

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

API 47-051-02030 County Marshall District Franklin  
Quad Powhatan Point 7.5' Pad Name Bryan Field/Pool Name \_\_\_\_\_  
Farm name CNX Land Resources, Inc. Well Number Bryan N-13HU  
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 4,402,877.34 Easting 519,138.57  
Landing Point of Curve Northing 4,403,104.30 Easting 519,588.27  
Bottom Hole Northing 4,405,989.14 Easting 517,920.46

Elevation (ft) 1191.6' 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 9/5/2018 Date drilling commenced 9/19/2018 Date drilling ceased 11/29/2019  
Date completion activities began 4/1/2020 Date completion activities ceased 4/16/2020  
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 876' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 774-780', 869-875' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
*Jane Kubala*  
10/7/2020

API 47-051 - 02030 Farm name CNX Land Resources, Inc. Well number Bryan N-13HU

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"	100'	NEW	94.5#	N/A	Y
Surface	26"	20"	924'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,860'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	10,248'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 3/4"	5 1/2"	22,883'	NEW	20#	N/A	Y
Tubing		2 7/8"	11,471'	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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1631	15.6	1.19	1948	0	8
Coal							
Intermediate 1	A	2014	15.6	1.19	2653	0	8
Intermediate 2	A	3766	14.5	1.19	4387	0	8
Intermediate 3							
Production	A	5812	14.5	1.17	6150	0	
Tubing							

Drillers TD (ft) 22,941' Loggers TD (ft) n/a  
 Deepest formation penetrated Trenton Plug back to (ft) n/a  
 Plug back procedure n/a

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Kick off depth (ft) 10,453'

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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 \_\_\_\_\_





**Bryan N-13HU**  
**PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	4/1/2020	22694	22740	276	Utica
2	4/1/2020	22479	22655	60	Utica
3	4/2/2020	22279	22430	48	Utica
4	4/2/2020	22079	22255	60	Utica
5	4/2/2020	21879	22055	60	Utica
6	4/2/2020	21679	21830	48	Utica
7	4/2/2020	21479	21630	48	Utica
8	4/3/2020	21279	21455	60	Utica
9	4/3/2020	21079	21255	60	Utica
10	4/3/2020	20879	21055	30	Utica
11	4/3/2020	20679	20855	30	Utica
12	4/6/2020	20479	20630	48	Utica
13	4/6/2020	20279	20430	24	Utica
14	4/6/2020	20079	20230	48	Utica
15	4/6/2020	19879	20030	48	Utica
16	4/6/2020	19679	19830	48	Utica
17	4/7/2020	19479	19630	48	Utica
18	4/7/2020	19280	19430	48	Utica
19	4/7/2020	19080	19231	48	Utica
20	4/7/2020	18880	19031	48	Utica
21	4/7/2020	18680	18831	48	Utica
22	4/8/2020	18480	18631	48	Utica
23	4/8/2020	18280	18431	48	Utica
24	4/8/2020	18080	18231	48	Utica
25	4/8/2020	17880	18031	48	Utica
26	4/9/2020	17680	17831	48	Utica
27	4/9/2020	17480	17631	48	Utica
28	4/9/2020	17280	17431	48	Utica
29	4/9/2020	17080	17231	48	Utica
30	4/9/2020	16880	17031	48	Utica
31	4/9/2020	16680	16831	48	Utica
32	4/10/2020	16480	16631	48	Utica
33	4/10/2020	16280	16431	48	Utica
34	4/10/2020	16080	16231	48	Utica
35	4/10/2020	15880	16031	48	Utica
36	4/10/2020	15680	15831	48	Utica
37	4/13/2020	15480	15631	48	Utica
38	4/13/2020	15280	15431	48	Utica
39	4/13/2020	15080	15231	48	Utica
40	4/13/2020	14880	15056	60	Utica
41	4/13/2020	14680	14856	60	Utica

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42	4/14/2020	14480	14656	60	Utica
43	4/14/2020	14280	14431	48	Utica
44	4/14/2020	14080	14231	48	Utica
45	4/14/2020	13880	14056	60	Utica
46	4/14/2020	13680	13856	60	Utica
47	4/15/2020	13480	13631	60	Utica
48	4/15/2020	13280	13431	48	Utica
49	4/15/2020	13080	13231	48	Utica
50	4/15/2020	12880	13031	48	Utica
51	4/15/2020	12680	12831	48	Utica
52	4/16/2020	12481	12632	48	Utica
53	4/16/2020	12281	12432	48	Utica
54	4/16/2020	12081	12232	48	Utica
55	4/16/2020	11881	12032	48	Utica

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**BRYAN N-13HU**  
**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	11621	9602	6950	250195	6572	0
2	88	11282	7660	4037	501285	10261	0
3	88	11514	7484	7100	499966	10239	0
4	88	11589	9152	7401	499949	10102	0
5	88	11425	8700	7588	500879	10106	0
6	89	11338	9110	7041	502233	10238	0
7	89	11491	8689	6902	500018	10121	0
8	88	11572	6014	4034	500127	10140	0
9	89	11645	9865	7459	499946	10131	0
10	89	11259	9093	7628	499939	10164	0
11	90	11229	8102	7881	500947	10208	0
12	88	11467	8767	8002	500044	10040	0
13	89	11341	8224	7502	499994	10114	0
14	89	11333	8178	7586	500245	9999	0
15	88	11150	8127	7364	503345	10009	0
16	88	10752	6849	8415	502502	9929	0
17	89	10632	7675	8209	500101	9914	0
18	90	11226	8288	7699	500023	8984	0
19	90	11025	8668	6987	500911	9453	0
20	88	11186	9014	7927	501648	9120	0
21	88	10776	8246	7521	503738	9010	0
22	89	11004	8615	7924	500483	9001	0
23	89	10966	8574	7884	499969	8977	0
24	89	10994	8351	7396	502109	9012	0
25	89	11160	9354	7670	502167	8966	0
26	90	11044	8548	7790	501935	8911	0
27	89	10895	8741	8085	500026	8874	0
28	88	10934	6311	8687	500039	8919	0
29	89	10927	8782	7819	502147	8851	0
30	89	11097	8927	7819	503518	8867	0
31	89	11135	8562	8028	500647	8811	0
32	89	11022	8889	8325	499991	8991	0

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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)
33	90	11052	9246	7744	500283	8850	0
34	89	11150	8617	8025	500246	8786	0
35	90	11229	8423	6805	501002	8792	0
36	89	11020	8351	8010	500527	8753	0
37	90	10726	9152	8490	500074	8856	0
38	90	11096	9092	7954	500383	8875	0
39	90	11123	8938	7820	500494	8894	0
40	89	11005	8145	7121	500948	8779	0
41	90	11075	7978	8425	501821	8754	0
42	90	10939	9063	7774	500023	8816	0
43	90	10701	8905	7714	499979	8789	0
44	90	10604	9112	8122	500044	8784	0
45	90	10494	8877	7681	500710	8650	0
46	91	10328	8591	7314	500431	8658	0
47	90	10182	8324	8007	500008	8833	0
48	90	10174	8411	8134	500261	8763	0
49	90	10001	8355	8154	500163	8747	0
50	90	10032	8344	7644	500308	8651	0
51	91	9978	8097	7297	500229	8671	0
52	90	9939	8976	7417	500175	8646	0
53	90	9916	8614	7633	500093	8550	0
54	91	9950	8844	7638	500139	8694	0
55	91	9941	7854	6855	500107	8662	0

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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
Maxton	1953	2043	1955	2045	Sandstone
Big Lime	2043	2113	2045	2115	Limestone
Big Injun	2113	2397	2115	2400	Sandstone
Weir	2397	2592	2400	2595	Sandstone
Berea	2592	2937	2595	2940	Sandstone
Gordon	2937	2991	2940	2995	Sandstone
Fifty Foot	2991	3539	2995	3549	Sandstone
Speechley	3539	4961	3549	5014	Sandstone
Benson	4961	5316	5014	5378	Sandstone
Alexander	5316	5910	5378	5986	Siltstone
Rhinestreet	5910	6334	5986	6414	Black shale
Middlesex	6334	6400	6414	6480	Black shale
Geneseo/Burkett	6400	6435	6480	6515	Black shale
Tully	6435	6470	6515	6550	Limestone
Hamilton	6470	6516	6550	6597	Grey shale
Marcellus	6516	6569	6597	6650	Black shale
Onondaga	6569	6796	6650	6877	Limestone
Oriskany	6796	6897	6877	6979	Sandstone
Helderberg	6897	7259	6979	7341	Limestone
Salina	7259	8284	7341	8393	Salt/Anhydrite/LS
Lockport	8284	8651	8393	8776	Dolomite
Rose Hill	8651	8917	8776	9059	Shale
Packer Shell	8917	9118	9059	9270	Limestone
Clinton/Tuscarora	9118	9222	9270	9380	Sandstone
Juniata/Queenston	9222	9994	9380	10191	Red Shale
Reedsville	9994	10943	10191	11217	Grey Shale
Utica	10943	11208	11217	11711	Black Shale
Point Pleasant	11208	-	11711	-	Shale/Limestone

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/1/2020
Job End Date:	4/16/2020
State:	West Virginia
County:	Marshall
API Number:	47-051-02030-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Bryan N 13HU
Latitude:	39.77561617
Longitude:	-80.77651946
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,055
Total Base Water Volume (gal):	21,180,194
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Tug Hill Operating	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.29412	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	10.55739	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	2.76618	None
Hydrochloric Acid (7.5%)	PVS	Acidizing	Water	7732-18-5	85.00000	0.22984	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.10005	None
SlimStream FR 9800	Chemstream	Friction Reducer	Butene, homopolymer	9003-29-6	25.00000	0.01610	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01610	None
MC MX 9-4743	Multi-Chem	Biocide	Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00193	None
LD-7750W	Multi-Chem	Scale Inhibitor	Sodium Nitrate	7631-99-4	60.00000	0.02225	None

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		Methanol	67-56-1	60.00000	0.00505	None
		Phosphonic Acid Salt	Proprietary	5.00000	0.00042	None
ProFE 105	Iron Control					
	ProFrac	Citric Acid	77-92-9	100.00000	0.00109	None
ProHib 100	Acid Inhibitor					
		2-Propyn-1-ol compound w/ methylloxirane	38172-91-7	15.00000	0.00014	None
Ingredients shown above are subject to 29 CFR 1910.1200(j) 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	0.22984	
		Butene, homopolymer	9003-29-6	25.00000	0.01610	
		Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00193	
		Phosphonic Acid Salt	Proprietary	5.00000	0.00042	

\* 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(f) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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**Tug Hill Operating LLC**  
**Well: Bryan N-13HU (slot E)**  
**Site: Bryan Pad**  
**Project: Marshall County, West Virginia.**  
**Design: rev5**

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	10214.00	18.23	90.02	10015.91	-157.37	1609.79	0.00	0.000	-733.30	Survey @ 10214.00 MD 10015.91 TVD
2	10314.00	18.23	90.02	10110.89	-157.38	1641.07	0.00	0.000	-744.71	Proj. Begin 4.72°/100' drop/turn
3	10372.26	15.77	85.79	10166.60	-156.80	1658.08	4.72	-155.315	-750.37	Begin 15.77° tangent
4	10485.74	15.77	85.79	10275.80	-154.54	1688.85	0.00	0.000	-759.48	Begin 6°/100' build/turn
5	11399.46	50.00	344.02	11070.73	220.05	1718.66	6.00	-13.441	-421.53	Begin 8°/100' build/turn
6	11936.54	91.00	329.96	11247.00	871.60	1518.11	8.00	-20.884	72.05	Begin 91.00° lateral
7	22943.55	91.00	329.96	11055.00	10198.30	-3991.82	0.00	0.000	0.951.71	PBHLTD 22943.55 MD/11055.00 TVD

**ANNOTATIONS SURVEYS**

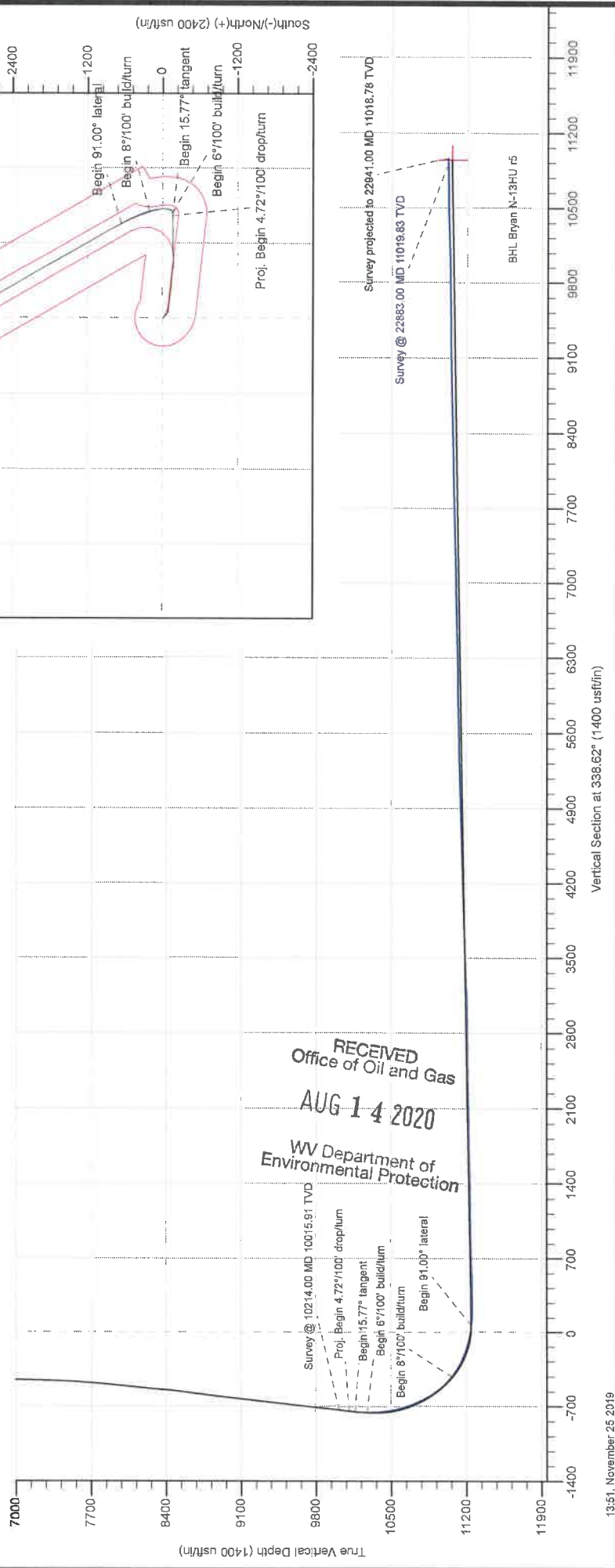
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
234.00	0.13	100.57	234.00	-0.05	0.26	-0.14	MWD surveys
22883.00	91.03	329.55	11019.83	10159.31	-3987.02	10906.36	Survey @ 22883.00 MD 11019.83 TVD
22941.00	91.03	329.55	11018.78	10209.30	-3996.41	10963.62	Survey projected to 22941.00 MD 11018.78 TVD

**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=1191+25 @ 1216.00usft. (H&P 611)  
**Surface location**  
 Northing 14445106.19 Easting 1703207.00 Latitude 39.77561617 Longitude -80.77651946



**Total Corr (M->G):** To convert a Magnetic Direction to a Grid Direction, Subtract 6.857°



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BRYAN LEASE  
UTICA UNIT - 397.0538 AC ±  
WELL N-13HU  
TUG HILL OPERATING

TOP HOLE LATITUDE: 39°47'30"  
BOTTOM HOLE LATITUDE: 39°50'00"

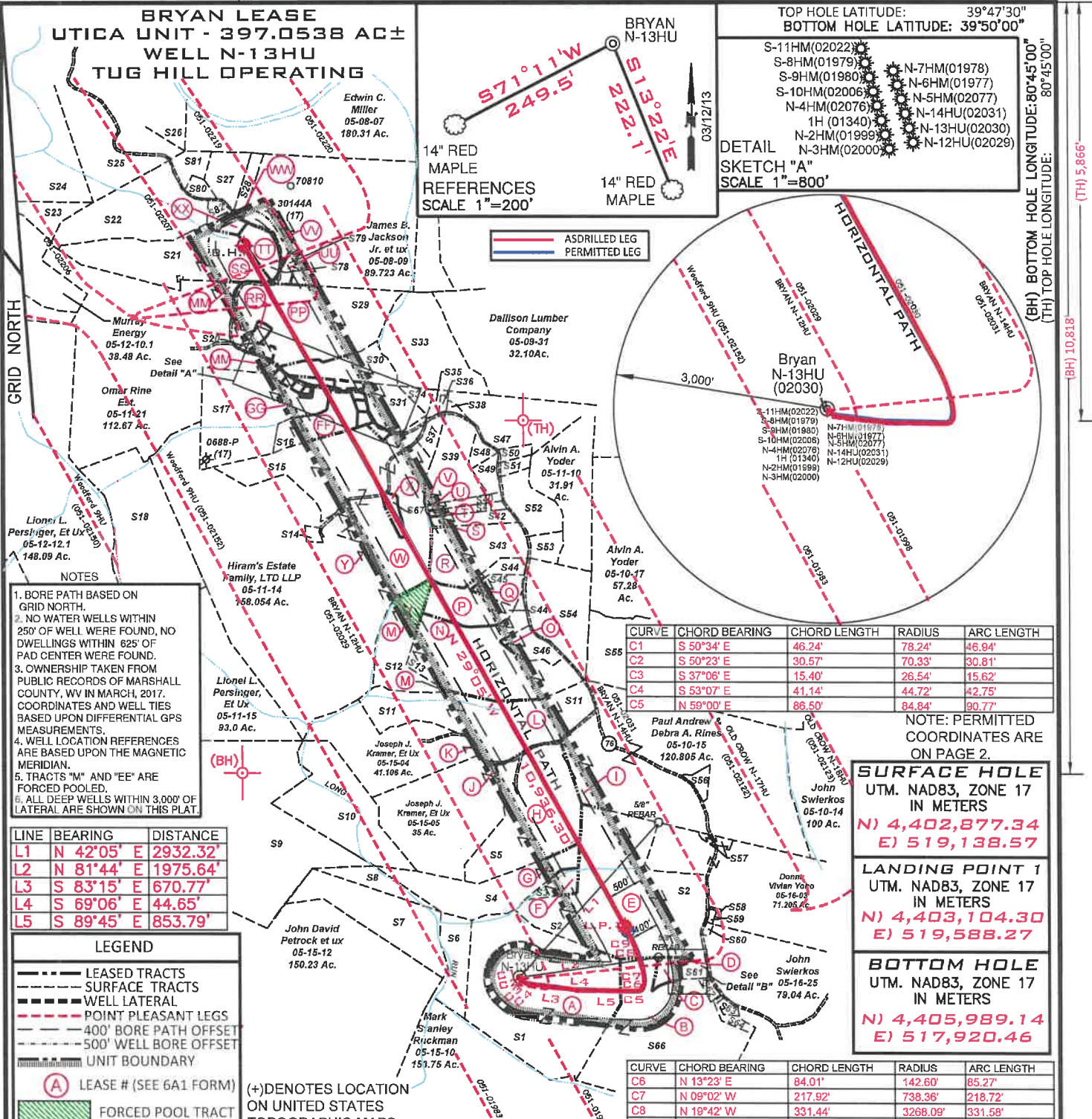
- S-11HM(02022)
- S-8HM(01979)
- S-9HM(01980)
- S-10HM(02006)
- N-4HM(02076)
- 1H (01340)
- N-2HM(01999)
- N-3HM(02000)
- N-7HM(01978)
- N-6HM(01977)
- N-5HM(02077)
- N-14HU(02031)
- N-13HU(02030)
- N-12HU(02029)

DETAIL  
SKETCH "A"  
SCALE 1"=800'

(BH) TOP HOLE LONGITUDE: 80°45'00"  
(TH) TOP HOLE LONGITUDE: 80°45'00"

(TH) 5,866'

(BH) 10,818'



- 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.
  - TRACTS "M" AND "EE" ARE FORCED POOLED.
  - ALL DEEP WELLS WITHIN 3,000' OF LATERAL ARE SHOWN ON THIS PLAT.

LINE	BEARING	DISTANCE
L1	N 42°05' E	2932.32'
L2	N 81°44' E	1975.64'
L3	S 83°15' E	670.77'
L4	S 69°06' E	44.65'
L5	S 89°45' E	853.79'

**LEGEND**

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- (+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS
- FORCED POOL TRACT

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 50°34' E	46.24'	78.24'	46.94'
C2	S 50°23' E	30.57'	70.33'	30.81'
C3	S 37°06' E	15.40'	26.54'	15.62'
C4	S 53°07' E	41.14'	44.72'	42.75'
C5	N 59°00' E	86.50'	84.84'	90.77'

NOTE: PERMITTED COORDINATES ARE ON PAGE 2.

**SURFACE HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,402,877.34  
E) 519,138.57

**LANDING POINT 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,403,104.30  
E) 519,588.27

**BOTTOM HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,405,989.14  
E) 517,920.46

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C6	N 13°23' E	84.01'	142.60'	85.27'
C7	N 09°02' W	217.92'	738.36'	218.72'
C8	N 19°42' W	331.44'	3268.09'	331.58'
C9	N 26°02' W	279.18'	2553.57'	279.32'

FILE NUMBER \_\_\_\_\_

DRAWING NUMBER BRYAN\_N-13HU

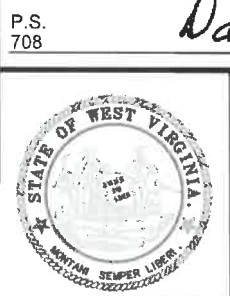
SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

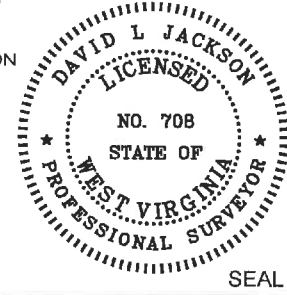
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING  
GRADE GPS

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

*David L Jackson*



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



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

DATE: AUGUST 10, 2020

OPERATORS WELL NO. BRYAN N-13HU

API WELL NO. 47-051-02030

STATE            COUNTY            PERMIT           

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

LOCATION ELEVATION 1191.6' WATERSHED (HUC 10) Fish Creek

DISTRICT Franklin COUNTY Marshall

QUADRANGLE Powhatan Point 7.5' LEASE NUMBER SEE WW-6A1 ROYALTY OWNERS

SURFACE OWNER CNX LAND RESOURCES, INC. ACREAGE 81.98

OIL & GAS ROYALTY OWNER MICHAEL R. BRYAN - SEE WW-6A1 ROYALTY OWNERS LEASE ACREAGE 81.98

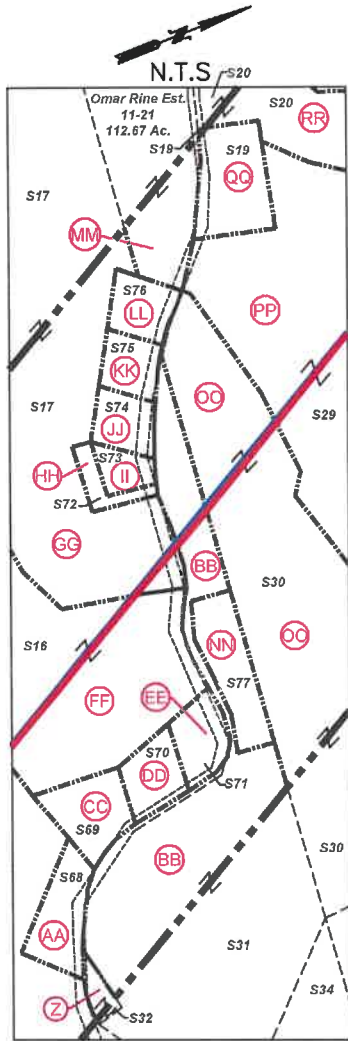
PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION   
PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE (SPECIFY) ASDRILLED

TARGET FORMATION Point Pleasant ESTIMATED DEPTH TVD: 11,019' TMD: 22,941'

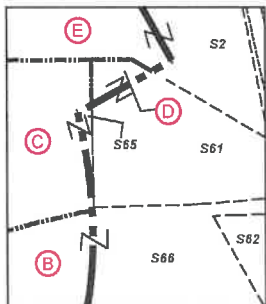
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD  
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME  
PERMIT

**BRYAN LEASE  
UTICA UNIT - 397.0538 AC±  
WELL N-13HU  
TUG HILL OPERATING**

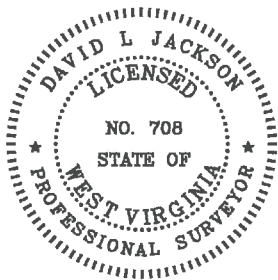


Detail "A"



Detail "B"

<b>SURFACE HOLE</b> UTM. NAD83, ZONE 17 IN METERS N) 4,402,877.17 E) 519,138.53
<b>LANDING POINT 1</b> UTM. NAD83, ZONE 17 IN METERS N) 4,403,001.40 E) 519,648.22
<b>BOTTOM HOLE</b> UTM. NAD83, ZONE 17 IN METERS N) 4,405,985.62 E) 517,921.82



P.S. 708

*David L Jackson*

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES	
S1	A	05-15-9	CNX Land Resources, Inc.	81.98
S2	E	05-15-8	Terry D. Rose, et ux	77.1
S3	F	05-15-7	Terry D. Rose, et ux	4.5
S4	G	05-15-6.1	Joseph J. Kramar, et ux	39.40
S5	H	05-15-6	Joseph J. Kramar, et ux	42.5
S6		05-15-13	CNX Land Resources	11.0
S7		05-15-14	John David Petrock, et ux	25.0
S8		05-15-2	John David Petrock, et ux	5.0
S9		05-15-1	Marcus Sharp & David Schlabach	121.0
S10		05-15-3	Joseph J. Kramar, et ux	36.10
S11	L	05-11-12	Joseph J. Kramar, et ux	43.2188
S12	M	05-11-13	Joy D. Gartman & Arlin Gatts	12.29
S13	N	05-11-11.3	Herman D. & Herman J. Lantz	43.96
S14		05-11-14.1	Dennis F. Moore, et ux	1.056
S15	W	05-11-16	Keith E. Haught, et al	83.674
S16	FF	05-11-17.2	Brenda & Michael Bryan	11.504
S17	GG	05-11-17	Kevin R. Corley, et ux	36.13
S18		05-12-11	Wesley Bryan & Wesley Bryan II	52.478
S19	QQ	05-11-2.2	Joshua A. Myers	2.193
S20	RR	05-11-2.1	Walter C. & Cheryl A. Rine	1.19
S21	SS	05-11-1.1	Larry W. Dunlap, et al	34.405
S22		05-11-1.4	Larry W. Dunlap, et al	32.493
S23		05-12-9	Lionel & Mary Lee Persinger	10.15
S24		05-7-39	Lionel L. Persinger, et ux	57.0
S25		05-7-33	William N. Roupe	24.60
S26		05-7-31	William N. Roupe	43.147
S27		05-11-1.7	William S. & Mary K. Adams	8.0
S28	WW	05-11-1.5	Paul White	3.507
S29	PP	05-11-2	Walter C. & Cheryl A. Rine	42.367
S30	OO	05-11-3	Kevin R. Corley, et al	13.18
S31	BB	05-11-5	Kevin R. Corley, et ux	10.36
S32	Z	05-11-5.1	James R. Anderson, et ux	0.205
S33		05-11-4	David H. Arrick, et ux	31.5
S34		05-11-5.3	Robert Harris Arrick, et ux	3.0
S35		05-11-6	Robert & Rebecca Arrick	1.29
S36		05-11-7	Baptist Cemetery	1.0
S37		05-11-16.3	Kegan Michael Haught - Life	3.265
S38		05-11-8	Baptist Church	0.8
S39	V	05-11-9.3	Joseph M. Haught & Steven Haught	16.3
S40	U	05-11-9.5	Southern Country Farms, Inc	2.559
S41	T	05-11-9.6	Southern Country Farms, Inc	2.488
S42	S	05-11-9.9	Leonard L. Parsons, et ux	5.89
S43	R	05-11-9	Edwin C. & Kimberly A. Miller	41.773
S44	P	05-11-11.4	Brad M. & Amanda J. Blake	15.193
S45	Q	05-11-11	Brad M. & Amanda J. Blake	5.0
S46	O	05-11-11.1	Nellie Marie & Robert W. Spencer	5.813
S47		05-11-9	Edwin C. & Kimberly A. Miller	41.773
S48		05-11-9.10	John A. & Janet L. Beucke	2.348
S49		05-11-9.2	Michael R. Bryan	3.143
S50		05-11-9.8	Sean F. Moore	2.070
S51		05-11-9.7	Sean F. Moore	2.026
S52		05-11-9.1	Jack Shepard Huggins Jr., et al	10.92
S53		05-11-9.4	Jack S. Huggins, et al	4.129
S54		05-11-11.2	Wesley R. Bryan & Wesley R. Bryan II	25.031
S55		05-10-16.4	Melvin E. Ferguson & Elizabeth Ferguson	30.87
S56		05-10-15.1	Donald T. Miller	2.095
S57		05-16-3.2	Jimmy Lee Ostrander Jr., Sheena Lynn Ostrander & Brody Ray Ostrander	1.435
S58		05-16-3.1	Dennis E. Jackson, et ux	0.27
S59		05-16-2	Christian Church	0.19
S60		05-16-1	Christian Church	0.50
S61	D	05-16-23.1	Ray E. Minor, et ux	2.0
S62		05-16-23.3	Greg & Christina Riddle	1.0
S63		05-16-24	Alan M. Beyser, et ux	1.083
S64		05-16-23.2	Alan M. Beyser, et ux	1.726
S65	C	05-16-23.4	Michael R. & Brenda K. Bryan	3.0
S66	B	05-16-23	CNX Land Resources, Inc.	60.138
S67	X	05-11-16.2	Joseph Haught	2.181
S68	AA	05-11-16.1	Susan Smith, LE	0.876
S69	CC	05-11-25	Owen Michael Barr	0.598
S70	DD	05-11-23	Owen Michael Barr	0.845
S71	EE	05-11-24	Charles Edward Furbee, et ux	0.603
S72	HH	05-11-17.1	David Gray	0.297
S73	II	05-11-22	David Gray	0.353
S74	JJ	05-11-18	David E. Gray	0.569
S75	KK	05-11-19	David E. Gray	0.532
S76	LL	05-11-20	David E. Gray	0.569
S77	NN	05-11-5.2	Rickey & Victoria Cross	1.0
S78	TT	05-11-1.2	Jay A. Conner, et ux	5.824
S79	UU	05-8-9.1	Scott E. Jackson, Tammy S. South & Marion Jackson	1.957
S80		05-11-1.6	Debra Morris	2.093
S81		05-11-1	William N. & Virginia A. Roupe	4.527
S82	XX	05-11-1.3	Jay A. Conner, et ux	4.256



**TUG HILL  
OPERATING**

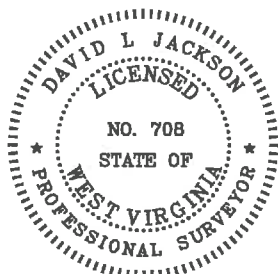
OPERATOR'S  
WELL #: Bryan N-13HU  
API #: 47-051-02030  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

WELL PLAT  
PAGE 2 OF 4  
DATE: 08/10/2020

BRYAN LEASE
UTICA UNIT - 397.0538 AC±
WELL N-13HU
TUG HILL OPERATING

Table with columns: LEASE NO., TAGS, PARCEL, OIL & GAS ROYALTY OWNER, DEED BOOK, PAGE. Lists various lease parcels and their owners.

Table with columns: LEASE NO., TAGS, PARCEL, OIL & GAS ROYALTY OWNER, DEED BOOK, PAGE. Continuation of lease list from the previous table.



P.S. 708

David L Jackson



OPERATOR'S WELL #: Bryan N-13HU
API #: 47-051-02030
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

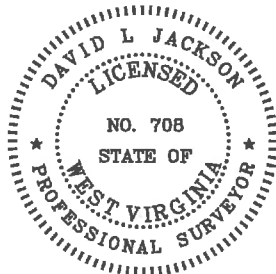
WELL PLAT
PAGE 3 OF 4
DATE: 08/10/2020

**BRYAN LEASE  
UTICA UNIT - 397.0538 AC±  
WELL N-13HU  
TUG HILL OPERATING**

LEASE NO.	TAGS	PARCEL	OIL & GAS ROYALTY OWNER	DEED BOOK	PAGE
10*19192	GG	5-11-17	JAMES E YOHO	714	129
10*19201	GG	5-11-17	DANIEL K YOHO	714	125
10*19202	GG	5-11-17	DEBORAH L WOOLEY	714	131
10*19203	GG	5-11-17	CAROL M YOHO	713	205
10*19204	GG	5-11-17	DAYNA MARLENE YOHO	714	127
10*19205	GG	5-11-17	JEFFREY C YOHO	713	203
10*19251	GG	5-11-17	RAE SUZETTE BAKER	748	315
10*19252	GG	5-11-17	JOHN WILSON	749	522
10*19502	GG	5-11-17	SUSAN BLANCHE BEYSER	942	623
10*19893	GG	5-11-17	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	GG	5-11-17	SHERY AND RANDEN RITCHEA	949	365
10*18845	HH	5-11-17.1	DAVID E GRAY	999	386
10*19176	HH	5-11-17.1	MAUNA MAXINE BEYSER	710	602
10*19177	HH	5-11-17.1	NINA L KOVACS	710	594
10*19185	HH	5-11-17.1	HARRIETT LODUTH FOLEY	710	598
10*19186	HH	5-11-17.1	JOEL GLOVER	710	600
10*19189	HH	5-11-17.1	SHERRY ANN MCPHERON	710	606
10*19190	HH	5-11-17.1	SALLY LEE RIVERA	710	590
10*19191	HH	5-11-17.1	SHARLA BETH WEAVER	710	608
10*19192	HH	5-11-17.1	JAMES E YOHO	714	129
10*19201	HH	5-11-17.1	DANIEL K YOHO	714	125
10*19202	HH	5-11-17.1	DEBORAH L WOOLEY	714	131
10*19203	HH	5-11-17.1	CAROL M YOHO	713	205
10*19204	HH	5-11-17.1	DAYNA MARLENE YOHO	714	127
10*19205	HH	5-11-17.1	JEFFREY C YOHO	713	203
10*19251	HH	5-11-17.1	RAE SUZETTE BAKER	748	315
10*19252	HH	5-11-17.1	JOHN WILSON	749	522
10*19502	HH	5-11-17.1	SUSAN BLANCHE BEYSER	942	623
10*19893	HH	5-11-17.1	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	HH	5-11-17.1	SHERY AND RANDEN RITCHEA	949	365
10*18845	II	5-11-22	DAVID E GRAY	999	386
10*19176	II	5-11-22	MAUNA MAXINE BEYSER	710	602
10*19177	II	5-11-22	NINA L KOVACS	710	594
10*19185	II	5-11-22	HARRIETT LODUTH FOLEY	710	598
10*19186	II	5-11-22	JOEL GLOVER	710	600
10*19189	II	5-11-22	SHERRY ANN MCPHERON	710	606
10*19190	II	5-11-22	SALLY LEE RIVERA	710	590
10*19191	II	5-11-22	SHARLA BETH WEAVER	710	608
10*19192	II	5-11-22	JAMES E YOHO	714	129
10*19201	II	5-11-22	DANIEL K YOHO	714	125
10*19202	II	5-11-22	DEBORAH L WOOLEY	714	131
10*19203	II	5-11-22	CAROL M YOHO	713	205
10*19204	II	5-11-22	DAYNA MARLENE YOHO	714	127
10*19205	II	5-11-22	JEFFREY C YOHO	713	203
10*19251	II	5-11-22	RAE SUZETTE BAKER	748	315
10*19252	II	5-11-22	JOHN WILSON	749	522
10*19502	II	5-11-22	SUSAN BLANCHE BEYSER	942	623
10*19893	II	5-11-22	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	II	5-11-22	SHERY AND RANDEN RITCHEA	949	365
10*19176	JJ	5-11-18	MAUNA MAXINE BEYSER	710	602
10*19177	JJ	5-11-18	NINA L KOVACS	710	594
10*19185	JJ	5-11-18	HARRIETT LODUTH FOLEY	710	598
10*19186	JJ	5-11-18	JOEL GLOVER	710	600
10*19187	JJ	5-11-18	DAVID E GRAY	710	610
10*19189	JJ	5-11-18	SHERRY ANN MCPHERON	710	606
10*19190	JJ	5-11-18	SALLY LEE RIVERA	710	590
10*19191	JJ	5-11-18	SHARLA BETH WEAVER	710	608
10*19192	JJ	5-11-18	JAMES E YOHO	714	129
10*19201	JJ	5-11-18	DANIEL K YOHO	714	125
10*19202	JJ	5-11-18	DEBORAH L WOOLEY	714	131
10*19203	JJ	5-11-18	CAROL M YOHO	713	205
10*19204	JJ	5-11-18	DAYNA MARLENE YOHO	714	127
10*19205	JJ	5-11-18	JEFFREY C YOHO	713	203
10*19251	JJ	5-11-18	RAE SUZETTE BAKER	748	315
10*19252	JJ	5-11-18	JOHN WILSON	749	522
10*19502	JJ	5-11-18	SUSAN BLANCHE BEYSER	942	623
10*19893	JJ	5-11-18	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	JJ	5-11-18	SHERY AND RANDEN RITCHEA	949	365
10*19176	KK	5-11-19	MAUNA MAXINE BEYSER	710	602
10*19177	KK	5-11-19	NINA L KOVACS	710	594
10*19185	KK	5-11-19	HARRIETT LODUTH FOLEY	710	598
10*19186	KK	5-11-19	JOEL GLOVER	710	600
10*19187	KK	5-11-19	DAVID E GRAY	710	610
10*19189	KK	5-11-19	SHERRY ANN MCPHERON	710	606
10*19190	KK	5-11-19	SALLY LEE RIVERA	710	590
10*19191	KK	5-11-19	SHARLA BETH WEAVER	710	608
10*19192	KK	5-11-19	JAMES E YOHO	714	129
10*19201	KK	5-11-19	DANIEL K YOHO	714	125
10*19202	KK	5-11-19	DEBORAH L WOOLEY	714	131

LEASE NO.	TAGS	PARCEL	OIL & GAS ROYALTY OWNER	DEED BOOK	PAGE
10*19203	KK	5-11-19	CAROL M YOHO	713	205
10*19204	KK	5-11-19	DAYNA MARLENE YOHO	714	127
10*19205	KK	5-11-19	JEFFREY C YOHO	713	203
10*19251	KK	5-11-19	RAE SUZETTE BAKER	748	315
10*19252	KK	5-11-19	JOHN WILSON	749	522
10*19502	KK	5-11-19	SUSAN BLANCHE BEYSER	942	623
10*19893	KK	5-11-19	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	KK	5-11-19	SHERY AND RANDEN RITCHEA	949	365
10*18722	LL	5-11-20	HIRAMS ESTATE FAMILY LIMITED LIABILITY LIMITED PARTNERSHIP	998	523
10*19176	LL	5-11-20	MAUNA MAXINE BEYSER	710	602
10*19177	LL	5-11-20	NINA L KOVACS	710	594
10*19185	LL	5-11-20	HARRIETT LODUTH FOLEY	710	598
10*19186	LL	5-11-20	JOEL GLOVER	710	600
10*19187	LL	5-11-20	DAVID E GRAY	710	610
10*19189	LL	5-11-20	SHERRY ANN MCPHERON	710	606
10*19190	LL	5-11-20	SALLY LEE RIVERA	710	590
10*19191	LL	5-11-20	SHARLA BETH WEAVER	710	608
10*19192	LL	5-11-20	JAMES E YOHO	714	129
10*19201	LL	5-11-20	DANIEL K YOHO	714	125
10*19202	LL	5-11-20	DEBORAH L WOOLEY	714	131
10*19203	LL	5-11-20	CAROL M YOHO	713	205
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10*19205	LL	5-11-20	JEFFREY C YOHO	713	203
10*19251	LL	5-11-20	RAE SUZETTE BAKER	748	315
10*19252	LL	5-11-20	JOHN WILSON	749	522
10*19502	LL	5-11-20	SUSAN BLANCHE BEYSER	942	623
10*19893	LL	5-11-20	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	LL	5-11-20	SHERY AND RANDEN RITCHEA	949	365
Q088586011	MM	5-11-21	KAREN SUE CLYDE REED	864	190
Q088586003	MM	5-11-21	G ENIE SUE THOMAS AND JOHN L HOLMES	848	204
Q088586010	MM	5-11-21	BRENDA FAYE AND THOMAS PETRACK	850	161
Q088586002	MM	5-11-21	GAIL ANN YATES AND WESLEY J WOOD	848	208
Q088586005	MM	5-11-21	SHIRLEY YATES AND FREDDIE LEE HARTSELL	848	212
Q088586004	MM	5-11-21	BOYD DAILIR AND MARLA YATES	848	210
Q088586001	MM	5-11-21	GUY YATES	848	206
Q088586007	MM	5-11-21	REBEKAH DRAYER AND CHRISTOPHER ELDRIDGE	850	157
Q088586008	MM	5-11-21	BOYD BUESKING	850	159
Q088586009	MM	5-11-21	CHRISTA DRAYER AND JOSHUA STALEY	851	3
10*19176	NN	5-11-5.2	MAUNA MAXINE BEYSER	710	602
10*19177	NN	5-11-5.2	NINA L KOVACS	710	594
10*19185	NN	5-11-5.2	HARRIETT LODUTH FOLEY	710	598
10*19186	NN	5-11-5.2	JOEL GLOVER	710	600
10*19189	NN	5-11-5.2	SHERRY ANN MCPHERON	710	606
10*19190	NN	5-11-5.2	SALLY LEE RIVERA	710	590
10*19191	NN	5-11-5.2	SHARLA BETH WEAVER	710	608
10*19192	NN	5-11-5.2	JAMES E YOHO	714	129
10*19201	NN	5-11-5.2	DANIEL K YOHO	714	125
10*19202	NN	5-11-5.2	DEBORAH L WOOLEY	714	131
10*19203	NN	5-11-5.2	CAROL M YOHO	713	205
10*19204	NN	5-11-5.2	DAYNA MARLENE YOHO	714	127
10*19205	NN	5-11-5.2	JEFFREY C YOHO	713	203
10*19251	NN	5-11-5.2	RAE SUZETTE BAKER	748	315
10*19252	NN	5-11-5.2	JOHN WILSON	749	522
10*19502	NN	5-11-5.2	SUSAN BLANCHE BEYSER	942	623
10*19893	NN	5-11-5.2	WINIFRED G AND EDDIE G TURNER	948	277
10*21041	NN	5-11-5.2	SHERY AND RANDEN RITCHEA	949	365
10*21224	NN	5-11-5.2	RICKEY LYNN CROSS & VICTORIA ROSE CROSS	999	589
10*18722	OO	5-11-3	HIRAMS ESTATE FAMILY LIMITED LIABILITY LIMITED PARTNERSHIP	998	523
10*19126	OO	5-11-3	KEVIN R. CORLEY AND ANITA L. CORLEY, HUSBAND AND WIFE	859	47
10*19127	PP	5-11-2	WALTER C. RINE AND CHERYL ANN RINE	859	49
10*19127	QQ	5-11-2.2	WALTER C. RINE AND CHERYL ANN RINE	859	49
10*19127	RR	5-11-2.1	WALTER C. RINE AND CHERYL ANN RINE	859	49
10*19164	RR	5-11-2.1	KATHERINE A STALNAKER	899	486
10*19169	RR	5-11-2.1	DANIEL L RINE	899	260
10*47051.089.0	SS	5-11-1.1	LARRY W DUNLAP AND BARBARA E DUNLAP	864	148
10*19167	TT	5-11-1.2	JAY A CONNER PATTY LOUISE CONNER	724	156
10*19219	UU	5-8-9.1	SCOTT E AND TAMMY SUE JACKSON	791	102
10*47051.105.0	VV	5-8-9	JAMES B JACKSON JR AND MARION L JACKSON	859	478
10*19168	WW	5-11-1.5	PAUL AND SANDY WHITT	715	565
10*19167	XX	5-11-1.3	JAY A CONNER PATTY LOUISE CONNER	724	156

\*\*\* Force pool Interest



P.S. 708

*David L Jackson*



**TUG HILL  
OPERATING**

OPERATOR'S  
WELL #: Bryan N-13HU  
API #: 47-051-02030  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

WELL PLAT  
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DATE: 08/10/2020