



west virginia department of environmental protection

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

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

Monday, September 21, 2020
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for MCMASTERS S-17HU
47-051-02338-00-00

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.

A handwritten signature in blue ink, appearing to read "James A. Martin".

James A. Martin
Chief

Operator's Well Number: MCMASTERS S-17HU
Farm Name: ROBERT L. SHIELDS, ET AL
U.S. WELL NUMBER: 47-051-02338-00-00
Horizontal 6A New Drill
Date Issued: 9/21/2020



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

August 5, 2020

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

RE: Application for Deep Well Permit – API #47-051-02338

COMPANY: Tug Hill Operating, LLC

FARM: Robert L. Shields, et al McMasters S-17HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point

The deep well review of the application for the above company is **Approved to drill to Trenton for Point Pleasant completion.**

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? No.
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
4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

Susan Rose
Administrator

PERMIT CONDITIONS

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

CONDITIONS

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

API Number: _____

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.

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: McMasters S-17HU Well Pad Name: Shields

3) Farm Name/Surface Owner: Robert L. Shields, et al Public Road Access: Burch Ridge Road - CR 29

4) Elevation, current ground: 1206' Elevation, proposed post-construction: 1206'

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

(b) If Gas Shallow _____ Deep _____
Horizontal _____

JS
6/6/2020

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,131' - 11,277' - thickness of 146' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,427'

9) Formation at Total Vertical Depth: Trenton, plug back to Reedsville

10) Proposed Total Measured Depth: 22,100'

11) Proposed Horizontal Leg Length: 10,418.58'

12) Approximate Fresh Water Strata Depths: 70' ; 802'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickley Coal - 701' ; Pittsburgh Coal - 796'

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

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

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

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	900'	900'	1,463FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2600'	2600'	1,842FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,080'	10,080'	3,286FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	22,100'	22,100'	5,234'FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,759'	
Liners							

*JL
6/16/20*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	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	16,510	10,864	SEE #24	1.18
Tubing	2 7/8"			11,385	11,624		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47-054 **4705102338**
OPERATOR WELL NO. **McMaster 17U**

Well Pad Name: Shields

[Signature]
6/6/2020

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 (10,259'). 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 26,042,500 lb proppant and 402,636 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.76 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.84 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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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.

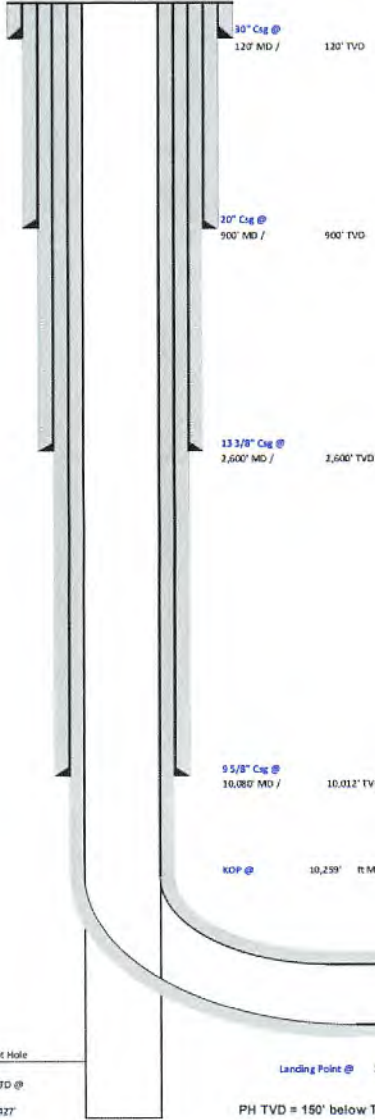


WELL NAME: **McMasters S-17HU**
 STATE: **WV** COUNTY: **Marshall**
 DISTRICT: **Franklin**
 DF Elev: **1,206'** GL Elev: **1,206'**
 TD: **22,100'**
 TH Latitude: **39.76030238**
 TH Longitude: **-80.78751484**
 BH Latitude: **39.733836**
 BH Longitude: **-80.771313**

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	80'
Sewickley Coal	70'
Pittsburgh Coal	79'
Big Lime	1,555'
Berea	2,493'
Tully	6,350'
Marcellus	8,443'
Onondaga	6,493'
Salina	7,184'
Lockport	8,211'
Utica	10,876'
Point Pleasant	11,131'
Landing Depth	11,181'
Trenton	11,277'
Pilot Hole TD	11,427'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	26	20	900'	900'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,600'	2,600'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,080'	10,012'	47	HP110	Surface
Production	8 1/2	5 1/2	22,100'	11,361'	23	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Secks	Class	Density	Fluid Type	Centralizer Notes
Conductor	398	A	15.6	Air	None
Surface	1,578	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,995	A	15	Air	1 Centralizer every other ft
Intermediate 2	2,796	A	14.5	Air	1 Centralizer every other ft
Production	4,634	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to s/c



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Tug Hill Operating, LLC Casing and Cement Program

McMasters S-17HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	900'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,600'	CTS
Intermediate 2	9 5/8"	HP110	12 1/4"	10,080'	CTS
Production	5 1/2"	P110	8 1/2"	22,100'	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

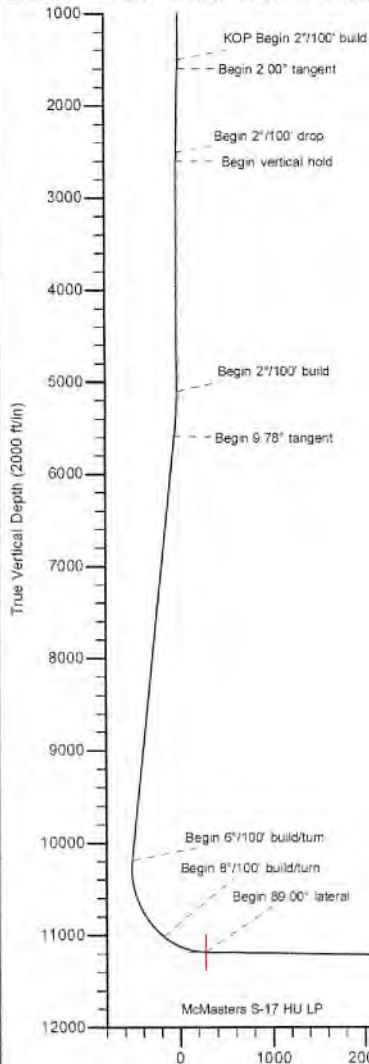
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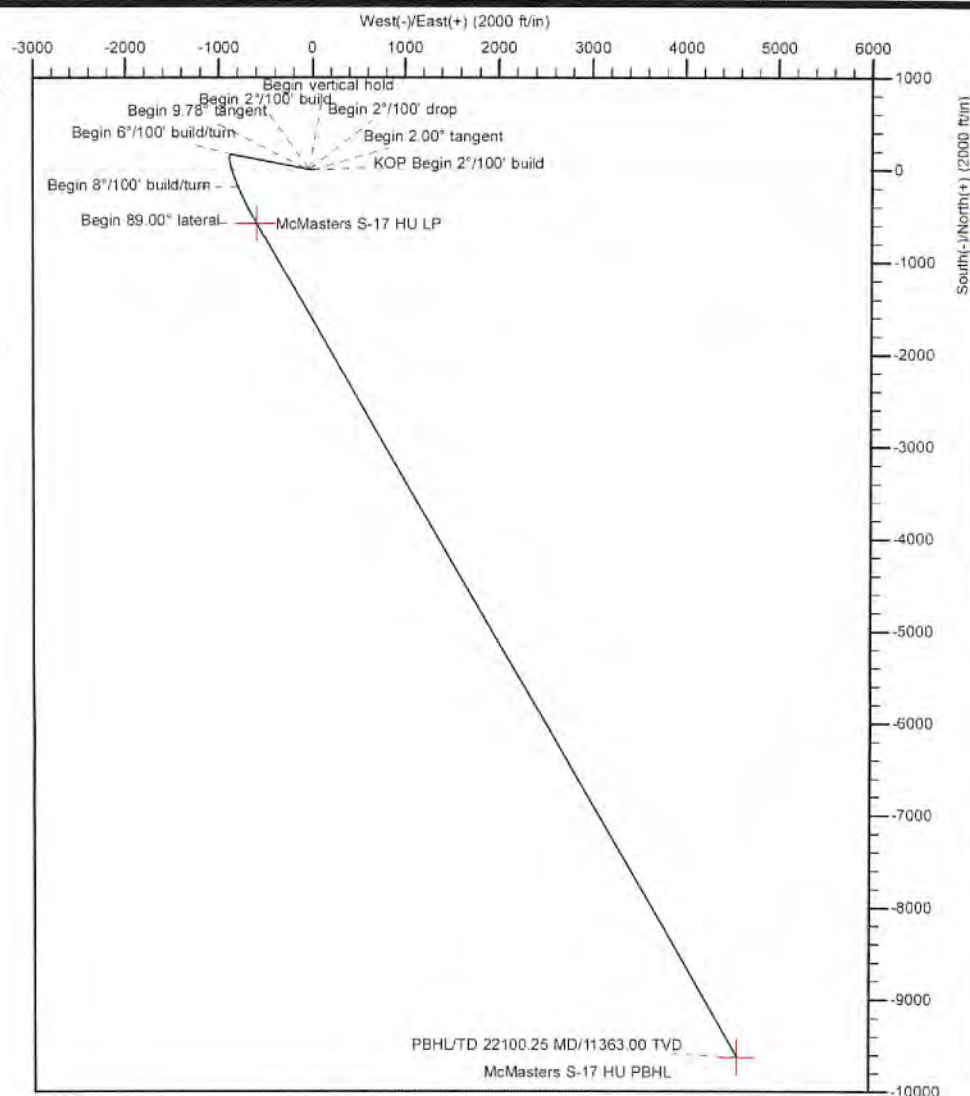
Well: **McMasters S-17 HU (slot G)**
 Site: **McMasters Shields**
 Project: **Marshall County, West Virginia**
 Design: **rev2**
 Rig:

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
1500.00	0.00	0.000	1500.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
1600.00	2.00	280.000	1599.98	0.30	-1.72	2.00	280.000	-1.01	Begin 2.00° tangent
2500.57	2.00	280.000	2500.00	5.76	-32.67	0.00	0.000	-19.23	Begin 2°/100' drop
2600.57	0.00	280.000	2599.98	6.06	-34.39	2.00	180.000	-20.25	Begin vertical hold
5100.59	0.00	280.000	5100.00	6.06	-34.39	0.00	280.000	-20.25	Begin 2°/100' build
5599.51	9.78	281.052	5586.55	14.04	-75.24	2.00	281.052	-44.99	Begin 9.78° tangent
10258.86	9.78	281.052	10187.87	166.07	-853.53	0.00	0.000	-516.54	Begin 6°/100' build/turn
11188.14	50.00	158.022	11010.59	-176.42	-792.90	6.00	-129.032	-181.21	Begin 8°/100' build/turn
11683.59	89.00	150.247	11181.00	-583.81	-590.84	8.00	-12.242	273.47	Begin 89.00° lateral
22100.25	89.00	150.247	11363.00	-9625.88	4577.78	0.00	0.000	10658.97	PBHLTD 22100.25 MD/11363.00 TVD



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

System Datum: Mean Sea Level
 Depth Reference: GL @ 1206.00ft

Northing	Easting	Latitude	Longitude
14439522.51	1700130.91	39.76030238	-80.78751484

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.84

Azimuths to Grid North
 True North: -0.14°
 Magnetic North: -8.84°

Magnetic Field
 Strength: 51893.6nT
 Dip Angle: 86.74°
 Date: 12/9/2019
 Model: IGRF2015

4705102338



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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	McMasters Shields				
Site Position:		Northing:	14,439,441.76 usft	Latitude:	39.76008050
From:	Lat/Long	Easting:	1,700,145.18 usft	Longitude:	-80.78746471
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.136 °

Well	McMasters S-17 HU (slot G)					
Well Position	+N/-S	0.00 ft	Northing:	14,439,522.52 usft	Latitude:	39.76030238
	+E/-W	0.00 ft	Easting:	1,700,130.90 usft	Longitude:	-80.78751484
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level:	1,206.00 ft	

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/9/2019	-8.707	66.739	51,883.56008426

Design	rev2			
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	154.566

Plan Survey Tool Program	Date 5/28/2020			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,100.25 rev2 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,600.00	2.00	280.000	1,599.98	0.30	-1.72	2.00	2.00	0.00	280.000	
2,500.57	2.00	280.000	2,500.00	5.76	-32.67	0.00	0.00	0.00	0.000	
2,600.57	0.00	280.000	2,599.98	6.06	-34.39	2.00	-2.00	0.00	180.000	
5,100.59	0.00	280.000	5,100.00	6.06	-34.39	0.00	0.00	0.00	280.000	
5,589.51	9.78	281.052	5,586.55	14.04	-75.24	2.00	2.00	0.22	281.052	
10,258.66	9.78	281.052	10,187.87	166.07	-853.53	0.00	0.00	0.00	0.000	
11,188.14	50.00	158.022	11,010.59	-176.42	-792.90	6.00	4.33	-13.24	-129.032	
11,683.59	89.00	150.247	11,181.00	-583.81	-590.84	8.00	7.87	-1.57	-12.242	
22,100.25	89.00	150.247	11,363.00	-9,625.88	4,577.78	0.00	0.00	0.00	0.000	McMasters S-17 HU F

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
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Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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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	0.000	0.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
100.00	0.00	0.000	100.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
200.00	0.00	0.000	200.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
300.00	0.00	0.000	300.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
400.00	0.00	0.000	400.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
500.00	0.00	0.000	500.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
600.00	0.00	0.000	600.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
700.00	0.00	0.000	700.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
800.00	0.00	0.000	800.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
900.00	0.00	0.000	900.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
KOP Begin 2"/100' build									
1,600.00	2.00	280.000	1,599.98	0.30	-1.72	14,439,522.82	1,700,129.19	39.76030323	-80.78752095
Begin 2.00° tangent									
1,700.00	2.00	280.000	1,699.92	0.91	-5.16	14,439,523.43	1,700,125.75	39.76030491	-80.78753318
1,800.00	2.00	280.000	1,799.86	1.52	-8.59	14,439,524.03	1,700,122.31	39.76030660	-80.78754540
1,900.00	2.00	280.000	1,899.80	2.12	-12.03	14,439,524.64	1,700,118.88	39.76030829	-80.78755763
2,000.00	2.00	280.000	1,999.74	2.73	-15.47	14,439,525.24	1,700,115.44	39.76030997	-80.78756985
2,100.00	2.00	280.000	2,099.68	3.33	-18.90	14,439,525.85	1,700,112.00	39.76031166	-80.78758208
2,200.00	2.00	280.000	2,199.61	3.94	-22.34	14,439,526.46	1,700,108.56	39.76031335	-80.78759430
2,300.00	2.00	280.000	2,299.55	4.55	-25.78	14,439,527.06	1,700,105.13	39.76031503	-80.78760653
2,400.00	2.00	280.000	2,399.49	5.15	-29.21	14,439,527.67	1,700,101.69	39.76031672	-80.78761875
2,500.00	2.00	280.000	2,499.43	5.76	-32.65	14,439,528.27	1,700,098.25	39.76031841	-80.78763098
2,500.57	2.00	280.000	2,500.00	5.76	-32.67	14,439,528.28	1,700,098.23	39.76031841	-80.78763105
Begin 2"/100' drop									
2,600.00	0.01	280.000	2,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,600.57	0.00	280.000	2,599.98	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
Begin vertical hold									
2,700.00	0.00	280.000	2,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,800.00	0.00	280.000	2,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,900.00	0.00	280.000	2,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,000.00	0.00	280.000	2,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,100.00	0.00	280.000	3,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,200.00	0.00	0.000	3,199.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,300.00	0.00	280.000	3,299.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,400.00	0.00	0.000	3,399.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,500.00	0.00	280.000	3,499.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,600.00	0.00	280.000	3,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,700.00	0.00	280.000	3,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,800.00	0.00	280.000	3,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,900.00	0.00	0.000	3,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,000.00	0.00	280.000	3,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,100.00	0.00	280.000	4,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,200.00	0.00	280.000	4,199.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,300.00	0.00	280.000	4,299.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,400.00	0.00	280.000	4,399.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,500.00	0.00	0.000	4,499.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,600.00	0.00	280.000	4,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,700.00	0.00	0.000	4,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716



Planning Report - Geographic

4705102338

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-17 HU (slot G)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-17 HU (slot G)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	0.00	280.000	4,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
4,900.00	0.00	280.000	4,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,000.00	0.00	280.000	4,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,100.00	0.00	280.000	5,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,100.59	0.00	280.000	5,100.00	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
Begin 2°/100' build										
5,200.00	1.99	281.052	5,199.39	6.39	-36.08	14,439,528.91	1,700,094.82	39.76032018	-80.78764318	
5,300.00	3.99	281.052	5,299.25	7.39	-41.20	14,439,529.91	1,700,089.71	39.76032296	-80.78766137	
5,400.00	5.99	281.052	5,398.87	9.06	-49.73	14,439,531.58	1,700,081.17	39.76032759	-80.78769173	
5,500.00	7.99	281.052	5,498.12	11.39	-61.67	14,439,533.91	1,700,069.23	39.76033407	-80.78773419	
5,589.51	9.78	281.052	5,586.55	14.04	-75.24	14,439,536.56	1,700,055.67	39.76034144	-80.78778244	
Begin 9.78° tangent										
5,600.00	9.78	281.052	5,596.89	14.38	-76.99	14,439,536.90	1,700,053.92	39.76034239	-80.78778866	
5,700.00	9.78	281.052	5,695.44	17.64	-93.65	14,439,540.16	1,700,037.25	39.76035144	-80.78784795	
5,800.00	9.78	281.052	5,793.98	20.90	-110.32	14,439,543.41	1,700,020.58	39.76036049	-80.78790723	
5,900.00	9.78	281.052	5,892.53	24.15	-126.99	14,439,546.67	1,700,003.91	39.76036954	-80.78796552	
6,000.00	9.78	281.052	5,991.08	27.41	-143.66	14,439,549.92	1,699,987.24	39.76037859	-80.78802581	
6,100.00	9.78	281.052	6,089.62	30.66	-160.33	14,439,553.18	1,699,970.57	39.76038764	-80.78808509	
6,200.00	9.78	281.052	6,188.17	33.92	-177.00	14,439,556.44	1,699,953.91	39.76039669	-80.78814438	
6,300.00	9.78	281.052	6,286.72	37.18	-193.67	14,439,559.69	1,699,937.24	39.76040573	-80.78820366	
6,400.00	9.78	281.052	6,385.27	40.43	-210.34	14,439,562.95	1,699,920.57	39.76041478	-80.78826295	
6,500.00	9.78	281.052	6,483.81	43.69	-227.01	14,439,566.20	1,699,903.90	39.76042383	-80.78832224	
6,600.00	9.78	281.052	6,582.36	46.94	-243.68	14,439,569.46	1,699,887.23	39.76043288	-80.78838152	
6,700.00	9.78	281.052	6,680.91	50.20	-260.34	14,439,572.72	1,699,870.56	39.76044193	-80.78844081	
6,800.00	9.78	281.052	6,779.45	53.45	-277.01	14,439,575.97	1,699,853.89	39.76045098	-80.78850010	
6,900.00	9.78	281.052	6,878.00	56.71	-293.68	14,439,579.23	1,699,837.22	39.76046003	-80.78855938	
7,000.00	9.78	281.052	6,976.55	59.97	-310.35	14,439,582.48	1,699,820.55	39.76046908	-80.78861867	
7,100.00	9.78	281.052	7,075.10	63.22	-327.02	14,439,585.74	1,699,803.89	39.76047813	-80.78867796	
7,200.00	9.78	281.052	7,173.64	66.48	-343.69	14,439,588.99	1,699,787.22	39.76048718	-80.78873724	
7,300.00	9.78	281.052	7,272.19	69.73	-360.36	14,439,592.25	1,699,770.55	39.76049623	-80.78879653	
7,400.00	9.78	281.052	7,370.74	72.99	-377.03	14,439,595.51	1,699,753.88	39.76050528	-80.78885582	
7,500.00	9.78	281.052	7,469.28	76.25	-393.70	14,439,598.76	1,699,737.21	39.76051433	-80.78891510	
7,600.00	9.78	281.052	7,567.83	79.50	-410.36	14,439,602.02	1,699,720.54	39.76052338	-80.78897439	
7,700.00	9.78	281.052	7,666.38	82.76	-427.03	14,439,605.27	1,699,703.87	39.76053243	-80.78903368	
7,800.00	9.78	281.052	7,764.93	86.01	-443.70	14,439,608.53	1,699,687.20	39.76054148	-80.78909296	
7,900.00	9.78	281.052	7,863.47	89.27	-460.37	14,439,611.79	1,699,670.53	39.76055053	-80.78915225	
8,000.00	9.78	281.052	7,962.02	92.53	-477.04	14,439,615.04	1,699,653.87	39.76055958	-80.78921154	
8,100.00	9.78	281.052	8,060.57	95.78	-493.71	14,439,618.30	1,699,637.20	39.76056863	-80.78927082	
8,200.00	9.78	281.052	8,159.12	99.04	-510.38	14,439,621.55	1,699,620.53	39.76057768	-80.78933011	
8,300.00	9.78	281.052	8,257.66	102.29	-527.05	14,439,624.81	1,699,603.86	39.76058673	-80.78938940	
8,400.00	9.78	281.052	8,356.21	105.55	-543.72	14,439,628.07	1,699,587.19	39.76059578	-80.78944868	
8,500.00	9.78	281.052	8,454.76	108.81	-560.38	14,439,631.32	1,699,570.52	39.76060482	-80.78950797	
8,600.00	9.78	281.052	8,553.30	112.06	-577.05	14,439,634.58	1,699,553.85	39.76061387	-80.78956726	
8,700.00	9.78	281.052	8,651.85	115.32	-593.72	14,439,637.83	1,699,537.18	39.76062292	-80.78962654	
8,800.00	9.78	281.052	8,750.40	118.57	-610.39	14,439,641.09	1,699,520.51	39.76063197	-80.78968583	
8,900.00	9.78	281.052	8,848.95	121.83	-627.06	14,439,644.34	1,699,503.85	39.76064102	-80.78974512	
9,000.00	9.78	281.052	8,947.49	125.08	-643.73	14,439,647.60	1,699,487.18	39.76065007	-80.78980440	
9,100.00	9.78	281.052	9,046.04	128.34	-660.40	14,439,650.86	1,699,470.51	39.76065912	-80.78986369	
9,200.00	9.78	281.052	9,144.59	131.60	-677.07	14,439,654.11	1,699,453.84	39.76066817	-80.78992298	
9,300.00	9.78	281.052	9,243.13	134.85	-693.74	14,439,657.37	1,699,437.17	39.76067722	-80.78998226	
9,400.00	9.78	281.052	9,341.68	138.11	-710.41	14,439,660.62	1,699,420.50	39.76068627	-80.79004155	
9,500.00	9.78	281.052	9,440.23	141.36	-727.07	14,439,663.88	1,699,403.83	39.76069531	-80.79010084	
9,600.00	9.78	281.052	9,538.78	144.62	-743.74	14,439,667.14	1,699,387.16	39.76070436	-80.79016012	
9,700.00	9.78	281.052	9,637.32	147.88	-760.41	14,439,670.39	1,699,370.49	39.76071341	-80.79021941	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,800.00	9.78	281.052	9,735.87	151.13	-777.08	14,439,673.65	1,699,353.83	39.76072246	-80.79027870
9,900.00	9.78	281.052	9,834.42	154.39	-793.75	14,439,676.90	1,699,337.16	39.76073151	-80.79033799
10,000.00	9.78	281.052	9,932.96	157.64	-810.42	14,439,680.16	1,699,320.49	39.76074056	-80.79039727
10,100.00	9.78	281.052	10,031.51	160.90	-827.09	14,439,683.42	1,699,303.82	39.76074961	-80.79045656
10,200.00	9.78	281.052	10,130.06	164.16	-843.76	14,439,686.67	1,699,287.15	39.76075866	-80.79051585
10,258.66	9.78	281.052	10,187.87	166.07	-853.53	14,439,688.58	1,699,277.37	39.76076396	-80.79055062
Begin 6°/100' build/turn									
10,300.00	8.44	267.807	10,228.69	166.62	-860.01	14,439,689.14	1,699,270.89	39.76076554	-80.79057367
10,400.00	7.92	224.774	10,327.76	161.45	-872.20	14,439,683.96	1,699,258.70	39.76075140	-80.79061710
10,500.00	11.21	193.783	10,426.42	147.10	-879.38	14,439,669.62	1,699,251.53	39.76071206	-80.79064274
10,600.00	16.14	178.999	10,523.59	123.75	-881.45	14,439,646.26	1,699,249.45	39.76064792	-80.79065032
10,700.00	21.60	171.252	10,618.19	91.63	-878.41	14,439,614.15	1,699,252.50	39.76055970	-80.79063975
10,800.00	27.28	166.565	10,709.20	51.11	-870.28	14,439,573.62	1,699,260.63	39.76044837	-80.79061115
10,900.00	33.07	163.404	10,795.62	2.63	-857.15	14,439,525.14	1,699,273.76	39.76031514	-80.79056484
11,000.00	38.92	161.098	10,876.49	-53.29	-839.16	14,439,469.23	1,699,291.74	39.76016147	-80.79050131
11,100.00	44.80	159.313	10,950.95	-116.02	-816.52	14,439,406.50	1,699,314.39	39.75998904	-80.79042127
11,188.14	50.00	158.022	11,010.59	-176.42	-792.90	14,439,346.10	1,699,338.01	39.75982301	-80.79033772
Begin 8°/100' build/turn									
11,200.00	50.93	157.763	11,018.14	-184.89	-789.46	14,439,337.62	1,699,341.45	39.75979972	-80.79032554
11,300.00	58.77	155.811	11,075.67	-259.94	-757.20	14,439,262.57	1,699,373.71	39.75959340	-80.79021137
11,400.00	66.63	154.161	11,121.50	-340.38	-719.61	14,439,182.13	1,699,411.29	39.75937225	-80.79007831
11,500.00	74.51	152.697	11,154.74	-424.65	-677.44	14,439,097.87	1,699,453.47	39.75914057	-80.78992894
11,600.00	82.40	151.340	11,174.74	-511.09	-631.49	14,439,011.42	1,699,499.41	39.75890287	-80.78976617
11,683.59	89.00	150.247	11,181.00	-583.81	-590.84	14,438,938.71	1,699,540.07	39.75870291	-80.78962213
Begin 89.00° lateral									
11,700.00	89.00	150.247	11,181.29	-598.05	-582.70	14,438,924.47	1,699,548.21	39.75866374	-80.78959327
11,800.00	89.00	150.247	11,183.04	-684.86	-533.08	14,438,837.66	1,699,597.83	39.75842503	-80.78941744
11,900.00	89.00	150.247	11,184.78	-771.66	-483.46	14,438,750.86	1,699,647.45	39.75818632	-80.78924161
12,000.00	89.00	150.247	11,186.53	-858.46	-433.84	14,438,664.05	1,699,697.07	39.75794761	-80.78906578
12,100.00	89.00	150.247	11,188.28	-945.27	-384.22	14,438,577.25	1,699,746.68	39.75770890	-80.78888996
12,200.00	89.00	150.247	11,190.02	-1,032.07	-334.60	14,438,490.45	1,699,796.30	39.75747019	-80.78871413
12,300.00	89.00	150.247	11,191.77	-1,118.88	-284.98	14,438,403.64	1,699,845.92	39.75723148	-80.78853831
12,400.00	89.00	150.247	11,193.52	-1,205.68	-235.37	14,438,316.84	1,699,895.54	39.75699277	-80.78836249
12,500.00	89.00	150.247	11,195.27	-1,292.48	-185.75	14,438,230.03	1,699,945.16	39.75675406	-80.78818666
12,600.00	89.00	150.247	11,197.01	-1,379.29	-136.13	14,438,143.23	1,699,994.78	39.75651535	-80.78801084
12,700.00	89.00	150.247	11,198.76	-1,466.09	-86.51	14,438,056.43	1,700,044.40	39.75627664	-80.78783502
12,800.00	89.00	150.247	11,200.51	-1,552.90	-36.89	14,437,969.62	1,700,094.01	39.75603793	-80.78765921
12,900.00	89.00	150.247	11,202.26	-1,639.70	12.73	14,437,882.82	1,700,143.63	39.75579922	-80.78748339
13,000.00	89.00	150.247	11,204.00	-1,726.50	62.35	14,437,796.02	1,700,193.25	39.75556051	-80.78730757
13,100.00	89.00	150.247	11,205.75	-1,813.31	111.97	14,437,709.21	1,700,242.87	39.75532179	-80.78713176
13,200.00	89.00	150.247	11,207.50	-1,900.11	161.58	14,437,622.41	1,700,292.49	39.75508308	-80.78695595
13,300.00	89.00	150.247	11,209.24	-1,986.92	211.20	14,437,535.60	1,700,342.11	39.75484437	-80.78678013
13,400.00	89.00	150.247	11,210.99	-2,073.72	260.82	14,437,448.80	1,700,391.73	39.75460566	-80.78660432
13,500.00	89.00	150.247	11,212.74	-2,160.52	310.44	14,437,362.00	1,700,441.35	39.75436694	-80.78642851
13,600.00	89.00	150.247	11,214.49	-2,247.33	360.06	14,437,275.19	1,700,490.96	39.75412823	-80.78625271
13,700.00	89.00	150.247	11,216.23	-2,334.13	409.68	14,437,188.39	1,700,540.58	39.75388952	-80.78607690
13,800.00	89.00	150.247	11,217.98	-2,420.94	459.30	14,437,101.59	1,700,590.20	39.75365080	-80.78590109
13,900.00	89.00	150.247	11,219.73	-2,507.74	508.92	14,437,014.78	1,700,639.82	39.75341209	-80.78572529
14,000.00	89.00	150.247	11,221.47	-2,594.54	558.53	14,436,927.98	1,700,689.44	39.75317337	-80.78554949
14,100.00	89.00	150.247	11,223.22	-2,681.35	608.15	14,436,841.17	1,700,739.06	39.75293466	-80.78537368
14,200.00	89.00	150.247	11,224.97	-2,768.15	657.77	14,436,754.37	1,700,788.68	39.75269594	-80.78519788
14,300.00	89.00	150.247	11,226.72	-2,854.96	707.39	14,436,667.57	1,700,838.29	39.75245723	-80.78502208
14,400.00	89.00	150.247	11,228.46	-2,941.76	757.01	14,436,580.76	1,700,887.91	39.75221851	-80.78484628
14,500.00	89.00	150.247	11,230.21	-3,028.56	806.63	14,436,493.96	1,700,937.53	39.75197980	-80.78467049



Planning Report - Geographic

4705102338

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-17 HU (slot G)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-17 HU (slot G)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	89.00	150.247	11,231.96	-3,115.37	856.25	14,436,407.16	1,700,987.15	39.75174108	-80.78449469	
14,700.00	89.00	150.247	11,233.70	-3,202.17	905.87	14,436,320.35	1,701,036.77	39.75150236	-80.78431890	
14,800.00	89.00	150.247	11,235.45	-3,288.98	955.48	14,436,233.55	1,701,086.39	39.75126365	-80.78414310	
14,900.00	89.00	150.247	11,237.20	-3,375.78	1,005.10	14,436,146.74	1,701,136.01	39.75102493	-80.78396731	
15,000.00	89.00	150.247	11,238.95	-3,462.58	1,054.72	14,436,059.94	1,701,185.62	39.75078621	-80.78379152	
15,100.00	89.00	150.247	11,240.69	-3,549.39	1,104.34	14,435,973.14	1,701,235.24	39.75054750	-80.78361573	
15,200.00	89.00	150.247	11,242.44	-3,636.19	1,153.96	14,435,886.33	1,701,284.86	39.75030878	-80.78343994	
15,300.00	89.00	150.247	11,244.19	-3,722.99	1,203.58	14,435,799.53	1,701,334.48	39.75007006	-80.78326415	
15,400.00	89.00	150.247	11,245.93	-3,809.80	1,253.20	14,435,712.73	1,701,384.10	39.74983134	-80.78308837	
15,500.00	89.00	150.247	11,247.68	-3,896.60	1,302.82	14,435,625.92	1,701,433.72	39.74959262	-80.78291258	
15,600.00	89.00	150.247	11,249.43	-3,983.41	1,352.43	14,435,539.12	1,701,483.34	39.74935390	-80.78273680	
15,700.00	89.00	150.247	11,251.18	-4,070.21	1,402.05	14,435,452.31	1,701,532.96	39.74911518	-80.78256101	
15,800.00	89.00	150.247	11,252.92	-4,157.01	1,451.67	14,435,365.51	1,701,582.57	39.74887646	-80.78238523	
15,900.00	89.00	150.247	11,254.67	-4,243.82	1,501.29	14,435,278.71	1,701,632.19	39.74863775	-80.78220945	
16,000.00	89.00	150.247	11,256.42	-4,330.62	1,550.91	14,435,191.90	1,701,681.81	39.74839903	-80.78203367	
16,100.00	89.00	150.247	11,258.16	-4,417.43	1,600.53	14,435,105.10	1,701,731.43	39.74816031	-80.78185790	
16,200.00	89.00	150.247	11,259.91	-4,504.23	1,650.15	14,435,018.29	1,701,781.05	39.74792158	-80.78168212	
16,300.00	89.00	150.247	11,261.66	-4,591.03	1,699.77	14,434,931.49	1,701,830.67	39.74768286	-80.78150634	
16,400.00	89.00	150.247	11,263.41	-4,677.84	1,749.38	14,434,844.69	1,701,880.29	39.74744414	-80.78133057	
16,500.00	89.00	150.247	11,265.15	-4,764.64	1,799.00	14,434,757.88	1,701,929.90	39.74720542	-80.78115480	
16,600.00	89.00	150.247	11,266.90	-4,851.45	1,848.62	14,434,671.08	1,701,979.52	39.74696670	-80.78097902	
16,700.00	89.00	150.247	11,268.65	-4,938.25	1,898.24	14,434,584.28	1,702,029.14	39.74672798	-80.78080325	
16,800.00	89.00	150.247	11,270.40	-5,025.05	1,947.86	14,434,497.47	1,702,078.76	39.74648926	-80.78062748	
16,900.00	89.00	150.247	11,272.14	-5,111.86	1,997.48	14,434,410.67	1,702,128.38	39.74625053	-80.78045172	
17,000.00	89.00	150.247	11,273.89	-5,198.66	2,047.10	14,434,323.86	1,702,178.00	39.74601181	-80.78027595	
17,100.00	89.00	150.247	11,275.64	-5,285.47	2,096.72	14,434,237.06	1,702,227.62	39.74577309	-80.78010018	
17,200.00	89.00	150.247	11,277.38	-5,372.27	2,146.33	14,434,150.26	1,702,277.24	39.74553436	-80.77992442	
17,300.00	89.00	150.247	11,279.13	-5,459.07	2,195.95	14,434,063.45	1,702,326.85	39.74529564	-80.77974865	
17,400.00	89.00	150.247	11,280.88	-5,545.88	2,245.57	14,433,976.65	1,702,376.47	39.74505692	-80.77957289	
17,500.00	89.00	150.247	11,282.63	-5,632.68	2,295.19	14,433,889.85	1,702,426.09	39.74481819	-80.77939713	
17,600.00	89.00	150.247	11,284.37	-5,719.49	2,344.81	14,433,803.04	1,702,475.71	39.74457947	-80.77922137	
17,700.00	89.00	150.247	11,286.12	-5,806.29	2,394.43	14,433,716.24	1,702,525.33	39.74434074	-80.77904561	
17,800.00	89.00	150.247	11,287.87	-5,893.09	2,444.05	14,433,629.43	1,702,574.95	39.74410202	-80.77886986	
17,900.00	89.00	150.247	11,289.61	-5,979.90	2,493.67	14,433,542.63	1,702,624.57	39.74386329	-80.77869410	
18,000.00	89.00	150.247	11,291.36	-6,066.70	2,543.28	14,433,455.83	1,702,674.18	39.74362457	-80.77851835	
18,100.00	89.00	150.247	11,293.11	-6,153.51	2,592.90	14,433,369.02	1,702,723.80	39.74338584	-80.77834259	
18,200.00	89.00	150.247	11,294.86	-6,240.31	2,642.52	14,433,282.22	1,702,773.42	39.74314712	-80.77816684	
18,300.00	89.00	150.247	11,296.60	-6,327.11	2,692.14	14,433,195.42	1,702,823.04	39.74290839	-80.77799109	
18,400.00	89.00	150.247	11,298.35	-6,413.92	2,741.76	14,433,108.61	1,702,872.66	39.74266966	-80.77781534	
18,500.00	89.00	150.247	11,300.10	-6,500.72	2,791.38	14,433,021.81	1,702,922.28	39.74243094	-80.77763959	
18,600.00	89.00	150.247	11,301.84	-6,587.53	2,841.00	14,432,935.00	1,702,971.90	39.74219221	-80.77746384	
18,700.00	89.00	150.247	11,303.59	-6,674.33	2,890.62	14,432,848.20	1,703,021.51	39.74195348	-80.77728809	
18,800.00	89.00	150.247	11,305.34	-6,761.13	2,940.23	14,432,761.40	1,703,071.13	39.74171476	-80.77711235	
18,900.00	89.00	150.247	11,307.09	-6,847.94	2,989.85	14,432,674.59	1,703,120.75	39.74147603	-80.77693661	
19,000.00	89.00	150.247	11,308.83	-6,934.74	3,039.47	14,432,587.79	1,703,170.37	39.74123730	-80.77676086	
19,100.00	89.00	150.247	11,310.58	-7,021.55	3,089.09	14,432,500.98	1,703,219.99	39.74099857	-80.77658512	
19,200.00	89.00	150.247	11,312.33	-7,108.35	3,138.71	14,432,414.18	1,703,269.61	39.74075984	-80.77640938	
19,300.00	89.00	150.247	11,314.07	-7,195.15	3,188.33	14,432,327.38	1,703,319.23	39.74052111	-80.77623364	
19,400.00	89.00	150.247	11,315.82	-7,281.96	3,237.95	14,432,240.57	1,703,368.85	39.74028238	-80.77605790	
19,500.00	89.00	150.247	11,317.57	-7,368.76	3,287.57	14,432,153.77	1,703,418.46	39.74004365	-80.77588217	
19,600.00	89.00	150.247	11,319.32	-7,455.57	3,337.18	14,432,066.97	1,703,468.08	39.73980492	-80.77570643	
19,700.00	89.00	150.247	11,321.06	-7,542.37	3,386.80	14,431,980.16	1,703,517.70	39.73956619	-80.77553070	
19,800.00	89.00	150.247	11,322.81	-7,629.17	3,436.42	14,431,893.36	1,703,567.32	39.73932746	-80.77535496	
19,900.00	89.00	150.247	11,324.56	-7,715.98	3,486.04	14,431,806.55	1,703,616.94	39.73908873	-80.77517923	
20,000.00	89.00	150.247	11,326.31	-7,802.78	3,535.66	14,431,719.75	1,703,666.56	39.73885000	-80.77500350	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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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	89.00	150.247	11,328.05	-7,889.59	3,585.28	14,431,632.95	1,703,716.18	39.73861127	-80.77482777	
20,200.00	89.00	150.247	11,329.80	-7,976.39	3,634.90	14,431,546.14	1,703,765.79	39.73837254	-80.77465204	
20,300.00	89.00	150.247	11,331.55	-8,063.19	3,684.52	14,431,459.34	1,703,815.41	39.73813381	-80.77447632	
20,400.00	89.00	150.247	11,333.29	-8,150.00	3,734.13	14,431,372.54	1,703,865.03	39.73789508	-80.77430059	
20,500.00	89.00	150.247	11,335.04	-8,236.80	3,783.75	14,431,285.73	1,703,914.65	39.73765634	-80.77412487	
20,600.00	89.00	150.247	11,336.79	-8,323.60	3,833.37	14,431,198.93	1,703,964.27	39.73741761	-80.77394914	
20,700.00	89.00	150.247	11,338.54	-8,410.41	3,882.99	14,431,112.12	1,704,013.89	39.73717888	-80.77377342	
20,800.00	89.00	150.247	11,340.28	-8,497.21	3,932.61	14,431,025.32	1,704,063.51	39.73694015	-80.77359770	
20,900.00	89.00	150.247	11,342.03	-8,584.02	3,982.23	14,430,938.52	1,704,113.13	39.73670141	-80.77342198	
21,000.00	89.00	150.247	11,343.78	-8,670.82	4,031.85	14,430,851.71	1,704,162.74	39.73646268	-80.77324626	
21,100.00	89.00	150.247	11,345.52	-8,757.62	4,081.47	14,430,764.91	1,704,212.36	39.73622395	-80.77307054	
21,200.00	89.00	150.247	11,347.27	-8,844.43	4,131.08	14,430,678.11	1,704,261.98	39.73598521	-80.77289483	
21,300.00	89.00	150.247	11,349.02	-8,931.23	4,180.70	14,430,591.30	1,704,311.60	39.73574648	-80.77271911	
21,400.00	89.00	150.247	11,350.77	-9,018.04	4,230.32	14,430,504.50	1,704,361.22	39.73550774	-80.77254340	
21,500.00	89.00	150.247	11,352.51	-9,104.84	4,279.94	14,430,417.69	1,704,410.84	39.73526901	-80.77236769	
21,600.00	89.00	150.247	11,354.26	-9,191.64	4,329.56	14,430,330.89	1,704,460.46	39.73503027	-80.77219197	
21,700.00	89.00	150.247	11,356.01	-9,278.45	4,379.18	14,430,244.09	1,704,510.07	39.73479154	-80.77201626	
21,800.00	89.00	150.247	11,357.75	-9,365.25	4,428.80	14,430,157.28	1,704,559.69	39.73455280	-80.77184055	
21,900.00	89.00	150.247	11,359.50	-9,452.06	4,478.42	14,430,070.48	1,704,609.31	39.73431406	-80.77166485	
22,000.00	89.00	150.247	11,361.25	-9,538.86	4,528.03	14,429,983.68	1,704,658.93	39.73407533	-80.77148914	
22,100.00	89.00	150.247	11,363.00	-9,625.66	4,577.65	14,429,896.87	1,704,708.55	39.73383659	-80.77131344	
22,100.25	89.00	150.247	11,363.00	-9,625.88	4,577.78	14,429,896.66	1,704,708.67	39.73383600	-80.77131300	

PBHL/TD 22100.25 MD/11363.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
McMasters S-17 HU LP - hit/miss target - Shape - Point	0.00	0.000	11,181.00	-583.77	-590.80	14,438,938.74	1,699,540.10	39.75870300	-80.78962200	
- plan misses target center by 0.05ft at 11683.58ft MD (11181.00 TVD, -583.80 N, -590.85 E)										
McMasters S-17 HU PBI - plan hits target center - Point	0.00	0.000	11,363.00	-9,625.88	4,577.78	14,429,896.66	1,704,708.67	39.73383600	-80.77131300	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build	
1,600.00	1,599.98	0.30	-1.72	Begin 2.00° tangent	
2,500.57	2,500.00	5.76	-32.67	Begin 2°/100' drop	
2,600.57	2,599.98	6.06	-34.39	Begin vertical hold	
5,100.59	5,100.00	6.06	-34.39	Begin 2°/100' build	
5,589.51	5,586.55	14.04	-75.24	Begin 9.78° tangent	
10,258.66	10,187.87	166.07	-853.53	Begin 6°/100' build/turn	
11,188.14	11,010.59	-176.42	-792.90	Begin 8°/100' build/turn	
11,683.59	11,181.00	-583.81	-590.84	Begin 89.00° lateral	
22,100.25	11,363.00	-9,625.88	4,577.78	PBHL/TD 22100.25 MD/11363.00 TVD	

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 (06/02/2020) 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 - McMasters S-17HU

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map 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
4705100234	Unknown	1289' TVD	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.	Well was plugged 6/18/1952.
4705100097	Fauber & Henry	1152' TVD	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.	Well was plugged 5/20/1949.
4705100100	Fauber & Henry	1165' TVD	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.	Well was plugged 8/6/1945.
4705170361	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.
4705101533	Tug Hill Operating, LLC	6509' TVD, 9961' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101534	Tug Hill Operating, LLC	6514' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101535	Tug Hill Operating, LLC	6519' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101536	Tug Hill Operating, LLC	6526' TVD, 10185' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101537	Tug Hill Operating, LLC	6527' TVD, 10560' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101538	Tug Hill Operating, LLC	6494' TVD, 9541' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101539	Tug Hill Operating, LLC	6488' TVD, 11480' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101540	Tug Hill Operating, LLC	6490' TVD, 12101' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101541	Tug Hill Operating, LLC	6485' TVD, 9612' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101542	Tug Hill Operating, LLC	6487' TVD, 11281' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.

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JUL 17 2020
WV Department of
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WV Permit # 02234

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [Redacted]

Location: [Redacted]

There is no Bottom Hole Location data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Vibration (C-Log) data for this well.

There is no Sample data for this well.

WV Permit # 02087

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [Redacted]

Location: [Redacted]

There is no Bottom Hole Location data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Vibration (C-Log) data for this well.

There is no Sample data for this well.

WV Permit # 02100

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [Redacted]

Location: [Redacted]

There is no Bottom Hole Location data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Vibration (C-Log) data for this well.

There is no Sample data for this well.

WV Permit # 02081

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [Redacted]

Location: [Redacted]

There is no Bottom Hole Location data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Vibration (C-Log) data for this well.

There is no Sample data for this well.

WV Permit # 01533

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [Redacted]

Location: [Redacted]

There is no Bottom Hole Location data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil. Other wells are incomplete at this time.

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil. Other wells are incomplete at this time.

There is no Production Water data for this well.

System Information: [Redacted]

Production Information: [Redacted]

There is no Vibration (C-Log) data for this well.

There is no Sample data for this well.

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Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

RECEIVED
Office of Solid Waste
JUL 14 2000
Environmental Protection
Agency

WV Department of Environmental Protection

West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:17:48 PM

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

Area Data - [Redacted]

Order Information - [Redacted]

Order Summary - [Redacted]

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

There is no W-9 data for this order.

There is no Plugging data for this order.

There is no Sample data for this order.

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:18:28 PM

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

Area Data - [Redacted]

Order Information - [Redacted]

Order Summary - [Redacted]

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

There is no W-9 data for this order.

There is no Plugging data for this order.

There is no Sample data for this order.

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:18:28 PM

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

Area Data - [Redacted]

Order Information - [Redacted]

Order Summary - [Redacted]

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

Table with columns: Licensee Name, License Number, State, Order Number, Order Date, Order Status, Order Type, Order Description, Order Amount, Order Balance, Order Due Date, Order Paid Date, Order Cancel Date, Order Cancel Reason, Order Cancel Date, Order Cancel Reason.

There is no W-9 data for this order.

There is no Plugging data for this order.

There is no Sample data for this order.

Licensee Information - Your Title
Company Name: [Redacted] License Number: [Redacted] State: WV

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WV Department of
Environmental Protection

WV Department of Environmental Protection

Well: County = 51 Permit = 01637

Report Type: Summary, Date: 02/02/2023 10:23 AM

License Information: License No. 1234567890, License Type: A, License Status: Active, License Issue Date: 01/01/2022, License Expiration Date: 12/31/2024

Operator Information: Operator Name: ABC Company, Operator Address: 123 Main St, Operator City: Charleston, Operator State: WV, Operator Zip: 25301

Well Information: Well Name: ABC Well, Well Location: 123 Main St, Well Depth: 1000, Well Type: Oil, Well Status: Active, Well Completion Date: 01/01/2022

Production Information: Production Type: Oil, Production Volume: 1000, Production Date: 01/01/2022, Production Status: Active, Production Completion Date: 01/01/2022

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

Well: County = 51 Permit = 01638

Report Type: Summary, Date: 02/02/2023 10:23 AM

License Information: License No. 1234567890, License Type: A, License Status: Active, License Issue Date: 01/01/2022, License Expiration Date: 12/31/2024

Operator Information: Operator Name: ABC Company, Operator Address: 123 Main St, Operator City: Charleston, Operator State: WV, Operator Zip: 25301

Well Information: Well Name: ABC Well, Well Location: 123 Main St, Well Depth: 1000, Well Type: Oil, Well Status: Active, Well Completion Date: 01/01/2022

Production Information: Production Type: Oil, Production Volume: 1000, Production Date: 01/01/2022, Production Status: Active, Production Completion Date: 01/01/2022

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

Well: County = 51 Permit = 01639

Report Type: Summary, Date: 02/02/2023 10:23 AM

License Information: License No. 1234567890, License Type: A, License Status: Active, License Issue Date: 01/01/2022, License Expiration Date: 12/31/2024

Operator Information: Operator Name: ABC Company, Operator Address: 123 Main St, Operator City: Charleston, Operator State: WV, Operator Zip: 25301

Well Information: Well Name: ABC Well, Well Location: 123 Main St, Well Depth: 1000, Well Type: Oil, Well Status: Active, Well Completion Date: 01/01/2022

Production Information: Production Type: Oil, Production Volume: 1000, Production Date: 01/01/2022, Production Status: Active, Production Completion Date: 01/01/2022

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

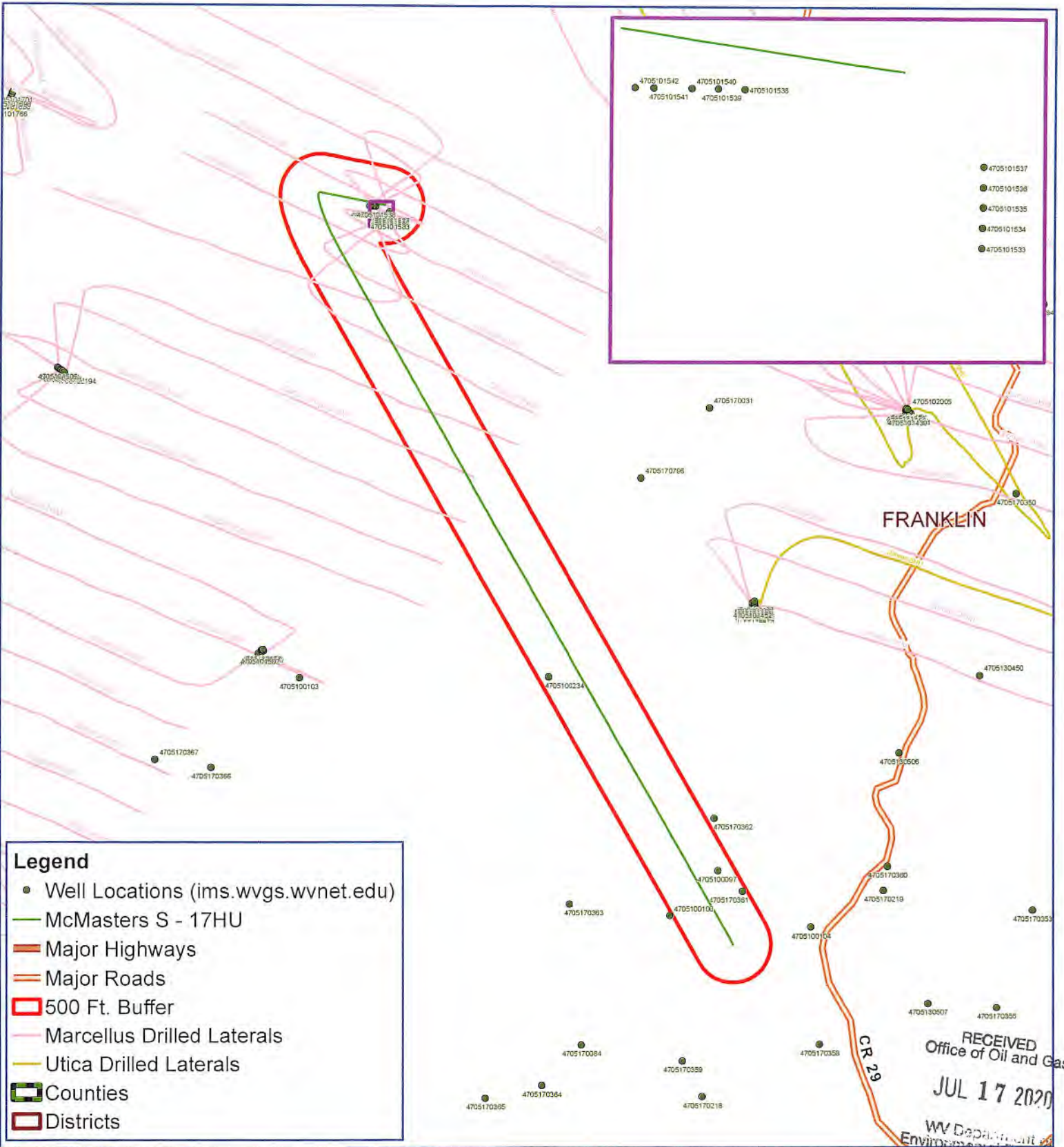
Table with 10 columns: Date, Well Name, Production Type, Production Volume, Production Date, Production Status, Production Completion Date, License No., Operator Name, Well Location.

There is no Volume (ft³) data for this well.

There is no Pugging data for this well.

There is no Sample data for this well.

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WV Department of
Environmental Protection



McMasters S - 17HU Franklin District Marshall County, WV



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



Map Created: June 1, 2020
Map Current As Of: June 1, 2020

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. McMasters S-17HU

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 Powhatan Point 7.5'

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JUL 17 2020

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

WV Department of
Environmental Protection

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? Weitzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP ECH1386428)

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 James A. Pancake
Company Official (Typed Name) Jim Pancake
Company Official Title VP Geosciences

Subscribed and sworn before me this 14 day of JANUARY, 20 20
Maureen A Stead
My commission expires 1/28/23

Commonwealth of Pennsylvania - Notary Seal
MAUREEN A STEAD - Notary Public
Washington County
My Commission Expires Jan 28, 2023
Commission Number 1259926

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 17.76 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
Annual Ryegrass	40
Spring Oats	96

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Nicholas*

Comments: _____

Title: WVDEP Oil and Gas Inspector

Date: 09/17/2020

Field Reviewed? () Yes () No

WW-9

**PROPOSED McMASTERS
S-17HU**

SUPPLEMENT PG 1

DIANA HENRY
HAYNES &
CAROL C.
HENRY
05-18-1
62.908 Ac.

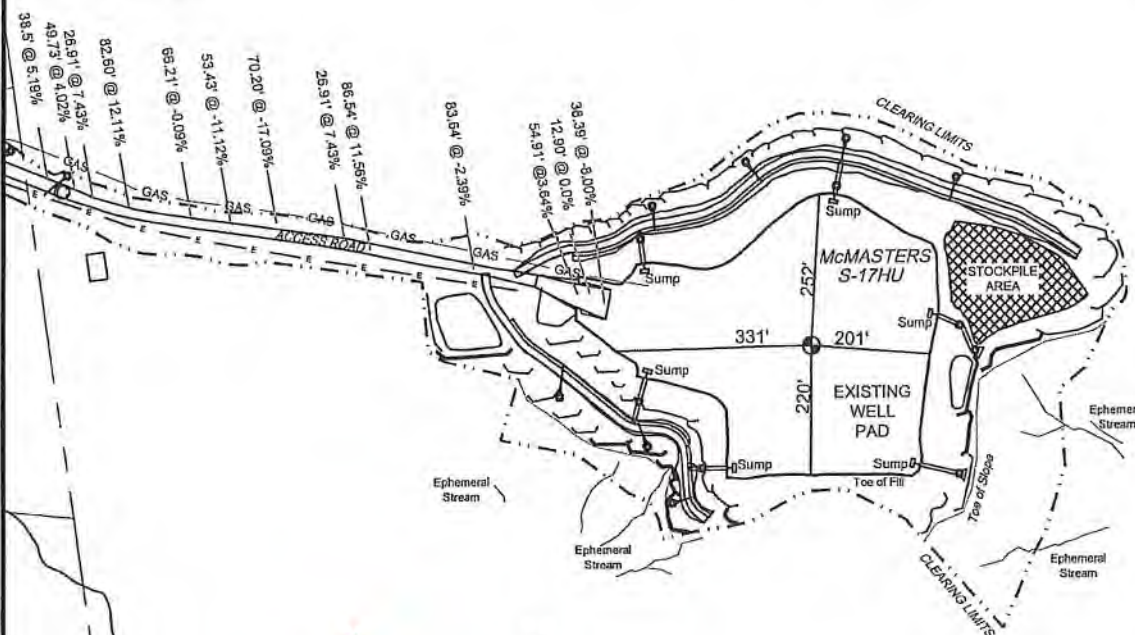
OLAN V. &
PATRICIA E.
RUTAN
05-18-3
43.677 Ac.



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JUL 17 2020

WV Department of
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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.

ROBERT L. SHIELDS
ET AL
05-18-2
104.11 Ac.

DUANE BRUNN
05-18-24
102 Ac.

LEGEND

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



Jackson Surveying Inc.
2415 E. Pike St. #112
Clarkstown, WV 26307
Phone: 304-628-6551

TOPO SECTION:	
POWHATAN POINT 7.5'	
COUNTY	DISTRICT
MARSHALL	FRANKLIN
DRAWN BY	JOB NO.
J.D.C.	494510851

OPERATOR:	
PREPARED FOR:	
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
DATE	SCALE
1-7-2020	NONE



WW-9

PROPOSED McMASTERS S-17HU

SUPPLEMENT PG 1

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.



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JUL 17 2020

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DAVID E. &
MARK E. YOHO
05-19-27
7,041 Ac.

JAMES &
SHERRY
BEEGLE
05-19-14
18,356 Ac.

B. HENRY
18-1
62.9 Ac.

DIANA HENRY
HAYNES &
CAROL C.
HENRY
05-18-1
62,908 Ac.

ROGER J. &
BETH E. JAMES
05-19-26
9,977 Ac.

ROBERT L.
REBECCA A.
SHIELDS
05-19-16.1
2,307 Ac.

ROBERT L.
SHIELDS &
DONALD
SHIELDS
05-19-16
11,612 Ac.

DAVID E. &
MARK E. YOHO
05-19-25
9,976 Ac.

MARK E. YOHO
05-19-24
15,436 Ac.

MARK E. YOHO
05-19-17
115,263 Ac.

MARK E. YOHO
05-19-18
55,948 Ac.

LEGEND

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

TOPO SECTION:

POWHATAN POINT 7.5'

COUNTY: MARSHALL DISTRICT: FRANKLIN

DRAWN BY: J.D.C. JOB NO.: 494510851

OPERATOR:

PREPARED FOR:

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

DATE: 1-7-2020 SCALE: NONE



Jackson Surveying Inc.
8418 E. Pike St. #112
Clarksburg, WV 26301
Phone: 304-823-6801



4705102338



Well Site Safety Plan

Tug Hill Operating, LLC

JRC
6/6/2020

Well Name: McMasters S-17HU

Pad Location: Shields Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,401,175.26

Easting: 518,200.94

RECEIVED
Office of Oil and Gas

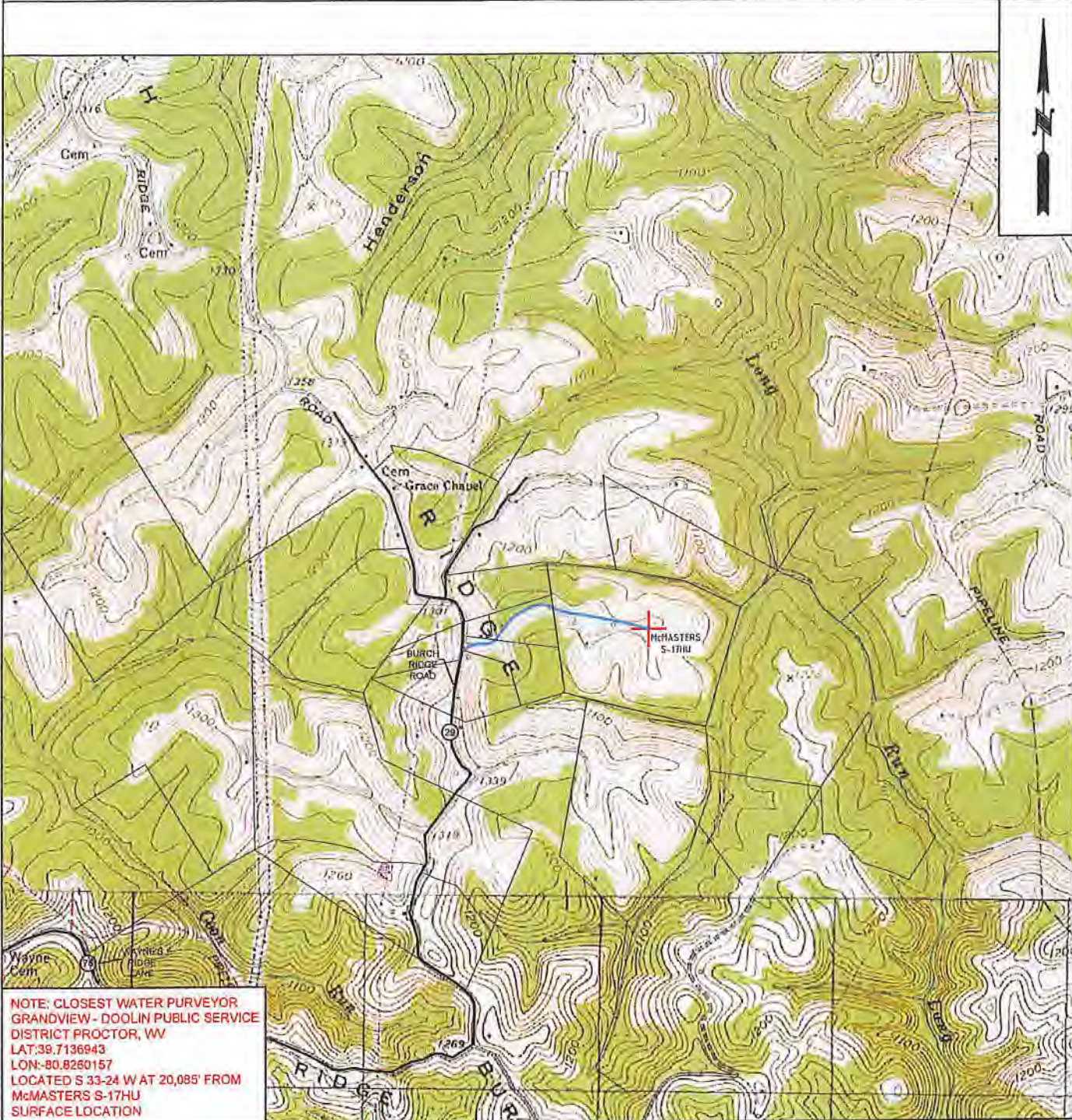
JUL 17 2020

WV Department of
Environmental Protection


WW-9

PROPOSED McMASTERS S-17HU

SUPPLEMENT PG 2



**NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7136943
LON:-80.8260157
LOCATED S 33-24 W AT 20,085' FROM
McMASTERS S-17HU
SURFACE LOCATION**

 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'	McMASTERS
			SCALE: 1" = 2000'	DATE: DATE: 1-7-2020



July 15, 2020

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

RE: McMasters S-17HU

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.

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

Sincerely,

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

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

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

**Offset Operators within 500'
McMasters S - 17HU**

WELL	COUNTY	DISTRICT	PARCEL	OWNER	ADDRESS
McMasters S-17HU	Marshall	Franklin	5-18-2	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-2	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-2	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-2	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-3	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-3	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-3	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-4	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-4	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-4	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-5	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-5	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-8	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-8	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-8	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-13	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-13	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-14	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-16	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-19-16	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-17	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

**Offset Operators within 500'
McMasters S - 17HU**

McMasters S-17HU	Marshall	Franklin	5-19-17	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-18	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-19-18	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-18-22	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-22	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-18-24	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-24	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.1	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-11.1	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.1	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.4	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-11.4	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.4	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-2.1	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-2.1	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-9.2	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-9.3	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

* TH Exploration II, LLC is a wholly owned subsidiary of THQ Appalachia I, LLC. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under that certain Operating Services Agreement dated July 23, 2014. For further info please see the recorded affidavit submitted as part of the permit package.

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration, LLC
1320 S. University Dr Ste 500
Ft Worth TX 76107

9489 0090 6027 6201 4282 50

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

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

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6201 4282 50.

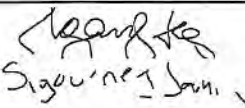
Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	March 5, 2020, 1:35 pm
Location:	FORT WORTH, TX 76107
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
----------------	-------------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	PSD University 76107 500

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

Atinum Marcellus I, LLC
1 Riverway Ste 710
Houston TX 77056

7489 0090 0027 6201 4282 67

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

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If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in cursive script that reads "Susan Rose".

Susan Rose
Administrator

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 67**.



Item Details

Status:	Delivered
Status Date / Time:	March 11, 2020, 3:24 pm
Location:	HOUSTON, TX 77057
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
----------------	-------------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration II, LLC
1320 S University Dr Ste 500
Fort Worth TX 76107

9489 0090 0027 6201 4282 74

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in cursive script that reads 'Susan Rose'.

Susan Rose
Administrator

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 74**.

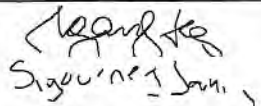
Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	March 5, 2020, 1:35 pm
Location:	FORT WORTH, TX 76107
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
----------------	-------------

Recipient Signature

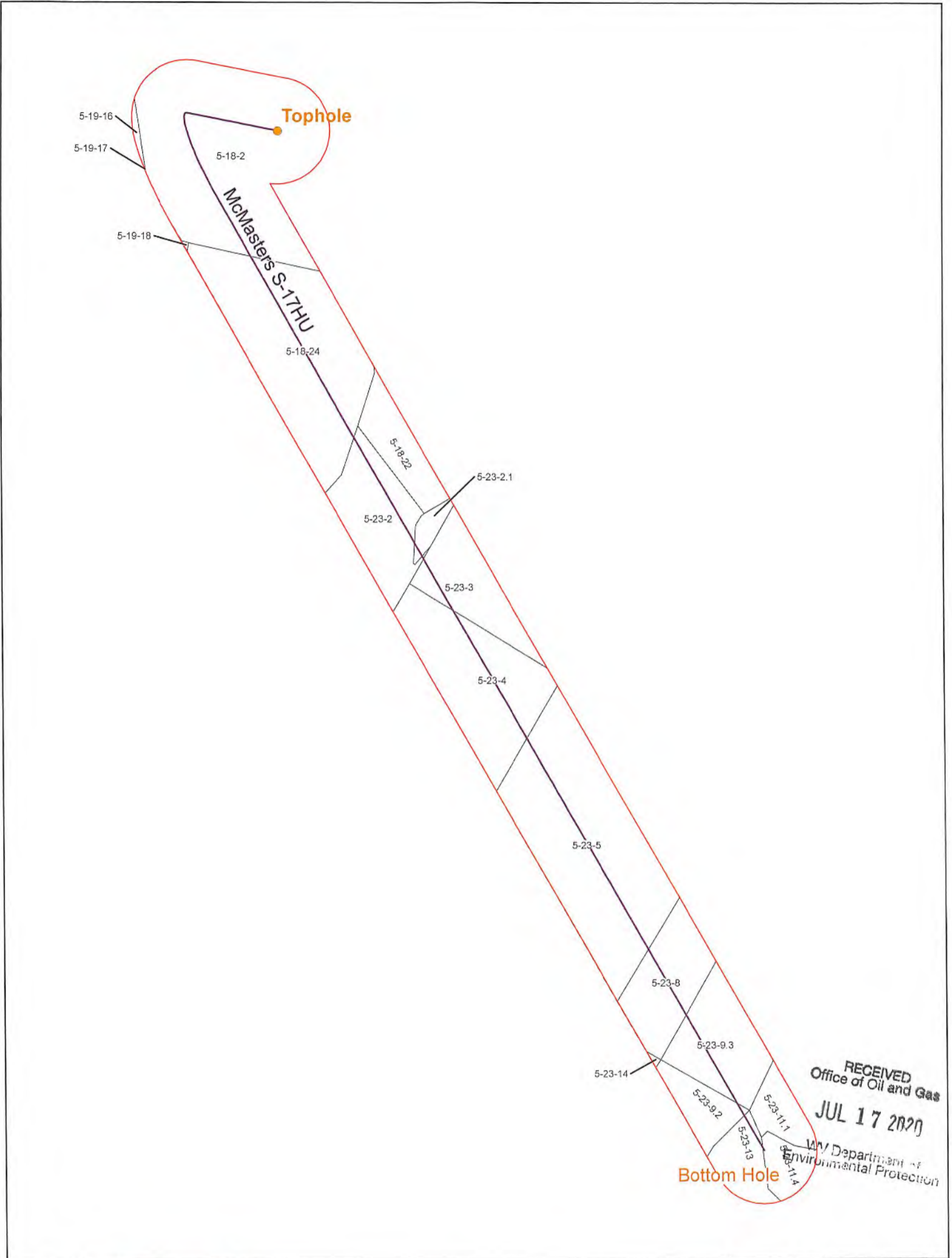
Signature of Recipient:	
Address of Recipient:	BSU University 76107 500

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

McMasters S-17HU



RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of Environmental Protection

Coordinate System: NAD 1983 UTM Zone 18E
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 1,542,410.5610
False Northing: 0.0000
Central Meridian: -81.0000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Feet U.S.

CONFIDENTIAL

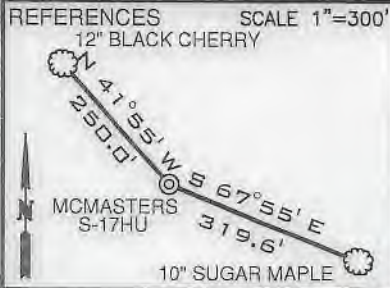


— Utica Well
□ 500' Buffer

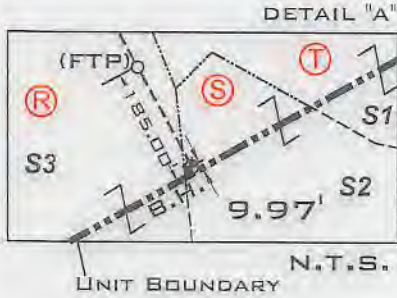
McMasters S-17HU
Operators within 1500 Feet of Well Borehole



**MCMASTERS LEASE
WELL S-17HU
300.3926± ACRES**

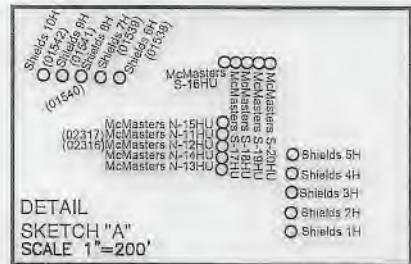


LINE	BEARING	DISTANCE
L1	N 74°01' W	1416.19'
L2	S 39°24' W	1350.54'
L3	N 79°02' W	34.93'
L4	N 77°59' W	834.91'



LEGEND

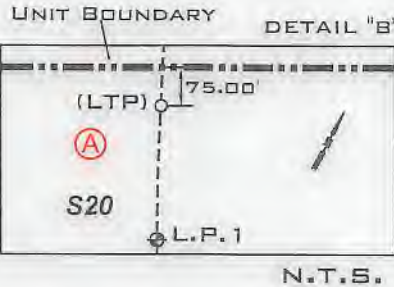
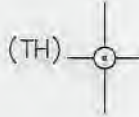
- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT



(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

NOTES

- BORE PATH BASED ON GRID NORTH.
- NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
- OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2019. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
- WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
- ALL DEEP WELLS SHOWN ON THIS PLAN.
- BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.0401147



CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 68°00' W	25.26'	19.09'	27.59'
C2	S 09°59' W	32.08'	77.14'	32.31'
C3	S 09°10' E	97.47'	398.12'	97.71'
C4	S 18°56' E	255.41'	1946.44'	265.61'
C5	S 25°53' E	405.99'	3575.21'	406.20'

SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS
N) 4,401,175.26
E) 518,200.94

LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS
N) 4,400,997.32
E) 518,020.85

BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS
N) 4,398,241.30
E) 519,596.24

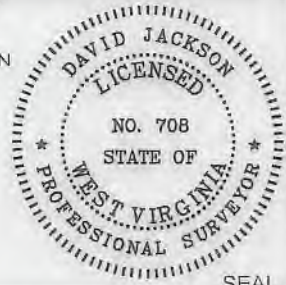
FILE NUMBER _____
DRAWING NUMBER: MCMASTERS_S-17HU_REV2
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING
GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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
801 57TH STREET, SE
CHARLESTON, WV 25304

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP X SHALLOW ___
DATE: FEBRUARY 10, 2020
REVISED: JULY 31, 2020
OPERATORS WELL NO. MCMASTERS S-17HU
API WELL NO. 47-051-02338 HGA
STATE COUNTY PERMIT Deep

LOCATION ELEVATION 1207.50' WATERSHED (HUC 10) FISH CREEK (HUC-10)
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER ROBERT L. SHIELDS, ET AL ACREAGE 104.11
OIL & GAS ROYALTY OWNER ROBERT L. SHIELDS, ET AL LEASE ACREAGE 104.11
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,427' TMD: 22,100'
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

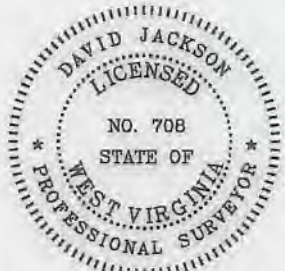
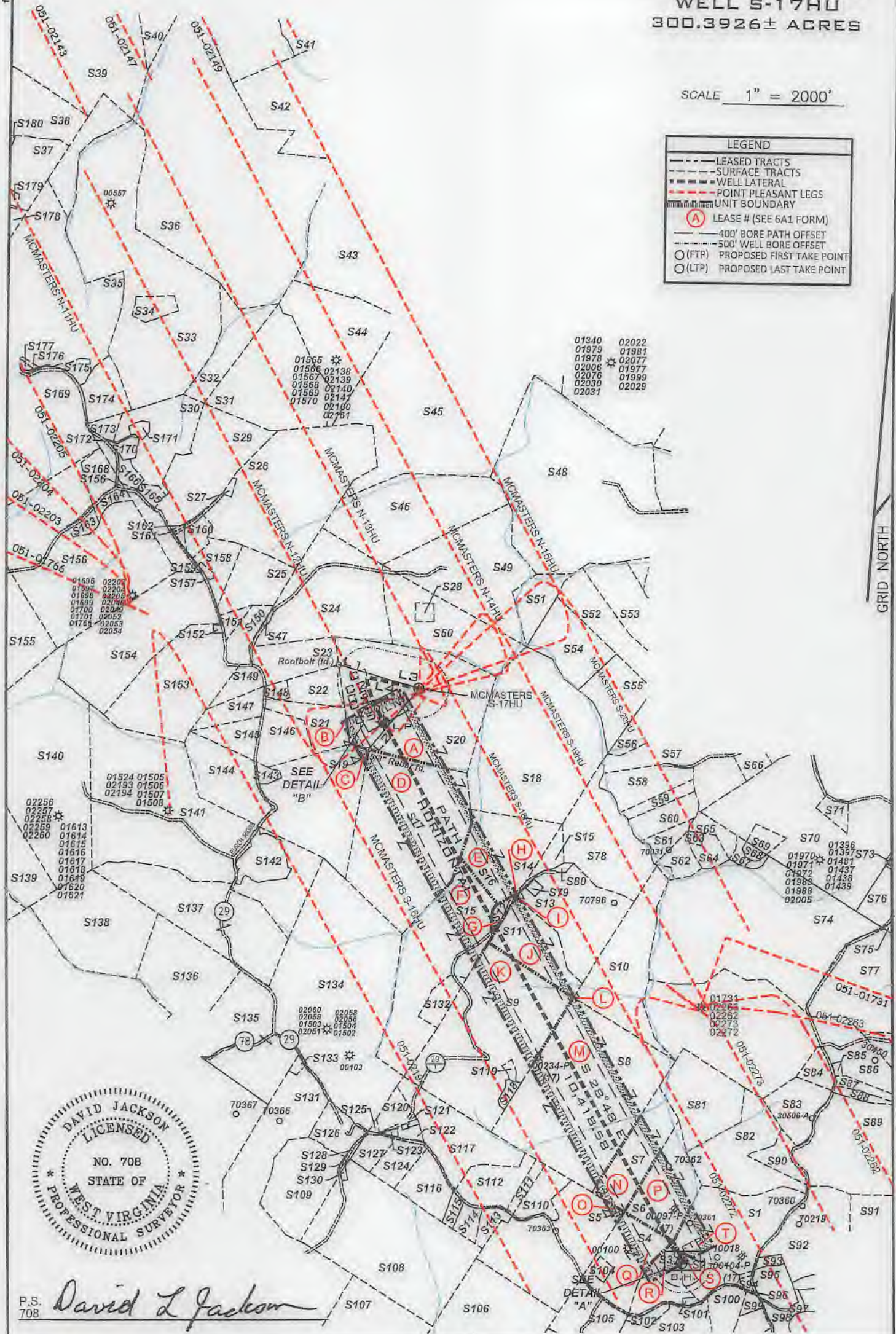
COUNTY NAME
PERMIT

MCMASTERS LEASE WELL S-17HU 300.3926± ACRES

SCALE 1" = 2000'

LEGEND

- LEASE TRACTS
- - - SURFACE TRACTS
- - - WELL LATERAL
- - - POINT PLEASANT LEGS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT



P.S. 708 *David L Jackson*



TUG HILL OPERATING

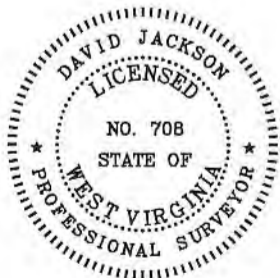
OPERATOR'S
WELL #: MCMASTERS S-17HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02538 Dec P

WELL PLAT
PAGE 2 OF 4
DATE: 02/10/2020
REVISED: 07/31/2020

**MCMASTERS LEASE
WELL S-17HU
300.3926± ACRES**

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S1	T 05-23-11.1	John H. & Sonya D. Holliday	46.482
S2	S 05-23-11.4	Kenneth L. Lemons, Trustee for Jeffrey G. Hudson	10.879
S3	R 05-23-13	Linda D. Greathouse	14.24
S4	Q 05-23-9.2	Linda D. Greathouse	25.58
S5	O 05-23-14	Dominion Transmission Inc.	59.5
S6	P 05-23-9.3	Linda D. Greathouse	17.5
S7	N 05-23-08	Carl David & Suzanne L. Guseman	29.5
S8	M 05-23-05	Daniel D. Rhyand	118.5
S9	K 05-23-04	Abe J. Hochstetler	100.7
S10	L 05-23-06	James A. Channing Et Al	48.0
S11	J 05-23-03	Abe J. Hochstetler	50.0
S12	G 05-23-2.1	William L. & Janice M. Wayne	2.364
S13	I 05-18-21	Curtis E. & Michelle J. Hall	43.119
S14	H 05-18-21.1	Rodney & Rhonda Jackson	5.47
S15	F 05-23-02	Danielle D. Lilley	77.636
S16	E 05-18-22	Rodney & Rhonda Jackson	30.345
S17	D 05-18-24	Duane Brunn	102.0
S18	05-18-23	XCL Midstream Operating LLC	110.0
S19	C 05-19-18	Mark E. Yoho Et Ux	55.948
S20	A 05-18-02	Robert L. Shields Et Al	104.11
S21	B 05-19-17	Mark A. Yoho	15.263
S22	05-19-16	Robert L. Shields & Donald Shields	11.612
S23	05-19-14	James & Sherry Beegle	18.356
S24	05-18-1	Diana Henry Haynes & Carol C. Henry	62.908
S25	05-19-30	Ernie & Tammy Anderson	19.037
S26	05-19-13	Rona Lee Rice & Charles Franklin McCardle	94.925
S27	05-19-13.1	Donald Shields	0.800
S28	05-18-3.1	Nikki L. & Jonathan Stevens	2.223
S29	05-19-8	CNX Gas Company LLC	40.0
S30	05-19-7	Olan V. Rutan Et Ux	32.4801
S31	05-14-15	Robert L. Shields Et Al	53.0
S32	05-14-14	Robert L. Shields Et Al	29.05
S33	05-14-12	Dale R. Galleher Et Al	135.100
S34	05-14-12.1	Henry Wilson Plunkert Jr.	5.0
S35	05-14-10	Wanda P. Rine, Life	126.03
S36	05-14-13	Ralph D. & Sally Jane Hoyt	222.18
S37	05-14-9.2	Maria T. Flores	25.0
S38	05-12-21	Edward L. Gibson-Life	73.436
S39	05-12-14	Linda Hamilton Et Al	117.495
S40	05-12-12.1	Linda L. Persinger Et Ux	148.09
S41	05-12-11	Wesley R. Bryan & Wesley R. Bryan II	52.478
S42	05-11-15	Lionel L. Persinger Ex Ux	93.0
S43	05-15-01	Marcus Sharp & Angela R. Schlabach	121.0
S44	05-15-15	Robert L. Shields Et Al	49.02

Lease No.	Tags	Parcel	Lessor	Book	Page
10*14116	A	5-18-2	DONALD SHIELDS	669	367
10*14295	B	5-19-17	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14295	C	5-19-18	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14295	D	5-18-24	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14022	E	5-18-22	HOWARD N WAYNE SR AND DENISE D WAYNE	665	384
10*14022	F	5-23-2	HOWARD N WAYNE SR AND DENISE D WAYNE	665	384
10*19145	G	5-23-2.1	WILLIAM L WAYNE & JANICE M WAYNE	706	87
10*17145	H	5-18-21.1	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*17145	I	5-18-21	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*17145	J	5-23-3	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*14849	K	5-23-4	DAVID GUSTELY	806	265
10*17186	L	5-23-6	ROBERT J HENRY	708	51
10*14847	M	5-23-5	LETHA RUCKMAN	806	270
10*17192	N	5-23-8	ROBERT J HENRY	716	193
10*18343	O	5-23-14	DOMINION ENERGY TRANSMISSION INC	936	79
10*17189	P	5-23-9.3	ROBERT J HENRY	716	197
10*17189	Q	5-23-9.2	ROBERT J HENRY	716	197
10*14786	R	5-23-13	TWILA O WHIPKEY	799	61
10*14786	S	5-23-11.4	TWILA O WHIPKEY	799	61
10*14786	T	5-23-11.1	TWILA O WHIPKEY	799	61



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

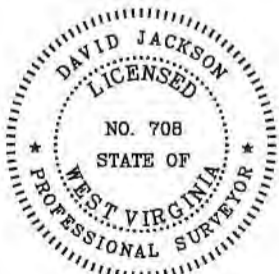
OPERATOR'S
WELL #: MCMASTERS S-17HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02338 Deep

WELL PLAT
PAGE 3 OF 4
DATE: 02/10/2020
REVISED: 07/31/2020

**MCMASTERS LEASE
WELL S-17HU
300.3926 ACRES**

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S45	05-15-12	John David Petrock & Thomas Andrew Petrock	150.23
S46	05-15-11	Diana Henry Haynes & Carol Henry	65.59
S47	05-18-1.1	Charles F. & Diana L. Haynes	0.392
S48	05-15-10	Mark Stanley Ruckman	153.75
S49	05-18-04	Olan & Patricia Rutan	65.89
S50	05-18-03	Olan V. & Patricia E. Rutan	43.677
S51	05-18-05	Terry Melott	8.14
S52	05-18-15.3	Charles Yeater	26.44
S53	05-18-15.4	Edward Lee Burge, Jr.	22.34
S54	05-18-06	Charles Yeater	26.0
S55	05-18-07	Charles Yeater	24.22
S56	05-18-16	Charles Yeater	17.768
S57	05-18-13	Southern Sountry Farms Inc.	11.054
S58	05-18-59	Southern Country Farms Inc.	15.79
S59	05-18-30	Mary & Daniel Robinson	5.46
S60	05-18-13.10	Carl Berg	10.88
S61	05-18-29	Carl G. Berg	5.319
S62	05-18-31	Kenneth E. Rastall	6.94
S63	05-18-32.1	Lori D. Carpenter	5.545
S64	05-18-32	Kenneth E. Rastall	5.335
S65	05-18-13.8	Lori D. Carpenter	5.545
S66	05-18-33	Sandra & Glenn Whister	5.343
S67	05-17-12	James & Jill C. Corley	3.33
S68	05-17-12.1	Williams Ohio Valley Midstream LLC	1.67
S69	05-17-10.5	Williams Ohio Valley Midstream LLC	4.24
S70	05-17-10	James A. Corley Et Al	92.61
S71	05-17-10.1	James A. & Jill C. Corley	4.51
S72	05-17-9.1	Jeri J. White	1.0
S73	05-17-9.2	Jeri J. White	7.136
S74	05-17-11	Kenneth N. Corley Et Ux	120.0
S75	05-17-9.4	Vicki L. Bowen	60.3
S76	05-17-9.3	James A. & Corley Et Ux	12.478
S77	05-17-11.1	Randy W. Francis Et Ux	67.0
S78	05-18-20	Wayne E. Channing Et Al	75.6
S79	05-18-21.2	David P. Lassen	1.0
S80	05-18-21.3	Hilda M. Giberson-Wayt, Life	0.811
S81	05-23-8.1	William & Virginia Rouse	34.0
S82	05-24-5.4	Thomas V. Tuttle Et Ux	38.244
S83	05-24-5.5	Sonny & Linda Lou Tagg	17.194
S84	05-23.7.2	Florella Lou Weigand	6.354
S85	05-23-7.1	Florella Lou Weigand	0.549
S86	P/O 05-23-7	Terry E. Simms Et Ux	123.097
S87	05-24-5.1	James D. Watkins Et Ux	4.6
S88	05-24-5.2	James D. Watkins Et Ux	3.151
S89	05-24-5	Robert C. Francis Et Ux (Life)	145.78
S90	05-24-3.1	T.H. Exploration II LLC	5.50

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S91	05-24-6	Terry E. Simms Et Ux	42.84
S92	05-23-10	Terry E. Simms Et Ux	38.95
S93	05-23-11.7	Bryan L. Huggins	1.835
S94	05-23-11.2	Evelyn Hudson	1.154
S95	05-23-11	Roy F. Yoho	9.475
S96	05-23-11.6	T.H. Exploration II, LLC	0.094
S97	05-25-20.2	James M. Zambotti	1.347
S98	05-25-20.3	James A. & Jo C. Estep	4.49
S99	05-23-11.5	Roy F. Yoho	2.25
S100	05-23-11.3	Colin R. Yoho	11.29
S101	05-23-13.1	James R. & Pamela J. Ferrell	0.75
S102	05-23-12	Mark A. Yoho	3.05
S103	05-26-11	Mark A. Yoho	89.25
S104	05-23-9.4	Jackson R. Davis Sr. & Deanna L. Davis	2.087
S105	05-23-9.1	John W. Van Orden Et Ux	23.376
S106	05-26-7	Dominion Transmission, Inc.	71.0
S107	05-26-5	Michael J. Wiley Et Al	65.0
S108	05-23-26	Michael J. Wiley Et Al	101.57
S109	05-23-27	Michael J. Wiley Et Al	33.14
S110	05-23-15	Henry Virginia Ethel Estate	15.5
S111	05-23.16.1	Donald B. Henry	1.97
S112	05-23-16	Roy Friend Yoho Sr.	18.03
S113	05-23-17.3	William & Katherine Flewelling	5.018
S114	05-23-17	Tammy & Thomas E. Brown	4.62
S115	05-23-17.4	Tammy D. Meadows	2.605
S116	05-23-17.2	Dick Rowan Jr. & Carol J. Rowan	14.920
S117	05-23-18	Abe J. Hochstetler	35.38
S118	05-23-4.1	XCL Midstream Operating LLC	2.16
S119	05-23-4.2	XCL Midstream Operating LLC	1.17
S120	05-23-18.1	Mark A. Yoho	7.8
S121	05-23-19	Doly Cemetery	1.0
S122	05-23-20	Christian Church	0.19
S123	05-23-21	Mark A. & Mark E. Yoho	0.588
S124	05-23-17.1	Curtis E. Hall Et Ux	10.051
S125	05-23-29	James Wiley	0.25
S126	05-23-28.2	Mark W. & Carolyn L. Tennant	10.8
S127	05-23-22	Daniel D. Rhyand & Laurel R. Greene	6.25
S128	05-23-23	Michael J. Wiley Et Al	1.0
S129	05-23-24	Michael J. Wiley Et Al	0.25
S130	05-23-25	Arthur A. Wiley	0.43
S131	05-23-28	Gregg D. Minor	39.43
S132	05-23-2.2	Jessica N. & Andrew L. Fox	7.636
S133	05-23-28.1	Troy W. & Erin M. Thomas	1.0
S134	05-23-01	Patricia Accetolo Et Al	146.66
S135	05-22-7.1	T.H. Exploration II LLC & Atinum Marcellus LLC	20.68
S136	05-22-08	T.H. Exploration III LLC	48.44
S137	05-22-06	CNX Gas Company LLC	64.70
S138	05-22-10	T.H. Exploration III LLC	58.40
S139	05-22-17	CNX Gas Company LLC	37.5
S140	05-22-04	CNX Gas Company LLC	159.05
S141	05-22-05	CNX Gas Company LLC	134.425
S142	05-22-5.1	Williams Ohio Valley Midstream LLC	12.875
S143	05-19-18.1	Mark E. Yoho Et Ux	2.57
S144	05-19-18.2	Paul V. & Carol Neely	32.672
S145	05-19-25	David E. Yoho & Mark E. Yoho	9.976
S146	05-19-24	Mark E. Yoho	15.436
S147	05-19-26	Roger J. & Beth E. James	9.977
S148	05-19-16.1	Robert L. & Rebecca A. Shields	2.307
S149	05-19-27	David E. Yoho & Mark E. Yoho	7.041
S150	05-19-31	Charles F. & Diana L. Haynes	8.779
S151	05-19-30.1	Eric R.W. & Ashley A. Huggins	2.911
S152	05-19-32	Jasper N. Burch Et Al-Trustees	0.397
S153	05-19-28	David E. Yoho & Mark E. Yoho	56.899
S154	05-19-19	Russell Blake Et Ux	66.4
S155	05-19-21	Sammy E. Whilatch Et Al	116.45
S156	05-19-20	Wilbert H. Bungard Et Ux	114.989
S157	05-19-15	Carly Herran	0.72
S158	05-19-29	Ernie L. & Tammy L. Anderson	10.961
S159	05-19-09	Penny Elaine Ashcraft	10.44
S160	05-19-12	Ernie L. Anderson Et Ux	5.33
S161	05-19-10	Ernie L. Anderson Et Ux	0.8125
S162	05-19-11	Ernie L. Anderson Et Ux	0.08
S163	05-19-20.3	Sidney Harmon	3.715
S164	05-19-20.1	John J. Ebert-Life	3.848
S165	05-19-7.5	Adam T. & Jesse L. Robinson	2.64
S166	05-19-7.1	Robert L. Shields Et Ux	3.399
S168	05-19-20.2	Cassandra L. Harmon	7.448
S169	05-19-05	Margirene Keefe	126.03
S170	05-19-7.2	Olan Rutan	2.783
S171	05-19-7.4	Olan V. Rutan, Et Ux	1.787
S172	05-19-7.3	Olan V. Rutan Et Ux	0.341
S173	05-19-06	Belinda Kay Meadows, Rebecca Ann Shields & Olan V. Rutan	5.1099
S174	05-14-11	Dale R. Gallaher Et Al	12.0
S175	05-14-10.4	Adam R. & Jesse L. Robinson	3.343
S176	05-14-10.2	Ida Belle Rutan-Life, Ralph R. Hoyt	0.495
S177	05-14-10.1	Ida Belle Rutan-Life, Ralph R. Hoyt	0.5
S178	05-14-9.5	Maria T. Flores	6.024
S179	05-14-9.1	Maria T. Flores	2.882
S180	05-12-17	Joni Lyn Leon	0.752



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: MCMASTERS S-17HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02338 ^{HCA} _{Deep}

WELL PLAT
PAGE 4 OF 4
DATE: 02/10/2020
REVISED: 07/31/2020

WW-6A1
(5/13)

Operator's Well No. McMasters S-17HU

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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*See attached 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

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Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

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

WW-6A1
(5/13)

Operator's Well No. McMasters S-17HU

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IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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*See attached pages

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- 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 L. Miller*

Its: Permitting Specialist - Appalachia Region

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Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

470510238

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*14116	A	5-18-2	DONALD SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	367	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14117	A	5-18-2	ROBERT L SHIELDS AND REBECCA A SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	360	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14295	B	5-19-17	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14295	C	5-19-18	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14295	D	5-18-24	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14296	D	5-18-24	DUANE BRUNN	TRIENERGY HOLDINGS, LLC	1/8+	705	484	NA	NA	NA	NA	24/29 TriEnergy Holdings LLC to AB Resources LLC	24/32 AB Resources LLC to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14022	E	5-18-22	HOWARD N WAYNE SR AND DENISE D WAYNE	GASTAR EXPLORATION USA INC	1/8+	665	384	NA	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14027	F	5-23-2	HOWARD N WAYNE SR AND DENISE D WAYNE	GASTAR EXPLORATION USA INC	1/8+	665	384	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19145	G	5-23-2.1	WILLIAM L WAYNE & JANICE M WAYNE	TRIENERGY HOLDINGS, LLC	1/8+	706	87	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	H	5-18-21.1	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	H	5-18-21.1	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	H	5-18-21.1	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	H	5-18-21.1	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	H	5-18-21.1	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17150	H	5-18-21.1	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*22169	H	5-18-21.1	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA	NA
10*17145	I	5-18-21	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	I	5-18-21	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	I	5-18-21	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	I	5-18-21	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	I	5-18-21	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17150	I	5-18-21	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*22169	I	5-18-21	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA	NA
10*17145	J	5-23-3	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	J	5-23-3	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	J	5-23-3	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	J	5-23-3	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	J	5-23-3	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*17150	J	5-23-3	IDA L CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*21415	J	5-23-3	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA	NA
10*14849	K	5-23-4	DAVID GUSTELY	GASTAR EXPLORATION USA INC	1/8+	806	265	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14853	K	5-23-4	DURWOOD WRIGHT BY CATHERINE HUMMEL AIF	GASTAR EXPLORATION USA INC	1/8+	809	507	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14861	K	5-23-4	NANCY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	809	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14862	K	5-23-4	ANN GUSTELY	GASTAR EXPLORATION USA INC	1/8+	809	568	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14864	K	5-23-4	CAROLYN DURWAY	GASTAR EXPLORATION USA INC	1/8+	810	330	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14866	K	5-23-4	GARY CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	810	316	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14868	K	5-23-4	WOODROW CAMPBELL JR	GASTAR EXPLORATION USA INC	1/8+	813	454	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14869	K	5-23-4	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA INC	1/8+	813	561	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14870	K	5-23-4	DAVID CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	816	16	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14872	K	5-23-4	DWG OIL & GAS ACQUISITIONS LLC	GASTAR EXPLORATION USA INC	1/8+	817	312	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14873	K	5-23-4	RAYMOND MILLER	GASTAR EXPLORATION USA INC	1/8+	821	44	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14874	K	5-23-4	RICHARD MILLER	GASTAR EXPLORATION USA INC	1/8+	822	260	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14876	K	5-23-4	SHIRLEY LARGENT	GASTAR EXPLORATION USA INC	1/8+	827	228	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14877	K	5-23-4	GARY F OBLOY AND DENISE I OBLOY	GASTAR EXPLORATION USA INC	1/8+	836	112	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14878	K	5-23-4	ARTHUR BRUCE COULTER	GASTAR EXPLORATION USA INC	1/8+	839	519	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14879	K	5-23-4	THERESA RINE	GASTAR EXPLORATION USA INC	1/8+	840	162	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14880	K	5-23-4	IRIS LUCAS	GASTAR EXPLORATION USA INC	1/8+	849	545	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14881	K	5-23-4	MARY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	849	548	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14882	K	5-23-4	GARY RINE	GASTAR EXPLORATION USA INC	1/8+	849	551	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14884	K	5-23-4	RENEE HAGERTY	GASTAR EXPLORATION USA INC	1/8+	852	255	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14885	K	5-23-4	HOWARD RINE	GASTAR EXPLORATION USA INC	1/8+	854	601	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14886	K	5-23-4	JODI YOHO	GASTAR EXPLORATION USA INC	1/8+	854	604	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14887	K	5-23-4	CHRISTINA ROBERTS	GASTAR EXPLORATION USA INC	1/8+	867	392	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14888	K	5-23-4	DARLENE BUTLER	GASTAR EXPLORATION USA INC	1/8+	867	395	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14889	K	5-23-4	HAROLD YOHO	GASTAR EXPLORATION USA INC	1/8+	870	37	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14890	K	5-23-4	HENRY MALONE JR	GASTAR EXPLORATION USA INC	1/8+	870	40	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14891	K	5-23-4	NANCY F FYE & STEPHEN M FYE	GASTAR EXPLORATION USA INC	1/8+	885	606	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	K	5-23-4	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	K	5-23-4	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	K	5-23-4	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	K	5-23-4	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	K	5-23-4	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17150	K	5-23-4	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

4705102338	10*18598	K	5-23-4	MARK E GUSTELY	TH EXPLORATION, LLC	1/8+	935	52	NA	NA	NA	NA	NA	NA	NA
	10*18795	K	5-23-4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	NA	NA	NA	NA	NA	NA	NA
	10*18994	K	5-23-4	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	137	NA	NA	NA	NA	NA	NA	NA
	10*19736	K	5-23-4	DOROTHY HLINKA DUKE	TH EXPLORATION, LLC	1/8+	944	571	NA	NA	NA	NA	NA	NA	NA
	10*21217	K	5-23-4	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	952	643	NA	NA	NA	NA	NA	NA	NA
	10*21222	K	5-23-4	PATRICIA J SHAW KELLER	TH EXPLORATION, LLC	1/8+	946	43	NA	NA	NA	NA	NA	NA	NA
	10*21415	K	5-23-4	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA

10*21951	K	5-23-4	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	960	77	NA	NA	NA	NA	NA	NA	NA	NA
10*21994	K	5-23-4	MELISSA L DARROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA	NA	NA	NA	NA	NA	NA
10*22013	K	5-23-4	CHARLES J KNOX	TH EXPLORATION, LLC	1/8+	966	112	NA	NA	NA	NA	NA	NA	NA	NA
10*22014	K	5-23-4	SHERMAN E KNOX JR	TH EXPLORATION, LLC	1/8+	966	108	NA	NA	NA	NA	NA	NA	NA	NA
10*22018	K	5-23-4	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	960	539	NA	NA	NA	NA	NA	NA	NA	NA
10*22026	K	5-23-4	KEVIN D CHURCH	TH EXPLORATION, LLC	1/8+	957	49	NA	NA	NA	NA	NA	NA	NA	NA
10*22027	K	5-23-4	STEPHEN C EMERY AND CATHY J EMERY	TH EXPLORATION, LLC	1/8+	954	310	NA	NA	NA	NA	NA	NA	NA	NA

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4705102338	10*22613	K	5-23-4	JEWEL L CAMPBELL	TH EXPLORATION, LLC	1/8+	966	510	NA	NA	NA	NA	NA	NA	NA
	10*22779	K	5-23-4	STEVEN WADE	TH EXPLORATION, LLC	1/8+	968	424	NA	NA	NA	NA	NA	NA	NA
	10*22809	K	5-23-4	MARGARET C MCMURRY & WILLIAM F MCMURRY	TH EXPLORATION, LLC	1/8+	972	54	NA	NA	NA	NA	NA	NA	NA
	10*22812	K	5-23-4	JOSEPH F GOBLOWSKY	TH EXPLORATION, LLC	1/8+	968	428	NA	NA	NA	NA	NA	NA	NA
	10*22861	K	5-23-4	LAURINE C CURTIS & EDGAR A CURTIS III	TH EXPLORATION, LLC	1/8+	976	147	NA	NA	NA	NA	NA	NA	NA
	10*23166	K	5-23-4	JAMES DAVID CRANDALL	TH EXPLORATION, LLC	1/8+	984	48	NA	NA	NA	NA	NA	NA	NA
	10*23168	K	5-23-4	JASON WADE	TH EXPLORATION, LLC	1/8+	966	506	NA	NA	NA	NA	NA	NA	NA

10*17186	L	5-23-6	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	708	51	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14847	M	5-23-5	LETHA RUCKMAN	GASTAR EXPLORATION USA INC	1/8+	806	270	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14849	M	5-23-5	DAVID GUSTELY	GASTAR EXPLORATION USA INC	1/8+	806	265	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14853	M	5-23-5	DURWOOD WRIGHT BY CATHERINE HUMMEL AIF	GASTAR EXPLORATION USA INC	1/8+	809	507	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14861	M	5-23-5	NANCY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	809	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14862	M	5-23-5	ANN GUSTELY	GASTAR EXPLORATION USA INC	1/8+	809	568	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14864	M	5-23-5	CAROLYN DURWAY	GASTAR EXPLORATION USA INC	1/8+	810	330	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14866	M	5-23-5	GARY CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	810	316	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14868	M	5-23-5	WOODROW CAMPBELL JR	GASTAR EXPLORATION USA INC	1/8+	813	454	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14869	M	5-23-5	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA INC	1/8+	813	561	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14870	M	5-23-5	DAVID CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	816	16	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14872	M	5-23-5	DWG OIL & GAS ACQUISITIONS LLC	GASTAR EXPLORATION USA INC	1/8+	817	312	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14873	M	5-23-5	RAYMOND MILLER	GASTAR EXPLORATION USA INC	1/8+	821	44	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14874	M	5-23-5	RICHARD MILLER	GASTAR EXPLORATION USA INC	1/8+	822	260	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

4705102338	10*14876	M	5-23-5	SHIRLEY LARGENT	GASTAR EXPLORATION USA INC	1/8+	827	228	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14877	M	5-23-5	GARY F OBLOY AND DENISE I OBLOY	GASTAR EXPLORATION USA INC	1/8+	836	112	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14878	M	5-23-5	ARTHUR BRUCE COULTER	GASTAR EXPLORATION USA INC	1/8+	839	519	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14879	M	5-23-5	THERESA RINE	GASTAR EXPLORATION USA INC	1/8+	840	162	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14880	M	5-23-5	IRIS LUCAS	GASTAR EXPLORATION USA INC	1/8+	849	545	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14881	M	5-23-5	MARY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	849	548	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14882	M	5-23-5	GARY RINE	GASTAR EXPLORATION USA INC	1/8+	849	551	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14884	M	5-23-5	RENEE HAGERTY	GASTAR EXPLORATION USA INC	1/8+	852	255	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14885	M	5-23-5	HOWARD RINE	GASTAR EXPLORATION USA INC	1/8+	854	601	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14886	M	5-23-5	JODI YOHO	GASTAR EXPLORATION USA INC	1/8+	854	604	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14887	M	5-23-5	CHRISTINA ROBERTS	GASTAR EXPLORATION USA INC	1/8+	867	392	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14888	M	5-23-5	DARLENE BUTLER	GASTAR EXPLORATION USA INC	1/8+	867	395	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14889	M	5-23-5	HAROLD YOHO	GASTAR EXPLORATION USA INC	1/8+	870	37	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14890	M	5-23-5	HENRY MALONE JR	GASTAR EXPLORATION USA INC	1/8+	870	40	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14891	M	5-23-5	NANCY F FYE & STEPHEN M FYE	GASTAR EXPLORATION USA INC	1/8+	885	606	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	M	5-23-5	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	M	5-23-5	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	M	5-23-5	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	M	5-23-5	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	M	5-23-5	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17150	M	5-23-5	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17192	N	5-23-8	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	193	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*19722	N	5-23-8	MASTER MINERAL HOLDINGS I LP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	912	105	NA	NA	NA	NA	NA	NA	40/408 American Petroleum Partners Operating LLC to TH Exploration LLC	40/418 American Petroleum Partners Operating LLC to TH Exploration LLC
10*18343	O	5-23-14	DOMINION ENERGY TRANSMISSION INC	TH EXPLORATION, LLC	1/8+	936	79	NA	NA	NA	NA	NA	NA	NA	NA
10*17189	P	5-23-9.3	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17189	Q	5-23-9.2	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14786	R	5-23-13	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14792	R	5-23-13	TIMOTHY YOHO	GASTAR EXPLORATION USA INC	1/8+	799	536	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	

10*27959	R	5-23-13	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	S	5-23-11.4	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14792	S	5-23-11.4	TIMOTHY YOHO	GASTAR EXPLORATION USA INC	1/8+	799	536	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	S	5-23-11.4	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	S	5-23-11.4	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	S	5-23-11.4	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14969	S	5-23-11.4	REBECCA S WORD	GASTAR EXPLORATION USA INC	1/8+	872	219	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14970	S	5-23-11.4	GRACE EXLINE	GASTAR EXPLORATION USA INC	1/8+	872	623	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17195	S	5-23-11.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	S	5-23-11.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	S	5-23-11.4	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	S	5-23-11.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	S	5-23-11.4	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	S	5-23-11.4	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*17202	S	5-23-11.4	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	S	5-23-11.4	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	S	5-23-11.4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	S	5-23-11.4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	S	5-23-11.4	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	S	5-23-11.4	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	S	5-23-11.4	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*25627	S	5-23-11.4	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27714	S	5-23-11.4	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
10*27959	S	5-23-11.4	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	T	5-23-11.1	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	T	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	T	5-23-11.1	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	T	5-23-11.1	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*17195	T	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	T	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	T	5-23-11.1	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	T	5-23-11.1	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	T	5-23-11.1	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	T	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	T	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17203	T	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	T	5-23-11.1	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	T	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	T	5-23-11.1	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	T	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	T	5-23-11.1	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17212	T	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*25627	S	5-23-11.4	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27714	S	5-23-11.4	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
10*27959	S	5-23-11.4	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	T	5-23-11.1	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	T	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	T	5-23-11.1	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	T	5-23-11.1	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*17195	T	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	T	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	T	5-23-11.1	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	T	5-23-11.1	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	T	5-23-11.1	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	T	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	T	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17203	T	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	T	5-23-11.1	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	T	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	T	5-23-11.1	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	T	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	T	5-23-11.1	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17212	T	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

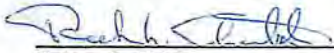
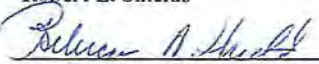
10*27714	T	5-23-11.1	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
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COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.


Robert L. Shields

Rebecca A. Shields

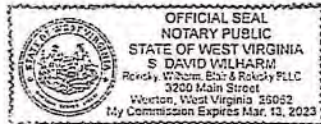
Marshall County
Jan Pest, Clerk
Instrument 1463767
01/29/2020 @ 10:38:15 AM
RIGHT OF WAY W/D CONSIDERATION
Book 1072 @ Page 252
Pages Recorded 2
Recording Cost \$ 11.00

STATE OF WEST VIRGINIA
COUNTY OF MARSHALL

SS:

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Robert L. Shields and Rebecca A. Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

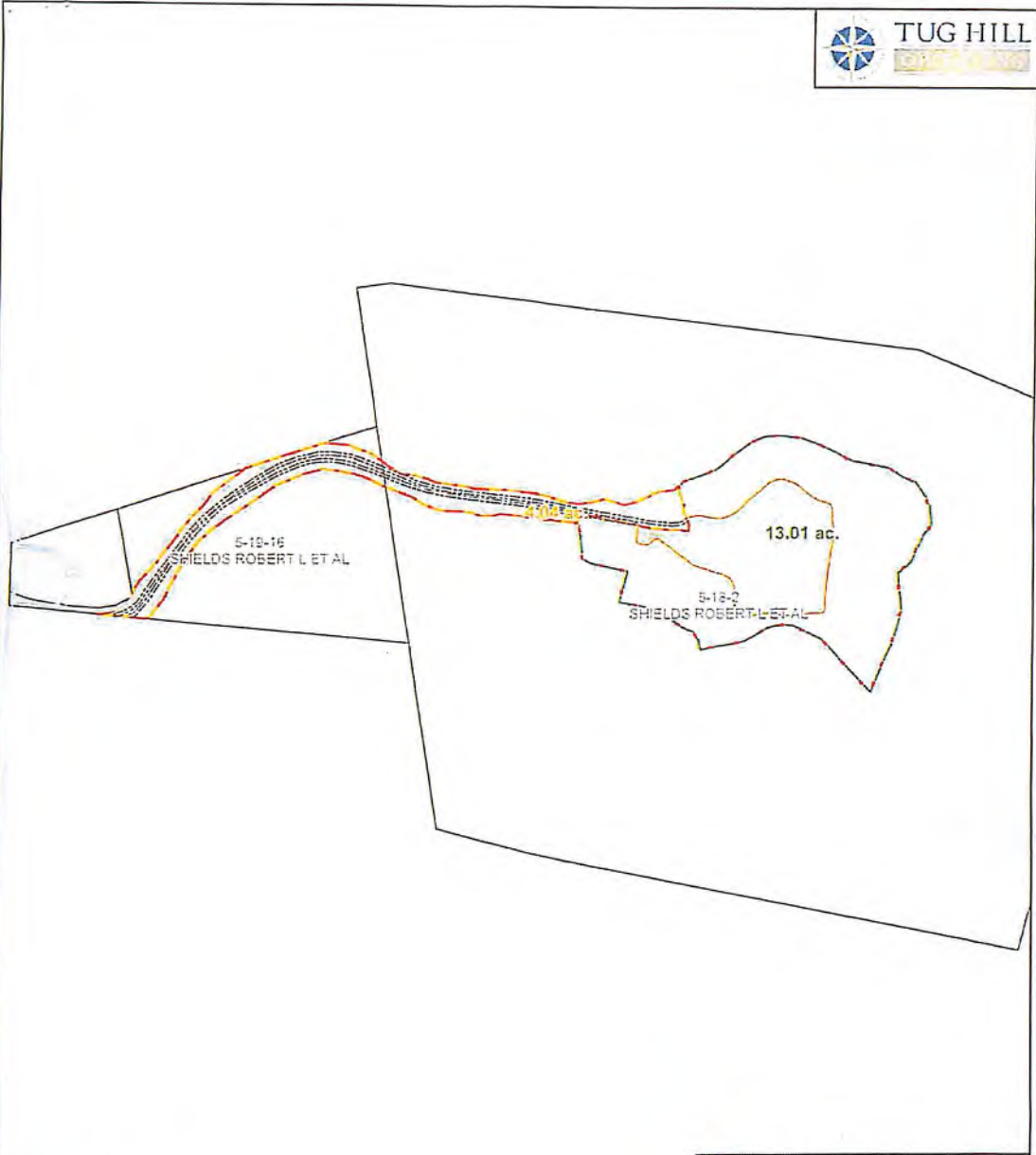


My Commission Expires: 3/13/2023
Signature/Notary Public: S. David Wilharm
Name/Notary Public (print): S. David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

4838-2618-8605v2

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Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection



1 inch: 436 feet

- Limit of Disturbance - Access Road
- Limit of Disturbance - Pad

0 125 250 500
Feet

N

THIS DOCUMENT IS THE PROPERTY OF TUG HILL OIL & GAS. IT IS TO BE USED ONLY FOR THE PROJECT AND LOCATION SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TUG HILL OIL & GAS. ANY UNAUTHORIZED REPRODUCTION OR USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND WILL BE SUBJECT TO LEGAL ACTION. TUG HILL OIL & GAS ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS IN THIS DOCUMENT. THE INFORMATION CONTAINED HEREIN IS PROVIDED AS IS AND WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. THE USER ASSUMES ALL LIABILITY FOR ANY DAMAGE OR LOSS OF PROFITS, BUSINESS, OR REPUTATION, OR ANY OTHER DAMAGES, INCLUDING REASONABLE ATTORNEY'S FEES AND COSTS, ARISING FROM THE USE OF THIS DOCUMENT. THE USER AGREES TO HOLD TUG HILL OIL & GAS HARMLESS FROM AND AGAINST ALL SUCH DAMAGES, INCLUDING REASONABLE ATTORNEY'S FEES AND COSTS, ARISING FROM THE USE OF THIS DOCUMENT.

"Plat"
SHIELDS ROBERT L ET AL
Marshall, WV

Date: 11/20/19
Name: *R. L. Shields*
Name: *Robert L. Shields*



Date: 10/24/2019
PCS: NAD 1983 UTM Zone 17N Feet US

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Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.

Donald Shields
Donald Shields

Marshall County
Jan Pest. Clerk
Instrument 1463768
01/29/2020 @ 10:38:16 AM
RIGHT OF WAY W/O CONSIDERATION
Book 1072 @ Page 254
Pages Recorded 2
Recording Cost \$ 11.00

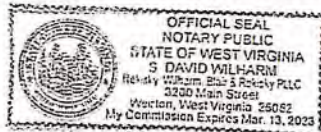
STATE OF WEST VIRGINIA

SS:

COUNTY OF MARSHALL

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Donald Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



My Commission Expires: 3/13/2023
Signature/Notary Public: S David Wilharm
Name/Notary Public (print): S David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

4838-2618-8605v2

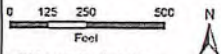
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Office of Oil and Gas

JUL 17 2020

WV Department of
Environmental Protection



1 inch: 436 feet



THIS PLAN IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION OR AS A BASIS FOR OBTAINING PERMITS WITHOUT THE WRITTEN APPROVAL OF TUG HILL OPTIMIZING. THE DESIGNER ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS IN THIS PLAN. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR VERIFYING THE ACCURACY OF ALL INFORMATION PROVIDED TO THE DESIGNER.

Date: 10/24/2019
 PGC NAD 1983 UTM Zone 17N Feet US

"Plat"
 SHIELDS ROBERT L ET AL
 Marshall, WV

Date: Nov 20 2019
 Name: Donald D. Child
 Name: _____



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 Office of Oil and Gas

JUL 17 2020

WV Department of
 Environmental Protection

Jan Pest
 MARSHALL County 01:22:38 PM
 Instrument No 1403489
 Date Recorded 04/27/2016
 Document Type ASN
 Pages Recorded 77
 Book-Page 36-9
 Recording Fee \$77.00
 Additional \$13.00

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

Execution Version

ASSIGNMENT AND BILL OF SALE

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

RECEIVED
 Office of Oil and Gas
 JUL 17 2020
 WV Department of
 Environmental Protection

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

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

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

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

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

(b) all rights and interests in, under or derived from all unitization agreements in effect with respect to any of the Leases and the units created thereby, including those described

ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on December 18, 2017 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 24, 2017 (the "*Acreage Trade Agreement*").

ARTICLE 1 ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") IN SO FAR AND ONLY IN SO FAR as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

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

Section 1.2 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR

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COLIN KING
AMERICAN PETROLEUM PARTNERS OPERATING LLC
300 SOUTHPOINTE BOULEVARD, STE. 120
CANONSBURG PA 15317-8561

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

Marshall County
Jan Pest, Clerk
Instrument 1431482
10/18/2017 @ 03:32:59 PM
ASSIGNMENTS
Book 40 @ Page 418
Pages Recorded 5
Recording Cost \$ 11.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 16th day of October, 2017 (the "Effective Date"), by and between AMERICAN PETROLEUM PARTNERS OPERATING, LLC, (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 4, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

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

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

1. Assignment. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon.

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

2. Special Warranty. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the

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WV-AGIR-0008



July 15, 2020

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

RE: McMasters S-17HU

Subject: Marshall County Route 29/1 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 29/1 in the area reflected on the McMasters S-17HU 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

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(1/12)

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

Date of Notice Certification: 07/15/2020

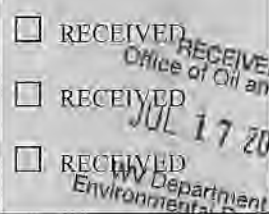
API No. 47- 051 -
Operator's Well No. McMasters S-17HU
Well Pad Name: Shields

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>518,200.94</u>
County: <u>Marshall</u>	Northing: <u>4,401,175.26</u>
District: <u>Franklin</u>	Public Road Access: <u>Burch Ridge Road (CR 29)</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>Robert L. Shields, et al</u>
Watershed: <u>Lower Fish Creek</u>	

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

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

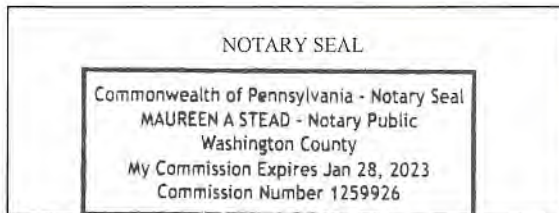
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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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>amylmiller</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia Region</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amiller@tug-hill.com</u>



Subscribed and sworn before me this 15 day of JULY, 2020.

Maureen A Stead Notary Public

My Commission Expires 1/28/23

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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**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: 7/13/2020 **Date Permit Application Filed:** 7/16/2020

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: Donald Shields (Pad and Access Road)
 Address: 231 Lonesome Ln.
Proctor, WV 26055

Name: Robert and Rebecca Shields (Pad and Access Road)
 Address: 2756 Burch Ridge Road
Proctor, WV 26055

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Mark A. Yoho
 Address: 6701 Burch Ridge Road
Proctor, WV 26055
 Name: Mark E. Yoho
 Address: 3998 Burch Ridge Road
Proctor, WV 26055

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

COAL OWNER OR LESSEE
 Name: CONSOL Energy
 Address: 1000 Consol Drive
Canonsburg, PA 15317

COAL OPERATOR
 Name: CONSOL Energy
 Address: 1000 Consol Drive
Canonsburg, PA 15317

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: Nikki L. & Jonathan Stevens
 Address: 757 Weeping Willow Lane
Proctor, WV 26055

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: n/a
 Address: _____

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*Please attach additional forms if necessary

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

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Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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.**

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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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(8-13)

API NO. 47-051 4705102338
OPERATOR WELL NO. McMasters S-1710
Well Pad Name: Shields

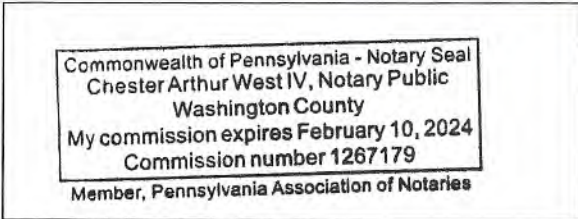
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 13th day of July, 2020.
[Signature] Notary Public

My Commission Expires 2-10-2024

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WV Department of
Environmental Protection

WW-6A

Supplement Pg. 1A

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

WATER WELL REPORT

Well: MCMASTERS S-20HU
District: Franklin
County: Marshall
State: WV

There appears to be One (1) possible water source within 2,000 feet of the above referenced well location.

Topo Spot # 1 (House/Cabin) TM 5-18-3.1 Nikki L. & Jonathan Stevens 757 Weeping Willow Ln. Proctor, WV 26055 304-771-0630 © 740-255-3620 © 336-239-2605 ©		

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4705102338

WW-6A

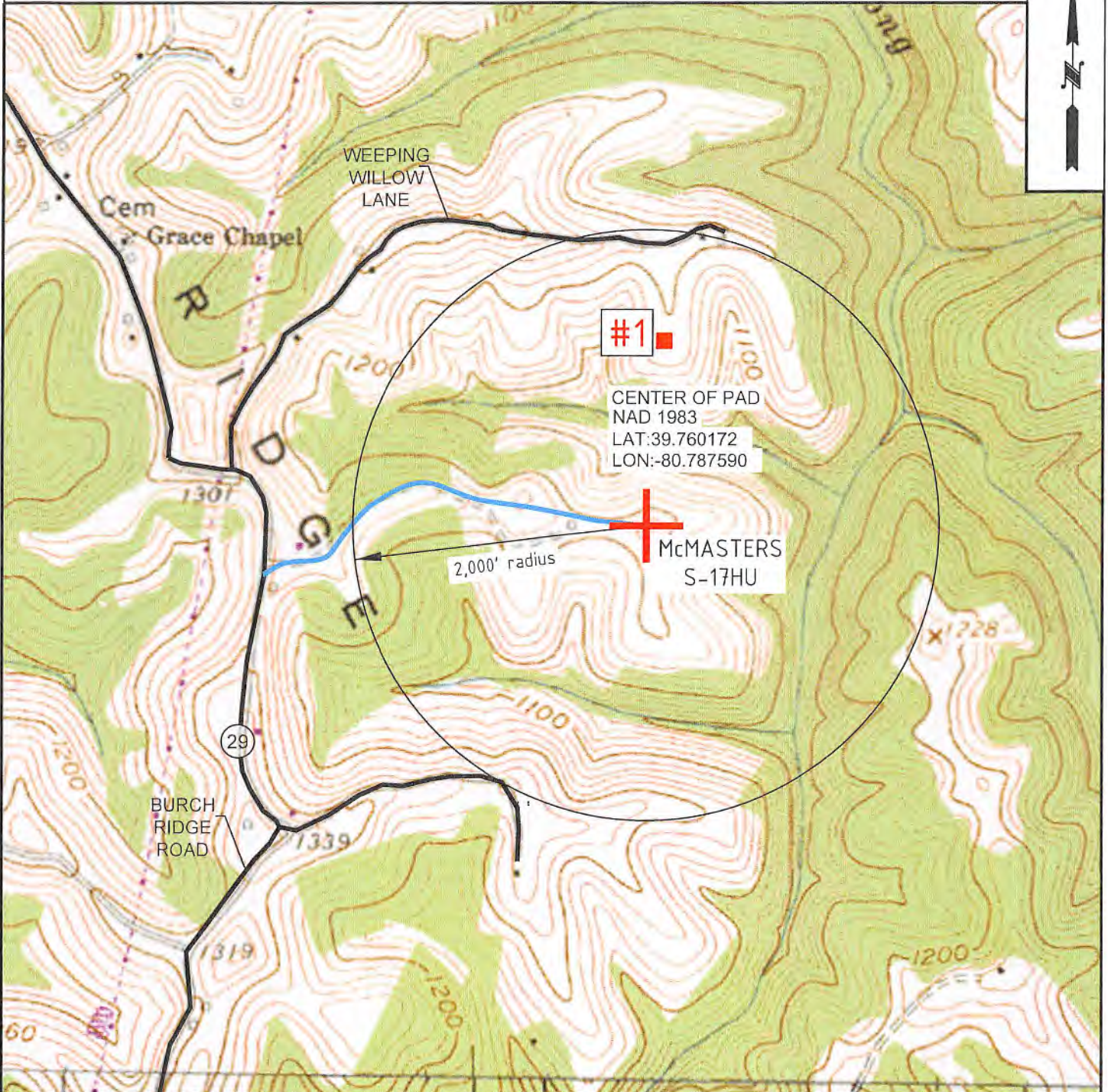
PROPOSED McMASTERS S-17HU

SUPPLEMENT RECEIVED
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Environmental Protection

There appears to be one (1) possible water source within 2,000'.



#1

CENTER OF PAD
NAD 1983
LAT:39.760172
LON:-80.787590

McMASTERS
S-17HU

2,000' radius



**TUG HILL
OPERATING**

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

TOPO SECTION POWHATAN POINT 7.5'
SCALE: 1" = 1000'

LEASE NAME McMASTERS
DATE: 6-4-2020

WW-6A3
(1/12)Operator Well No. McMasters S-17HU

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: 6/23/2020 **Date of Planned Entry:** 6/30/2020

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: Mark A. Yoho
 Address: 6701 Burch Ridge Rd.
Proctor, WV 26055

Name: Mark E. Yoho
 Address: 3998 Burch Ridge Rd.
Proctor, WV 26055

Name: Donald Shields
 Address: 231 Lonesome Ln.
Proctor, WV 26055

COAL OWNER OR LESSEE

Name: CONSOL Energy
 Address: 1000 Consol Dr.
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Robert & Rebecca Shields
 Address: 2756 Burch Ridge Rd.
Proctor, WV 26055
 *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>39.760262; -80.788083</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Burch Ridge Road (County Route 29)</u>
District:	<u>Franklin</u>	Watershed:	<u>Lower Fish Creek</u>
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Donald L. Shields, 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-hilltop.com

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

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 JUL 17 2020
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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.

4705102338

ADDITIONAL PARTIES TO NOTICE

McMasters Pad

WW-6A3

Additional Surface Owner:

Robert and Rebecca Shields

2756 Burch Ridge Road

Proctor, WV 26055

Additional Mineral Owner:

Donald Shields

231 Lonesome Ln.

Proctor, WV 26055

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

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

Date of Notice: 07/14/2020 **Date Permit Application Filed:** 07/16/2020

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

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)

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

Name: Donald Shields
Address: 231 Lonesome Ln.
Proctor, WV 26055

Name: Robert and Rebecca Shields
Address: 2756 Burch Ridge Road
Proctor, WV 26055

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>518,200.94</u>
County:	<u>Marshall</u>		Northing:	<u>4,401,175.26</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Burch Ridge Road (CR 29)</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Robert L. Shields, et al</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

This Notice Shall Include:

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

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

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

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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

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

January 28, 2020

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

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

Subject: DOH Permit for the Shields Pad, Marshall County

McMasters N-11HU

McMasters N-12HU

McMasters N-13HU

McMasters N-14HU

McMasters N-15HU

McMasters S-16HU

McMasters S-17HU

McMasters S-18HU

McMasters S-19HU

McMasters S-20HU

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2012-0250 which has been transferred to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 29 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018.

Very Truly Yours,

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

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JUL 17 2020
WV Department of
Environmental Protection

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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. McMasters S-17HU

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



Date: 8/14/2020
 Scale: As Shown
 Designer: J. B.

TUG HILL
 OPERATING



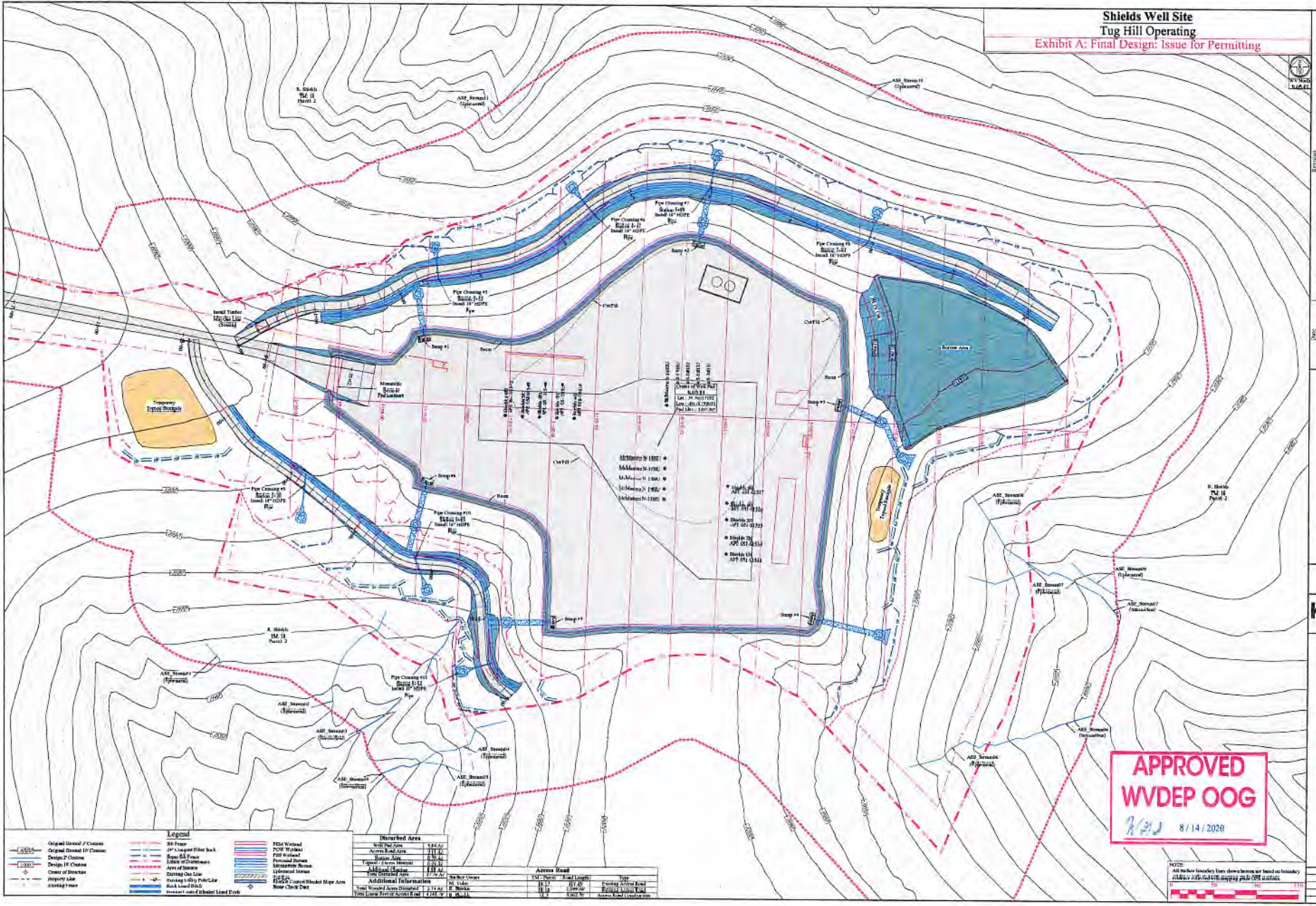
THIS DOCUMENT
 PREPARED FOR
 TUG HILL
 OPERATING



K&S CONSULTANTS, INC.
 ENGINEERS
 2000 E. 21st Street
 Charleston, WV 25301
 Phone: 304.263.1300
 Fax: 304.263.1301
 Email: k&s@k-s.com

Site Plan
 Shields Well Site
 Franklin District
 Marshall County, WV

Date: 12/16/2019
 Scale: As Shown
 Designer: J. B.
 File No.
 Sheet 10 of 15



Legend	
Original Ground / Contour	90 Feet
Original Ground 10' Contour	48" Copper Pipe Back
Design 2' Contour	36" Copper Pipe Back
Design 1' Contour	24" Copper Pipe Back
Center of Structure	Disturb Area
Property Line	Disturb Area - 25' Buffer
Storage Tank	Disturb Area - 50' Buffer
	Disturb Area - 100' Buffer
	Disturb Area - 150' Buffer
	Disturb Area - 200' Buffer
	Disturb Area - 250' Buffer
	Disturb Area - 300' Buffer
	Disturb Area - 350' Buffer
	Disturb Area - 400' Buffer
	Disturb Area - 450' Buffer
	Disturb Area - 500' Buffer
	Disturb Area - 550' Buffer
	Disturb Area - 600' Buffer
	Disturb Area - 650' Buffer
	Disturb Area - 700' Buffer
	Disturb Area - 750' Buffer
	Disturb Area - 800' Buffer
	Disturb Area - 850' Buffer
	Disturb Area - 900' Buffer
	Disturb Area - 950' Buffer
	Disturb Area - 1000' Buffer

Disturbed Area		
Well Footprint	1.5' x 1.5'	1.5'
North Road Area	1.5' x 1.5'	1.5'
Station Area	1.5' x 1.5'	1.5'
Access Road	1.5' x 1.5'	1.5'
Additional Information:		
Well Number	1-11	1-11
Well Depth	100'	100'
Well Diameter	48"	48"
Well Spacing	100'	100'
Well Orientation	0°	0°
Well Status	Proposed	Proposed

NOTE:
 All well locations shown here are based on boundary
 and/or other information available at the time of this design.



west virginia department of environmental protection

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

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

Monday, September 21, 2020
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for MCMASTERS S-17HU
47-051-02338-00-00

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: MCMASTERS S-17HU
Farm Name: ROBERT L. SHIELDS, ET AL
U.S. WELL NUMBER: 47-051-02338-00-00
Horizontal 6A New Drill
Date Issued: 9/21/2020



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

August 5, 2020

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

RE: Application for Deep Well Permit – API #47-051-02338

COMPANY: Tug Hill Operating, LLC

FARM: Robert L. Shields, et al McMasters S-17HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point

The deep well review of the application for the above company is **Approved to drill to Trenton for Point Pleasant completion.**

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? No.
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
4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

Susan Rose
Administrator

PERMIT CONDITIONS

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

CONDITIONS

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

API Number: _____

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.

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: McMasters S-17HU Well Pad Name: Shields

3) Farm Name/Surface Owner: Robert L. Shields, et al Public Road Access: Burch Ridge Road - CR 29

4) Elevation, current ground: 1206' Elevation, proposed post-construction: 1206'

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

Other

(b) If Gas Shallow _____ Deep x

Horizontal x

JS
6/6/2020

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Point Pleasant is the target formation at a depth of 11,131' - 11,277' - thickness of 146' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,427'

9) Formation at Total Vertical Depth: Trenton, plug back to Reedsville

10) Proposed Total Measured Depth: 22,100'

11) Proposed Horizontal Leg Length: 10,418.58'

12) Approximate Fresh Water Strata Depths: 70' ; 802'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickley Coal - 701' ; Pittsburgh Coal - 796'

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

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

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

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	900'	900'	1,463FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2600'	2600'	1,842FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,080'	10,080'	3,286FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	22,100'	22,100'	5,234'FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,759'	
Liners							

*JL
6/16/20*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	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	16,510	10,864	SEE #24	1.18
Tubing	2 7/8"			11,385	11,624		
Liners							

PACKERS

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

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JUL 17 2020

WV Department of
Environmental Protection

WW-6B
(10/14)

API NO. 47-054 **4705102338**
OPERATOR WELL NO. McMaster 17U

Well Pad Name: Shields

[Signature]
6/6/2020

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 (10,259'). 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 26,042,500 lb proppant and 402,636 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.76 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.84 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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JUL 17 2020

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

WV Department of
Environmental Protection

*Note: Attach additional sheets as needed.

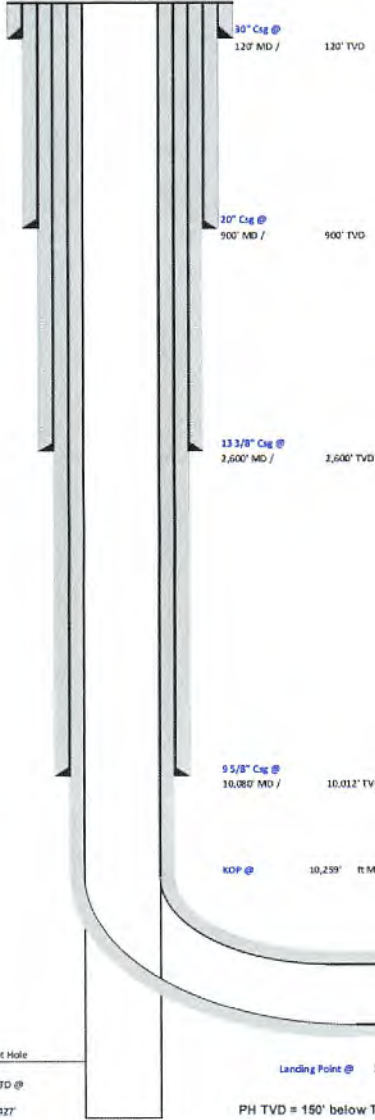


WELL NAME: **McMasters S-17HU**
 STATE: **WV** COUNTY: **Marshall**
 DISTRICT: **Franklin**
 DF Elev: **1,206'** GL Elev: **1,206'**
 TD: **22,100'**
 TH Latitude: **39.76030238**
 TH Longitude: **-80.78751484**
 BH Latitude: **39.733836**
 BH Longitude: **-80.771313**

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	802'
Sewickley Coal	702'
Pittsburgh Coal	796'
Big Lime	1,555'
Berea	2,493'
Tully	6,350'
Marcellus	8,443'
Onondaga	6,493'
Salina	7,184'
Lockport	8,211'
Utica	10,876'
Point Pleasant	11,131'
Landing Depth	11,181'
Trenton	11,277'
Pilot Hole TD	11,427'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	26	20	900'	900'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,600'	2,600'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,080'	10,012'	47	HP110	Surface
Production	8 1/2	5 1/2	22,100'	11,361'	23	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Secks	Class	Density	Fluid Type	Centralizer Notes
Conductor	398	A	15.6	Air	None
Surface	1,578	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	1,995	A	15	Air	1 Centralizer every other ft
Intermediate 2	2,796	A	14.5	Air	1 Centralizer every other ft
Production	4,634	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to s/c



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4705102338

Lateral TD @ 22,100' ft MD
 11,363' ft TVD

PH TVD = 150' below Trenton Top

4705102338



Tug Hill Operating, LLC Casing and Cement Program

McMasters S-17HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	900'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,600'	CTS
Intermediate 2	9 5/8"	HP110	12 1/4"	10,080'	CTS
Production	5 1/2"	P110	8 1/2"	22,100'	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

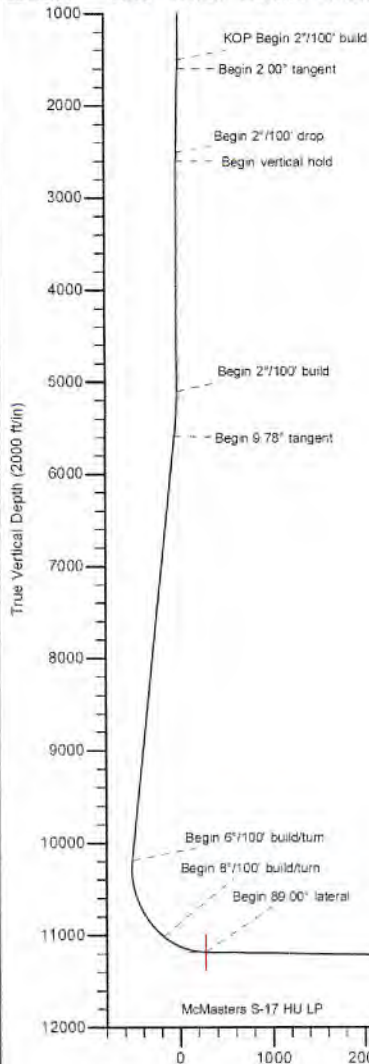
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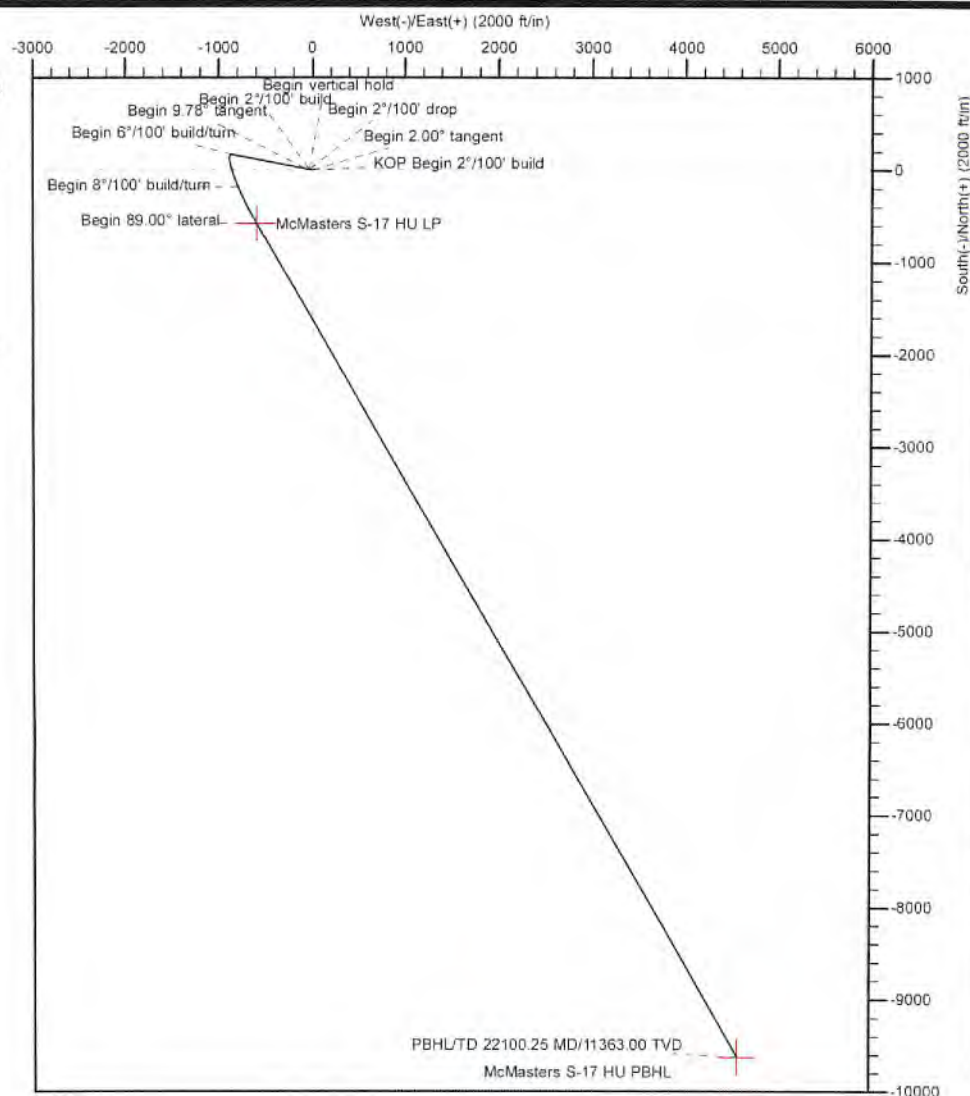
Well: **McMasters S-17 HU (slot G)**
 Site: **McMasters Shields**
 Project: **Marshall County, West Virginia**
 Design: **rev2**
 Rig:

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
1500.00	0.00	0.000	1500.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
1600.00	2.00	280.000	1599.98	0.30	-1.72	2.00	280.000	-1.01	Begin 2.00° tangent
2500.57	2.00	280.000	2500.00	5.76	-32.67	0.00	0.000	-19.23	Begin 2°/100' drop
2600.57	0.00	280.000	2599.98	6.06	-34.39	2.00	180.000	-20.25	Begin vertical hold
5100.59	0.00	280.000	5100.00	6.06	-34.39	0.00	280.000	-20.25	Begin 2°/100' build
5599.51	9.78	281.052	5586.55	14.04	-75.24	2.00	281.052	-44.99	Begin 9.78° tangent
10258.86	9.78	281.052	10187.87	166.07	-853.53	0.00	0.000	-516.54	Begin 6°/100' build/turn
11188.14	50.00	158.022	11010.59	-176.42	-792.90	6.00	-129.032	-181.21	Begin 8°/100' build/turn
11683.59	89.00	150.247	11181.00	-583.81	-590.84	8.00	-12.242	273.47	Begin 89.00° lateral
22100.25	89.00	150.247	11363.00	-9625.88	4577.78	0.00	0.000	10658.97	PBHLTD 22100.25 MD/11363.00 TVD



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

System Datum: Mean Sea Level
 Depth Reference: GL @ 1206.00ft

Northing	Easting	Latitude	Longitude
14439522.51	1700130.91	39.76030238	-80.78751484

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.84



Azimuths to Grid North
 True North: -0.14°
 Magnetic North: -8.84°

Magnetic Field
 Strength: 51893.6nT
 Dip Angle: 86.74°
 Date: 12/9/2019
 Model: IGRF2015



4705102338



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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	McMasters Shields				
Site Position:		Northing:	14,439,441.76 usft	Latitude:	39.76008050
From:	Lat/Long	Easting:	1,700,145.18 usft	Longitude:	-80.78746471
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.136 °

Well	McMasters S-17 HU (slot G)					
Well Position	+N/-S	0.00 ft	Northing:	14,439,522.52 usft	Latitude:	39.76030238
	+E/-W	0.00 ft	Easting:	1,700,130.90 usft	Longitude:	-80.78751484
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level:	1,206.00 ft	

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/9/2019	-8.707	66.739	51,883.56008426

Design	rev2			
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	154.566

Plan Survey Tool Program	Date 5/28/2020			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,100.25 rev2 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,600.00	2.00	280.000	1,599.98	0.30	-1.72	2.00	2.00	0.00	280.000	
2,500.57	2.00	280.000	2,500.00	5.76	-32.67	0.00	0.00	0.00	0.000	
2,600.57	0.00	280.000	2,599.98	6.06	-34.39	2.00	-2.00	0.00	180.000	
5,100.59	0.00	280.000	5,100.00	6.06	-34.39	0.00	0.00	0.00	280.000	
5,589.51	9.78	281.052	5,586.55	14.04	-75.24	2.00	2.00	0.22	281.052	
10,258.66	9.78	281.052	10,187.87	166.07	-853.53	0.00	0.00	0.00	0.000	
11,188.14	50.00	158.022	11,010.59	-176.42	-792.90	6.00	4.33	-13.24	-129.032	
11,683.59	89.00	150.247	11,181.00	-583.81	-590.84	8.00	7.87	-1.57	-12.242	
22,100.25	89.00	150.247	11,363.00	-9,625.88	4,577.78	0.00	0.00	0.00	0.000	McMasters S-17 HU F

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Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-17 HU (slot G)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-17 HU (slot G)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	0.000	0.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
100.00	0.00	0.000	100.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
200.00	0.00	0.000	200.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
300.00	0.00	0.000	300.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
400.00	0.00	0.000	400.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
500.00	0.00	0.000	500.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
600.00	0.00	0.000	600.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
700.00	0.00	0.000	700.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
800.00	0.00	0.000	800.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
900.00	0.00	0.000	900.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,439,522.52	1,700,130.90	39.76030238	-80.78751484
KOP Begin 2°/100' build									
1,600.00	2.00	280.000	1,599.98	0.30	-1.72	14,439,522.82	1,700,129.19	39.76030323	-80.78752095
Begin 2.00° tangent									
1,700.00	2.00	280.000	1,699.92	0.91	-5.16	14,439,523.43	1,700,125.75	39.76030491	-80.78753318
1,800.00	2.00	280.000	1,799.86	1.52	-8.59	14,439,524.03	1,700,122.31	39.76030660	-80.78754540
1,900.00	2.00	280.000	1,899.80	2.12	-12.03	14,439,524.64	1,700,118.88	39.76030829	-80.78755763
2,000.00	2.00	280.000	1,999.74	2.73	-15.47	14,439,525.24	1,700,115.44	39.76030997	-80.78756985
2,100.00	2.00	280.000	2,099.68	3.33	-18.90	14,439,525.85	1,700,112.00	39.76031166	-80.78758208
2,200.00	2.00	280.000	2,199.61	3.94	-22.34	14,439,526.46	1,700,108.56	39.76031335	-80.78759430
2,300.00	2.00	280.000	2,299.55	4.55	-25.78	14,439,527.06	1,700,105.13	39.76031503	-80.78760653
2,400.00	2.00	280.000	2,399.49	5.15	-29.21	14,439,527.67	1,700,101.69	39.76031672	-80.78761875
2,500.00	2.00	280.000	2,499.43	5.76	-32.65	14,439,528.27	1,700,098.25	39.76031841	-80.78763098
2,500.57	2.00	280.000	2,500.00	5.76	-32.67	14,439,528.28	1,700,098.23	39.76031841	-80.78763105
Begin 2°/100' drop									
2,600.00	0.01	280.000	2,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,600.57	0.00	280.000	2,599.98	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
Begin vertical hold									
2,700.00	0.00	280.000	2,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,800.00	0.00	280.000	2,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
2,900.00	0.00	280.000	2,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,000.00	0.00	280.000	2,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,100.00	0.00	280.000	3,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,200.00	0.00	0.000	3,199.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,300.00	0.00	280.000	3,299.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,400.00	0.00	0.000	3,399.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,500.00	0.00	280.000	3,499.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,600.00	0.00	280.000	3,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,700.00	0.00	280.000	3,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,800.00	0.00	280.000	3,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
3,900.00	0.00	0.000	3,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,000.00	0.00	280.000	3,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,100.00	0.00	280.000	4,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,200.00	0.00	280.000	4,199.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,300.00	0.00	280.000	4,299.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,400.00	0.00	280.000	4,399.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,500.00	0.00	0.000	4,499.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,600.00	0.00	280.000	4,599.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716
4,700.00	0.00	0.000	4,699.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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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	0.00	280.000	4,799.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
4,900.00	0.00	280.000	4,899.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,000.00	0.00	280.000	4,999.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,100.00	0.00	280.000	5,099.41	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
5,100.59	0.00	280.000	5,100.00	6.06	-34.39	14,439,528.58	1,700,096.52	39.76031926	-80.78763716	
Begin 2°/100' build										
5,200.00	1.99	281.052	5,199.39	6.39	-36.08	14,439,528.91	1,700,094.82	39.76032018	-80.78764318	
5,300.00	3.99	281.052	5,299.25	7.39	-41.20	14,439,529.91	1,700,089.71	39.76032296	-80.78766137	
5,400.00	5.99	281.052	5,398.87	9.06	-49.73	14,439,531.58	1,700,081.17	39.76032759	-80.78769173	
5,500.00	7.99	281.052	5,498.12	11.39	-61.67	14,439,533.91	1,700,069.23	39.76033407	-80.78773419	
5,589.51	9.78	281.052	5,586.55	14.04	-75.24	14,439,536.56	1,700,055.67	39.76034144	-80.78778244	
Begin 9.78° tangent										
5,600.00	9.78	281.052	5,596.89	14.38	-76.99	14,439,536.90	1,700,053.92	39.76034239	-80.78778866	
5,700.00	9.78	281.052	5,695.44	17.64	-93.65	14,439,540.16	1,700,037.25	39.76035144	-80.78784795	
5,800.00	9.78	281.052	5,793.98	20.90	-110.32	14,439,543.41	1,700,020.58	39.76036049	-80.78790723	
5,900.00	9.78	281.052	5,892.53	24.15	-126.99	14,439,546.67	1,700,003.91	39.76036954	-80.78796652	
6,000.00	9.78	281.052	5,991.08	27.41	-143.66	14,439,549.92	1,699,987.24	39.76037859	-80.78802581	
6,100.00	9.78	281.052	6,089.62	30.66	-160.33	14,439,553.18	1,699,970.57	39.76038764	-80.78808509	
6,200.00	9.78	281.052	6,188.17	33.92	-177.00	14,439,556.44	1,699,953.91	39.76039669	-80.78814438	
6,300.00	9.78	281.052	6,286.72	37.18	-193.67	14,439,559.69	1,699,937.24	39.76040573	-80.78820366	
6,400.00	9.78	281.052	6,385.27	40.43	-210.34	14,439,562.95	1,699,920.57	39.76041478	-80.78826295	
6,500.00	9.78	281.052	6,483.81	43.69	-227.01	14,439,566.20	1,699,903.90	39.76042383	-80.78832224	
6,600.00	9.78	281.052	6,582.36	46.94	-243.68	14,439,569.46	1,699,887.23	39.76043288	-80.78838152	
6,700.00	9.78	281.052	6,680.91	50.20	-260.34	14,439,572.72	1,699,870.56	39.76044193	-80.78844081	
6,800.00	9.78	281.052	6,779.45	53.45	-277.01	14,439,575.97	1,699,853.89	39.76045098	-80.78850010	
6,900.00	9.78	281.052	6,878.00	56.71	-293.68	14,439,579.23	1,699,837.22	39.76046003	-80.78855938	
7,000.00	9.78	281.052	6,976.55	59.97	-310.35	14,439,582.48	1,699,820.55	39.76046908	-80.78861867	
7,100.00	9.78	281.052	7,075.10	63.22	-327.02	14,439,585.74	1,699,803.89	39.76047813	-80.78867796	
7,200.00	9.78	281.052	7,173.64	66.48	-343.69	14,439,588.99	1,699,787.22	39.76048718	-80.78873724	
7,300.00	9.78	281.052	7,272.19	69.73	-360.36	14,439,592.25	1,699,770.55	39.76049623	-80.78879653	
7,400.00	9.78	281.052	7,370.74	72.99	-377.03	14,439,595.51	1,699,753.88	39.76050528	-80.78885582	
7,500.00	9.78	281.052	7,469.28	76.25	-393.70	14,439,598.76	1,699,737.21	39.76051433	-80.78891510	
7,600.00	9.78	281.052	7,567.83	79.50	-410.36	14,439,602.02	1,699,720.54	39.76052338	-80.78897439	
7,700.00	9.78	281.052	7,666.38	82.76	-427.03	14,439,605.27	1,699,703.87	39.76053243	-80.78903368	
7,800.00	9.78	281.052	7,764.93	86.01	-443.70	14,439,608.53	1,699,687.20	39.76054148	-80.78909296	
7,900.00	9.78	281.052	7,863.47	89.27	-460.37	14,439,611.79	1,699,670.53	39.76055053	-80.78915225	
8,000.00	9.78	281.052	7,962.02	92.53	-477.04	14,439,615.04	1,699,653.87	39.76055958	-80.78921154	
8,100.00	9.78	281.052	8,060.57	95.78	-493.71	14,439,618.30	1,699,637.20	39.76056863	-80.78927082	
8,200.00	9.78	281.052	8,159.12	99.04	-510.38	14,439,621.55	1,699,620.53	39.76057768	-80.78933011	
8,300.00	9.78	281.052	8,257.66	102.29	-527.05	14,439,624.81	1,699,603.86	39.76058673	-80.78938940	
8,400.00	9.78	281.052	8,356.21	105.55	-543.72	14,439,628.07	1,699,587.19	39.76059578	-80.78944868	
8,500.00	9.78	281.052	8,454.76	108.81	-560.38	14,439,631.32	1,699,570.52	39.76060482	-80.78950797	
8,600.00	9.78	281.052	8,553.30	112.06	-577.05	14,439,634.58	1,699,553.85	39.76061387	-80.78956726	
8,700.00	9.78	281.052	8,651.85	115.32	-593.72	14,439,637.83	1,699,537.18	39.76062292	-80.78962654	
8,800.00	9.78	281.052	8,750.40	118.57	-610.39	14,439,641.09	1,699,520.51	39.76063197	-80.78968583	
8,900.00	9.78	281.052	8,848.95	121.83	-627.06	14,439,644.34	1,699,503.85	39.76064102	-80.78974512	
9,000.00	9.78	281.052	8,947.49	125.08	-643.73	14,439,647.60	1,699,487.18	39.76065007	-80.78980440	
9,100.00	9.78	281.052	9,046.04	128.34	-660.40	14,439,650.86	1,699,470.51	39.76065912	-80.78986369	
9,200.00	9.78	281.052	9,144.59	131.60	-677.07	14,439,654.11	1,699,453.84	39.76066817	-80.78992298	
9,300.00	9.78	281.052	9,243.13	134.85	-693.74	14,439,657.37	1,699,437.17	39.76067722	-80.78998226	
9,400.00	9.78	281.052	9,341.68	138.11	-710.41	14,439,660.62	1,699,420.50	39.76068627	-80.79004155	
9,500.00	9.78	281.052	9,440.23	141.36	-727.07	14,439,663.88	1,699,403.83	39.76069531	-80.79010084	
9,600.00	9.78	281.052	9,538.78	144.62	-743.74	14,439,667.14	1,699,387.16	39.76070436	-80.79016012	
9,700.00	9.78	281.052	9,637.32	147.88	-760.41	14,439,670.39	1,699,370.49	39.76071341	-80.79021941	



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-17 HU (slot G)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-17 HU (slot G)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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 JUL 17 2020

WV Department of
 Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,800.00	9.78	281.052	9,735.87	151.13	-777.08	14,439,673.65	1,699,353.83	39.76072246	-80.79027870
9,900.00	9.78	281.052	9,834.42	154.39	-793.75	14,439,676.90	1,699,337.16	39.76073151	-80.79033799
10,000.00	9.78	281.052	9,932.96	157.64	-810.42	14,439,680.16	1,699,320.49	39.76074056	-80.79039727
10,100.00	9.78	281.052	10,031.51	160.90	-827.09	14,439,683.42	1,699,303.82	39.76074961	-80.79045656
10,200.00	9.78	281.052	10,130.06	164.16	-843.76	14,439,686.67	1,699,287.15	39.76075866	-80.79051585
10,258.66	9.78	281.052	10,187.87	166.07	-853.53	14,439,688.58	1,699,277.37	39.76076396	-80.79055062
Begin 6°/100' build/turn									
10,300.00	8.44	267.807	10,228.69	166.62	-860.01	14,439,689.14	1,699,270.89	39.76076554	-80.79057367
10,400.00	7.92	224.774	10,327.76	161.45	-872.20	14,439,683.96	1,699,258.70	39.76075140	-80.79061710
10,500.00	11.21	193.783	10,426.42	147.10	-879.38	14,439,669.62	1,699,251.53	39.76071206	-80.79064274
10,600.00	16.14	178.999	10,523.59	123.75	-881.45	14,439,646.26	1,699,249.45	39.76064792	-80.79065032
10,700.00	21.60	171.252	10,618.19	91.63	-878.41	14,439,614.15	1,699,252.50	39.76055970	-80.79063975
10,800.00	27.28	166.565	10,709.20	51.11	-870.28	14,439,573.62	1,699,260.83	39.76044837	-80.79061115
10,900.00	33.07	163.404	10,795.62	2.63	-857.15	14,439,525.14	1,699,273.76	39.76031514	-80.79056484
11,000.00	38.92	161.098	10,876.49	-53.29	-839.16	14,439,469.23	1,699,291.74	39.76016147	-80.79050131
11,100.00	44.80	159.313	10,950.95	-116.02	-816.52	14,439,406.50	1,699,314.39	39.75998904	-80.79042127
11,188.14	50.00	158.022	11,010.59	-176.42	-792.90	14,439,346.10	1,699,338.01	39.75982301	-80.79033772
Begin 8°/100' build/turn									
11,200.00	50.93	157.763	11,018.14	-184.89	-789.46	14,439,337.62	1,699,341.45	39.75979972	-80.79032554
11,300.00	58.77	155.811	11,075.67	-259.94	-757.20	14,439,262.57	1,699,373.71	39.75959340	-80.79021137
11,400.00	66.63	154.161	11,121.50	-340.38	-719.61	14,439,182.13	1,699,411.29	39.75937225	-80.79007831
11,500.00	74.51	152.697	11,154.74	-424.65	-677.44	14,439,097.87	1,699,453.47	39.75914057	-80.78992894
11,600.00	82.40	151.340	11,174.74	-511.09	-631.49	14,439,011.42	1,699,499.41	39.75890287	-80.78976617
11,683.59	89.00	150.247	11,181.00	-583.81	-590.84	14,438,938.71	1,699,540.07	39.75870291	-80.78962213
Begin 89.00° lateral									
11,700.00	89.00	150.247	11,181.29	-598.05	-582.70	14,438,924.47	1,699,548.21	39.75866374	-80.78959327
11,800.00	89.00	150.247	11,183.04	-684.86	-533.08	14,438,837.66	1,699,597.83	39.75842503	-80.78941744
11,900.00	89.00	150.247	11,184.78	-771.66	-483.46	14,438,750.86	1,699,647.45	39.75818632	-80.78924161
12,000.00	89.00	150.247	11,186.53	-858.46	-433.84	14,438,664.05	1,699,697.07	39.75794761	-80.78906578
12,100.00	89.00	150.247	11,188.28	-945.27	-384.22	14,438,577.25	1,699,746.68	39.75770890	-80.78888996
12,200.00	89.00	150.247	11,190.02	-1,032.07	-334.60	14,438,490.45	1,699,796.30	39.75747019	-80.78871413
12,300.00	89.00	150.247	11,191.77	-1,118.88	-284.98	14,438,403.64	1,699,845.92	39.75723148	-80.78853831
12,400.00	89.00	150.247	11,193.52	-1,205.68	-235.37	14,438,316.84	1,699,895.54	39.75699277	-80.78836249
12,500.00	89.00	150.247	11,195.27	-1,292.48	-185.75	14,438,230.03	1,699,945.16	39.75675406	-80.78818666
12,600.00	89.00	150.247	11,197.01	-1,379.29	-136.13	14,438,143.23	1,699,994.78	39.75651535	-80.78801084
12,700.00	89.00	150.247	11,198.76	-1,466.09	-86.51	14,438,056.43	1,700,044.40	39.75627664	-80.78783502
12,800.00	89.00	150.247	11,200.51	-1,552.90	-36.89	14,437,969.62	1,700,094.01	39.75603793	-80.78765921
12,900.00	89.00	150.247	11,202.26	-1,639.70	12.73	14,437,882.82	1,700,143.63	39.75579922	-80.78748339
13,000.00	89.00	150.247	11,204.00	-1,726.50	62.35	14,437,796.02	1,700,193.25	39.75556051	-80.78730757
13,100.00	89.00	150.247	11,205.75	-1,813.31	111.97	14,437,709.21	1,700,242.87	39.75532179	-80.78713176
13,200.00	89.00	150.247	11,207.50	-1,900.11	161.58	14,437,622.41	1,700,292.49	39.75508308	-80.78695595
13,300.00	89.00	150.247	11,209.24	-1,986.92	211.20	14,437,535.60	1,700,342.11	39.75484437	-80.78678013
13,400.00	89.00	150.247	11,210.99	-2,073.72	260.82	14,437,448.80	1,700,391.73	39.75460566	-80.78660432
13,500.00	89.00	150.247	11,212.74	-2,160.52	310.44	14,437,362.00	1,700,441.35	39.75436694	-80.78642851
13,600.00	89.00	150.247	11,214.49	-2,247.33	360.06	14,437,275.19	1,700,490.96	39.75412823	-80.78625271
13,700.00	89.00	150.247	11,216.23	-2,334.13	409.68	14,437,188.39	1,700,540.58	39.75388952	-80.78607690
13,800.00	89.00	150.247	11,217.98	-2,420.94	459.30	14,437,101.59	1,700,590.20	39.75365080	-80.78590109
13,900.00	89.00	150.247	11,219.73	-2,507.74	508.92	14,437,014.78	1,700,639.82	39.75341209	-80.78572529
14,000.00	89.00	150.247	11,221.47	-2,594.54	558.53	14,436,927.98	1,700,689.44	39.75317337	-80.78554949
14,100.00	89.00	150.247	11,223.22	-2,681.35	608.15	14,436,841.17	1,700,739.06	39.75293466	-80.78537368
14,200.00	89.00	150.247	11,224.97	-2,768.15	657.77	14,436,754.37	1,700,788.68	39.75269594	-80.78519788
14,300.00	89.00	150.247	11,226.72	-2,854.96	707.39	14,436,667.57	1,700,838.29	39.75245723	-80.78502208
14,400.00	89.00	150.247	11,228.46	-2,941.76	757.01	14,436,580.76	1,700,887.91	39.75221851	-80.78484628
14,500.00	89.00	150.247	11,230.21	-3,028.56	806.63	14,436,493.96	1,700,937.53	39.75197980	-80.78467049



Planning Report - Geographic

4705102338

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-17 HU (slot G)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-17 HU (slot G)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	89.00	150.247	11,231.96	-3,115.37	856.25	14,436,407.16	1,700,987.15	39.75174108	-80.78449469	
14,700.00	89.00	150.247	11,233.70	-3,202.17	905.87	14,436,320.35	1,701,036.77	39.75150236	-80.78431890	
14,800.00	89.00	150.247	11,235.45	-3,288.98	955.48	14,436,233.55	1,701,086.39	39.75126365	-80.78414310	
14,900.00	89.00	150.247	11,237.20	-3,375.78	1,005.10	14,436,146.74	1,701,136.01	39.75102493	-80.78396731	
15,000.00	89.00	150.247	11,238.95	-3,462.58	1,054.72	14,436,059.94	1,701,185.62	39.75078621	-80.78379152	
15,100.00	89.00	150.247	11,240.69	-3,549.39	1,104.34	14,435,973.14	1,701,235.24	39.75054750	-80.78361573	
15,200.00	89.00	150.247	11,242.44	-3,636.19	1,153.96	14,435,886.33	1,701,284.86	39.75030878	-80.78343994	
15,300.00	89.00	150.247	11,244.19	-3,722.99	1,203.58	14,435,799.53	1,701,334.48	39.75007006	-80.78326415	
15,400.00	89.00	150.247	11,245.93	-3,809.80	1,253.20	14,435,712.73	1,701,384.10	39.74983134	-80.78308837	
15,500.00	89.00	150.247	11,247.68	-3,896.60	1,302.82	14,435,625.92	1,701,433.72	39.74959262	-80.78291258	
15,600.00	89.00	150.247	11,249.43	-3,983.41	1,352.43	14,435,539.12	1,701,483.34	39.74935390	-80.78273680	
15,700.00	89.00	150.247	11,251.18	-4,070.21	1,402.05	14,435,452.31	1,701,532.96	39.74911518	-80.78256101	
15,800.00	89.00	150.247	11,252.92	-4,157.01	1,451.67	14,435,365.51	1,701,582.57	39.74887646	-80.78238523	
15,900.00	89.00	150.247	11,254.67	-4,243.82	1,501.29	14,435,278.71	1,701,632.19	39.74863775	-80.78220945	
16,000.00	89.00	150.247	11,256.42	-4,330.62	1,550.91	14,435,191.90	1,701,681.81	39.74839903	-80.78203367	
16,100.00	89.00	150.247	11,258.16	-4,417.43	1,600.53	14,435,105.10	1,701,731.43	39.74816031	-80.78185790	
16,200.00	89.00	150.247	11,259.91	-4,504.23	1,650.15	14,435,018.29	1,701,781.05	39.74792158	-80.78168212	
16,300.00	89.00	150.247	11,261.66	-4,591.03	1,699.77	14,434,931.49	1,701,830.67	39.74768286	-80.78150634	
16,400.00	89.00	150.247	11,263.41	-4,677.84	1,749.38	14,434,844.69	1,701,880.29	39.74744414	-80.78133057	
16,500.00	89.00	150.247	11,265.15	-4,764.64	1,799.00	14,434,757.88	1,701,929.90	39.74720542	-80.78115480	
16,600.00	89.00	150.247	11,266.90	-4,851.45	1,848.62	14,434,671.08	1,701,979.52	39.74696670	-80.78097902	
16,700.00	89.00	150.247	11,268.65	-4,938.25	1,898.24	14,434,584.28	1,702,029.14	39.74672798	-80.78080325	
16,800.00	89.00	150.247	11,270.40	-5,025.05	1,947.86	14,434,497.47	1,702,078.76	39.74648926	-80.78062748	
16,900.00	89.00	150.247	11,272.14	-5,111.86	1,997.48	14,434,410.67	1,702,128.38	39.74625053	-80.78045172	
17,000.00	89.00	150.247	11,273.89	-5,198.66	2,047.10	14,434,323.86	1,702,178.00	39.74601181	-80.78027595	
17,100.00	89.00	150.247	11,275.64	-5,285.47	2,096.72	14,434,237.06	1,702,227.62	39.74577309	-80.78010018	
17,200.00	89.00	150.247	11,277.38	-5,372.27	2,146.33	14,434,150.26	1,702,277.24	39.74553436	-80.77992442	
17,300.00	89.00	150.247	11,279.13	-5,459.07	2,195.95	14,434,063.45	1,702,326.85	39.74529564	-80.77974865	
17,400.00	89.00	150.247	11,280.88	-5,545.88	2,245.57	14,433,976.65	1,702,376.47	39.74505692	-80.77957289	
17,500.00	89.00	150.247	11,282.63	-5,632.68	2,295.19	14,433,889.85	1,702,426.09	39.74481819	-80.77939713	
17,600.00	89.00	150.247	11,284.37	-5,719.49	2,344.81	14,433,803.04	1,702,475.71	39.74457947	-80.77922137	
17,700.00	89.00	150.247	11,286.12	-5,806.29	2,394.43	14,433,716.24	1,702,525.33	39.74434074	-80.77904561	
17,800.00	89.00	150.247	11,287.87	-5,893.09	2,444.05	14,433,629.43	1,702,574.95	39.74410202	-80.77886986	
17,900.00	89.00	150.247	11,289.61	-5,979.90	2,493.67	14,433,542.63	1,702,624.57	39.74386329	-80.77869410	
18,000.00	89.00	150.247	11,291.36	-6,066.70	2,543.28	14,433,455.83	1,702,674.18	39.74362457	-80.77851835	
18,100.00	89.00	150.247	11,293.11	-6,153.51	2,592.90	14,433,369.02	1,702,723.80	39.74338584	-80.77834259	
18,200.00	89.00	150.247	11,294.86	-6,240.31	2,642.52	14,433,282.22	1,702,773.42	39.74314712	-80.77816684	
18,300.00	89.00	150.247	11,296.60	-6,327.11	2,692.14	14,433,195.42	1,702,823.04	39.74290839	-80.77799109	
18,400.00	89.00	150.247	11,298.35	-6,413.92	2,741.76	14,433,108.61	1,702,872.66	39.74266966	-80.77781534	
18,500.00	89.00	150.247	11,300.10	-6,500.72	2,791.38	14,433,021.81	1,702,922.28	39.74243094	-80.77763959	
18,600.00	89.00	150.247	11,301.84	-6,587.53	2,841.00	14,432,935.00	1,702,971.90	39.74219221	-80.77746384	
18,700.00	89.00	150.247	11,303.59	-6,674.33	2,890.62	14,432,848.20	1,703,021.51	39.74195348	-80.77728809	
18,800.00	89.00	150.247	11,305.34	-6,761.13	2,940.23	14,432,761.40	1,703,071.13	39.74171476	-80.77711235	
18,900.00	89.00	150.247	11,307.09	-6,847.94	2,989.85	14,432,674.59	1,703,120.75	39.74147603	-80.77693661	
19,000.00	89.00	150.247	11,308.83	-6,934.74	3,039.47	14,432,587.79	1,703,170.37	39.74123730	-80.77676086	
19,100.00	89.00	150.247	11,310.58	-7,021.55	3,089.09	14,432,500.98	1,703,219.99	39.74099857	-80.77658512	
19,200.00	89.00	150.247	11,312.33	-7,108.35	3,138.71	14,432,414.18	1,703,269.61	39.74075984	-80.77640938	
19,300.00	89.00	150.247	11,314.07	-7,195.15	3,188.33	14,432,327.38	1,703,319.23	39.74052111	-80.77623364	
19,400.00	89.00	150.247	11,315.82	-7,281.96	3,237.95	14,432,240.57	1,703,368.85	39.74028238	-80.77605790	
19,500.00	89.00	150.247	11,317.57	-7,368.76	3,287.57	14,432,153.77	1,703,418.46	39.74004365	-80.77588217	
19,600.00	89.00	150.247	11,319.32	-7,455.57	3,337.18	14,432,066.97	1,703,468.08	39.73980492	-80.77570643	
19,700.00	89.00	150.247	11,321.06	-7,542.37	3,386.80	14,431,980.16	1,703,517.70	39.73956619	-80.77553070	
19,800.00	89.00	150.247	11,322.81	-7,629.17	3,436.42	14,431,893.36	1,703,567.32	39.73932746	-80.77535496	
19,900.00	89.00	150.247	11,324.56	-7,715.98	3,486.04	14,431,806.55	1,703,616.94	39.73908873	-80.77517923	
20,000.00	89.00	150.247	11,326.31	-7,802.78	3,535.66	14,431,719.75	1,703,666.56	39.73885000	-80.77500350	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-17 HU (slot G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-17 HU (slot G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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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	89.00	150.247	11,328.05	-7,889.59	3,585.28	14,431,632.95	1,703,716.18	39.73861127	-80.77482777	
20,200.00	89.00	150.247	11,329.80	-7,976.39	3,634.90	14,431,546.14	1,703,765.79	39.73837254	-80.77465204	
20,300.00	89.00	150.247	11,331.55	-8,063.19	3,684.52	14,431,459.34	1,703,815.41	39.73813381	-80.77447632	
20,400.00	89.00	150.247	11,333.29	-8,150.00	3,734.13	14,431,372.54	1,703,865.03	39.73789508	-80.77430059	
20,500.00	89.00	150.247	11,335.04	-8,236.80	3,783.75	14,431,285.73	1,703,914.65	39.73765634	-80.77412487	
20,600.00	89.00	150.247	11,336.79	-8,323.60	3,833.37	14,431,198.93	1,703,964.27	39.73741761	-80.77394914	
20,700.00	89.00	150.247	11,338.54	-8,410.41	3,882.99	14,431,112.12	1,704,013.89	39.73717888	-80.77377342	
20,800.00	89.00	150.247	11,340.28	-8,497.21	3,932.61	14,431,025.32	1,704,063.51	39.73694015	-80.77359770	
20,900.00	89.00	150.247	11,342.03	-8,584.02	3,982.23	14,430,938.52	1,704,113.13	39.73670141	-80.77342198	
21,000.00	89.00	150.247	11,343.78	-8,670.82	4,031.85	14,430,851.71	1,704,162.74	39.73646268	-80.77324626	
21,100.00	89.00	150.247	11,345.52	-8,757.62	4,081.47	14,430,764.91	1,704,212.36	39.73622395	-80.77307054	
21,200.00	89.00	150.247	11,347.27	-8,844.43	4,131.08	14,430,678.11	1,704,261.98	39.73598521	-80.77289483	
21,300.00	89.00	150.247	11,349.02	-8,931.23	4,180.70	14,430,591.30	1,704,311.60	39.73574648	-80.77271911	
21,400.00	89.00	150.247	11,350.77	-9,018.04	4,230.32	14,430,504.50	1,704,361.22	39.73550774	-80.77254340	
21,500.00	89.00	150.247	11,352.51	-9,104.84	4,279.94	14,430,417.69	1,704,410.84	39.73526901	-80.77236769	
21,600.00	89.00	150.247	11,354.26	-9,191.64	4,329.56	14,430,330.89	1,704,460.46	39.73503027	-80.77219197	
21,700.00	89.00	150.247	11,356.01	-9,278.45	4,379.18	14,430,244.09	1,704,510.07	39.73479154	-80.77201626	
21,800.00	89.00	150.247	11,357.75	-9,365.25	4,428.80	14,430,157.28	1,704,559.69	39.73455280	-80.77184055	
21,900.00	89.00	150.247	11,359.50	-9,452.06	4,478.42	14,430,070.48	1,704,609.31	39.73431406	-80.77166485	
22,000.00	89.00	150.247	11,361.25	-9,538.86	4,528.03	14,429,983.68	1,704,658.93	39.73407533	-80.77148914	
22,100.00	89.00	150.247	11,363.00	-9,625.66	4,577.65	14,429,896.87	1,704,708.55	39.73383659	-80.77131344	
22,100.25	89.00	150.247	11,363.00	-9,625.88	4,577.78	14,429,896.66	1,704,708.67	39.73383600	-80.77131300	

PBHL/TD 22100.25 MD/11363.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
McMasters S-17 HU LP - hit/miss target - Shape - Point	0.00	0.000	11,181.00	-583.77	-590.80	14,438,938.74	1,699,540.10	39.75870300	-80.78962200	
- plan misses target center by 0.05ft at 11683.58ft MD (11181.00 TVD, -583.80 N, -590.85 E)										
McMasters S-17 HU PBI - plan hits target center - Point	0.00	0.000	11,363.00	-9,625.88	4,577.78	14,429,896.66	1,704,708.67	39.73383600	-80.77131300	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build	
1,600.00	1,599.98	0.30	-1.72	Begin 2.00° tangent	
2,500.57	2,500.00	5.76	-32.67	Begin 2°/100' drop	
2,600.57	2,599.98	6.06	-34.39	Begin vertical hold	
5,100.59	5,100.00	6.06	-34.39	Begin 2°/100' build	
5,589.51	5,586.55	14.04	-75.24	Begin 9.78° tangent	
10,258.66	10,187.87	166.07	-853.53	Begin 6°/100' build/turn	
11,188.14	11,010.59	-176.42	-792.90	Begin 8°/100' build/turn	
11,683.59	11,181.00	-583.81	-590.84	Begin 89.00° lateral	
22,100.25	11,363.00	-9,625.88	4,577.78	PBHL/TD 22100.25 MD/11363.00 TVD	

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 (06/02/2020) 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 - McMasters S-17HU

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map 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
4705100234	Unknown	1289' TVD	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.	Well was plugged 6/18/1952.
4705100097	Fauber & Henry	1152' TVD	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.	Well was plugged 5/20/1949.
4705100100	Fauber & Henry	1165' TVD	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.	Well was plugged 8/6/1945.
4705170361	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.
4705101533	Tug Hill Operating, LLC	6509' TVD, 9961' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101534	Tug Hill Operating, LLC	6514' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101535	Tug Hill Operating, LLC	6519' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101536	Tug Hill Operating, LLC	6526' TVD, 10185' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101537	Tug Hill Operating, LLC	6527' TVD, 10560' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101538	Tug Hill Operating, LLC	6494' TVD, 9541' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101539	Tug Hill Operating, LLC	6488' TVD, 11480' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101540	Tug Hill Operating, LLC	6490' TVD, 12101' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101541	Tug Hill Operating, LLC	6485' TVD, 9612' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101542	Tug Hill Operating, LLC	6487' TVD, 11281' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.

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WV Permit # 02234

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [REDACTED]

Location: [REDACTED]

There is no Bottom Hole Location data for this well.

System Information: [REDACTED]

Production Information: [REDACTED]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [REDACTED]

There is no Vibration (C-Log) data for this well.

System Information: [REDACTED]

There is no Sample data for this well.

WV Permit # 02087

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [REDACTED]

Location: [REDACTED]

There is no Bottom Hole Location data for this well.

System Information: [REDACTED]

Production Information: [REDACTED]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [REDACTED]

There is no Vibration (C-Log) data for this well.

System Information: [REDACTED]

There is no Sample data for this well.

WV Permit # 02100

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [REDACTED]

Location: [REDACTED]

There is no Bottom Hole Location data for this well.

System Information: [REDACTED]

Production Information: [REDACTED]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [REDACTED]

There is no Vibration (C-Log) data for this well.

System Information: [REDACTED]

There is no Sample data for this well.

WV Permit # 02081

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [REDACTED]

Location: [REDACTED]

There is no Bottom Hole Location data for this well.

System Information: [REDACTED]

Production Information: [REDACTED]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil

There is no Production Water data for this well.

System Information: [REDACTED]

There is no Vibration (C-Log) data for this well.

System Information: [REDACTED]

There is no Sample data for this well.

WV Permit # 01533

Report Date: Tuesday, June 12, 2019 11:01 AM

System Information: [REDACTED]

Location: [REDACTED]

There is no Bottom Hole Location data for this well.

System Information: [REDACTED]

Production Information: [REDACTED]

There is no Production Gas data for this well.

There is no Production Oil data for this well. -- some operations may have reported HGL under Oil. Other wells are incomplete at this time.

There is no Production HGL data for this well. -- some operations may have reported HGL under Oil. Other wells are incomplete at this time.

There is no Production Water data for this well.

System Information: [REDACTED]

There is no Vibration (C-Log) data for this well.

System Information: [REDACTED]

There is no Sample data for this well.

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Agency

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West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:17:40 PM

Application Information - Your Title: [Redacted]
Contractor Name: [Redacted]

Area Data - [Redacted]

Order Information - [Redacted]

Application Summary - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

There is no Volume (Z-Lag) data for this well

There is no Plugging data for this well

There is no Sample data for this well

West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:18:20 PM

Application Information - Your Title: [Redacted]
Contractor Name: [Redacted]

Area Data - [Redacted]

Order Information - [Redacted]

Application Summary - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

There is no Volume (Z-Lag) data for this well

There is no Plugging data for this well

There is no Sample data for this well

West Virginia County - 61 Permit - 01634

Report Date: Tuesday, June 23, 2020 1:18:20 PM

Application Information - Your Title: [Redacted]
Contractor Name: [Redacted]

Area Data - [Redacted]

Order Information - [Redacted]

Application Summary - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

Production Data - [Redacted]

Production Data - [Redacted]

Table with columns: Well ID, Well Name, Well Type, Status, etc.

There is no Volume (Z-Lag) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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Well: County = 51 Permit = 01637

Well: County = 51 Permit = 01637

Report Date: Tuesday, June 16, 2020 10:23 AM

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Table with multiple columns and rows, likely containing well log data.

Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Logging data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Sample data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

There is no Logging data for this well.

There is no Sample data for this well.

Well: County = 51 Permit = 01638

Report Date: Tuesday, June 16, 2020 10:23 AM

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Table with multiple columns and rows, likely containing well log data.

Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Logging data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Sample data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

There is no Logging data for this well.

There is no Sample data for this well.

Well: County = 51 Permit = 01639

Report Date: Tuesday, June 16, 2020 10:23 AM

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Operator: [Illegible]

Table with multiple columns and rows, likely containing well log data.

Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Logging data for this well.

Table with multiple columns and rows, likely containing well log data.

There is no Sample data for this well.

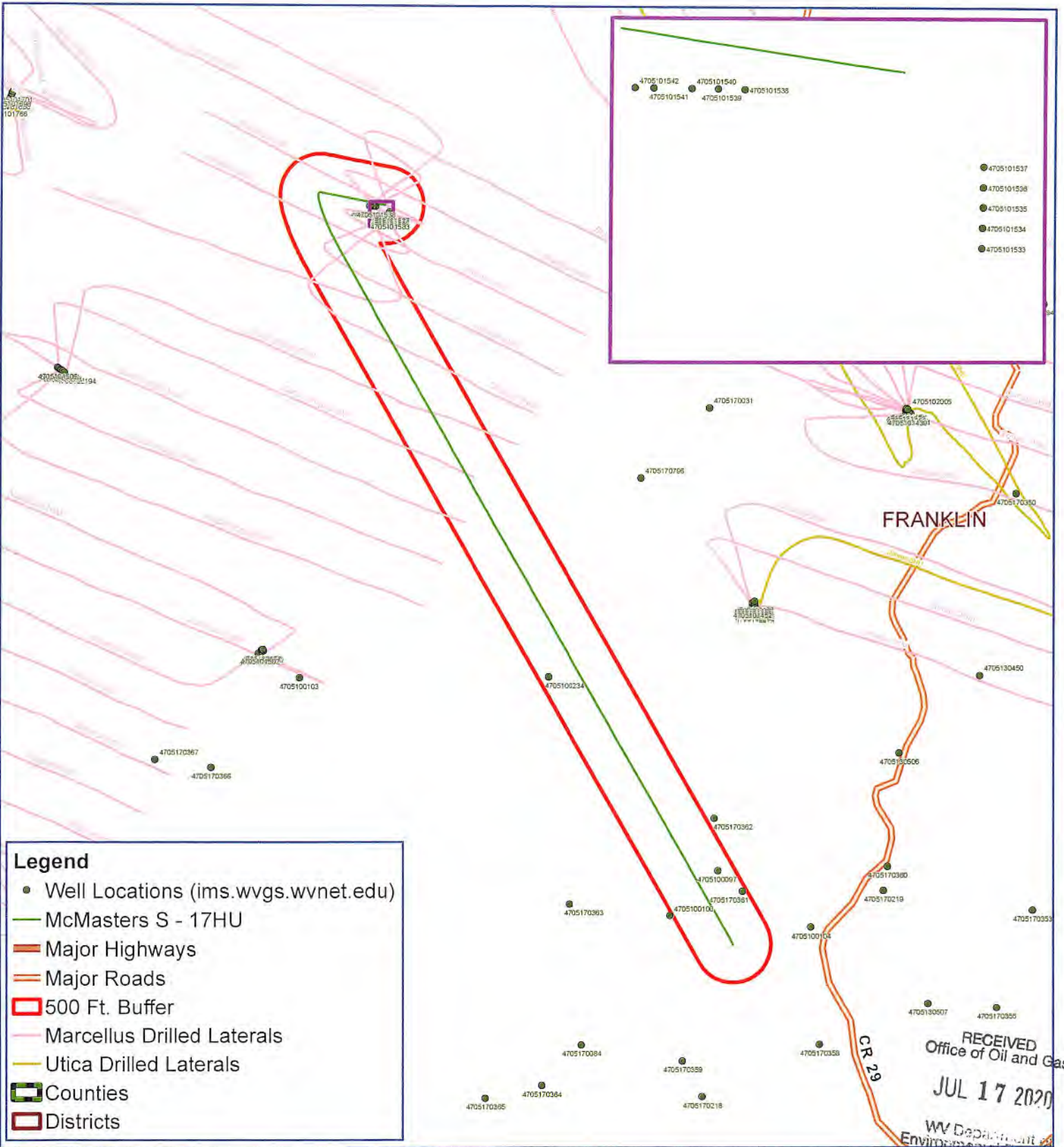
Table with multiple columns and rows, likely containing well log data.

There is no Visible (R-Log) data for this well.

There is no Logging data for this well.

There is no Sample data for this well.

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McMasters S - 17HU Franklin District Marshall County, WV



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



Map Created: June 1, 2020
Map Current As Of: June 1, 2020

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. McMasters S-17HU

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 Powhatan Point 7.5'

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Office of Oil and Gas
JUL 17 2020

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 WV Department of Environmental Protection

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? Weitzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP ECH1386428)

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 James A. Pancake
Company Official (Typed Name) Jim Pancake
Company Official Title VP Geosciences

Subscribed and sworn before me this 14 day of JANUARY, 20 20
Maureen A Stead Notary Public
My commission expires 1/28/23
Commonwealth of Pennsylvania - Notary Seal
MAUREEN A STEAD - Notary Public
Washington County
My Commission Expires Jan 28, 2023
Commission Number 1259926

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 17.76 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 Nicholas*

Comments: _____

Title: WVDEP Oil and Gas Inspector

Date: 09/17/2020

Field Reviewed? () Yes () No

WW-9

**PROPOSED McMASTERS
S-17HU**

SUPPLEMENT PG 1

DIANA HENRY
HAYNES &
CAROL C.
HENRY
05-18-1
62.908 Ac.

OLAN V. &
PATRICIA E.
RUTAN
05-18-3
43.677 Ac.

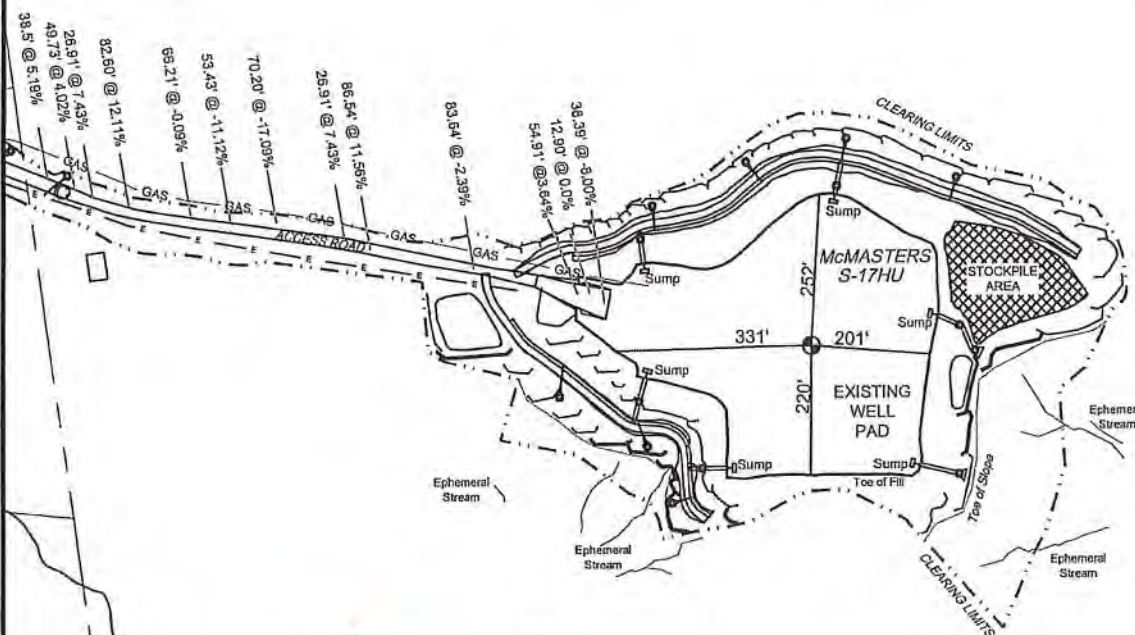


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JUL 17 2020

WV Department of
Environmental Protection

PREVAILING
WIND



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.

ROBERT L. SHIELDS
ET AL
05-18-2
104.11 Ac.

DUANE BRUNN
05-18-24
102 Ac.

LEGEND

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



Jackson Surveying Inc.
2415 E. Pike St. #112
Clarkstown, WV 26307
Phone: 304-628-6551

TOPO SECTION:	
POWHATAN POINT 7.5'	
COUNTY	DISTRICT
MARSHALL	FRANKLIN
DRAWN BY	JOB NO.
J.D.C.	494510851

OPERATOR:	
PREPARED FOR:	
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
DATE	SCALE
1-7-2020	NONE



WW-9

PROPOSED McMASTERS S-17HU

SUPPLEMENT PG 1

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.

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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.



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Office of Oil and Gas
JUL 17 2020

WV Department of
Environmental Protection



DAVID E. &
MARK E. YOHO
05-19-27
7,041 Ac.

JAMES &
SHERRY
BEEGLE
05-19-14
18,356 Ac.

B. HENRY
18-1
62.9 Ac.

DIANA HENRY
HAYNES &
CAROL C.
HENRY
05-18-1
62,908 Ac.

ROGER J. &
BETH E. JAMES
05-19-26
9,977 Ac.

ROBERT L.
REBECCA A.
SHIELDS
05-19-16.1
2,307 Ac.

ROBERT L.
SHIELDS &
DONALD
SHIELDS
05-19-16
11,612 Ac.

DAVID E. &
MARK E. YOHO
05-19-25
9,976 Ac.

MARK E. YOHO
05-19-24
15,436 Ac.

MARK E. YOHO
05-19-17
115,263 Ac.

MARK E. YOHO
05-19-18
55,948 Ac.

LEGEND

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

TOPO SECTION:

POWHATAN POINT 7.5'

COUNTY: MARSHALL DISTRICT: FRANKLIN

DRAWN BY: J.D.C. JOB NO.: 494510851

OPERATOR:

PREPARED FOR:

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

DATE: 1-7-2020 SCALE: NONE



Jackson Surveying Inc.
8418 E. Pike St. #112
Clarksburg, WV 26301
Phone: 304-823-6801



TUG HILL
OPERATING

4705102338



Well Site Safety Plan

Tug Hill Operating, LLC

JRC
6/6/2020

Well Name: McMasters S-17HU

Pad Location: Shields Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,401,175.26

Easting: 518,200.94

RECEIVED
Office of Oil and Gas

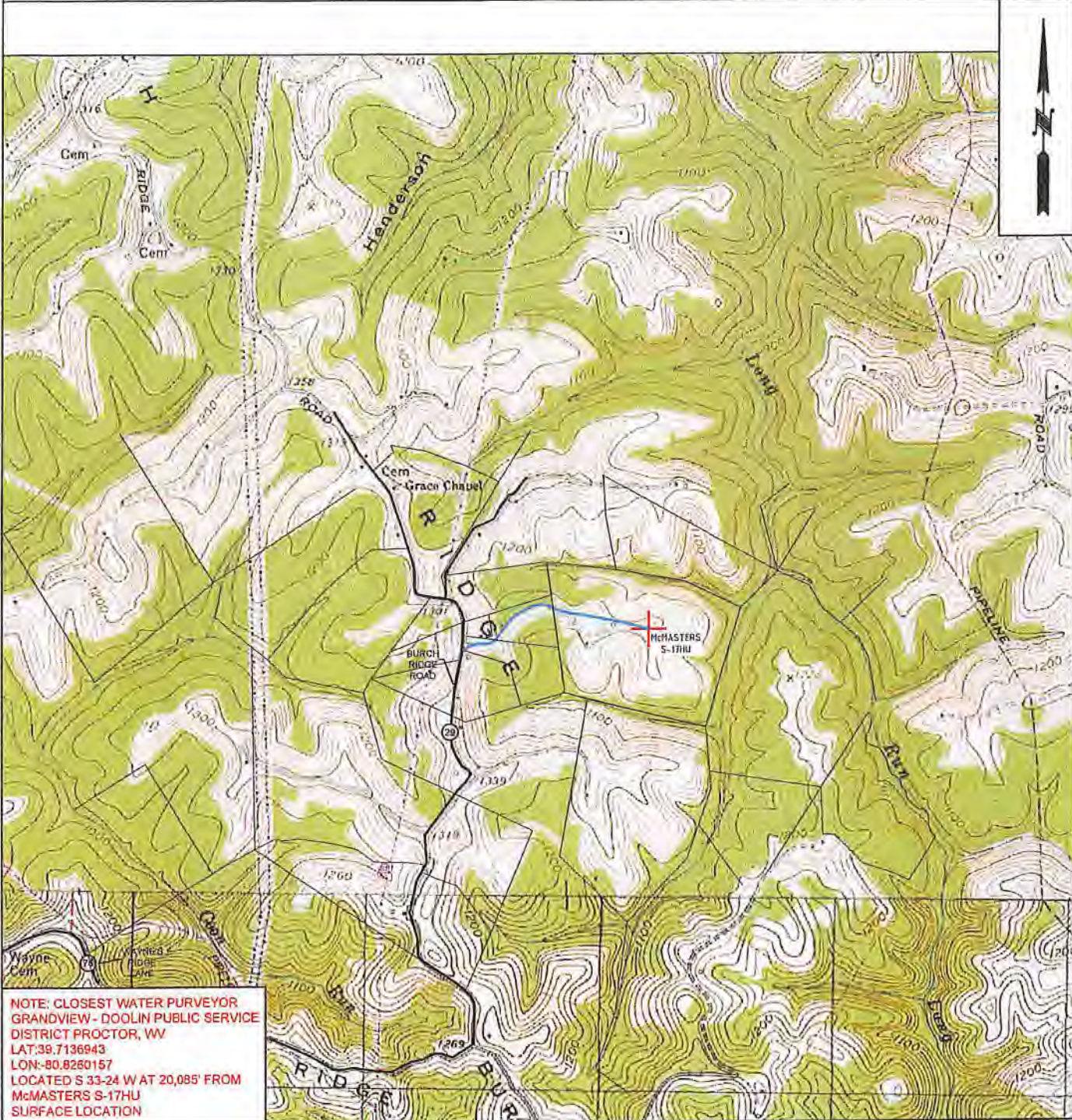
JUL 17 2020

WV Department of
Environmental Protection


WW-9

PROPOSED McMASTERS S-17HU

SUPPLEMENT PG 2



**NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7136943
LON:-80.8260157
LOCATED S 33-24 W AT 20,085' FROM
McMASTERS S-17HU
SURFACE LOCATION**

 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'	McMASTERS
			SCALE: 1" = 2000'	DATE: DATE: 1-7-2020



July 15, 2020

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

RE: McMasters S-17HU

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.

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

Sincerely,

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

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

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

**Offset Operators within 500'
McMasters S - 17HU**

WELL	COUNTY	DISTRICT	PARCEL	OWNER	ADDRESS
McMasters S-17HU	Marshall	Franklin	5-18-2	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-2	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-2	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-2	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-3	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-3	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-3	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-4	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-4	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-4	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-5	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-5	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-8	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-8	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-8	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-13	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-13	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-14	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-16	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-19-16	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-17	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

**Offset Operators within 500'
McMasters S - 17HU**

McMasters S-17HU	Marshall	Franklin	5-19-17	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-19-18	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-19-18	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-18-22	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-22	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-18-24	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-18-24	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.1	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-11.1	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.1	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.4	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-11.4	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-11.4	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-2.1	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-17HU	Marshall	Franklin	5-23-2.1	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-9.2	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-17HU	Marshall	Franklin	5-23-9.3	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

* TH Exploration II, LLC is a wholly owned subsidiary of THQ Appalachia I, LLC. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under that certain Operating Services Agreement dated July 23, 2014. For further info please see the recorded affidavit submitted as part of the permit package.

RECEIVED
 Office of Oil and Gas
 JUL 17 2020
 WV Department of
 Environmental Protection



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration, LLC
1320 S. University Dr Ste 500
Ft Worth TX 76107

9489 0090 6027 6201 4282 50

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

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

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6201 4282 50.

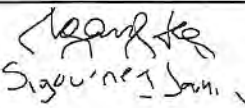
Item Details

Status: Delivered, Front Desk/Reception/Mail Room
Status Date / Time: March 5, 2020, 1:35 pm
Location: FORT WORTH, TX 76107
Postal Product: First-Class Mail®
Extra Services: Certified Mail™
Return Receipt Electronic

Shipment Details

Weight: 20lb, 4.1oz

Recipient Signature

Signature of Recipient:	
Address of Recipient:	PSD University 76107 500

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

Atinum Marcellus I, LLC
1 Riverway Ste 710
Houston TX 77056

7489 0090 0027 6201 4282 67

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

Dear Sir or Ma'am:

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Sincerely,

A handwritten signature in cursive script that reads "Susan Rose".

Susan Rose
Administrator

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 67**.



Item Details

Status:	Delivered
Status Date / Time:	March 11, 2020, 3:24 pm
Location:	HOUSTON, TX 77057
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
----------------	-------------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration II, LLC
1320 S University Dr Ste 500
Fort Worth TX 76107

9489 0090 0027 6201 4282 74

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-17HU

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If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in cursive script that reads 'Susan Rose'.

Susan Rose
Administrator

encl:



April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 74**.

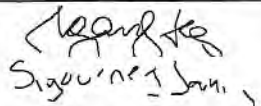
Item Details

Status:	Delivered, Front Desk/Reception/Mail Room
Status Date / Time:	March 5, 2020, 1:35 pm
Location:	FORT WORTH, TX 76107
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
----------------	-------------

Recipient Signature

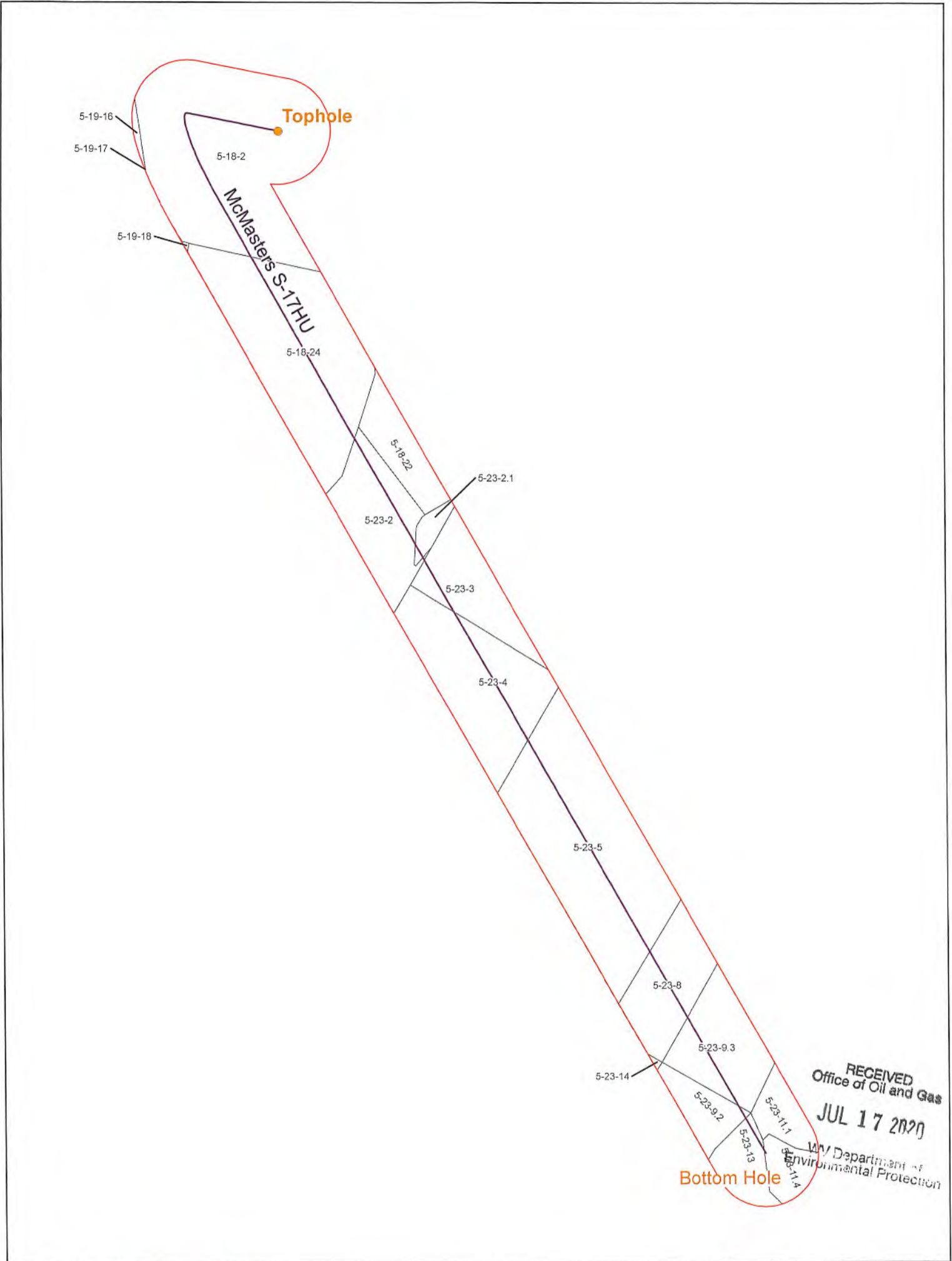
Signature of Recipient:	
Address of Recipient:	BSU University 76107 500

Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

McMasters S-17HU



RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of Environmental Protection

Coordinate System: NAD 1983 UTM Zone 18E
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 1,742,410.0000
False Northing: 0.0000
Central Meridian: -81.0000
Scale Factor: 0.9999
Latitude of Origin: 0.0000
Units: Feet U.S.

CONFIDENTIAL



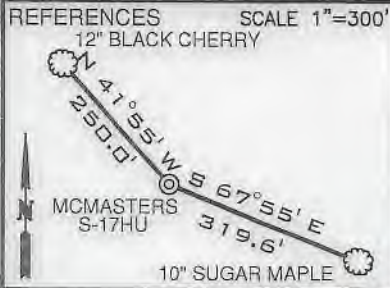
- Utica Well
- 500' Buffer



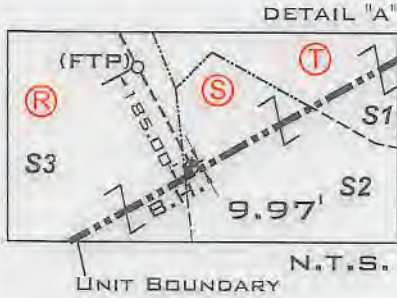
McMasters S-17HU
Operators within 1500 Feet of Well Borehole



**MCMASTERS LEASE
WELL S-17HU
300.3926± ACRES**

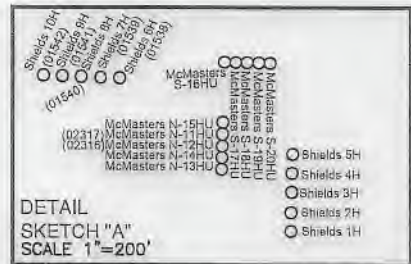


LINE	BEARING	DISTANCE
L1	N 74°01' W	1416.19'
L2	S 39°24' W	1350.54'
L3	N 79°02' W	34.93'
L4	N 77°59' W	834.91'



LEGEND

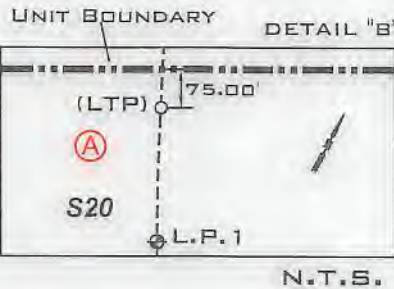
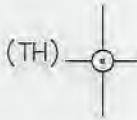
- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT



(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

NOTES

- BORE PATH BASED ON GRID NORTH.
- NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
- OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2019. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
- WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
- ALL DEEP WELLS SHOWN ON THIS PLAT.
- BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.0401147



CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 68°00' W	25.26'	19.09'	27.59'
C2	S 09°59' W	32.08'	77.14'	32.31'
C3	S 09°10' E	97.47'	398.12'	97.71'
C4	S 18°56' E	255.41'	1946.44'	265.61'
C5	S 25°53' E	405.99'	3575.21'	406.20'

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,401,175.26
E) 518,200.94

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,997.32
E) 518,020.85

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,398,241.30
E) 519,596.24

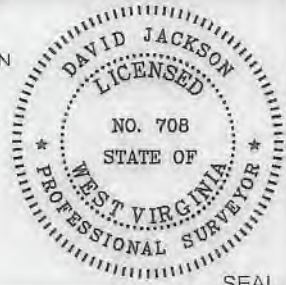
FILE NUMBER _____
DRAWING NUMBER: MCMASTERS_S-17HU_REV2
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING
GRADE GPS

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
801 57TH STREET, SE
CHARLESTON, WV 25304

DATE: FEBRUARY 10, 2020
REVISED: JULY 31, 2020
OPERATORS WELL NO. MCMASTERS S-17HU
API WELL NO. 47-051-02338 HGA Deep
STATE COUNTY PERMIT

LOCATION ELEVATION 1207.50' WATERSHED (HUC 10) FISH CREEK (HUC-10)
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER ROBERT L. SHIELDS, ET AL ACREAGE 104.11
OIL & GAS ROYALTY OWNER ROBERT L. SHIELDS, ET AL LEASE ACREAGE 104.11
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,427' TMD: 22,100'
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

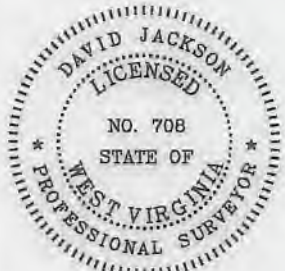
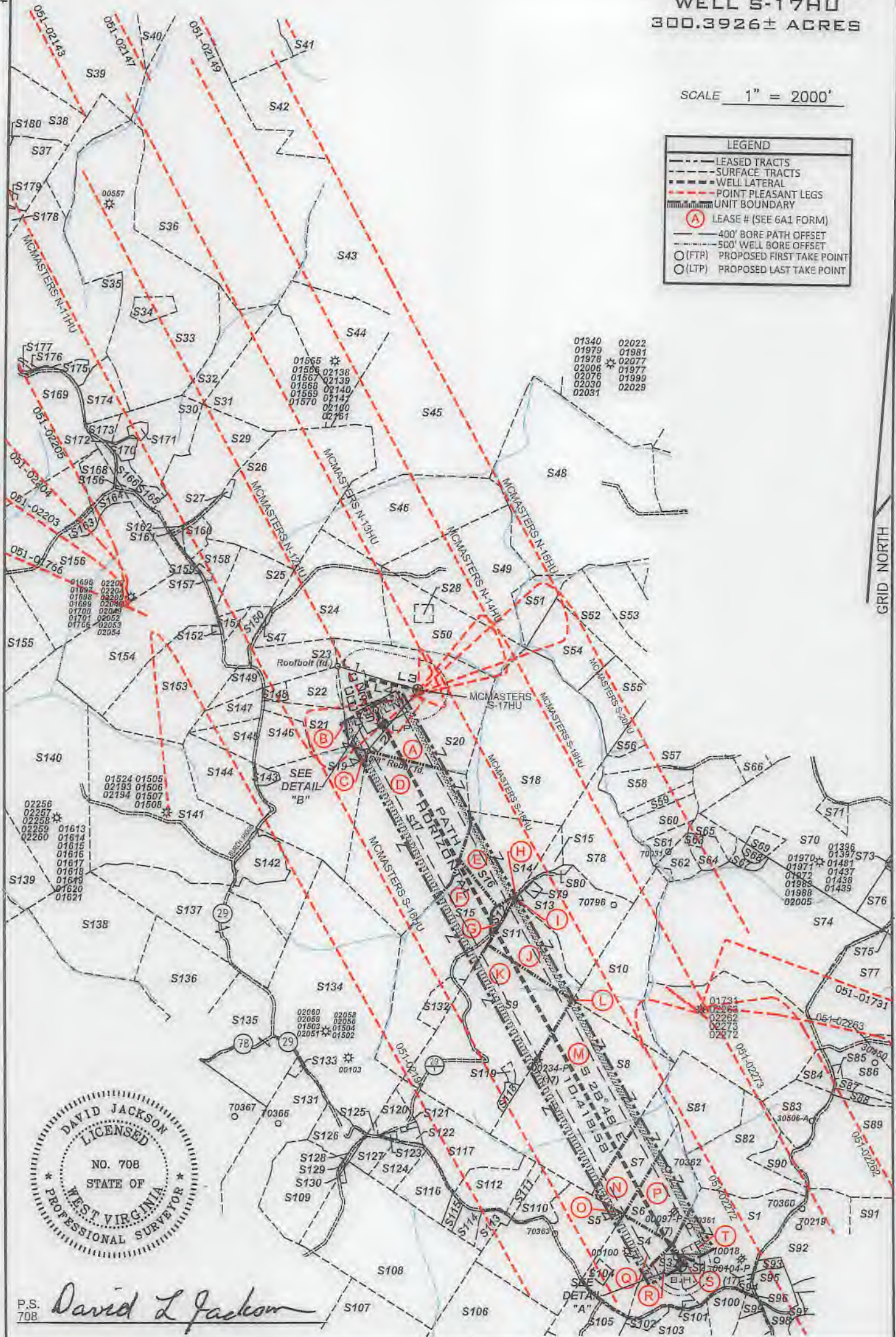
COUNTY NAME PERMIT

MCMASTERS LEASE WELL S-17HU 300.3926± ACRES

SCALE 1" = 2000'

LEGEND

- LEASE TRACTS
- - - SURFACE TRACTS
- - - WELL LATERAL
- - - POINT PLEASANT LEGS
- - - UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
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P.S. 708 *David L Jackson*



TUG HILL
OPERATING

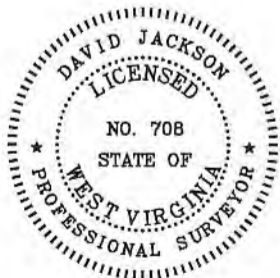
OPERATOR'S
WELL #: MCMASTERS S-17HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02538 Dec P

WELL PLAT
PAGE 2 OF 4
DATE: 02/10/2020
REVISED: 07/31/2020

**MCMASTERS LEASE
WELL S-17HU
300.3926± ACRES**

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S1	T 05-23-11.1	John H. & Sonya D. Holliday	46.482
S2	S 05-23-11.4	Kenneth L. Lemons, Trustee for Jeffrey G. Hudson	10.879
S3	R 05-23-13	Linda D. Greathouse	14.24
S4	Q 05-23-9.2	Linda D. Greathouse	25.58
S5	O 05-23-14	Dominion Transmission Inc.	59.5
S6	P 05-23-9.3	Linda D. Greathouse	17.5
S7	N 05-23-08	Carl David & Suzanne L. Guseman	29.5
S8	M 05-23-05	Daniel D. Rhyand	118.5
S9	K 05-23-04	Abe J. Hochstetler	100.7
S10	L 05-23-06	James A. Channing Et Al	48.0
S11	J 05-23-03	Abe J. Hochstetler	50.0
S12	G 05-23-2.1	William L. & Janice M. Wayne	2.364
S13	I 05-18-21	Curtis E. & Michelle J. Hall	43.119
S14	H 05-18-21.1	Rodney & Rhonda Jackson	5.47
S15	F 05-23-02	Danielle D. Lilley	77.636
S16	E 05-18-22	Rodney & Rhonda Jackson	30.345
S17	D 05-18-24	Duane Brunn	102.0
S18	05-18-23	XCL Midstream Operating LLC	110.0
S19	C 05-19-18	Mark E. Yoho Et Ux	55.948
S20	A 05-18-02	Robert L. Shields Et Al	104.11
S21	B 05-19-17	Mark A. Yoho	15.263
S22	05-19-16	Robert L. Shields & Donald Shields	11.612
S23	05-19-14	James & Sherry Beegle	18.356
S24	05-18-1	Diana Henry Haynes & Carol C. Henry	62.908
S25	05-19-30	Ernie & Tammy Anderson	19.037
S26	05-19-13	Rona Lee Rice & Charles Franklin McCardle	94.925
S27	05-19-13.1	Donald Shields	0.800
S28	05-18-3.1	Nikki L. & Jonathan Stevens	2.223
S29	05-19-8	CNX Gas Company LLC	40.0
S30	05-19-7	Olan V. Rutan Et Ux	32.4801
S31	05-14-15	Robert L. Shields Et Al	53.0
S32	05-14-14	Robert L. Shields Et Al	29.05
S33	05-14-12	Dale R. Galleher Et Al	135.100
S34	05-14-12.1	Henry Wilson Plunkert Jr.	5.0
S35	05-14-10	Wanda P. Rine, Life	126.03
S36	05-14-13	Ralph D. & Sally Jane Hoyt	222.18
S37	05-14-9.2	Maria T. Flores	25.0
S38	05-12-21	Edward L. Gibson-Life	73.436
S39	05-12-14	Linda Hamilton Et Al	117.495
S40	05-12-12.1	Linda L. Persinger Et Ux	148.09
S41	05-12-11	Wesley R. Bryan & Wesley R. Bryan II	52.478
S42	05-11-15	Lionel L. Persinger Ex Ux	93.0
S43	05-15-01	Marcus Sharp & Angela R. Schlabach	121.0
S44	05-15-15	Robert L. Shields Et Al	49.02

Lease No.	Tags	Parcel	Lessor	Book	Page
10*14116	A	5-18-2	DONALD SHIELDS	669	367
10*14295	B	5-19-17	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14295	C	5-19-18	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14295	D	5-18-24	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	655	546
10*14022	E	5-18-22	HOWARD N WAYNE SR AND DENISE D WAYNE	665	384
10*14022	F	5-23-2	HOWARD N WAYNE SR AND DENISE D WAYNE	665	384
10*19145	G	5-23-2.1	WILLIAM L WAYNE & JANICE M WAYNE	706	87
10*17145	H	5-18-21.1	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*17145	I	5-18-21	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*17145	J	5-23-3	JAMES J. CAMPBELL AND BETTY J CAMPBELL	685	458
10*14849	K	5-23-4	DAVID GUSTELY	806	265
10*17186	L	5-23-6	ROBERT J HENRY	708	51
10*14847	M	5-23-5	LETHA RUCKMAN	806	270
10*17192	N	5-23-8	ROBERT J HENRY	716	193
10*18343	O	5-23-14	DOMINION ENERGY TRANSMISSION INC	936	79
10*17189	P	5-23-9.3	ROBERT J HENRY	716	197
10*17189	Q	5-23-9.2	ROBERT J HENRY	716	197
10*14786	R	5-23-13	TWILA O WHIPKEY	799	61
10*14786	S	5-23-11.4	TWILA O WHIPKEY	799	61
10*14786	T	5-23-11.1	TWILA O WHIPKEY	799	61



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

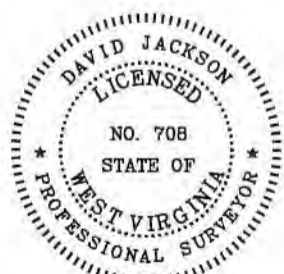
OPERATOR'S
WELL #: MCMASTERS S-17HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02338 Deep

WELL PLAT
PAGE 3 OF 4
DATE: 02/10/2020
REVISED: 07/31/2020

MCMASTERS LEASE
WELL S-17HU
300.3926 ACRES

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S45	05-15-12	John David Petrock & Thomas Andrew Petrock	150.23
S46	05-15-11	Diana Henry Haynes & Carol Henry	65.59
S47	05-18-1.1	Charles F. & Diana L. Haynes	0.392
S48	05-15-10	Mark Stanley Ruckman	153.75
S49	05-18-04	Olan & Patricia Rutan	65.89
S50	05-18-03	Olan V. & Patricia E. Rutan	43.677
S51	05-18-05	Terry Melott	8.14
S52	05-18-15.3	Charles Yeater	26.44
S53	05-18-15.4	Edward Lee Burge, Jr.	22.34
S54	05-18-06	Charles Yeater	26.0
S55	05-18-07	Charles Yeater	24.22
S56	05-18-16	Charles Yeater	17.768
S57	05-18-13	Southern Sountry Farms Inc.	11.054
S58	05-18-59	Southern Country Farms Inc.	15.79
S59	05-18-30	Mary & Daniel Robinson	5.46
S60	05-18-13.10	Carl Berg	10.88
S61	05-18-29	Carl G. Berg	5.319
S62	05-18-31	Kenneth E. Rastall	6.94
S63	05-18-32.1	Lori D. Carpenter	5.545
S64	05-18-32	Kenneth E. Rastall	5.335
S65	05-18-13.8	Lori D. Carpenter	5.545
S66	05-18-33	Sandra & Glenn Whister	5.343
S67	05-17-12	James & Jill C. Corley	3.33
S68	05-17-12.1	Williams Ohio Valley Midstream LLC	1.67
S69	05-17-10.5	Williams Ohio Valley Midstream LLC	4.24
S70	05-17-10	James A. Corley Et Al	92.61
S71	05-17-10.1	James A. & Jill C. Corley	4.51
S72	05-17-9.1	Jeri J. White	1.0
S73	05-17-9.2	Jeri J. White	7.136
S74	05-17-11	Kenneth N. Corley Et Ux	120.0
S75	05-17-9.4	Vicki L. Bowen	60.3
S76	05-17-9.3	James A. & Corley Et Ux	12.478
S77	05-17-11.1	Randy W. Francis Et Ux	67.0
S78	05-18-20	Wayne E. Channing Et Al	75.6
S79	05-18-21.2	David P. Lassen	1.0
S80	05-18-21.3	Hilda M. Giberson-Wayt, Life	0.811
S81	05-23-8.1	William & Virginia Rouse	34.0
S82	05-24-5.4	Thomas V. Tuttle Et Ux	38.244
S83	05-24-5.5	Sonny & Linda Lou Tagg	17.194
S84	05-23.7.2	Florella Lou Weigand	6.354
S85	05-23-7.1	Florella Lou Weigand	0.549
S86	P/O 05-23-7	Terry E. Simms Et Ux	123.097
S87	05-24-5.1	James D. Watkins Et Ux	4.6
S88	05-24-5.2	James D. Watkins Et Ux	3.151
S89	05-24-5	Robert C. Francis Et Ux (Life)	145.78
S90	05-24-3.1	T.H. Exploration II LLC	5.50

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S91	05-24-6	Terry E. Simms Et Ux	42.84
S92	05-23-10	Terry E. Simms Et Ux	38.95
S93	05-23-11.7	Bryan L. Huggins	1.835
S94	05-23-11.2	Evelyn Hudson	1.154
S95	05-23-11	Roy F. Yoho	9.475
S96	05-23-11.6	T.H. Exploration II, LLC	0.094
S97	05-25-20.2	James M. Zambotti	1.347
S98	05-25-20.3	James A. & Jo.C. Estep	4.49
S99	05-23-11.5	Roy F. Yoho	2.25
S100	05-23-11.3	Colin R. Yoho	11.29
S101	05-23-13.1	James R. & Pamela J. Ferrell	0.75
S102	05-23-12	Mark A. Yoho	3.05
S103	05-26-11	Mark A. Yoho	89.25
S104	05-23-9.4	Jackson R. Davis Sr. & Deanna L. Davis	2.087
S105	05-23-9.1	John W. Van Orden Et Ux	23.376
S106	05-26-7	Dominion Transmission, Inc.	71.0
S107	05-26-5	Michael J. Wiley Et Al	65.0
S108	05-23-26	Michael J. Wiley Et Al	101.57
S109	05-23-27	Michael J. Wiley Et Al	33.14
S110	05-23-15	Henry Virginia Ethel Estate	15.5
S111	05-23.16.1	Donald B. Henry	1.97
S112	05-23-16	Roy Friend Yoho Sr.	18.03
S113	05-23-17.3	William & Katherine Flewelling	5.018
S114	05-23-17	Tammy & Thomas E. Brown	4.62
S115	05-23-17.4	Tammy D. Meadows	2.605
S116	05-23-17.2	Dick Rowan Jr. & Carol J. Rowan	14.920
S117	05-23-18	Abe J. Hochstetler	35.38
S118	05-23-4.1	XCL Midstream Operating LLC	2.16
S119	05-23-4.2	XCL Midstream Operating LLC	1.17
S120	05-23-18.1	Mark A. Yoho	7.8
S121	05-23-19	Doly Cemetary	1.0
S122	05-23-20	Christian Church	0.19
S123	05-23-21	Mark A. & Mark E. Yoho	0.588
S124	05-23-17.1	Curtis E. Hall Et Ux	10.051
S125	05-23-29	James Wiley	0.25
S126	05-23-28.2	Mark W. & Carolyn L. Tennant	10.8
S127	05-23-22	Daniel D. Rhyand & Laurel R. Greene	6.25
S128	05-23-23	Michael J. Wiley Et Al	1.0
S129	05-23-24	Michael J. Wiley Et Al	0.25
S130	05-23-25	Arthur A. Wiley	0.43
S131	05-23-28	Gregg D. Minor	39.43
S132	05-23-2.2	Jessica N. & Andrew L. Fox	7.636
S133	05-23-28.1	Troy W. & Erin M. Thomas	1.0
S134	05-23-01	Patricia Accetolo Et Al	146.66
S135	05-22-7.1	T.H. Exploration II LLC & Atinum Marcellus LLC	20.68
S136	05-22-08	T.H. Exploration III LLC	48.44
S137	05-22-06	CNX Gas Company LLC	64.70
S138	05-22-10	T.H. Exploration III LLC	58.40
S139	05-22-17	CNX Gas Company LLC	37.5
S140	05-22-04	CNX Gas Company LLC	159.05
S141	05-22-05	CNX Gas Company LLC	134.425
S142	05-22-5.1	Williams Ohio Valley Midstream LLC	12.875
S143	05-19-18.1	Mark E. Yoho Et Ux	2.57
S144	05-19-18.2	Paul V. & Carol Neely	32.672
S145	05-19-25	David E. Yoho & Mark E. Yoho	9.976
S146	05-19-24	Mark E. Yoho	15.436
S147	05-19-26	Roger J. & Beth E. James	9.977
S148	05-19-16.1	Robert L. & Rebecca A. Shields	2.307
S149	05-19-27	David E. Yoho & Mark E. Yoho	7.041
S150	05-19-31	Charles F. & Diana L. Haynes	8.779
S151	05-19-30.1	Eric R.W. & Ashley A. Huggins	2.911
S152	05-19-32	Jasper N. Burch Et Al-Trustees	0.397
S153	05-19-28	David E. Yoho & Mark E. Yoho	56.899
S154	05-19-19	Russell Blake Et Ux	66.4
S155	05-19-21	Sammy E. Whitlatch Et Al	116.45
S156	05-19-20	Wilbert H. Bungard Et Ux	114.989
S157	05-19-15	Carly Herran	0.72
S158	05-19-29	Ernie L. & Tammy L. Anderson	10.961
S159	05-19-09	Penny Elaine Ashcraft	10.44
S160	05-19-12	Ernie L. Anderson Et Ux	5.33
S161	05-19-10	Ernie L. Anderson Et Ux	0.8125
S162	05-19-11	Ernie L. Anderson Et Ux	0.08
S163	05-19-20.3	Sidney Harmon	3.715
S164	05-19-20.1	John J. Ebert-Life	3.848
S165	05-19-7.5	Adam T. & Jesse L. Robinson	2.64
S166	05-19-7.1	Robert L. Shields Et Ux	3.399
S168	05-19-20.2	Cassandra L. Harmon	7.448
S169	05-19-05	Margirene Keefe	126.03
S170	05-19-7.2	Olan Rutan	2.783
S171	05-19-7.4	Olan V. Rutan, Et Ux	1.787
S172	05-19-7.3	Olan V. Rutan Et Ux	0.341
S173	05-19-06	Belinda Kay Meadows, Rebecca Ann Shields & Olan V. Rutan	5.1099
S174	05-14-11	Dale R. Gallaher Et Al	12.0
S175	05-14-10.4	Adam R. & Jesse L. Robinson	3.343
S176	05-14-10.2	Ida Belle Rutan-Life, Ralph R. Hoyt	0.495
S177	05-14-10.1	Ida Belle Rutan-Life, Ralph R. Hoyt	0.5
S178	05-14-9.5	Maria T. Flores	6.024
S179	05-14-9.1	Maria T. Flores	2.882
S180	05-12-17	Joni Lyn Leon	0.752



P.S. 708 *David L Jackson*



TUG HILL
OPERATING

OPERATOR'S
 WELL #: MCMASTERS S-17HU **WELL PLAT**
 DISTRICT: Franklin **PAGE 4 OF 4**
 COUNTY: Marshall **DATE: 02/10/2020**
 STATE: WV **REVISED: 07/31/2020**
 API #: 47-051-02338 **HGA Deep**

WW-6A1
(5/13)

Operator's Well No. McMasters S-17HU

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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*See attached 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

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

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

WW-6A1
(5/13)

Operator's Well No. McMasters S-17HU

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
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*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

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*14116	A	5-18-2	DONALD SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	367	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14117	A	5-18-2	ROBERT L SHIELDS AND REBECCA A SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	360	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14295	B	5-19-17	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14295	C	5-19-18	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14295	D	5-18-24	MARK E. YOHO AND MARY YOHO, HUSBAND AND WIFE	TRIENERGY, INC.	1/8+	655	546	19/623 TriEnergy Inc to AB Resources LLC	666/40 AB Resources LLC to Chief Exploration & Development LLC	21/148 TriEnergy Inc and AB Resources LLC to TriEnergy Holdings LLC	21/520 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14296	D	5-18-24	DUANE BRUNN	TRIENERGY HOLDINGS, LLC	1/8+	705	484	NA	NA	NA	NA	24/29 TriEnergy Holdings LLC to AB Resources LLC	24/32 AB Resources LLC to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14022	E	5-18-22	HOWARD N WAYNE SR AND DENISE D WAYNE	GASTAR EXPLORATION USA INC	1/8+	665	384	NA	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14027	F	5-23-2	HOWARD N WAYNE SR AND DENISE D WAYNE	GASTAR EXPLORATION USA INC	1/8+	665	384	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19145	G	5-23-2.1	WILLIAM L WAYNE & JANICE M WAYNE	TRIENERGY HOLDINGS, LLC	1/8+	706	87	NA	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	H	5-18-21.1	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	H	5-18-21.1	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	H	5-18-21.1	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	H	5-18-21.1	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	H	5-18-21.1	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17150	H	5-18-21.1	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*22169	H	5-18-21.1	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA	NA
10*17145	I	5-18-21	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	I	5-18-21	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	I	5-18-21	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	I	5-18-21	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	I	5-18-21	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17150	I	5-18-21	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*22169	I	5-18-21	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA	NA
10*17145	J	5-23-3	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	J	5-23-3	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	J	5-23-3	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	J	5-23-3	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	J	5-23-3	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*17150	J	5-23-3	IDA L CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*21415	J	5-23-3	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA	NA
10*14849	K	5-23-4	DAVID GUSTELY	GASTAR EXPLORATION USA INC	1/8+	806	265	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14853	K	5-23-4	DURWOOD WRIGHT BY CATHERINE HUMMEL AIF	GASTAR EXPLORATION USA INC	1/8+	809	507	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14861	K	5-23-4	NANCY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	809	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14862	K	5-23-4	ANN GUSTELY	GASTAR EXPLORATION USA INC	1/8+	809	568	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14864	K	5-23-4	CAROLYN DURWAY	GASTAR EXPLORATION USA INC	1/8+	810	330	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

4705102338	10*14866	K	5-23-4	GARY CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	810	316	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14868	K	5-23-4	WOODROW CAMPBELL JR	GASTAR EXPLORATION USA INC	1/8+	813	454	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14869	K	5-23-4	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA INC	1/8+	813	561	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14870	K	5-23-4	DAVID CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	816	16	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14872	K	5-23-4	DWG OIL & GAS ACQUISITIONS LLC	GASTAR EXPLORATION USA INC	1/8+	817	312	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14873	K	5-23-4	RAYMOND MILLER	GASTAR EXPLORATION USA INC	1/8+	821	44	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14874	K	5-23-4	RICHARD MILLER	GASTAR EXPLORATION USA INC	1/8+	822	260	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14876	K	5-23-4	SHIRLEY LARGENT	GASTAR EXPLORATION USA INC	1/8+	827	228	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14877	K	5-23-4	GARY F OBLOY AND DENISE I OBLOY	GASTAR EXPLORATION USA INC	1/8+	836	112	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14878	K	5-23-4	ARTHUR BRUCE COULTER	GASTAR EXPLORATION USA INC	1/8+	839	519	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14879	K	5-23-4	THERESA RINE	GASTAR EXPLORATION USA INC	1/8+	840	162	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14880	K	5-23-4	IRIS LUCAS	GASTAR EXPLORATION USA INC	1/8+	849	545	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14881	K	5-23-4	MARY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	849	548	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14882	K	5-23-4	GARY RINE	GASTAR EXPLORATION USA INC	1/8+	849	551	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14884	K	5-23-4	RENEE HAGERTY	GASTAR EXPLORATION USA INC	1/8+	852	255	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14885	K	5-23-4	HOWARD RINE	GASTAR EXPLORATION USA INC	1/8+	854	601	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14886	K	5-23-4	JODI YOHO	GASTAR EXPLORATION USA INC	1/8+	854	604	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14887	K	5-23-4	CHRISTINA ROBERTS	GASTAR EXPLORATION USA INC	1/8+	867	392	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14888	K	5-23-4	DARLENE BUTLER	GASTAR EXPLORATION USA INC	1/8+	867	395	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14889	K	5-23-4	HAROLD YOHO	GASTAR EXPLORATION USA INC	1/8+	870	37	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14890	K	5-23-4	HENRY MALONE JR	GASTAR EXPLORATION USA INC	1/8+	870	40	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14891	K	5-23-4	NANCY F FYE & STEPHEN M FYE	GASTAR EXPLORATION USA INC	1/8+	885	606	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	K	5-23-4	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	K	5-23-4	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	K	5-23-4	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	K	5-23-4	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	K	5-23-4	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17150	K	5-23-4	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

4705102338	10*18598	K	5-23-4	MARK E GUSTELY	TH EXPLORATION, LLC	1/8+	935	52	NA	NA	NA	NA	NA	NA	NA
	10*18795	K	5-23-4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	NA	NA	NA	NA	NA	NA	NA
	10*18994	K	5-23-4	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	137	NA	NA	NA	NA	NA	NA	NA
	10*19736	K	5-23-4	DOROTHY HLINKA DUKE	TH EXPLORATION, LLC	1/8+	944	571	NA	NA	NA	NA	NA	NA	NA
	10*21217	K	5-23-4	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	952	643	NA	NA	NA	NA	NA	NA	NA
	10*21222	K	5-23-4	PATRICIA J SHAW KELLER	TH EXPLORATION, LLC	1/8+	946	43	NA	NA	NA	NA	NA	NA	NA
	10*21415	K	5-23-4	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA

10*21951	K	5-23-4	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	960	77	NA	NA	NA	NA	NA	NA	NA	NA
10*21994	K	5-23-4	MELISSA L DARROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA	NA	NA	NA	NA	NA	NA
10*22013	K	5-23-4	CHARLES J KNOX	TH EXPLORATION, LLC	1/8+	966	112	NA	NA	NA	NA	NA	NA	NA	NA
10*22014	K	5-23-4	SHERMAN E KNOX JR	TH EXPLORATION, LLC	1/8+	966	108	NA	NA	NA	NA	NA	NA	NA	NA
10*22018	K	5-23-4	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	960	539	NA	NA	NA	NA	NA	NA	NA	NA
10*22026	K	5-23-4	KEVIN D CHURCH	TH EXPLORATION, LLC	1/8+	957	49	NA	NA	NA	NA	NA	NA	NA	NA
10*22027	K	5-23-4	STEPHEN C EMERY AND CATHY J EMERY	TH EXPLORATION, LLC	1/8+	954	310	NA	NA	NA	NA	NA	NA	NA	NA

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10*17186	L	5-23-6	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	708	51	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14847	M	5-23-5	LETHA RUCKMAN	GASTAR EXPLORATION USA INC	1/8+	806	270	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14849	M	5-23-5	DAVID GUSTELY	GASTAR EXPLORATION USA INC	1/8+	806	265	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14853	M	5-23-5	DURWOOD WRIGHT BY CATHERINE HUMMEL AIF	GASTAR EXPLORATION USA INC	1/8+	809	507	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14861	M	5-23-5	NANCY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	809	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14862	M	5-23-5	ANN GUSTELY	GASTAR EXPLORATION USA INC	1/8+	809	568	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14864	M	5-23-5	CAROLYN DURWAY	GASTAR EXPLORATION USA INC	1/8+	810	330	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14866	M	5-23-5	GARY CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	810	316	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14868	M	5-23-5	WOODROW CAMPBELL JR	GASTAR EXPLORATION USA INC	1/8+	813	454	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14869	M	5-23-5	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA INC	1/8+	813	561	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14870	M	5-23-5	DAVID CARMICHAEL	GASTAR EXPLORATION USA INC	1/8+	816	16	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14872	M	5-23-5	DWG OIL & GAS ACQUISITIONS LLC	GASTAR EXPLORATION USA INC	1/8+	817	312	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14873	M	5-23-5	RAYMOND MILLER	GASTAR EXPLORATION USA INC	1/8+	821	44	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14874	M	5-23-5	RICHARD MILLER	GASTAR EXPLORATION USA INC	1/8+	822	260	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

4705102338	10*14876	M	5-23-5	SHIRLEY LARGENT	GASTAR EXPLORATION USA INC	1/8+	827	228	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14877	M	5-23-5	GARY F OBLOY AND DENISE I OBLOY	GASTAR EXPLORATION USA INC	1/8+	836	112	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14878	M	5-23-5	ARTHUR BRUCE COULTER	GASTAR EXPLORATION USA INC	1/8+	839	519	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14879	M	5-23-5	THERESA RINE	GASTAR EXPLORATION USA INC	1/8+	840	162	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14880	M	5-23-5	IRIS LUCAS	GASTAR EXPLORATION USA INC	1/8+	849	545	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14881	M	5-23-5	MARY WHITLATCH	GASTAR EXPLORATION USA INC	1/8+	849	548	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
	10*14882	M	5-23-5	GARY RINE	GASTAR EXPLORATION USA INC	1/8+	849	551	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14884	M	5-23-5	RENEE HAGERTY	GASTAR EXPLORATION USA INC	1/8+	852	255	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14885	M	5-23-5	HOWARD RINE	GASTAR EXPLORATION USA INC	1/8+	854	601	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14886	M	5-23-5	JODI YOHO	GASTAR EXPLORATION USA INC	1/8+	854	604	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14887	M	5-23-5	CHRISTINA ROBERTS	GASTAR EXPLORATION USA INC	1/8+	867	392	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14888	M	5-23-5	DARLENE BUTLER	GASTAR EXPLORATION USA INC	1/8+	867	395	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14889	M	5-23-5	HAROLD YOHO	GASTAR EXPLORATION USA INC	1/8+	870	37	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14890	M	5-23-5	HENRY MALONE JR	GASTAR EXPLORATION USA INC	1/8+	870	40	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14891	M	5-23-5	NANCY F FYE & STEPHEN M FYE	GASTAR EXPLORATION USA INC	1/8+	885	606	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17145	M	5-23-5	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17146	M	5-23-5	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17147	M	5-23-5	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17148	M	5-23-5	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17149	M	5-23-5	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17150	M	5-23-5	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*19266	M	5-23-5	DOROTHY HLINKA DUKE	TH EXPLORATION, LLC	1/8+	944	571	NA	NA	NA	NA	NA	NA	NA	NA
10*19999	M	5-23-5	MELISSA ANN BRAUN AND RAYMOND BRAUN	TH EXPLORATION, LLC	1/8+	951	627	NA	NA	NA	NA	NA	NA	NA	NA
10*21084	M	5-23-5	RANDALL C ROGERSON & TRACY LYNN ROGERSON	TH EXPLORATION, LLC	1/8+	949	368	NA	NA	NA	NA	NA	NA	NA	NA
10*21217	M	5-23-5	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	952	643	NA	NA	NA	NA	NA	NA	NA	NA
10*21222	M	5-23-5	PATRICIA J SHAW KELLER	TH EXPLORATION, LLC	1/8+	946	43	NA	NA	NA	NA	NA	NA	NA	NA
10*21425	M	5-23-5	ORIE N YOUNG AND BERNIE A YOUNG	TH EXPLORATION, LLC	1/8+	957	29	NA	NA	NA	NA	NA	NA	NA	NA
10*21428	M	5-23-5	FRANCIS R SMITH AND ANNA M SMITH	TH EXPLORATION, LLC	1/8+	957	37	NA	NA	NA	NA	NA	NA	NA	NA

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10*22503	M	5-23-5	KENNETH R SHAW AND DONNA K SHAW	TH EXPLORATION, LLC	1/8+	966	518	NA	NA	NA	NA	NA	NA	NA	NA
10*22504	M	5-23-5	MELVIN FANKHAUSER	TH EXPLORATION, LLC	1/8+	974	351	NA	NA	NA	NA	NA	NA	NA	NA
10*22505	M	5-23-5	JAMES D DRAKE AND DONNA K DRAKE	TH EXPLORATION, LLC	1/8+	964	425	NA	NA	NA	NA	NA	NA	NA	NA
10*22509	M	5-23-5	RANDY BERISFORD AND LINDA JO BERISFORD	TH EXPLORATION, LLC	1/8+	964	429	NA	NA	NA	NA	NA	NA	NA	NA
10*22560	M	5-23-5	RONALD JOE KELLER	TH EXPLORATION, LLC	1/8+	965	485	NA	NA	NA	NA	NA	NA	NA	NA
10*22592	M	5-23-5	RUSSELL W ROGERSON AND SUSAN ROGERSON	TH EXPLORATION, LLC	1/8+	966	119	NA	NA	NA	NA	NA	NA	NA	NA
10*22593	M	5-23-5	RONALD E ROGERSON	TH EXPLORATION, LLC	1/8+	966	116	NA	NA	NA	NA	NA	NA	NA	NA

10*17192	N	5-23-8	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	193	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*19722	N	5-23-8	MASTER MINERAL HOLDINGS I LP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	912	105	NA	NA	NA	NA	NA	NA	40/408 American Petroleum Partners Operating LLC to TH Exploration LLC	40/418 American Petroleum Partners Operating LLC to TH Exploration LLC
10*18343	O	5-23-14	DOMINION ENERGY TRANSMISSION INC	TH EXPLORATION, LLC	1/8+	936	79	NA	NA	NA	NA	NA	NA	NA	NA
10*17189	P	5-23-9.3	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17189	Q	5-23-9.2	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14786	R	5-23-13	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
10*14792	R	5-23-13	TIMOTHY YOHO	GASTAR EXPLORATION USA INC	1/8+	799	536	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	

10*27959	R	5-23-13	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	
10*14786	S	5-23-11.4	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14792	S	5-23-11.4	TIMOTHY YOHO	GASTAR EXPLORATION USA INC	1/8+	799	536	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	S	5-23-11.4	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	S	5-23-11.4	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	S	5-23-11.4	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14969	S	5-23-11.4	REBECCA S WORD	GASTAR EXPLORATION USA INC	1/8+	872	219	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14970	S	5-23-11.4	GRACE EXLINE	GASTAR EXPLORATION USA INC	1/8+	872	623	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17195	S	5-23-11.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	S	5-23-11.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	S	5-23-11.4	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	S	5-23-11.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	S	5-23-11.4	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	S	5-23-11.4	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17202	S	5-23-11.4	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	S	5-23-11.4	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	S	5-23-11.4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	S	5-23-11.4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	S	5-23-11.4	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	S	5-23-11.4	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	S	5-23-11.4	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*25627	S	5-23-11.4	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27714	S	5-23-11.4	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
10*27959	S	5-23-11.4	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	T	5-23-11.1	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	T	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	T	5-23-11.1	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	T	5-23-11.1	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*17195	T	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	T	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	T	5-23-11.1	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	T	5-23-11.1	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	T	5-23-11.1	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	T	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	T	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17203	T	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	T	5-23-11.1	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	T	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	T	5-23-11.1	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	T	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	T	5-23-11.1	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17212	T	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*25627	S	5-23-11.4	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27714	S	5-23-11.4	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
10*27959	S	5-23-11.4	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	T	5-23-11.1	TWILA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	T	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	30/136 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	T	5-23-11.1	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	T	5-23-11.1	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	35/144 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*17195	T	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	T	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	T	5-23-11.1	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	T	5-23-11.1	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	T	5-23-11.1	STEPHANIE L BATES	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	T	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	T	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17203	T	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	T	5-23-11.1	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	T	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	T	5-23-11.1	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	T	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	T	5-23-11.1	GARY WAYNE ZESIGER & VITORINA ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17212	T	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	27/311 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	21/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

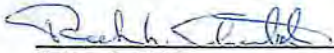
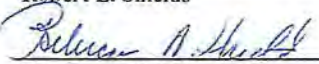
10*27714	T	5-23-11.1	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION	TH EXPLORATION, LLC	1/8+	1060	572	NA	NA	NA	NA	NA	NA	NA	NA
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COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.


Robert L. Shields

Rebecca A. Shields

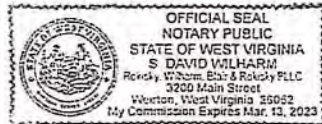
Marshall County
Jan Pest, Clerk
Instrument 1463767
01/29/2020 @ 10:38:15 AM
RIGHT OF WAY W/D CONSIDERATION
Book 1072 @ Page 252
Pages Recorded 2
Recording Cost \$ 11.00

STATE OF WEST VIRGINIA
COUNTY OF MARSHALL

SS:

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Robert L. Shields and Rebecca A. Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

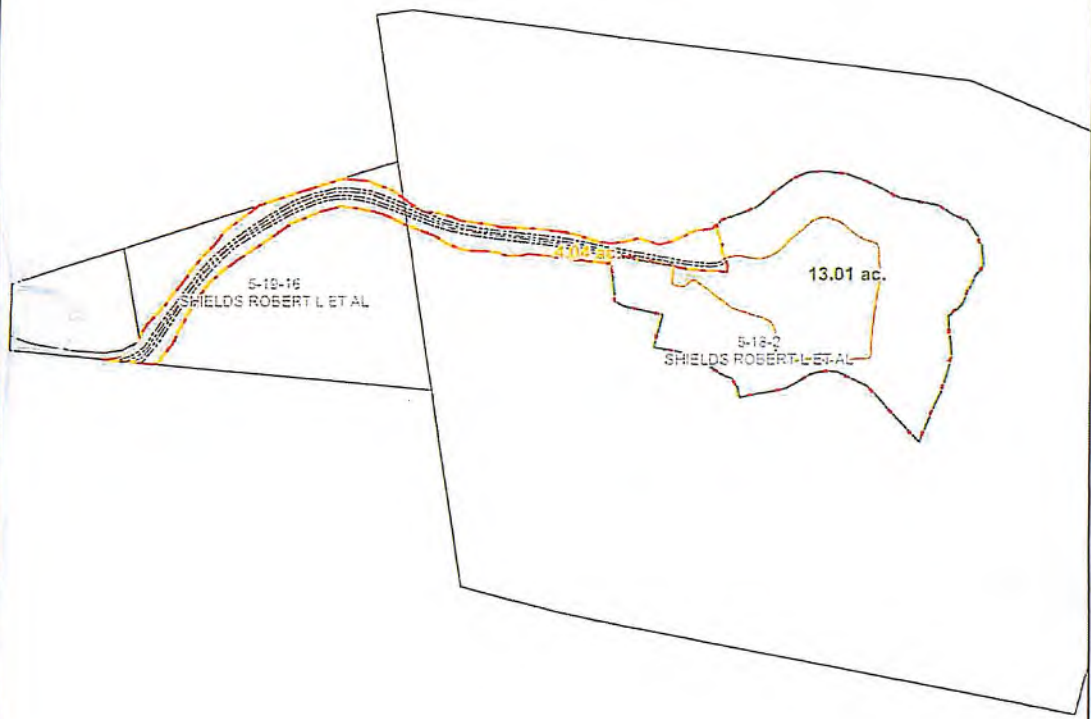


My Commission Expires: 3/13/2023
Signature/Notary Public: S. David Wilharm
Name/Notary Public (print): S. David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

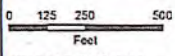
4838-2618-8605v2

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WV Department of
Environmental Protection



1 inch: 436 feet

- Limit of Disturbance - Access Road
- Limit of Disturbance - Pad



THIS DOCUMENT IS A PRELIMINARY DRAFT AND IS NOT TO BE USED FOR ANY PURPOSES WITHOUT THE WRITTEN CONSENT OF TUG HILL OIL & GAS. IT IS THE POLICY OF TUG HILL OIL & GAS TO PROTECT THE ENVIRONMENT AND TO OPERATE IN AN ETHICAL AND RESPONSIBLE MANNER. THIS DOCUMENT IS NOT TO BE USED FOR ANY PURPOSES WITHOUT THE WRITTEN CONSENT OF TUG HILL OIL & GAS.

"Plat"
SHIELDS ROBERT L ET AL
Marshall, WV

Date: 11/20/19

Name: *R L Shields*

Name: *Robert L Shields*



Date: 10/24/2019
PCS: NAD 1983 UTM Zone 17N Feet US

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COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.

Donald Shields
Donald Shields

Marshall County
Jan Pest. Clerk
Instrument 1463768
01/29/2020 @ 10:38:16 AM
RIGHT OF WAY W/O CONSIDERATION
Book 1072 @ Page 254
Pages Recorded 2
Recording Cost \$ 11.00

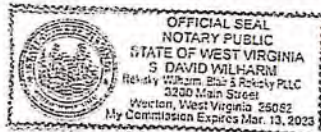
STATE OF WEST VIRGINIA

SS:

COUNTY OF MARSHALL

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Donald Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



My Commission Expires: 3/13/2023
Signature/Notary Public: S David Wilharm
Name/Notary Public (print): S David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

4838-2618-8605v2

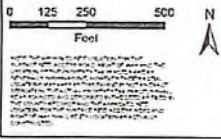
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WV Department of
Environmental Protection



1 inch: 436 feet



Date: 10/24/2019
 PGC: NAD 1983 UTM Zone 17N Feet US

"Plat"
 SHIELDS ROBERT L ET AL
 Marshall, WV

Date: Nov 20 2019
 Name: Donald D. Child
 Name: _____



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WV Department of
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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on December 18, 2017 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 24, 2017 (the "*Acreage Trade Agreement*").

ARTICLE 1 ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") IN SO FAR AND ONLY IN SO FAR as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

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

Section 1.2 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR

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COLIN KING
AMERICAN PETROLEUM PARTNERS OPERATING LLC
300 SOUTHPOINTE BOULEVARD, STE. 120
CANONSBURG PA 15317-8561

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

Marshall County
Jan Pest, Clerk
Instrument 1431482
10/18/2017 @ 03:32:59 PM
ASSIGNMENTS
Book 40 @ Page 418
Pages Recorded 5
Recording Cost \$ 11.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 16th day of October, 2017 (the "Effective Date"), by and between AMERICAN PETROLEUM PARTNERS OPERATING, LLC, (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 4, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

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

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

1. **Assignment.** Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon.

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

2. **Special Warranty.** Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the

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WV-AGIR-0008



July 15, 2020

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

RE: McMasters S-17HU

Subject: Marshall County Route 29/1 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 29/1 in the area reflected on the McMasters S-17HU 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

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WW-6AC
(1/12)

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

Date of Notice Certification: 07/15/2020

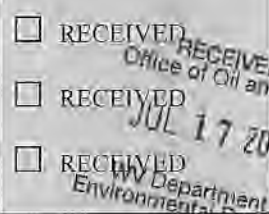
API No. 47- 051 -
Operator's Well No. McMasters S-17HU
Well Pad Name: Shields

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>518,200.94</u>
County: <u>Marshall</u>	Northing: <u>4,401,175.26</u>
District: <u>Franklin</u>	Public Road Access: <u>Burch Ridge Road (CR 29)</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>Robert L. Shields, et al</u>
Watershed: <u>Lower Fish Creek</u>	

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

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

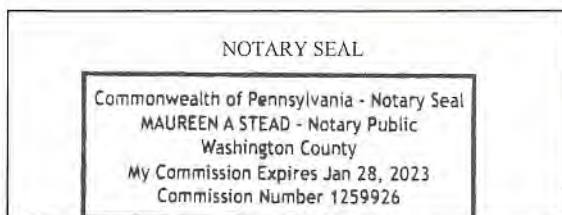
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Amy 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>amylmiller</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia Region</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 15 day of JULY, 2020.

Maureen A Stead Notary Public

My Commission Expires 1/28/23

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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**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: 7/13/2020 **Date Permit Application Filed:** 7/16/2020

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: Donald Shields (Pad and Access Road)
 Address: 231 Lonesome Ln.
Proctor, WV 26055
 Name: Robert and Rebecca Shields (Pad and Access Road)
 Address: 2756 Burch Ridge Road
Proctor, WV 26055

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Mark A. Yoho
 Address: 6701 Burch Ridge Road
Proctor, WV 26055
 Name: Mark E. Yoho
 Address: 3998 Burch Ridge Road
Proctor, WV 26055

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

COAL OWNER OR LESSEE
 Name: CONSOL Energy
 Address: 1000 Consol Drive
Canonsburg, PA 15317

COAL OPERATOR
 Name: CONSOL Energy
 Address: 1000 Consol Drive
Canonsburg, PA 15317

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: Nikki L. & Jonathan Stevens
 Address: 757 Weeping Willow Lane
Proctor, WV 26055

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: n/a
 Address: _____

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*Please attach additional forms if necessary

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

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Environmental Protection

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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.**

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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 4705102338
OPERATOR WELL NO. McMasters S-1710
Well Pad Name: Shields

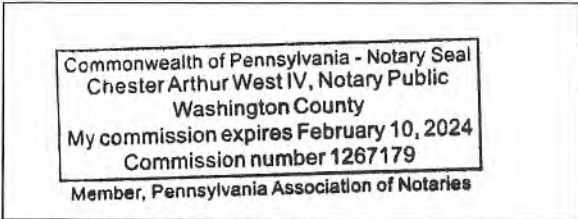
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 13th day of July, 2020.
[Signature] Notary Public

My Commission Expires 2-10-2024

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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: MCMASTERS S-20HU
District: Franklin
County: Marshall
State: WV

There appears to be One (1) possible water source within 2,000 feet of the above referenced well location.

Topo Spot # 1 (House/Cabin) TM 5-18-3.1 Nikki L. & Jonathan Stevens 757 Weeping Willow Ln. Proctor, WV 26055 304-771-0630 © 740-255-3620 © 336-239-2605 ©		

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4705102338

WW-6A

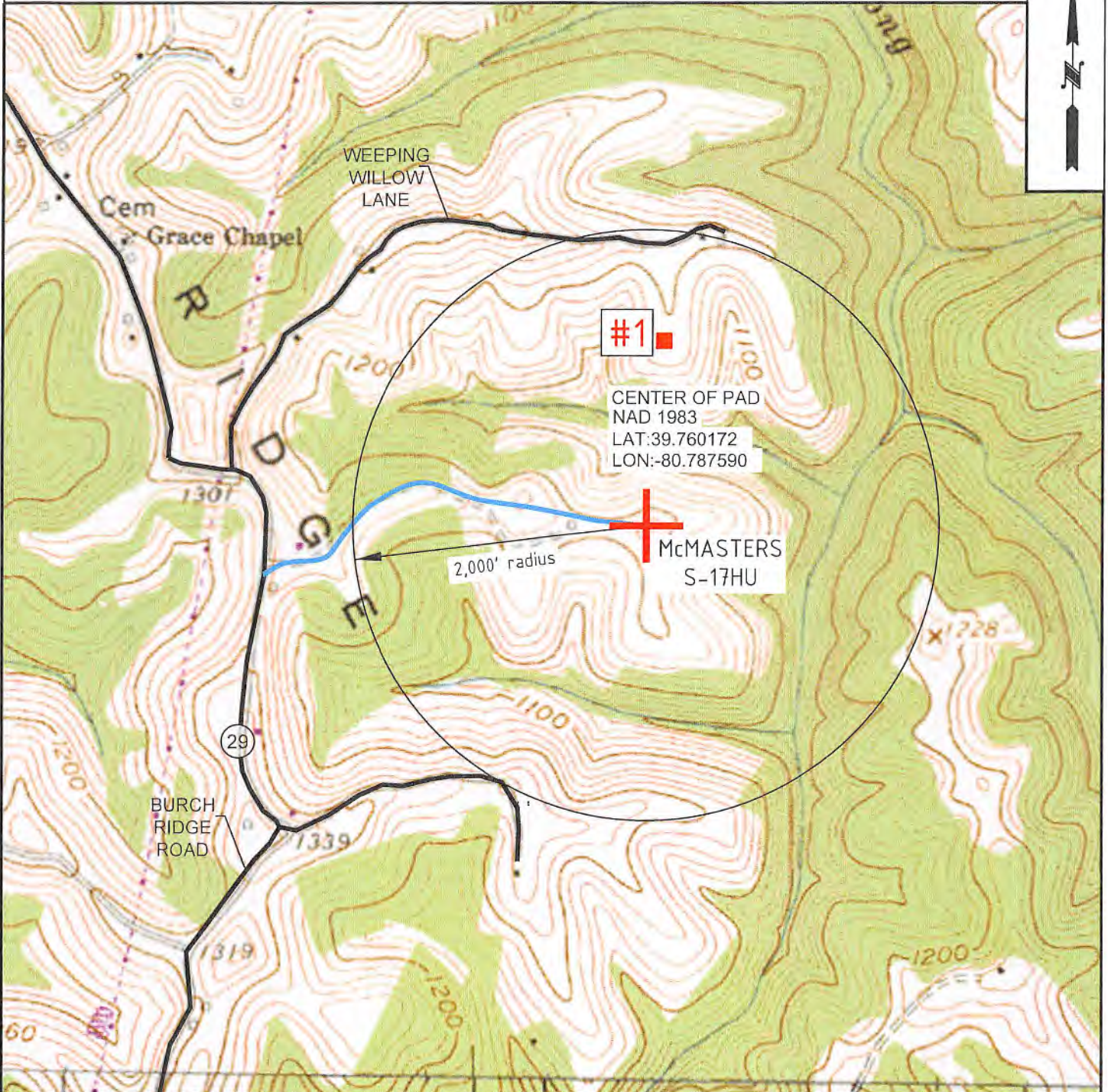
PROPOSED McMASTERS S-17HU


SUPPLEMENT RECEIVED
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WV Department of
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There appears to be one (1) possible water source 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'	McMASTERS
			SCALE:	DATE:
			1" = 1000'	DATE: 6-4-2020

WW-6A3
(1/12)Operator Well No. McMasters S-17HU

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: 6/23/2020 **Date of Planned Entry:** 6/30/2020

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: Mark A. Yoho
 Address: 6701 Burch Ridge Rd.
Proctor, WV 26055

Name: Mark E. Yoho
 Address: 3998 Burch Ridge Rd.
Proctor, WV 26055

Name: Donald Shields
 Address: 231 Lonesome Ln.
Proctor, WV 26055

COAL OWNER OR LESSEE

Name: CONSOL Energy
 Address: 1000 Consol Dr.
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Robert & Rebecca Shields
 Address: 2756 Burch Ridge Rd.
Proctor, WV 26055
 *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>39.760262; -80.788083</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Burch Ridge Road (County Route 29)</u>
District:	<u>Franklin</u>	Watershed:	<u>Lower Fish Creek</u>
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Donald L. Shields, 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-hilltop.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.

4705102338

ADDITIONAL PARTIES TO NOTICE

McMasters Pad

WW-6A3

Additional Surface Owner:

Robert and Rebecca Shields

2756 Burch Ridge Road

Proctor, WV 26055

Additional Mineral Owner:

Donald Shields

231 Lonesome Ln.

Proctor, WV 26055

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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

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

January 28, 2020

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

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

Subject: DOH Permit for the Shields Pad, Marshall County

McMasters N-11HU

McMasters N-12HU

McMasters N-13HU

McMasters N-14HU

McMasters N-15HU

McMasters S-16HU

McMasters S-17HU

McMasters S-18HU

McMasters S-19HU

McMasters S-20HU

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2012-0250 which has been transferred to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 29 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018.

Very Truly Yours,

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

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



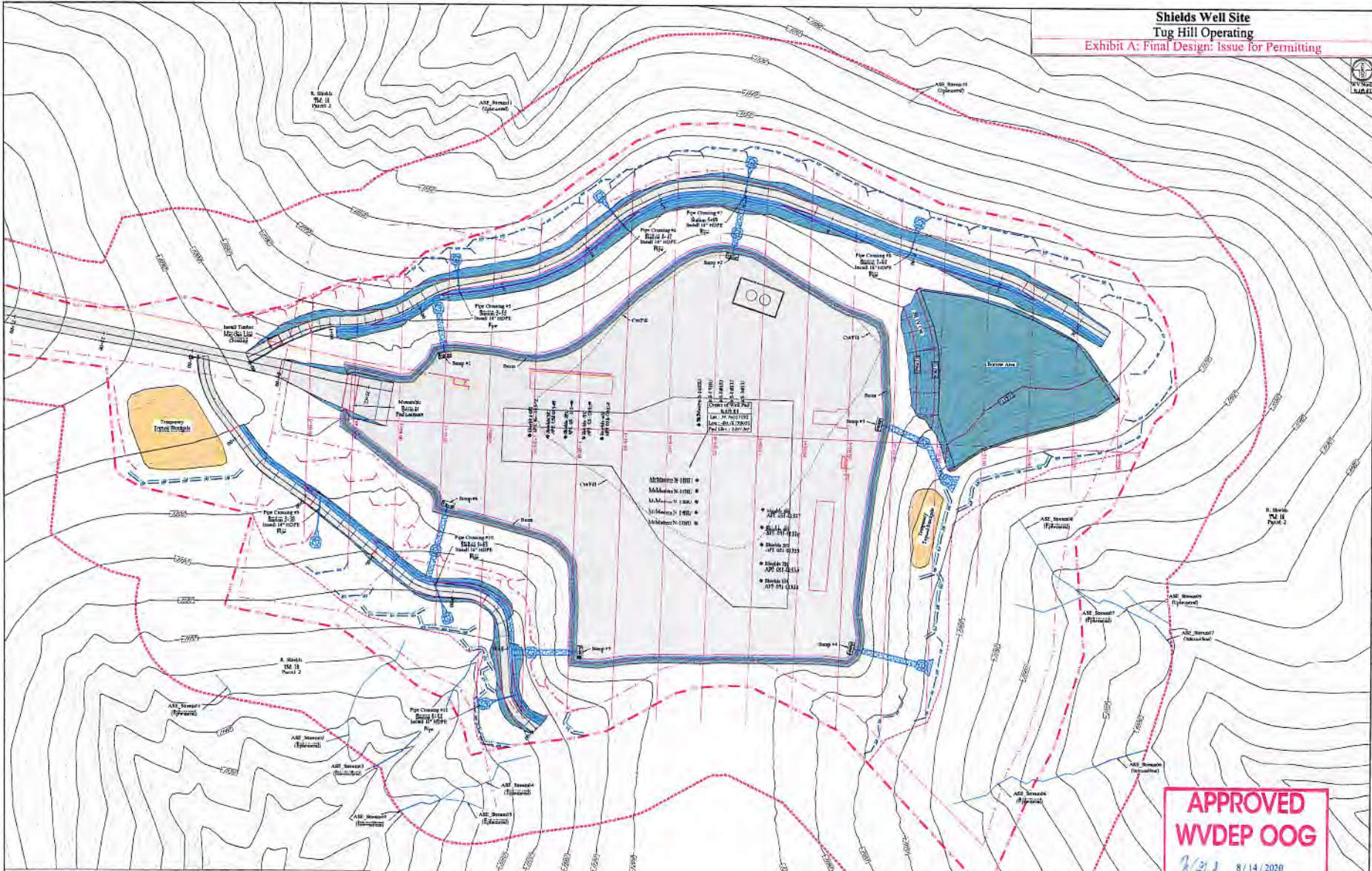
PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. McMasters S-17HU

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



Legend

Original Ground / Contour	50 Feet	20' Vertical
Original Ground 10' Contour	40' Vertical	10' Vertical
Design 2' Contour	20' Vertical	5' Vertical
Design 1' Contour	10' Vertical	2.5' Vertical
Center of Structure	Center of Structure	Center of Structure
Property Line	Property Line	Property Line
Storage Tank	Storage Tank	Storage Tank
PSM Wetland	PSM Wetland	PSM Wetland
PSM Wetland	PSM Wetland	PSM Wetland
Normal Stream	Normal Stream	Normal Stream
Unimpaired Stream	Unimpaired Stream	Unimpaired Stream
PSM - 100' Buffer	PSM - 100' Buffer	PSM - 100' Buffer
PSM - 50' Buffer	PSM - 50' Buffer	PSM - 50' Buffer
PSM - 25' Buffer	PSM - 25' Buffer	PSM - 25' Buffer

Disturbed Area

Well Pits	1.51 AC
Access Road	1.21 AC
Normal Stream	1.21 AC
Unimpaired Stream	1.21 AC
PSM - 100' Buffer	1.21 AC
PSM - 50' Buffer	1.21 AC
PSM - 25' Buffer	1.21 AC
Additional Information	
Total Disturbed Area	12.14 AC
Total Unimpaired Area	1.21 AC
Total PSM Buffer Area	1.21 AC

Access Road

Location	Length	Width	Type
Well 1	100'	10'	Gravel
Well 2	100'	10'	Gravel
Well 3	100'	10'	Gravel
Well 4	100'	10'	Gravel
Well 5	100'	10'	Gravel
Well 6	100'	10'	Gravel
Well 7	100'	10'	Gravel
Well 8	100'	10'	Gravel
Well 9	100'	10'	Gravel
Well 10	100'	10'	Gravel
Well 11	100'	10'	Gravel
Well 12	100'	10'	Gravel
Well 13	100'	10'	Gravel
Well 14	100'	10'	Gravel
Well 15	100'	10'	Gravel

APPROVED
WVDEP OOG
 8/14/2020

TUG HILL
 OPERATING
 A SPECTRUM ENERGY COMPANY
 1000 TUG HILL ROAD
 MARSHALL COUNTY, WV 24658
 TEL: 304.535.1234
 FAX: 304.535.1235
 WWW.TUGHILL.COM

THIS DOCUMENT
 PREPARED FOR:
**TUG HILL
 OPERATING**

KS
 CONSULTANTS
 ENGINEERS
 ARCHITECTS
 PLANNERS

Site Plan
Shields Well Site
 Franklin District
 Marshall County, WV

Date: 12/16/2019
 Scale: As Shown
 Designed By: ZS
 File No:
 Sheet 10 of 15