12,100.00	91.00	324.83	10,927.94	842.54	851.41	14,455,898.42	1,698,108.62	39.80528812	-80.79457714	
12,200.00	91.00	324.83	10,926.19	924.27	793.82	14,455,980.14	1,698,051.02	39.80551293	-80.79478156	
12,300.00	91.00	324.83	10,924.44	1,006.00	736.22	14,456,061.87	1,697,993.43	39.80573774	-80.79498597	
12,400.00	91.00	324.83	10,922.69	1,087.73	678.62	14,456,143.60	1,697,935.83	39.80596255	-80.79519039	
12,500.00	91.00	324.83	10,920.94	1,169.46	621.03	14,456,225.33	1,697,878.23	39.80618736	-80.79539481	
12,600.00	91.00	324.83	10,919.20	1,251.18	563.43	14,456,307.06	1,697,820.64	39.80641217	-80.79559923	
12,700.00	91.00	324.83	10,917.45	1,332.91	505.83	14,456,388.79	1,697,763.04	39.80663698	-80.79580365	
12,800.00	91.00	324.83	10,915.70	1,414.64	448.24	14,456,470.51	1,697,705.44	39.80686179	-80.79600808	
12,900.00	91.00	324.83	10,913.95	1,496.37	390.64	14,456,552.24	1,697,647.85	39.80708659	-80.79621250	
13,000.00	91.00	324.83	10,912.20	1,578.10	333.04	14,456,633.97	1,697,590.25	39.80731140	-80.79641693	
13,100.00	91.00	324.83	10,910.45	1,659.83	275.45	14,456,715.70	1,697,532.65	39.80753621	-80.79662136	
13,200.00	91.00	324.83	10,908.70	1,741.56	217.85	14,456,797.43	1,697,475.06	39.80776101	-80.79682579	
13,300.00	91.00	324.83	10,906.95	1,823.28	160.25	14,456,879.15	1,697,417.46	39.80798582	-80.79703022	
13,400.00	91.00	324.83	10,905.20	1,905.01	102.65	14,456,960.88	1,697,359.86	39.80821063	-80.79723465	
13,500.00	91.00	324.83	10,903.45	1,986.74	45.06	14,457,042.61	1,697,302.27	39.80843543	-80.79743908	
13,600.00	91.00	324.83	10,901.70	2,068.47	-12.54	14,457,124.34	1,697,244.67	39.80866024	-80.79764351	
13,700.00	91.00	324.83	10,899.95	2,150.20	-70.14	14,457,206.07	1,697,187.07	39.80888504	-80.79784795	
13,800.00	91.00	324.83	10,898.20	2,231.93	-127.73	14,457,287.80	1,697,129.48	39.80910985	-80.79805239	
13,900.00	91.00	324.83	10,896.45	2,313.65	-185.33	14,457,369.52	1,697,071.88	39.80933465	-80.79825682	
14,000.00	91.00	324.83	10,894.70	2,395.38	-242.93	14,457,451.25	1,697,014.28	39.80955946	-80.79846126	
14,100.00	91.00	324.83	10,892.95	2,477.11	-300.52	14,457,532.98	1,696,956.68	39.80978426	-80.79866570	
14,200.00	91.00	324.83	10,891.20	2,558.84	-358.12	14,457,614.71	1,696,899.09	39.81000906	-80.79887015	
14,300.00	91.00	324.83	10,889.45	2,640.57	-415.72	14,457,696.44	1,696,841.49	39.81023387	-80.79907459	
14,400.00	91.00	324.83	10,887.70	2,722.30	-473.31	14,457,778.17	1,696,783.89	39.81045867	-80.79927903	
14,500.00	91.00	324.83	10,885.95	2,804.02	-530.91	14,457,859.89	1,696,726.30	39.81068347	-80.79948348	

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
14,600.00	91.00	324.83	10,884.20	2,885.75	-588.51	14,457,941.62	1,696,668.70	39.81090827	-80.79968793	
14,700.00	91.00	324.83	10,882.45	2,967.48	-646.10	14,458,023.35	1,696,811.10	39.81113308	-80.79989238	
14,800.00	91.00	324.83	10,880.70	3,049.21	-703.70	14,458,105.08	1,696,553.51	39.81135788	-80.80009683	
14,900.00	91.00	324.83	10,878.95	3,130.94	-761.30	14,458,186.81	1,696,495.91	39.81158268	-80.80030128	
15,000.00	91.00	324.83	10,877.20	3,212.67	-818.90	14,458,268.54	1,696,438.31	39.81180748	-80.80050573	
15,100.00	91.00	324.83	10,875.45	3,294.40	-876.49	14,458,350.26	1,696,380.72	39.81203228	-80.80071019	
15,200.00	91.00	324.83	10,873.70	3,376.12	-934.09	14,458,431.99	1,696,323.12	39.81225708	-80.80091464	
15,300.00	91.00	324.83	10,871.95	3,457.85	-991.69	14,458,513.72	1,696,265.52	39.81248188	-80.80111910	
15,400.00	91.00	324.83	10,870.20	3,539.58	-1,049.28	14,458,595.45	1,696,207.93	39.81270667	-80.80132356	
15,500.00	91.00	324.83	10,868.45	3,621.31	-1,106.88	14,458,677.18	1,696,150.33	39.81293147	-80.80152802	
15,600.00	91.00	324.83	10,866.70	3,703.04	-1,164.48	14,458,758.90	1,696,092.73	39.81315627	-80.80173248	
15,700.00	91.00	324.83	10,864.95	3,784.77	-1,222.07	14,458,840.63	1,696,035.14	39.81338107	-80.80193694	
15,800.00	91.00	324.83	10,863.20	3,866.49	-1,279.67	14,458,922.36	1,695,977.54	39.81360587	-80.80214140	
15,900.00	91.00	324.83	10,861.45	3,948.22	-1,337.27	14,459,004.09	1,695,919.94	39.81383066	-80.80234587	
16,000.00	91.00	324.83	10,859.70	4,029.95	-1,394.86	14,459,085.82	1,695,862.35	39.81405546	-80.80255033	
16,100.00	91.00	324.83	10,857.95	4,111.68	-1,452.46	14,459,167.55	1,695,804.75	39.81428026	-80.80275480	
16,200.00	91.00	324.83	10,856.20	4,193.41	-1,510.06	14,459,249.27	1,695,747.15	39.81450505	-80.80295927	
16,300.00	91.00	324.83	10,854.45	4,275.14	-1,567.66	14,459,331.00	1,695,689.56	39.81472985	-80.80316374	
16,400.00	91.00	324.83	10,852.70	4,356.86	-1,625.25	14,459,412.73	1,695,631.96	39.81495464	-80.80336821	
16,500.00	91.00	324.83	10,850.95	4,438.59	-1,682.85	14,459,494.46	1,695,574.36	39.81517944	-80.80357268	
16,600.00	91.00	324.83	10,849.20	4,520.32	-1,740.45	14,459,576.19	1,695,516.76	39.81540423	-80.80377716	
16,700.00	91.00	324.83	10,847.45	4,602.05	-1,798.04	14,459,657.92	1,695,459.17	39.81562903	-80.80398163	
16,800.00	91.00	324.83	10,845.70	4,683.78	-1,855.64	14,459,739.64	1,695,401.57	39.81585382	-80.80418611	
16,900.00	91.00	324.83	10,843.95	4,765.51	-1,913.24	14,459,821.37	1,695,343.97	39.81607861	-80.80439059	
17,000.00	91.00	324.83	10,842.20	4,847.24	-1,970.83	14,459,903.10	1,695,286.38	39.81630341	-80.80459507	
17,100.00	91.00	324.83	10,840.45	4,928.96	-2,028.43	14,459,984.83	1,695,228.78	39.81652820	-80.80479955	
17,200.00	91.00	324.83	10,838.70	5,010.69	-2,086.03	14,460,066.56	1,695,171.18	39.81675299	-80.80500403	
17,300.00	91.00	324.83	10,836.95	5,092.42	-2,143.62	14,460,148.29	1,695,113.59	39.81697778	-80.80520851	
17,400.00	91.00	324.83	10,835.20	5,174.15	-2,201.22	14,460,230.01	1,695,055.99	39.81720258	-80.80541300	
17,500.00	91.00	324.83	10,833.45	5,255.88	-2,258.82	14,460,311.74	1,694,998.39	39.81742737	-80.80561748	
17,600.00	91.00	324.83	10,831.70	5,337.61	-2,316.42	14,460,393.47	1,694,940.80	39.81765216	-80.80582197	
17,700.00	91.00	324.83	10,829.95	5,419.33	-2,374.01	14,460,475.20	1,694,883.20	39.81787695	-80.80602646	
17,800.00	91.00	324.83	10,828.20	5,501.06	-2,431.61	14,460,556.93	1,694,825.60	39.81810174	-80.80623095	
17,900.00	91.00	324.83	10,826.45	5,582.79	-2,489.21	14,460,638.65	1,694,768.01	39.81832653	-80.80643544	
18,000.00	91.00	324.83	10,824.70	5,664.52	-2,546.80	14,460,720.38	1,694,710.41	39.81855132	-80.80663993	
18,100.00	91.00	324.83	10,822.95	5,746.25	-2,604.40	14,460,802.11	1,694,652.81	39.81877611	-80.80684443	
18,200.00	91.00	324.83	10,821.20	5,827.98	-2,662.00	14,460,883.84	1,694,595.22	39.81900090	-80.80704892	
18,300.00	91.00	324.83	10,819.45	5,909.70	-2,719.59	14,460,965.57	1,694,537.62	39.81922568	-80.80725342	
18,400.00	91.00	324.83	10,817.70	5,991.43	-2,777.19	14,461,047.30	1,694,480.02	39.81945047	-80.80745792	
18,500.00	91.00	324.83	10,815.95	6,073.16	-2,834.79	14,461,129.02	1,694,422.43	39.81967526	-80.80766242	
18,600.00	91.00	324.83	10,814.20	6,154.89	-2,892.38	14,461,210.75	1,694,364.83	39.81990005	-80.80786692	
18,700.00	91.00	324.83	10,812.45	6,236.62	-2,949.98	14,461,292.48	1,694,307.23	39.82012483	-80.80807142	
18,800.00	91.00	324.83	10,810.70	6,318.35	-3,007.58	14,461,374.21	1,694,249.64	39.82034962	-80.80827592	
18,900.00	91.00	324.83	10,808.95	6,400.08	-3,065.18	14,461,455.94	1,694,192.04	39.82057441	-80.80848043	
19,000.00	91.00	324.83	10,807.20	6,481.80	-3,122.77	14,461,537.67	1,694,134.44	39.82079919	-80.80868493	
19,100.00	91.00	324.83	10,805.45	6,563.53	-3,180.37	14,461,619.39	1,694,076.85	39.82102398	-80.80888944	
19,200.00	91.00	324.83	10,803.70	6,645.26	-3,237.97	14,461,701.12	1,694,019.25	39.82124876	-80.80909395	
19,300.00	91.00	324.83	10,801.95	6,726.99	-3,295.56	14,461,782.85	1,693,961.65	39.82147355	-80.80929846	
19,400.00	91.00	324.83	10,800.20	6,808.72	-3,353.16	14,461,864.58	1,693,904.05	39.82169833	-80.80950297	
19,500.00	91.00	324.83	10,798.45	6,890.45	-3,410.76	14,461,946.31	1,693,846.46	39.82192311	-80.80970748	
19,600.00	91.00	324.83	10,796.70	6,972.17	-3,468.35	14,462,028.04	1,693,788.86	39.82214790	-80.80991200	
19,700.00	91.00	324.83	10,794.95	7,053.90	-3,525.95	14,462,109.76	1,693,731.26	39.82237268	-80.81011651	
19,800.00	91.00	324.83	10,793.20	7,135.63	-3,583.55	14,462,191.49	1,693,673.67	39.82259746	-80.81032103	
19,900.00	91.00	324.83	10,791.45	7,217.36	-3,641.14	14,462,273.22	1,693,616.07	39.82282225	-80.81052555	
20,000.00	91.00	324.83	10,789.71	7,299.09	-3,698.74	14,462,354.95	1,693,558.47	39.82304703	-80.81073007	

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Michter N-07HU (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1130.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1130.00ft
Site:	Michter	North Reference:	Grid
Well:	Michter N-07HU (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,100.00	91.00	324.83	10,787.96	7,380.82	-3,756.34	14,462,436.68	1,693,500.88	39.82327181	-80.81093459
20,200.00	91.00	324.83	10,786.21	7,462.54	-3,813.93	14,462,518.40	1,693,443.28	39.82349659	-80.81113911
20,300.00	91.00	324.83	10,784.46	7,544.27	-3,871.53	14,462,600.13	1,693,385.68	39.82372137	-80.81134363
20,400.00	91.00	324.83	10,782.71	7,626.00	-3,929.13	14,462,681.86	1,693,328.09	39.82394615	-80.81154816
20,500.00	91.00	324.83	10,780.96	7,707.73	-3,986.73	14,462,763.59	1,693,270.49	39.82417093	-80.81175268
20,554.61	91.00	324.83	10,780.00	7,752.36	-4,018.18	14,462,808.22	1,693,239.04	39.82429368	-80.81186437
PBHL/TD 20554.61 MD/10780.00 TVD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Michter N-07HU BHL - plan hits target center - Point	0.00	0.00	10,780.00	7,752.36	-4,018.18	14,462,808.22	1,693,239.04	39.82429368	-80.81186437
Michter N-07HU LP - plan hits target center - Point	0.00	0.00	10,937.00	419.58	1,149.49	14,455,475.46	1,698,406.70	39.80412467	-80.79351927

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,300.00	1,300.00	0.00	0.00	KOP Begin 1°/100' build
1,600.00	1,599.86	-5.05	-6.02	Begin 3.00° tangent
2,600.00	2,598.49	-38.69	-46.11	Begin 1°/100' drop
2,900.00	2,898.36	-43.74	-52.12	Begin vertical hold
4,501.64	4,500.00	-43.74	-52.12	Begin 2°/100' build
5,299.64	5,287.72	-66.69	55.89	Begin 15.96° tangent
6,768.54	6,700.00	-150.67	450.96	Begin 2°/100' drop/turn
6,838.19	6,766.97	-153.81	469.81	Begin 15.92° tangent
10,312.74	10,108.21	-268.80	1,416.03	Begin 8°/100' build/turn
11,582.48	10,937.00	419.58	1,149.49	Begin 91.00° lateral
20,554.61	10,780.00	7,752.36	-4,018.18	PBHL/TD 20554.61 MD/10780.00 TVD

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Environmental Protection

WW-9
(4/16)

API Number 47 - 051 -

Operator's Well No. Michter N-7HU

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 New Martinsville 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 / WV01091B5) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

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

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

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

Company Official Signature Jim Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title VP Geosciences

RECEIVED
Office of Oil and Gas

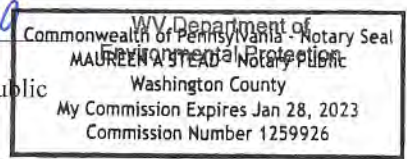
APR 15 2019

Subscribed and sworn before me this 5 day of FEBRUARY, 20 19

Maureen A Stead

Notary Public

My commission expires 1/28/23



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 21.11 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: *Jim Mikholsen*

Comments:

RECEIVED Office of Oil and Gas

APR 15 2019

WV Department of Environmental Protection

Title: Oil and Gas Inspector Date: 2/7/19

Field Reviewed? () Yes () No

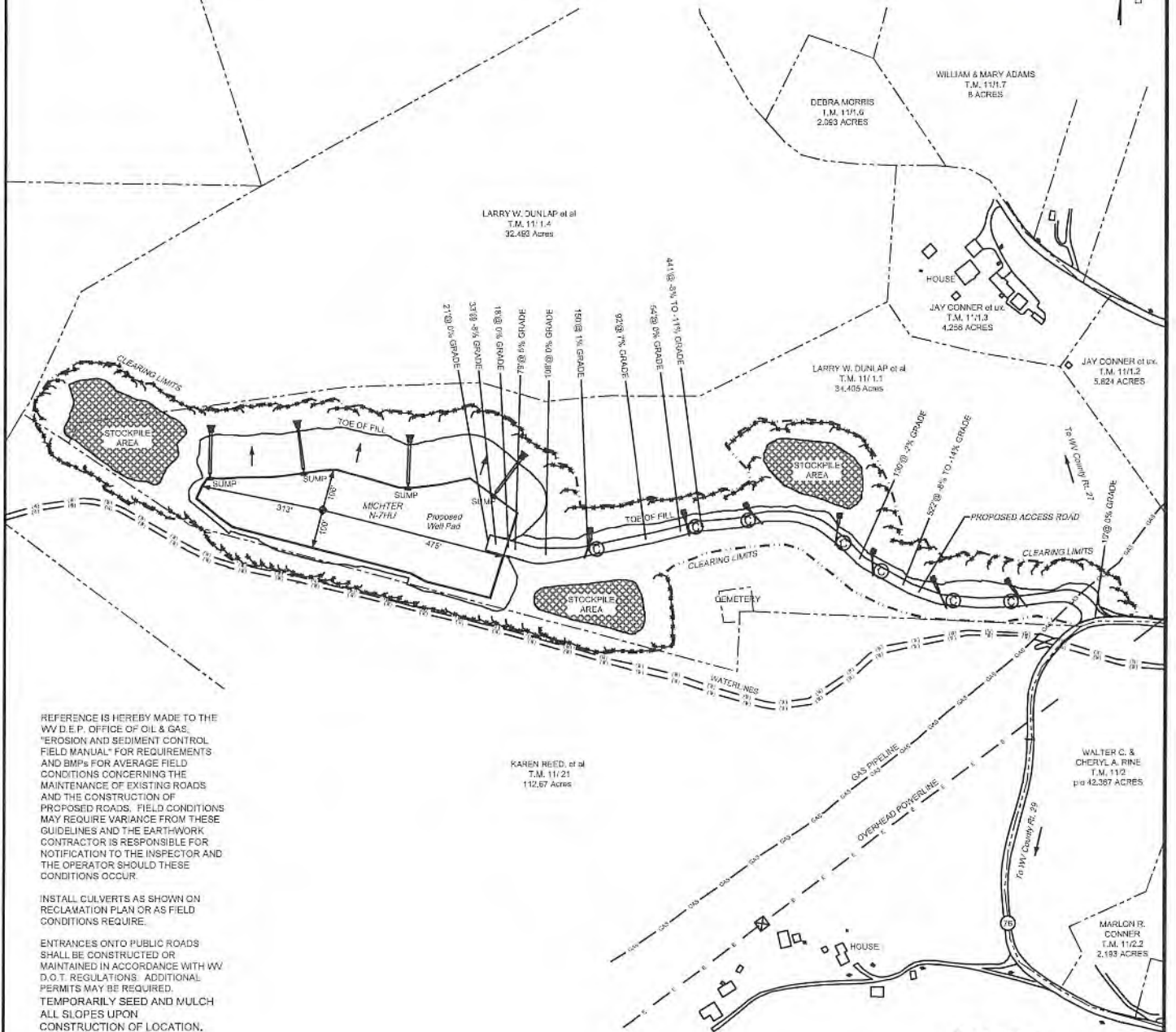
51-02207

WW-9

PROPOSED MICHTER N-7HU

SUPPLEMENT PG 1

DRAWING NOT TO SCALE



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

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

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

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

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

LEGEND

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

RECEIVED
Office of Oil and Gas

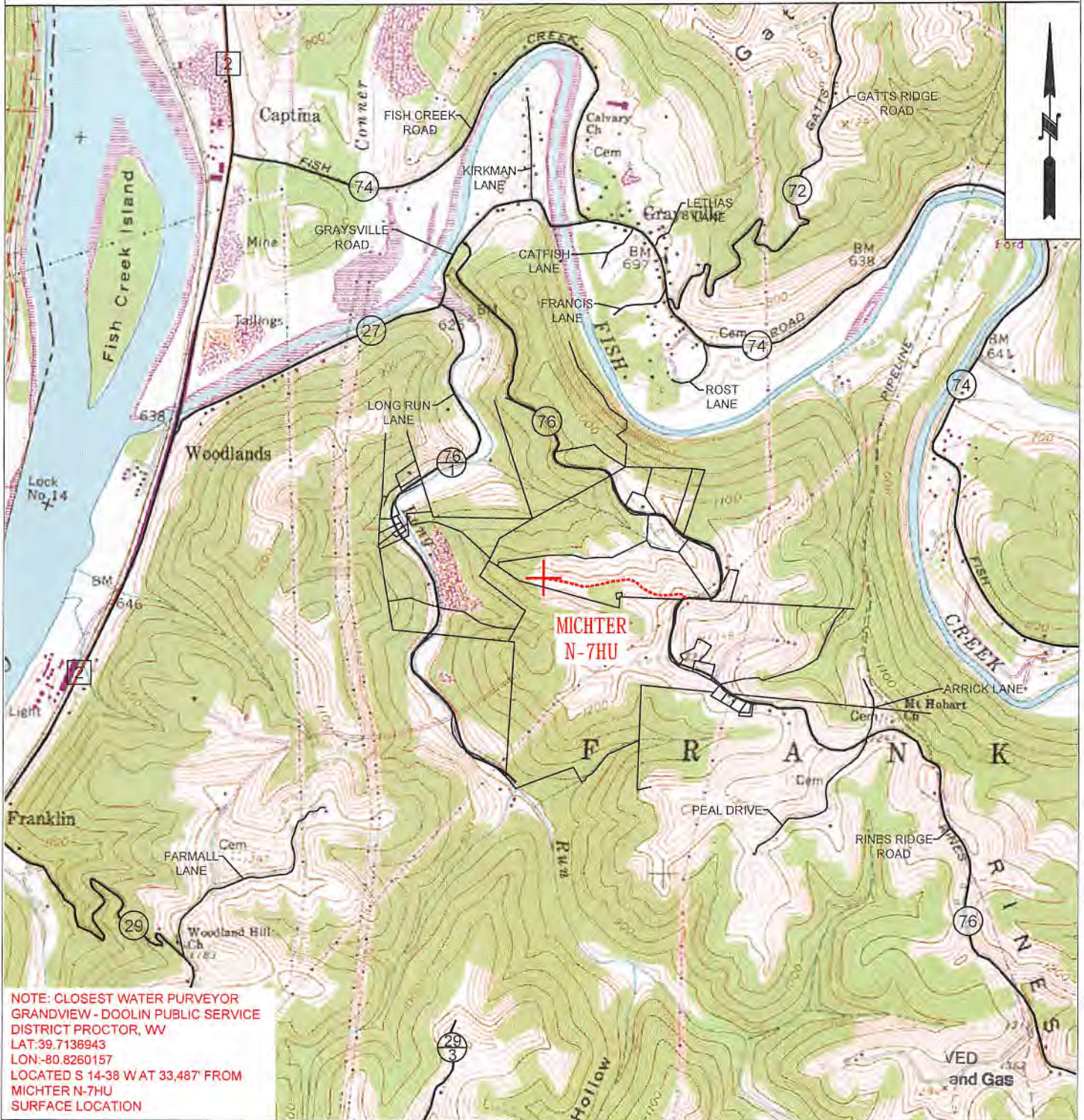
APR 15 2019

WV Department of
Environmental Protection


WW-9

PROPOSED MICHTER N-7HU

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT: 39.7136943
LON: -80.8260157
LOCATED S 14-38 W AT 33,467' FROM
MICHTER N-7HU
SURFACE LOCATION

 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	2019
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	MICHTER (ment of Environmental Protection)
			SCALE:	DATE:
			1" = 2000'	DATE: 2-4-2019

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

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

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

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

*See attached pages

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

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

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

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

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



April 11, 2019

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

RE: Michter N-7HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

Tug Hill Operating, LLC is authorized through, either lease or other agreement, to unitize and pool all lands falling within the boundaries of the proposed voluntary unit included with this submission, with the exception of the following parcels which we intend to force pool:

- 5-7-3.3
- 5-7-26
- 5-7-24
- 5-7-29
- 5-7-27

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 724-749-8388, or by email at amiller@tug-hillop.com.

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region
Tug Hill Operating

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Office of Oil and Gas

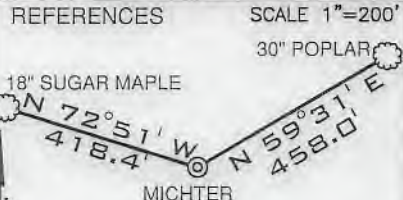
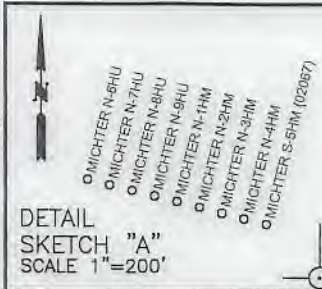
APR 15 2019

WV Department of
Environmental Protection

form WW6

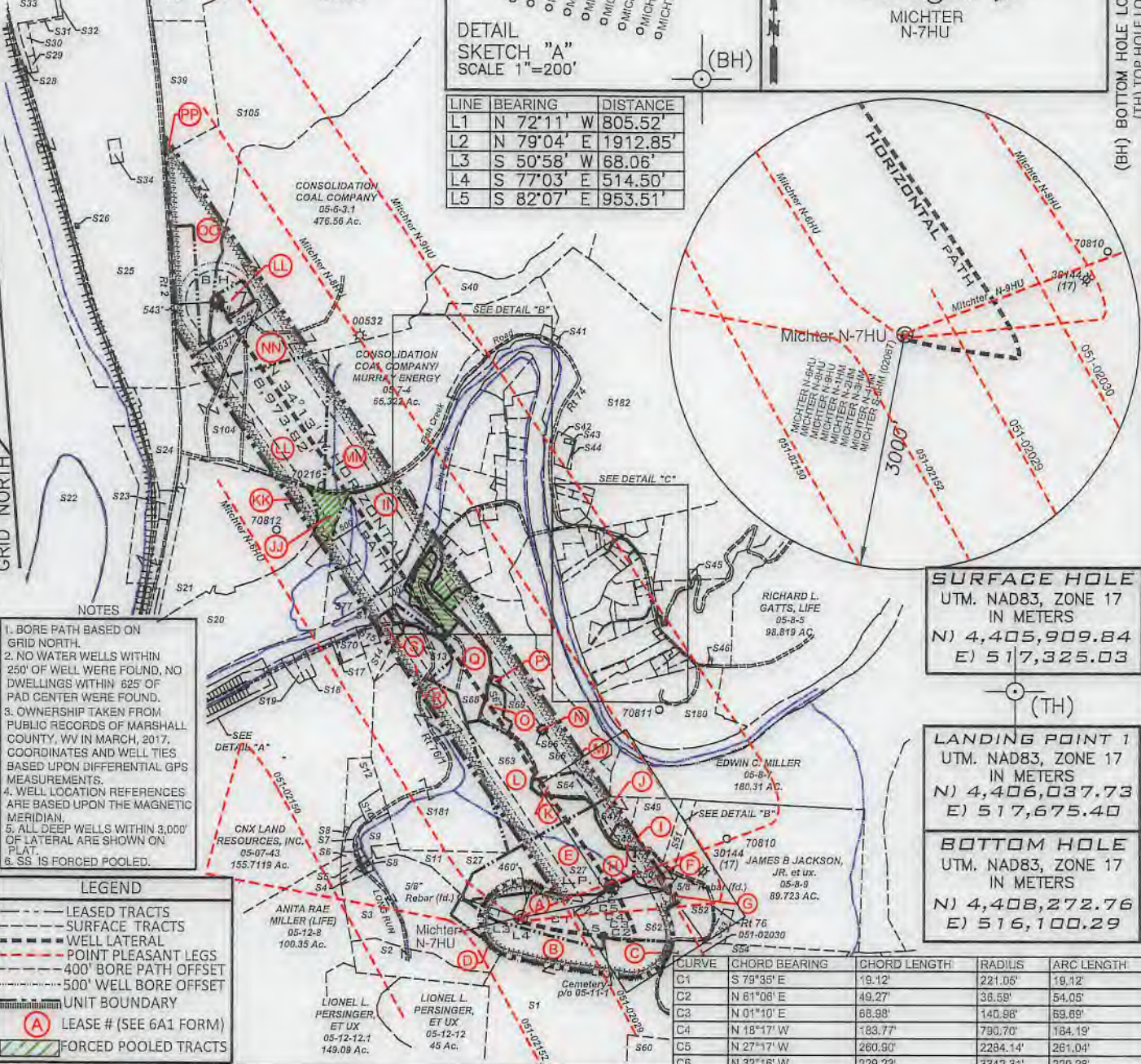
**MICHTER LEASE
WELL N-7HU
346.0690 ACRES**

TOP HOLE LATITUDE: 39°50'00"
BOTTOM HOLE LATITUDE: 39°50'00"



LINE	BEARING	DISTANCE
L1	N 72°11' W	805.52'
L2	N 79°04' E	1912.85'
L3	S 50°58' W	68.06'
L4	S 77°03' E	514.50'
L5	S 82°07' E	953.51'

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS



- NOTES**
1. BORE PATH BASED ON GRID NORTH.
 2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 5. ALL DEEP WELLS WITHIN 3,000' OF LATERAL ARE SHOWN ON PLAT.
 6. S.S IS FORCED POOLED.

LEGEND

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- FORCED POOLED TRACTS

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,405,909.84
E) 517,325.03

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,406,037.73
E) 517,675.40

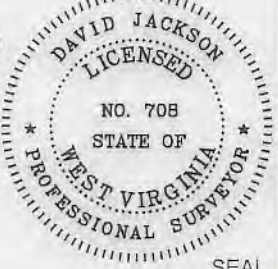
BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,408,272.76
E) 516,100.29

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 79°35' E	19.12	221.05'	19.12
C2	N 61°06' E	49.27	36.58'	54.05'
C3	N 01°10' E	68.98'	140.86'	69.89'
C4	N 18°17' W	183.77'	790.70'	184.19'
C5	N 27°17' W	260.90'	2284.14'	261.04'
C6	N 32°16' W	229.23'	3342.31'	229.28'

FILE NUMBER _____
DRAWING NUMBER MICHTER_N-7HU_REV1
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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

P.S. 708
David L Jackson



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

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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP X SHALLOW ___
DATE: MAY 7, 2019
OPERATORS WELL NO. MICHTER N-7HU
API WELL NO. 47-051-02207H6A
STATE WV COUNTY MARSHALL PERMIT 02207H6A

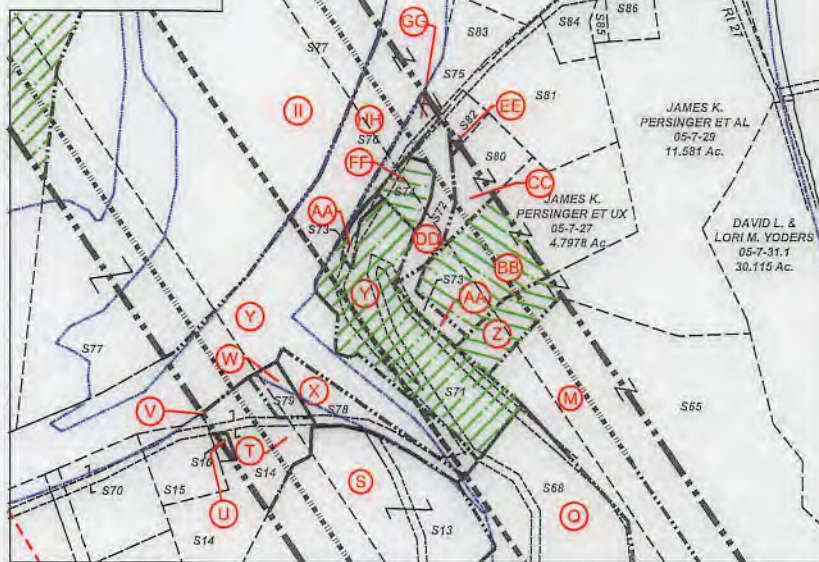
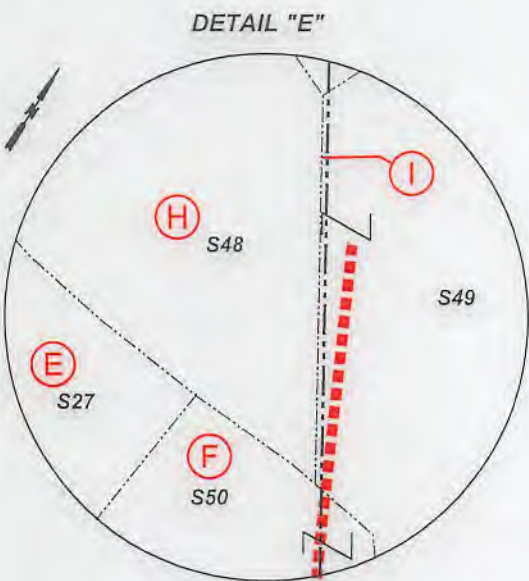
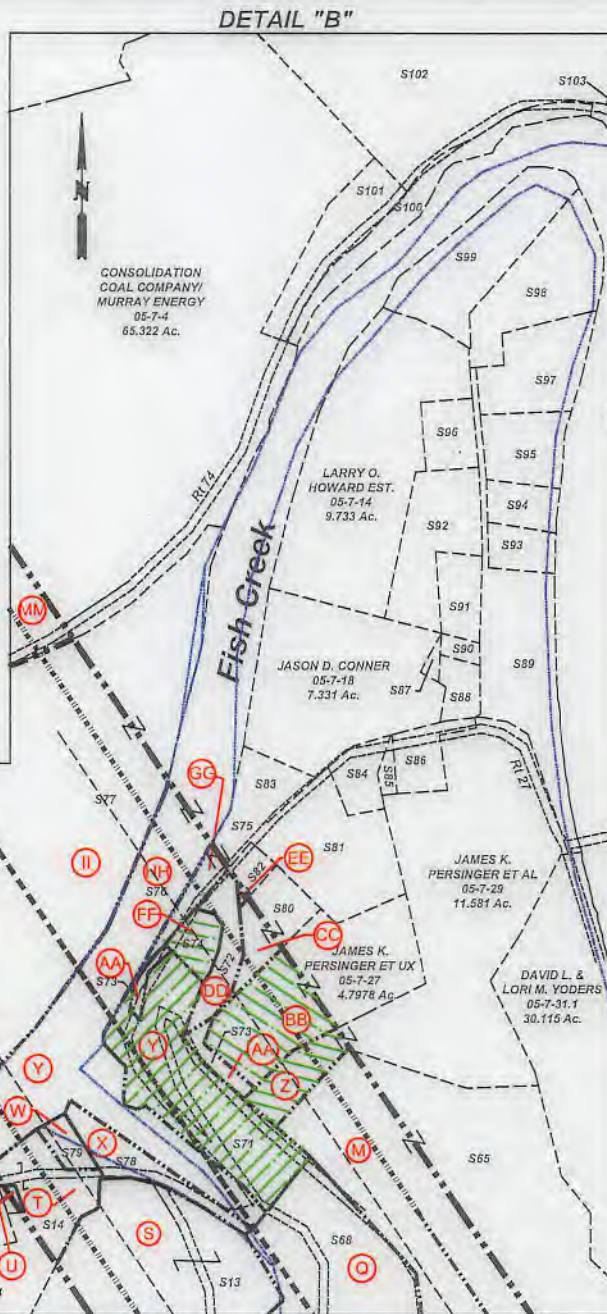
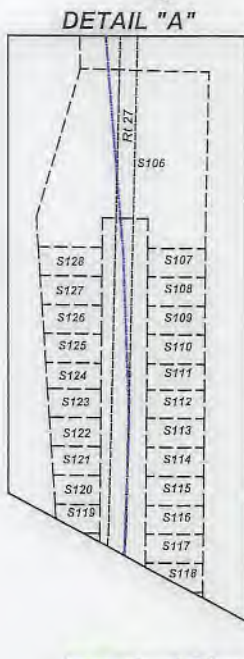
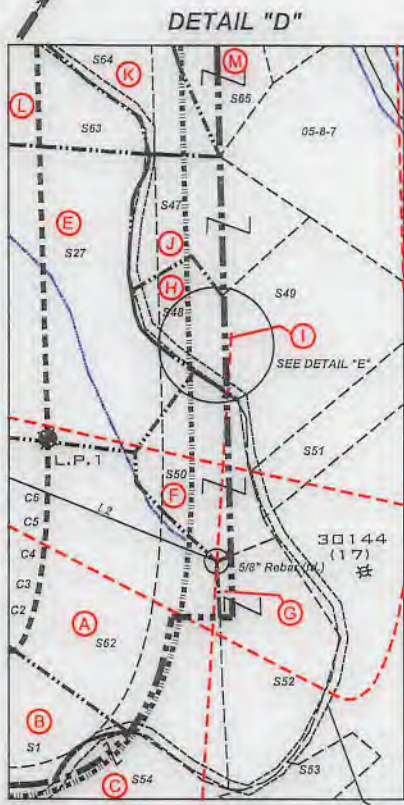
LOCATION ELEVATION 1127.11' WATERSHED (HUC 10) FISH CREEK
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER LARRY W. DUNLAP, ET AL ACREAGE 34.405
OIL & GAS ROYALTY OWNER LARRY W. DUNLAP, ET AL LEASE ACREAGE 555.9436
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

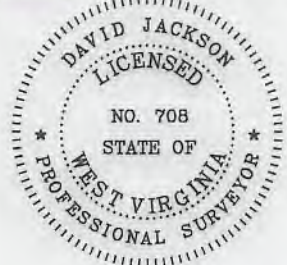
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,158' TMD: 20,555'
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME
PERMIT

PG 2 OF 6 MICTHER LEASE WELL N-7HU 346.0690± ACRES



FORCED POOLED TRACTS



P.S. 708 David L Jackson

S1-02207 H6A



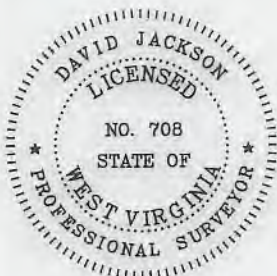
OPERATOR'S WELL #: Michter N-7HU DISTRICT: Franklin COUNTY: Marshall STATE: WV

WELL PLAT PAGE 2 OF 6 DATE: 05/07/2019

**MICHTER LEASE
WELL N-7HU
346.0690± ACRES**

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S1	B 05-11-21	Karen Reed, et al	112.67
S2	05-12-10	Consolidation Coal Company/ Murray Energy c/o Land Dept	13.76
S3	D 05-12-10.1	Consolidation Coal Company/ Murray Energy	38.48
S4	05-07-42.4	Lionel & Mary Lee Persinger	0.94
S5	05-07-42.3	Joshua David Hartley	0.886
S6	05-07-42.2	Steven & Rhonda Lloyd	0.85
S7	05-07-44	Crystal B. Darrah	1.726
S8	05-07-42	Tracy M. Kesterson	0.54
S9	05-07-42.5	Matthew V. Conner, et al	3.791
S10	05-07-41	James A. Wade	1.00
S11	05-12-09	Lionel & Mary Lee Persinger	10.15
S12	05-07-42.1	Lionel L. & Mary Lee Persinger	5.99
S13	S 05-07-35	Samuel L. Persinger	10.708
S14	T 05-07-36	John Persinger	4.329
S15	V 05-07-38	John K. Persinger, et ux	2.65
S16	U 05-07-37	John K. Persinger, et ux	0.133
S17	05-07-43.3	M. Frank Mason	0.327
S18	05-7B-48	Cassidy Rain Carpenter	1.325
S19	05-7B-49	Cassidy Rain Carpenter	1.1441
S20	JJ 05-07-3.3	WV Economic Development Authority	65.2077
S21	KK 05-07-3.4	WV Economic Development Authority	56.3496
S22	05-07-01	U.S. of America	50.0
S23	05-07-3.5	Wheeling Power Company	1.5004
S24	05-06-3.1	Ohio Power Company	28.9966
S25	05-06-10	Ohio Power Company	241.858
S26	05-06-16	Appalachian Power CP	0.61
S27	E 05-11-1.4	Larry Dunlap, et al	32.493
S28	05-06-18	CII Carbon, LLC	0.2754
S29	05-06-12	CII Carbon, LLC	0.43458
S30	05-06-09	CII Carbon, LLC	1.15
S31	05-06-13	CII Carbon, LLC	0.318
S32	05-06-14	CII Carbon, LLC	1.408
S33	05-06-7	CII Carbon, LLC	12.454
S34	05-06-11	Consolidation Coal Company/ Murray Energy	1.05
S35	05-06-08	CII Carbon, LLC	2.727
S36	05-06-15	CII Carbon, LLC	2.522
S37	05-06-01	Consolidation Coal Company/ Murray Energy	7.99
S38	05-06-06	Consolidation Coal Company/ Murray Energy	18.50
S39	PP 05-06-05	Consolidation Coal Company/ Murray Energy	17.159
S40	05-06-04	Consolidation Coal Company/ Murray Energy	5.47
S41	05-07-09	Norman Thomas Jackson et al	0.25
S42	05-8A-02	Graysville Cemetery Association	1.76
S43	05-8A-01	Calvary M.E. Church	2.0
S44	05-8A-03	Calvary M.E. Church	0.259
S45	05-08-23	Robert L. Shields & Donald L. Shields Cemetery	0.3
S46	P/O 05-08-4		
S47	J 05-11-01	William N. & Virginia A. Roupe	4.527
S48	H 05-11-1.6	Debra Morris	2.093
S49	I 05-11-1.7	William S. & Mary K. Adams	8.00
S50	F 05-11-1.3	Jay A. Conner, et ux	4.256
S51	05-11-1.5	Paul & Sandy Witt	3.507
S52	G 05-11-1.2	Jay A. Conner, et ux	5.824
S53	05-08-9.1	Scott E. Jackson, Tammy S. South & Marion Jackson	1.957
S54	C 05-11-02	Walter C. & Cheryl A. Rine	42.36
S55	05-11-2.2	Joshua Myers	2.193
S56	05-11-2.1	Walter C. & Cheryl A. Rine	1.19
S57	05-11-20	David E. Gray	0.69
S58	05-11-19	David E. Gray	0.532
S59	05-11-03	Kevin R. Corley, et ux	13.18
S60	05-11-17	Kevin R. Corley, et ux	36.13
S61	05-11-14	Hiram's Estate Family, LTD LLP	158.054
S62	A 05-11-1.1	Larry W. Dunlap, et al	34.405
S63	L 05-07-33	William N. Roupe	24.60
S64	K 05-07-32	William N. & Virginia A. Roupe	4.2

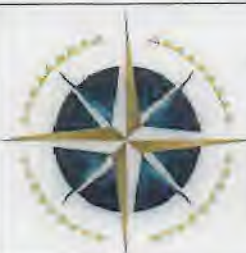
Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S65	M 05-07-31	William N. Roupe, et ux	43.147
S66	N 05-07-31.4	Grandview-Doolen PSD	0.23
S67	O 05-07-31.2	William N. Roupe, et ux	3.304
S68	Q 05-07-34	WV DOH	10.88
S69	P 05-07-31.3	William N. & Virginia A. Roupe	0.230
S70	05-07-43.2	M. Frank Mason	1.36
S71	Y 05-07-26	James A. Wade	7.80
S72	DD 05-07-23.1	WV DOH	2.37
S73	AA 05-07-25	WV DOH	0.50
S74	FF 05-07-24	James A. Wade	0.578
S75	GG 05-07-45	Robert L. Henry (Life) & Jeffrey S. Henry	0.65
S76	HH 05-07-23	Fish Creek State of WV	8.97 Calc.
S77	II 05-07-3.2	Ohio Power Company	45.5348
S78	X 05-07-35.1	Lionel L. & Mary Lee Persinger	0.812
S79	W 05-07-36.1	Lionel L. & Mary Lee Persinger	0.5579
S80	CC 05-07-23	Arlie E. Powell	1.435
S81	05-07-27.1	Mark L. Riter, et ux	3.427
S82	EE 05-07-23.2	Robert L. Henry (Life) & Jeffrey S. Henry	0.256
S83	05-07-21	Aaron S. Meyer	1.775
S84	05-07-22	Jesus & Mary Bustamante	0.782
S85	05-07-28.1	Jesus & Mary Bustamante	0.200
S86	05-07-28	Thelma M. Roupe	0.940
S87	05-07-18.1	Debra L. Bennett	0.13
S88	05-07-17	Debra L. Bennett	0.614
S89	05-07-15	William Roupe, et ux	6.631
S90	05-07-16	Debra L. Bennett	0.235
S91	05-07-14.2	Robert L. Eyles, Sr. & Jessica L. Bennett	0.998
S92	05-07-14.3	Steven H. Howard	2.669
S93	05-07-15.1	Woodland Hills Recreation Club	1.016
S94	05-07-13	Woodland Hills Recreation Club	1.109
S95	05-07-12	Carol A. & Shelva G. Smith	2.01
S96	05-07-14.1	Larry O. Howard, Est.	1.00
S97	05-07-11	Roy S. & Cynthia M. Meadows	2.90
S98	05-07-10.1	Sandra Kay Beymer & Chad M. Wright	4.237
S99	05-07-10	Darren Edward Thacker	4.737
S100	05-07-5.1	George A. Knuth	2.95
S101	05-07-05	CNX Gas Company, LLC	1.407
S102	05-07-06	CNX Gas Company, LLC	21.171
S103	05-07-07	Consolidation Coal Company/ Murray Energy	1.00
S104	LL 05-07-02	Consolidation Coal Company/ Murray Energy	46.46
S105	OO 05-06-03	Ohio Power Co.	281.046
S106	05-7B-01	Patricia L. Robinson	1.257
S107	05-7B-47	Daniel D. Robinson, et ux	0.1148
S108	05-7B-46	Daniel D. Robinson, et ux	0.1148
S109	05-7B-45	Daniel D. & Mary E. Robinson	0.1148
S110	05-7B-44	Daniel D. & Mary E. Robinson	0.1148
S111	05-7B-43	Teresa & Thomas Gouldsberry	0.1148
S112	05-7B-42	Teresa & Thomas Gouldsberry	0.1194
S113	05-7B-41	Teresa & Thomas Gouldsberry	0.1148
S114	05-7B-40	Teresa & Thomas Gouldsberry	0.1148
S115	05-7B-39	Teresa & Thomas Gouldsberry	0.1148
S116	05-7B-38	Teresa & Thomas Gouldsberry	0.1148
S117	05-7B-37	Teresa & Thomas Gouldsberry	0.1148
S118	05-7B-36	Albert J. Anderson, Jr.	0.1148
S119	05-7B-11	Teresa & Thomas Gouldsberry	0.1159
S120	05-7B-10	Teresa & Thomas Gouldsberry	0.1199
S121	05-7B-09	Teresa & Thomas Gouldsberry	0.1240
S122	05-7B-08	Teresa & Thomas Gouldsberry	0.1286
S123	05-7B-07	Teresa & Thomas Gouldsberry	0.1331
S124	05-7B-06	Teresa & Thomas Gouldsberry	0.1377
S125	05-7B-05	Daniel D. & Mary E. Robinson	0.1418
S126	05-7B-04	Daniel D. & Mary E. Robinson	0.1458
S127	05-7B-03	Daniel D. Robinson, et ux	0.1504
S128	05-7B-02	Daniel D. Robinson, et ux	0.1550
S129	05-8A-04	Cheryl A. & Tammie D. Persinger	1.07
S130	05-8A-05	Cheryl A. & Tammie D. Persinger	0.50
S131	05-8A-06	Cheryl A. & Tammie D. Persinger	0.48
S132	05-8A-07	Anne C. Klem	1.40
S133	05-8A-08	John Joseph Goucy	1.0
S134	05-8A-09	Kevin W. Wallace	0.323
S135	05-8A-15	Kevin R. Morris	2.06
S136	05-8A-16	John David Fromhart	2.0
S137	05-8A-17	Isaac Luke Vanscyoc	1.44
S138	05-8A-55	H. G. Energy II Appalachia, LLC	0.10
S139	05-8A-19	Mary Catherine Brooks	1.0
S140	05-8A-20	Milton Christopher White	0.19
S141	05-8A-11	Gloria Jean White & Milton Christopher White	0.19
S142	05-8A-12	Mary D. Ruckman	1.137
S143	05-8A-13	Matthew Ruckman	2.993
S144	05-8A-14	Board of Education	0.86



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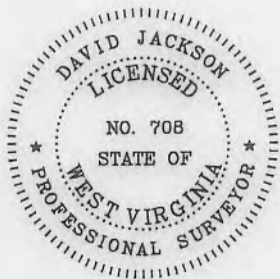
**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Michter N-7HU
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COUNTY: Marshall
STATE: WV

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PG 4 OF 6 MICTHER LEASE
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346.0690± ACRES

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S145	05-8A-25	Whitney Woods	0.29
S146	05-8A-22	Whitney Woods	0.715
S147	05-8A-23	Danny Lee & Leona May Darrah	0.738
S148	05-8A-24	Clarence Paul Siburt, Hrs	0.653
S149	05-8A-26	Albert James Anderson, Jr.	1.605
S150	05-8A-27	Mary J. Siburt	8.296
S151	05-8A-28	Norman G. Johnson-Life	2.0
S152	05-8A-30	Randall Keith Keener, et ux	0.059
S153	05-8A-29	Catherine P. Rine	0.394
S154	05-8A-31	Randall K. Keener, et ux	2.346
S155	05-8A-32	Jonathan David Bopp	0.580
S156	05-8A-34	Norman G. Johnson, et ux	0.255
S157	05-8A-35	Jared C. Sills	2.780
S158	05-8A-39	Barbara L. Daniels & Elaine Wills	3.223
S159	05-8A-40	Barbara L. Daniels & Elaine Wills	0.627
S160	05-8A-38	William J. Gamble, et ux	0.35
S161	05-8A-41	William J. Gamble, et ux	0.046
S162	05-8A-37	William J. Gamble, et ux	0.706
S163	05-8A-36	William J. Gamble, et ux	1.031
S164	05-8A-33	Elaine Wills & Jeffrey D. Brooks	2.517
S165	05-8-04	C. Wayne Berisford	23.355
S166	05-8A-43	Charles G. Stein & Eva A. Wade	0.17
S167	05-8A-44	Charles G. Stein & Eva A. Wade	0.18
S168	05-8A-42	Robert M. White	7.23
S169	05-8A-49	Raymond A. Jr. & Larriette Scott	0.159
S170	05-8A-45	Raymond A. Jr. & Larriette Scott	0.305
S171	05-8A-46	Barbara L. Rose & Mary L. Rose	1.5
S172	05-8A-48	Raymond A. Jr. & Larriette Scott	2.12
S173	05-8A-52	Barbara L. Rose & Mary L. Rose	0.59
S174	05-8A-51	Lucretia M. Harrison	0.210
S175	05-8A-50	Lucretia M. Harrison	0.277
S176	05-8A-54	David D. & Christine S. Daniels	0.68
S177	05-8A-54.1	David D. & Christine S. Daniels	0.69
S178	05-8A-53	Frances E. Nieman	0.422
S179	05-8A-47	Barbara L. Rose & Mary L. Rose	3.0
S180	05-8A-4.1	Frances E. Nieman	33.461
S181 R	05-07-39	Lionel L. Persinger, et ux	57.00
S182	05-08-02	Consolidation Coal Company/ Murray Energy	136.587

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OPERATOR'S

WELL #: Michter N-7HUDISTRICT: FranklinCOUNTY: MarshallSTATE: WV

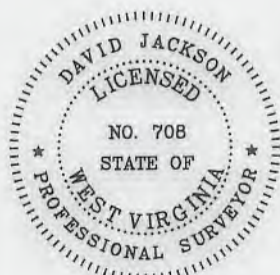
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Lease ID	Tag	Parcel	Grantor, Lessor, Etc.	Deed Book/Page	
10*47051.089.0	A	5-11-1.1	LARRY W DUNLAP AND BARBARA E DUNLAP	864	148
10*22667	B	5-11-21	REBEKAH DRAYER ELDRIDGE AND CHRISTOPHER ELDRIDGE	850	157
10*22773	B	5-11-21	CHRISTA DRAYER STALEY AND JOSHUA STALEY	851	3
10*22777	B	5-11-21	BOYD BUESKING	850	159
10*22780	B	5-11-21	BRENDA FAYE THOMAS PETRACK	850	161
10*22786	B	5-11-21	GUY YATES	848	206
10*22787	B	5-11-21	GAIL ANN YATES WOOD AND WESLEY J WOOD	848	208
10*22788	B	5-11-21	GENIE SUE THOMAS HOLMES AND JOHN L HOLMES	848	204
10*22801	B	5-11-21	BOYD DAIL YATES JR AND MARLA YATES	848	210
10*22808	B	5-11-21	SHIRLEY YATES HARTSELL AND FREDDIE LEE HARTSELL	848	212
10*22810	B	5-11-21	CLYDE V. & KAREN S REED	864	190
10*19127	C	5-11-2	WALTER C RINE AND CHERYL A RINE	956	49
10*19751	D	5-12-10.1	THOMAS L ROBINSON	944	426
10*19752	D	5-12-10.1	PATRICIA ANKROM	944	447
10*19841	D	5-12-10.1	CAROLYN JEAN FERGUSON	945	641
10*19842	D	5-12-10.1	JAMES E ROBINSON AND CAMILLA L ROBINSON	945	643
10*19843	D	5-12-10.1	JOHN S ROBINSON AND SHERRIE J ROBINSON	945	646
10*19975	D	5-12-10.1	CHARLES F STEWART	948	270
10*47051.089.0	E	5-11-1.4	LARRY W DUNLAP AND BARBARA E DUNLAP	864	148
10*19167	F	5-11-1.3	JAY A CONNER PATTY LOUISE CONNER	724	156
10*19167	G	5-11-1.2	JAY A CONNER PATTY LOUISE CONNER	724	156
10*22500	H	5-11-1.6	DEBRA MORRIS	797	617
10*19174	I	5-11-1.7	WILLIAM S ADAMS MARY K ADAMS	711	318
10*19173	J	5-11-1	RANDYLYN MOORE LINDA G MOORE	717	46
10*19184	J	5-11-1	RANDI L PECK	716	26
TH19175	K	5-7-32	WILLIAM N ROUPE AND VIRGINIA A ROUPE	711	503
10*22751	L	5-7-33	WILLIAM N ROUPE AND VIRGINIA A ROUPE	977	367
Q074678004	L	5-7-33	PEGGIANN E. MOSHER F/K/A PEGGY ANN GRANT AND ROWAN MOSHER	842	508
Q074648013	L	5-7-33	NICHOLAS A. OLIVER AND STEPHANIE OLIVER	850	153
Q074648002	L	5-7-33	LOIS J. LAND AND CECIL H. LAND	842	500
Q074648011	L	5-7-33	LAWRENCE K. OLIVER, II AND PHYLLIS K. OLIVER	849	645
Q074648009	L	5-7-33	KENNETH E. OLIVER AND RHONDA OLIVER	846	323
Q074648005	L	5-7-33	JOHN E. OLIVER AND GAIL S. OLIVER	842	498
Q074648008	L	5-7-33	JOAN KIDD AND ROBERT KIDD	846	329
Q074648007	L	5-7-33	JANET MILLER AND JAMES A. MILLER, JR.	846	325
Q074648003	L	5-7-33	JAMES N. OLIVER	842	502
Q074648015	L	5-7-33	DEVIN J. OLIVER	851	426
Q074648006	L	5-7-33	CRISTI LANAGHAN AND MARTIN LANAGHAN	846	327
Q074648010	L	5-7-33	CHAD L. OLIVER	849	649
Q074348012				850	155
Q074648014	L	5-7-33	WILLIAM N. KIDD, SINGLE; JARED K. KIDD, SINGLE	851	424
10*22751	M	5-7-31	WILLIAM N ROUPE AND VIRGINIA A ROUPE	977	367
Q095122000	N	5-7-31.4	GRANDVIEW-DOOLIN PUBLIC SERVICE DISTRICT, A PUBLIC CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF WEST VIRGINIA	873	107
10*22751	O	5-7-31.2	WILLIAM N ROUPE AND VIRGINIA A ROUPE	977	367
10*23357	P	5-7-31.3	WILLIAM N ROUPE AND VIRGINIA A ROUPE	988	487
Q075434001	Q	5-7-34	JAMES E ROBINSON AND CAMILLA L ROBINSON	795	188
Q075434002	Q	5-7-34	THOMAS L ROBINSON	795	190
Q075434003	Q	5-7-34	PATRICIA A ANKROM	795	184
Q075434004	Q	5-7-34	JOHN S ROBINSON AND SHERRIE J ROBINSON	795	186
Q075434005	Q	5-7-34	ELIZABETH J STEWART	796	132
10*16914	R	5-7-39	LIONEL L AND MARY LEE PERSINGER	976	620
10*26036	S	5-7-35	PERSINGER SAMUEL L ET UX	707	626
10*26009	T	5-7-36	PERSINGER JOHN K ET AL	711	304
10*26007	U	5-7-37	PERSINGER JOHN K ET AL	711	300
10*26007	V	5-7-38	PERSINGER JOHN K ET AL	711	300
10*23940	W	5-7-36.1	LIONEL L AND MARY LEE PERSINGER	1019	472
10*23941	W	5-7-36.1	MARY BETH PERSINGER CHAPLIN	1019	475
10*23946	W	5-7-36.1	SAMUEL PERSINGER	1020	355



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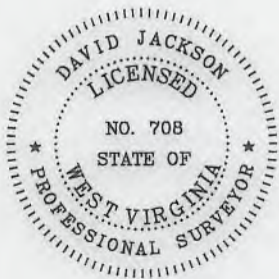
TUG HILL
OPERATING

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Lease ID	Tag	Parcel	Grantor, Lessor, Etc.	Deed Book/Page	
10*23941	X	5-7-35.1	MARY BETH PERSINGER CHAPLIN	1019	475
10*23946	X	5-7-35.1	SAMUEL PERSINGER	1020	355
N/A	Y	5-7-26	JAMES A WADE SR	707	371
N/A	Z	5-7-29	JAMES K PERSINGER AND TONDA J PERSINGER	711	359
Q091664000	AA	5-7-25	JOSEPH H JACKSON JR AND CAROLYN JACKSON	860	526
N/A	BB	5-7-27	JAMES K PERSINGER AND TONDA J PERSINGER	711	359
Q096159000	CC	5-7-23	MARTHA F POWELL	881	21
Q091953000	DD	5-7-23.1	PATRICIA Y DARRAH	860	552
Q097423000	EE	5-7-23.2	ROBERT L HENRY JR AND GEORGEANNA HENRY ET AL	890	613
N/A	FF	5-7-24	JAMES A WADE SR	707	371
Q097423000	GG	5-7-45	ROBERT L HENRY JR AND GEORGEANNA HENRY ET AL	890	613
Q091960000	HH	FISH CREEK - ST OF WV	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	865	558
Q083442000	II	5-7-3.2	AEP GENERATION RESOURCES INC ET AL	829	157
N/A	JJ	5-7-3.3	WEST VIRGINIA ECONOMIC DEVELOPMENT AUTHORITY	656	423
N/A	JJ	5-7-3.3	CERTAINTIED GYPSUM WEST VIRGINIA, INC.	660	140
624061	KK	5-7-3.4	LOUCKS, CHARLES H; KEISTER, FENTON O, JR, ET AL	273	326
624074	LL	5-7-2	GATTS, ALICE	282	394
624083	MM	5-7-4	GATTS, LLOYD Q & MARY WOLFE	290	94
Q074011007	NN	5-6-3.1	SUSAN WITTEN NEAL MYERS ET AL	815	375
Q074011008	NN	5-6-3.1	JANE WITTEN VOTH	853	306
Q074011003	NN	5-6-3.1	JOSEPH MOORE NEAL	859	512
Q074011006	NN	5-6-3.1	FRANCES GALE NEAL	851	218
Q074011005	NN	5-6-3.1	ANN ALEXANDER	853	310
Q074011013	NN	5-6-3.1	MARY WITTEN NEAL WISEMAN	851	216
624074	NN	5-6-3.1	GATTS, ALICE	282	394
624080	NN	5-6-3.1	GATTS, ELIZABETH R J & HARLEY	290	97
624083	NN	5-6-3.1	GATTS, LLOYD Q & MARY WOLFE	290	94
624150	NN	5-6-3.1	RINE, G W & BESSIE J	313	200
Q074011002	NN	5-6-3.1	DOROTHY ANN NEAL	851	396
Q074011004	NN	5-6-3.1	MARGERY J. WITTEN	851	398
624074	OO	5-6-3	GATTS, ALICE	282	394
624080	OO	5-6-3	GATTS, ELIZABETH R J & HARLEY	290	97
624083	OO	5-6-3	GATTS, LLOYD Q & MARY WOLFE	290	94
624150	OO	5-6-3	RINE, G W & BESSIE J	313	200
Q074011007	OO	5-6-3	SUSAN WITTEN NEAL MYERS ET AL	815	375
Q074011008	OO	5-6-3	JANE WITTEN VOTH	853	306
Q074011003	OO	5-6-3	JOSEPH MOORE NEAL	859	512
Q074011006	OO	5-6-3	FRANCES GALE NEAL	851	218
Q074011005	OO	5-6-3	ANN ALEXANDER	853	310
Q074011013	OO	5-6-3	MARY WITTEN NEAL WISEMAN	851	216
Q074011002	OO	5-6-3	DOROTHY ANN NEAL	851	396
Q074011004	OO	5-6-3	MARGERY J. WITTEN	851	398
624080	PP	5-6-5	GATTS, ELIZABETH R J & HARLEY	290	97



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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*47051.089.0	5-11-1.1	A	LARRY W DUNLAP AND BARBARA E DUNLAP	TH EXPLORATION LLC	1/8+	864 148	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22667	5-11-21	B	REBEKAH DRAYER ELDRIDGE AND CHRISTOPHER ELDRIDGE	NOBLE ENERGY INC	1/8+	850 157	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/1	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22773	5-11-21	B	CHRISTA DRAYER STALEY AND JOSHUA STALEY	NOBLE ENERGY INC	1/8+	851 3	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/1	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22777	5-11-21	B	BOYD BUESKING	NOBLE ENERGY INC	1/8+	850 159	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/1	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22780	5-11-21	B	BRENDA FAYE THOMAS PETRACK	NOBLE ENERGY INC	1/8+	850 161	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 35/1	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22786	5-11-21	B	GUY YATES	NOBLE ENERGY INC	1/8+	848 206	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22787	5-11-21	B	GAIL ANN YATES WOOD AND WESLEY J WOOD	NOBLE ENERGY INC	1/8+	848 208	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22788	5-11-21	B	GENIE SUE THOMAS HOLMES AND JOHN L HOLMES	NOBLE ENERGY INC	1/8+	848 204	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22801	5-11-21	B	BOYD DAIL YATES JR AND MARLA YATES	NOBLE ENERGY INC	1/8+	848 210	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22808	5-11-21	B	SHIRLEY YATES HARTSELL AND FREDDIE LEE HARTSELL	NOBLE ENERGY INC	1/8+	848 212	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*22810	5-11-21	B	CLYDE V. & KAREN S REED	NOBLE ENERGY INC	1/8+	864 190	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 36/395	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*19127	5-11-2	C	WALTER C RINE AND CHERYL A RINE	CHEVRON USA INC	1/8+	956 49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration LLC: 40/127 ✓	
10*19751	5-12-10.1	D	THOMAS L ROBINSON	TH EXPLORATION LLC	1/8+	944 426	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19752	5-12-10.1	D	PATRICIA ANKROM	TH EXPLORATION LLC	1/8+	944 447	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19841	5-12-10.1	D	CAROLYN JEAN FERGUSON	TH EXPLORATION LLC	1/8+	945 641	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19842	5-12-10.1	D	JAMES E ROBINSON AND CAMILLA L ROBINSON	TH EXPLORATION LLC	1/8+	945 643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19843	5-12-10.1	D	JOHN S ROBINSON AND SHERRIE J ROBINSON	TH EXPLORATION LLC	1/8+	945 646	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19975	5-12-10.1	D	CHARLES F STEWART	TH EXPLORATION LLC	1/8+	948 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*47051.089.0	5-11-1.4	E	LARRY W DUNLAP AND BARBARA E DUNLAP	TH EXPLORATION LLC	1/8+	864 148	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*19167	5-11-1.3	F	JAY A CONNER PATTY LOUISE CONNER	CHESAPEAKE APPALACHIA LLC	1/8+	724 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/392	Chevron USA Inc to TH Exploration LLC: 40/127 ✓
10*19167	5-11-1.2	G	JAY A CONNER PATTY LOUISE CONNER	CHESAPEAKE APPALACHIA LLC	1/8+	724 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/392	Chevron USA Inc to TH Exploration LLC: 40/127 ✓
10*22500	5-11-1.6	H	DEBRA MORRIS	NOBLE ENERGY INC	1/8+	797 617	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/167	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	HG Energy II Appalachia LLC to TH Exploration LLC: 41/398 ✓	
10*19174	5-11-1.7	I	WILLIAM S ADAMS MARY K ADAMS	TRIENERGY HOLDINGS LLC	1/8+	711 318	N/A	N/A	N/A	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/430	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC & Radler Corp to Chevron USA Inc: 2000LP: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 L.P. & Eberplus Resources (USA) to Chevron USA Inc: 25/1 & 25/105	NPAR LLC to Chevron USA Inc: 756/332	Chevron USA Inc to TH Exploration LLC: 40/127 ✓	
10*19173	5-11-1	J	RANDLYN MOORE LINDA G MOORE	CHESAPEAKE APPALACHIA LLC	1/8+	717 46	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/204	Chesapeake Appalachia LLC to Chevron USA Inc: 30/392	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/404	Chevron USA Inc to TH Exploration LLC: 40/127 ✓	

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*19184	5-11-1	J	RANDI L PECK	CHESAPEAKE APPALACHIA LLC	1/8+	716	26	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 25/582	Chesapeake Appalachia LLC to Chevron USA Inc: 30/392	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/404	Chevron USA Inc to TH Exploration LLC: 40/127 ✓
TH19175	5-7-32	K	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TRIENERGY HOLDINGS LLC	1/8+	711	503	N/A	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/430	AB Resources & NPAR LLC to Chief Exploration & Development LLC & Radler 2000 LP: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 L.P. & Eberplus Resources (USA) Corp to Chevron USA Inc: 25/1 & 25/105	NPAR LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc to TH Exploration LLC: 40/127 ✓
10*22751	5-7-33	L	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TH EXPLORATION LLC	1/8+	977	367	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Q074678004	5-7-33	L	PEGGIANN E. MOSHER F/K/A PEGGY ANN GRANT AND ROWAN MOSHER	NOBLE ENERGY INC	1/8+	842	508	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/309	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648013	5-7-33	L	NICHOLAS A. OLIVER AND STEPHANIE OLIVER	NOBLE ENERGY INC	1/8+	850	153	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648002	5-7-33	L	LOIS J. LAND AND CECIL H. LAND	NOBLE ENERGY INC	1/8+	842	500	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/309	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648011	5-7-33	L	LAWRENCE K. OLIVER, II AND PHYLLIS K. OLIVER	NOBLE ENERGY INC	1/8+	849	645	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648009	5-7-33	L	KENNETH E. OLIVER AND RHONDA OLIVER	NOBLE ENERGY INC	1/8+	846	323	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648005	5-7-33	L	JOHN E. OLIVER AND GAIL S. OLIVER	NOBLE ENERGY INC	1/8+	842	498	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/309	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648008	5-7-33	L	JOAN KIDD AND ROBERT KIDD	NOBLE ENERGY INC	1/8+	846	329	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648007	5-7-33	L	JANET MILLER AND JAMES A. MILLER, JR.	NOBLE ENERGY INC	1/8+	846	325	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648003	5-7-33	L	JAMES N. OLIVER	NOBLE ENERGY INC	1/8+	842	502	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/309	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648015	5-7-33	L	DEVIN J. OLIVER	NOBLE ENERGY INC	1/8+	851	426	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓

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Q074648005	5-7-33	L	CRISTI LANAGHAN AND MARTIN LANAGHAN	NOBLE ENERGY INC	1/8+	846	327	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074648010	5-7-33	L	CHAD L. OLIVER	NOBLE ENERGY INC	1/8+	849	649	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074348012 Q074648014	5-7-33	L	WILLIAM N. KIDD, SINGLE; JARED K. KIDD, SINGLE	NOBLE ENERGY INC	1/8+	851	424	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/550	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
10*22751	5-7-31	M	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TH EXPLORATION LLC ✓	1/8+	977	367	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Q095122000	5-7-31.4	N	GRANDVIEW-DOOLIN PUBLIC SERVICE DISTRICT, A PUBLIC CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF WEST VIRGINIA	NOBLE ENERGY INC	1/8+	873	107	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 34/309	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
10*22751	5-7-31.2	O	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TH EXPLORATION LLC ✓	1/8+	977	367	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23357	5-7-31.3	P	WILLIAM N ROUPE AND VIRGINIA A ROUPE	TH EXPLORATION LLC ✓	1/8+	988	487	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Q075434001	5-7-34	Q	JAMES E ROBINSON AND CAMILLA L ROBINSON	NOBLE ENERGY INC	1/8+	795	188	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 30/302	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q075434002	5-7-34	Q	THOMAS L ROBINSON	NOBLE ENERGY INC	1/8+	795	190	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 30/302	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q075434003	5-7-34	Q	PATRICIA A ANKROM	NOBLE ENERGY INC	1/8+	795	184	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 30/302	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q075434004	5-7-34	Q	JOHN S ROBINSON AND SHERRIE J ROBINSON	NOBLE ENERGY INC	1/8+	795	186	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 30/302	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q075434005	5-7-34	Q	ELIZABETH J STEWART	NOBLE ENERGY INC	1/8+	796	132	N/A	N/A	N/A	N/A	Noble Energy Inc to CNX Gas Company LLC: 30/302	CNX Gas Company LLC to Noble Energy Inc: 37/169	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
10*16914	5-7-39	R	LIONEL L AND MARY LEE PERSINGER	TH EXPLORATION LLC	1/8+	976	620	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26036	5-7-35	S	PERSINGER SAMUEL L ET UX	CHESAPEAKE APPALACHIA LLC	1/8+	707	626	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Chevron USA Inc: 30/392 Chevron USA Inc to TH Exploration LLC: 43/95 & 43/164 ✓
10*26009	5-7-36	T	PERSINGER JOHN K ET AL	TRIEnergy HOLDINGS LLC	1/8+	711	304	N/A	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/430	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC & Radler 2000 LP: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 L.P. & Eberplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAR LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356 Chevron USA Inc to TH Exploration LLC: 43/164 ✓

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10*26007	5-7-37	U	PERSINGER JOHN K ET AL	TRIENERGY HOLDINGS LLC	1/8+	711	300	N/A	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/430	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC & Radler 2000 LP: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 L.P. & Eberplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAR LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc to TH Exploration LLC: 43/164 ✓
10*26007	5-7-38	V	PERSINGER JOHN K ET AL	TRIENERGY HOLDINGS LLC	1/8+	711	300	N/A	N/A	TriEnergy Holdings LLC to NPAR LLC: 24/430	AB Resources LLC & NPAR LLC to Chief Exploration & Development LLC & Radler 2000 LP: 24/466	Chief E&D LLC, Chief O&G LLC, Radler 2000 L.P. & Eberplus Resources (USA) Corp to Chevron USA Inc: 25/1	NPAR LLC to Chevron USA Inc: 756/332	TriEnergy Holdings LLC & TriEnergy Inc to Chevron USA Inc: 28/356	Chevron USA Inc to TH Exploration LLC: 43/164 ✓
10*23940	5-7-36.1	W	LIONEL L AND MARY LEE PERSINGER	TH EXPLORATION LLC	1/8+	1019	472	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23941	5-7-36.1	W	MARY BETH PERSINGER CHAPLIN	TH EXPLORATION LLC	1/8+	1019	475	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23946	5-7-36.1	W	SAMUEL PERSINGER	TH EXPLORATION LLC	1/8+	1020	355	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23940	5-7-35.1	X	LIONEL L AND MARY LEE PERSINGER	TH EXPLORATION LLC	1/8+	1019	472	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23941	5-7-35.1	X	MARY BETH PERSINGER CHAPLIN	TH EXPLORATION LLC	1/8+	1019	475	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23946	5-7-35.1	X	SAMUEL PERSINGER	TH EXPLORATION LLC	1/8+	1020	355	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	5-7-26	Y	JAMES A WADE SR	TRIENERGY HOLDINGS LLC	1/8+	707	371	*FORCE POOL*						TriEnergy Holdings LLC to NPAR LLC: 24/180	NPAR LLC to Chevron USA Inc: 756/332
N/A	5-7-29	Z	JAMES K PERSINGER AND TONDA J PERSINGER	TRIENERGY HOLDINGS LLC	1/8+	711	359	*FORCE POOL*						TriEnergy Holdings LLC to NPAR LLC: 24/430	NPAR LLC to Chevron USA Inc: 756/332
Q091664000	5-7-25	AA	JOSEPH H JACKSON JR AND CAROLYN JACKSON	NOBLE ENERGY INC	1/8+	860	526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
N/A	5-7-27	BB	JAMES K PERSINGER AND TONDA J PERSINGER	TRIENERGY HOLDINGS LLC	1/8+	711	359	*FORCE POOL*						TriEnergy Holdings LLC to NPAR LLC: 24/430	NPAR LLC to Chevron USA Inc: 756/332
Q096159000	5-7-23	CC	MARTHA F POWELL	NOBLE ENERGY INC	1/8+	881	21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q091953000	5-7-23.1	DD	PATRICIA Y DARRAH	NOBLE ENERGY INC	1/8+	860	552	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q097423000	5-7-23.2	EE	ROBERT L HENRY JR AND GEORGEANNA HENRY ET AL	NOBLE ENERGY INC	1/8+	890	613	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
N/A	5-7-24	FF	JAMES A WADE SR	TRIENERGY HOLDINGS LLC	1/8+	707	371	*FORCE POOL*						TriEnergy Holdings LLC to NPAR LLC: 24/180	NPAR LLC to Chevron USA Inc: 756/332
Q097423000	5-7-45	GG	ROBERT L HENRY JR AND GEORGEANNA HENRY ET AL	NOBLE ENERGY INC	1/8+	890	613	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q091960000	FISH CREEK - ST OF WV	HH	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	NOBLE ENERGY INC	1/8+	865	558	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q083442000	5-7-3.2	II	AEP GENERATION RESOURCES INC ET AL	NOBLE ENERGY INC	1/8+	829	157	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
N/A	5-7-3.3	JJ	WEST VIRGINIA ECONOMIC DEVELOPMENT AUTHORITY	N/A	N/A	656	423	*FORCE POOL*							

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N/A	5-7-3.3	JJ	CERTAINTED GYPSUM WEST VIRGINIA, INC.	N/A	N/A	660	140									*FORCE POOL*
624061	5-7-3.4	KK	LOUCKS, CHARLES H; KEISTER, FENTON O, JR, ET AL	CONSOLIDATION COAL COMPANY	1/8+	273	326	N/A	N/A	N/A	Consolidation Coal Company et al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
624074	5-7-2	LL	GATTS, ALICE	CONSOLIDATION COAL COMPANY	1/8+	282	394	N/A	N/A	N/A	Consolidation Coal Company et al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
624083	5-7-4	MM	GATTS, LLOYD Q & MARY WOLFE	CONSOLIDATION COAL COMPANY	1/8+	290	94	N/A	N/A	N/A	Consolidation Coal Company et al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011007	5-6-3.1	NN	SUSAN WITTEN NEAL MYERS ET AL	NOBLE ENERGY INC	1/8+	815	375	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011008	5-6-3.1	NN	JANE WITTEN VOTH	NOBLE ENERGY INC	1/8+	853	306	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011003	5-6-3.1	NN	JOSEPH MOORE NEAL	NOBLE ENERGY INC	1/8+	859	512	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011006	5-6-3.1	NN	FRANCES GALE NEAL	NOBLE ENERGY INC	1/8+	851	218	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011005	5-6-3.1	NN	ANN ALEXANDER	NOBLE ENERGY INC	1/8+	853	310	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
Q074011013	5-6-3.1	NN	MARY WITTEN NEAL WISEMAN	NOBLE ENERGY INC	1/8+	851	216	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
624074	5-6-3.1	NN	GATTS, ALICE	THE M. A. HANNA COMPANY	1/8+	282	394	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓
624080	5-6-3.1	NN	GATTS, ELIZABETH R J & HARLEY	THE M. A. HANNA COMPANY	1/8+	290	97	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43	Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286	✓

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Operator's Well No. Michter N - 7HU

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624083	5-6-3.1	NN	GATTS, LLOYD Q & MARY WOLFE	THE M. A. HANNA COMPANY	1/8+	290	94	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624150	5-6-3.1	NN	RINE, G W & BESSIE J	PITTSBURGH CONSOLIDATION COAL COMPANY	1/8+	313	200	N/A	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011002	5-6-3.1	NN	DOROTHY ANN NEAL	NOBLE ENERGY INC	1/8+	851	396	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011004	5-6-3.1	NN	MARGERY J. WITTEN	NOBLE ENERGY INC	1/8+	851	398	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624074	5-6-3	OO	GATTS, ALICE	THE M. A. HANNA COMPANY	1/8+	282	394	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624080	5-6-3	OO	GATTS, ELIZABETH R J & HARLEY	THE M. A. HANNA COMPANY	1/8+	290	97	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624083	5-6-3	OO	GATTS, LLOYD Q & MARY WOLFE	THE M. A. HANNA COMPANY	1/8+	290	94	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624150	5-6-3	OO	RINE, G W & BESSIE J	PITTSBURGH CONSOLIDATION COAL COMPANY	1/8+	313	200	N/A	Name Change: Pittsburgh Consolidation Coal Company to Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011007	5-6-3	OO	SUSAN WITTEN NEAL MYERS ET AL	NOBLE ENERGY INC	1/8+	815	375	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011008	5-6-3	OO	JANE WITTEN VOTH	NOBLE ENERGY INC	1/8+	853	306	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011003	5-6-3	OO	JOSEPH MOORE NEAL	NOBLE ENERGY INC	1/8+	859	512	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓

51-0207

Operator's Well No. Michter N - 7HU

WW-6A1 Supplement

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
Q074011006	5-6-3	OO	FRANCES GALE NEAL	NOBLE ENERGY INC	1/8+	851	218	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011005	5-6-3	OO	ANN ALEXANDER	NOBLE ENERGY INC	1/8+	853	310	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011013	5-6-3	OO	MARY WITTEN NEAL WISEMAN	NOBLE ENERGY INC	1/8+	851	216	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011002	5-6-3	OO	DOROTHY ANN NEAL	NOBLE ENERGY INC	1/8+	851	396	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
Q074011004	5-6-3	OO	MARGERIE J. WITTEN	NOBLE ENERGY INC	1/8+	851	398	N/A	N/A	N/A	N/A	N/A	N/A	Noble Energy Inc to HG Energy II Appalachia LLC: 39/1 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/286 ✓
624080	5-6-5	PP	GATTS, ELIZABETH R J & HARLEY	THE M. A. HANNA COMPANY	1/8+	290	97	The M. A. Hanna Company to Pittsburgh Consolidation Coal Company: 315/417	Name Change: Pittsburgh Consolidation Coal Company to Pittsburgh Consolidation Coal Company: 6/203	Pittsburgh Consolidation Coal Company to Pittsburgh Consolidation Coal Company: 387/363	Consolidation Coal Company, CNX Land Resources Inc, Et Al to CNX Gas Company LLC: 646/493	CNX Gas Company LLC to Noble Energy Inc: 752/66	CNX Gas Company LLC to Noble Energy Inc: 909/94	Noble Energy Inc to HG Energy II Appalachia LLC: 931/43 Memorandum of Operating Agreement between TH Exploration LLC and HG Energy II Appalachia, LLC: 988/287 ✓

MEMORANDUM OF OPERATING AGREEMENT AND FINANCING STATEMENT

This Memorandum of Operating Agreement and Financing Statement (hereinafter referred to as "Memorandum") is executed to be effective concurrently with that certain Operating Agreement (the "Operating Agreement") by and between TH Exploration, LLC, as Operator, and HG Energy II Appalachia, LLC and TH Exploration II, LLC, as Non-Operators, covering, among other things, the development and production of crude oil, natural gas and associated substances from the leases (hereinafter called the "Contract Area") described on Exhibit "A-1" and Exhibit "A-2" attached hereto and owned by Operator and Non-Operator in the respective percentages of shares indicated on Exhibit "A" to the Operating Agreement.

The Operating Agreement contains an Accounting Procedure, along with provisions giving the parties hereto mutual liens and security interests where one or more parties hereto are or may become Debtors to one or more other parties hereto. This Memorandum incorporates by reference all of the terms and conditions of the Operating Agreement, including but not limited to the lien and security interest provisions.

The purpose of this Memorandum is to place third parties on notice of the Operating Agreement, and to secure and perfect the mutual liens and security interests of the parties hereto.

The Operating Agreement specifically provides and the parties do hereby confirm and agree that:

1. The Operator shall conduct and direct and have full control of all operations on the Contract Area as permitted and required by, and within the limits of, the Operating Agreement.
2. The liability of the parties under the Operating Agreement shall be several, not joint or collective. Each party shall be responsible only for its obligations and shall be liable only for its proportionate share of costs.
3. Each Non-Operator grants to Operator a lien upon its oil and gas rights, oil and gas leases and mineral interests in the Contract Area, and a security interest in its share of oil and/or gas when extracted and its interest in all fixtures, inventory, personal property and equipment located on or used on the Contract Area and in all its contract rights and receivables related thereto and arising therefrom to secure payment of its present and future share of costs and expenses, together with interest thereon at the rate provided in the Accounting Procedure referred to above. To the extent that Operator has a security interest under the Uniform Commercial Code ("Code") of the state or states in which the Contract Area is located, Operator without prejudice and in addition to all other legal, equitable and contractual remedies which are expressly reserved, shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the rights or security interests for the payment thereof.
4. The Operator grants to Non-Operator a lien and security interest equivalent to that granted to Operator as described in Paragraph 3 above, to secure payment by Operator of its own share of costs and expenses when due.



April 5, 2019

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

RE: Michter N-7HU

Subject: Marshall County Routes 76, 27 and 7/4 Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 27 in the area reflected on the Michter N-7HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

Amy Miller
Permit Specialist – Appalachia Region
Cell 304-376-0111
Email: amiller@tug-hilop.com

RECEIVED
Office of Oil and Gas

APR 15 2019

WV Department of
Environmental Protection

WW-6AC
(1/12)

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

Date of Notice Certification: 04/08/2019

API No. 47- 051 - _____
Operator's Well No. Michter N-7HU
Well Pad Name: Michter

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	Eastings:	<u>517,325.03</u>
County:	<u>Marshall</u>		Northing:	<u>4,405,909.84</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Larry W. Dunlap and Charles Leroy Dunlap</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>
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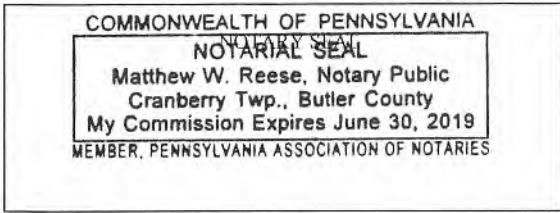
Required Attachments:

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

Certification of Notice is hereby given:

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

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	<u>Amy L. Miller <i>Amy Miller</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist</u>	Facsimile:	<u>412-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amiller@tug-hill.com</u>



Subscribed and sworn before me this 8 day of April, 2019.

Matthew W. Reese Notary Public

My Commission Expires 6-30-2019

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.

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Office of Oil and Gas

APR 15 2019

WV Department of
Environmental Protection

WW-6A
(9-13)

47 05 102207
API NO. 47-051 -
OPERATOR WELL NO. Michter N-7HU
Well Pad Name: Michter

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: 3/23/2019 **Date Permit Application Filed:** 3/29/2019

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: Larry W. and Barbara E. Dunlap (Pad and Access Road)
Address: 1549 Irish Ridge Road
Cameron, WV 26033

Name: Karen Sue Reed and Clyde Reed (Well Pad)
Address: 100 Orchard Lane
Moundsville, WV 26041

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Charles Leroy Dunlap (Pad and Access Road)
Address: 21 Gypsy Drive
Moundsville, WV 26041

Name: _____
Address: _____

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

COAL OWNER OR LESSEE
Name: CNX Resources, LLC - Attn: Casey Saunders
Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15318

COAL OPERATOR
Name: _____
Address: _____

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

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

RECEIVED

DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 15 2019

*Please attach additional forms if necessary WV Department of Environmental Protection

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Michter N-7HU
Well Pad Name: Michter

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, 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 that 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

APR 13 2019

WV Department of

Environmental Protection

WW-6A
(8-13)

API NO. 47-051 - 02207
OPERATOR WELL NO. Michter N-7HU
Well Pad Name: Michter

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 with 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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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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WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Michter N-7HU
Well Pad Name: Michter

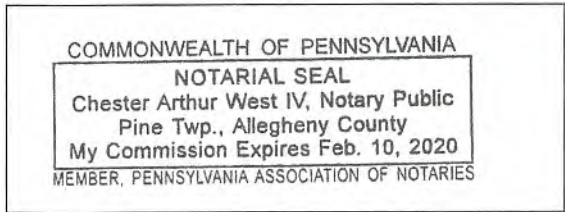
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 26th day of MARCH, 2019.
[Signature] Notary Public
My Commission Expires 2-10-2020

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WW-6A

Supplement Pg. 1A

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

WATER WELL REPORT

Well: MICHTER N-7HU
 District: Franklin
 County: Marshall
 State: WV

There appears to be Five (5) possible water sources within 2,000 feet of the above referenced well location.

Topo Spot # 1 TM 11 Par. 1.6 Debra Morris 304-810-0813 1082 Rines Ridge Rd. Proctor, WV 26055	Topo Spot # 2 TM 11 Par. 1.6 Debra Morris 304-810-0813 1082 Rines Ridge Rd. Proctor, WV 26055	Topo Spot # 3 TM 11 Par. 1.7 William S. & Mary K. Adams 330-718-0404 P.O. Box 303 Canfield, OH 44406
Topo Spot # 4 TM 11 Par. 1.3 Jay A. Conner, et ux 304-845-0641 1117 Rine Ridge Rd. Proctor, WV 26055	Topo Spot # 5 TM 11 Par. 21 Karen Reed, et al 304-845-7536 100 Orchard Ln Moundsville, WV 26041	

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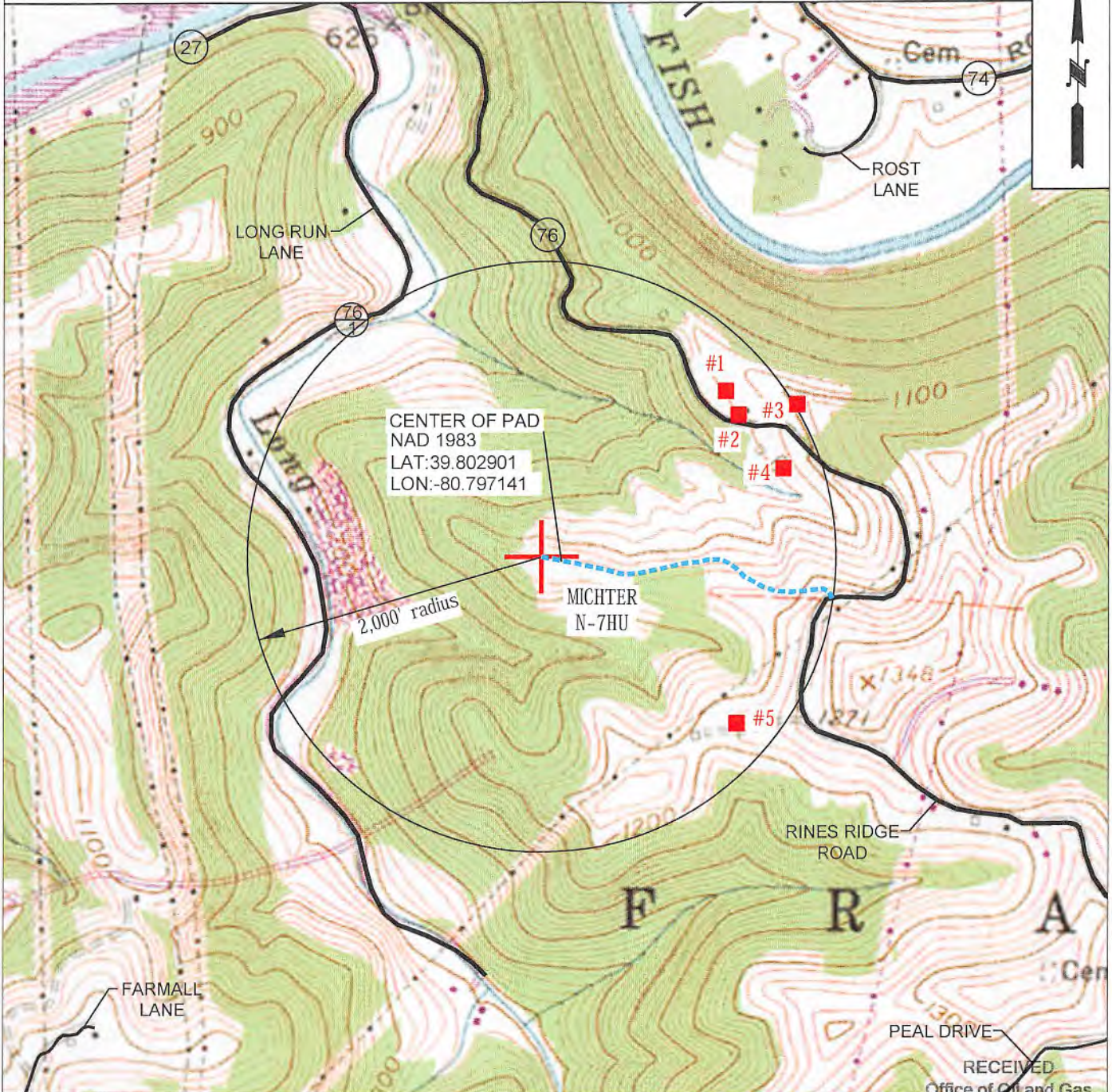
SL-02207


WW-6A

SUPPLEMENT PG 1

PROPOSED MICHTER N-7HU

There appears to be Five (5) possible water sources within 2,000'.



 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	MICHTER
			SCALE:	DATE: WV Department of Environmental Protection
			1" = 1000'	DATE: 2-4-2019

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51-02207

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: 1/14/2019 **Date of Planned Entry:** 1/21/2019

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: Larry W. and Barbara E. Dunlap (Pad and Access Road)
Address: 1549 Irish Ridge Road
Cameron, WV 26033

Name: Charles Leroy Dunlap (Pad and Access Road)
Address: 21 Gypsy Drive
Moundsville, WV 26041

Name: Karen Sue Reed and Clyde Reed (Well Pad)
Address: 100 Orchard Lane
Moundsville, WV 26041

COAL OWNER OR LESSEE

Name: CNX Land Resources, LLC Attn: Casey Saunders
Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(S)

Name: Larry W. and Barbara E. Dunlap (see attached list)
Address: 1549 Irish Ridge Road
Cameron, WV 26033
*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>39.8027785; -80.7973528</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>
District:	<u>Franklin</u>	Watershed:	<u>Fish Creek (HUC 10)</u>
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Larry Dunlap, et al</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: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hill.com

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

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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
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**WW-6A3 NOTICE OF ENTRY FOR PLAT SURVEY
ATTACHMENT #1
WELL: MICHTER N-7HU**

Mineral Owners (Well Pad)

Charles Leroy Dunlap
21 Gypsy Drive
Moundsville, WV 26041

Karen Sue Reed and Clyde Reed
100 Orchard Lane
Moundsville, WV 26041

Boyde Buesking
402 Hickory Street
Bloomington, IL 61701

Christa Drayer Staley
6725 Minier Road
Minier, IL 61759

Rebecca Drayer Eldridge
465 Harts Way
Collierville, TN 38017

Gennie Sue Thomas Holmes
704 N. School Street
Normal, IL 61761

Brenda Faye Thomas Petrack
998 Willow Drive
Pittsburgh, PA 15237

Guy Yates
4102 Blacks Road SW
Hebron, OH 43025

Gail Ann Yates Wood
8161 Goldsmith Drive
Reynoldsburg, OH 43068

Shirley Yates Hartsell
2150 Yorkdale Lane
Reynoldsburg, OH 13068

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SI-02207

**WW-6A5 Attachment
Michter N-7HU**

Additional Landowner

Charles Leroy Dunlap
21 Gypsy Drive
Moundsville, WV 26041

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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

June 19, 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 Permits for the Michter Well Pad, Marshall County

Michter N-7HU

Dear Mr. Martin,

This well site will be accessed from Permit #06-2018-0480 issued to Tug Hill Operating for access to the State Road for a well site located off of Marshall County Route 76 SLS.

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

Very Truly Yours,

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

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

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

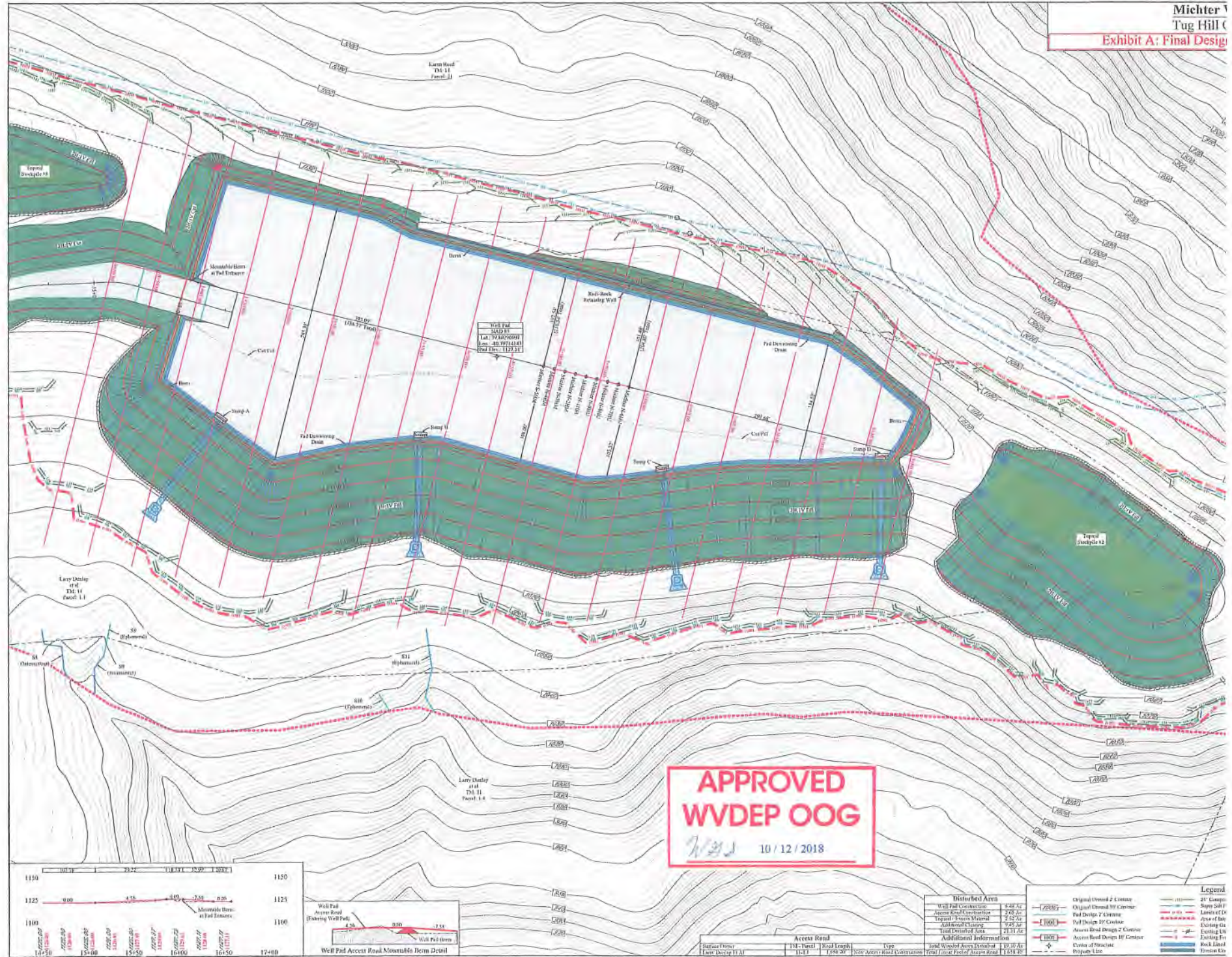
Well No. Michter N-7HU

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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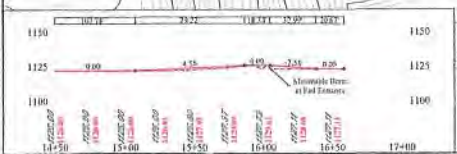
APR 15 2019

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Well Pad
2012.11
Lot: 20.00000000
Eas: 40.00000000
Pad 100: 1122.11

APPROVED WVDEP OOG
10/12/2018



Station From	Station To	Grade Length	Type
Lary Daley H.A.	11+11	1184.30'	New Access Road Construction

Disturbed Area		Legend	
Well Pad Construction	1,549.12'	Original Ground 2' Contour	11000
Access Road Construction	2,705.20'	Original Ground 10' Contour	11000
Topsoil/Process Material	2,252.20'	Pad Design 2' Contour	11000
Additional Rock Lining	3,742.32'	Pad Design 10' Contour	11000
Total Disturbance Area	10,249.84'	Access Road Design 2' Contour	11000
Additional Information:		Access Road Design 10' Contour	11000
		Center of Structure	11000
		Proposed Line	11000