

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

API 47 - 051 - 02000 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-3HM
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 4,402,871.99 Easting 519,133.31
Landing Point of Curve Northing 4,402,794.16 Easting 518,899.25
Bottom Hole Northing 4,405,543.12 Easting 517,311.02

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 Other

Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other DEC 29 2020

Drilled with Cable Rotary

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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 2/28/2018 Date drilling commenced 9/22/2018 Date drilling ceased 6/5/2019

Date completion activities began 5/4/2020 Date completion activities ceased 8/26/2020

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 831' Open mine(s) (Y/N) depths N

Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N

Coal depth(s) ft 729-735', 824-830' Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) N

Reviewed by: _____

API 47-051 - 02000 Farm name CNX Land Resources, Inc. Well number Bryan N-3HM

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	17 1/2"	13 3/8"	927'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	927'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,663'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	17,343'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,672'	NEW	4.7#	N/A	Y
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	960	15.6	1.19	1149	0	8
Coal	A	960	15.6	1.19	1149	0	8
Intermediate 1	A	1077	15.6	1.19	1277	0	8
Intermediate 2							
Intermediate 3							
Production	A	4093	14.5	1.17	4807	0	8
Tubing							

Drillers TD (ft) 17,393' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

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Kick off depth (ft) 5,817'

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Check all wireline logs run caliper density deviated/directional induction WV Department of Environmental Protection
 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 - 02000 Farm name CNX Land Resources, Inc. Well number Bryan N-3HM

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 (bbls)	Amount of Nitrogen/other (units)
	attached							

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Please insert additional pages as applicable.

API 47- 051 - 02000 Farm name CNX Land Resources, Inc. Well number Bryan N-3HM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6500' - 6347'</u> TVD	<u>7120' - 17393'</u> MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1300 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 0 mcfpd Oil 0 bpd NGL 0 bpd Water 600 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
<u>see attached</u>	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

Drilling Contractor Precision
Address 10350 Richmond Avenue, Suite 700 City Houston State TX Zip 77042

Logging Company n/a
Address _____ City _____ State _____ Zip _____ **RECEIVED
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Cementing Company BJ Cementing Services
Address 4000 Town Center Boulevard City Canonsburg State PA Zip 15317 **WV Department of
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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. Morris Telephone 304-376-0111
Signature Amy L. Morris Title Permitting Specialist Date 12-23-2020

**Bryan N-3HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	5/4/2020	17161	17208	16	Marcellus
2	5/4/2020	16961	17107	48	Marcellus
3	5/4/2020	16786	16933	48	Marcellus
4	5/4/2020	16611	16758	48	Marcellus
5	5/4/2020	16437	16583	48	Marcellus
6	5/5/2020	16262	16409	48	Marcellus
7	5/5/2020	16087	16234	48	Marcellus
8	5/5/2020	15913	16059	48	Marcellus
9	5/5/2020	15738	15885	48	Marcellus
10	5/5/2020	15563	15710	48	Marcellus
11	5/6/2020	15389	15535	48	Marcellus
12	5/6/2020	15214	15360	48	Marcellus
13	5/6/2020	15039	15186	48	Marcellus
14	5/6/2020	14864	15011	48	Marcellus
15	5/6/2020	14690	14836	48	Marcellus
16	5/6/2020	14515	14662	48	Marcellus
17	5/7/2020	14340	14487	48	Marcellus
18	5/7/2020	14166	14312	48	Marcellus
19	5/7/2020	13991	14138	48	Marcellus
20	5/7/2020	13816	13963	48	Marcellus
21	5/7/2020	13642	13788	48	Marcellus
22	5/7/2020	13467	13613	48	Marcellus
23	5/8/2020	13292	13439	48	Marcellus
24	5/8/2020	13117	13264	48	Marcellus
25	5/8/2020	12943	13089	48	Marcellus
26	5/8/2020	12768	12915	48	Marcellus
27	5/8/2020	12593	12740	48	Marcellus
28	5/8/2020	12419	12565	48	Marcellus
29	5/9/2020	12244	12391	48	Marcellus
30	5/9/2020	12069	12216	48	Marcellus
31	5/9/2020	11895	12041	48	Marcellus
32	5/9/2020	11720	11866	48	Marcellus
33	5/9/2020	11545	11692	48	Marcellus
34	5/9/2020	11370	11517	48	Marcellus
35	5/10/2020	11196	11342	48	Marcellus
36	5/10/2020	11021	11168	48	Marcellus
37	5/10/2020	10846	10993	48	Marcellus
38	5/10/2020	10672	10818	48	Marcellus
39	5/10/2020	10497	10644	48	Marcellus
40	8/21/2020	10322	10468	48	Marcellus
41	8/21/2020	10,148	10,293	48	Marcellus

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42	8/22/2020	9,973	10,118	48	Marcellus
43	8/22/2020	9,798	9,944	48	Marcellus
44	8/22/2020	9,623	9,769	48	Marcellus
45	8/23/2020	9,449	9,594	48	Marcellus
46	8/23/2020	9,274	9,420	48	Marcellus
47	8/23/2020	9,099	9,245	48	Marcellus
48	8/23/2020	8,925	9,070	48	Marcellus
49	8/23/2020	8,750	8,896	48	Marcellus
50	8/24/2020	8,575	8,721	48	Marcellus
51	8/24/2020	8,401	8,546	48	Marcellus
52	8/24/2020	8,226	8,371	48	Marcellus
53	8/24/2020	8,051	8,197	48	Marcellus
54	8/25/2020	7,876	8,022	48	Marcellus
55	8/25/2020	7,702	7,847	48	Marcellus
56	8/25/2020	7,527	7,673	48	Marcellus
57	8/25/2020	7,352	7,498	48	Marcellus
58	8/25/2020	7,178	7,323	48	Marcellus
59	8/26/2020	7,003	7,149	48	Marcellus

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Bryan N-3HM
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	25	8164	8345	5143	1437	1724	0
2	90	7600	5422	4202	441175	8575	0
3	90	7650	5456	4924	441137	8421	0
4	89	7681	5325	4831	441694	8395	0
5	90	7769	5174	4366	440791	8477	0
6	90	7588	5220	4634	441388	8329	0
7	88	7378	4850	4553	441748	8324	0
8	89	7474	5486	4595	440647	8344	0
9	89	7589	5725	4558	443159	8306	0
10	90	7573	5637	5081	439178	8175	0
11	90	7390	5262	4636	444395	8180	0
12	89	7164	5675	4546	442217	8152	0
13	89	7345	5461	4843	442517	7662	0
14	89	7434	5655	4645	440056	7636	0
15	90	7337	5620	4424	439951	7704	0
16	90	7335	5434	4853	441047	7679	0
17	90	7320	5995	5244	440806	7714	0
18	89	7107	5913	4880	441478	7712	0
19	88	7173	6282	4622	440483	7739	0
20	89	7169	6291	4674	440586	7656	0
21	90	7343	6039	4766	441113	7609	0
22	91	7426	5942	4559	440529	7518	0
23	89	7226	5643	4757	441316	7601	0
24	89	7100	5879	4943	441669	7631	0
25	89	7017	6062	4663	440259	7597	0
26	90	7329	5285	4717	444056	7507	0
27	90	7191	5676	4770	440497	7574	0
28	90	7331	5889	4946	440990	7438	0
29	89	7048	5840	5442	439382	7440	0
30	89	7035	5940	4856	440346	7456	0
31	89	6966	6049	5163	440271	7500	0
32	90	7210	6205	4814	442753	7382	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	91	7218	5659	4927	441255	7363	0
34	91	7238	5670	4865	440729	7408	0
35	90	7051	5385	4816	439480	7333	0
36	89	6702	5536	5019	439154	7482	0
37	88	6663	5538	5214	439341	7507	0
38	88	6671	5552	4926	440337	7399	0
39	90	6792	5134	4711	6215	2650	0
40	90	6645	4852	4194.906	442520	8464	0
41	89	6583	4489	4502.223	454620	8334	0
42	90	6656	4926	5133.825	453960	8246	0
43	90	6480	4213	5134	440580	8445	0
44	88	6427	4814	4462	448200	8622	0
45	90	6612	5232	5114.395	438780	8221	0
46	90	6452	4770	5245.829	444700	8004	0
47	90	6385	5638	5184.7	446220	8156	0
48	89	6206	4902	4569.1	447440	8370	0
49	89	6402	4723	4854.853	442580	8291	0
50	90	6259	5340	4782	457420	8256	0
51	90	6090	5000	5453.5	439600	8073	0
52	90	6112	4991	4210.3	445780	8257	0
53	90	6099	4336	5209.9	436860	8178	0
54	90	6191	5061	5673.4	446920	8035	0
55	90	6295	5061	5313.008	450760	8149	0
56	90	6166	4854	4854.8	440120	8083	0
57	91	6208	5064	4964.9	438420	8102	0
58	90	6160	5002	5233.8	439180	8111	0
59	90	6048	5428	4901.2	439760	8023	0

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BRYAN N-3HM

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	1902	1992	1903	1993	Sandstone
Big Lime	1992	2062	1993	2063	Limestone
Big Injun	2062	2346	2063	2347	Sandstone
Weir	2346	2541	2347	2542	Sandstone
Berea	2541	2886	2542	2887	Sandstone
Gordon	2886	2940	2887	2941	Sandstone
Fifty Foot	2940	3488	2941	3491	Sandstone
Speechley	3488	4910	3491	4968	Sandstone
Benson	4910	5265	4968	5342	Sandstone
Alexander	5265	5859	5342	5964	Siltstone
Rhinestreet	5859	6289	5964	6435	Black shale
Middlesex	6289	6364	6435	6540	Black shale
Geneseo/Burkett	6364	6388	6540	6580	Black shale
Tully	6388	6420	6580	6640	Limestone
Hamilton	6420	6469	6640	6770	Grey shale
Marcellus	6469	-	6770	-	Black shale

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Well: **Bryan N-03HM (slot N)**
 Site: **Bryan Pad**
 Project: **Marshall County, West Virginia.**
 Design: **rev4**
 Rig: **Precision 110**

SECTION DETAILS


Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1100.00	2.00	200.00	1099.98	-1.64	-0.60	2.00	200.000	-1.02	Begin 2.00° tangent
4	3229.32	2.00	200.00	3228.00	-71.47	-26.01	0.00	0.000	-44.34	Begin 2°/100' build/turn
5	4003.71	17.48	203.96	3988.91	-191.19	-78.20	2.00	4.461	-113.76	Begin 17.48° tangent
6	5816.92	17.48	203.96	5718.36	-688.94	-299.45	0.00	0.000	-399.97	Begin 8°/100' build/turn
7	6549.99	50.00	317.74	6360.66	-571.30	-555.78	8.00	124.824	-158.24	Begin 10°/100' build/turn
8	6975.03	91.00	330.00	6500.00	-252.02	-781.97	10.00	18.316	232.99	Begin 91.00° lateral
9	17390.90	91.00	330.00	6318.22	8767.07	-5989.01	0.00	0.000	0617.43	PBHL/TD 17390.90 MD/6318.22 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+28 @ 1219.00usft (Precision 110)
 Surface location

Northing	Easting	Latitude	Longitude
14445088.28	1703190.38	39.77556711	-80.77657879

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.841°

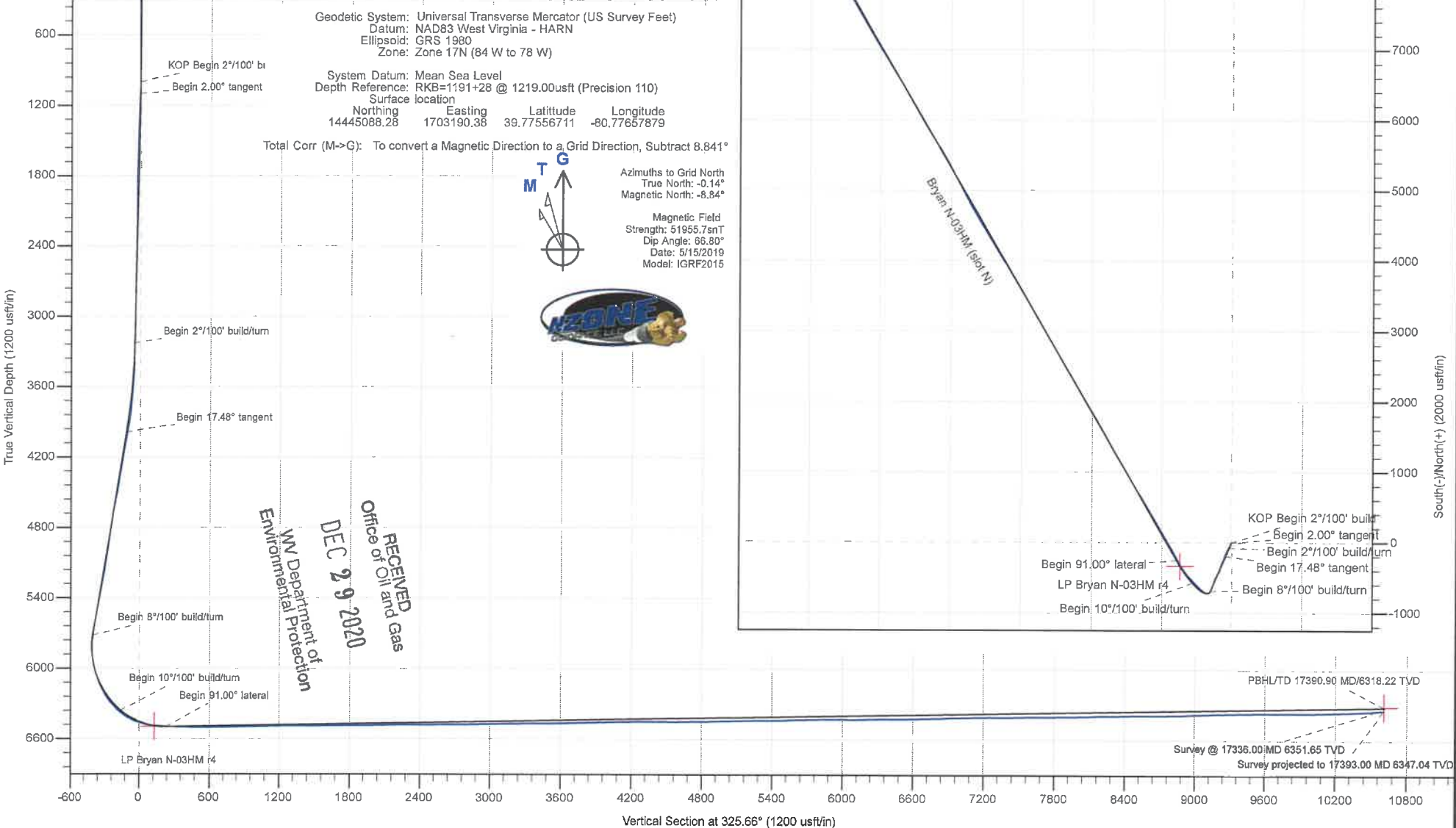


 Azimuths to Grid North
 True North: -0.14°
 Magnetic North: -8.84°

 Magnetic Field
 Strength: 51955.7snT
 Dip Angle: 66.80°
 Date: 5/15/2019
 Model: IGRF2015

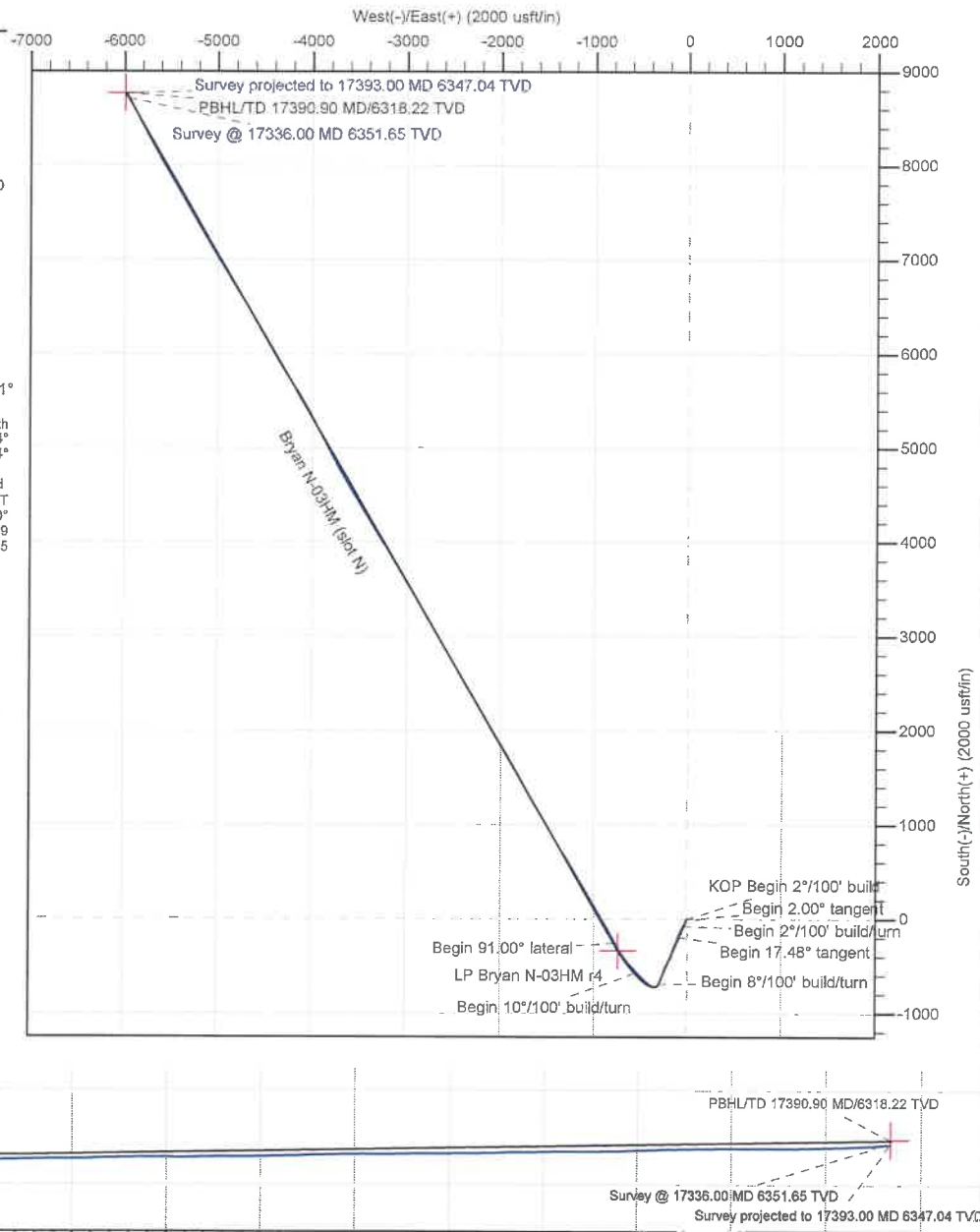


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ANNOTATIONS SURVEYS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Annotation
241.00	0.39	144.00	241.00	-0.66	0.48	-0.82	MWD surveys
17336.00	94.64	331.12	6351.65	8713.79	-5951.22	10552.12	Survey @ 17336.00 MD 6351.65 TVD
17393.00	94.64	331.12	6347.04	8763.54	-5978.66	10606.67	Survey projected to 17393.00 MD 6347.04 TVD



Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/4/2020
Job End Date:	5/10/2020
State:	West Virginia
County:	Marshall
API Number:	47-051-02000-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Bryan N 3HM
Latitude:	39.77556711
Longitude:	-80.77657879
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,437
Total Base Water Volume (gal):	12,165,161
Total Base Non Water Volume:	0



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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	67.59904	None
Sand (30/50 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	22.11733	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	7.39161	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	2.47500	None
Hydrochloric Acid (7.5%)	PVS	Acidizing	Water	7732-18-5	85.00000	0.28481	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.12398	None
StimStream FR 9800	Chemstream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01090	None
			Butene, homopolymer	9003-29-6	25.00000	0.01090	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00131	None

MC MX 9-4743	Multi-Chem	Biocide					
			Sodium Nitrate	7631-99-4	60.00000	0.01752	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00400	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00033	None
ProFE 105	ProFrac	Iron Control					
			Citric Acid	77-92-9	100.00000	0.00135	None
ProHib 100	ProFrac	Acid Inhibitor					
			2-Propyn-1-ol compound w/ methyloxirane	38172-91-7	15.00000	0.00017	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	0.28481	
			Butene, homopolymer	9003-29-6	25.00000	0.01090	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00131	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00033	

* 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)

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/4/2020
Job End Date:	8/26/2020
State:	West Virginia
County:	Marshall
API Number:	47-051-02000-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Bryan N 3HM
Latitude:	39.77556711
Longitude:	-80.77657879
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,437
Total Base Water Volume (gal):	19,182,080
Total Base Non Water Volume:	0



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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	85.87404	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	9.12858	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	3.16722	None
Sand (30/50 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	1.26381	None
Hydrochloric Acid (7.5%)	PVS	Acidizing	Water	7732-18-5	85.00000	0.38958	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.16958	None
StimStream FR 9800	Chemstream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01486	None
			Butene, homopolymer	9003-29-6	25.00000	0.01486	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00178	None

MC MX 9-4743	Multi-Chem	Biocide					
			Sodium Nitrate	7631-99-4	60.00000	0.02212	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00505	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00042	None
ProFE 105	ProFrac	Iron Control					
			Citric Acid	77-92-9	100.00000	0.00180	None
ProHib 100	ProFrac	Acid Inhibitor					
			2-Propyn-1-ol compound w/ methyloxirane	38172-91-7	15.00000	0.00022	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	0.38958	
			Butene, homopolymer	9003-29-6	25.00000	0.01486	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00178	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00042	

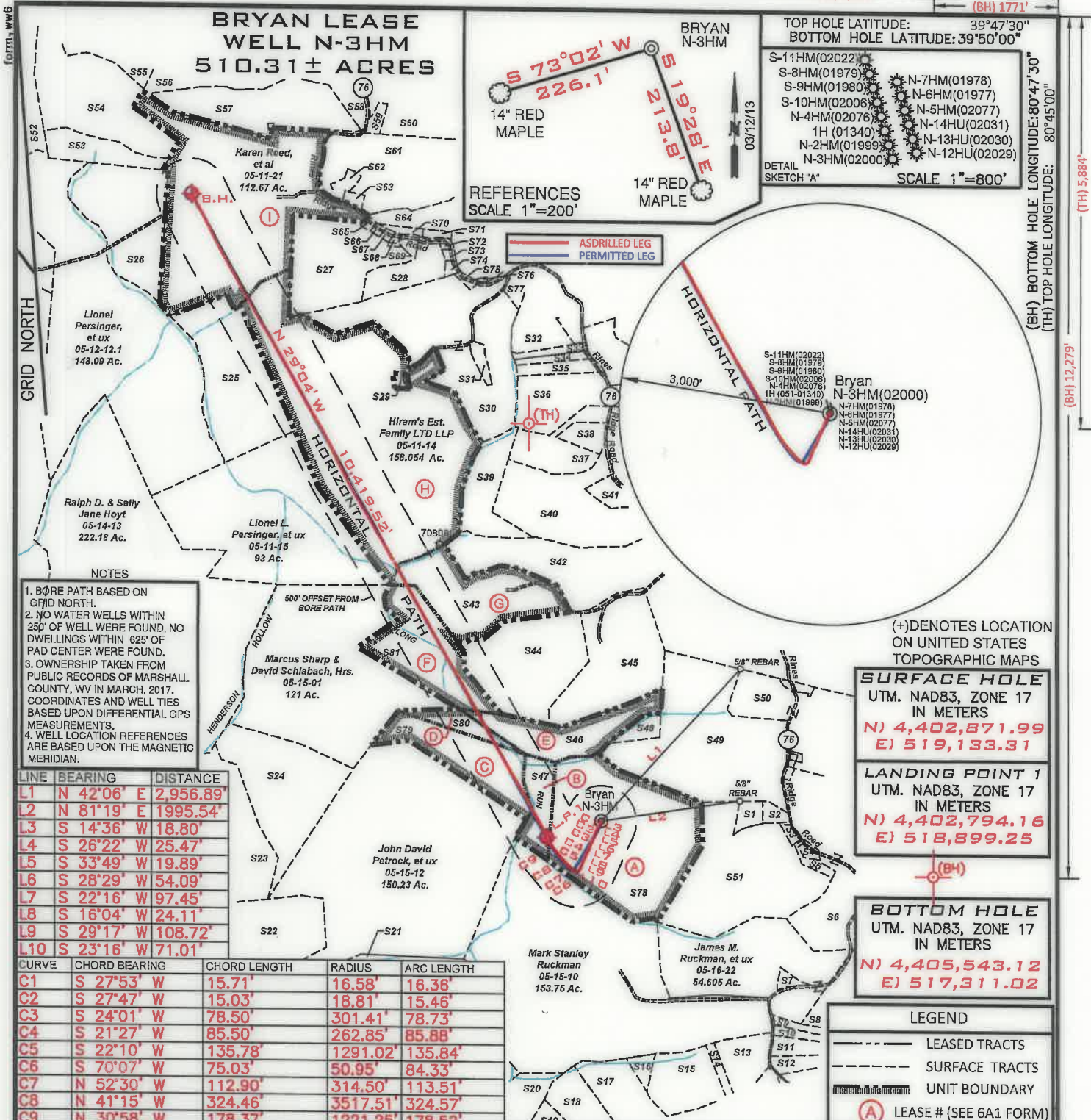
* Total Water Volume sources may include fresh water, produced water, and/or recycled water

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

RECEIVED
 Office of Oil and Gas
 DEC 29 2020
 WY Department of
 Environmental Protection



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.

LINE	BEARING	DISTANCE
L1	N 42°06' E	2,956.89'
L2	N 81°19' E	1995.54'
L3	S 14°36' W	18.80'
L4	S 26°22' W	25.47'
L5	S 33°49' W	19.89'
L6	S 28°29' W	54.09'
L7	S 22°16' W	97.45'
L8	S 16°04' W	24.11'
L9	S 29°17' W	108.72'
L10	S 23°16' W	71.01'

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 27°53' W	15.71'	16.58'	16.36'
C2	S 27°47' W	15.03'	18.81'	15.46'
C3	S 24°01' W	78.50'	301.41'	78.73'
C4	S 21°27' W	85.50'	262.85'	85.88'
C5	S 22°10' W	135.78'	1291.02'	135.84'
C6	S 70°07' W	75.03'	50.95'	84.33'
C7	N 52°30' W	112.90'	314.50'	113.51'
C8	N 41°15' W	324.46'	3517.51'	324.57'
C9	N 30°58' W	178.37'	1221.25'	178.52'

FILE NUMBER _____

DRAWING NUMBER BRYAN_WP_N-3HM

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: OCTOBER 27, 2020

OPERATORS WELL NO. BRYAN N-3HM
API WELL NO. 47-051-02000
STATE WV COUNTY MARSHALL PERMIT 02000

LOCATION ELEVATION 1191.6' WATERSHED (HUC 10) Fish Creek

DISTRICT Franklin COUNTY Marshall
QUADRANGLE Powhatan Point 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER CNX LAND RESOURCES, INC. ACREAGE 81.98
OIL & GAS ROYALTY OWNER MICHAEL R. BRYAN - SEE WW 6A1 LEASE ACREAGE 81.98

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

TARGET FORMATION Marcellus ESTIMATED DEPTH TVD: 6,347' TMD: 17,393'

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

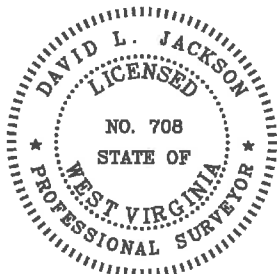
COUNTY NAME
PERMIT

**BRYAN LEASE
WELL N-3HM
510.31 ± ACRES**

GRID NORTH

SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,402,871.71 E) 519,133.47
LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS N) 4,402,794.91 E) 518,895.16
BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,405,543.92 E) 517,308.01

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S1	05-16-23.4	Michael R. & Brenda K. Bryan	3.0
S2	05-16-23.1	Ray E. Minor, Et Ux	2.0
S3	05-16-23.3	Greg & Christina Riddle	1.0
S4	05-16-24	Alan M. Beyser, Et Ux	1.083
S5	05-16-23.2	Alan M. Beyser, Et Ux	1.726
S6	05-16-25	John Swierkos	79.04
S7	05-16-22.1	Heather A. Burgy	1.465
S8	05-16-21	James M. Ruckman, Et Ux	60.75
S9	05-18-56	William E. O'Hara	3.965
S10	05-18-55	William E. O'Hara	3.202
S11	05-18-28	Dotson G. Harrison , Et Ux	6.36
S12	05-18-28.1	Carol Diane Helmick	5.696
S13	05-18-11	Benjamin Robinson	10.883
S14	05-18-11.2	Edward Lee Burge Jr.	2.0
S15	05-18-11.1	Edward Lee Burge Jr.	18.0
S16	05-18-15	Edward Lee Burge Jr.	2.495
S17	05-18-15.4	Edward Lee Burge Jr.	22.34
S18	05-18-15.3	Charles Yeater	26.44
S19	05-18-6	Charles Yeater	26.0
S20	05-18-5	Terry L. Melott	8.14
S21	05-15-11	Diana Henry Haynes & Carol C. Henry	65.59
S22	05-19-13	Rona Lee Rice & Charles Franklin McCardle	94.925
S23	05-14-15	Robert L. Shields Et Al	53.0
S24	05-15-15	Robert L. Shields Et Al	49.0
S25	05-12-11	Wesley R. & Wesley R. Bryan II	52.478
S26	05-12-12	Lionel L. Persinger, Et Ux	45.0
S27	05-11-17	Kevin R. Corley, Et Ux	36.13
S28	05-11-17.2	Brenda & Michael Bryan	11.504
S29	05-11-14.1	Dennis F. Moore, Et Ux	1.056
S30	05-11-16	Keith E. Haught, Et Al	83.674
S31	05-11-16.2	Joseph Haught	2.181
S32	05-11-9.3	Joseph M. & Steven Haught	16.3
S33	05-11-9.5	Southern Country Farms Inc.	2.559
S34	05-11-9.6	Southern Country Farms Inc.	2.488
S35	05-11-9.9	Leonard L. Parsons Et Ux	5.89
S36	05-11-9	Edwin C. & Kimberly A. Miller	54.625
S37	05-11-11.4	Brad M. & Amanda J. Blake	15.193
S38	05-11-11	Brad M. & Amanda J. Blake	5.0
S39	05-11-13	Joy D. Gartman & Arlin Gatts	12.29
S40	05-11-11.3	Herman D. Lantz	43.96
S41	05-11-11.1	Nellie Marie & Robert W. Spencer	5.813
S42	05-11-12	Joseph J. Kramer, Et Ux	43.2188
S43	05-15-4	Joseph J. Kramer, Et Ux	41.106
S44	05-15-5	Joseph J. Kramer, Et Ux	35.0
S45	05-15-6	Joseph J. Kramer, Et Ux	42.5
S46	05-15-6.1	Joseph J. Kramer, Et Ux	39.4
S47	05-15-13	CNX Land Resources Inc.	11.0
S48	05-15-7	Terry D. Rose, Et Ux	4.5
S49	05-15-8	Terry D. Rose, Et Ux	77.11
S50	05-16-3	Donna Vivian Yoho	71.205
S51	05-16-23	CNX Land Resources, Inc.	60.138
S52	05-12-08	Anita Rae Miller (Life)	100.35
S53	05-12-10	Consolidation Coal Company/ Murray Energy	13.76
S54	05-12-10.1	Consolidation Coal Company/ Murray Energy	38.48
S55	05-12-09	Lionel & Mary Lee Persinger	10.15
S56	05-11-1.4	Larry W. Dunlap, Et Al	32.493
S57	05-11-1.1	Larry W. Dunlap & Charles Leroy Dunlap	34.405
S58	05-11-1.2	Jay A. Conner, Et Ux	5.824
S59	05-08-9.1	Scott E. Jackson, Tammy S. South & Marion Jackson	1.957
S60	05-08-09	James B. Jackson Jr., Et Ux	89.723
S61	05-11-02	Walter C. & Cheryl A. Rine	42.367
S62	05-11-2.2	Joshua A. Myers	2.193
S63	05-11-2.1	Walter C. & Cheryl A. Rine	1.19
S64	05-11-3	Kevin R. Corley, Et Ux	13.18
S65	05-11-20	David E. Gray	0.569
S66	05-11-19	David E. Gray	0.532
S67	05-11-18	David E. Gray	0.569
S68	05-11-22	David Gray	0.353
S69	05-11-17.1	David Gray	0.297
S70	05-11-05	Kevin R. Corley, Et Ux	10.36
S71	05-11-5.2	Rickey Lynn & Victoria Rose Cross	1.0
S72	05-11-24	Charles Edward Furbee, Et Ux	0.603
S73	05-11-23	Owen Michael Barr	0.845
S74	05-11-25	Owen Michael Barr	0.598
S75	05-11-16.1	Susan Marie Smith (Life)	0.876
S76	05-11-5.1	James R. Anderson, Et Ux	0.205
S77	05-11-16.3	Kegan Michael Haught (Life)	3.265
S78	05-15-09	CNX Land Resources, Inc.	81.98
S79	05-15-14	John David Petrock, et al	25.0
S80	05-15-02	John David Petrock, et al	5.0
S81	05-15-03	Joseph J. Kramer, et ux	36.10



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Bryan N-3HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 047-051-02000

WELL PLAT
PAGE 2 OF 2
DATE: 10/27/2020