

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

API 47-051-01962 County Marshall District Meade  
Quad Glen Easton 7.5' Pad Name Heaven Hill 3 Field/Pool Name \_\_\_\_\_  
Farm name Ricky L. Whitlatch Well Number Heaven Hill 3-2HM  
Operator (as registered with the OOG) Tug Hill Operating, LLC  
Address 1320 S. University Drive, Suite 215 City Ft. Worth State TX Zip 76107

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,406,558.15 Easting 526,254.70  
Landing Point of Curve Northing 4,405,773.1 Easting 526,169.2  
Bottom Hole Northing 4,402,800.7 Easting 527,872.2

Elevation (ft) 1326' 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  Office of Oil and Gas

Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other JUL 10 2020

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 10/23/2017 Date drilling commenced 2/25/2018 Date drilling ceased 8/28/2018  
Date completion activities began 4/12/2019 Date completion activities ceased 10/28/2019  
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 1064' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 972-978', 1057-1063' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:

*Jim McDaniel*  
7/27/2020

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API 47- 051 - 01962 Farm name Ricky L. Whitlatch Well number Heaven Hill 3-2HM

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"	1155'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1155'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2827'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	19,032'	NEW	20#	N/A	Y
Tubing		2 3/6"	9,516'	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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1146	15.6	1.19	1436	0	8
Coal	A	1146	15.6	1.19	1436	0	8
Intermediate 1	A	985	15.6	1.19	1173	0	8
Intermediate 2							
Intermediate 3							
Production	A	4843	14.5	1.17	5448	0	8
Tubing							

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Drillers TD (ft) 19,063' Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated Marcellus  
 Plug back procedure n/a Plug back to (ft) n/a **JUL 10 2020**

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Kick off depth (ft) 6,989'

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 - 01962      Farm name Ricky L. Whitlatch      Well number Heaven Hill 3-2HM

**PERFORATION RECORD**

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	<b>*see attached</b>				

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)
	<b>*attached</b>							

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Please insert additional pages as applicable.

API 47- 051 - 01962 Farm name Ricky L. Whittatch Well number Heaven Hill 3-2HM

PRODUCING FORMATION(S)      DEPTHS

Marcellus      6880' - 6923'      TVD      7720' - 19057'      MD

Please insert additional pages as applicable.

GAS TEST    Build up    Drawdown    Open Flow    Flow    Pump

SHUT-IN PRESSURE   Surface 1132   psi   Bottom Hole   \_\_\_\_\_   psi   DURATION OF TEST 24   hrs

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

LITHOLOGY/ FORMATION	TOP		BOTTOM		TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC.)
	DEPTH IN FT	TVD	DEPTH IN FT	TVD	DEPTH IN FT	MD	DEPTH IN FT	MD	
attached		0		0					

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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 C&J Well Services  
Address 380 Southpointe Boulevard, Suite 210      City Canonsburg      State PA      Zip 15317

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

Please insert additional pages as applicable.

Completed by Amy L. Miller      Telephone 304-376-0111  
Signature *Amy L. Miller*      Title Permitting Specialist      Date 4/5/2020

**Heaven Hill 3-2HM  
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	5/19/2019	18659	18812	48	Marcellus
2	5/19/2019	18483	18637	48	Marcellus
3	5/20/2019	18308	18461	48	Marcellus
4	5/20/2019	18132	18286	48	Marcellus
5	5/20/2019	17957	18110	48	Marcellus
6	5/20/2019	17781	17935	48	Marcellus
7	5/21/2019	17606	17759	48	Marcellus
8	5/21/2019	17430	17584	48	Marcellus
9	5/22/2019	17255	17409	48	Marcellus
10	5/22/2019	17080	17233	48	Marcellus
11	5/23/2019	16904	17058	48	Marcellus
12	5/23/2019	16729	16882	48	Marcellus
13	5/24/2019	16553	16707	48	Marcellus
14	5/24/2019	16378	16531	48	Marcellus
15	5/25/2019	16202	16356	48	Marcellus
16	5/25/2019	16027	16180	48	Marcellus
17	5/25/2019	15852	16005	48	Marcellus
18	5/26/2019	15676	15830	48	Marcellus
19	5/26/2019	15501	15654	48	Marcellus
20	5/27/2019	15325	15479	48	Marcellus
21	5/27/2019	15150	15303	48	Marcellus
22	5/28/2019	14974	15128	48	Marcellus
23	5/28/2019	14799	14952	48	Marcellus
24	5/28/2019	14623	14777	48	Marcellus
25	5/29/2019	14448	14602	48	Marcellus
26	5/29/2019	14273	14426	48	Marcellus
27	5/30/2019	14097	14251	48	Marcellus
28	5/30/2019	13922	14075	48	Marcellus
29	5/30/2019	13746	13900	48	Marcellus
30	5/30/2019	13571	13724	48	Marcellus
31	5/31/2019	13395	13549	48	Marcellus
32	5/31/2019	13220	13373	48	Marcellus
33	5/31/2019	13044	13198	48	Marcellus
34	6/1/2019	12869	13023	48	Marcellus
35	6/1/2019	12694	12847	48	Marcellus
36	6/2/2019	12518	12672	48	Marcellus
37	6/2/2019	12343	12496	48	Marcellus
38	6/2/2019	12167	12321	48	Marcellus
39	6/3/2019	11992	12145	48	Marcellus
40	6/3/2019	11816	11970	48	Marcellus
41	6/4/2019	11641	11794	48	Marcellus

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42	6/4/2019	11466	11619	48	Marcellus
43	6/4/2019	11290	11444	48	Marcellus
44	6/4/2019	11115	11268	48	Marcellus
45	6/5/2019	10939	11093	48	Marcellus
46	6/5/2019	10764	10917	48	Marcellus
47	6/5/2019	10588	10742	48	Marcellus
48	6/6/2019	10413	10566	48	Marcellus
49	6/6/2019	10237	10391	48	Marcellus
50	6/6/2019	10062	10216	48	Marcellus
51	6/7/2019	9887	10040	48	Marcellus
52	6/7/2019	9711	9865	48	Marcellus
53	6/7/2019	9536	9689	48	Marcellus
54	6/7/2019	9360	9514	48	Marcellus
55	6/8/2019	9185	9338	48	Marcellus
56	6/8/2019	9009	9163	48	Marcellus
57	6/9/2019	8834	8987	48	Marcellus
58	6/9/2019	8658	8812	48	Marcellus
59	6/9/2019	8483	8637	48	Marcellus
60	6/10/2019	8308	8461	48	Marcellus
61	6/10/2019	8132	8286	48	Marcellus
62	6/10/2019	7957	8110	48	Marcellus
63	6/11/2019	7781	7935	48	Marcellus

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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	83.8	7866	5706	4723	448310	401921	0
2	78.6	7769	5390	4699	439620	337485	0
3	85.8	8201	5294	4807	439600	336306	0
4	82.3	7841	5164	4344	440930	360097	0
5	82.2	7671	5303	4167	320390	297705	0
6	87.4	7694	5284	4955	439220	362682	0
7	87.3	7857	5272	5159	440030	362352	0
8	84	7976	5299	4525	431220	393536	0
9	80.2	7545	5235	4207	439520	364716	0
10	81.9	7461	5164	5082	435870	393423	0
11	82.6	7813	5171	4023	455290	405008	0
12	88.1	7772	5359	4866	441260	392371	0
13	84.9	7642	5399	4949	442340	384894	0
14	83.3	7708	5210	4600	260980	331627	0
15	87.1	7676	5183	4725	438400	354892	0
16	86.6	7705	5394	4871	440360	379078	0
17	89.6	7734	5253	5150	439780	376093	0
18	88.7	7756	5266	4755	439200	378102	0
19	88.4	7722	5062	4209	410415	367401	0
20	87.5	7712	5208	5042	433230	376536	0
21	89.3	7325	5124	4695	441050	381987	0
22	89.5	7282	5171	5017	454750	384021	0
23	88.7	7388	5047	4882	445160	376508	0
24	87.2	7694	5134	4460	401160	431309	0
25	89.2	7442	5049	4538	440170	374853	0
26	88	7465	5496	4517	440900	382439	0
27	80.3	6900	5208	4899	439890	371368	0
28	88.7	7379	5082	4894	440470	374356	0
29	88.7	7132	5298	4882	440450	373289	0
30	90.4	7202	5298	4736	439530	377061	0
31	88.1	7241	5458	4748	440200	368772	0
32	88.6	7125	53670	438480	372682	377098	0
33	88.3	7084	51848	440780	377098	0	0

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34	7170	5196	4568	439500	374842	0
35	7138	5076	4584	440260	373082	0
36	6927	5355	4736	440460	370428	0
37	6824	5302	4793	440280	377394	0
38	6987	5266	4857	440200	375855	0
39	6813	5177	4544	442410	372584	0
40	6575	5252	4789	441490	371887	0
41	6630	5397	4818	440770	368616	0
42	6739	5332	4739	435070	371429	0
43	6659	5199	4665	439530	380055	0
44	6542	5284	4388	440610	362147	0
45	6485	5198	4793	439800	370971	0
46	6612	5026	4882	440440	394493	0
47	6755	5402	4747	441590	369234	0
48	6694	5304	4756	439050	369984	0
49	6814	5538	5140	444520	379086	0
50	6766	5376	5037	444240	375653	0
51	6665	5347	3937	441740	367543	0
52	6664	5439	4371	441160	392875	0
53	6552	5762	4569	448020	372921	0
54	6640	5376	4221	441580	368390	0
55	6487	5565	4706	440040	368618	0
56	6591	5517	4849	439940	368055	0
57	6414	5448	5046	445080	369888	0
58	6508	5467	5070	444040	370893	0
59	6587	5536	5022	441370	372070	0
60	6521	5220	5319	443570	369833	0
61	6405	5465	4911	442430	366222	0
62	6435	5741	4853	439790	361991	0
63	6227	5058	4848	440800	375757	0

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HEAVEN HILL 3-2HM

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	1884	2070	1885	2071	Sandstone
Big Lime	2070	2197	2071	2198	Limestone
Big Injun	2197	2493	2198	2496	Sandstone
Weir	2493	2691	2496	2694	Sandstone
Berea	2691	2948	2694	2952	Sandstone
Gordon	2948	3041	2952	3045	Sandstone
Fifty Foot	3041	3618	3045	3635	Sandstone
Speechley	3618	5105	3635	5371	Sandstone
Benson	5105	5457	5371	5782	Sandstone
Alexander	5457	6134	5782	6588	Siltstone
Rhinestreet	6134	6644	6588	7211	Black shale
Middlesex	6644	6717	7211	7324	Black shale
Geneseo/Burkett	6717	6744	7324	7371	Black shale
Tully	6744	6772	7371	7424	Limestone
Hamilton	6772	6851	7424	7612	Grey shale
Marcellus	6851	-	7612	-	Black shale

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**TUG HILL**  
OPERATING

**Well: Heaven Hill 3-2 HM (K)**  
**Site: Heaven Hill 3**  
**Project: Marshall County, West Virginia**  
**Design: rev8**

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Annotation
1	6914.00	33.38	191.98	6406.36	-1893.80	-432.61	0.00	Survey @ 6914.00 MD 6406.36 TVD
2	7039.07	33.38	191.98	6510.79	-1960.92	-446.89	0.00	KOP Begin 8'7100' buildum
3	7459.86	60.00	162.50	6800.05	-2256.48	-415.21	8.00	Begin 10'7100' buildum
4	7772.46	89.00	150.22	6883.00	-2527.99	-293.87	10.00	Begin 89.00' lateral section
5	19063.13	89.00	150.22	7080.20	-12326.32	5312.64	0.00	PBHLTD 19063.13 MD 7080.20 TVD

**ANNOTATIONS**

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Annotation
188.00	0.20	123.51	168.00	-0.18	0.24	0.25	MWD surveys
19010.00	90.77	149.04	6923.93	-12287.35	5282.57	13421.34	Survey @ 19010.00 MD 6923.93 TVD
19057.00	90.77	149.04	6923.30	-12327.65	5306.75	13421.34	Survey projected to 19057.00 MD 6923.30 TVD

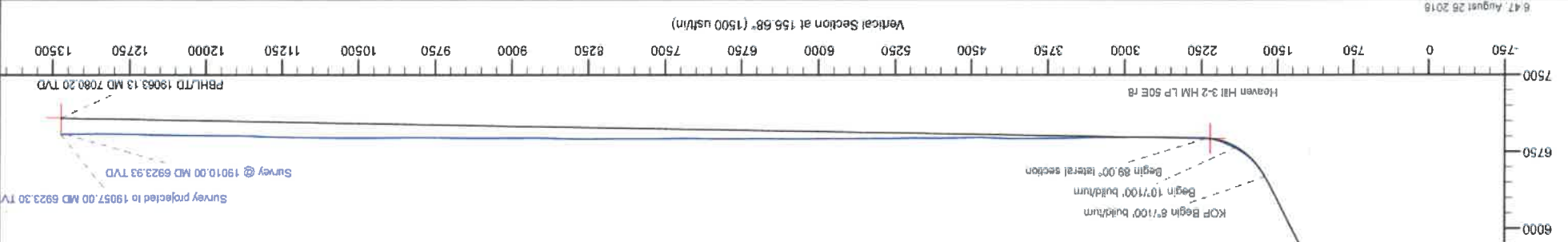
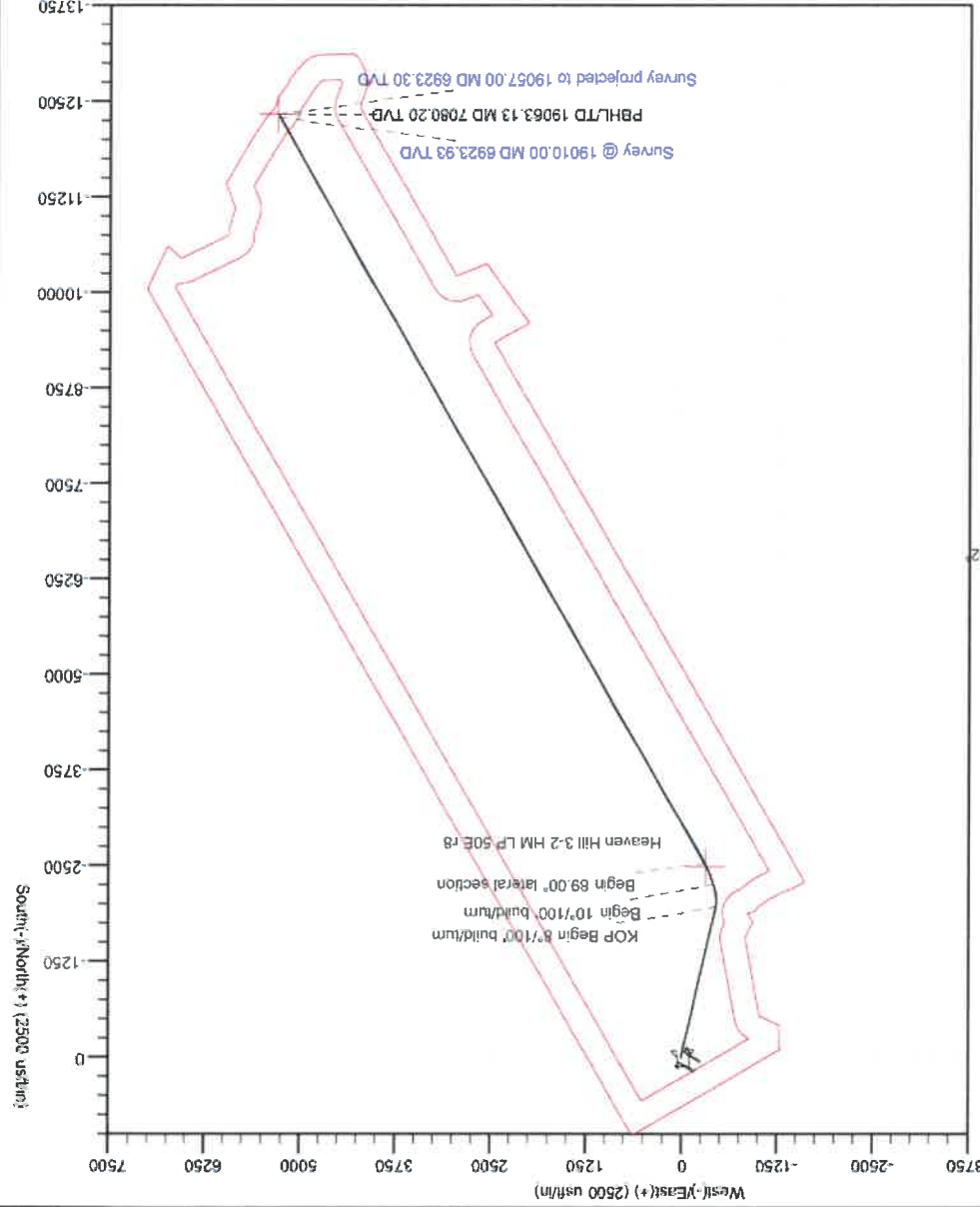
**Geodetic System: Universal Transverse Mercator (US Survey Feet)**  
**Datum: NAD83 West Virginia - HARN**  
**Ellipsoid: GRS 1980**  
**Zone: Zone 17N (84 W to 78 W)**  
**System Datum: Mean Sea Level**  
**Depth Reference: RKB=1326+26 @ 1352.00usft**  
**Latitude 14457182.85**  
**Longitude -80.69327779**  
**Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.92**



**Azimuths to Grid North**  
**True North -0.20°**  
**Magnetic North -8.92°**  
**Magnetic Field**  
**Strength: 52.102.5ant**  
**Dip Angle: 66.91°**  
**Date: 2/25/2018**  
**Model: IGRF2015**



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## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/19/2019
Job End Date:	6/11/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-01962-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Heaven Hill 3 ZHM
Latitude:	39.80859000
Longitude:	-80.69327773
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,928
Total Base Water Volume (gal):	23,386,764
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 (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Halliburton	Base Fluid					
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	87.16584	Density = 8.34
			Water	7732-18-5	100.00000	0.53913	



										LEGEND(TM) LD-7750W	MultiChem	Scale Control	
			Listed Below							Sand-Premium White-40/70	Halliburton	Proppant	
			Listed Below							OilPerm A	Halliburton	Non-ionic Surfactant	
			Listed Below							HYDROCHLORI C ACID, 22 BAUME	Halliburton	Solvent	
			Listed Below							LD-2950	MultiChem	Friction Reducer	
			Listed Below							Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant	
			Listed Below										
			Listed Below							Sand-Premium White-30/50	Halliburton	Proppant	
			Listed Below							MC MX 8-4743	MultiChem	Additive	
			Listed Below										
			Listed Below							FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor	

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			Listed Below						

Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.

			14808-60-7	Crystalline silica, quartz	100.00000	12.25343			
			7647-01-0	Hydrochloric acid	30.00000	0.12974			
			Proprietary	Complex Amine Compound	60.00000	0.06015			
			64742-47-8	Hydrotreated light petroleum distillate	30.00000	0.03008			
			7631-99-4	Sodium nitrate	60.00000	0.02338			
			67-56-1	Methanol	100.00000	0.00621			
			Proprietary	Ethoxylated alcohols	5.00000	0.00501			
			10102-40-6	Sodium molybdate	5.00000	0.00195			
			124-04-9	Adipic acid	1.00000	0.00100			
			69011-36-5	Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	1.00000	0.00100			
			7647-14-5	Sodium chloride	5.00000	0.00049			
			64-17-5	Ethanol	60.00000	0.00046			
			Proprietary	Phosphoric Acid Salt	5.00000	0.00045			
			64742-94-5	Heavy aromatic petroleum naphtha	30.00000	0.00023			
			Proprietary	Oxyalkylated nonyl phenolic resin	30.00000	0.00023			
			Proprietary	Modified thiourea polymer	30.00000	0.00022			
			61790-12-3	Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	30.00000	0.00022			
			Proprietary	Oxyalkylated phenolic resin	10.00000	0.00008			
			127-09-3	Sodium acetate	0.10000	0.00004			
			7778-77-0	Monopotassium phosphate	0.10000	0.00004			
			72-17-3	Sodium lactate	0.10000	0.00004			
			8013-01-2	Yeast extract	0.10000	0.00004			

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Environmental Protection

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water.

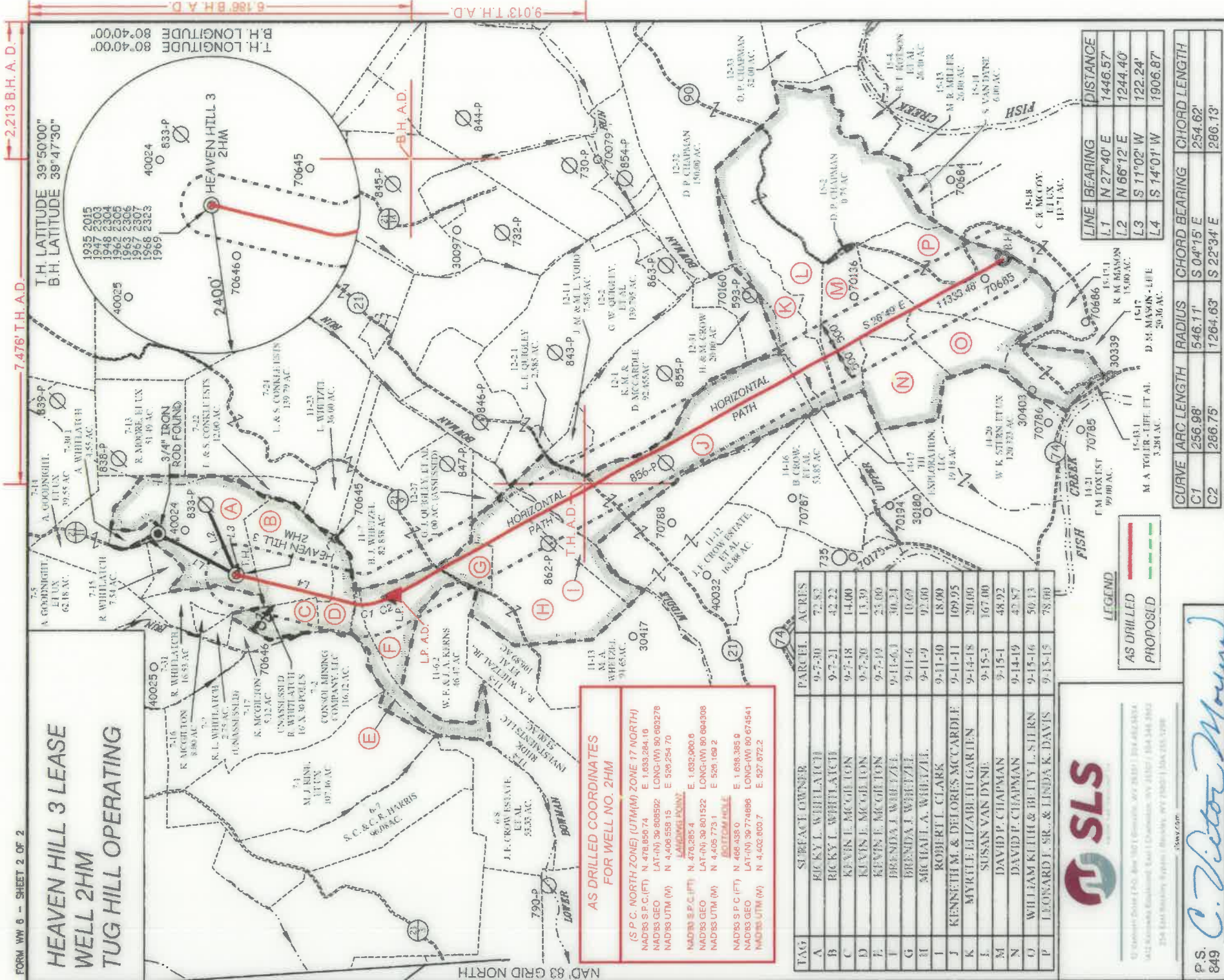
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

0.00004	5.00000	127087-87-0	Poly(oxy-1,2-ethanediy), alpha-(4-nonylphenyl)- omega-hydroxy-, branched
0.00004	5.00000	91-20-3	Naphthalene
0.00004	5.00000	629-73-2	Hexadecene
0.00004	5.00000	Proprietary	Ethoxylated alcohols
0.00004	5.00000	107-19-7	Propargyl alcohol
0.00001	0.10000	50-00-0	Formaldehyde
0.00001	1.00000	95-63-6	1,2,4 Trimethylbenzene

**HEAVEN HILL 3 LEASE  
WELL 2HM  
TUG HILL OPERATING**



T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"  
T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"

7.476' T.H. A.D. 8.166' B.H. A.D.

**AS DRILLED COORDINATES  
FOR WELL NO. 2HM**

(S.P.C. NORTH ZONE) (UTM/M) ZONE 17 (NORTH)  
 NAD83 S.P.C.(FT) N. 478,859.74 E. 1,633,284.10  
 NAD83 GEO. LAT. (N) 39.800592 LONG. (W) 80.669276  
 NAD83 UTM (M) N. 4,406,558.15 E. 526,254.70

**LANDING POINT**  
 NAD83 S.P.C.(FT) N. 476,285.4 E. 1,632,000.0  
 NAD83 GEO. LAT. (N) 39.801522 LONG. (W) 80.664308  
 NAD83 UTM (M) N. 4,405,773.1 E. 525,169.2

**BOTTOM HOLE**  
 NAD83 S.P.C.(FT) N. 466,438.0 E. 1,638,385.9  
 NAD83 GEO. LAT. (N) 39.774698 LONG. (W) 80.674541  
 NAD83 UTM (M) N. 4,402,800.7 E. 527,874.2

TAG	SURFACE OWNER	PARCEL ACRES
A	KICKY L. WHITLAUGH	9-7-20 72.83
B	BECKY L. WHITLAUGH	9-7-21 42.22
C	KEVIN E. MCGIBION	9-7-18 14.00
D	KYVIN E. MCGIBION	9-7-20 13.39
E	KEVIN E. MCGIBION	9-7-19 23.00
F	BRENDAX J. WHITEHILL	9-11-6.1 30.21
G	BRENDAX J. WHITEHILL	9-11-6 10.69
H	MICHAEL A. WHITEHILL	9-11-9 92.00
I	ROBERT L. CLARK	9-11-10 18.00
J	KENNETH M. & DELORES MCCARDLE	9-11-11 109.95
K	MYRTLE ELIZABETH GARTEN	9-14-18 20.00
L	SUSAN VAN DYNE	9-15-3 167.00
M	DAVID P. CHAPMAN	9-15-1 48.92
N	DAVID P. CHAPMAN	9-14-19 47.87
O	WILLIAM KATH & BETTY L. STERN	9-15-16 50.13
P	LEONARD F. SR. & LINDA K. DAVIS	9-15-15 78.00



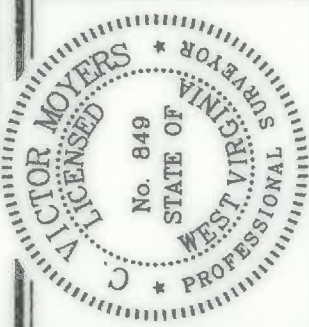
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P.S. 849  
*C. Victor Moyers*

LINE	BEARING	DISTANCE
L.1	N 27°40' E	1446.57'
L.2	N 66°12' E	1244.40'
L.3	S 11°02' W	122.24'
L.4	S 14°01' W	1906.87'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	256.98'	546.11'	S 04°15' E	254.62'
C2	266.75'	1264.63'	S 22°34' E	260.13'

AS DRILLED  
PROPOSED



(S.P.C. NORTH ZONE) (UTM/M) ZONE 17 (NORTH)  
 NAD83 S.P.C.(FT) N. 478,859.74 E. 1,633,284.10  
 NAD83 GEO. LAT. (N) 39.800592 LONG. (W) 80.669276  
 NAD83 UTM (M) N. 4,406,558.15 E. 526,254.70

**LANDING POINT**  
 NAD83 S.P.C.(FT) N. 476,285.4 E. 1,632,027.6  
 NAD83 GEO. LAT. (N) 39.801749 LONG. (W) 80.664429  
 NAD83 UTM (M) N. 4,405,798.3 E. 526,158.8

**BOTTOM HOLE**  
 NAD83 S.P.C.(FT) N. 466,439.2 E. 1,638,391.8  
 NAD83 GEO. LAT. (N) 39.774698 LONG. (W) 80.674520  
 NAD83 UTM (M) N. 4,402,801.1 E. 527,874.0

SCALE 1" = 2000' FILE NO. 8654P2HMADR.dwg  
 DATE JANUARY 17, 2019  
 REVISED JUNE 12, 2020  
 OPERATORS WELL NO. HEAVEN HILL 3-2HM  
 API WELL NO. 47-051-01962  
 NO. STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS



**LEGEND**

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- LEASE # (SEE WW-6A1)
- SURFACE OWNER (SEE TABLE)

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

WELL OPERATOR TUG HILL OPERATING, LLC  
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500  
 FORT WORTH, TX 76107

DESIGNATED AGENT  
 ADDRESS 5400 D BIG TYLER ROAD  
 CHARLESTON, WV 25313

DIANNA STAMPER  
 CT CORPORATION SYSTEM

COUNTY NAME PERMIT

HEAVEN HILL 3 LEASE  
WELL 2HM  
TUG HILL OPERATING

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
NAD'83 S.P.C.(FT) N. 478,856.74 E. 1,633,284.15  
NAD'83 GEO. LAT-(N) 39.808592 LONG-(W) 80.693278  
NAD'83 UTM (M) N. 4,406,558.15 E. 526,254.70  
LANDING POINT  
NAD'83 S.P.C.(FT) N. 476,368.5 E. 1,632,927.6  
NAD'83 GEO. LAT-(N) 39.801749 LONG-(W) 80.694429  
NAD'83 UTM (M) N. 4,405,798.3 E. 526,158.8  
BOTTOM HOLE  
NAD'83 S.P.C.(FT) N. 466,439.2 E. 1,638,391.8  
NAD'83 GEO. LAT-(N) 39.774689 LONG-(W) 80.674520  
NAD'83 UTM (M) N. 4,402,801.1 E. 527,874.0

T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"

B.H.A.D.

T.H.A.D.

9,013 T.H.A.D. 6,186 B.H.A.D.

NOTES ON SURVEY

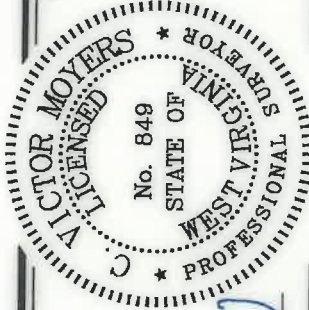
1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'
3. AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
4. PLAT UPDATED TO SHOW AS-DRILLED PATH.



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5295  
slsww.com

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. *C. Victor Moyers*  
849



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JANUARY 17, 20 19  
REVISED JUNE 12, 20 20  
OPERATORS WELL NO. HEAVEN HILL 3-2HM

API WELL NO. 47 - 051 - 01962 PERMIT

STATE OF WEST VIRGINIA  
DIVISION OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P2HMADR.dwg  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

WELL TYPE: OIL  GAS  WASTE LIQUID INJECTION  DISPOSAL  "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: ELEVATION PROPOSED = 1,341.3' GROUND = 1,341.3' WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)  
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'  
SURFACE OWNER RICKY L. WHITLATCH ACREAGE 72.82±  
ROYALTY OWNER RICKY L. WHITLATCH, ET AL - SEE WWV-6A1 ACREAGE 72.82±  
LEASE NO. SEE WWV-6A1  
PROPOSED WORK :  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD  
FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,876' / TMD: 19,063'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 CT CORPORATION SYSTEM  
FORT WORTH, TX 76107 CHARLESTON, WV 25313

PERMIT