

WV Department of
Environmental Protection

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

JUL 28 2020

RECEIVED
Office of Oil and Gas

9

API 47-051-02147 County Marshall District Franklin
Quad Powhatan Point 7.5' Pad Name Woodford Field/Pool Name _____
Farm name CNX RPCPC, LLC Well Number Woodford 8HU
Operator (as registered with the OOG) Tug Hill Operating, LLC
Address 380 Southpointe Boulevard, Plaza II, Suite 200 City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,406,047.12 Easting 516,096.42
Landing Point of Curve Northing 4,406,297.04 Easting 515,979.51
Bottom Hole Northing 4,404,419.65 Easting 517,068.06

Elevation (ft) 1237.61' GL _____ Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____

Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary
Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s) _____
SOBM; Base oil, osmotic inhibitor, weighting agent, viscosifier, emulsifier, hardness buffer, fluid loss additive, LCM,
Shale inhibitor, de-foamer, soaping agent, coagulant, flocculant; specific additives per WSSP and Permit.

Date permit issued 3/11/2019 Date drilling commenced 6/16/2019 Date drilling ceased 11/2/2019
Date completion activities began 12/22/2019 Date completion activities ceased 1/12/2020
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 838' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 734-740', 832-838' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: *Juanita Shelton*
8/12/2020

API 47-051 - 02147 Farm name CNX RCPC, LLC Well number Woodford 8HU

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	36"	30"	120'	NEW	94.5#	N/A	Y
Surface	26"	20"	940'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,776'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	10,086'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 3/4"	5 1/2"	18,791'	NEW	20#	N/A	Y
Tubing		2 7/8"	9,396'	NEW	4.7#	N/A	
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1584	15.6	1.19	1979	0	8
Coal						0	8
Intermediate 1	A	1958	15.6	1.19	2578	0	8
Intermediate 2	A	3555	14.5	1.19	4142	0	8
Intermediate 3							
Production	A	4191	14.5	1.17	4693	0	8
Tubing							

Drillers TD (ft) 18,814'

Deepest formation penetrated Trenton

Plug back procedure n/a

Loggers TD (ft) n/a

Plug back to (ft) n/a

Kick off depth (ft) 10,195'

Check all wireline logs run caliper density deviated/directional induction neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING 3 centralizers on surface casing at equal distance.

Intermediate - 1 centralizer every other joint.

Production - one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 051 - 02147 Farm name CNX RCPC, LLC Well number Woodford 8HU

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	see attached				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbbls)	Amount of Nitrogen/other (units)
	attached							

Please insert additional pages as applicable.

API 47- 051 - 02147 Farm name CNX RCPC, LLC Well number Woodford 8HU

PRODUCING FORMATION(S) DEPTHS

POINT PLEASANT 10971' - 11066' TVD 11564' - 18814' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow Flow Pump
 SHUT-IN PRESSURE Surface 8000 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs
 OPEN FLOW Gas 500 mcfpd 0 bpd Oil 0 bpd NGL _____ bpd Water 550 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DEPTH IN FT		DEPTH IN FT		DEPTH IN FT		TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	NAME	TVD	TVD	MD	MD	MD	MD	MD	MD		
see attached	0		0								

Please insert additional pages as applicable.

Drilling Contractor Nabors Drilling USA
 Address 505 West Greens Road, Suite 1000 City Houston State TX Zip 77067

Logging Company n/a
 Address _____ City _____ State _____ Zip _____

Cementing Company Halliburton Energy Services, Inc.
 Address 121 Champion Way, Suite 200 City Canonsburg State PA Zip 15317

Stimulating Company PRO-FRAC
 Address 333 Shops Boulevard City Willow Park State TX Zip 76087

Please insert additional pages as applicable.

Completed by Amy L. Miller Telephone 304-376-0111
 Signature Amy L. Miller Title Permitting Specialist Date 7/17/2020

**WOODFORD 8HU
LITHOLOGY INFORMATION**

LITHOLOGY/FORMATION	TOP DEPTH IN FT/ Name TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID
	2027	2115	2027	2115	
Maxton	2027	2115	2027	2115	Sandstone
Big Lime	2115	2157	2115	2157	Limestone
Big Injun	2157	2503	2157	2503	Sandstone
Weir	2503	2629	2503	2629	Sandstone
Berea	2629	2852	2629	2852	Sandstone
Gordon	2852	2899	2852	2899	Sandstone
Fifty Foot	2899	3459	2899	3459	Sandstone
Speechley	3459	4831	3459	4864	Sandstone
Benson	4831	5200	4864	5249	Sandstone
Alexander	5200	5821	5249	5894	Siltstone
Rhinestreet	5821	6178	5894	6265	Black shale
Middlesex	6178	6202	6265	6290	Black shale
Geneseo/Burkett	6202	6287	6290	6378	Black shale
Tully	6287	6312	6378	6404	Limestone
Hamilton	6312	6348	6404	6441	Grey shale
Marcellus	6348	6402	6441	6497	Black shale
Onondagaga	6402	6624	6497	6726	Limestone
Oriskany	6624	6723	6726	6828	Sandstone
Heidelberg	6723	7076	6828	7196	Limestone
Salina	7076	8077	7196	8234	Salt/Anhydrite/LS
Lockport	8077	8436	8234	8607	Dolomite
Rose Hill	8436	8695	8607	8879	Shale
Packer Shell	8695	8891	8879	9082	Limestone
CClinton/Tuscarora	8891	8993	9082	9188	Sandstone
Junata/Queenston	8993	9748	9188	9972	Red Shale
Reedsville	9748	10985	9972	10684	Grey Shale
Utica	10985	11418	10684	10930	Black Shale
Point Pleasant	11418	-	10930	-	Shale/Limestone

Woodford 8HU

STIMULATION INFORMATION PER STAGE

Stage No.	Ave. Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	89.8	11600	8745	7132	439640	9357	0
2	87.2	11450	8532	7497	445240	9693	0
3	89.8	11589	8291	6696	437790	9163	0
4	87.9	11474	8539	7431	445660	9327	0
5	90.6	10948	8623	7973	446820	9196	0
6	89.4	10988	8575	7739	443200	9034	0
7	91	11183	8626	7796	438460	9120	0
8	90.5	11176	8318	7605	438680	9256	0
9	88.3	11014	8644	7880	439920	9370	0
10	85.6	10775	8612	7877	418720	9031	0
11	86.5	10950	8401	7730	442340	9050	0
12	89.2	11865	8157	7228	444680	9248	0
13	90.4	11825	8060	7568	440040	9037	0
14	85.9	11914	7945	7214	439460	9066	0
15	87.8	11089	8052	7636	439740	9201	0
16	89.9	10462	8474	7994	440180	9125	0
17	89.7	10587	8211	7707	442380	9037	0
18	90.2	10663	7740	8497	439800	9100	0
19	90.2	10711	7598	7666	439720	9028	0
20	89.7	10602	7685	7427	441700	9082	0
21	90	10389	8523	7009	440120	9175	0
22	90.3	10451	8310	7524	440500	9098	0
23	89.7	10422	8075	7647	446160	9001	0
24	90.6	10531	7282	8194	440800	9230	0
25	89.9	11937	7306	7475	440560	9426	0
26	88.1	11233	7549	7132	443540	9198	0
27	87.4	11832	6963	7215	443000	9016	0
28	86.7	11716	6932	6830	439920	8946	0
29	88.6	11092	7936	7538	439041	8623	0
30	89.5	10473	7034	7529	441800	9073	0
31	90.1	9948	7205	7391	432120	8958	0
32	89.8	9985	7377	6995	438680	8929	0

33	89.4	10987	10197	7530	433440	10100	0
34	88.9	11460	7538	7454	442900	8998	0
35	90.3	11076	8374	7974	440600	8845	0
36	90.5	10061	7640	8217	440360	8897	0
37	90.5	10042	8816	7838	442380	9098	0
38	90	10064	8799	8175	442260	8903	0
39	90.3	9998	9403	8297	440540	8861	0
40	90.2	10116	9031	7949	440880	8794	0

**Woodford 8HU
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	12/22/2019	18408	18555	48	Utica
2	12/22/2019	18233	18380	48	Utica
3	12/23/2019	18058	18205	48	Utica
4	12/28/2019	17882	18029	48	Utica
5	12/28/2019	17707	17854	48	Utica
6	12/28/2019	17532	17679	48	Utica
7	12/29/2019	17357	17504	48	Utica
8	12/29/2019	17182	17329	48	Utica
9	12/29/2019	17006	17153	48	Utica
10	12/30/2019	16831	16978	48	Utica
11	12/30/2019	16656	16803	48	Utica
12	12/30/2019	16481	16628	48	Utica
13	12/31/2019	16306	16453	48	Utica
14	12/31/2019	16130	16277	48	Utica
15	12/31/2019	15955	16102	48	Utica
16	1/1/2020	15780	15927	48	Utica
17	1/1/2020	15605	15752	48	Utica
18	1/1/2020	15430	15577	48	Utica
19	1/2/2020	15254	15401	48	Utica
20	1/2/2020	15079	15226	48	Utica
21	1/2/2020	14904	15051	48	Utica
22	1/3/2020	14729	14876	48	Utica
23	1/3/2020	14554	14701	48	Utica
24	1/3/2020	14378	14525	48	Utica
25	1/3/2020	14203	14350	48	Utica
26	1/4/2020	14028	14175	48	Utica
27	1/4/2020	13853	14000	48	Utica
28	1/4/2020	13678	13825	48	Utica
29	1/6/2020	13502	13649	48	Utica
30	1/7/2020	13327	13474	48	Utica
31	1/7/2020	13152	13299	48	Utica
32	1/8/2020	12977	13124	48	Utica
33	1/9/2020	12802	12949	48	Utica
34	1/10/2020	12626	12773	48	Utica
35	1/10/2020	12451	12598	48	Utica
36	1/11/2020	12276	12423	48	Utica
37	1/11/2020	12101	12248	48	Utica
38	1/11/2020	11926	12073	48	Utica
39	1/11/2020	11750	11897	48	Utica
40	1/12/2020	11575	11722	48	Utica



Well: Woodford 08HU (H)
Site: Woodford
Project: Marshall County, West Virginia
Design: rev4
Rig: Nabors X08

SECTION

MD	Inc	Azi	TVD	+N-S	+E-W	VSect	Annotation
18876.00	15.80	328.960	9656.16	1448.02	-750.00	0.00	Survey @ 9676.00 MD 9656.16 TVD
10166.00	15.80	328.960	9854.45	1520.34	-793.53	0.00	KOP Begin 8°1'00" build/turn
10914.64	42.49	148.257	10633.23	1384.09	-707.67	8.00	KOP Begin 42.49° tangent
11070.71	42.49	148.257	10748.30	1294.44	-652.20	0.00	Begin 8°1'00" build/turn
11652.36	89.00	150.000	10980.75	850.89	-388.82	8.00	Begin 89.00° lateral
18802.36	89.00	150.000	11105.53	-5340.25	3185.64	0.00	PBHLTD 18802.36 MD/11105.53 TVD

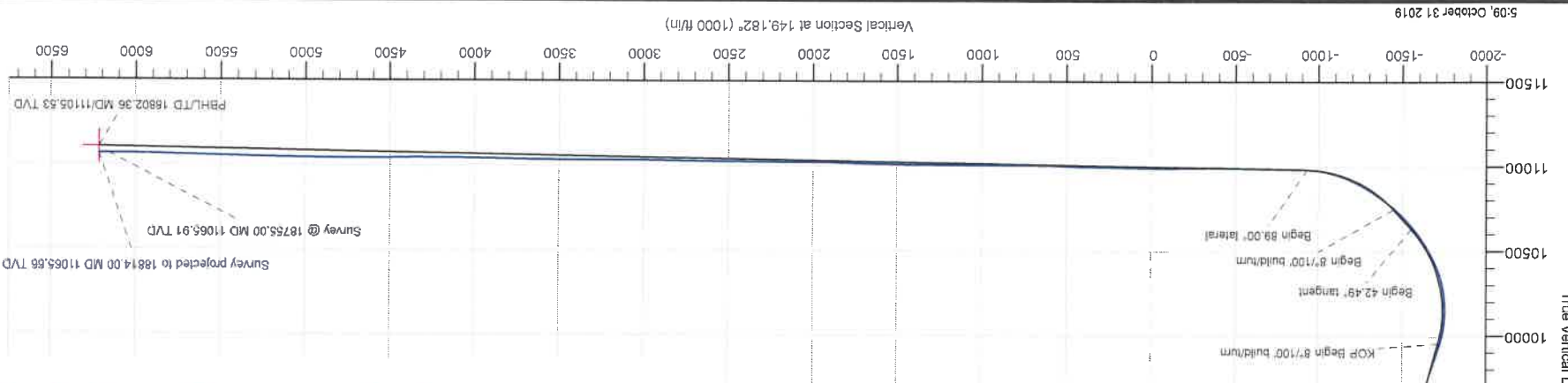
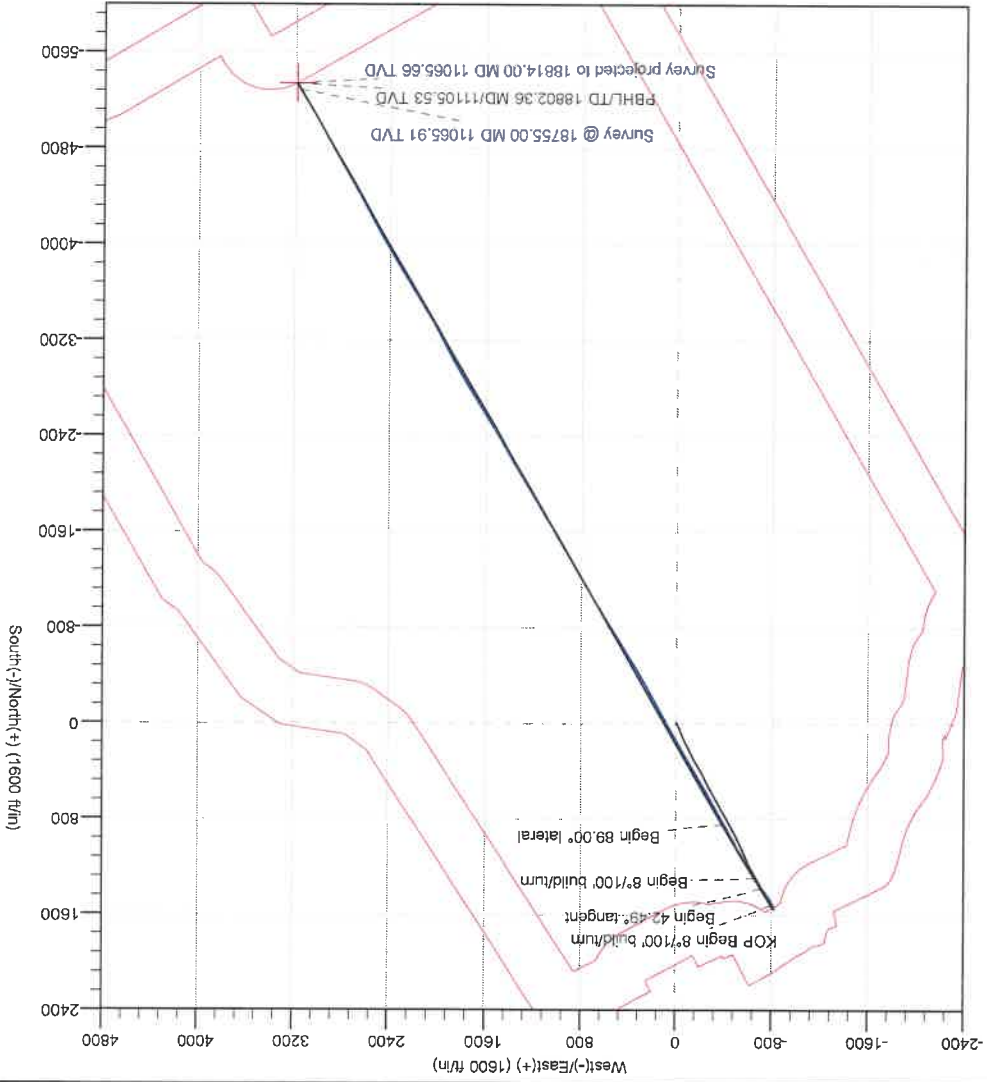
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level
 Depth Reference: RKB=1235+33 @ 1268.00ft (Nabors X08)
 Easting 149455606.31
 Northing 144565606.31
 Longitude -80.81196578
 Latitude 39.80424078
 Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.80°



Azimuths to Grid North
 True North: -0.12°
 Magnetic North: -8.80°
 Magnetic Field
 Strength: 51963.68nT
 Dip Angle: 55.82°
 Date: 6/16/2019
 Model: IGRF2015

MWD surveys
 Survey @ 18755.00 MD 11065.91 TVD
 Survey projected to 18814.00 MD 11065.66 TVD

Annotations
 Survey @ 18755.00 MD 11065.91 TVD
 Survey projected to 18814.00 MD 11065.66 TVD



5:09, October 31 2019



Survey Report - Geographic



Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Woodford 08HU (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1235+33 @ 1268.00ft (Nabors X08)
Site:	Woodford	MD Reference:	RKB=1235+33 @ 1268.00ft (Nabors X08)
Well:	Woodford 08HU (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Aug1919_v14

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

Site	Woodford		
Site Position:		Latitude:	39.80414597
From:	Lat/Long	Longitude:	-80.81199526
Position Uncertainty:	0.00 ft	Grid Convergence:	0.120 °
		Northing:	14,455,471.78 usft
		Easting:	1,693,217.70 usft
		Slot Radius:	13-3/16 "

Well	Woodford 08HU (H)		
Well Position		Latitude:	39.80424078
		Longitude:	-80.81199578
Position Uncertainty	0.00 ft	Ground Level:	1,235.00 ft
		Northing:	14,455,506.32 usft
		Easting:	1,693,225.91 usft
		Wellhead Elevation:	ft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Dip Angle
	IGRF2015	6/16/2019	66.817
			51,963.63501924
Design	Surveys Original Hole		

Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:		Depth From (TVD) (ft)	+N/-S (ft)
		0.00	0.00
			+E/-W (ft)
			0.00
			Direction (°)
			149.180
			Tie On Depth:
			0.00

Survey Program	From (ft)	To (ft)	Date	Survey (Wellbore)	Tool Name	Description
	209.00	896.00	10/30/2019	MWD surf (Original Hole)	MWD	MWD - Standard
	1,030.00	2,686.00		MWD int (Original Hole)	MWD	MWD - Standard
	2,812.00	18,755.00		MWD (Original Hole)	MWD	MWD - Standard
	18,814.00	18,814.00		Projection (Original Hole)	MWD	MWD - Standard

Survey	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
	0.00	0.00	0.00	0.00	0.00	0.00	14,455,506.32	1,693,225.91	39.80424078	-80.81199578	
	209.00	0.30	133.060	209.00	-0.37	0.40	14,455,505.94	1,693,226.31	39.80423975	-80.81199436	
	MWD surveys										
	254.00	0.32	139.940	254.00	-0.55	0.57	14,455,505.77	1,693,226.47	39.80423927	-80.811996377	
	294.00	0.29	148.340	284.00	-0.68	0.66	14,455,505.64	1,693,226.57	39.80423891	-80.811996343	
	314.00	0.26	149.840	314.00	-0.80	0.73	14,455,505.51	1,693,226.64	39.80423857	-80.811996317	
	344.00	0.14	120.680	344.00	-0.88	0.80	14,455,505.44	1,693,226.71	39.80423836	-80.811996294	
	376.00	0.36	98.240	376.00	-0.91	0.93	14,455,505.40	1,693,226.84	39.80423827	-80.811996246	
	406.00	0.36	144.140	406.00	-1.00	1.08	14,455,505.31	1,693,226.99	39.80423802	-80.811996194	



Survey Report - Geographic



Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Woodford
Well: Woodford 08HU (H)
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Woodford 08HU (H)
 RKB=1235+33 @ 1268.00ft (Nabors X08)
 RKB=1235+33 @ 1268.00ft (Nabors X08)
 Grid
 Minimum Curvature
 DB_Aug1919_v14

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
435.00	0.27	104.520	435.00	-1.10	1.20	14,455,505.22	1,693,227.11	39.80423777	-80.81196151
465.00	0.05	257.450	465.00	-1.12	1.26	14,455,505.20	1,693,227.17	39.80423771	-80.81196131
495.00	0.22	171.350	495.00	-1.18	1.25	14,455,505.14	1,693,227.16	39.80423755	-80.81196133
524.00	0.09	97.000	524.00	-1.23	1.28	14,455,505.08	1,693,227.19	39.80423739	-80.81196122
555.00	0.27	150.930	555.00	-1.30	1.34	14,455,505.02	1,693,227.25	39.80423720	-80.81196101
585.00	0.15	77.680	585.00	-1.35	1.42	14,455,504.96	1,693,227.32	39.80423703	-80.81196075
614.00	0.24	105.840	614.00	-1.36	1.51	14,455,504.95	1,693,227.42	39.80423703	-80.81196041
644.00	0.12	186.260	644.00	-1.41	1.57	14,455,504.91	1,693,227.48	39.80423690	-80.81196021
676.00	0.31	116.870	676.00	-1.48	1.64	14,455,504.83	1,693,227.55	39.80423670	-80.81195994
707.00	0.17	126.560	706.99	-1.55	1.75	14,455,504.77	1,693,227.66	39.80423652	-80.81195955
739.00	0.13	227.790	738.99	-1.60	1.77	14,455,504.66	1,693,227.67	39.80423638	-80.81195951
770.00	0.18	133.250	769.99	-1.66	1.77	14,455,504.66	1,693,227.68	39.80423622	-80.81195947
801.00	0.15	17.930	800.99	-1.65	1.82	14,455,504.66	1,693,227.73	39.80423623	-80.81195930
896.00	0.47	261.440	895.99	-1.59	1.48	14,455,504.72	1,693,227.38	39.80423640	-80.81196054
1,030.00	1.11	263.060	1,029.98	-1.83	-0.36	14,455,504.49	1,693,225.55	39.80423576	-80.81196706
1,080.00	1.08	267.820	1,079.97	-1.91	-1.31	14,455,504.41	1,693,224.60	39.80423555	-80.81197045
1,174.00	0.31	137.590	1,173.97	-2.13	-2.02	14,455,504.19	1,693,223.89	39.80423495	-80.81197300
1,269.00	0.55	97.860	1,268.96	-2.38	-1.40	14,455,503.94	1,693,224.51	39.80423425	-80.81197077
1,364.00	0.39	167.570	1,363.96	-2.76	-0.88	14,455,503.56	1,693,225.03	39.80423321	-80.81196892
1,458.00	0.47	147.110	1,457.96	-3.40	-0.60	14,455,502.92	1,693,225.31	39.80423146	-80.81196793
1,552.00	0.40	222.260	1,551.96	-3.96	-0.61	14,455,502.35	1,693,225.30	39.80422991	-80.81196798
1,647.00	0.63	190.410	1,646.95	-4.72	-0.93	14,455,501.60	1,693,224.98	39.80422782	-80.81196911
1,741.00	0.30	319.160	1,740.95	-5.04	-1.18	14,455,501.27	1,693,224.73	39.80422694	-80.81197002
1,835.00	0.22	350.210	1,834.95	-4.68	-1.37	14,455,501.64	1,693,224.54	39.80422794	-80.81197070
1,930.00	0.09	170.870	1,929.95	-4.57	-1.39	14,455,501.74	1,693,224.52	39.80422823	-80.81197222
2,025.00	0.57	279.890	2,024.95	-4.57	-1.84	14,455,501.75	1,693,224.06	39.80422825	-80.81197238
2,119.00	1.01	272.420	2,118.94	-4.45	-3.13	14,455,502.11	1,693,222.78	39.80422858	-80.81197697
2,213.00	0.58	295.570	2,212.93	-4.21	-4.39	14,455,502.11	1,693,221.52	39.80422925	-80.81198144
2,307.00	0.48	288.010	2,306.93	-3.88	-5.19	14,455,502.43	1,693,220.71	39.80423015	-80.81198430
2,402.00	0.79	61.660	2,401.92	-3.45	-5.00	14,455,502.87	1,693,220.91	39.80423134	-80.81198559
2,496.00	1.35	81.180	2,495.91	-2.97	-3.33	14,455,503.34	1,693,222.58	39.80423264	-80.81197766
2,591.00	0.63	54.000	2,590.89	-2.49	-1.80	14,455,503.82	1,693,224.11	39.80423395	-80.81197222
2,686.00	0.66	354.610	2,685.89	-1.64	-1.43	14,455,504.68	1,693,224.48	39.80423628	-80.81197089
2,812.00	0.74	11.350	2,811.88	-0.12	-1.34	14,455,506.20	1,693,224.57	39.80424046	-80.81197055
2,874.00	1.04	14.150	2,873.87	0.82	-1.12	14,455,507.13	1,693,224.79	39.80424303	-80.81196977
2,969.00	1.08	15.380	2,968.85	2.52	-0.67	14,455,508.83	1,693,225.23	39.80424770	-80.81196816
3,064.00	0.81	353.140	3,063.84	4.05	-0.52	14,455,510.36	1,693,225.39	39.80425190	-80.81196759
3,159.00	0.58	314.210	3,158.84	5.05	-0.94	14,455,511.36	1,693,224.97	39.80425465	-80.81196910
3,253.00	0.81	306.160	3,252.83	5.77	-1.82	14,455,512.09	1,693,224.09	39.80425664	-80.81197222
3,348.00	0.97	311.800	3,347.82	6.70	-2.96	14,455,513.02	1,693,222.95	39.80425921	-80.81197628
3,442.00	1.16	314.820	3,441.80	7.91	-4.23	14,455,514.22	1,693,221.68	39.80426252	-80.81198078
3,540.00	1.11	319.170	3,539.78	9.32	-5.55	14,455,515.64	1,693,220.35	39.80426642	-80.81198549
3,632.00	2.74	322.670	3,631.73	11.75	-7.47	14,455,518.06	1,693,218.44	39.80427308	-80.81199229
3,727.00	4.47	328.900	3,726.53	16.72	-10.76	14,455,523.04	1,693,215.15	39.80428677	-80.81200397
3,822.00	6.35	335.350	3,821.11	24.67	-14.86	14,455,530.98	1,693,211.05	39.80430861	-80.81201852
3,917.00	8.65	335.320	3,915.29	35.93	-20.04	14,455,542.25	1,693,205.87	39.80433958	-80.81203686
4,011.00	10.69	335.980	4,007.95	50.32	-26.54	14,455,556.64	1,693,199.37	39.80437913	-80.81205990
4,106.00	12.61	338.710	4,100.99	68.03	-33.89	14,455,574.35	1,693,192.02	39.80442782	-80.81208595
4,200.00	14.66	340.120	4,192.33	88.78	-41.66	14,455,595.10	1,693,184.25	39.80446485	-80.81211346
4,295.00	16.19	339.590	4,283.91	112.50	-50.37	14,455,618.82	1,693,175.54	39.804455003	-80.81214429
4,389.00	16.79	331.160	4,374.06	136.68	-61.49	14,455,643.00	1,693,164.42	39.804461650	-80.81218370
4,484.00	15.66	330.410	4,465.27	159.85	-74.44	14,455,666.17	1,693,151.47	39.804468020	-80.81222964
4,578.00	15.91	332.190	4,565.73	182.53	-86.72	14,455,688.59	1,693,139.19	39.80447187	-80.81227318
4,673.00	15.93	334.120	4,647.08	205.53	-98.48	14,455,711.84	1,693,127.43	39.804480578	-80.81231490
4,767.00	15.69	335.390	4,737.53	228.69	-109.41	14,455,735.00	1,693,116.50	39.804486945	-80.81235362



TUG HILL
OPERATING

Survey Report - Geographic



Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Woodford
Well: Woodford 08HU (H)
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference:
TVD Reference: Well Woodford 08HU (H)
MD Reference: RKB=1235+33 @ 1268.00ft (Nabors X08)
North Reference: RKB=1235+33 @ 1268.00ft (Nabors X08)
Survey Calculation Method: Grid
Database: Minimum Curvature
 DB_Aug1919_v14

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,862.00	16.10	335.290	4,828.90	252.33	-120.26	14,455,758.65	1,693,105.65	39.804993445	-80.81239210
4,956.00	16.94	332.350	4,919.02	276.30	-132.07	14,455,782.62	1,693,093.84	39.805000035	-80.81243395
5,051.00	17.31	332.240	5,009.80	301.07	-145.07	14,455,807.39	1,693,080.84	39.805068844	-80.81248008
5,145.00	15.75	329.450	5,099.92	324.43	-158.07	14,455,830.75	1,693,067.84	39.80513267	-80.81252619
5,240.00	15.75	328.260	5,191.35	346.50	-171.41	14,455,852.82	1,693,054.50	39.80519336	-80.81257351
5,335.00	15.56	327.840	5,282.83	368.25	-184.97	14,455,874.57	1,693,040.94	39.80525317	-80.81262165
5,430.00	14.90	327.890	5,374.49	389.39	-198.25	14,455,895.70	1,693,027.66	39.80531128	-80.81266876
5,525.00	13.70	331.810	5,466.55	409.65	-210.05	14,455,915.96	1,693,015.86	39.80536700	-80.81271065
5,619.00	14.71	333.990	5,557.67	430.19	-220.55	14,455,936.50	1,693,005.36	39.80542346	-80.81274785
5,714.00	16.80	335.810	5,648.10	453.55	-231.46	14,455,959.87	1,692,994.45	39.80548769	-80.81278655
5,808.00	17.44	335.730	5,738.93	478.79	-242.82	14,455,985.10	1,692,983.09	39.80555705	-80.81282680
5,903.00	16.90	334.360	5,829.70	504.21	-254.64	14,456,010.53	1,692,971.27	39.80562696	-80.81286870
5,998.00	16.00	329.720	5,920.81	527.97	-267.21	14,456,034.29	1,692,958.69	39.80569228	-80.81291330
6,092.00	16.27	327.270	6,011.11	550.24	-280.87	14,456,056.55	1,692,945.04	39.80575350	-80.81296174
6,187.00	15.83	329.340	6,102.41	572.58	-294.67	14,456,078.89	1,692,931.24	39.80581493	-80.81301072
6,282.00	15.29	332.070	6,193.93	594.79	-307.14	14,456,101.11	1,692,918.76	39.80587601	-80.81305498
6,377.00	13.86	332.740	6,285.87	615.98	-318.22	14,456,122.29	1,692,907.69	39.80593425	-80.81309427
6,474.00	13.95	332.770	6,380.03	636.70	-328.89	14,456,143.02	1,692,897.01	39.80599122	-80.81313211
6,569.00	14.11	332.510	6,472.19	657.15	-339.48	14,456,163.47	1,692,886.43	39.80604746	-80.81316965
6,664.00	14.52	331.380	6,564.24	677.88	-350.53	14,456,184.20	1,692,875.38	39.80610444	-80.81320884
6,755.00	15.09	330.430	6,652.22	698.20	-361.84	14,456,204.51	1,692,864.07	39.80616030	-80.81324896
6,850.00	15.66	330.320	6,743.82	720.09	-374.29	14,456,226.41	1,692,851.62	39.80622050	-80.81329313
6,945.00	16.15	329.590	6,835.18	742.63	-387.33	14,456,248.94	1,692,838.58	39.80628246	-80.81333393
7,039.00	16.48	329.190	6,925.40	765.35	-400.77	14,456,271.67	1,692,825.14	39.80634495	-80.81338709
7,134.00	17.54	330.910	7,016.24	789.44	-414.64	14,456,295.75	1,692,811.27	39.80641117	-80.81343627
7,229.00	15.61	332.690	7,107.29	813.30	-427.46	14,456,319.62	1,692,798.45	39.80647679	-80.81348176
7,323.00	13.45	332.990	7,198.28	834.28	-438.23	14,456,340.60	1,692,787.68	39.80653447	-80.81351995
7,418.00	14.23	332.860	7,290.52	854.52	-448.57	14,456,360.83	1,692,777.34	39.80659009	-80.81355664
7,513.00	15.43	331.180	7,382.35	875.98	-459.99	14,456,382.30	1,692,765.92	39.80664911	-80.81359714
7,607.00	15.58	329.270	7,472.93	897.79	-472.47	14,456,404.10	1,692,753.44	39.80670906	-80.81364141
7,702.00	15.23	331.840	7,564.52	919.76	-484.88	14,456,426.07	1,692,741.03	39.80676946	-80.81368543
7,797.00	15.16	334.110	7,656.20	941.93	-496.19	14,456,448.25	1,692,729.72	39.80683043	-80.81372554
7,891.00	14.61	331.560	7,747.05	963.42	-507.20	14,456,469.73	1,692,718.70	39.80689439	-80.81376460
7,985.00	15.39	332.800	7,837.84	984.94	-518.55	14,456,491.25	1,692,707.36	39.80694865	-80.81380485
8,080.00	16.25	334.980	7,929.25	1,008.19	-529.94	14,456,514.51	1,692,695.97	39.80701259	-80.81384521
8,175.00	16.18	334.910	8,020.47	1,032.22	-541.17	14,456,538.54	1,692,684.74	39.80707865	-80.81388503
8,269.00	16.01	334.720	8,110.78	1,055.81	-552.26	14,456,562.12	1,692,673.65	39.80714348	-80.81392435
8,364.00	15.81	337.670	8,202.22	1,079.31	-562.80	14,456,585.62	1,692,663.11	39.80720808	-80.81396170
8,458.00	15.81	337.070	8,292.75	1,102.69	-572.56	14,456,609.00	1,692,653.35	39.80727234	-80.81403062
8,553.00	15.85	338.390	8,384.14	1,126.72	-582.25	14,456,633.03	1,692,643.66	39.80733839	-80.8140818
8,648.00	17.47	335.970	8,475.15	1,151.80	-592.85	14,456,658.11	1,692,633.06	39.80740733	-80.81411154
8,742.00	18.14	333.740	8,564.65	1,177.81	-605.09	14,456,684.12	1,692,620.82	39.80747882	-80.814145621
8,837.00	17.67	332.690	8,655.05	1,203.88	-618.24	14,456,710.19	1,692,607.66	39.80755050	-80.81420411
8,931.00	16.34	331.070	8,744.94	1,228.13	-631.19	14,456,734.44	1,692,594.72	39.80761177	-80.81424688
9,026.00	14.47	331.890	8,836.52	1,250.30	-643.24	14,456,756.61	1,692,582.66	39.80767811	-80.81428496
9,120.00	14.24	333.250	8,927.59	1,270.98	-653.98	14,456,777.29	1,692,571.93	39.80773498	-80.81428496
9,214.00	15.46	331.020	9,018.45	1,292.26	-665.26	14,456,798.58	1,692,560.65	39.80779349	-80.81432495
9,308.00	16.88	327.920	9,109.73	1,314.79	-676.58	14,456,821.10	1,692,547.33	39.80785543	-80.81437221
9,403.00	16.25	328.580	9,199.78	1,337.82	-692.83	14,456,844.13	1,692,533.08	39.80791876	-80.81442280
9,497.00	14.88	333.940	9,290.34	1,359.89	-704.99	14,456,866.20	1,692,520.92	39.80797843	-80.81446593
9,592.00	15.94	335.530	9,381.95	1,382.64	-715.72	14,456,888.96	1,692,510.19	39.80804199	-80.81450397
9,687.00	15.10	333.880	9,473.50	1,405.56	-726.54	14,456,911.87	1,692,499.37	39.80810497	-80.81454232
9,781.00	14.31	330.770	9,564.42	1,426.69	-737.60	14,456,933.00	1,692,486.31	39.80816307	-80.81458156
9,876.00	15.80	328.960	9,656.16	1,448.02	-750.00	14,456,954.33	1,692,475.91	39.80822171	-80.81462557
9,970.00	17.28	327.760	9,746.27	1,470.79	-764.05	14,456,977.10	1,692,461.86	39.80828434	-80.81467542



Survey Report - Geographic



Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Woodford 08HU (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1235+33 @ 1268.00ft (Nabors X08)
Site:	Woodford	MD Reference:	RKB=1235+33 @ 1268.00ft (Nabors X08)
Well:	Woodford 08HU (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Aug1919_v14

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,030.00	18.47	327.700	9,803.37	1,486.36	-773.88	14,456,992.67	1,692,452.03	39.80832716	-80.81471032
10,134.00	18.90	328.350	9,901.89	1,514.63	-791.53	14,457,020.94	1,692,434.38	39.80840488	-80.81477293
10,181.00	17.89	327.560	9,946.49	1,527.20	-799.39	14,457,033.51	1,692,426.52	39.80843945	-80.81480085
10,228.00	13.58	327.730	9,991.72	1,537.96	-806.21	14,457,044.27	1,692,419.70	39.80846905	-80.81482506
10,276.00	9.49	328.790	10,038.74	1,546.11	-811.27	14,457,052.43	1,692,414.64	39.80849147	-80.81484302
10,323.00	4.75	325.620	10,085.36	1,551.04	-814.38	14,457,057.35	1,692,411.53	39.80850500	-80.81485405
10,370.00	0.84	281.150	10,132.30	1,552.71	-815.82	14,457,059.02	1,692,410.09	39.80850961	-80.81485916
10,417.00	2.77	182.980	10,179.28	1,551.64	-816.22	14,457,057.96	1,692,409.69	39.80850668	-80.81486058
10,465.00	6.42	179.200	10,227.12	1,547.80	-816.24	14,457,054.11	1,692,409.67	39.80849612	-80.81486069
10,512.00	10.29	170.410	10,273.61	1,541.03	-815.50	14,457,047.34	1,692,410.41	39.80847753	-80.81485812
10,559.00	14.86	162.320	10,319.48	1,531.14	-812.97	14,457,037.46	1,692,412.94	39.80845036	-80.81484918
10,606.00	18.86	154.590	10,364.45	1,518.53	-807.88	14,457,024.85	1,692,418.03	39.80841570	-80.81483114
10,652.00	22.46	151.070	10,407.49	1,504.12	-800.44	14,457,010.43	1,692,425.47	39.80837608	-80.81480474
10,699.00	25.76	148.350	10,450.38	1,487.56	-790.73	14,456,993.88	1,692,435.18	39.80833056	-80.81477030
10,746.00	29.01	144.570	10,492.12	1,469.58	-778.76	14,456,975.89	1,692,447.15	39.80828109	-80.81472781
10,793.00	32.09	144.130	10,532.59	1,450.17	-764.84	14,456,956.48	1,692,461.07	39.80822771	-80.81467837
10,840.00	34.77	144.740	10,571.81	1,429.11	-749.78	14,456,912.62	1,692,476.13	39.80816978	-80.81462492
10,887.00	37.45	146.060	10,609.77	1,406.30	-734.06	14,456,812.62	1,692,491.85	39.80810707	-80.81456912
10,935.00	40.70	146.330	10,647.03	1,381.16	-717.23	14,456,887.48	1,692,508.67	39.80803794	-80.81450938
10,982.00	43.43	147.470	10,681.92	1,354.78	-700.05	14,456,861.10	1,692,525.86	39.80796539	-80.81444837
11,030.00	45.78	147.730	10,716.10	1,326.33	-681.99	14,456,832.65	1,692,543.92	39.80788715	-80.81438429
11,077.00	48.18	148.610	10,748.17	1,297.14	-663.88	14,456,803.46	1,692,562.03	39.80780688	-80.81432001
11,125.00	50.68	149.560	10,779.39	1,265.86	-645.16	14,456,772.17	1,692,580.75	39.80772086	-80.81425358
11,172.00	53.45	149.670	10,808.28	1,233.88	-626.42	14,456,740.19	1,692,599.49	39.80763293	-80.81418708
11,220.00	56.26	149.230	10,835.91	1,200.08	-606.47	14,456,706.40	1,692,619.44	39.80754001	-80.81411629
11,267.00	58.29	148.250	10,861.31	1,166.29	-585.95	14,456,672.60	1,692,639.96	39.80744708	-80.81404348
11,315.00	60.75	147.280	10,885.66	1,131.30	-563.88	14,456,637.62	1,692,662.03	39.80735088	-80.81396516
11,362.00	64.66	147.200	10,907.21	1,096.19	-541.28	14,456,602.50	1,692,684.63	39.80725431	-80.81388486
11,409.00	67.12	148.070	10,926.41	1,059.95	-518.32	14,456,566.27	1,692,707.59	39.80715467	-80.81380347
11,456.00	70.02	150.710	10,943.58	1,022.30	-496.06	14,456,528.62	1,692,729.85	39.80705114	-80.81372448
11,504.00	74.24	151.330	10,958.31	982.34	-473.93	14,456,488.66	1,692,751.98	39.80694128	-80.81364599
11,551.00	78.68	150.450	10,969.31	942.43	-451.71	14,456,448.75	1,692,774.20	39.80683155	-80.81356714
11,598.00	83.56	150.540	10,976.56	902.03	-428.84	14,456,408.35	1,692,797.07	39.80672047	-80.81348603
11,692.00	88.88	151.680	10,982.75	819.94	-383.55	14,456,326.25	1,692,842.36	39.80649476	-80.81332535
11,787.00	88.65	151.410	10,984.80	736.44	-338.29	14,456,242.75	1,692,887.62	39.80628518	-80.81316484
11,882.00	89.54	150.620	10,986.30	653.35	-292.26	14,456,159.66	1,692,933.64	39.80603673	-80.81300156
11,976.00	89.41	149.920	10,987.16	571.72	-245.65	14,456,078.04	1,692,980.26	39.80581230	-80.81283619
12,070.00	88.35	149.740	10,989.00	490.47	-198.42	14,455,996.79	1,693,027.49	39.80558890	-80.81266862
12,166.00	90.02	149.230	10,990.37	407.78	-149.68	14,455,914.10	1,693,076.23	39.80536152	-80.81249569
12,260.00	90.20	149.230	10,990.19	327.01	-101.59	14,455,833.33	1,693,124.32	39.80513944	-80.81232507
12,355.00	90.59	149.930	10,989.53	245.10	-53.49	14,455,751.41	1,693,172.42	39.80491419	-80.81215441
12,449.00	90.33	150.190	10,988.78	163.64	-6.58	14,455,669.96	1,693,219.33	39.80469023	-80.81198798
12,543.00	89.80	150.810	10,988.67	81.83	39.71	14,455,588.15	1,693,265.62	39.80446528	-80.81182378
12,638.00	88.48	151.070	10,990.10	-1.20	85.85	14,455,505.12	1,693,311.76	39.80423699	-80.81166612
12,733.00	88.66	150.900	10,992.47	-84.25	131.91	14,455,422.07	1,693,357.82	39.80400865	-80.81149673
12,827.00	88.97	151.070	10,994.41	-166.44	177.50	14,455,339.88	1,693,403.40	39.80378268	-80.81133504
12,922.00	88.84	150.900	10,996.23	-249.50	223.57	14,455,256.82	1,693,449.47	39.80355431	-80.81117163
13,017.00	88.70	150.990	10,998.27	-332.52	269.69	14,455,173.79	1,693,495.60	39.80332603	-80.81100802
13,112.00	87.87	149.320	11,001.11	-414.88	366.18	14,455,091.43	1,693,542.85	39.80309957	-80.81084039
13,206.00	88.48	147.470	11,004.10	-494.90	366.18	14,455,011.42	1,693,592.09	39.80287955	-80.81066569
13,300.00	89.41	147.470	11,005.83	-574.13	416.72	14,454,932.18	1,693,642.63	39.80266164	-80.81048634
13,394.00	89.89	148.350	11,006.41	-653.77	466.65	14,454,852.55	1,693,692.56	39.80244265	-80.81030914
13,489.00	90.33	148.350	11,006.23	-734.64	516.50	14,454,771.68	1,693,742.41	39.80222027	-80.81013227
13,584.00	89.89	148.350	11,006.04	-815.51	566.35	14,454,690.81	1,693,792.26	39.80199789	-80.80995539
13,678.00	89.76	147.730	11,006.33	-895.26	616.11	14,454,611.06	1,693,842.02	39.80177858	-80.80977884



Survey Report - Geographic



Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia
Site: Woodford
Well: Woodford 08HU (H)
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Woodford 08HU (H)
RKB=1235+33 @ 1268.00ft (Nabors X08)
RKB=1235+33 @ 1268.00ft (Nabors X08)
Grid
Minimum Curvature
DB_Aug1919_v14

Survey

Table with columns: Measured Depth (ft), Inclination (°), Azimuth (°), Vertical Depth (ft), +N/-S (ft), +E/-W (ft), Map Northing (usft), Map Easting (usft), Latitude, Longitude. Contains 40 rows of survey data.

Survey @ 18755.00 MD 11065.91 TVD



Survey Report - Geographic

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Woodford 08HU (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1235+33 @ 1268.00ft. (Nabors X08)
Site:	Woodford	MD Reference:	RKB=1235+33 @ 1268.00ft. (Nabors X08)
Well:	Woodford 08HU (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Aug1919_v14

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,814.00	90.24	149.490	11,065.66	-5,339.46	3,187.81	14,450,166.87	1,696,413.71	39.78955826	-80.80065759

Survey projected to 18814.00 MD 11065.66 TVD

Design Annotations		Local Coordinates		Comment
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	
209.00	209.00	-0.37	0.40	MWD surveys
18,755.00	11,065.91	-5,288.63	3,157.86	Survey @ 18755.00 MD 11065.91 TVD
18,814.00	11,065.66	-5,339.46	3,187.81	Survey projected to 18814.00 MD 11065.66 TVD

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/22/2019
Job End Date:	1/12/2020
State:	West Virginia
County:	Marshall
API Number:	47-051-02149-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Woodford 8HU
Latitude:	39.80424078
Longitude:	-80.81196578
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,023
Total Base Water Volume (gal):	15,316,874
Total Base Non Water Volume:	0

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Number (CAS #) Abstract Service	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Tug Hill Operating	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.33639	None
Sand (40/70 White Proppant)	Profrac	Proppant	Silica Substrate	14808-60-7	100.00000	9.51339	None
Sand (100 Mesh Proppant)	Profrac	Proppant	Silica Substrate	14808-60-7	100.00000	2.52175	None
Hydrochloric Acid (7.5%)	PVS	Acidizing	Water	7732-18-5	85.00000	0.42291	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.18409	None
ProSlick 710	Naico	Friction Reducer	Hydrotreated Light Petroleum Distillate	64742-47-8	30.00000	0.02434	None
			Inorganic salt	PROPRIETARY	10.00000	0.00811	None
			Oxyalkylated alcohol	PROPRIETARY	5.00000	0.00405	None
MC MX 9-4743	Multi-Chem	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.02270	None



LD-7750W	Multi-Chem	Scale Inhibitor	Methanol	67-56-1	60.00000	0.00519	None
PROFE 105	ProFrac	Iron Control	Phosphonic Acid Salt	Proprietary	5.00000	0.00043	None
Prohib 100	ProFrac	Acid Inhibitor	Citric Acid	77-92-9	100.00000	0.00181	None
			2-Propyn-1-ol compound w/ methylloxirane	38172-91-7	15.00000	0.00023	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
	Other Chemical(s)	Listed Above	See Trade Name(s) List				
			Water	7732-18-5	85.00000	0.42291	
			inorganic salt	PROPRIETARY	10.00000	0.00811	
			Oxyalkylated alcohol	PROPRIETARY	5.00000	0.00406	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00043	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

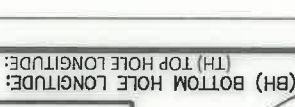
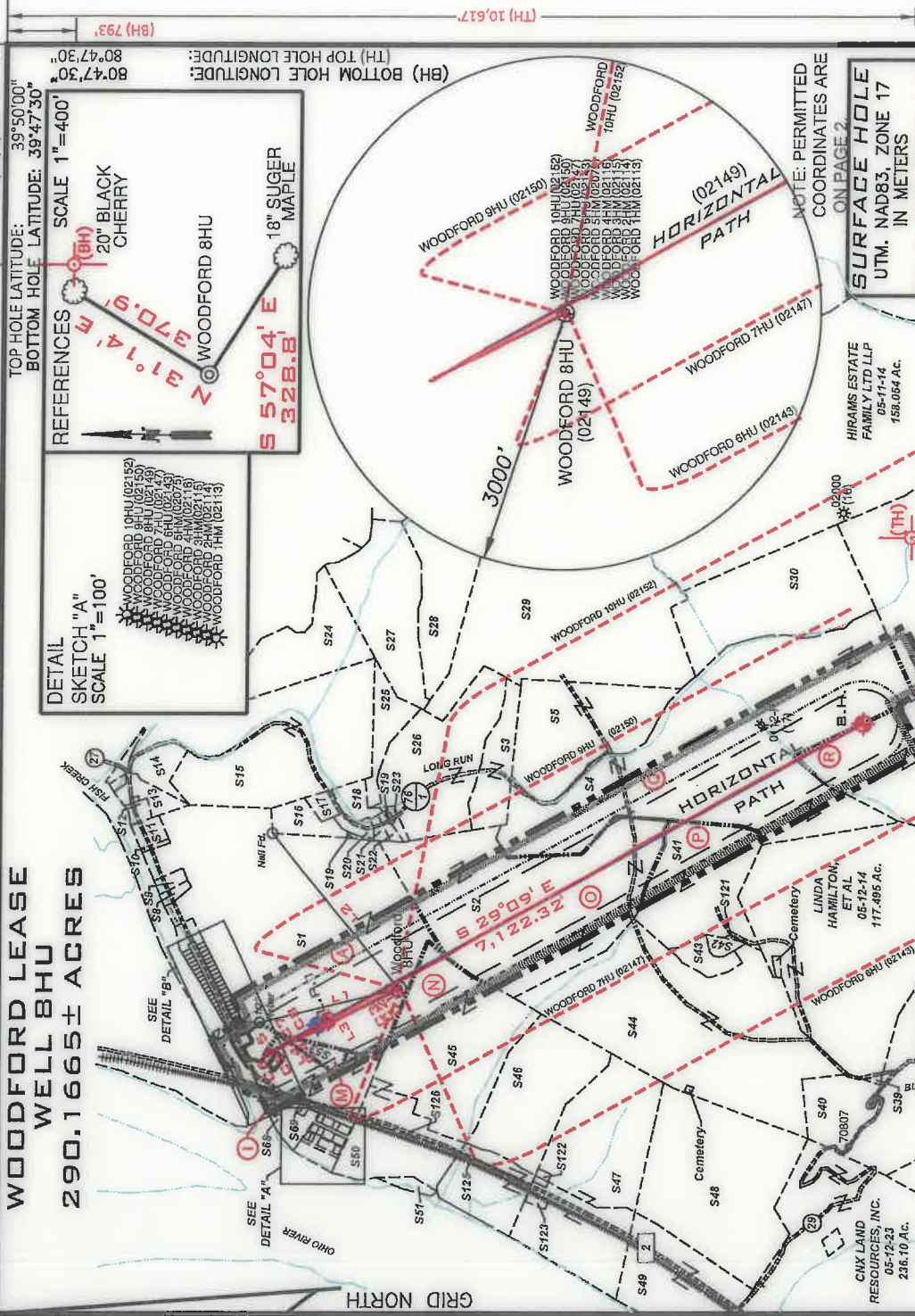
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

RECEIVED
Office of Oil and Gas

JUL 28 2020

WV Department of
Environmental Protection

**WOODFORD LEASE
WELL 8HU
290.1665± ACRES**



NOTE: PERMITTED COORDINATES ARE ON PAGE 2

SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,406,047.12 E) 516,096.42	LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS N) 4,406,297.04 E) 515,979.51	BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,404,419.65 E) 517,068.06
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LINE BEARING	DISTANCE	CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
L1 N 13°44' W	1668.94'	C1	N 24°11' W	98.10'	336.69'	98.45'
L2 N 50°34' E	2348.96'	C2	N 24°46' W	103.83'	461.01'	104.05'
L3 N 27°22' W	152.95'	C3	N 87°21' W	235.31'	1471.39'	235.96'
L4 N 27°22' W	152.95'	C4	N 74°23' W	316.59'	3988.81'	316.87'
L5 N 30°17' W	172.18'	C5	S 09°34' E	21.77'	49.18'	21.95'
		C6	S 30°49' E	120.05'	432.44'	120.44'
		C7	S 31°05' E	270.26'	3153.31'	270.35'
		C8	S 29°20' E	440.83'	4421.79'	441.01'

NOTES
 (+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

- LEGEND
- LEASED TRACTS
 - SURFACE TRACTS
 - WELL LATERAL
 - POINT PLEASANT LEGS
 - 400' BORE PATH OFFSET
 - 500' WELL BORE OFFSET
 - UNIT BOUNDARY
 - (A) LEASE # (SEE 6A.1 FORM)

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

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

FILE NUMBER _____
 DRAWING NUMBER **WOODFORD_8HU**
 SCALE **1" = 2000'**
 MINIMUM DEGREE OF ACCURACY **1/200**
 PROVEN SOURCE OF ELEVATION **SUBMETER MAPPING**
 GRADE **GPS**

David L Jackson
 JACKSON SURVEYING INC.
 P.O. Box 1460
 Clarkburg, WV 26802
 304-823-5851

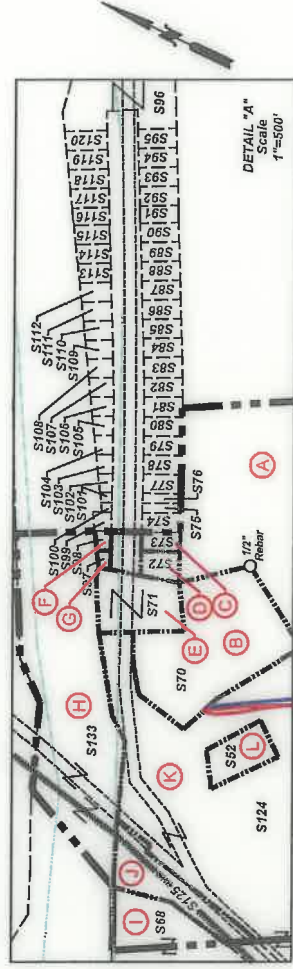


WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET, SE
 CHARLESTON, WV 25304

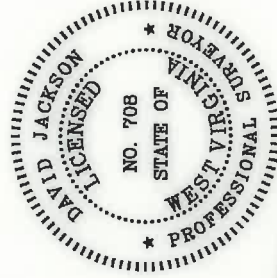
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION ELEVATION **1237.61'** WATERSHED (HUC 10) **FRENCH CREEK - OHIO RIVER**
 DISTRICT **FRANKLIN** COUNTY **MARSHALL**
 QUADRANGLE **POWHATAN POINT 7.5'** LEASE NUMBER **SEE WW-6A1 Form**
 SURFACE OWNER **CNX LAND, LLC** ACREAGE **155.7119**
 OIL & GAS ROYALTY OWNER **COLUMBIAN CHEMICALS COMPANY** LEASE ACREAGE **290.1665**
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORMATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) **ASDRILLED**

DATE: **JULY 27, 2020**
 OPERATORS WELL NO. **Woodford 8HU**
 API WELL NO. **47-051-02149**
 STATE **WV** COUNTY **FRANKLIN**
 COUNTY NAME _____ PERMIT _____
 TARGET FORMATION **POINT PLEASANT** PLUG & ABANDON CLEAN OUT & REPLUG
 ESTIMATED DEPTH **TVD: 11,066'** TMD: **18,814'**
 WELL OPERATOR **TUG HILL OPERATING, LLC** DESIGNATED AGENT **DIANNA STAMPER**
 ADDRESS **1320 SOUTH UNIVERSITY DRIVE, SUITE 500** ADDRESS **5400 D BIG TYLER ROAD**
FORT WORTH, TX 76107 **CHARLESTON, WV 25313**

**WOODFORD
LEASE
WELL 8HU
290.1665±
ACRES**



SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,406,047.14
E) 516,096.29
LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,406,332.88
E) 515,962.54
BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,404,419.43
E) 517,067.27



P.S. *David L. Jackson*
708



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: WOODFORD 8HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API# 47-051-02149

WELL PLAT
PAGE 2 OF 5
DATE: 07/27/2020

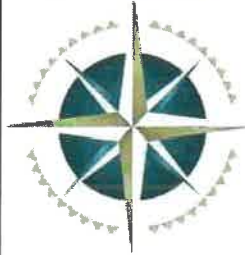
**WOODFORD
LEASE
WELL 8HU
290.1665±
ACRES**

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S1	05-07-43	CNX LAND, LLC	155.7119
S2	05-12-08	Anita Rae Miller (Life)	100.35
S3	05-12-10	Consolidation Coal Co./ Murray Energy	13.76
S4	05-12-12.1	Lionel L. Persinger, Et Ux.	148.09
S5	05-11-12	Lionel L. Persinger, Et Ux.	45
S6	05-12-15	Lionel L. Persinger, Et Ux.	93
S7	05-15-01	Marcus Sharp & David Schlabbach, Hrs.	121
S8	05-7B-49	Cassidy Rain Carpenter	1.1441
S9	05-7B-48	Cassidy Rain Carpenter	1.325
S10	05-07-43.3	M. Frank Mason	0.327
S11	05-07-43.2	M. Frank Mason	1.36
S12	05-07-38	John K. Persinger, Et Ux.	2.65
S13	05-07-36	John Persinger	4.329
S14	05-07-35	Samuel L. Persinger	10.708
S15	05-07-39	Lionel L. Persinger, et ux	57
S16	05-07-42.1	Holly Rice	5.99
S17	05-07-41	James A. Wade	1
S18	05-07-42.5	Matthew V. Conner, et al	3.791
S19	05-07-42	Tracy M. Keesterson	0.54
S20	05-07-44	Crystal B. Darrah	1.726
S21	05-07-42.2	Steven & Rhonda Lloyd	0.85
S22	05-07-42.3	Joshua David Hartley	0.886
S23	05-07-42.4	Lionel & Mary Lee Persinger	0.94
S24	05-07-33	Lionel & Mary Lee Persinger	24.6
S25	05-12-09	Lionel & Mary Lee Persinger	10.15
S26	05-12-10.1	Consolidation Coal Co./ Murray Energy	38.48
S27	05-11-1.4	Larry W. Dunlap, et al	32.493
S28	05-11-1.1	Larry W. Dunlap & Charles Leroy Dunlap	34.405
S29	05-11-21	Karen Reed, et al	112.67
S30	05-12-11	Wesley B. Bryan & Wesley R. Bryan II	52.478
S31	05-15-04	Joseph J. Kramer, et ux	41.106
S32	05-15-03	Joseph J. Kramer, et ux	36.10
S33	05-15-02	John David Petrock, et ux	5
S34	05-15-14	John David Petrock, et ux	25
S35	05-15-12	John David Petrock, et ux	150.23
S36	05-15-15	Robert L. Shields, et al	49
S37	05-14-12	Dale R. Gallacher, et al	135.100
S38	05-14-10	Wanda P. Rine (Life)	107.372
S39	05-12-15	Woodland Hills Church of God Trs.	0.375
S40	05-12-21.1	Robert W. Jr. & Wendy L Riggenbach	14.222
S41	05-12-13	Linda Hamilton, et al	41.887
S42	05-12-7.1	Raymond K. Miller	1.609
S43	05-12-7.2	Raymond K. Miller	4.66
S44	05-12-07	Robert Wm. Riggenbach, et ux	104.231
S45	05-12-02	CNX LAND, LLC	60.68
S46	05-12-03	CNX LAND, LLC	62.30
S47	05-12-05	CNX LAND, LLC	61.883
S48	05-12-06	CNX LAND, LLC	70.81
S49	05-12-6.2	Consolidation Coal Co./ Murray Energy	25.50
S50	05-12-2.1	Consolidation Coal Co./ Murray Energy	22
S51	05-12-01	US of America	1.68
S52	05-07-43.4	Ida Campbell	0.29
S53	05-07-43.1	State Road Commission	1.48
S54	05-7A-17	Carol Martin & Harry L. Yoho	0.3067
S55	05-7A-18	Barbara Anderson	0.1530
S56	05-7A-19	Barbara Anderson	0.3060



P.S.
708
David L Jackson

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S57	05-7A-20	Betty Sexton	0.1204
S58	05-7A-24	Rick A. Kosky	0.3152
S59	05-7A-23	Harold S. Young, et ux	0.3067
S60	05-7A-22	Richard Hyer, et ux	0.1530
S61	05-7A-21	David A. Beyser	0.1866
S62	05-7A-25	Rick A. Kosky	0.1638
S63	05-7A-26	Lance Clark	0.4531
S64	05-7A-27	Paul W. Barrett	0.1495
S65	05-7A-28	Richard Hyer, et ux	0.1093
S66	05-7A-29	Richard Hyer, et ux	0.1085
S67	05-7A-30	Richard Hyer, et ux	1.9
S68	05-7A-31	WVA Dept. of Natural Resources	3.18
S69	05-7A-32	Dawn Thompson Tennant	0.3091
S70	05-7A-02	CNX LAND, LLC	2.23
S71	05-7A-01	Lucille Myers	0.529
S72	05-7B-25	Cindy D. Aliff	0.1673
S73	05-7B-26	Cindy D. Aliff	0.1148
S74	05-7B-27	Patricia A. Johnson	0.1148
S75	05-7B-28	Patricia A. Johnson	0.0574
S76	05-7B-28.1	Patricia A. Johnson	0.0574
S77	05-7B-29	Patricia A. Johnson	0.1148
S78	05-7B-30	Cindy D. Aliff, et al	0.1148
S79	05-7B-31	Cindy D. Aliff, et al	0.1148
S80	05-7B-32	Albert J. Anderson, Jr.	0.1148
S81	05-7B-33	Albert J. Anderson, Jr.	0.1182
S82	05-7B-34	Albert J. Anderson, Jr.	0.1148
S83	05-7B-35	Albert J. Anderson, Jr.	0.1217
S84	05-7B-36	Albert J. Anderson, Jr.	0.1148
S85	05-7B-37	Teresa & Thomas Gouldsberry	0.1148
S86	05-7B-38	Teresa & Thomas Gouldsberry	0.1148
S87	05-7B-39	Teresa & Thomas Gouldsberry	0.1148
S88	05-7B-40	Teresa & Thomas Gouldsberry	0.1148
S89	05-7B-41	Teresa & Thomas Gouldsberry	0.1148
S90	05-7B-42	Teresa & Thomas Gouldsberry	0.1194
S91	05-7B-43	Teresa & Thomas Gouldsberry	0.1148
S92	05-7B-44	Daniel D. & Mary E. Robinson	0.1148
S93	05-7B-45	Daniel D. & Mary E. Robinson	0.1148
S94	05-7B-46	Daniel D. Robinson, et ux	0.1148
S95	05-7B-47	Daniel D. Robinson, et ux	0.1148
S96	05-7B-01	Patricia L. Robinson	1.257
S97	05-7B-23	Cindy D. Aliff	0.0354
S98	05-7B-24	Cindy D. Aliff	0.0471
S99	05-7B-22	Patricia A. Johnson	0.0505
S100	05-7B-21	Patricia A. Johnson	0.0267
S101	05-7B-21.1	Patricia A. Johnson	0.0296
S102	05-7B-20	Patricia A. Johnson	0.0626
S103	05-7B-19	Cindy D. Aliff, et al	0.0712
S104	05-7B-18	Cindy D. Aliff, et al	0.0763
S105	05-7B-17	Albert J. Anderson, Jr.	0.0849
S106	05-7B-16	Albert J. Anderson, Jr.	0.0903
S107	05-7B-15	Albert J. Anderson, Jr.	0.0970
S108	05-7B-14	Albert J. Anderson, Jr.	0.0991
S109	05-7B-13	Albert J. Anderson, Jr.	0.1067
S110	05-7B-12	Teresa & Thomas Gouldsberry	0.1113
S111	05-7B-11	Teresa & Thomas Gouldsberry	0.1159
S112	05-7B-10	Teresa & Thomas Gouldsberry	0.1199
S113	05-7B-09	Teresa & Thomas Gouldsberry	0.1240
S114	05-7B-08	Teresa & Thomas Gouldsberry	0.1286
S115	05-7B-07	Teresa & Thomas Gouldsberry	0.1331
S116	05-7B-06	Teresa & Thomas Gouldsberry	0.1377
S117	05-7B-05	Daniel D. & Mary E. Robinson	0.1478
S118	05-7B-04	Daniel D. & Mary E. Robinson	0.1458
S119	05-7B-03	Daniel D. Robinson, et ux	0.1504
S120	05-7B-02	Daniel D. Robinson, et ux	0.1550
S121	05-12-13.1	Raymond K. Miller	0.113
S122	05-12-5.1	CNX LAND, LLC	0.52
S123	05-12-04	CNX LAND, LLC	0.93
S124	Rt. 2	State Road Commission	17.82(Calc.)
S125	R.R.	CSX Transportation	4.99(Calc.)
S126	Rt. 2	WV DOT	4.18(Calc.)
S127	05-12-17	Hilda Deloris Baxter	0.752
S128	05-12-18	Hilda Deloris Baxter	1.018
S129	05-12-19	Delores J. Myers (Life)	0.457
S130	05-12-20	Delores J. Myers (Life)	0.457
S131	05-12-16.1	Gary E. Gibson, et al	0.146
S132	05-12-16	Gary E. Gibson, et al	0.104
S133	Fish Creek	State of W.V.	3.90(Calc.)



**TUG HILL
OPERATING**

OPERATOR'S

WELL #1 WOODFORD 8HU

DISTRICT: Franklin

COUNTY: Marshall

STATE: WV

API# 47-051-02149

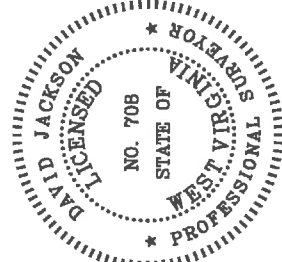
WELL PLAT

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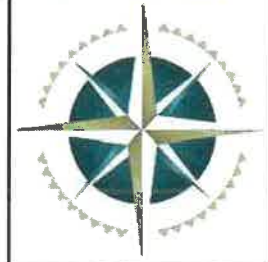
DATE: 07/27/2020

**WOODFORD
LEASE
WELL 8HU
290.1665±
ACRES**

LEASE NO.	TAGS	PARCEL	OIL & GAS ROYALTY OWNER	DEED BOOK	PAGE
041112	A	5-7-43	COLUMBIAN CHEMICALS COMPANY	691	363
041112	B	5-7A-2	COLUMBIAN CHEMICALS COMPANY	691	363
0088417002	B	5-7A-2	WANDA MAE BLAKE	853	316
0088417003	B	5-7A-2	JOAN JANE PARSONS AND GARY PARSONS	859	506
0088417004	B	5-7A-2	IDA L CAMPBELL	859	496
0078651000	C	5-7B-26	JUNE M MORRIS AKA JUNE MORRIS	808	868
0089014000	D	5-7B-25	JUNE M MORRIS	852	347
0074927000	F	5-7A-1	LUCILLE MYERS	794	497
0089014000	F	5-7B-23	JUNE M MORRIS	852	347
0089014000	G	5-7B-24	JUNE M MORRIS	852	347
0089196000	H	WV	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	865	558
0089196000	I	5-7A-31	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	865	558
0095360000	J	CSX TRANSPORTATION	CSX TRANSPORTATION INC	879	251
0088417001	J	CSX TRANSPORTATION	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION	845	332
0088417001	K	RTE 2 - STATE ROAD COMMISSION	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION	845	332
041112	K	ROAD COMMISSION	COLUMBIAN CHEMICALS COMPANY	691	363
0088417001	L	5-7-43.4	TRANSPORTATION	845	332
0075760000	M	5-7-43.1	TRANSPORTATION	797	642
041112	N	5-12-2	COLUMBIAN CHEMICALS COMPANY	691	363
10*23869	O	5-12-8	MARK A. JOHNSON ET UX	1020	195
10*24588	O	5-12-8	MICHAEL POWDERLY	1025	287
10*24577	O	5-12-8	LYNN A. YATES & WALTER R. YATES		
10*23896	O	5-12-8	MOLLY MCMAHON AND JOHN D. MCMAHON	1017	489
10*18827	O	5-12-8	ERIN ESCHOLL	937	626
10*18968	O	5-12-8	REBECCA LYNN KIER AND ERIC JAMES KIER	937	405
10*18969	O	5-12-8	E SHEILA PAVLOVICH	940	291
10*19500	O	5-12-8	JEANNE MARIE VAN GROL AND RICHARD ARTHUR	941	289
10*19825	O	5-12-8	JAMES CONTRERAS AND CATHERINE CONTRERAS	942	608
10*19826	O	5-12-8	THOMAS A POWDERLY	945	639
10*19827	O	5-12-8	TERRANCE V POWDERLY SR	945	637
10*19828	O	5-12-8	CORINNE E VERNA AND JONATHAN C VERNA SR	945	635
10*19829	O	5-12-8	ANNE MAND JOHNI LEACH	945	633
10*19830	O	5-12-8	MARGARET J WHITFORD AND LANCE W WHITFORD	945	631
10*21002	O	5-12-8	DAVID POWDERLY AND NANCY A POWDERLY	945	629
10*21045	O	5-12-8	STANLEY EUGENE STOWE	951	215
10*21190	O	5-12-8	SANDRA J HARMON AND WALTER D HARMON	951	217
10*21223	O	5-12-8	MARGARET CLUCKNER	941	283
10*21607	O	5-12-8	EUGENE C GRIEB AND SHIRLEY K GRIEB	961	468
10*21924	O	5-12-8	SHERLEY R STOWE & KAREN M STOWE	959	474
10*21925	O	5-12-8	BEVERLY A MILLER	953	533
10*21929	O	5-12-8	VIOLA JANE BREON AND JAMES RONALD BREON	953	360
10*21930	O	5-12-8	BENNY MILLER	960	177
10*21938	O	5-12-8	JAMES A GRENOBLE AND MARY JANE GRENOBLE	953	263
10*22051	O	5-12-8	SEAN M GRENOBLE AND CHERYL A GRENOBLE	960	91
10*22311	O	5-12-8	UJA F NELSON	960	96
10*22312	O	5-12-8	NOELA PARKS	960	509
10*22548	O	5-12-8	AARON D LITMAN AND BETTY J LITMAN	963	408
10*22604	O	5-12-8	WILLIAM L LITMAN AND VICKIE L LITMAN	963	404
10*22605	O	5-12-8	RICHARD WOOD AND VICKI WOOD	962	528
10*22744	O	5-12-8	ANITA RAE MILLER	910	152
10*22858	O	5-12-8	REBECCA S TARR	962	578
10*22858	O	5-12-8	SHARON TOLER WILLIAMS & HERRY WILLIAMS	966	194
10*22858	O	5-12-8	WILLIAM LEESON	966	499
10*22744	O	5-12-8	MICHAEL LEESON AND BRENDA R LEESON	966	205
10*23004	O	5-12-8	BRIDGET A POWDERLY	977	63
0083768001	O	5-12-8	THOMAS C DAVIS AND MARY ELLEN DAVIS	977	63
0083768002	O	5-12-8	KLOVA A MORRIS	977	362
0083768003	O	5-12-8	SANDRA WINSLOW	831	54
0083768004	O	5-12-8	KERMIT REED HUBBS ET UX	831	163
0083768005	O	5-12-8	DOLIGLAS G DERROW	831	165
0083768006	O	5-12-8	FERN A PICKENPAUGH	831	167
0083768007	O	5-12-8	JEAN GAUTHIER	832	228
0083768008	O	5-12-8	SONDRA SUE RULLONG ET VIR	832	230
0083768009	O	5-12-8	VERA SHIRLENE WORKMAN ET VIR	832	232
0083768010	O	5-12-8	CHARLOTTE A MERSELUS ET VIR	833	14
0083768011	O	5-12-8	PHYLLIS JEAN OSTRANDER	833	472
0083768012	O	5-12-8	JAMES A KOLL	832	584
0083768013	O	5-12-8	WILLIAM L WILLIAMS ET UX	833	464
0083768014	O	5-12-8	WILLIAM L WILLIAMS ET UX	833	574
0083768015	O	5-12-8	KELLY KERN	863	189
0083768016	O	5-12-8	SHIRLEY GBLUR	863	191
0083768017	O	5-12-8	NORMAN L DERROW ET UX	832	580
0083768018	O	5-12-8	BETTY JUNE CAMPBELL ET VIR	834	632
0083768019	O	5-12-8	LAMOYNE S BAKER	834	634
0083768020	O	5-12-8	HONJUS ADAIR STOLLAR	836	36
0083768021	O	5-12-8	MARSHA J JAMISON ET VIR	836	38
0083768022	O	5-12-8	SARA BRADLEY	839	206
0083768023	O	5-12-8	MARY S FOGLESONG ET VIR	837	352
0083768024	O	5-12-8	JIMMIE WILLIAMS ET UX	837	143
0083768025	O	5-12-8	JUDY ANN MCCHESEY ET VIR	840	291
0083768026	O	5-12-8	PENNY S SCHAUER ET VIR	842	7
0083768027	O	5-12-8	TRACI L WILLIAMS	842	9
0083768028	O	5-12-8	STEVEN S DERROW	842	24
0083768029	O	5-12-8	MARY E VOLTZ ET VIR	841	82
0083768030	O	5-12-8	ELLIOTT L THRASHER II ET UX	842	510
0083768031	O	5-12-8	JACK M FOREMAN	844	131
0083768032	O	5-12-8	DOLIGLAS E MILLER	844	520
0083768033	O	5-12-8	REVA J ICARD ET VIR	844	526
0083768034	O	5-12-8	JULIE SPRINGWATER	850	491
0083768035	O	5-12-8	JULIE SPRINGWATER	850	499
0083768036	O	5-12-8	JACK M FOREMAN	850	503
0083768037	O	5-12-8	ANITA M MASON	851	5
0083768038	O	5-12-8	BONNIE H GRISELL ET VIR	850	646
0083768039	O	5-12-8	MARY EUZABETH VOLTZ ET VIR	850	648



P.S. 708
David L Jackson



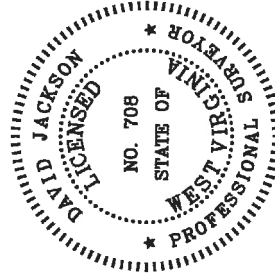
**TUG HILL
OPERATING**

OPERATOR'S WELL #1 Woodford 8HU
DISTRICT1 Franklin
COUNTY1 Marshall
STATE1 WV
API# 47-051-02149

WELL PLAT
PAGE: 4 OF 5
DATE: 07/27/2020

**WOODFORD
LEASE
WELL 8HU
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ACRES**

LEASE NO.	TAGS	PARCEL	OIL & GAS ROYALTY OWNER	DEED BOOK	PAGE
Q083768040	O	5-12-8	SCOTT C HARRIS ET UX	851	394
Q083768041	O	5-12-8	JACK M FOREMAN	854	178
Q083768042	O	5-12-8	JACQUELYN JOHNSON ET VIR	860	523
Q083768043	O	5-12-8	ROY JOSEPH LEACH	859	487
Q083768044	O	5-12-8	LESUE ANN BLYTHE ET VIR	860	535
Q083768045	O	5-12-8	MURIEL ANNE MILLER ET VIR	860	545
Q083768046	O	5-12-8	GREGORY S MILLER ET UX	860	517
Q083768047	O	5-12-8	REBECCA L CULLEN ET VIR	860	558
Q083768048	O	5-12-8	FRANCES E RUTLEDGE ET VIR	860	513
Q083768049	O	5-12-8	LARRY DEAN MCWHORTER ET AL	860	529
Q083768050	O	5-12-8	LEROY MILLER	864	187
Q083768051	O	5-12-8	DAVID LEE EVANS JR ET UX	860	532
Q083768052	O	5-12-8	STEVEN POND ET UX	860	574
Q083768053	O	5-12-8	IAN KIPP HAGEMANN	860	520
Q083768054	O	5-12-8	MELISSA MILLER GIBSON ET VIR	869	100
Q083768055	O	5-12-8	HEATHER D MALO ET VIR	866	336
Q083768056	O	5-12-8	RODNEY F PETERSON	866	342
Q083768057	O	5-12-8	PRISCILLA ANN MILLER HADEN	873	545
Q083768058	O	5-12-8	DANIEL D HOBBS ET UX	873	543
Q083768059	O	5-12-8	RICHARD S MULLEN ET UX	869	98
Q083768060	O	5-12-8	JAMES B CROW ET UX	869	108
Q083768061	O	5-12-8	GREGORY S CROW	869	106
Q083768062	O	5-12-8	HAROLD B CROW ET UX	869	102
Q083768063	O	5-12-8	BRIAN K CROW	869	104
Q083768064	O	5-12-8	TIMOTHY HOWARD MANCHEGO	873	104
Q083768065	O	5-12-8	KATHLEEN HOBBS YOUNG	869	356
Q083768066	O	5-12-8	DAVID C MULLEN ET UX	869	358
Q083768067	O	5-12-8	DENNIS FISCHER ET UX	870	360
Q083768068	O	5-12-8	KATHLEEN A SULLIVAN ET VIR	870	362
Q083768069	O	5-12-8	FRANCIS F FISCHER ET UX	871	494
Q083768070	O	5-12-8	JOYCE A FIORILLI ET VIR	873	114
Q083768071	O	5-12-8	BARBARA LYOGLER ET VIR	873	112
Q083768072	O	5-12-8	HARRIET C HERMAN ET VIR	873	116
Q083768073	O	5-12-8	EUGENIA A KERR	873	118
Q083768074	O	5-12-8	JANE H BARNSTEINER ET UX	873	93
Q083768075	O	5-12-8	EDWARD P POWDERLY ET UX	873	91
Q083768076	O	5-12-8	NORA C POWDERLY	873	89
Q083768077	O	5-12-8	EILEEN T POWDERLY	873	87
Q083768078	O	5-12-8	MARY F WEILAND	873	124
Q083768079	O	5-12-8	JAMES E HERMAN	873	128
Q083768080	O	5-12-8	ANTHONY T POWDERLY ET UX	878	363
Q083768081	O	5-12-8	SHARON L SCHOLL	878	379
Q083768082	O	5-12-8	JAMES T SCHOLL	878	376
Q083768083	O	5-12-8	ANNE GALBALLY ET VIR	878	354
Q083768084	O	5-12-8	CLARK D CHASE ET UX	878	357
Q083768085	O	5-12-8	BRIDGET A POWDERLY	881	29
Q083768086	O	5-12-8	NORA K POWDERLY	881	23
Q083768087	O	5-12-8	KEVIN M POWDERLY	890	538
Q083768088	O	5-12-8	MARY S SCHOLL	890	569
Q083768089	O	5-12-8	BRIAN P POWDERLY ET UX	890	563
Q083768090	O	5-12-8	SUSANNE S QUARTERMAN	890	560
Q083768091	O	5-12-8	HARRIET C VENTURA ET VIR	894	541
Q083768099	O	5-12-8	EILEEN T POWDERLY	873	81
10*21769	P	5-12-13	BETTY HAMILTON	957	419
10*21770	P	5-12-13	SUSAN WINLAND AND PAUL MICHAEL WINLAND	957	421
10*16918	Q	5-12-13	LINDA HAMILTON	957	417
10*14067	R	5-14-13	LIONEL LAND MARY LEE PERSINGER	976	617
10*14911	S	5-11-15	FORREST MILLER	666	51
10*16913	S	5-11-15	LIONEL LAND MARY LEE PERSINGER	819	316
10*17329	S	5-11-15	JOHN P ICARD AND REVA J ICARD	976	626
10*18045	S	5-11-15	KLOVA ANN MORRIS	943	524
10*18174	S	5-11-15	THE ESTATE OF ROY JOSEPH LEACH	927	114
10*19642	S	5-11-15	NOEL A PARKS	927	647
10*21455	S	5-11-15	MELISSA MILLER GIBSON AND JAMES GIBSON	944	92
10*21904	S	5-11-15	WILLIAM R VOLTZ AND SHARON VOLTZ	953	308
10*21905	S	5-11-15	MARY S MAGERS AND WILLIAMS MAGERS	960	182
10*21906	S	5-11-15	DAVID F VOLTZ AND LINDA VOLTZ	960	158
10*21910	S	5-11-15	MICHAEL P VOLTZ	961	444
10*21939	S	5-11-15	UIA F NELSON	960	164
10*22134	S	5-11-15	JACK MICHAEL FOREMAN	960	179
10*22309	S	5-11-15	AARON D LITMAN AND BETTY J LITMAN	961	449
10*22311	S	5-11-15	WILLIAM L LITMAN AND VICKIE L LITMAN	963	408
10*22312	S	5-11-15	RICHARD WOOD AND VICKI WOOD	963	404
10*22488	S	5-11-15	JULIE SPRINGWATER	962	528
10*22559	S	5-11-15	SHARON TOLER WILLIAMS & HERVY WILLIAMS	964	231
				966	94



P.S.
708
David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S

WELL #1 Woodford 8HU

DISTRICT1 Franklin

COUNTY1 Marshall

STATE1 WV

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WELL PLAT

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DATE: 07/27/2020