

API 47- 051 - 01948 Farm name Ricky L. Whitlatch Well number Heaven Hill 3-5HM

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/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"	1176'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1176'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2822'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	17910'	NEW	20#	N/A	Y
Tubing		2 3/6"	8955'	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	2200	15.6	1.19	2751	0	8
Coal	A	2200	15.6	1.19	2751	0	8
Intermediate 1	A	2200	15.6	1.19	2751	0	8
Intermediate 2							
Intermediate 3							
Production	A	4384	14.5	1.17	4909	0	8
Tubing							

Drillers TD (ft) 17,967'

Deepest formation penetrated Marcellus

Plug back procedure n/a

Loggers TD (ft) n/a

Plug back to (ft) n/a

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Kick off depth (ft) 6,729'

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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 \_\_\_\_\_

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

API 47 - 051 - 01948 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 3-5HM  
Operator (as registered with the OOG) Tug Hill Operating, LLC  
Address 1320 S. University Drive, Suite 215 City Ft. Worth State TX Zip 76107

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As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,406,562.70 Easting 526,263.54  
Landing Point of Curve Northing 4,408,050.3 Easting 526,802.8  
Bottom Hole Northing 4,403,376.9 Easting 528,334.7  
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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  
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 9/13/2017 Date drilling commenced 3/26/2018 Date drilling ceased 9/29/2018  
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 70' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2,167' 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:

*Jay Hudson*  
7/27/2020





**Heaven Hill 3-5HM  
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	6/12/2019	17539	17691	48	Marcellus
2	6/12/2019	17365	17517	48	Marcellus
3	6/13/2019	17192	17344	48	Marcellus
4	6/13/2019	17018	17170	48	Marcellus
5	6/13/2019	16844	16996	48	Marcellus
6	6/14/2019	16670	16822	48	Marcellus
7	6/14/2019	16496	16648	48	Marcellus
8	6/14/2019	16323	16475	48	Marcellus
9	6/15/2019	16149	16301	48	Marcellus
10	6/15/2019	15975	16127	48	Marcellus
11	6/16/2019	15801	15953	48	Marcellus
12	6/16/2019	15627	15779	48	Marcellus
13	6/16/2019	15454	15606	48	Marcellus
14	6/17/2019	15280	15432	48	Marcellus
15	6/17/2019	15106	15258	48	Marcellus
16	6/18/2019	14932	15084	48	Marcellus
17	6/18/2019	14758	14910	48	Marcellus
18	6/18/2019	14585	14737	48	Marcellus
19	6/19/2019	14411	14563	48	Marcellus
20	6/19/2019	14237	14389	48	Marcellus
21	6/19/2019	14063	14215	48	Marcellus
22	6/20/2019	13889	14041	48	Marcellus
23	6/20/2019	13716	13868	48	Marcellus
24	6/20/2019	13542	13694	48	Marcellus
25	6/20/2019	13368	13520	48	Marcellus
26	6/21/2019	13194	13346	48	Marcellus
27	6/21/2019	13020	13172	48	Marcellus
28	6/21/2019	12847	12999	48	Marcellus
29	6/22/2019	12673	12825	48	Marcellus
30	6/22/2019	12499	12651	48	Marcellus
31	6/22/2019	12325	12477	48	Marcellus
32	6/22/2019	12151	12303	48	Marcellus
33	6/23/2019	11978	12130	48	Marcellus
34	6/23/2019	11804	11956	48	Marcellus
35	6/24/2019	11630	11782	48	Marcellus
36	6/24/2019	11456	11608	48	Marcellus
37	6/25/2019	11282	11434	48	Marcellus
38	6/25/2019	11109	11261	48	Marcellus
39	6/25/2019	10935	11087	48	Marcellus
40	6/25/2019	10761	10913	48	Marcellus
41	6/26/2019	10587	10739	48	Marcellus
42	6/26/2019	10413	10565	48	Marcellus
43	6/26/2019	10240	10392	48	Marcellus
44	6/26/2019	10066	10218	48	Marcellus
45	6/27/2019	9892	10044	48	Marcellus
46	6/27/2019	9718	9870	48	Marcellus

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47	6/27/2019	9544	9696	48	Marcellus
48	6/28/2019	9371	9523	48	Marcellus
49	6/28/2019	9197	9349	48	Marcellus
50	6/28/2019	9023	9175	48	Marcellus
51	6/29/2019	8849	9001	48	Marcellus
52	6/29/2019	8675	8827	48	Marcellus
53	6/29/2019	8502	8654	48	Marcellus
54	6/30/2019	8328	8480	48	Marcellus
55	6/30/2019	8154	8306	48	Marcellus
56	6/30/2019	7980	8132	48	Marcellus
57	7/1/2019	7806	7958	48	Marcellus
58	7/1/2019	7633	7785	48	Marcellus

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**Heaven Hill 3-5HM  
STIMULATION INFORMATION PER STAGE**

Stage No.	Ave. Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	88.4	7812	5376	4325	439720	9556	0
2	86.8	7685	5507	4776	430055	8771	0
3	88.8	7456	5949	4682	530915	10056	0
4	89.4	7293	5563	5167	531985	10115	0
5	88.8	7361	5163	4919	530205	9876	0
6	88.7	7333	5370	5079	530925	10051	0
7	87.4	7912	5387	4929	499430	9841	0
8	87.6	7963	5514	5028	529775	9857	0
9	89.4	7690	5175	4805	530255	10058	0
10	86.8	7671	5298	5038	531560	10041	0
11	86.3	7566	5213	5168	528800	10036	0
12	89.2	7578	5270	5116	530460	10054	0
13	89.1	7506	5398	4858	534800	10035	0
14	88.4	7243	5159	4965	530940	10088	0
15	89.3	7321	5162	4966	531820	10066	0
16	88.9	7058	5235	4812	531200	9823	0
17	87.7	7134	5309	5089	529100	10131	0
18	89.1	7397	5779	4627	532705	10045	0
19	88.4	7314	8501	4836	531365	10061	0
20	88.9	7275	5463	4961	530625	9991	0
21	88.8	7403	5575	4765	530425	9894	0
22	88.5	7702	8859	4697	530165	9706	0
23	88.1	7158	5458	4761	530885	9784	0
24	88.6	7348	5239	4995	531585	10073	0
25	88.5	7175	8282	4953	529545	9822	0
26	88.6	7264	8552	4841	525500	9741	0
27	89	7424	5341	5016	529620	9968	0
28	88.9	7646	5495	4501	527860	11278	0
29	89	7243	5114	4943	531220	9824	0
30	88.6	7242	5106	4616	532545	9875	0
31	88.5	7225	5186	4678	535185	9946	0
32	88	7184	5518	4945	525800	9646	0
33	88.5	7001	5694	8803	532445	10072	0

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34	88.7	7300	5413	5093	387400	9652	0
35	89	6968	5316	4720	532445	9830	0
36	89.1	6904	5570	4987	530555	9756	0
37	89.1	6953	5732	5231	531635	9671	0
38	88.9	6885	5957	5069	530335	9633	0
39	88.7	7088	6084	4698	530015	9749	0
40	89.3	6935	5606	4897	528515	9722	0
41	89.4	6948	6008	4739	531115	9754	0
42	88.8	6969	5777	4672	531395	9872	0
43	89.2	6864	5975	4899	529735	9901	0
44	89.4	6878	5939	4843	530690	9587	0
45	88.6	7043	6118	4593	532100	11164	0
46	88.9	6622	6134	4620	533240	9705	0
47	89.1	6649	6680	4507	528390	9632	0
48	89.4	6582	5539	4566	535690	9661	0
49	89.3	6657	5651	4555	534450	9762	0
50	88.6	6589	5385	4708	531750	9708	0
51	89.5	6549	5375	4805	534370	9717	0
52	89.1	6446	5001	5014	531300	9749	0
53	89.3	6939	6266	4811	531770	9795	0
54	89.4	6278	5737	4690	532460	9730	0
55	88.8	6295	5693	4872	532880	9924	0
56	88.8	6111	4760	4811	529370	9679	0
57	88.2	6958	8110	4844	533550	11156	0
58	88.4	6388	5917	4761	535410	9662	0



HEAVEN HILL 3-5HM

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	2037	2209	2038	2211	Sandstone
Big Lime	2209	2340	2211	2342	Limestone
Big Injun	2340	2635	2342	2637	Sandstone
Weir	2635	2833	2637	2836	Sandstone
Berea	2833	3095	2836	3099	Sandstone
Gordon	3095	3180	3099	3186	Sandstone
Fifty Foot	3180	3762	3186	3803	Sandstone
Speechley	3762	5223	3803	5420	Sandstone
Benson	5223	5595	5420	5830	Sandstone
Alexander	5595	6217	5830	6514	Siltstone
Rhinestreet	6217	6667	6514	7065	Black shale
Middlesex	6667	6740	7065	7182	Black shale
Geneeo/Burkett	6740	6767	7182	7229	Black shale
Tully	6767	6794	7229	7278	Limestone
Hamilton	6794	6874	7278	7492	Grey shale
Marcellus	6874	-	7492	-	Black shale

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**Well:** Heaven Hill 3-5 HM (H)  
**Site:** Heaven Hill 3  
**Project:** Marshall County, West Virginia  
**Design:** rev7

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/S	+E/-W	Vsect	Annotation
1	6653.00	26.96	126.40	6342.24	-918.89	1233.79	0.00	Survey @ 6653.00 MD 6342.24 TVD
2	6765.00	26.96	126.40	6442.07	-949.89	1274.66	0.00	KOP Begin 6'100' buildum
3	6997.22	39.00	139.50	6636.76	-1036.25	1364.93	6.00	KOP Begin 8'100' buildum
4	7632.53	69.00	150.24	6907.10	-1494.43	1672.86	8.00	Begin 89.00' lateral
5	17967.16	89.00	150.24	7086.60	-10464.98	8801.37	0.00	PBHL/TD 17967.16 MD/7086.60 TVD

Geodetic System: Universal Transverse Mercator (US Survey Feet)

Datum: NAD83 West Virginia - HARN

Ellipsoid: GRS 1980

Zone: 17N (84 W to 78 W)

System Datum: Mean Sea Level

Depth Reference: RKB=1326+26 @ 1352.00usft

Northing 14457197.78  
 Easting 39.80863272

Latitude -60.69317425  
 Longitude -80.69317425

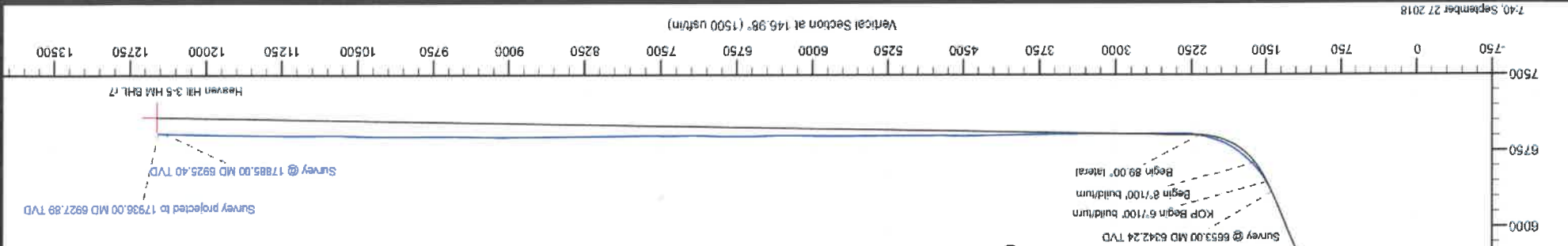
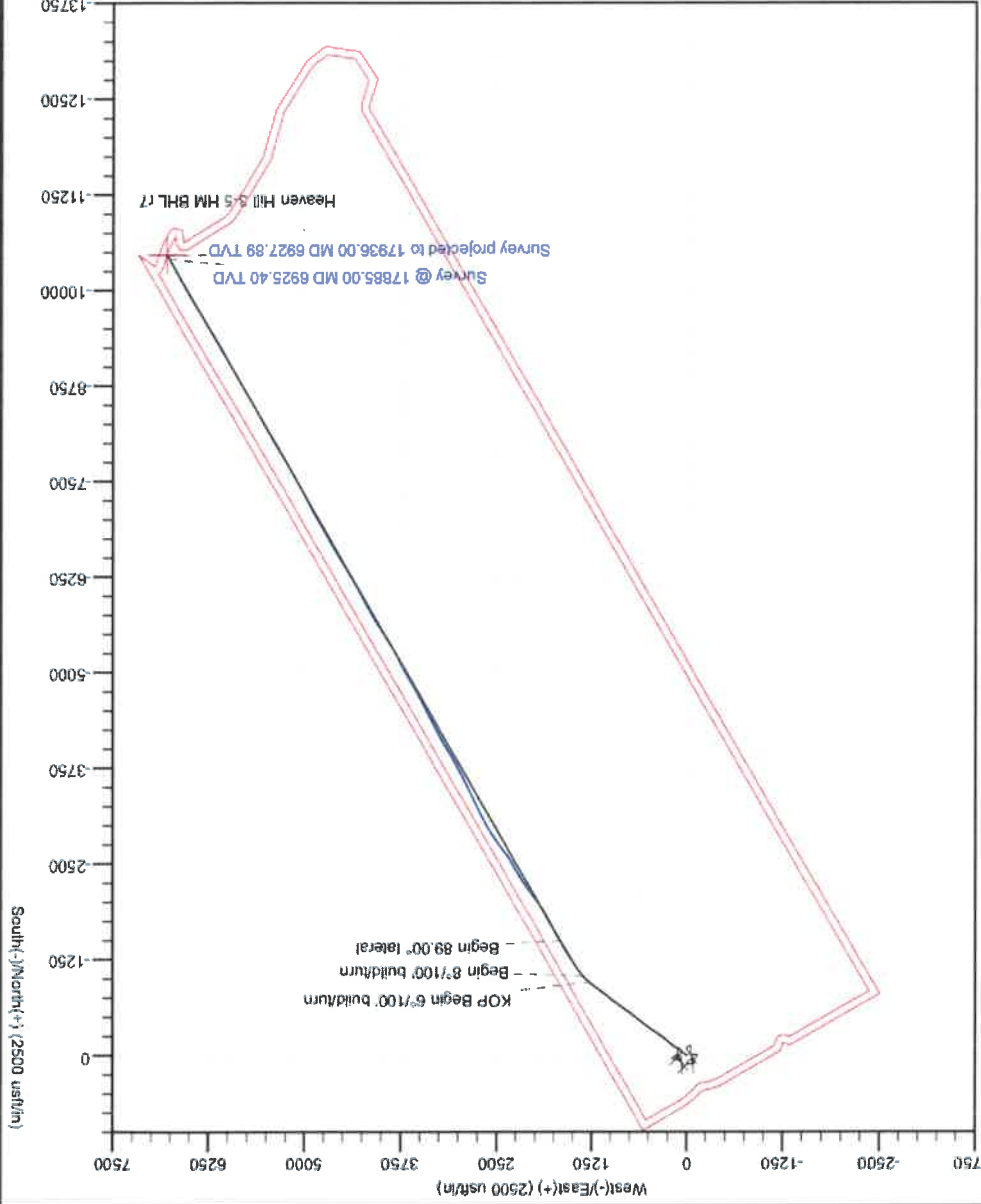
Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.94"



Azimuths to Grid North  
 True North: -0.20"  
 Magnetic North: -8.94"  
 Magnetic Field  
 Strength: 52037.7nT  
 Dip Angle: 66.87"  
 Date: 9/18/2019  
 Model: IGRF2015



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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/11/2019
Job End Date:	7/2/2019
State:	California
County:	
API Number:	04-705-10194-80-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Heavel Hill 3 5HM
Latitude:	39.80860000
Longitude:	-80.96320000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,920
Total Base Water Volume (gal):	24,829,424
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
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.65196	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.47688	

OilPerm A	Halliburton	Non-ionic Surfactant					
				Listed Below			
LD-2950	MultiChem	Friction Reducer					
				Listed Below			
FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
LEGEND(TM) LD-7750W	MultiChem	Scale Control					
				Listed Below			
Sand-Premium White-30/50	Halliburton	Proppant					
				Listed Below			
HYDROCHLORIC ACID, 10-30%	Halliburton	Solvent					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
MC MX 8-4743	MultiChem	Additive					
				Listed Below			
Sand-Premium White-40/70	Halliburton	Proppant					

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				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	12.73767	RECEIVED Office of Oil and Gas JUL 10 2010 WV Department of Environmental Protection
			Hydrochloric acid	7647-01-0	15.00000	0.07036	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02851	
			Sodium nitrate	7631-99-4	60.00000	0.02218	
			Methanol	67-56-1	100.00000	0.01055	
			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00095	
			Ethoxylated alcohols	Proprietary	1.00000	0.00095	
			Ethanol	64-17-5	60.00000	0.00046	
			Sodium chloride	7647-14-5	5.00000	0.00043	
			Phosphoric Acid Salt	Proprietary	5.00000	0.00043	
			Oxyalkylated nonyl phenolic resin	Proprietary	30.00000	0.00023	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00023	
			Modified thiourea polymer	Proprietary	30.00000	0.00022	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00022	
			Oxyalkylated phenolic resin	Proprietary	10.00000	0.00008	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.00004	
			Naphthalene	91-20-3	5.00000	0.00004	
			Propargyl alcohol	107-19-7	5.00000	0.00004	
			Hexadecene	629-73-2	5.00000	0.00004	
			Ethoxylated alcohols	Proprietary	5.00000	0.00004	
			Formaldehyde	50-00-0	0.10000	0.00001	

			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00001	
--	--	--	------------------------	---------	---------	---------	--

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

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**HEAVEN HILL 3 LEASE  
WELL 5HM  
TUG HILL OPERATING**

7,447' T.H. A.D.

688' B.H. A.D.

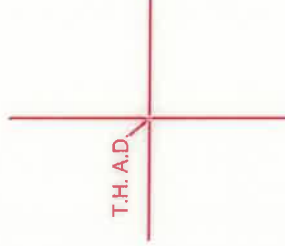
T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)	
NAD'83 S.P.C.(FT)	N. 478,871.18
NAD'83 GEO.	LAT-(N) 39.808633
NAD'83 UTM (M)	N. 4,406,562.70
LANDING POINT	
NAD'83 S.P.C.(FT)	N. 477,462.6
NAD'83 GEO.	LAT-(N) 39.804824
NAD'83 UTM (M)	N. 4,406,141.6
BOTTOM HOLE	
NAD'83 S.P.C.(FT)	N. 468,290.5
NAD'83 GEO.	LAT-(N) 39.779827
NAD'83 UTM (M)	N. 4,403,373.0

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

B.H. A.D.

8,998' T.H. A.D.



**NOTES ON SURVEY**

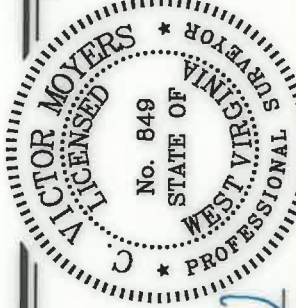
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'
- AS--DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW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



12 Venhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
sls.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. 849  
*C. Victor Moyers*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE JANUARY 17, 20 19  
REVISED JUNE 12, 20 20  
OPERATORS WELL NO. HEAVEN HILL 3-5HM  
API WELL NO. 47 - 051 - 01948

MINIMUM DEGREE OF ACCURACY 1 / 2500  
FILE NO. 8654P5HMADR.dwg  
SCALE 1" = 2000'  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

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



WELL TYPE: OIL \_\_\_ GAS  INJECTION \_\_\_ WASTE \_\_\_ LIQUID \_\_\_ IF "GAS" PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW

LOCATION: ELEVATION PROPOSED = 1,342.20' GROUND = 1,342.20' PROPOSED = 1,326.35'  
DISTRICT MEADE COUNTY MARSHALL WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)

SURFACE OWNER RICKY L. WHITLATCH  
ROYALTY OWNER RICKY L. WHITLATCH, ET AL - SEE WW-6A1

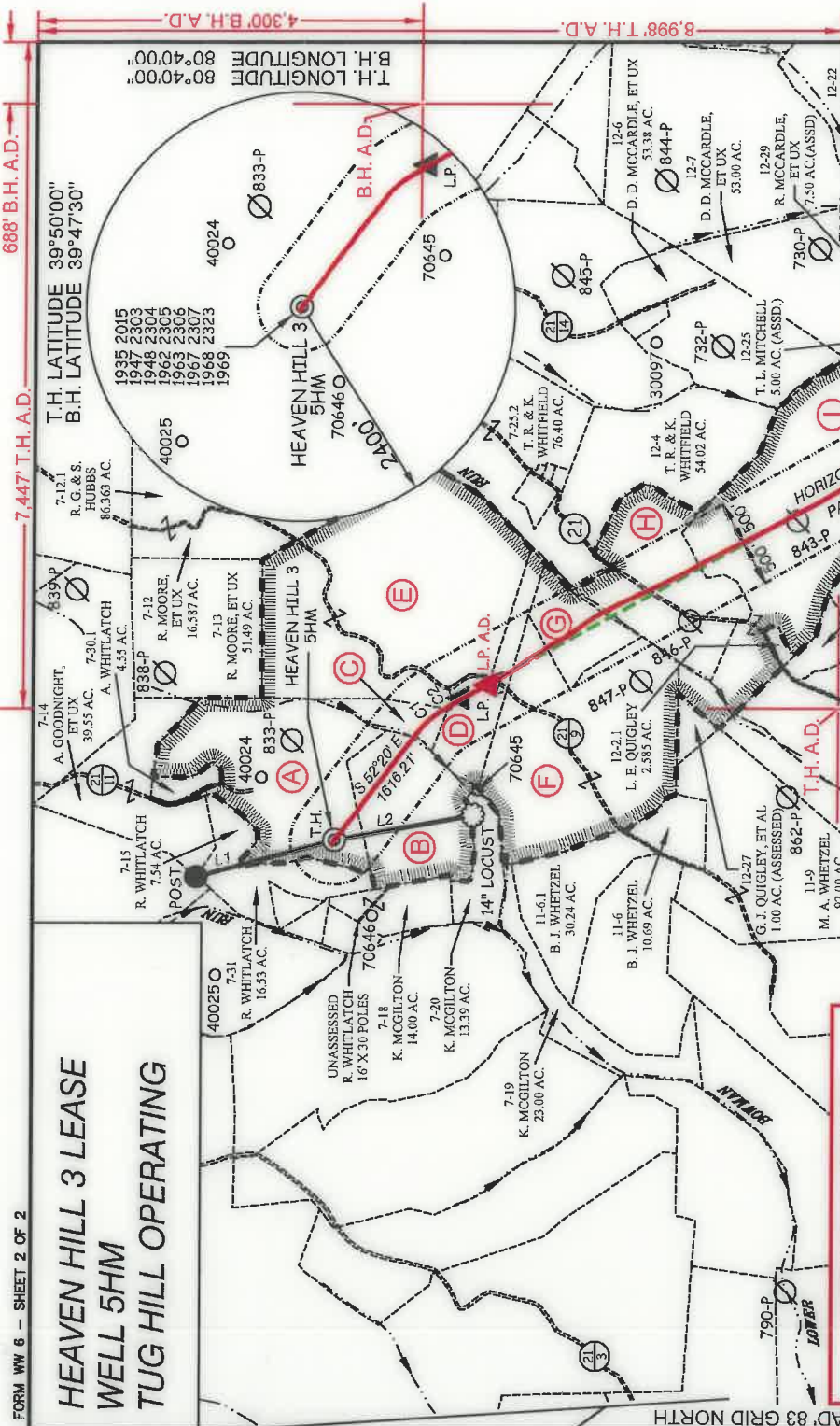
PROPOSED WORK:  
DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ OTHER \_\_\_  
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,876' / TMD: 17,967'

COUNTY NAME  
QUADRANGLE GLEN EASTON 7.5'  
ACREAGE 72.82±  
ACREAGE 72.82±  
LEASE NO. SEE WW-6A1

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



**HEAVEN HILL 3 LEASE  
WELL 5HM  
TUG HILL OPERATING**



**AS DRILLED COORDINATES  
FOR WELL NO. 5HM**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD83 S.P.C.(F) N. 478,971.19 E. 1,633,313.44  
 NAD83 GEO. LAT-(N) 39.808633 LONG-(W) 80.693174  
 NAD83 UTM (M) N. 4,406,562.70 E. 526,263.54

**LANDING POINT**  
 NAD83 S.P.C.(F) N. 477,180.3 E. 1,635,054.9  
 NAD83 GEO. LAT-(N) 39.804000 LONG-(W) 80.686865  
 NAD83 UTM (M) N. 4,405,050.3 E. 526,602.6

**BOTTOM HOLE**  
 NAD83 S.P.C.(F) N. 468,303.6 E. 1,639,955.1  
 NAD83 GEO. LAT-(N) 39.779883 LONG-(W) 80.669116  
 NAD83 UTM (M) N. 4,403,378.9 E. 528,394.7

TAG	SURFACE OWNER	PARCEL ACRES
A	RICKY L. WHITLATCH	9-7-30 72.82
B	RICKY L. WHITLATCH	9-7-21 42.22
C	LAWRENCE & SHIRLEY CONKLE ESTS.	9-7-22 12.00
D	LARRY J. WHETZEL, ET UX	9-7-23 36.00
E	LAWRENCE & SHIRLEY CONKLE ESTS.	9-7-24 139.79
F	BRENDA J. WHETZEL	9-11-7 82.858
G	BRENDA J. WHETZEL	9-11-7.1 17.812
H	WNEK FAMILY IRREVOCABLE TRUST	9-11-8 50.10
I	GERALD W. QUIGLEY, ET AL	9-12-2 139.795
J	MYRTLE ELIZABETH GARTEN	9-12-30 7.26
K	GARY L. DOBBS	9-12-37 20.00
L	DAVID P. CHAPMAN	9-12-32 150.00
M	MYRTLE ELIZABETH GARTEN	9-14-18 20.00
N	SUSAN VANDYNE	9-15-3 167.00

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 | 304.255.5296  
[slswv.com](http://slswv.com)

P.S. *C. Victor Moyers*  
 849

**LEGEND**  
 AS DRILLED (Red line)  
 PROPOSED (Green dashed line)

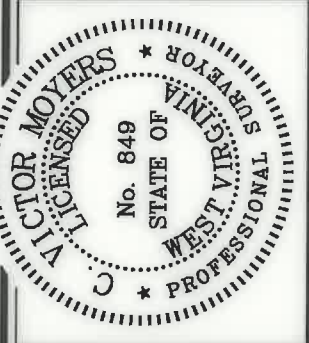
LINE	BEARING	DISTANCE
L1	N 14°48' W	1604.09'
L2	S 10°05' E	1580.22'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	149.18'	686.80'	S 43°26' E	148.88'
C2	373.18'	2411.64'	S 32°54' E	372.81'

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD83 S.P.C.(F) N. 478,971.19 E. 1,633,313.44  
 NAD83 GEO. LAT-(N) 39.808633 LONG-(W) 80.693174  
 NAD83 UTM (M) N. 4,406,562.70 E. 526,263.54

**LANDING POINT**  
 NAD83 S.P.C.(F) N. 477,462.6 E. 1,634,897.7  
 NAD83 GEO. LAT-(N) 39.804824 LONG-(W) 80.687469  
 NAD83 UTM (M) N. 4,406,141.6 E. 526,753.4

**BOTTOM HOLE**  
 NAD83 S.P.C.(F) N. 468,290.5 E. 1,639,941.2  
 NAD83 GEO. LAT-(N) 39.779827 LONG-(W) 80.669094  
 NAD83 UTM (M) N. 4,403,373.0 E. 528,396.6



SCALE 1" = 2000' FILE NO. 8654P5HMADR.dwg

DATE JANUARY 17, 2019  
 REVISED JUNE 12, 2020  
 OPERATORS WELL NO. HEAVEN HILL 3-5HM  
 API WELL NO. 47-051-01948  
 NO. STATE COUNTY PERMIT

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

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

**LEGEND**  
 LEASE LINE (Dashed line)  
 SURFACE LINE (Solid line)  
 WELL LATERAL (Dashed line with dots)  
 OFFSET LINE (Dashed line)  
 TIE LINE (Dashed line)  
 CREEK (Wavy line)  
 ROAD (Double line)  
 COUNTY ROUTE (Dashed line with 'R')  
 PROPOSED WELL (Circle with cross)  
 EXISTING WELL (Circle with dot)  
 PERMITTED WELL (Circle with 'P')  
 TAX MAP-PARCEL (Circle with 'A')  
 LEASE # (SEE WW-6A1)  
 SURFACE OWNER (SEE TABLE)

COUNTY NAME PERMIT

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

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