

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

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Office of Oil and Gas

SEP 30 2022

API 47-103-02982 County Wetzel District Magnolia WV Department of Environmental Protection  
Quad Porter Falls 7.5' Pad Name Lackawanna Field/Pool Name \_\_\_\_\_  
Farm name M.B. Investments Well Number Lackawanna 1H  
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 4,384,061.34 Easting 512,302.50  
Landing Point of Curve Northing 4,383,921.21 Easting 512,890.84  
Bottom Hole Northing 4,387,271.37 Easting 510,956.01

Elevation (ft) 1305.32' 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 10/26/2018 Date drilling commenced spud: 10/9/2014 big rig: 8/27/2019 Date drilling ceased 9/20/2019  
Date completion activities began 10/25/2021 Date completion activities ceased 12/27/2021  
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 1134' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 1034-1040', 1129-1135' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
10/14/2022

APPROVED OCT 01 2022  
*David L. Reynolds*

API 47- 103 - 02982

Farm name M.B. Investments

Well number Lackawanna 1H

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	26"	20"	40"	NEW	BW	N/A	Y
Surface	17 1/2"	13 3/8"	1,259'	NEW	48#	N/A	Y
Coal	17 1/2"	13 3/8"	1,259'	NEW	48#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,754'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 7/8"	5 1/2"	20,658'	NEW	20#	N/A	Y
Tubing		2 3/8"	10,329'	NEW	4.7#	N/A	X /
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	65	15.6	1.21	78	0	8
Surface	A	933	15.6	1.21	1128	0	8
Coal	A	933	15.6	1.21	1,128	0	8
Intermediate 1	A	954	15.6	1.19	1,135	0	8
Intermediate 2							
Intermediate 3							
Production	A	4,881	14.5	1.17	5,730'	0	8
Tubing							

Drillers TD (ft) 20,684'      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) 6,490'

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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 \_\_\_\_\_

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Farm name M.B. Investments

Well number Lackawanna 1H

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.

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STIMULATION INFORMATION PER STAGE

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Complete a separate record for each stimulation stage.

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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							

Please insert additional pages as applicable.

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API 47- 103 - 02982 Farm name M.B. Investments Well number Lackawanna 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,777'-6,542'</u> TVD	<u>7,871'-20,684'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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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 4 hrs

OPEN FLOW Gas 1,266 mcfpd Oil 72 bpd NGL \_\_\_\_\_ bpd Water 552 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, H<sub>2</sub>S, 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>0</u>		<u>0</u>		
<u>*See attached</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 \_\_\_\_\_

Cementing Company BJ Services  
Address 4000 Town Center Boulevard City Canonsburg State PA Zip 15317

Stimulating Company Stingray  
Address 66680 Executive Drive City St. Clairsville State OH Zip 43950

Please insert additional pages as applicable.

Completed by Amy L. Morris Telephone 304-376-0111  
Signature Amy L. Morris Title Permitting Specialist Date 9/29/2022

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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LACKAWANNA 1H  
PERFORATION RECORDWV Department of  
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Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	10/25/2021	20,262	20,407	48	Marcellus
2	10/27/2021	20,087	20,233	48	Marcellus
3	10/28/2021	19,913	20,058	48	Marcellus
4	10/29/2021	19,738	19,884	48	Marcellus
5	10/30/2021	19,564	19,709	48	Marcellus
6	10/31/2021	19,389	19,535	48	Marcellus
7	11/1/2021	19,215	19,360	48	Marcellus
8	11/2/2021	19,040	19,186	48	Marcellus
9	11/3/2021	18,866	19,011	48	Marcellus
10	11/4/2021	18,691	18,837	48	Marcellus
11	11/5/2021	18,516	18,662	48	Marcellus
12	11/6/2021	18,342	18,487	48	Marcellus
13	11/7/2021	18,167	18,313	48	Marcellus
14	11/8/2021	17,993	18,138	48	Marcellus
15	11/9/2021	17,818	17,964	48	Marcellus
16	11/11/2021	17,644	17,789	48	Marcellus
17	11/12/2021	17,469	17,615	48	Marcellus
18	11/13/2021	17,295	17,440	48	Marcellus
19	11/14/2021	17,120	17,266	48	Marcellus
20	11/15/2021	16,946	17,091	48	Marcellus
21	11/16/2021	16,771	16,916	48	Marcellus
22	11/17/2021	16,596	16,742	48	Marcellus
23	11/17/2021	16,422	16,567	48	Marcellus
24	11/18/2021	16,247	16,393	48	Marcellus
25	11/18/2021	16,073	16,218	48	Marcellus
26	11/18/2021	15,898	16,044	48	Marcellus
27	11/19/2021	15,724	15,869	48	Marcellus
28	11/19/2021	15,549	15,695	48	Marcellus
29	11/19/2021	15,375	15,520	48	Marcellus
30	11/20/2021	15,200	15,346	48	Marcellus
31	11/20/2021	15,025	15,171	48	Marcellus
32	11/21/2021	14,851	14,996	48	Marcellus
33	11/21/2021	14,676	14,822	48	Marcellus
34	11/22/2021	14,502	14,647	48	Marcellus
35	11/22/2021	14,327	14,473	48	Marcellus
36	11/23/2021	14,153	14,298	48	Marcellus
37	11/23/2021	13,978	14,124	48	Marcellus
38	11/23/2021	13,804	13,949	48	Marcellus
39	11/24/2021	13,629	13,775	48	Marcellus
40	11/25/2021	13,455	13,600	48	Marcellus
41	11/25/2021	13,280	13,425	48	Marcellus
42	11/27/2021	13,105	13,251	48	Marcellus

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Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
43	11/28/2021	12,931	13,076	48	Marcellus
44	11/29/2021	12,756	12,902	48	Marcellus
45	11/30/2021	12,582	12,727	48	Marcellus
46	12/1/2021	12,407	12,553	48	Marcellus
47	12/2/2021	12,233	12,378	48	Marcellus
48	12/3/2021	12,058	12,204	48	Marcellus
49	12/4/2021	11,884	12,029	48	Marcellus
50	12/5/2021	11,709	11,855	48	Marcellus
51	12/6/2021	11,534	11,680	48	Marcellus
52	12/7/2021	11,360	11,505	48	Marcellus
53	12/8/2021	11,185	11,331	48	Marcellus
54	12/9/2021	11,011	11,156	48	Marcellus
55	12/10/2021	10,836	10,982	48	Marcellus
56	12/11/2021	10,662	10,807	48	Marcellus
57	12/12/2021	10,487	10,633	48	Marcellus
58	12/13/2021	10,313	10,458	48	Marcellus
59	12/14/2021	10,138	10,284	48	Marcellus
60	12/15/2021	9,964	10,109	48	Marcellus
61	12/16/2021	9,789	9,934	48	Marcellus
62	12/17/2021	9,614	9,760	48	Marcellus
63	12/18/2021	9,440	9,585	48	Marcellus
64	12/19/2021	9,265	9,411	48	Marcellus
65	12/20/2021	9,091	9,236	48	Marcellus
66	12/21/2021	8,916	9,062	48	Marcellus
67	12/22/2021	8,742	8,887	48	Marcellus
68	12/23/2021	8,567	8,713	48	Marcellus
69	12/24/2021	8,393	8,538	48	Marcellus
70	12/25/2021	8,218	8,364	48	Marcellus
71	12/26/2021	8,043	8,189	48	Marcellus
72	12/27/2021	7,869	8,014	48	Marcellus

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STIMULATION INFORMATION PER STAGE

Stage No.	WV Department of Environmental Protection Ave. Pump Rate (BPM)	WV Department of Environmental Protection Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	71.10	8839	5558	3600	339240	7,135	0
2	89.80	8013	4512	4800	438620	8,700	0
3	90.40	7661	4587	4800	432800	8,396	0
4	90.00	7488	4625	5400	443480	8,574	0
5	90.00	7339	4637	4820	439020	8,652	0
6	89.40	7320	4636	4880	437120	8,561	0
7	90.20	7357	4653	3674	445520	8,614	0
8	89.60	7424	4868	3655	441980	8,492	0
9	89.50	6974	4449	4361	438760	8,530	0
10	89.30	7149	4395	4610	440500	8,538	0
11	89.80	7144	4517	4554	443060	8,028	0
12	89.80	7193	4748	4346	443760	8,041	0
13	89.90	7167	4521	4569	444600	8,025	0
14	89.40	7389	4574	4563	449300	8,078	0
15	88.80	7320	4565	4511	440780	7,918	0
16	88.90	7409	4693	4600	442700	7,953	0
17	90.30	7368	4641	4553	446510	7,972	0
18	89.20	7357	4739	5440	445320	7,924	0
19	89.30	7195	4570	4400	442840	7,977	0
20	89.30	7322	4699	5300	434380	7,785	0
21	87.80	7159	4561	5131	446200	8,893	0
22	89.80	7025	4602	5100	442220	7,834	0
23	89.30	7218	4707	4685	439020	7,761	0
24	89.40	7172	4658	4700	442240	7,791	0
25	90.30	7533	4778	5000	435440	7,813	0
26	88.70	7246	4551	5000	442300	7,846	0
27	89.50	7165	4745	5200	434220	7,731	0
28	89.70	7129	4926	4600	447469	7,810	0
29	89.40	7175	4752	4550	433440	7,687	0
30	90.50	7128	4806	5250	447480	7,822	0
31	89.80	6966	4734	5500	439080	7,804	0
32	89.70	6923	4654	4119	444560	7,762	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 (bbbls)	Amount of Nitrogen/other (units)
33	89.90	7053	4867	4769	441120	8,910	0
34	90.00	7088	4744	4382	444560	7,679	0
35	88.70	7276	4845	3814	434940	7,760	0
36	89.40	6995	5057	3749	443060	7,804	0
37	89.50	6945	4831	4611	443760	7,791	0
38	90.00	6882	4919	4474	444000	7,856	0
39	90.00	7114	4965	4437	445560	7,859	0
40	90.30	7004	4843	4280	440560	7,746	0
41	90.00	6891	5339	4429	438300	7,640	0
42	89.90	6837	4690	4328	448280	7,762	0
43	89.90	6884	4718	4856	441540	7,637	0
44	89.60	6864	4772	4280	442200	7,709	0
45	90.10	6870	5046	3795	445020	7,841	0
46	89.80	7083	5282	4542	370540	6,820	0
47	88.30	7231	5390	3998	424720	9,803	0
48	89.00	7121	5441	4098	435000	8,146	0
49	88.20	7076	5453	4381	440600	8,269	0
50	91.10	6966	5484	4771	441920	8,081	0
51	90.20	6980	5595	4514	437010	8,023	0
52	90.10	6844	5357	4379	447820	8,303	0
53	89.70	6988	5545	4128	397480	7,666	0
54	86.80	7394	5753	4546	445820	9,129	0
55	89.90	7173	6179	4090	446480	8,096	0
56	87.50	7349	5999	4979	426500	8,950	0
57	90.00	6876	5899	4316	446320	8,240	0
58	89.60	6485	5433	4371	443520	8,131	0
59	89.90	6536	5641	3766	445340	8,201	0
60	89.10	6381	5487	4403	448304	8,614	0
61	90.20	6469	5845	4648	442620	8,166	0
62	90.00	6350	5594	4344	439620	8,105	0
63	91.30	6447	6019	4586	436060	8,069	0
64	90.30	6448	5487	4714	447560	8,171	0
65	90.10	6298	5440	4377	441700	8,573	0
66	90.10	6298	5632	4628	445640	7,916	0

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67	89.80	6457	5684	4837	444160	8,259	0
68	90.80	6506	5418	4335	446840	7,967	0
69	89.80	6628	5502	4587	444020	8,250	0
70	90.70	6425	5548	4430	446560	8,060	0
71	89.70	6309	5719	4291	441620	7,945	0
72	89.20	6500	5423	4760	437799	8,126	0

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## Lackawanna 1H

### 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
Maxton	2159	2294	2159	2294	Sandstone
Big Lime	2294	2411	2294	2411	Limestone
Big Injun	2411	2753	2411	2753	Sandstone
Weir	2753	2946	2753	2946	Sandstone
Berea	2946	3312	2946	3331	Sandstone
Gordon	3312	3366	3331	3391	Sandstone
Fifty Foot	3366	3757	3391	3907	Sandstone
Speechley	3757	4835	3907	5339	Sandstone
Benson	4835	5131	5339	5735	Sandstone
Alexander	5131	6147	5735	6979	Siltstone
Rhinestreet	6147	6602	6979	7489	Black Shale
Middlesex	6602	6679	7489	7600	Black Shale
Geneseo/Burkett	6679	6701	7600	7636	Black Shale
Tully	6701	6729	7636	7688	Limestone
Hamilton	6729	6751	7688	7738	Gray Shale
Marcellus	6751	-	7738	-	Black Shale

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/26/2021
Job End Date:	12/27/2021
State:	West Virginia
County:	Wetzel
API Number:	47-103-02982-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Lackawanna N-1HM
Latitude:	-80.85669942
Longitude:	39.60620768
Datum:	NAD83
Federal Well:	YES
Indian Well:	NO
True Vertical Depth:	6,787
Total Base Water Volume (gal):	31,588,432
Total Base Non Water Volume:	

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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	74.01065	None
Sand (30/50 Mesh Proppant)	JS Silica	Proppant	Silica Substrate	14808-60-7	100.00000	17.84315	None
Sand (40/70 Mesh Proppant)	JS Silica	Proppant	Silica Substrate	14808-60-7	100.00000	5.99037	None
Sand (100 Mesh Proppant)	JS Silica	Proppant	Silica Substrate	14808-60-7	100.00000	2.07163	None
StimSTREAM FR 9800	Chemstream Oilfield Services	Friction Reduction	copolymer of 2-propenamide	Proprietary	25.00000	0.00945	None
			Petroleum Distillate	64742-47-8	18.00000	0.00681	None
			Oleic Acid Diethanolamide	93-83-4	3.00000	0.00113	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00076	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00038	None
Hydrochloric Acid (28%)	Dover	Acidizing					

			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	28.00000	0.01295	None
Plexhib 166	Chemplex Solvay	Corrosion Inhibitor/Iron Control					
			Methanol	67-56-1	96.00000	0.00013	None
			Proargyl alcohol	107-19-7	3.00000	0.00000	None
			Formaldehyde	50-00-0	1.00000	0.00000	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					
			Petroleum Distillate	64742-47-8	18.00000	0.00681	
			Oleic Acid Diethanolamide	93-83-4	3.00000	0.00113	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00076	
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00038	
			Proargyl alcohol	107-19-7	3.00000	0.00000	
			Formaldehyde	50-00-0	1.00000	0.00000	

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

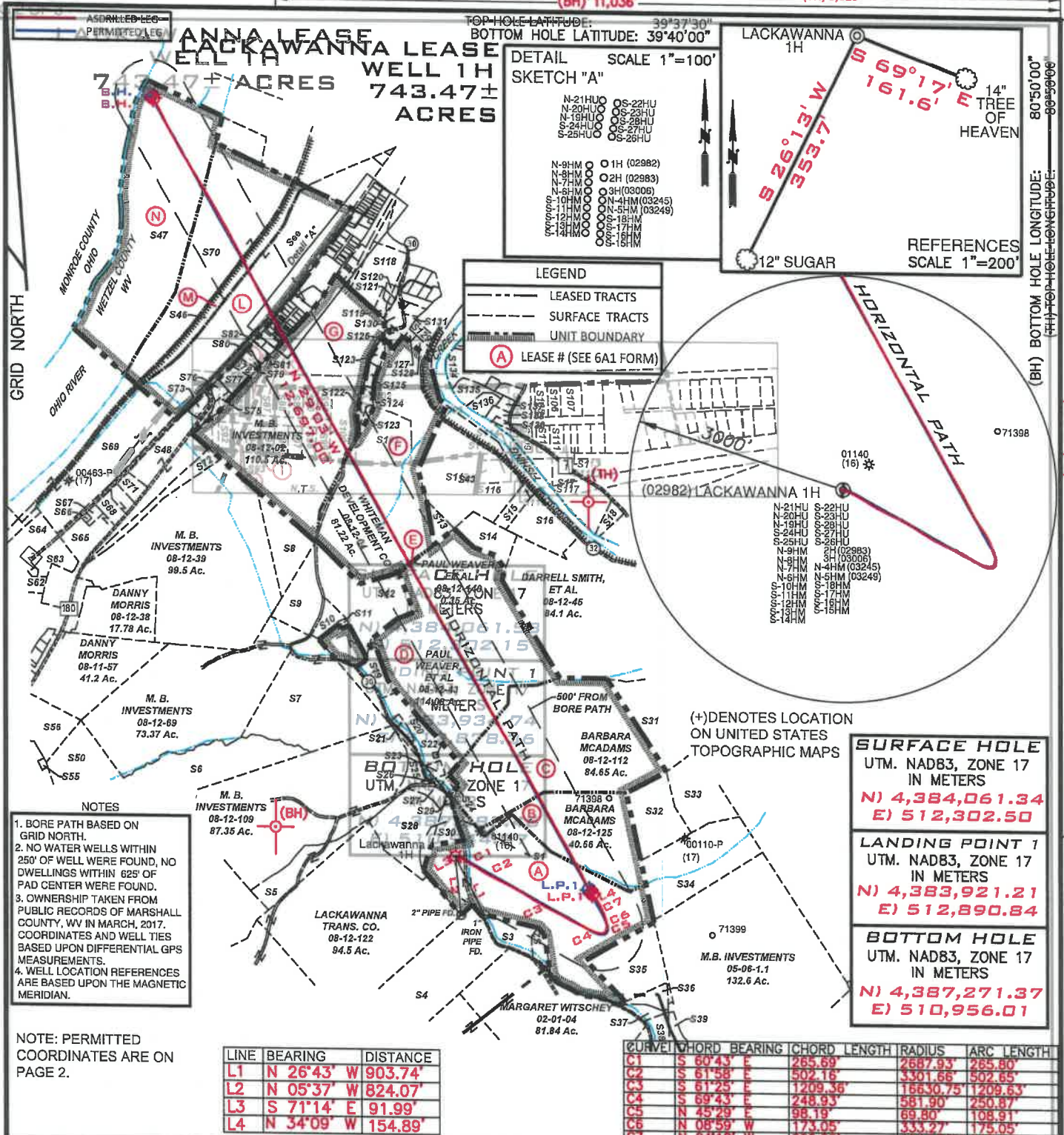
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

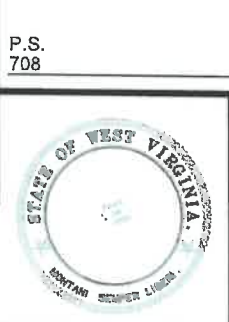
**RECEIVED**  
 Office of Oil and Gas  
**SEP 30 2022**  
 MN Department of  
 Environmental Protection

form wv6  
form wv6b



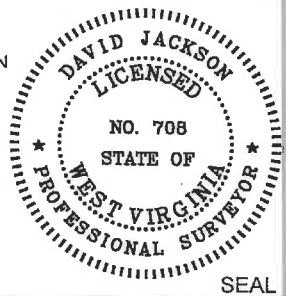
FILE NUMBER \_\_\_\_\_  
 DRAWING NUMBER LACKAWANNA\_1H\_REV 1  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY 1/200  
 PROVEN SOURCE OF ELEVATION SUBMETER MAPPING GRADE GPS

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*

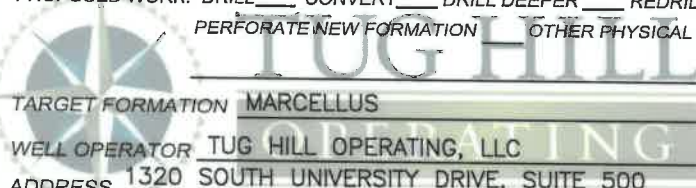
JACKSON SURVEYING INC.  
 P.O. Box 1460  
 Clarksburg, WV 26302  
 304-623-5851



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

DATE: MAY 26, 2021  
 OPERATOR'S WELL NO. LACKAWANNA 1H  
 OFFICE OF OIL AND GAS API WELL NO. 43873022 02982  
 STATE COUNTY PERMIT  
 WV Department of Environmental Protection  
 LOCATION ELEVATION 1305.32' WATERSHED MUG 10 OUTLET MIDDLE ISLAND  
 DISTRICT MAGNOEIA STATE OF WEST VIRGINIA COUNTY WETZEL  
 QUADRANGLE PORTER FALLS 7.5' LEASE NUMBER SEE WW-6A1 Form

S. David L Jackson  
 SURFACE OWNER M. B. INVESTMENTS ACREAGE 88.09  
 OIL & GAS ROYALTY OWNER M. B. INVESTMENTS, ET AL LEASE ACREAGE 88.09  
 PROPOSED WORK: DRILL ASDRILLED CONVERT ASDRILLED DRILL DEEPER ASDRILLED REDRILL ASDRILLED  
 PERFORATE NEW FORMATION ASDRILLED OTHER PHYSICAL CHANGE (SPECIFY) ASDRILLED  
 TARGET FORMATION MARCELLUS COUNTY Wetzel ESTIMATED DEPTH TVD-6,542' TMD: 20,684'  
 WELL OPERATOR TUG HILL OPERATING, LLC STATE: WV DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313



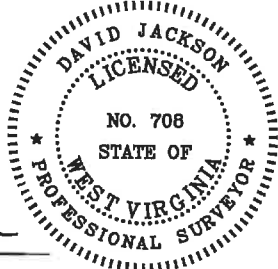
COUNTY NAME  
 PERMIT

10/14/2022

**LACKAWANNA LEASE  
WELL 1H  
743.47± ACRES**

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S1	08-12-134	M. B. Investments	88.09
S2	08-12-134.1	Raymond L. & Elizabeth Pibble	2.14
S3	08-12-134.3	M. B. Investments	5.55
S4	08-17-04	M. B. Investments	46.75
S5	08-12-109.1	M. B. Investments	10.0019
S6	08-12-108	M. B. Investments	24.0
S7	08-12-70	M. B. Investments	50.37
S8	08-12-14	Thomas & Helena McLaughlin	10.5
S9	08-12-40	Timothy Doty & Helena McLaughlin	8.83
S10	08-12-41	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	3.39
S11	08-12-42	Shriver Cemetery	1.0
S12	08-12-43.1	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	22.25
S13	08-12-15	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	2.6
S14	08-12-44	Richard L. Armstrong	8.0
S15	08-12-5.1	Michael & Joyce Durig	4.0
S16	08-12-16	Russell Dalrymple, et al	11.87
S17	08-12-08	Calvin Dean Cross	14.96
S18	08-12-17	Virgie E. Kuhns	1.25
S19	08-12-43.2	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	7.25
S20	08-12-43.5	M. B. Investments	8.774
S21	08-12-43.4	Michael A. & Annabelle Corbin & Paul E. & Christine Weaver	0.996
S22	08-12-43.3	Geraldine C. Cross	0.13
S23	08-12-111	WV Conservation Comm.	1.0
S24	08-12-112.1	M. B. Investments	0.82
S25	08-12-110	Lackawanna Transport Company	3.59
S26	08-12-72	Paul E. & Christine Weaver	0.50
S27	08-12-124	M. B. Investments	2.23
S28	08-12-123	Lackawanna Transport Company	18.55
S29	08-12-134.2	M. B. Investments	0.23
S30	08-12-134.4	M. B. Investments	3.51
S31	08-12-113	Jacob Presley Morgan III	16.30
S32	08-12-126	Jacob Presley Morgan III	16.06
S33	08-12-127	Jacob Presley Morgan III	10.0
S34	08-12-136	Jacob Presley Morgan III	28.25
S35	08-12-135	Timothy J. Haynes & Gary W. Woofter	21.0
S36	02-01-5.2	Mark K. & Teresa J. Loy	2.94
S37	02-01-5.3	Mark K. & Teresa J. Loy	1.939
S38	02-01-5.1	Mark K. & Teresa J. Loy	4.56
S39	05-06-01	Mark K. & Teresa J. Loy	2.37
S40	02-01-05	Daniel A. Witschey	21.5
S41	08-12-121	Charles E. & Mary Elizabeth Clegg	31.94
S42	08-12-129	Charles E. & Mary Elizabeth Clegg	20.0
S43	08-12-05	Michael Lloyd & Joyce Diana Durig	30.5
S44	08-17-07	Lackawanna Transport Company	21.37
S45	08-17-7.1	Lackawanna Transport Company	25.64
S46		CSX Railroad	
S47	Ohio River	State of WV, Department of Commerce, Division of Natural Resources	
S48	Rt 180	State Road Commission	15.96
S49	08-12-106	Thomas C. Pennell	15.96
S50	08-12-106.1	Thomas R. & Tamera D. Pennell	14.04
S56	08-11-61	Hunter B. McAdams & Doug McAdams	7.61
S61	08-11-19	Lisa Straight & Edwin Rial	6.3
S62	08-11-39.1	William L. & Beulah Talkington	1.83
S63	08-11-41	A+A Supply, LLC	1.63
S64	08-11-35	Lisa Straight & Edwin Rial	5.9
S65	08-12-11	Calvin T. Hedrick	6.64
S66	08-12-11.1	Larry D. McCaman	0.25
S67	08-12-11.3	Larry McCaman	0.807
S68	08-12-11.4	Paul Andrew James Simmons, Jr.	1.94
S69	08-12-01	Mount Clare Properties, Inc	50.71
S70	08-07-105	Mount Clare Properties, Inc	116.08
S71	08-12-11.2	Ascent Resources Marcellus Minerals, LLC	1.811
S72	08-12-13	M. B. Investments	8.18
S73	08-12-139	Department of Public Safety	1.37
S75	08-07-87.2	H. Lee Scott Jr.	1.110
S76	08-07-87.1	H. Lee Scott Jr.	0.95
S77	08-07-87	H. Lee Scott Jr. & Stephen A. & Betty A. Davis	2.221

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S78	08-07-88	Living Quarters, LLC	1.08
S79	08-07-89.3	Living Quarters, LLC	0.94
S80	08-07-89.2	Barbara S. Nice	0.89
S81	08-07-89	Barbara S. Nice	0.40
S82	08-07-89.1	Barbara S. Nice	0.40
S83	08-07-90	Barbara Shank	0.70
S84	08-07-91	Dennis Phillips	0.20
S85	08-07-92	Karen D. Pugh	0.20
S86	08-07-93	Darrell S. & Diana Lynn Hartwig	0.20
S87	08-07-94	Ronald D. & Carole Dawson	0.21
S88	08-07-95	Debra Barrille, (Leslie L. Debolt, land contract)	0.21
S89	08-07-96	Rita E. Barrick	0.21
S90	08-07-102	Michael Vaughn Skeen & Patricia Ann Sawyer	0.22
S91	08-07-103.1	Charlotte M. Adams	0.22
S92	08-07-97	David Roy Christian	0.20
S93	08-07-98	David Roy Christian	0.20
S94	08-07-98.1	Lionel Kent, Helen A. Potts & Deloris Potts (Life)	0.20
S95	08-07-99	Lionel Kent, Helen A. Potts & Deloris Potts (Life)	0.20
S96	08-07-100	James J. & Carol Clark	0.21
S97	08-07-101	Doris A. Fannin & Richard S. Williamson	0.21
S98	08-07-102.1	Ronald E. Jr. & Lori J McCoy	0.21
S99	08-07-103	Michael L. & Joyce D. Durig	0.21
S100	08-07-104	Lisa Denise Bridge	0.12
S101	08-07-106.1	Tiona Henthorn	1.49
S102	08-07-104.1	Lisa Denise Bridge	0.06
S103	08-07-106	Route 2 South, LLC	4.33
S104	08-07-107	Route 2 South, LLC	0.36
S105	08-07-108	Donald W. Owens, Jr.	0.21
S106	08-07-109	Douglas E. & Amber L. Straight	0.21
S107	08-07-110	Allen R. & Malinda J. Lough	0.34
S108	08-07-114	William & Ruth Leek	0.14
S109	08-07-115	William J. Leek	0.14
S110	08-07-116	Betty J. Yoho (Life), Sandra M. Hardman	0.20
S111	08-07-117	Jerry W. & Elizabeth Southerly	0.21
S112	08-07-123.1	William & Ruth Ann Leek	0.23
S113	08-07-123.2	William & Ruth Ann Leek	0.01
S114	08-07-124	William & Ruth Ann Leek	0.08
S115	08-07-125	William & Ruth Ann Leek	0.07
S116	08-07-129	Mary Burton, et al	1.10
S117	08-07-127	William Sherman & Ruth Ann Leek	0.49
S118	08-07-131.3	Nancy J. Todd	9.726
S119	08-07-131.1	Edgar W. Whiteman, Jr.	1.25
S120	08-07-131.4	Nancy J. Todd	0.989
S121			
S122	08-12-03	O. Terrell Coffield Family Trust	0.98
S123	08-12-4.1	Whiteman Development Co., LLC & PRN, LLC	2.59
S124	08-07-142	Pamela E. Weisenbarger	1.35
S125	08-07-142.1	Thomas W, II & Teena B. Emch	1.35
S126	08-07-160	Frank L. Price, Jr.	1.28
S127	08-07-144	Roger Hall, et al	5.58
S128	08-07-143	Dominic D. Yost	1.0
S129	08-07-144.1	Donald J. & Debby J. Powell	2.25
S130	08-07-137	462 Properties, LLC	1.836
S131	08-07-137.1	Anna E. McPeak	0.94
S134	08-07-145	Lois J. Day	8.008
S135	08-07-145.5	Jodi Forni	3.65
S136	08-07-145.3	Jodi Forni	2.641
S137	08-07-145.2	David J. Jackson,(Life), James & Ruth Jackson	0.813
S138	08-12-06	David J. Jackson,(Life), James & Ruth Jackson	1.74
S139	08-12-07	David J. Jackson,(Life), James & Ruth Jackson	0.35
S140	08-07-126	William Sherman & Ruth Ann Leek	0.30
S141	08-07-117.1	Donald L. Larsen, Jr.	0.21
S142	08-07-119	Joshua D. Larsen, Jr.	0.22
S143	08-07-111	Allen R. & Malinda J. Lough	0.34
S144	08-07-120	William D. Lawrence	1.51
S145	08-07-112	Charles D. & Shirley L. White	0.17
S146	08-07-113	Joe's Tire III, LLC	0.60
S147	08-07-122	Moser & Moser Associates, Inc.	0.50
S148	08-07-121	Moser & Moser Associates, Inc.	0.10
S149	08-07-123	M.B. Investments	8.50



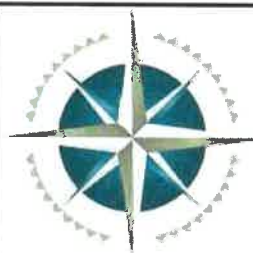
P.S. 708 *David L Jackson*

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SEP 30 2022

WV Department of  
Environmental Protection

10/14/2022



**TUG HILL  
OPERATING**

OPERATOR'S  
WELL #: LACKAWANNA 1H  
DISTRICT: Maagnolia  
COUNTY: Wetzel  
STATE: WV  
API #: 47-103-02982

WELL PLAT  
PAGE 3 OF 3  
DATE: 05/26/2021