



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, March 10, 2021
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

Extended lateral length

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.

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

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: 3/10/2021

Promoting a healthy environment.

03/12/2021

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: 1242'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

Bany Stiles

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s): 1-14-21
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: 19,551'

11) Proposed Horizontal Leg Length: 12,109.43'

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: 1,480'

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

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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	13 3/8"	NEW	H40	48#	970'	970'	1024ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	970'	970'	1024ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,655'	2,655'	879ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	19,551'	19,551'	4989ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,190'	
Liners							

*1-14-21
Bang Stolley*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	2,740	2,192	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	10,112	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

Kind:	N/A				RECEIVED Office of Oil and Gas
Sizes:	N/A				FEB 25 2021
Depths Set:	N/A				WW Department of Environmental Protection

WW-6B
(10/14)

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

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.

1-14-21
Bany Stallop

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

Well to be completed with approximately 30,100,000 lb. proppant and 545,000 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:

Sfc - Premium NE-1 + 2% CaCl; Int1 - Premium NE-1 + 1.5% CaCL + Flake; Int2 - Lead: Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170 Tail: Premium NE-1 + .1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 + .2% ASA-301 + .6% Sodium Metasilicate; Kick Plug - Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L; Prod - Lead: 50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L

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.

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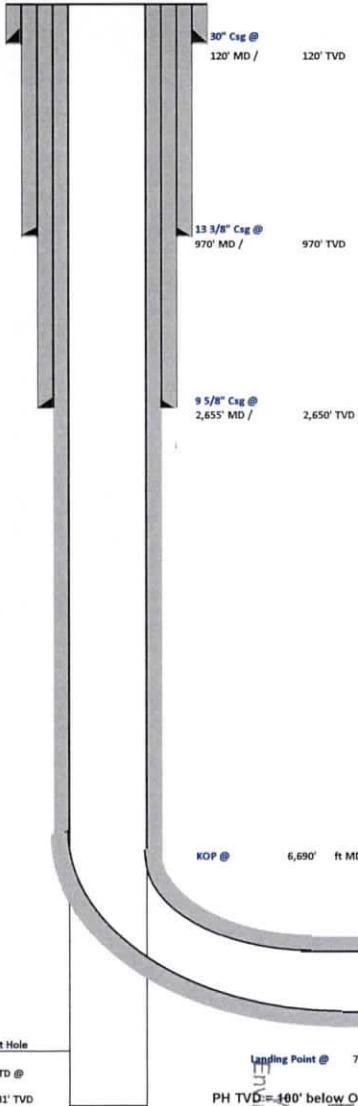


WELL NAME: Goudy 15-11HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,242' GL Elev: 1,242'
 TD: 19,551'
 TH Latitude: 39.73695316
 TH Longitude: -80.82871048
 BH Latitude: 39.70091101
 BH Longitude: -80.81035201

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	970'	970'	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	19,551'	6,618'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,030	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	886	A	15	Air	1 Centralizer every other jt
Production	4,586	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



4705102202

Benj Stolter 1-14-21

Landing Point @ 7,444' MD / 6,408' TVD

Lateral TD @ 19,551' ft MD

PH TD @ 6,531' TVD

6,618' ft TVD

PH TD = 400' below Onondaga Top

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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"	970'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,655'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	19,551'	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: rev4

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	1600.00	5.00	225.00	1599.37	-15.42	-15.42	1.00	225.00	8.66	Begin 5.00° tangent
4	2704.84	5.00	225.00	2700.00	-83.51	-83.51	0.00	0.00	46.92	Begin 6°/100' build/turn
5	3206.32	34.72	204.13	3166.67	-232.72	-159.09	6.00	-23.87	157.86	Begin 34.71° tangent
6	6689.89	34.72	204.13	6030.15	-2043.18	-970.24	0.00	0.00	1542.89	Begin 8°/100' build/turn
7	6979.25	50.00	177.84	6245.00	-2231.70	-1000.16	8.00	-59.68	1707.17	Begin 10°/100' build/turn
8	7444.33	89.00	149.97	6407.54	-2633.30	-869.84	10.00	-40.11	2128.55	Begin 89.00° lateral
9	19551.48	89.00	149.97	6618.00	-13113.39	5188.75	0.00	0.0014102.63		PBHL/TD 19551.48 MD /6618.00 TVD

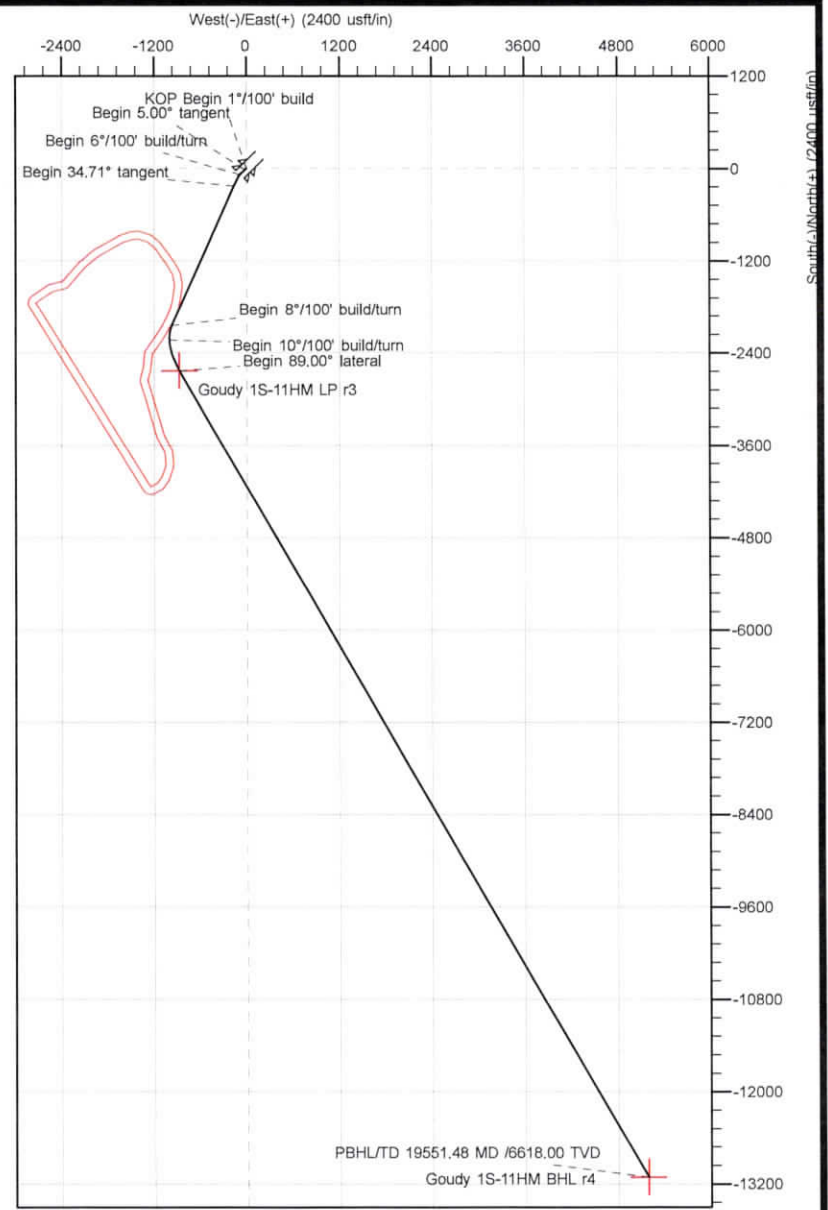
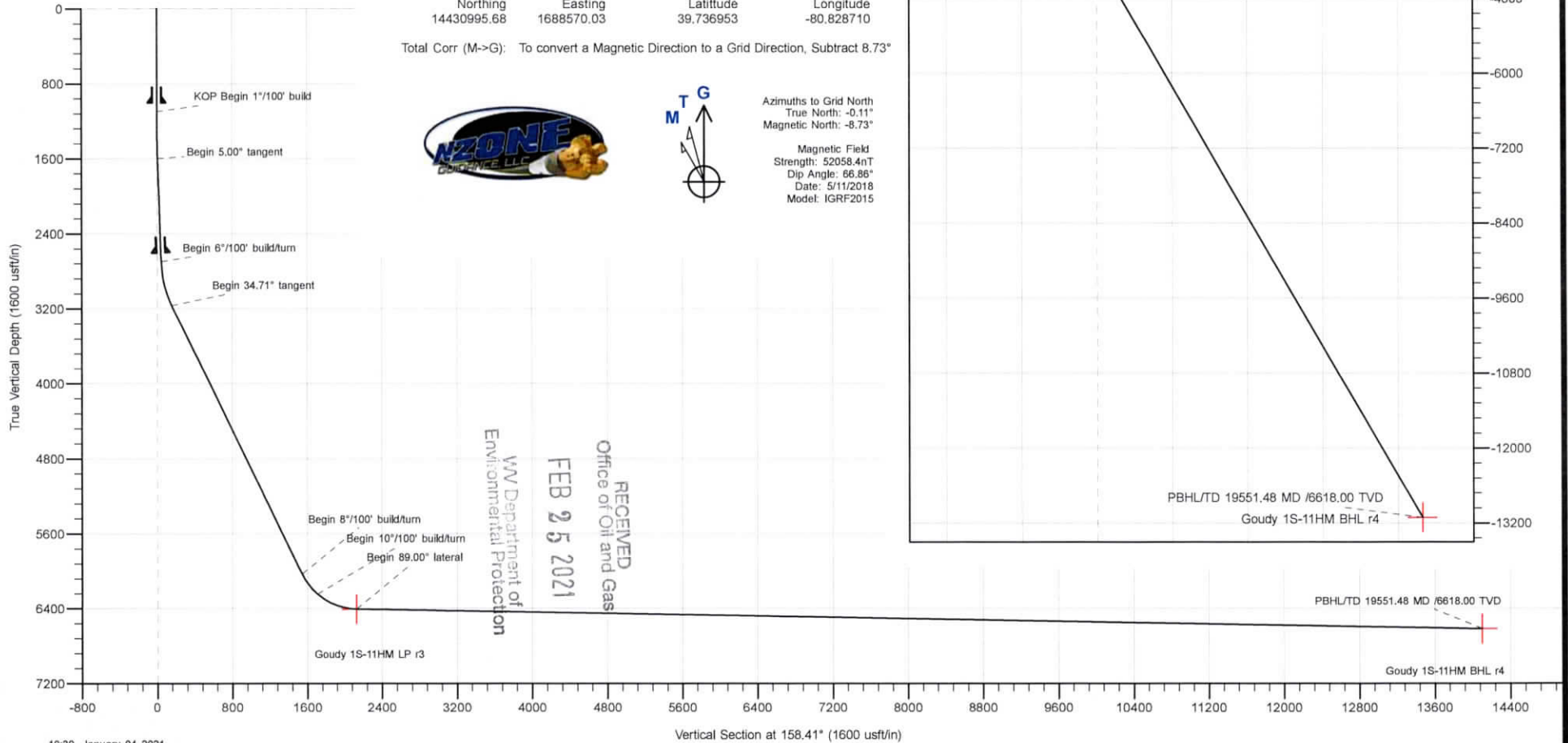
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level
 Depth Reference: GL @ 1241.00ustt
 Northing: 14430995.68 Easting: 1688570.03 Latitude: 39.736953 Longitude: -80.828710

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.73°



Azimuths to Grid North
 True North: -0.11°
 Magnetic North: -8.73°

Magnetic Field
 Strength: 52058.4nT
 Dip Angle: 66.86°
 Date: 5/11/2018
 Model: IGRF2015



4705102202



Planning Report - Geographic

Database:	DB_Dec2220_v16	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:	rev4		

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:	39.736807
From:	Lat/Long	Easting:	1,688,559.77 usft	Longitude:	-80.828748
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Goudy 1S-11HM (H)					
Well Position	+N/-S	0.00 usft	Northing:	14,430,995.69 usft	Latitude:	39.736953
	+E/-W	0.00 usft	Easting:	1,688,570.03 usft	Longitude:	-80.828711
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	1,241.00 usft
Grid Convergence:	0.11 °					

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2018	-8.62	66.86	52,058.38030149

Design	rev4			
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	158.41

Plan Survey Tool Program	Date	1/4/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,551.48 rev4 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

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Database:	DB_Dec2220_v16	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:	rev4		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	5.00	225.00	1,599.37	-15.42	-15.42	1.00	1.00	0.00	225.00	
2,704.84	5.00	225.00	2,700.00	-83.51	-83.51	0.00	0.00	0.00	0.00	
3,206.32	34.72	204.13	3,166.67	-232.72	-159.09	6.00	5.93	-4.16	-23.87	
6,689.89	34.72	204.13	6,030.15	-2,043.18	-970.24	0.00	0.00	0.00	0.00	
6,979.25	50.00	177.84	6,245.00	-2,231.70	-1,000.16	8.00	5.28	-9.09	-59.68	
7,444.33	89.00	149.97	6,407.54	-2,633.30	-869.84	10.00	8.39	-5.99	-40.11	
19,551.48	89.00	149.97	6,618.00	-13,113.39	5,188.75	0.00	0.00	0.00	0.00	Goudy 1S-11HM BHL

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Planning Report - Geographic

Database:	DB_Dec2220_v16	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:	rev4		

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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	39.736953	-80.828711	
100.00	0.00	0.00	100.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
200.00	0.00	0.00	200.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
300.00	0.00	0.00	300.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
400.00	0.00	0.00	400.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
500.00	0.00	0.00	500.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
600.00	0.00	0.00	600.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
700.00	0.00	0.00	700.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
800.00	0.00	0.00	800.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
900.00	0.00	0.00	900.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,430,995.69	1,688,570.03	39.736953	-80.828711	
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	39.736952	-80.828713	
1,300.00	2.00	225.00	1,299.96	-2.47	-2.47	14,430,993.22	1,688,567.56	39.736946	-80.828719	
1,400.00	3.00	225.00	1,399.86	-5.55	-5.55	14,430,990.13	1,688,564.48	39.736938	-80.828730	
1,500.00	4.00	225.00	1,499.68	-9.87	-9.87	14,430,985.82	1,688,560.16	39.736926	-80.828746	
1,600.00	5.00	225.00	1,599.37	-15.42	-15.42	14,430,980.27	1,688,554.61	39.736911	-80.828766	
Begin 5.00° tangent										
1,700.00	5.00	225.00	1,698.99	-21.58	-21.58	14,430,974.11	1,688,548.45	39.736894	-80.828788	
1,800.00	5.00	225.00	1,798.60	-27.74	-27.74	14,430,967.94	1,688,542.29	39.736877	-80.828810	
1,900.00	5.00	225.00	1,898.22	-33.91	-33.91	14,430,961.78	1,688,536.12	39.736860	-80.828832	
2,000.00	5.00	225.00	1,997.84	-40.07	-40.07	14,430,955.62	1,688,529.96	39.736843	-80.828853	
2,100.00	5.00	225.00	2,097.46	-46.23	-46.23	14,430,949.45	1,688,523.80	39.736827	-80.828875	
2,200.00	5.00	225.00	2,197.08	-52.39	-52.39	14,430,943.29	1,688,517.64	39.736810	-80.828897	
2,300.00	5.00	225.00	2,296.70	-58.56	-58.56	14,430,937.13	1,688,511.47	39.736793	-80.828919	
2,400.00	5.00	225.00	2,396.32	-64.72	-64.72	14,430,930.97	1,688,505.31	39.736776	-80.828941	
2,500.00	5.00	225.00	2,495.94	-70.88	-70.88	14,430,924.80	1,688,499.15	39.736759	-80.828963	
2,600.00	5.00	225.00	2,595.56	-77.05	-77.05	14,430,918.64	1,688,492.98	39.736742	-80.828985	
2,700.00	5.00	225.00	2,695.18	-83.21	-83.21	14,430,912.48	1,688,486.82	39.736725	-80.829007	
2,704.84	5.00	225.00	2,700.00	-83.51	-83.51	14,430,912.18	1,688,486.52	39.736724	-80.829008	
Begin 6°/100' build/turn										
2,800.00	10.48	212.21	2,794.26	-93.77	-91.06	14,430,901.92	1,688,478.97	39.736696	-80.829035	
2,900.00	16.41	208.10	2,891.48	-113.94	-102.57	14,430,881.75	1,688,467.46	39.736641	-80.829076	
3,000.00	22.37	206.13	2,985.77	-143.51	-117.61	14,430,852.18	1,688,452.42	39.736560	-80.829130	
3,100.00	28.35	204.96	3,076.09	-182.15	-136.03	14,430,813.53	1,688,434.00	39.736454	-80.829196	
3,200.00	34.34	204.18	3,161.46	-229.45	-157.62	14,430,766.24	1,688,412.41	39.736324	-80.829273	
3,206.32	34.71	204.13	3,166.67	-232.72	-159.09	14,430,762.97	1,688,410.94	39.736315	-80.829278	
Begin 34.71° tangent										
3,300.00	34.72	204.13	3,243.67	-281.40	-180.90	14,430,714.28	1,688,389.13	39.736181	-80.829356	
3,400.00	34.72	204.13	3,325.87	-333.38	-204.19	14,430,662.31	1,688,365.84	39.736039	-80.829439	
3,500.00	34.72	204.13	3,408.07	-385.35	-227.47	14,430,610.34	1,688,342.56	39.735896	-80.829522	
3,600.00	34.72	204.13	3,490.27	-437.32	-250.76	14,430,558.37	1,688,319.27	39.735754	-80.829606	
3,700.00	34.72	204.13	3,572.47	-489.29	-274.04	14,430,506.40	1,688,295.99	39.735611	-80.829689	
3,800.00	34.72	204.13	3,654.67	-541.26	-297.33	14,430,454.42	1,688,272.70	39.735468	-80.829772	
3,900.00	34.72	204.13	3,736.87	-593.23	-320.61	14,430,402.45	1,688,249.42	39.735326	-80.829855	
4,000.00	34.72	204.13	3,819.07	-645.21	-343.90	14,430,350.48	1,688,226.13	39.735183	-80.829938	
4,100.00	34.72	204.13	3,901.27	-697.18	-367.18	14,430,298.51	1,688,202.85	39.735041	-80.830022	
4,200.00	34.72	204.13	3,983.47	-749.15	-390.47	14,430,246.54	1,688,179.56	39.734898	-80.830105	
4,300.00	34.72	204.13	4,065.67	-801.12	-413.75	14,430,194.57	1,688,156.28	39.734755	-80.830188	
4,400.00	34.72	204.13	4,147.87	-853.09	-437.04	14,430,142.59	1,688,132.99	39.734613	-80.830271	
4,500.00	34.72	204.13	4,230.07	-905.06	-460.32	14,430,090.62	1,688,109.71	39.734470	-80.830354	
4,600.00	34.72	204.13	4,312.27	-957.04	-483.61	14,430,038.65	1,688,086.42	39.734327	-80.830437	
4,700.00	34.72	204.13	4,394.47	-1,009.01	-506.89	14,429,986.68	1,688,063.14	39.734185	-80.830521	

03/12/2021



Planning Report - Geographic

Database:	DB_Dec2220_v16	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:	rev4		

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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	
4,800.00	34.72	204.13	4,476.67	-1,060.98	-530.18	14,429,934.71	1,688,039.85	39.734042	-80.830604	
4,900.00	34.72	204.13	4,558.87	-1,112.95	-553.46	14,429,882.74	1,688,016.57	39.733900	-80.830687	
5,000.00	34.72	204.13	4,641.07	-1,164.92	-576.75	14,429,830.76	1,687,993.28	39.733757	-80.830770	
5,100.00	34.72	204.13	4,723.26	-1,216.89	-600.03	14,429,778.79	1,687,970.00	39.733614	-80.830853	
5,200.00	34.72	204.13	4,805.46	-1,268.86	-623.32	14,429,726.82	1,687,946.71	39.733472	-80.830936	
5,300.00	34.72	204.13	4,887.66	-1,320.84	-646.60	14,429,674.85	1,687,923.43	39.733329	-80.831020	
5,400.00	34.72	204.13	4,969.86	-1,372.81	-669.89	14,429,622.88	1,687,900.14	39.733187	-80.831103	
5,500.00	34.72	204.13	5,052.06	-1,424.78	-693.17	14,429,570.91	1,687,876.86	39.733044	-80.831186	
5,600.00	34.72	204.13	5,134.26	-1,476.75	-716.46	14,429,518.93	1,687,853.57	39.732901	-80.831269	
5,700.00	34.72	204.13	5,216.46	-1,528.72	-739.74	14,429,466.96	1,687,830.29	39.732759	-80.831352	
5,800.00	34.72	204.13	5,298.66	-1,580.69	-763.03	14,429,414.99	1,687,807.00	39.732616	-80.831435	
5,900.00	34.72	204.13	5,380.86	-1,632.67	-786.31	14,429,363.02	1,687,783.72	39.732474	-80.831519	
6,000.00	34.72	204.13	5,463.06	-1,684.64	-809.60	14,429,311.05	1,687,760.43	39.732331	-80.831602	
6,100.00	34.72	204.13	5,545.26	-1,736.61	-832.88	14,429,259.08	1,687,737.14	39.732188	-80.831685	
6,200.00	34.72	204.13	5,627.46	-1,788.58	-856.17	14,429,207.10	1,687,713.86	39.732046	-80.831768	
6,300.00	34.72	204.13	5,709.66	-1,840.55	-879.45	14,429,155.13	1,687,690.57	39.731903	-80.831851	
6,400.00	34.72	204.13	5,791.86	-1,892.52	-902.74	14,429,103.16	1,687,667.29	39.731760	-80.831934	
6,500.00	34.72	204.13	5,874.06	-1,944.50	-926.02	14,429,051.19	1,687,644.00	39.731618	-80.832018	
6,600.00	34.72	204.13	5,956.26	-1,996.47	-949.31	14,428,999.22	1,687,620.72	39.731475	-80.832101	
6,689.89	34.72	204.13	6,030.15	-2,043.18	-970.24	14,428,952.50	1,687,599.79	39.731347	-80.832176	
Begin 8°/100' build/turn										
6,700.00	35.13	202.92	6,038.44	-2,048.49	-972.55	14,428,947.19	1,687,597.48	39.731333	-80.832184	
6,800.00	39.80	192.22	6,117.87	-2,106.37	-990.56	14,428,889.32	1,687,579.47	39.731174	-80.832248	
6,900.00	45.27	183.56	6,191.59	-2,173.21	-999.55	14,428,822.47	1,687,570.48	39.730990	-80.832281	
6,979.25	50.00	177.84	6,245.00	-2,231.70	-1,000.16	14,428,763.98	1,687,569.87	39.730830	-80.832283	
Begin 10°/100' build/turn										
7,000.00	51.60	176.13	6,258.12	-2,247.76	-999.31	14,428,747.93	1,687,570.72	39.730785	-80.832280	
7,100.00	59.60	168.85	6,314.62	-2,329.37	-988.30	14,428,666.31	1,687,581.73	39.730561	-80.832242	
7,200.00	67.95	162.69	6,358.81	-2,416.15	-966.12	14,428,579.54	1,687,603.91	39.730323	-80.832163	
7,300.00	76.49	157.24	6,389.34	-2,505.45	-933.44	14,428,490.24	1,687,636.59	39.730077	-80.832048	
7,400.00	85.15	152.16	6,405.28	-2,594.56	-891.26	14,428,401.12	1,687,678.77	39.729832	-80.831898	
7,444.33	89.00	149.97	6,407.54	-2,633.30	-869.84	14,428,362.39	1,687,700.18	39.729726	-80.831822	
Begin 89.00° lateral										
7,500.00	89.00	149.97	6,408.51	-2,681.49	-841.99	14,428,314.20	1,687,728.04	39.729593	-80.831724	
7,600.00	89.00	149.97	6,410.25	-2,768.05	-791.95	14,428,227.64	1,687,778.08	39.729355	-80.831546	
7,700.00	89.00	149.97	6,411.99	-2,854.61	-741.90	14,428,141.08	1,687,828.13	39.729117	-80.831369	
7,800.00	89.00	149.97	6,413.72	-2,941.17	-691.86	14,428,054.52	1,687,878.17	39.728880	-80.831191	
7,900.00	89.00	149.97	6,415.46	-3,027.73	-641.82	14,427,967.96	1,687,928.21	39.728642	-80.831014	
8,000.00	89.00	149.97	6,417.20	-3,114.29	-591.78	14,427,881.39	1,687,978.25	39.728404	-80.830837	
8,100.00	89.00	149.97	6,418.94	-3,200.85	-541.74	14,427,794.83	1,688,028.29	39.728166	-80.830659	
8,200.00	89.00	149.97	6,420.68	-3,287.41	-491.70	14,427,708.27	1,688,078.33	39.727928	-80.830482	
8,300.00	89.00	149.97	6,422.42	-3,373.98	-441.66	14,427,621.71	1,688,128.37	39.727690	-80.830304	
8,400.00	89.00	149.97	6,424.15	-3,460.54	-391.61	14,427,535.15	1,688,178.42	39.727452	-80.830127	
8,500.00	89.00	149.97	6,425.89	-3,547.10	-341.57	14,427,448.59	1,688,228.46	39.727214	-80.829950	
8,600.00	89.00	149.97	6,427.63	-3,633.66	-291.53	14,427,362.03	1,688,278.50	39.726976	-80.829772	
8,700.00	89.00	149.97	6,429.37	-3,720.22	-241.49	14,427,275.47	1,688,328.54	39.726738	-80.829595	
8,800.00	89.00	149.97	6,431.11	-3,806.78	-191.45	14,427,188.90	1,688,378.58	39.726500	-80.829417	
8,900.00	89.00	149.97	6,432.85	-3,893.34	-141.41	14,427,102.34	1,688,428.62	39.726262	-80.829240	
9,000.00	89.00	149.97	6,434.58	-3,979.90	-91.37	14,427,015.78	1,688,478.66	39.726024	-80.829063	
9,100.00	89.00	149.97	6,436.32	-4,066.46	-41.32	14,426,929.22	1,688,528.71	39.725786	-80.828885	
9,200.00	89.00	149.97	6,438.06	-4,153.03	8.72	14,426,842.66	1,688,578.75	39.725548	-80.828708	
9,300.00	89.00	149.97	6,439.80	-4,239.59	58.76	14,426,756.10	1,688,628.79	39.725310	-80.828531	
9,400.00	89.00	149.97	6,441.54	-4,326.15	108.80	14,426,669.54	1,688,678.83	39.725072	-80.828353	
9,500.00	89.00	149.97	6,443.28	-4,412.71	158.84	14,426,582.98	1,688,728.87	39.724834	-80.828176	

03/12/2021



Planning Report - Geographic

4705102202

Database:	DB_Dec2220_v16	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:	rev4		

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Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,600.00	89.00	149.97	6,445.01	-4,499.27	208.88	14,426,496.42	1,688,778.91	39.724596	-80.827998	
9,700.00	89.00	149.97	6,446.75	-4,585.83	258.92	14,426,409.85	1,688,828.95	39.724358	-80.827821	
9,800.00	89.00	149.97	6,448.49	-4,672.39	308.97	14,426,323.29	1,688,879.00	39.724120	-80.827644	
9,900.00	89.00	149.97	6,450.23	-4,758.95	359.01	14,426,236.73	1,688,929.04	39.723882	-80.827466	
10,000.00	89.00	149.97	6,451.97	-4,845.52	409.05	14,426,150.17	1,688,979.08	39.723644	-80.827289	
10,100.00	89.00	149.97	6,453.71	-4,932.08	459.09	14,426,063.61	1,689,029.12	39.723406	-80.827111	
10,200.00	89.00	149.97	6,455.44	-5,018.64	509.13	14,425,977.05	1,689,079.16	39.723168	-80.826934	
10,300.00	89.00	149.97	6,457.18	-5,105.20	559.17	14,425,890.49	1,689,129.20	39.722930	-80.826757	
10,400.00	89.00	149.97	6,458.92	-5,191.76	609.21	14,425,803.93	1,689,179.24	39.722692	-80.826579	
10,500.00	89.00	149.97	6,460.66	-5,278.32	659.26	14,425,717.37	1,689,229.29	39.722454	-80.826402	
10,600.00	89.00	149.97	6,462.40	-5,364.88	709.30	14,425,630.80	1,689,279.33	39.722216	-80.826225	
10,700.00	89.00	149.97	6,464.14	-5,451.44	759.34	14,425,544.24	1,689,329.37	39.721978	-80.826047	
10,800.00	89.00	149.97	6,465.87	-5,538.00	809.38	14,425,457.68	1,689,379.41	39.721740	-80.825870	
10,900.00	89.00	149.97	6,467.61	-5,624.57	859.42	14,425,371.12	1,689,429.45	39.721502	-80.825692	
11,000.00	89.00	149.97	6,469.35	-5,711.13	909.46	14,425,284.56	1,689,479.49	39.721264	-80.825515	
11,100.00	89.00	149.97	6,471.09	-5,797.69	959.50	14,425,198.00	1,689,529.53	39.721026	-80.825338	
11,200.00	89.00	149.97	6,472.83	-5,884.25	1,009.55	14,425,111.44	1,689,579.58	39.720788	-80.825160	
11,300.00	89.00	149.97	6,474.57	-5,970.81	1,059.59	14,425,024.88	1,689,629.62	39.720550	-80.824983	
11,400.00	89.00	149.97	6,476.30	-6,057.37	1,109.63	14,424,938.31	1,689,679.66	39.720312	-80.824806	
11,500.00	89.00	149.97	6,478.04	-6,143.93	1,159.67	14,424,851.75	1,689,729.70	39.720074	-80.824628	
11,600.00	89.00	149.97	6,479.78	-6,230.49	1,209.71	14,424,765.19	1,689,779.74	39.719836	-80.824451	
11,700.00	89.00	149.97	6,481.52	-6,317.05	1,259.75	14,424,678.63	1,689,829.78	39.719598	-80.824274	
11,800.00	89.00	149.97	6,483.26	-6,403.62	1,309.79	14,424,592.07	1,689,879.82	39.719360	-80.824096	
11,900.00	89.00	149.97	6,484.99	-6,490.18	1,359.84	14,424,505.51	1,689,929.87	39.719122	-80.823919	
12,000.00	89.00	149.97	6,486.73	-6,576.74	1,409.88	14,424,418.95	1,689,979.91	39.718884	-80.823742	
12,100.00	89.00	149.97	6,488.47	-6,663.30	1,459.92	14,424,332.39	1,690,029.95	39.718646	-80.823564	
12,200.00	89.00	149.97	6,490.21	-6,749.86	1,509.96	14,424,245.83	1,690,079.99	39.718408	-80.823387	
12,300.00	89.00	149.97	6,491.95	-6,836.42	1,560.00	14,424,159.27	1,690,130.03	39.718170	-80.823209	
12,400.00	89.00	149.97	6,493.69	-6,922.98	1,610.04	14,424,072.70	1,690,180.07	39.717932	-80.823032	
12,500.00	89.00	149.97	6,495.42	-7,009.54	1,660.08	14,423,986.14	1,690,230.11	39.717694	-80.822855	
12,600.00	89.00	149.97	6,497.16	-7,096.11	1,710.13	14,423,899.58	1,690,280.16	39.717456	-80.822677	
12,700.00	89.00	149.97	6,498.90	-7,182.67	1,760.17	14,423,813.02	1,690,330.20	39.717218	-80.822500	
12,800.00	89.00	149.97	6,500.64	-7,269.23	1,810.21	14,423,726.46	1,690,380.24	39.716980	-80.822323	
12,900.00	89.00	149.97	6,502.38	-7,355.79	1,860.25	14,423,639.90	1,690,430.28	39.716742	-80.822145	
13,000.00	89.00	149.97	6,504.12	-7,442.35	1,910.29	14,423,553.34	1,690,480.32	39.716504	-80.821968	
13,100.00	89.00	149.97	6,505.85	-7,528.91	1,960.33	14,423,466.77	1,690,530.36	39.716266	-80.821791	
13,200.00	89.00	149.97	6,507.59	-7,615.47	2,010.37	14,423,380.21	1,690,580.40	39.716028	-80.821613	
13,300.00	89.00	149.97	6,509.33	-7,702.03	2,060.42	14,423,293.65	1,690,630.45	39.715790	-80.821436	
13,400.00	89.00	149.97	6,511.07	-7,788.59	2,110.46	14,423,207.09	1,690,680.49	39.715552	-80.821259	
13,500.00	89.00	149.97	6,512.81	-7,875.16	2,160.50	14,423,120.53	1,690,730.53	39.715314	-80.821081	
13,600.00	89.00	149.97	6,514.55	-7,961.72	2,210.54	14,423,033.97	1,690,780.57	39.715076	-80.820904	
13,700.00	89.00	149.97	6,516.28	-8,048.28	2,260.58	14,422,947.41	1,690,830.61	39.714838	-80.820727	
13,800.00	89.00	149.97	6,518.02	-8,134.84	2,310.62	14,422,860.85	1,690,880.65	39.714600	-80.820549	
13,900.00	89.00	149.97	6,519.76	-8,221.40	2,360.66	14,422,774.29	1,690,930.69	39.714362	-80.820372	
14,000.00	89.00	149.97	6,521.50	-8,307.96	2,410.71	14,422,687.72	1,690,980.74	39.714124	-80.820195	
14,100.00	89.00	149.97	6,523.24	-8,394.52	2,460.75	14,422,601.16	1,691,030.78	39.713886	-80.820017	
14,200.00	89.00	149.97	6,524.98	-8,481.08	2,510.79	14,422,514.60	1,691,080.82	39.713648	-80.819840	
14,300.00	89.00	149.97	6,526.71	-8,567.65	2,560.83	14,422,428.04	1,691,130.86	39.713410	-80.819663	
14,400.00	89.00	149.97	6,528.45	-8,654.21	2,610.87	14,422,341.48	1,691,180.90	39.713172	-80.819485	
14,500.00	89.00	149.97	6,530.19	-8,740.77	2,660.91	14,422,254.92	1,691,230.94	39.712934	-80.819308	
14,600.00	89.00	149.97	6,531.93	-8,827.33	2,710.95	14,422,168.36	1,691,280.98	39.712696	-80.819131	
14,700.00	89.00	149.97	6,533.67	-8,913.89	2,761.00	14,422,081.80	1,691,331.02	39.712458	-80.818953	
14,800.00	89.00	149.97	6,535.41	-9,000.45	2,811.04	14,421,995.23	1,691,381.07	39.712220	-80.818776	
14,900.00	89.00	149.97	6,537.14	-9,087.01	2,861.08	14,421,908.67	1,691,431.11	39.711982	-80.818599	
15,000.00	89.00	149.97	6,538.88	-9,173.57	2,911.12	14,421,822.11	1,691,481.15	39.711744	-80.818421	

03/12/2021



Planning Report - Geographic

Database:	DB_Dec2220_v16	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:	rev4		

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Office of Oil and Gas

FEB 25 2021

WV Department of
Environmental Protection

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,100.00	89.00	149.97	6,540.62	-9,260.13	2,961.16	14,421,735.55	1,691,531.19	39.711506	-80.818244	
15,200.00	89.00	149.97	6,542.36	-9,346.70	3,011.20	14,421,648.99	1,691,581.23	39.711268	-80.818067	
15,300.00	89.00	149.97	6,544.10	-9,433.26	3,061.24	14,421,562.43	1,691,631.27	39.711030	-80.817890	
15,400.00	89.00	149.97	6,545.84	-9,519.82	3,111.29	14,421,475.87	1,691,681.31	39.710792	-80.817712	
15,500.00	89.00	149.97	6,547.57	-9,606.38	3,161.33	14,421,389.31	1,691,731.36	39.710554	-80.817535	
15,600.00	89.00	149.97	6,549.31	-9,692.94	3,211.37	14,421,302.75	1,691,781.40	39.710316	-80.817358	
15,700.00	89.00	149.97	6,551.05	-9,779.50	3,261.41	14,421,216.18	1,691,831.44	39.710078	-80.817180	
15,800.00	89.00	149.97	6,552.79	-9,866.06	3,311.45	14,421,129.62	1,691,881.48	39.709840	-80.817003	
15,900.00	89.00	149.97	6,554.53	-9,952.62	3,361.49	14,421,043.06	1,691,931.52	39.709602	-80.816826	
16,000.00	89.00	149.97	6,556.26	-10,039.19	3,411.53	14,420,956.50	1,691,981.56	39.709364	-80.816648	
16,100.00	89.00	149.97	6,558.00	-10,125.75	3,461.58	14,420,869.94	1,692,031.60	39.709126	-80.816471	
16,200.00	89.00	149.97	6,559.74	-10,212.31	3,511.62	14,420,783.38	1,692,081.65	39.708888	-80.816294	
16,300.00	89.00	149.97	6,561.48	-10,298.87	3,561.66	14,420,696.82	1,692,131.69	39.708650	-80.816116	
16,400.00	89.00	149.97	6,563.22	-10,385.43	3,611.70	14,420,610.26	1,692,181.73	39.708412	-80.815939	
16,500.00	89.00	149.97	6,564.96	-10,471.99	3,661.74	14,420,523.70	1,692,231.77	39.708174	-80.815762	
16,600.00	89.00	149.97	6,566.69	-10,558.55	3,711.78	14,420,437.13	1,692,281.81	39.707936	-80.815585	
16,700.00	89.00	149.97	6,568.43	-10,645.11	3,761.82	14,420,350.57	1,692,331.85	39.707698	-80.815407	
16,800.00	89.00	149.97	6,570.17	-10,731.67	3,811.87	14,420,264.01	1,692,381.89	39.707460	-80.815230	
16,900.00	89.00	149.97	6,571.91	-10,818.24	3,861.91	14,420,177.45	1,692,431.94	39.707222	-80.815053	
17,000.00	89.00	149.97	6,573.65	-10,904.80	3,911.95	14,420,090.89	1,692,481.98	39.706984	-80.814875	
17,100.00	89.00	149.97	6,575.39	-10,991.36	3,961.99	14,420,004.33	1,692,532.02	39.706746	-80.814698	
17,200.00	89.00	149.97	6,577.12	-11,077.92	4,012.03	14,419,917.77	1,692,582.06	39.706508	-80.814521	
17,300.00	89.00	149.97	6,578.86	-11,164.48	4,062.07	14,419,831.21	1,692,632.10	39.706270	-80.814344	
17,400.00	89.00	149.97	6,580.60	-11,251.04	4,112.11	14,419,744.64	1,692,682.14	39.706032	-80.814166	
17,500.00	89.00	149.97	6,582.34	-11,337.60	4,162.16	14,419,658.08	1,692,732.18	39.705794	-80.813989	
17,600.00	89.00	149.97	6,584.08	-11,424.16	4,212.20	14,419,571.52	1,692,782.23	39.705556	-80.813812	
17,700.00	89.00	149.97	6,585.82	-11,510.72	4,262.24	14,419,484.96	1,692,832.27	39.705318	-80.813634	
17,800.00	89.00	149.97	6,587.55	-11,597.29	4,312.28	14,419,398.40	1,692,882.31	39.705080	-80.813457	
17,900.00	89.00	149.97	6,589.29	-11,683.85	4,362.32	14,419,311.84	1,692,932.35	39.704842	-80.813280	
18,000.00	89.00	149.97	6,591.03	-11,770.41	4,412.36	14,419,225.28	1,692,982.39	39.704604	-80.813103	
18,100.00	89.00	149.97	6,592.77	-11,856.97	4,462.40	14,419,138.72	1,693,032.43	39.704366	-80.812925	
18,200.00	89.00	149.97	6,594.51	-11,943.53	4,512.45	14,419,052.16	1,693,082.47	39.704128	-80.812748	
18,300.00	89.00	149.97	6,596.25	-12,030.09	4,562.49	14,418,965.59	1,693,132.52	39.703890	-80.812571	
18,400.00	89.00	149.97	6,597.98	-12,116.65	4,612.53	14,418,879.03	1,693,182.56	39.703652	-80.812393	
18,500.00	89.00	149.97	6,599.72	-12,203.21	4,662.57	14,418,792.47	1,693,232.60	39.703414	-80.812216	
18,600.00	89.00	149.97	6,601.46	-12,289.78	4,712.61	14,418,705.91	1,693,282.64	39.703176	-80.812039	
18,700.00	89.00	149.97	6,603.20	-12,376.34	4,762.65	14,418,619.35	1,693,332.68	39.702938	-80.811862	
18,800.00	89.00	149.97	6,604.94	-12,462.90	4,812.69	14,418,532.79	1,693,382.72	39.702700	-80.811684	
18,900.00	89.00	149.97	6,606.68	-12,549.46	4,862.74	14,418,446.23	1,693,432.76	39.702462	-80.811507	
19,000.00	89.00	149.97	6,608.41	-12,636.02	4,912.78	14,418,359.67	1,693,482.81	39.702224	-80.811330	
19,100.00	89.00	149.97	6,610.15	-12,722.58	4,962.82	14,418,273.10	1,693,532.85	39.701986	-80.811153	
19,200.00	89.00	149.97	6,611.89	-12,809.14	5,012.86	14,418,186.54	1,693,582.89	39.701748	-80.810975	
19,300.00	89.00	149.97	6,613.63	-12,895.70	5,062.90	14,418,099.98	1,693,632.93	39.701510	-80.810798	
19,400.00	89.00	149.97	6,615.37	-12,982.26	5,112.94	14,418,013.42	1,693,682.97	39.701272	-80.810621	
19,500.00	89.00	149.97	6,617.11	-13,068.83	5,162.98	14,417,926.86	1,693,733.01	39.701034	-80.810443	
19,551.48	89.00	149.97	6,618.00	-13,113.39	5,188.75	14,417,882.30	1,693,758.77	39.700911	-80.810352	

PBHL/TD 19551.48 MD /6618.00 TVD

03/12/2021



Planning Report - Geographic

4705102202

Database:	DB_Dec2220_v16	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:	rev4		

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	0.00	0.01	6,407.55	-2,633.24	-869.78	14,428,362.45	1,687,700.25	39.729726	-80.831822
- plan misses target center by 0.08usft at 7444.31usft MD (6407.54 TVD, -2633.28 N, -869.85 E)									
- Point									
Goudy 1S-11HM BHL r4 - plan hits target center - Point	0.00	0.00	6,618.00	-13,113.39	5,188.75	14,417,882.30	1,693,758.78	39.700911	-80.810352

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	

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	
7,444.33	6,407.54	-2,633.30	-869.84	Begin 89.00° lateral	
19,551.48	6,618.00	-13,113.39	5,188.75	PBHL/TD 19551.48 MD /6618.00 TVD	

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Office of Oil and Gas
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WV Department of
Environmental Protection



Well Site Safety Plan

Tug Hill Operating, LLC

Bary Stollis
1-14-21

Well Name: Goudy 1S-11HM

Pad Location: Goudy Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,398,576.28

Easting: 514,677.18

January 2021

RECEIVED
Office of Oil and Gas
FEB 25 2021
WV Department of
Environmental Protection

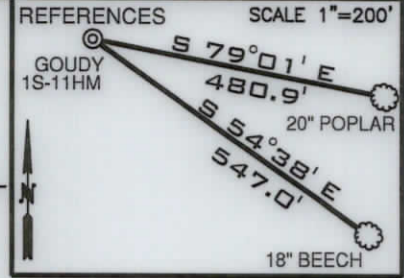
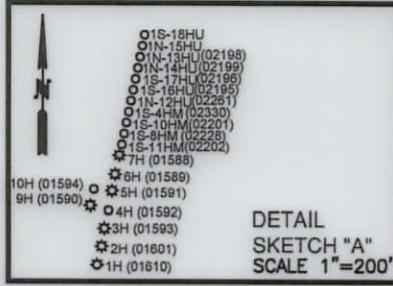
03/12/2021

form: wv6

**GOUDY LEASE
WELL 1S-11HM
592.0527± ACRES**

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

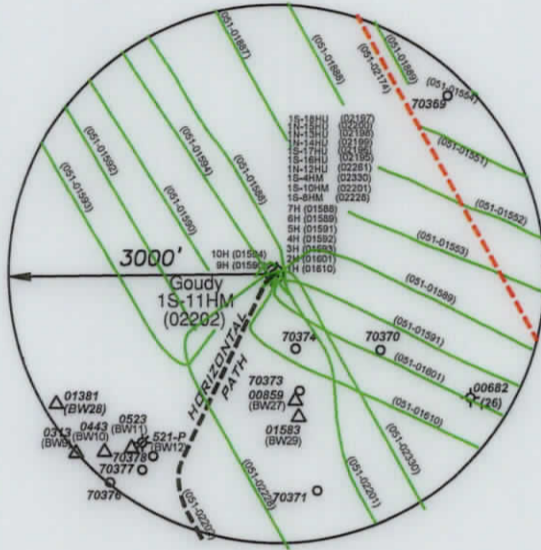
LINE	BEARING	DISTANCE
L1	N 11°40' W	2299.54'
L2	S 53°14' E	1746.21'
L3	S 45°58' W	117.71'
L4	S 25°05' W	1984.55'



CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 27°52' W	167.72'	1,010.95'	167.91'
C2	S 09°03' W	206.69'	418.85'	208.84'
C3	S 17°36' E	406.85'	920.92'	410.23'



**Detail "A"
SCALE 1"=1000'**



- 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 AUGUST, 2020. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0056304.0401147

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

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) 4,397,773.65
E) 514,412.05

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,395,579.31
E) 516,258.71

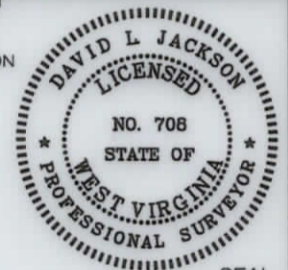
FILE NUMBER _____
DRAWING NUMBER GOUDY_1S-11HM_REV4
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING GRADE GPS

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



SEAL

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

DATE: AUGUST 20, 2020
REVISED: FEBRUARY 02, 2021
OPERATORS WELL NO. GOUDY 1S-11HM
API WELL NO. 47-051-02202
STATE WV COUNTY MARSHALL PERMIT 02202

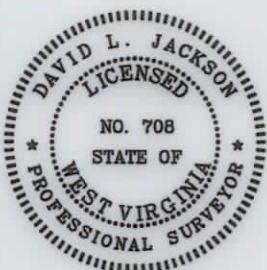
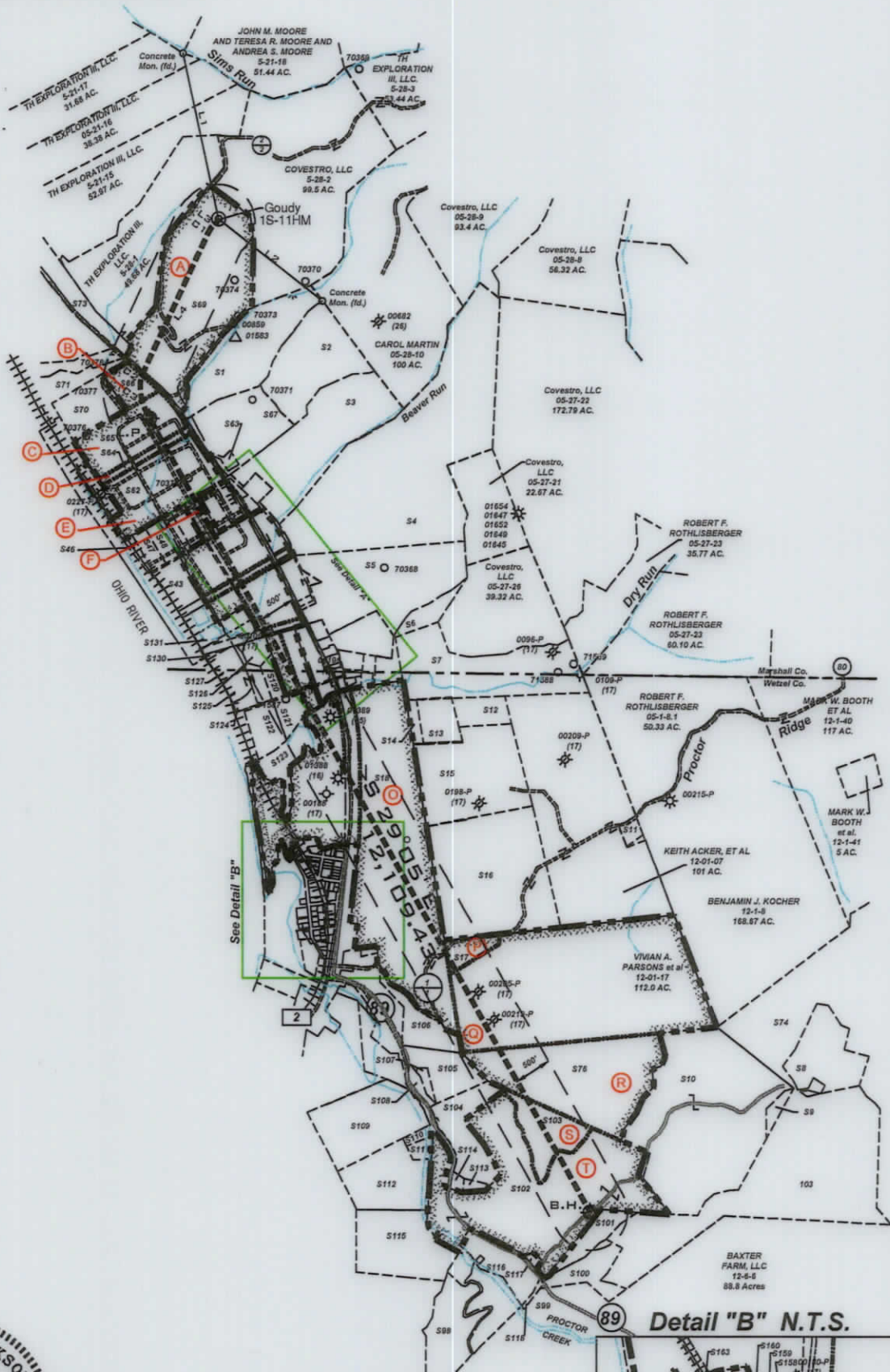
WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION ELEVATION 1242.0' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER TH EXPLORATION III, LLC. ACREAGE 70.0
OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC., ET AL. THEIR SUCCESSORS OR ASSIGNS 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: 19,551'
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

03/12/2021

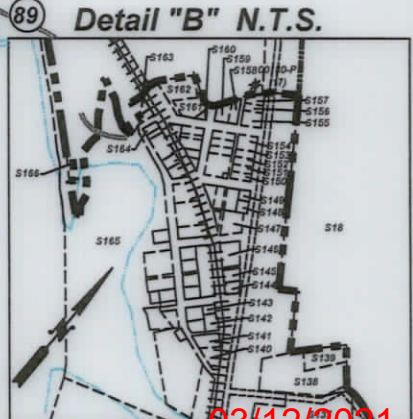
COUNTY NAME PERMIT

PG 2 OF 4 **GOUDY LEASE**
WELL 1S-11HM
592.0527± ACRES



Scale
1" = 2000'

LEGEND	
	LEASED TRACTS
	SURFACE TRACTS
	WELL LATERAL
	POINT PLEASANT LEGS
	MARCELLES LEGS
	UNIT BOUNDARY
	LEASE # (SEE 6A1 FORM)



P.S. 708 *David L Jackson*

03/12/2021



TUG HILL
OPERATING

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

WELL PLAT
PAGE 2 OF 4
DATE: 08/20/20120
REVISED: 02/02/2021

PG 3 OF 4 **GOUDY LEASE**
WELL 1S-11HM
592.0527± ACRES

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	12-01-31	Steven Jack & Susan Louise Hafer	20.0
S9	12-01-29	Baxter Farm, LLC	2.0
S10	12-01-28	Steven J. & Susan L. Hafer	88.39
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 Feenerly Harrison	7.8
S14	12-01-02	James Andrew & 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	Donna Jo Cain	0.70
S21	12-23-15.1	Robert F. Rothlisberger	0.47
S22	12-23-13	Donna Jo Cain	0.38
S23	05-27-27.2	Donna Jo Cain	0.1767
S24	05-27-27.1	Donald P. Cain	1.645
S25	05-27-27.3	Donna Jo. Cain	1.018
S26	05-27-28	Covestro, LLC	8.0
S27	12-23-12	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	12-27-44	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
S70	05-28-13.2	Covestro, LLC	11.02
S71	05-28-1.1	Covestro, LLC	5.2217
S72	12-23-14	Robert E. Rothlisberger	0.27
S73	05-21-3.1	Eagle Natrium, LLC	98.613
S74	12-01-19	Steven J. & Susan L. Hafer	36.5
S75	12-01-27	Steven J. & Susan L. Hafer	83.69
S76 R	12-01-18	Travis Darrell Blake & Angela Dawn Mitchell	48.4



P.S. 708 *David L Jackson*

03/12/2021



TUG HILL
OPERATING

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

WELL PLAT
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DATE: 08/20/2020
REVISED: 02/02/2021

PG 4 OF 4 **GOUDY LEASE
WELL 1S-11HM
592.0527± ACRES**

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S98	12-6A-02	Ronald E. McCoy	3.49
S99	12-6A-01	Ronald E. McCoy	6.51
S100	12-06-05	Steven & Susan Louis Hafer	9.0
S101	12-06-04	Steven & Susan Hafer	6.5
S102 T	12-01-27	Steven J. & Susan Hafer	83.69
S103 S	12-01-26	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
S109	12-01-22	William D. Glover	18.84
S110	12-01-23.2	Raymond L. Pribble	0.782
S111	12-01-23	Raymond L. Pribble	1.55
S112	12-01-23.1	RHL Properties, LLC	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
S137	12-01-1.2	West Virginia Dept. of Transportation	0.27
S138	12-22-59	Kenneth R. Morris	2.00
S139	12-22-60	Franklin W. & Barabara 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	Kenneth R. Morris	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



P.S. 708 *David L Jackson*

03/12/2021



TUG HILL
OPERATING

OPERATOR'S
WELL #: Goudy 1S-11HM
DISTRICT: Franklin
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REVISED: 02/02/2021

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
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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. Morris *Amy L. Morris*
 Its: Permitting Specialist - Appalachia Region

Lease ID	TMP	Tag	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	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	Memorandum of Operating Agreement between TH Exploration LLC and Atinum Marcellus I LLC & TH Exploration II LLC: 34/277	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	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	Memorandum of Operating Agreement between TH Exploration LLC and Atinum Marcellus I LLC & TH Exploration II LLC: 34/277	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
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
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
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
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
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
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
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
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	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	Memorandum of Operating Agreement between TH Exploration LLC and Atinum Marcellus I LLC & TH Exploration II LLC: 34/277	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
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
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
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 Inc: 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	JACK L 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 Inc: 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	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 Inc: 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
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
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
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
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
10*23524	12-1-17	Q	HAMMETT LAND & MINERALS LLC	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
10*23525	12-1-17	Q	HAMMETT LAND & MINERALS LLC	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
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
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
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
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
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
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
10*21141	12-1-18	R	SHARON S ANDREWS AND GERARD S ANDREWS	TH EXPLORATION LLC	1/8+	200A 443	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*21366	12-1-18	R	BONNIE BOLDEN	TH EXPLORATION LLC	1/8+	201A 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
10*21672	12-1-18	R	VICKIE L BOLDEN	TH EXPLORATION LLC	1/8+	201A 436	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*21676	12-1-18	R	CLAUDIA R SCHEEHLE	TH EXPLORATION LLC	1/8+	212A 66	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*21677	12-1-18	R	SHARON E YOHO	TH EXPLORATION LLC	1/8+	209A 257	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*21682	12-1-18	R	CHARLES ROBERT MYERS	TH EXPLORATION LLC	1/8+	219A 268	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*21683	12-1-18	R	RICHARD S WHITE II	TH EXPLORATION LLC	1/8+	210a 173	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

Lease ID	TMP	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*21684	12-1-18	R	SHIRLEY DORSEY	TH EXPLORATION LLC	1/8+	201A	430	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*21692	12-1-18	R	GREGG D MINOR	TH EXPLORATION LLC	1/8+	201a	421	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*21697	12-1-18	R	CONNIE SIMS	TH EXPLORATION LLC	1/8+	214A	364	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*21699	12-1-18	R	PATRICIA M LEHR	TH EXPLORATION LLC	1/8+	212A	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*21700	12-1-18	R	NANCY SELLERS	TH EXPLORATION LLC	1/8+	213A	408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22067	12-1-18	R	SHIRLEY K WHITE	TH EXPLORATION LLC	1/8+	212A	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22069	12-1-18	R	RUTH ANN SHINGLETON	TH EXPLORATION LLC	1/8+	210A	170	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22071	12-1-18	R	SALLY BROKKEN AND TOM BROKKEN	TH EXPLORATION LLC	1/8+	202A	820	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22072	12-1-18	R	HAROLD E SELLERS	TH EXPLORATION LLC	1/8+	213A	682	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22081	12-1-18	R	ROBERT J WITTMAN FIVE STAR RESOURCES	TH EXPLORATION LLC	1/8+	202A	816	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22204	12-1-18	R	JAMES A MAIBACH & MELISSA F MAIBACH	TH EXPLORATION LLC	1/8+	216A	169	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22211	12-1-18	R	DENVER J MINOR GREGG D MINOR TRUSTEE	TH EXPLORATION LLC	1/8+	202A	798	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*22231	12-1-18	R	MARILYN SLATER	TH EXPLORATION LLC	1/8+	204A	144	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*23038	12-1-18	R	SHIRLEY JAINE MILLIKEN	TH EXPLORATION LLC	1/8+	220A	280	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*23044	12-1-18	R	DONNA R WOLFE AND DWIGHT WOLFE	TH EXPLORATION LLC	1/8+	204A	160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*23344	12-1-18	R	JEFFREY S MAIBACH	TH EXPLORATION LLC	1/8+	214A	678	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*23346	12-1-18	R	EMILY B MORRIS	TH EXPLORATION LLC	1/8+	214A	682	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*23671	12-1-18	R	BETTY JEAN FLANAGAN	TH EXPLORATION LLC	1/8+	212A	846	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*24021	12-1-18	R	KELLI PAGE MARTI	TH EXPLORATION LLC	1/8+	215A	884	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*24081	12-1-18	R	DON MATTHEW PAGE	TH EXPLORATION LLC	1/8+	216A	401	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*24318	12-1-18	R	LORI PAGE ESBORN AND MICHAEL ESBORN	TH EXPLORATION LLC	1/8+	217A	164	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*24356	12-1-18	R	BEATRICE TORRES	TH EXPLORATION LLC	1/8+	218A	179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10*24538	12-1-18	R	BRC MINERALS, LP	BRC WORKING INTEREST COMPANY LLC	1/8+	103A	320	N/A	N/A	N/A	BRC Working Interest Company LLC to Chesapeake Appalachia LLC: 103A/470	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 120A/109	Chesapeake Appalachia LLC to SWN Production Company: 157A/540	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 158A/801	SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: 13/296	SWN Production Company LLC to Antero Exchange Properties LLC: 177A/533	Statoil USA Onshore Properties Inc to Antero Exchange Properties LLC: 177A/738	Antero Exchange Properties LLC merged with and into Antero Resources Corporation: 13/311	Antero Resources Corporation to TH Exploration LLC: 256A/812	
10*25516	12-1-18	R	GOLDEN EAGLE RESOURCES II LLC	AMERICAN PETROLEUM PARTNERS LLC	1/8+	215A	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	American Petroleum Partners LLC to TH Exploration LLC: 224A/459	
10*26681	12-1-18	R	DENVER J MINOR GREGG D MINOR TRUSTEE	TH EXPLORATION LLC	1/8+	225A	495	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	12-1-26	S	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	
PENDING	12-1-26	S	BRC APPALACHIAN MINERALS I LLC & BRC MINERALS LP	BRC WORKING INTEREST COMPANY LLC	1/8+	102A 103A	505 320				BRC Working Interest Company LLC to Chesapeake Appalachia LLC: 103A/470	Chesapeake Appalachia LLC to Statoil Onshore Properties Inc: 120A/109	Chesapeake Appalachia LLC to SWN Production Company LLC: 157A/540	Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC: 158A/801	SWN Exchange Titleholder LLC merged with and into SWN Production Company LLC: CB 13/296	SWN Production Company LLC to Antero Exchange Properties LLC: 177A/533	Statoil USA Onshore Properties Inc to Antero Exchange Properties LLC: 177A/738	Antero Exchange Properties LLC merged with and into Antero Resources Corporation: CB 13/311	Antero Resources Corporation to EQT Production Company: 231A/22**	
10*23006	12-1-27	T	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	
PENDING	12-1-27	T	ROBERT W WOODS ET AL	CLAY RESOURCES INC	1/8+	69A	681	N/A			Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 71A/404	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 Inc: 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 Corporation to EQT Production Company: 183A/305**
PENDING	12-1-27	T	MOBAY CHEMICAL CORPORATION	CLAY RESOURCES INC	1/8+	69A	677	N/A			Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 71A/404	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 Inc: 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 Corporation to EQT Production Company: 183A/305**
PENDING	12-1-27	T	LYNN VAN CAMP ET AL	CLAY RESOURCES INC	1/8+	69A	683	N/A			Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 71A/404	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 Inc: 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 Corporation to EQT Production Company: 183A/305**
PENDING	12-1-27	T	MICHELE A POWELL	CLAY RESOURCES INC	1/8+	69A	679	N/A			Murvin Oil Co, Conord O&G Corp, & American Ridge O&G Inc to Applied Mechanics Corp: 71A/404	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 Inc: 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 Corporation to EQT Production Company: 183A/305**

**Permitting Agreement with EQT Production Company

Kees, Kelly L

From: Kees, Kelly L
Sent: Wednesday, March 10, 2021 2:18 PM
To: Amy Morris
Cc: Brewer, Charles T; Stansberry, Wade A; Stollings, Barry W
Subject: Expedited Modification - Well Work Permit (API: 47-051-02202)
Attachments: 51-02202 SSP_Goudy 1S-11HM.pdf; 51-02202 mod_1.pdf

I have attached a copy of the newly issued modification to number "GOUDY 1S-11HM" (API 47-051-02202) This will serve as your copy. If you have any questions, then please contact us here at the Office of Oil and Gas.