



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

Thursday, November 19, 2020
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

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

Re: Permit Modification Approval for GOUDY 1S-11HM
47-051-02202-00-00

Modified Lateral for a TMD of 16,949'

TUG HILL OPERATING, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before 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: GOUDY 1S-11HM
Farm Name: TH EXPLORATION III, LLC.
U.S. WELL NUMBER: 47-051-02202-00-00
Horizontal 6A New Drill
Date Modification Issued: November 19, 2020

Promoting a healthy environment.

Modification

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 New Martinsville
Operator ID County District Quadrangle

2) Operator's Well Number: Goudy 1S-11HM Well Pad Name: Goudy

3) Farm Name/Surface Owner: TH Exploration III, LLC Public Road Access: Wells Hill Road (County Route 2/2)

4) Elevation, current ground: 1242' Elevation, proposed post-construction: 1239.4'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

JM 9/2/2020

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6373 - 6431' thickness of 58' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,531'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,949'

11) Proposed Horizontal Leg Length: 9,506.22'

12) Approximate Fresh Water Strata Depths: 70', 863'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 762' and Pittsburgh Coal - 857'

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

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

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

Depth: _____

Seam: _____

Owner: _____

WW-6B
(04/15)

API NO. 47- 051 - 02202 *mod*
 OPERATOR WELL NO. Goudy 1S-11HM
 Well Pad Name: Goudy

18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	960'	960'	1017ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	960'	960'	1017ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,655'	2,655'	879ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	16,949'	16,949'	4331ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,190'	
Liners							

JM 9/2/2020

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	9,000	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

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PACKERS

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

WW-6B
(10/14)

API NO. 47- 051 - 02202 mon
OPERATOR WELL NO. Goudy 1S-11HM
Well Pad Name: Goudy

JM 9/2/2020

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 10,922,500 lb. proppant and 168,870 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 11.56 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.81 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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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

*Note: Attach additional sheets as needed.

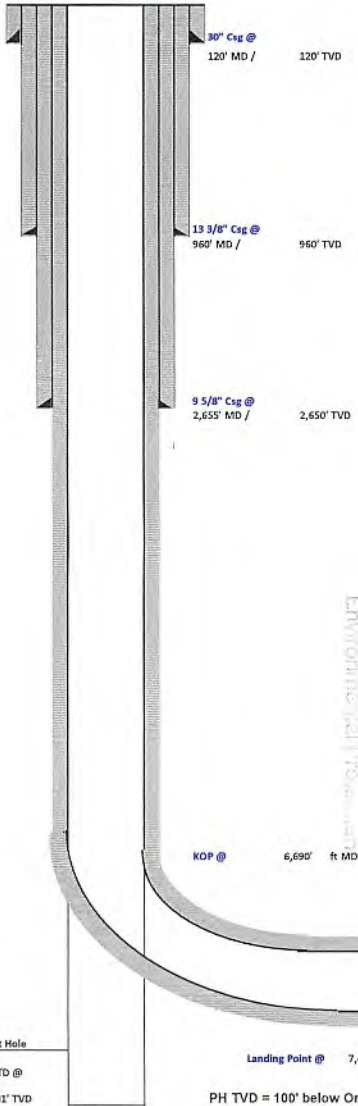


WELL NAME: Goudy 15-11HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Franklin
DF Elev: 1,241' **GL Elev:** 1,241'
TD: 16,949'
TH Latitude: 39.73695316
TH Longitude: -80.82871048
BH Latitude: 39.707106
BH Longitude: -80.814966

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	863
Sewickley Coal	762
Pittsburgh Coal	857
Big Lime	1916
Weir	2304
Berea	2459
Gordon	2805
Rhinestreet	5811
Genesee/Burkett	6324
Tully	6344
Hamilton	6364
Marcellus	6373
Landing Depth	6408
Onondaga	6431
Pilot Hole Depth	6531

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	960'	960'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,655'	2,650'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,949'	6,574'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,022	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	887	A	15	Air	1 Centralizer every other jt
Production	3,978	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



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Pilot Hole
 PH TD @ 6,531' TVD
 Landing Point @ 7,444' MD / 6,408' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 16,949' ft MD
 6,574' ft TVD

51-022021001

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Tug Hill Operating, LLC Casing and Cement Program

Goudy 1S-11HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	960'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,655'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	16,949'	CTS

Cement

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

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Well: Goudy 1S-11HM (H)
 Site: Goudy
 Project: Marshall County, West Virginia.
 Design: rev3

SECTION DETAILS

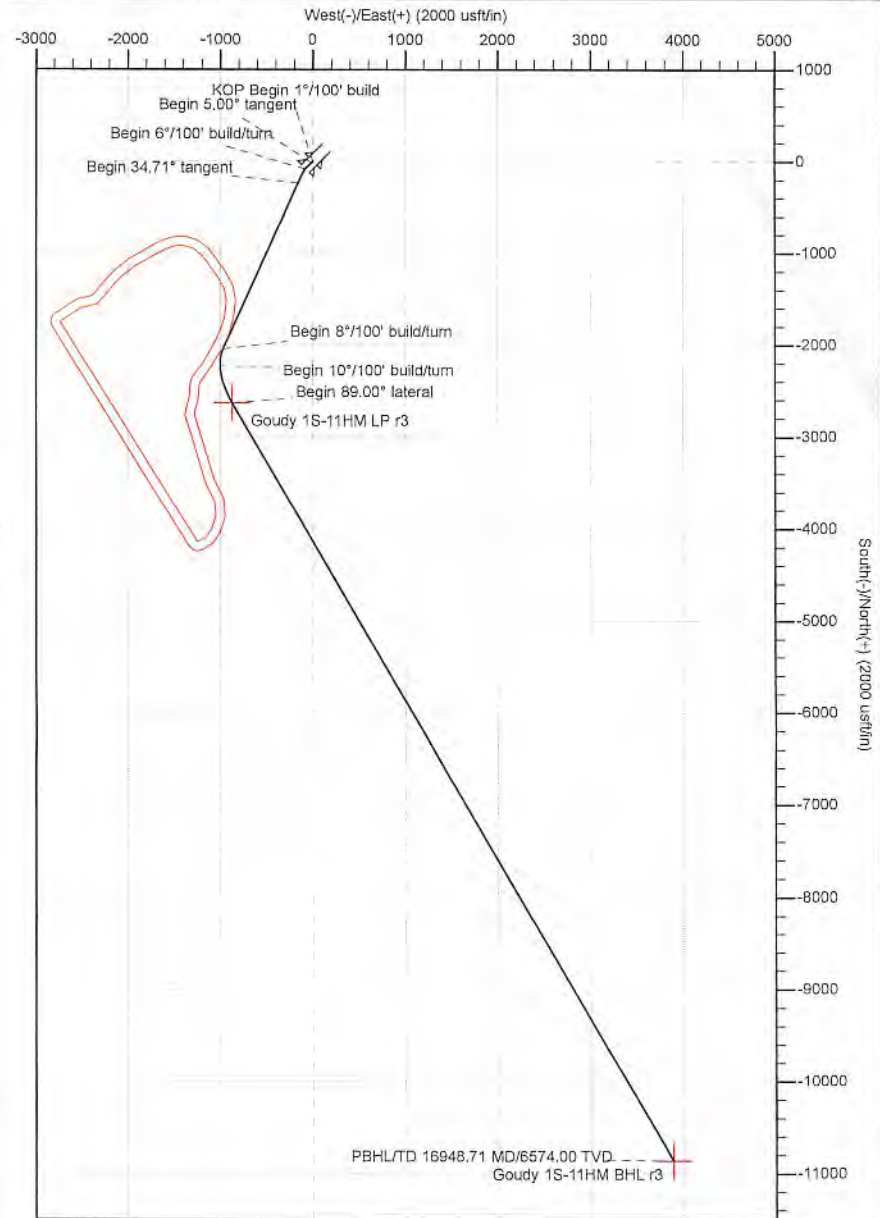
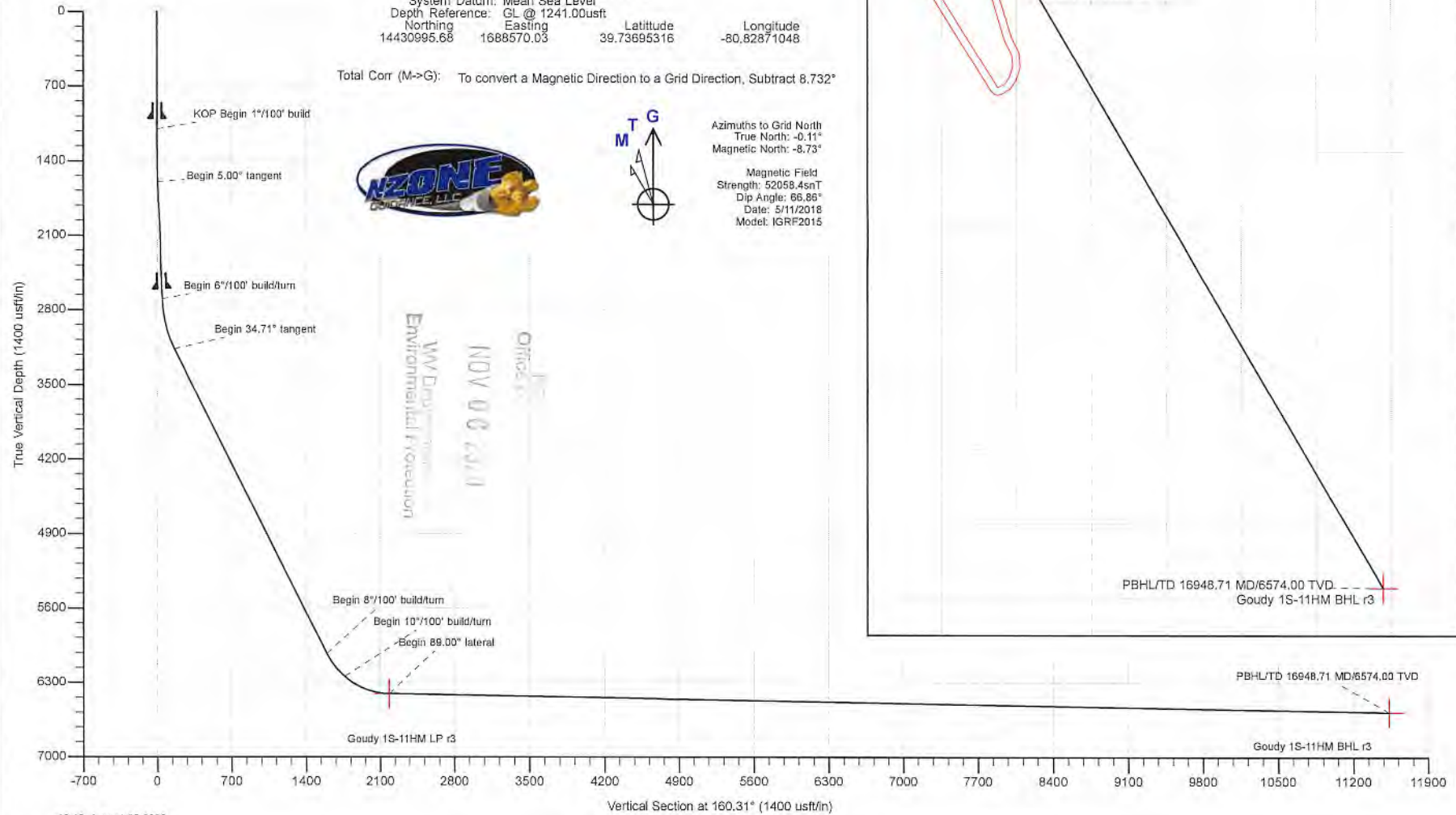
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 1°/100' build
3	1600.00	5.00	225.00	1599.37	-15.42	-15.42	1.00	225.000	9.32	Begin 5.00° tangent
4	2704.84	5.00	225.00	2700.00	-83.51	-83.51	0.00	0.000	50.49	Begin 6°/100' build/turn
5	3206.32	34.72	204.13	3166.67	-232.72	-159.09	6.00	-23.866	165.51	Begin 34.71° tangent
6	6689.89	34.72	204.13	6030.15	-2043.18	-970.24	0.00	0.000	1596.83	Begin 8°/100' build/turn
7	6979.25	50.00	177.84	6245.00	-2231.70	-1000.16	8.00	-59.678	1764.24	Begin 10°/100' build/turn
8	7444.27	89.00	149.97	6407.55	-2633.24	-869.86	10.00	-40.119	2186.20	Begin 89.00° lateral
9	16948.72	89.00	149.97	6574.00	-10860.36	3886.32	0.00	0.000	1534.77	PBHL/TD

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 @ 1241.00usft
 Northing: 14430995.68 Easting: 1688570.03 Latitude: 39.73695316 Longitude: -80.82871048

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.732°



Azimuths to Grid North
 True North: -0.11°
 Magnetic North: -8.73°
 Magnetic Field
 Strength: 52058.4snT
 Dip Angle: 66.86°
 Date: 5/11/2018
 Model: IGRF2015



51-02202
 JWD



Planning Report - Geographic

Database:	DB_Aug1919_V14	Local Co-ordinate Reference:	Well Goudy 1S-11HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-11HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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	Goudy				
Site Position:		Northing:	14,430,942.40 usft	Latitude:	39.73680688
From:	Lat/Long	Easting:	1,688,559.77 usft	Longitude:	-80.82874732
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.109 °

Well	Goudy 1S-11HM (H)					
Well Position	+N/-S	0.00 usft	Northing:	14,430,995.69 usft	Latitude:	39.73695316
	+E/-W	0.00 usft	Easting:	1,688,570.03 usft	Longitude:	-80.82871048
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	1,241.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2018	-8.623	66.859	52,058.38030149

Design	rev3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	160.31

Plan Survey Tool Program	Date	8/5/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	16,948.65 rev3 (Original Hole)	MWD		
			MWD - Standard		

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Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,600.00	5.00	225.00	1,599.37	-15.42	-15.42	1.00	1.00	0.00	225.000	
2,704.84	5.00	225.00	2,700.00	-83.51	-83.51	0.00	0.00	0.00	0.000	
3,206.32	34.72	204.13	3,166.67	-232.72	-159.09	6.00	5.93	-4.16	-23.866	
6,689.89	34.72	204.13	6,030.15	-2,043.18	-970.24	0.00	0.00	0.00	0.000	
6,979.25	50.00	177.84	6,245.00	-2,231.70	-1,000.16	8.00	5.28	-9.09	-59.678	
7,444.27	89.00	149.97	6,407.55	-2,633.24	-869.86	10.00	8.39	-5.99	-40.119	
16,948.72	89.00	149.97	6,574.00	-10,860.36	3,886.32	0.00	0.00	0.00	0.000	Goudy 1S-11HM BHL

51-02202
MOB



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Goudy 1S-11HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-11HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
100.00	0.00	0.00	100.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
200.00	0.00	0.00	200.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
300.00	0.00	0.00	300.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
400.00	0.00	0.00	400.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
500.00	0.00	0.00	500.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
600.00	0.00	0.00	600.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
700.00	0.00	0.00	700.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
800.00	0.00	0.00	800.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
900.00	0.00	0.00	900.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,430,995.69	1,688,570.03	39.73695316	-80.82871048	
KOP Begin 1°/100' build										
1,200.00	1.00	225.00	1,199.99	-0.62	-0.62	14,430,995.07	1,688,569.41	39.73695147	-80.82871268	
1,300.00	2.00	225.00	1,299.96	-2.47	-2.47	14,430,993.22	1,688,567.56	39.73694640	-80.82871928	
1,400.00	3.00	225.00	1,399.86	-5.55	-5.55	14,430,990.13	1,688,564.48	39.73693794	-80.82873027	
1,500.00	4.00	225.00	1,499.67	-9.87	-9.87	14,430,985.82	1,688,560.16	39.73692611	-80.82874565	
1,600.00	5.00	225.00	1,599.37	-15.42	-15.42	14,430,980.27	1,688,554.61	39.73691090	-80.82876543	
Begin 5.00° tangent										
1,700.00	5.00	225.00	1,698.98	-21.58	-21.58	14,430,974.11	1,688,548.45	39.73689401	-80.82878739	
1,800.00	5.00	225.00	1,798.60	-27.74	-27.74	14,430,967.94	1,688,542.29	39.73687712	-80.82880935	
1,900.00	5.00	225.00	1,898.22	-33.91	-33.91	14,430,961.78	1,688,536.12	39.73686023	-80.82883132	
2,000.00	5.00	225.00	1,997.84	-40.07	-40.07	14,430,955.62	1,688,529.96	39.73684333	-80.82885328	
2,100.00	5.00	225.00	2,097.46	-46.23	-46.23	14,430,949.46	1,688,523.80	39.73682644	-80.82887525	
2,200.00	5.00	225.00	2,197.08	-52.39	-52.39	14,430,943.29	1,688,517.64	39.73680955	-80.82889721	
2,300.00	5.00	225.00	2,296.70	-58.56	-58.56	14,430,937.13	1,688,511.47	39.73679265	-80.82891917	
2,400.00	5.00	225.00	2,396.32	-64.72	-64.72	14,430,930.97	1,688,505.31	39.73677576	-80.82894114	
2,500.00	5.00	225.00	2,495.94	-70.88	-70.88	14,430,924.80	1,688,499.15	39.73675887	-80.82896310	
2,599.99	5.00	225.00	2,595.56	-77.04	-77.04	14,430,918.64	1,688,492.98	39.73674198	-80.82898506	
2,699.99	5.00	225.00	2,695.17	-83.21	-83.21	14,430,912.48	1,688,486.82	39.73672508	-80.82900703	
2,704.84	5.00	225.00	2,700.00	-83.51	-83.51	14,430,912.18	1,688,486.52	39.73672427	-80.82900809	
Begin 6°/100' build/turn										
2,799.99	10.48	212.21	2,794.26	-93.77	-91.06	14,430,901.92	1,688,478.97	39.73669612	-80.82903502	
2,899.99	16.41	208.10	2,891.48	-113.94	-102.57	14,430,881.75	1,688,467.46	39.73664079	-80.82907610	
2,999.99	22.37	206.13	2,985.77	-143.51	-117.61	14,430,852.18	1,688,452.42	39.73659967	-80.82912982	
3,099.99	28.35	204.96	3,076.09	-182.15	-136.03	14,430,813.54	1,688,434.00	39.73645364	-80.82919560	
3,199.99	34.34	204.18	3,161.46	-229.45	-157.62	14,430,766.24	1,688,412.41	39.73632386	-80.82927272	
3,206.32	34.71	204.13	3,166.67	-232.72	-159.09	14,430,762.97	1,688,410.94	39.73631488	-80.82927796	
Begin 34.71° tangent										
3,299.99	34.72	204.13	3,243.67	-281.40	-180.90	14,430,714.29	1,688,389.13	39.73618130	-80.82935588	
3,399.99	34.72	204.13	3,325.87	-333.37	-204.19	14,430,662.31	1,688,365.84	39.73603869	-80.82943906	
3,499.99	34.72	204.13	3,408.07	-385.34	-227.47	14,430,610.34	1,688,342.56	39.73589608	-80.82952224	
3,599.99	34.72	204.13	3,490.27	-437.32	-250.76	14,430,558.37	1,688,319.27	39.73575347	-80.82960542	
3,699.99	34.72	204.13	3,572.47	-489.29	-274.04	14,430,506.40	1,688,295.99	39.73561086	-80.82968859	
3,799.99	34.72	204.13	3,654.67	-541.26	-297.33	14,430,454.43	1,688,272.70	39.73546826	-80.82977177	
3,899.99	34.72	204.13	3,736.86	-593.23	-320.61	14,430,402.46	1,688,249.42	39.73532565	-80.82985495	
3,999.99	34.72	204.13	3,819.06	-645.20	-343.90	14,430,350.48	1,688,226.13	39.73518304	-80.82993813	
4,099.99	34.72	204.13	3,901.26	-697.17	-367.18	14,430,298.51	1,688,202.85	39.73504043	-80.83002130	
4,199.99	34.72	204.13	3,983.46	-749.14	-390.47	14,430,246.54	1,688,179.56	39.73489782	-80.83010448	
4,299.99	34.72	204.13	4,065.66	-801.12	-413.75	14,430,194.57	1,688,156.28	39.73475521	-80.83018766	
4,399.99	34.72	204.13	4,147.86	-853.09	-437.04	14,430,142.60	1,688,132.99	39.73461260	-80.83027083	
4,499.99	34.72	204.13	4,230.06	-905.06	-460.32	14,430,090.63	1,688,109.71	39.73447000	-80.83035401	
4,599.99	34.72	204.13	4,312.26	-957.03	-483.61	14,430,038.66	1,688,086.42	39.73432739	-80.83043718	
4,699.99	34.72	204.13	4,394.46	-1,009.00	-506.89	14,429,986.68	1,688,063.14	39.73418478	-80.83052036	

SI-02202
MOD



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Goudy
 Well: Goudy 1S-11HM (H)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Goudy 1S-11HM (H)
 TVD Reference: GL @ 1241.00usft
 MD Reference: GL @ 1241.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,799.99	34.72	204.13	4,476.66	-1,060.97	-530.18	14,429,934.71	1,688,039.85	39.73404217	-80.83060353
4,899.99	34.72	204.13	4,558.86	-1,112.95	-553.46	14,429,882.74	1,688,016.57	39.73389956	-80.83068671
4,999.99	34.72	204.13	4,641.06	-1,164.92	-576.75	14,429,830.77	1,687,993.28	39.73375695	-80.83076988
5,099.99	34.72	204.13	4,723.26	-1,216.89	-600.03	14,429,778.80	1,687,970.00	39.73361434	-80.83085305
5,199.99	34.72	204.13	4,805.46	-1,268.86	-623.32	14,429,726.83	1,687,946.71	39.73347173	-80.83093623
5,299.99	34.72	204.13	4,887.66	-1,320.83	-646.60	14,429,674.85	1,687,923.43	39.73332912	-80.83101940
5,399.99	34.72	204.13	4,969.85	-1,372.80	-669.89	14,429,622.88	1,687,900.14	39.73318652	-80.83110257
5,499.99	34.72	204.13	5,052.05	-1,424.77	-693.17	14,429,570.91	1,687,876.86	39.73304391	-80.83118574
5,599.99	34.72	204.13	5,134.25	-1,476.75	-716.46	14,429,518.94	1,687,853.57	39.73290130	-80.83126891
5,699.99	34.72	204.13	5,216.45	-1,528.72	-739.74	14,429,466.97	1,687,830.29	39.73275869	-80.83135209
5,799.99	34.72	204.13	5,298.65	-1,580.69	-763.03	14,429,415.00	1,687,807.00	39.73261608	-80.83143526
5,899.99	34.72	204.13	5,380.85	-1,632.66	-786.31	14,429,363.03	1,687,783.72	39.73247347	-80.83151843
5,999.99	34.72	204.13	5,463.05	-1,684.63	-809.60	14,429,311.05	1,687,760.43	39.73233086	-80.83160160
6,099.99	34.72	204.13	5,545.25	-1,736.60	-832.88	14,429,259.08	1,687,737.15	39.73218825	-80.83168477
6,199.99	34.72	204.13	5,627.45	-1,788.57	-856.17	14,429,207.11	1,687,713.86	39.73204564	-80.83176794
6,299.99	34.72	204.13	5,709.65	-1,840.55	-879.45	14,429,155.14	1,687,690.58	39.73190303	-80.83185111
6,399.99	34.72	204.13	5,791.85	-1,892.52	-902.74	14,429,103.17	1,687,667.29	39.73176042	-80.83193427
6,499.99	34.72	204.13	5,874.05	-1,944.49	-926.02	14,429,051.20	1,687,644.01	39.73161781	-80.83201744
6,599.99	34.72	204.13	5,956.25	-1,996.46	-949.31	14,428,999.23	1,687,620.72	39.73147520	-80.83210061
6,689.89	34.72	204.13	6,030.15	-2,043.18	-970.24	14,428,952.50	1,687,599.79	39.73134699	-80.83217538
Begin 8°/100' build/turn									
6,699.99	35.13	202.92	6,038.42	-2,048.48	-972.55	14,428,947.20	1,687,597.48	39.73133245	-80.83218362
6,799.99	39.80	192.22	6,117.86	-2,106.36	-990.56	14,428,889.33	1,687,579.47	39.73117360	-80.83224806
6,899.99	45.27	183.57	6,191.58	-2,173.20	-999.55	14,428,822.48	1,687,570.48	39.73099007	-80.83228051
6,979.25	50.00	177.84	6,245.00	-2,231.70	-1,000.16	14,428,763.98	1,687,569.87	39.73082942	-80.83228306
Begin 10°/100' build/turn									
6,999.99	51.60	176.13	6,258.11	-2,247.75	-999.31	14,428,747.94	1,687,570.72	39.73078535	-80.83228015
7,099.99	59.60	168.85	6,314.61	-2,329.36	-988.30	14,428,666.33	1,687,581.73	39.73056116	-80.83224153
7,199.99	67.94	162.69	6,358.80	-2,416.13	-966.12	14,428,579.55	1,687,603.91	39.73032273	-80.83216322
7,299.99	76.49	157.24	6,389.34	-2,505.43	-933.44	14,428,490.25	1,687,636.59	39.73007732	-80.83204758
7,399.99	85.15	152.16	6,405.29	-2,594.54	-891.26	14,428,401.14	1,687,678.77	39.72983238	-80.83189813
7,444.27	89.00	149.97	6,407.55	-2,633.24	-869.86	14,428,362.45	1,687,700.17	39.72972600	-80.83182229
Begin 89.00° lateral									
7,499.99	89.00	149.97	6,408.52	-2,681.47	-841.98	14,428,314.22	1,687,728.05	39.72959341	-80.83172344
7,599.98	89.00	149.97	6,410.28	-2,768.03	-791.94	14,428,227.66	1,687,778.09	39.72935543	-80.83154604
7,699.98	89.00	149.97	6,412.03	-2,854.59	-741.90	14,428,141.10	1,687,828.13	39.72911745	-80.83136863
7,799.98	89.00	149.97	6,413.78	-2,941.15	-691.86	14,428,054.54	1,687,878.17	39.72887947	-80.83119122
7,899.98	89.00	149.97	6,415.53	-3,027.71	-641.82	14,427,967.98	1,687,928.21	39.72864149	-80.83101382
7,999.98	89.00	149.97	6,417.28	-3,114.27	-591.77	14,427,881.42	1,687,978.26	39.72840351	-80.83083642
8,099.98	89.00	149.97	6,419.03	-3,200.83	-541.73	14,427,794.86	1,688,028.30	39.72816552	-80.83065902
8,199.98	89.00	149.97	6,420.78	-3,287.39	-491.69	14,427,708.30	1,688,078.34	39.72792754	-80.83048162
8,299.98	89.00	149.97	6,422.54	-3,373.95	-441.65	14,427,621.74	1,688,128.38	39.72768956	-80.83030422
8,399.98	89.00	149.97	6,424.29	-3,460.51	-391.61	14,427,535.17	1,688,178.42	39.72745158	-80.83012682
8,499.98	89.00	149.97	6,426.04	-3,547.07	-341.57	14,427,448.61	1,688,228.46	39.72721359	-80.82994942
8,599.98	89.00	149.97	6,427.79	-3,633.63	-291.52	14,427,362.05	1,688,278.50	39.72697561	-80.82977203
8,699.98	89.00	149.97	6,429.54	-3,720.19	-241.48	14,427,275.49	1,688,328.55	39.72673763	-80.82959463
8,799.98	89.00	149.97	6,431.29	-3,806.75	-191.44	14,427,188.93	1,688,378.59	39.72649964	-80.82941724
8,899.98	89.00	149.97	6,433.04	-3,893.31	-141.40	14,427,102.37	1,688,428.63	39.72626166	-80.82923985
8,999.98	89.00	149.97	6,434.79	-3,979.87	-91.36	14,427,015.81	1,688,478.67	39.72602368	-80.82906246
9,099.98	89.00	149.97	6,436.55	-4,066.44	-41.32	14,426,929.25	1,688,528.71	39.72578569	-80.82888507
9,199.98	89.00	149.97	6,438.30	-4,153.00	8.72	14,426,842.69	1,688,578.75	39.72554771	-80.82870768
9,299.98	89.00	149.97	6,440.05	-4,239.56	58.77	14,426,756.13	1,688,628.79	39.72530972	-80.82853029
9,399.98	89.00	149.97	6,441.80	-4,326.12	108.81	14,426,669.57	1,688,678.84	39.72507174	-80.82835290
9,499.98	89.00	149.97	6,443.55	-4,412.68	158.85	14,426,583.01	1,688,728.88	39.72483375	-80.82817552

51-02202
MOO



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Goudy 1S-11HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-11HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

OFFICE OF THE REGISTERED PROFESSIONAL ENGINEER
NOV 06 2020

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,599.98	89.00	149.97	6,445.30	-4,499.24	208.89	14,426,496.45	1,688,778.92	39.72459576	-80.82799814	
9,699.98	89.00	149.97	6,447.05	-4,585.80	258.93	14,426,409.89	1,688,828.96	39.72435778	-80.82782075	
9,799.98	89.00	149.97	6,448.80	-4,672.36	308.97	14,426,323.33	1,688,879.00	39.72411979	-80.82764337	
9,899.98	89.00	149.97	6,450.56	-4,758.92	359.01	14,426,236.77	1,688,929.04	39.72388180	-80.82746599	
9,999.98	89.00	149.97	6,452.31	-4,845.48	409.06	14,426,150.21	1,688,979.09	39.72364382	-80.82728862	
10,099.98	89.00	149.97	6,454.06	-4,932.04	459.10	14,426,063.64	1,689,029.13	39.72340583	-80.82711124	
10,199.98	89.00	149.97	6,455.81	-5,018.60	509.14	14,425,977.08	1,689,079.17	39.72316784	-80.82693386	
10,299.98	89.00	149.97	6,457.56	-5,105.16	559.18	14,425,890.52	1,689,129.21	39.72292985	-80.82675649	
10,399.98	89.00	149.97	6,459.31	-5,191.72	609.22	14,425,803.96	1,689,179.25	39.72269187	-80.82657911	
10,499.98	89.00	149.97	6,461.06	-5,278.28	659.26	14,425,717.40	1,689,229.29	39.72245388	-80.82640174	
10,599.98	89.00	149.97	6,462.82	-5,364.84	709.31	14,425,630.84	1,689,279.33	39.72221589	-80.82622437	
10,699.98	89.00	149.97	6,464.57	-5,451.41	759.35	14,425,544.28	1,689,329.38	39.72197790	-80.82604700	
10,799.98	89.00	149.97	6,466.32	-5,537.97	809.39	14,425,457.72	1,689,379.42	39.72173991	-80.82586963	
10,899.98	89.00	149.97	6,468.07	-5,624.53	859.43	14,425,371.16	1,689,429.46	39.72150192	-80.82569226	
10,999.98	89.00	149.97	6,469.82	-5,711.09	909.47	14,425,284.60	1,689,479.50	39.72126393	-80.82551490	
11,099.98	89.00	149.97	6,471.57	-5,797.65	959.51	14,425,198.04	1,689,529.54	39.72102594	-80.82533753	
11,199.98	89.00	149.97	6,473.32	-5,884.21	1,009.55	14,425,111.48	1,689,579.58	39.72078795	-80.82516017	
11,299.98	89.00	149.97	6,475.07	-5,970.77	1,059.60	14,425,024.92	1,689,629.63	39.72054996	-80.82498281	
11,399.98	89.00	149.97	6,476.83	-6,057.33	1,109.64	14,424,938.36	1,689,679.67	39.72031197	-80.82480544	
11,499.98	89.00	149.97	6,478.58	-6,143.89	1,159.68	14,424,851.80	1,689,729.71	39.72007398	-80.82462808	
11,599.98	89.00	149.97	6,480.33	-6,230.45	1,209.72	14,424,765.24	1,689,779.75	39.71983599	-80.82445072	
11,699.98	89.00	149.97	6,482.08	-6,317.01	1,259.76	14,424,678.67	1,689,829.79	39.71959799	-80.82427337	
11,799.98	89.00	149.97	6,483.83	-6,403.57	1,309.80	14,424,592.11	1,689,879.83	39.71936000	-80.82409601	
11,899.98	89.00	149.97	6,485.58	-6,490.13	1,359.84	14,424,505.55	1,689,929.87	39.71912201	-80.82391866	
11,999.98	89.00	149.97	6,487.33	-6,576.69	1,409.89	14,424,418.99	1,689,979.92	39.71888402	-80.82374130	
12,099.98	89.00	149.97	6,489.08	-6,663.25	1,459.93	14,424,332.43	1,690,029.96	39.71864602	-80.82356395	
12,199.98	89.00	149.97	6,490.84	-6,749.81	1,509.97	14,424,245.87	1,690,080.00	39.71840803	-80.82338660	
12,299.98	89.00	149.97	6,492.59	-6,836.38	1,560.01	14,424,159.31	1,690,130.04	39.71817004	-80.82320925	
12,399.98	89.00	149.97	6,494.34	-6,922.94	1,610.05	14,424,072.75	1,690,180.08	39.71793204	-80.82303190	
12,499.98	89.00	149.97	6,496.09	-7,009.50	1,660.09	14,423,986.19	1,690,230.12	39.71769405	-80.82285455	
12,599.98	89.00	149.97	6,497.84	-7,096.06	1,710.14	14,423,899.63	1,690,280.16	39.71745606	-80.82267720	
12,699.97	89.00	149.97	6,499.59	-7,182.62	1,760.18	14,423,813.07	1,690,330.21	39.71721806	-80.82249986	
12,799.97	89.00	149.97	6,501.34	-7,269.18	1,810.22	14,423,726.51	1,690,380.25	39.71698007	-80.82232251	
12,899.97	89.00	149.97	6,503.09	-7,355.74	1,860.26	14,423,639.95	1,690,430.29	39.71674207	-80.82214517	
12,999.97	89.00	149.97	6,504.85	-7,442.30	1,910.30	14,423,553.39	1,690,480.33	39.71650408	-80.82196783	
13,099.97	89.00	149.97	6,506.60	-7,528.86	1,960.34	14,423,466.83	1,690,530.37	39.71626608	-80.82179049	
13,199.97	89.00	149.97	6,508.35	-7,615.42	2,010.38	14,423,380.27	1,690,580.41	39.71602808	-80.82161315	
13,299.97	89.00	149.97	6,510.10	-7,701.98	2,060.43	14,423,293.70	1,690,630.46	39.71579009	-80.82143581	
13,399.97	89.00	149.97	6,511.85	-7,788.54	2,110.47	14,423,207.14	1,690,680.50	39.71555209	-80.82125847	
13,499.97	89.00	149.97	6,513.60	-7,875.10	2,160.51	14,423,120.58	1,690,730.54	39.71531409	-80.82108113	
13,599.97	89.00	149.97	6,515.35	-7,961.66	2,210.55	14,423,034.02	1,690,780.58	39.71507610	-80.82090380	
13,699.97	89.00	149.97	6,517.11	-8,048.22	2,260.59	14,422,947.46	1,690,830.62	39.71483810	-80.82072647	
13,799.97	89.00	149.97	6,518.86	-8,134.78	2,310.63	14,422,860.90	1,690,880.66	39.71460010	-80.82054913	
13,899.97	89.00	149.97	6,520.61	-8,221.35	2,360.68	14,422,774.34	1,690,930.70	39.71436210	-80.82037180	
13,999.97	89.00	149.97	6,522.36	-8,307.91	2,410.72	14,422,687.78	1,690,980.75	39.71412411	-80.82019447	
14,099.97	89.00	149.97	6,524.11	-8,394.47	2,460.76	14,422,601.22	1,691,030.79	39.71388611	-80.82001714	
14,199.97	89.00	149.97	6,525.86	-8,481.03	2,510.80	14,422,514.66	1,691,080.83	39.71364811	-80.81983982	
14,299.97	89.00	149.97	6,527.61	-8,567.59	2,560.84	14,422,428.10	1,691,130.87	39.71341011	-80.81966249	
14,399.97	89.00	149.97	6,529.36	-8,654.15	2,610.88	14,422,341.54	1,691,180.91	39.71317211	-80.81948517	
14,499.97	89.00	149.97	6,531.12	-8,740.71	2,660.92	14,422,254.98	1,691,230.95	39.71293411	-80.81930784	
14,599.97	89.00	149.97	6,532.87	-8,827.27	2,710.97	14,422,168.42	1,691,280.99	39.71269611	-80.81913052	
14,699.97	89.00	149.97	6,534.62	-8,913.83	2,761.01	14,422,081.86	1,691,331.04	39.71245811	-80.81895320	
14,799.97	89.00	149.97	6,536.37	-9,000.39	2,811.05	14,421,995.30	1,691,381.08	39.71222011	-80.81877588	
14,899.97	89.00	149.97	6,538.12	-9,086.95	2,861.09	14,421,908.73	1,691,431.12	39.71198211	-80.81859856	
14,999.97	89.00	149.97	6,539.87	-9,173.51	2,911.13	14,421,822.17	1,691,481.16	39.71174411	-80.81842124	

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WDD



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Goudy 1S-11HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-11HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,099.97	89.00	149.97	6,541.62	-9,260.07	2,961.17	14,421,735.61	1,691,531.20	39.71150611	-80.81824393	
15,199.97	89.00	149.97	6,543.37	-9,346.63	3,011.21	14,421,649.05	1,691,581.24	39.71126811	-80.81806661	
15,299.97	89.00	149.97	6,545.13	-9,433.19	3,061.26	14,421,562.49	1,691,631.29	39.71103010	-80.81788930	
15,399.97	89.00	149.97	6,546.88	-9,519.75	3,111.30	14,421,475.93	1,691,681.33	39.71079210	-80.81771198	
15,499.97	89.00	149.97	6,548.63	-9,606.32	3,161.34	14,421,389.37	1,691,731.37	39.71055410	-80.81753467	
15,599.97	89.00	149.97	6,550.38	-9,692.88	3,211.38	14,421,302.81	1,691,781.41	39.71031610	-80.81735736	
15,699.97	89.00	149.97	6,552.13	-9,779.44	3,261.42	14,421,216.25	1,691,831.45	39.71007809	-80.81718005	
15,799.97	89.00	149.97	6,553.88	-9,866.00	3,311.46	14,421,129.69	1,691,881.49	39.70984009	-80.81700274	
15,899.97	89.00	149.97	6,555.63	-9,952.56	3,361.51	14,421,043.13	1,691,931.53	39.70960209	-80.81682544	
15,999.97	89.00	149.97	6,557.38	-10,039.12	3,411.55	14,420,956.57	1,691,981.58	39.70936408	-80.81664813	
16,099.97	89.00	149.97	6,559.14	-10,125.68	3,461.59	14,420,870.01	1,692,031.62	39.70912608	-80.81647083	
16,199.97	89.00	149.97	6,560.89	-10,212.24	3,511.63	14,420,783.45	1,692,081.66	39.70888807	-80.81629352	
16,299.97	89.00	149.97	6,562.64	-10,298.80	3,561.67	14,420,696.89	1,692,131.70	39.70865007	-80.81611622	
16,399.97	89.00	149.97	6,564.39	-10,385.36	3,611.71	14,420,610.33	1,692,181.74	39.70841207	-80.81593892	
16,499.97	89.00	149.97	6,566.14	-10,471.92	3,661.75	14,420,523.76	1,692,231.78	39.70817406	-80.81576162	
16,599.97	89.00	149.97	6,567.89	-10,558.48	3,711.80	14,420,437.20	1,692,281.83	39.70793605	-80.81558432	
16,699.97	89.00	149.97	6,569.64	-10,645.04	3,761.84	14,420,350.64	1,692,331.87	39.70769805	-80.81540703	
16,799.97	89.00	149.97	6,571.40	-10,731.60	3,811.88	14,420,264.08	1,692,381.91	39.70746004	-80.81522973	
16,899.97	89.00	149.97	6,573.15	-10,818.16	3,861.92	14,420,177.52	1,692,431.95	39.70722204	-80.81505244	
16,948.71	89.00	149.97	6,574.00	-10,860.36	3,886.31	14,420,135.33	1,692,456.34	39.70710602	-80.81496602	
PBHL/TD 16948.71 MD/6574.00 TVD										
16,948.72	89.00	149.97	6,574.00	-10,860.36	3,886.32	14,420,135.32	1,692,456.35	39.70710600	-80.81496600	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Goudy 1S-11HM LP r3 - hit/miss target - Shape - Point	0.00	0.00	6,407.55	-2,633.24	-869.78	14,428,362.45	1,687,700.25	39.72972600	-80.83182200	
- plan misses target center by 0.07usft at 7444.31usft MD (6407.55 TVD, -2633.27 N, -869.84 E)										
Goudy 1S-11HM BHL r3 - plan hits target center - Point	0.00	0.00	6,574.00	-10,860.36	3,886.32	14,420,135.32	1,692,456.35	39.70710600	-80.81496600	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,000.00	1,000.00	13 3/8" Casing	13-3/8	17	
2,604.46	2,600.00	9 5/8" Casing	9-5/8	12-1/4	

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Goudy 1S-11HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-11HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.00	1,100.00	0.00	0.00	KOP Begin 1°/100' build
1,600.00	1,599.37	-15.42	-15.42	Begin 5.00° tangent
2,704.84	2,700.00	-83.51	-83.51	Begin 6°/100' build/turn
3,206.32	3,166.67	-232.72	-159.09	Begin 34.71° tangent
6,689.89	6,030.15	-2,043.18	-970.24	Begin 8°/100' build/turn
6,979.25	6,245.00	-2,231.70	-1,000.16	Begin 10°/100' build/turn
7,444.27	6,407.55	-2,633.24	-869.86	Begin 89.00° lateral
16,948.71	6,574.00	-10,860.36	3,886.31	PBHL/TD 16948.71 MD/6574.00 TVD

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WW-6A1
(5/13)

Operator's Well No. Goudy 1S-11HM

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

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

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

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

*See attached pages

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WV Department of
Environmental Protection

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

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

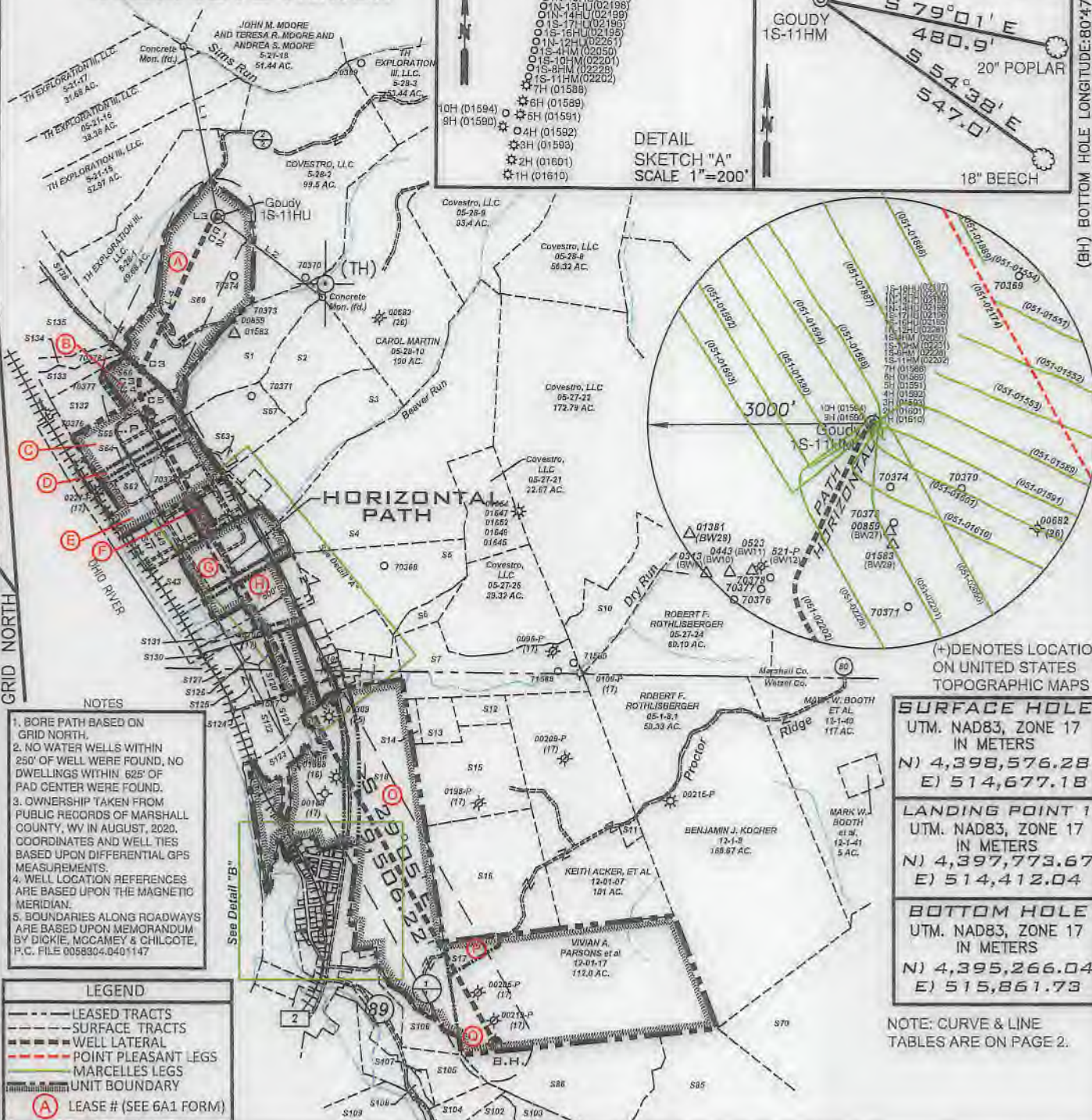
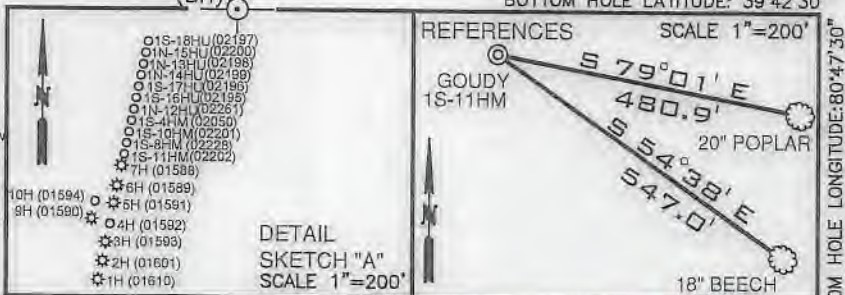
- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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

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

**GOUDY LEASE
WELL 1S-11HM
442.4427± ACRES**

TOP HOLE LATITUDE: 39°45'00"
BOTTOM HOLE LATITUDE: 39°42'30"



- NOTES**
1. BORE PATH BASED ON GRID NORTH.
 2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN AUGUST, 2020. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 5. BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304-040-1147

LEGEND

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- MARCELLUS LEGS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,398,576.28
E) 514,677.18

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,397,773.67
E) 514,412.04

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,395,266.04
E) 515,861.73

NOTE: CURVE & LINE TABLES ARE ON PAGE 2.

FILE NUMBER _____

DRAWING NUMBER **GOUDY_1S-11HM_REV3**

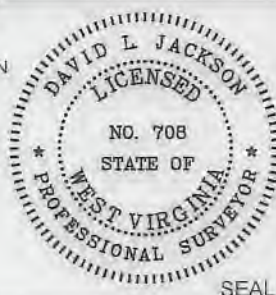
SCALE **1" = 2000'**

MINIMUM DEGREE OF ACCURACY **1/200**

PROVEN SOURCE OF ELEVATION **SUBMETER MAPPING
GRADE GPS**

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

David L Jackson



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

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



DATE: **AUGUST 20, 2020**

OPERATORS WELL NO. **GOUDY 1S-11HM**

API WELL NO. **47-051-02202 MOD**

STATE COUNTY PERMIT

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

LOCATION ELEVATION **1239.4'** WATERSHED (HUC 10) **FRENCH CREEK - OHIO RIVER**

DISTRICT **FRANKLIN** COUNTY **MARSHALL**

QUADRANGLE **NEW MARTINSVILLE 7.5'** LEASE NUMBER **SEE WW-6A1 FORM**

SURFACE OWNER **TH EXPLORATION III, LLC.** ACREAGE **70.0**

OIL & GAS ROYALTY OWNER **TH EXPLORATION III, LLC.** LEASE ACREAGE **70.0**

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 **MARCELLUS** ESTIMATED DEPTH **TVD 6,531' TMD: 16,949'**

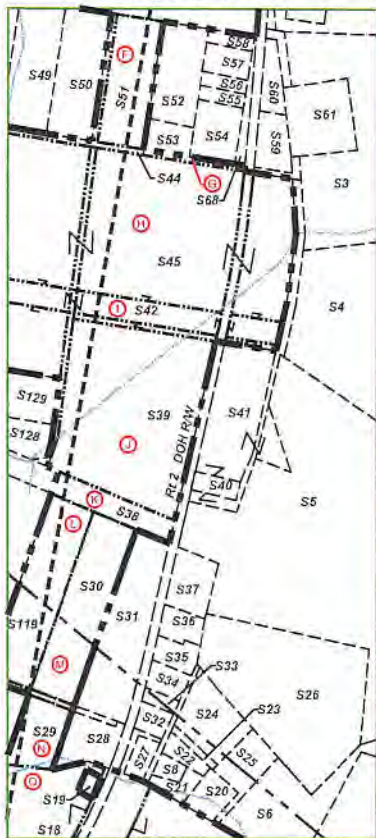
WELL OPERATOR **TUG HILL OPERATING, LLC** DESIGNATED AGENT **DIANNA STAMPER
CT CORPORATION SYSTEM**

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

COUNTY NAME PERMIT

**GOUDY LEASE
WELL 1S-11HM
442.4427± ACRES**

Detail "A"



See Detail "B"

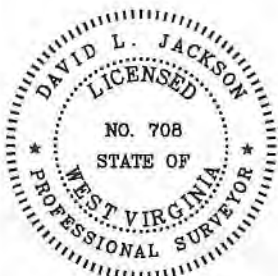


LINE	BEARING	DISTANCE
L1	N 11°40' W	2299.54'
L2	S 53°14' E	1746.21'
L3	S 45°57' W	118.13'
L4	S 25°05' W	1984.55'

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708

David L Jackson

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S1	05-28-12	TH Exploration III, LLC.	20.226
S2	05-28-11	Carol A. Martin	24.681
S3	05-27-19	Covestro, LLC	33.786
S4	05-27-20	Covestro, LLC	93.027
S5	05-27-20.1	Appalachian Power Co.	43.973
S6	05-27-27	James Andrew & Karen Lynne Richmond	8.9353
S7	05-27-25	James Andrew & Karen Lynne Richmond	41.35
S8	12-23-14	Robert F. Rothlisberger	0.27
S9	05-26-19	Eric Jay Booth & Karrol S. Booth	50.0
S10	05-27-23	Robert F. Rothlisberger	35.77
S11	12-01-7.1	Harry Wayman Estate	2.0
S12	12-01-04	Robert F. Rothlisberger	6.0
S13	12-01-03	Charles D. & Edith Feenerty Harrison	7.8
S14	12-01-02	James A. & Karen L. Richmond	2.7
S15	12-01-05	Irvin L. Hoyt, Jr. & David L. Hoyt	36.8
S16	12-01-06	Mona Parsons, et al	52.75
S17	P 12-01-16	Vivian A. Parsons, et al	5.125
S18	O 12-01-01	Covestro, LLC	135.0
S19	12-01-1.7	Colombia Gas Transmission, Corp.	0.15
S20	12-23-15	Paul E. & Donna Jo Cain	0.7
S21	12-23-15.1	Robert F. Rothlisberger	0.47
S22	12-23-13	Paul E. & Donna Jo Cain	0.38
S23	05-27-27.2	Paul E. Cain, et ux	0.1767
S24	05-27-27.1	Donald P. Cain	1.645
S25	05-27-27.3	Paul E. Cain, et ux	1.018
S26	05-27-28	Covestro, LLC	8.0
S27	12-23-12	Paul E. & Donna Jo Cain	0.37
S28	12-23-11	Covestro, LLC	1.25
S29	N 12-23-10	Covestro, LLC	1.28
S30	M 12-23-05	Covestro, LLC	3.69
S31	05-27-40	Covestro, LLC	3.36
S32	12-23-06	Covestro, LLC	0.34
S33	05-27-44	Covestro, LLC	0.21
S34	05-27-43	Covestro, LLC	0.63
S35	05-27-42	Covestro, LLC	0.52
S36	05-27-42.1	Covestro, LLC	0.52
S37	05-27-41	Martha Jean Arrick	0.99
S38	K 05-27-31.2	Appalachian Power Co.	3.33
S39	J 05-27-31	Covestro, LLC	16.1
S40	05-27-30	Covestro, LLC	0.371
S41	05-27-31.1	Covestro, LLC	3.0
S42	I 05-27-32.2	Covestro, LLC	3.95
S43	05-27-29	Covestro, LLC	9.0
S44	G 05-27-45	Covestro, LLC	0.3627
S45	H 05-27-32	Covestro, LLC	33.53
S46	05-27-03	Covestro, LLC	1.27
S47	05-27-04	Covestro, LLC	2.52
S48	05-27-05	Covestro, LLC	2.52
S49	05-27-06	Covestro, LLC	2.52
S50	05-27-07	Covestro, LLC	2.52
S51	F 05-27-08	Covestro, LLC	2.52
S52	05-27-09	Covestro, LLC	1.87
S53	05-27-10	Covestro, LLC	0.52
S54	05-27-12	Covestro, LLC	1.0
S55	05-27-13	Covestro, LLC	0.34
S56	05-27-14	Covestro, LLC	0.25
S57	05-27-15	Covestro, LLC	0.47
S58	05-27-16	Covestro, LLC	0.23
S59	05-27-18	Covestro, LLC	0.97
S60	05-27-17	Covestro, LLC	0.88
S61	05-27-19.3	Cemetery	2.0
S62	E 05-27-02	Covestro, LLC	28.099
S63	05-27-19.2	Wheeling Electric Co.	0.75
S64	D 05-28-12.2	Covestro, LLC	3.1
S65	C 05-28-12.3	Covestro, LLC	18.784
S66	B 05-28-13.1	Air Products & Chemicals, Inc	5.522
S67	05-27-19.1	Covestro, LLC	21.267
S68	05-27-11	Covestro, LLC	0.03
S69	A 05-28-13	TH Exploration III, LLC.	70.0

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C119	S 30°34' W	69.04'	311.34'	68.16'
C120	S 25°53' W	98.41'	2919.08'	98.42'
C121	S 16°09' W	99.06'	339.72'	99.41'
C122	S 03°22' E	234.27'	598.88'	235.79'
C123	S 21°40' E	282.79'	1030.94'	283.69'



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Goudy 1S-11HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API # 47-051-02202 *MOY*

WELL PLAT
PAGE 2 OF 3
DATE: 08/20/2020

**GOUDY LEASE
WELL 1S-11HM
442.4427± ACRES**

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S70	12-01-19	Steven J. & Susan L. Hafer	36.5
S71	12-01-31	Steven Jack & Susan Louise Hafer	20.0
S72	12-01-20	Charles E. Frohnapfel, Trustee of the Charles E. Frohnapfel Living Trust Dated October 3, 2017	126.0
S73	12-02-01	Nelson M. & Mary D. Miller	49.0
S74	12-01-34.1	Herbert Parsons & Virginia Yoho Roy	2.0
S75	12-01-34	John D. Amnah	38.0
S76	12-02-07	John D. Amnah	44.5
S77	12-06-52	John D. Amnah	6.46
S78	12-01-33	James & Charlene Lemley	1.06
S79	12-01-29	Baxter Farm, LLC	2.0
S80	12-06-26.3	Richard L. & Donna L. Erlewine	20.96
S81	12-06-26	Larry K. Keene	6.69
S82	12-06-24	Mark D. Baxter	84.92
S83	12-06-06	Baxter Farm, LLC	88.8
S84	12-01-32	Baxter Farm, LLC	78.74
S85	12-01-28	Steven J. & Susan L. Hafer	88.39
S86	12-01-18	Travis Darrell Blake & Angela Dawn Mitchell	48.4
S87	12-6A-11.2	Robert L. & Mary Ellen Stillwagoner	0.38
S88	12-06-18.1	Janice Haudenschilt	1.15
S89	12-06-18	Shella Diane Gore	0.34
S90	12-6A-11.1	Robert L. & Mary Ellen Stillwagoner	0.66
S91	12-6A-11	Robert L. & Mary Ellen Stillwagoner	2.38
S92	12-6A-10	Jay Edward & Kathleen S. Smith	3.35
S93	12-6A-09	Joyce Kay Morris (L/E), Robert D. Jr. & Marsha J. Morris	3.52
S94	12-6A-08	Candis Darlene Clark	3.43
S95	12-6A-07	Janice Capobianco	8.47
S96	12-6A-06	Ronald E. & Susan L. McCoy	2.09
S97	12-6A-03	Ronald E. & Susan L. McCoy	3.47
S98	12-6A-02	Ronald E. & Susan L. McCoy	3.49
S99	12-6A-01	Ronald E. & Susan L. McCoy	6.51
S100	12-06-05	Steven & Susan Louis Hafer	8.93
S101	12-06-04	Steven & Susan Hafer	6.2
S102	12-01-27	Steven J. & Susan Hafer	83.69
S103	12-01-26	Roland S. Fitzsimmons & William Joseph Blake	13.83
S104	12-01-25	Jack R. & Linda S. Blake	17.42
S105	12-01-15.3	Daniel L. & Vickie L. Williams	7.0
S106	12-01-1.1	W.V. D.O.H.	10.59
S107	12-01-15.2	Michael Goddard	1.09
S108	12-01-15.1	Marshall & Tara Cecil (L/C), Roy Yoho	1.46

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S109	12-01-22	W.D. & R.A. Glover	18.84
S110	12-01-23.2	Sharon Maye McKinney	0.782
S111	12-01-23	Danny E. & Jill L. McKinney	1.55
S112	12-01-23.1	W.E & R.A. Glover	34.17
S113	12-01-25.1	Timothy Q. & Ronda K. Bohrer	1.2
S114	12-01-24	Mitzilou Cecil, Trustee of the Tiger Cecil Irrevocable	0.85
S115	12-06-02	Brock T. Conner	23.83
S116	12-06-49	Kirkland Enterprises, LLC.	10.32
S117	12-06-51	Steven & Susan Hafer	0.599
S118	12-06-48	Ronald E. & Susan L. McCoy	0.36
S119 L	05-27-39	Covestro, LLC	3.74
S120	12-23-04	Pittsburgh Plate Glass Corp.	2.41
S121	12-23-09	Covestro, LLC	3.95
S122	12-23-08	Dora N. Moore Hrs., Et al	6.95
S123	12-01-1.5	United States of America	7.14
S124	12-23-02	Covestro, LLC	1.27
S125	12-23-03	Covestro, LLC	4.67
S126	12-27-38	Covestro, LLC	2.72
S127	12-27-37	Covestro, LLC	3.20
S128	12-27-35	Covestro, LLC	1.79
S129	12-27-34	Covestro, LLC	1.91
S130	12-27-36	Covestro, LLC	1.58
S131	12-27-33	Covestro, LLC	1.95
S132	05-28-13.2	Covestro, LLC	11.02
S133	05-28-1.1	Covestro, LLC	5.2217
S134	05-28-1.4	Covestro, LLC	11.69
S135	05-28-1.2	Covestro, LLC	21.62
S136	05-21-3.1	Eagle Natruim, LLC	98.61
S137	12-01-1.2	West Virginia Dept. of Transportation	0.27
S138	12-22-59	June M. Morris, Hrs.	2.00
S139	12-22-60	Franklin W. & Barbara J. Cogar	0.5
S140	12-22-09	M.B. Investment	0.20
S141	12-22-10	M.B. Investment	0.24
S142	12-22-12	Jack Ray & Linda S. Blake	0.16
S143	12-22-13	Dewayne E. & Patricia A. Yost	0.07
S144	12-22-28	June M. Morris, Hrs	0.12
S145	12-22-29	Jack R. & Linda S. Blake	0.50
S146	12-22-30	Jack R. & Linda S. Blake	0.24
S147	12-22-32	Ren Realty, LLC.	0.27
S148	12-22-33	Ren Realty, LLC.	0.08
S149	12-22-34	Ren Realty, LLC.	0.08
S150	12-22-51	Eric R. & Debra S. Sims	0.10
S151	12-22-52	Eric R. & Debra S. Sims	0.10
S152	12-22-53	Eric R. & Debra S. Sims	0.10
S153	12-22-54	Eric R. & Debra S. Sims	0.10
S154	12-22-55	Eric R. & Debra S. Sims	0.19
S155	12-22-56	Michael L. & Joyce D. Durig	0.22
S156	12-22-57	Michael L. & Joyce D. Durig	0.11
S157	12-22-58	Michael L. & Joyce D. Durig	0.15
S158	12-22-50	Michael L. & Joyce D. Durig	0.17
S159	12-22-49	Daniel J. Stillwagoner	0.13
S160	12-22-62	Virginia Bohrer, et al	0.05
S161	12-22-62.1	John R. & Toni Wright	0.314
S162	12-22-44	John R. & Toni Wright	0.52
S163	12-01-1.9	Grandview Doolin Public Service District	0.13
S164	12-22-27	Grandview Doolin Public Service District	0.27
S165	12-01-1.12	United States of America	22.55
S166	12-01-1.8	Grandview Doolin Public Service District	0.0895

REGISTERED
Office of Oil and Gas

NOV 06 2020

Environmental Protection



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Goudy 1S-11HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API # 47-051-02202 *MS*

WELL PLAT
PAGE 3 OF 3
DATE: 08/20/2020

Lease ID	TMP	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment			
10*14300	5-28-13	A	PPG INDUSTRIES INC	GASTAR EXPLORATION USA INC	1/8+	725 123	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/332	Merger of Gastar Exploration Inc and Gastar Exploration USA Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC To TH Exploration II, LLC: 43/563
10*14300	5-28-13.1	B	PPG INDUSTRIES INC	GASTAR EXPLORATION USA INC	1/8+	725 123	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/332	Merger of Gastar Exploration Inc and Gastar Exploration USA Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC To TH Exploration II, LLC: 43/563
10*22926	5-28-12.3	C	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-28-12.2	D	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-2	E	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-8	F	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-45	G	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-32	H	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-32.2	I	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22926	5-27-31	J	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14499	5-27-31.2	K	UNION CARBIDE CORPORATION	GASTAR EXPLORATION USA INC	1/8+	815 221	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Merger of Gastar Exploration Inc and Gastar Exploration USA Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9	Atinum Marcellus I LLC To TH Exploration II, LLC: 43/563
10*22926	5-27-39	L	COVESTRO LLC	TH EXPLORATION LLC	1/8+	976 27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23006	12-23-5	M	COVESTRO LLC	TH EXPLORATION LLC	1/8+	208A 67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23006	12-23-10	N	COVESTRO LLC	TH EXPLORATION LLC	1/8+	208A 67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*31402	12-1-1	O	VIRGINIA R BOHRER	CLAY RESOURCES INC	1/8+	68A 328	Clay Resources Ince to Murvin Oil Company: 71A/404	Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 74A/426	Applied Mechanics Corp to Cobham Gas Industries: 74A/676	Cobham Gas Industries & Belmont Energy Inc to Tri-County O&G Inc: 80/639	Tri-County O&G Inc to B&R Construction: 83A/483	B&R Construction Inc to Stone Energy Corp: 110A/41	B&R Construction Inc to B&R Holdings: 118A/685	Participation Agreement - B&R Holdings and ICO Marcellus I LLC: 127A/670	ICO Marcellus I LLC to Stone Energy Corp: 179A/844	B&R Holdings Inc and Blue Group Operating Inc to Stone Energy Corp: 179A/848	Stone Energy Corp to EQT Production Company: 183A/305	EQT Production Company to TH Exploration LLC: 250A/651			
10*31404	12-1-1	O	JACK LANG MASON AND JEAN M MASON	CLAY RESOURCES INC	1/8+	68A 330	Clay Resources Ince to Murvin Oil Company: 71A/404	Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 74A/426	Applied Mechanics Corp to Cobham Gas Industries: 74A/676	Cobham Gas Industries & Belmont Energy Inc to Tri-County O&G Inc: 80/639	Tri-County O&G Inc to B&R Construction: 83A/483	B&R Construction Inc to Stone Energy Corp: 110A/41	B&R Construction Inc to B&R Holdings: 118A/685	Participation Agreement - B&R Holdings and ICO Marcellus I LLC: 127A/670	ICO Marcellus I LLC to Stone Energy Corp: 179A/844	B&R Holdings Inc and Blue Group Operating Inc to Stone Energy Corp: 179A/848	Stone Energy Corp to EQT Production Company: 183A/305	EQT Production Company to TH Exploration LLC: 250A/651			
10*31403	12-1-1	O	HELEN MASON BAGGS AND ROBERT B BAGGS	CLAY RESOURCES INC	1/8+	68A 326	Clay Resources Ince to Murvin Oil Company: 71A/404	Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 74A/426	Applied Mechanics Corp to Cobham Gas Industries: 74A/676	Cobham Gas Industries & Belmont Energy Inc to Tri-County O&G Inc: 80/639	Tri-County O&G Inc to B&R Construction: 83A/483	B&R Construction Inc to Stone Energy Corp: 110A/41	B&R Construction Inc to B&R Holdings: 118A/685	Participation Agreement - B&R Holdings and ICO Marcellus I LLC: 127A/670	ICO Marcellus I LLC to Stone Energy Corp: 179A/844	B&R Holdings Inc and Blue Group Operating Inc to Stone Energy Corp: 179A/848	Stone Energy Corp to EQT Production Company: 183A/305	EQT Production Company to TH Exploration LLC: 250A/651			
10*23818	12-1-16	P	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	214A 345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23819	12-1-16	P	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	214A 348	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24089	12-1-16	P	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	216A 365	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24306	12-1-16	P	ROY C PARSONS	TH EXPLORATION LLC	1/8+	216A 368	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22580	12-1-17	Q	JAMES H PARSONS JR	TH EXPLORATION LLC	1/8+	209A 265	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23524	12-1-17	Q	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	210A 807	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23525	12-1-17	Q	HAMMETT LAND & MINERALS LLC SAMUEL C HAMMETT MANAGING MEMBER	TH EXPLORATION LLC	1/8+	210A 809	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23906	12-1-17	Q	JOHN M PARSONS & ANTOINETTE L COSTANTINO	TH EXPLORATION LLC	1/8+	214A 675	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24090	12-1-17	Q	VIVIAN A PARSONS	TH EXPLORATION LLC	1/8+	216A 371	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24317	12-1-17	Q	ROY C PARSONS	TH EXPLORATION LLC	1/8+	218a 480	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25450	12-1-17	Q	MURIEL A MILLER	TH EXPLORATION LLC	1/8+	222A 465	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*25644	12-1-17	Q	JOHN P SNYDER	TH EXPLORATION LLC	1/8+	222A 434	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26612	12-1-17	Q	DOROTHY J HAAS	TH EXPLORATION LLC	1/8+	224A 549	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

51-02202 MOD

RECEIVED
 Office of Oil and Gas
 NOV 06 2020
 WV Department of Environmental Protection

51-02202
1104

DPB LAND SERVICES CORP
6000 TOWN CENTER BOULEVARD, SUITE 145
CANDONSBURG PA 15317-5841

BOOK 0043 PAGE 0563

STATE OF WEST VIRGINIA §
 §
COUNTIES OF MARSHALL AND WETZEL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 30th day of April, 2019 (the "Effective Date"), by and between Atinum Marcellus I, LLC (hereinafter "Assignor") and TH Exploration II, LLC, (hereinafter "Assignee" and, together with Assignor, the "Parties"). Capitalized terms used but not defined herein shall have the meanings commonly given to such terms in the industry.

WITNESSETH:

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to one hundred feet (100 ft.) above the formation commonly referred to as the Marcellus Shale formation down to one hundred feet (100 ft.) below the same, in those certain Oil and Gas Leases, or the portions of those certain Oil and Gas Leases, situated in Marshall and Wetzel Counties, West Virginia, as described in Exhibit "A-1" and limited and described in Exhibit "A-2", attached hereto and made a part hereof. It being the Parties intention to assign all of Assignor's interest in each unit as described in Exhibit "A-1", including any changes, revisions, or amendments to the same, now or at any time in the future. (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 one hundred feet (100 ft.) above the formation commonly referred to as the Marcellus Shale formation down to one hundred feet (100 ft.) below the same, in the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon. It being the Parties intention to assign all of Assignor's interest in each unit as described in Exhibit "A-1", including any changes, revisions, or amendments to the same, now or at any time in the future.

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 permits or easements, rights of way, surface leases and other rights with respect to surface operations that do not materially interfere with, impair or prohibit the operation of the affected Leases, hereinafter "Permitted Encumbrances") its interest in the Leases since the time that Assignor obtained its interests in the Leases. Assignor does covenant, promise and agree, to and with the

DPS LAND SERVICES-AMANDA
6000 TOWN CENTER BLVD
STE 145
CANONSBURG PA 15317-5841

51-02202
MOB
Execution Version

ASSIGNMENT AND BILL OF SALE

This ASSIGNMENT AND BILL OF SALE (this "*Assignment*") dated as of October 13, 2020 (the "*Execution Date*"), is made by and between EQT PRODUCTION COMPANY, a Pennsylvania corporation, with an address at 625 Liberty Avenue, Suite 1700, Pittsburgh, Pennsylvania 15222 ("*EQT*"), and TH EXPLORATION, LLC, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("*TH*") pursuant to the terms of that certain Acreage Trade Agreement by and among EQT, TH and TH Exploration II, LLC, dated July 8, 2020 (the "*Agreement*"). EQT and TH may be referred to herein together as the "*Parties*", and each individually as a "*Party*".

RECITALS

WHEREAS, EQT desires to transfer, convey and assign to TH certain of EQT's oil and gas leasehold interests located in Wetzel County, West Virginia set forth on Exhibit A attached hereto and incorporated herein ("*EQT Leases*") in accordance with this Assignment and the Agreement; and

WHEREAS, TH desires to receive from EQT, all of EQT's right, title and interest in and to the EQT Leases in accordance with this Assignment and the Agreement.

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Agreement, the benefits to be derived by each Party hereunder and under the Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

ARTICLE I DEFINED TERMS

1.1 Definitions. Capitalized terms used herein and not otherwise defined throughout this Assignment shall have the meanings given such terms in the Agreement.

ARTICLE II ASSIGNMENT OF ASSETS

2.1 Assignment. Subject to the terms and conditions of this Assignment and the Agreement, EQT does hereby assign, convey and transfer to TH all of the right, title and interest of EQT in and to the following (collectively for purposes of this Assignment, the "*EQT Assets*"):

(a) The EQT Leases and appurtenances thereto (including rights of access and to install facilities), and all Hydrocarbons within, produced from, derived from, or sold from the EQT Leases (and all proceeds related thereto), on and after the Valuation Date; and

(b) Copies of deeds, files and all other ownership information directly related to the acquisition, operations and maintenance of the EQT Leases, lease files for the EQT Leases and all other information directly related to the acquisition, operations, and maintenance of the EQT Leases, and all related ownership, encumbrance or contract records including all abstracts, runsheets, certified title opinions, take-off sheets, surface use agreements, royalty and rental

51-02202
MDV

EXHIBIT A

EQT Leases

ID	AGREEMENT NAME	LESSEE	EFFECTIVE DATE	BK - PG	INST. NO.	COUNTY	DISTRICT	GROSS ACRES	APN
TBD	Virginia R. Bohrer, widow	Clay Resources, Inc	6/7/1985	68A-328		Wetzel	Proctor	155.0000	12-1-1
TBD	Jack Lang Mason and Jean M. Mason, husband and wife	Clay Resources, Inc	6/7/1985	68A-330		Wetzel	Proctor	155.0000	12-1-1
TBD	Helen Mason Baggs and Robert B. Baggs, wife and husband	Clay Resources, Inc	6/7/1985	68A-326		Wetzel	Proctor	155.0000	12-1-1

EXHIBIT A TO ASSIGNMENT AND BILL OF SALE

Hetzal County
Carol S. Haight, Clerk
Instrument 293415
10/20/2020 @ 11:22:24 AM
Oil And Gas
Book 250A @ Page 651
Pages Recorded 9
Recording Cost \$ 15.00



November 5, 2020

Check # 045456
9/3/2020
\$5,000.00

MS LAURA ADKINS
WV DEP OFFICE OF OIL & GAS
601 57TH STREET SE
CHARLESTON, WV 25304-2345

VIA USPS

RE: **Goudy 15-11HM API #47-051-02202 (H6A Permit Modification)**
Franklin District, Marshall County, WV
EXPEDITED REVIEW REQUESTED

RECEIVED
Office of Oil and Gas

NOV 06 2020

WV Department of Environmental Protection

Dear Laura:

Tug Hill Operating, LLC is submitting a permit modification for its permitted well, Goudy 15-11HM, to add 5,136' to the lateral length. Therefore, enclosed please find the following:

- Check – Fee of \$5,000 for expedited review
- Modified WW-6B with changes highlighted in yellow
- Updated well plat
- Updated WW-6A1 information
- Updated Water Management Plan
- Updated Site Safety Plan (The only information that has changed is the contact information for the Inspector Supervisor at the contact list at the end of the Plan).

If you have any questions or need any additional information, please do not hesitate to call me on (304) 376-0111. Thank you for attention to this matter, it is greatly appreciated.

Sincerely,

AMY MORRIS
PERMIT SPECIALIST-APPALACHIA REGION
TUG HILL OPERATING, LLC

RECEIVED
Office of Oil and Gas

NOV 06 2020

WV Department of Environmental Protection

Enclosures