

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

API 47-051-01963 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 3-3HM
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 4,406,557.30 Easting 526,258.41
Landing Point of Curve Northing 4,405,861.3 Easting 526,385.6
Bottom Hole Northing 4,403,078.1 Easting 527,975.8

Elevation (ft) 1326' GL _____ Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep **RESERVED**
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate **JUL 10 2020**
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other **Department of Environmental Protection**
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 10/23/2017 Date drilling commenced 3/7/2018 Date drilling ceased 9/10/2018
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: *Jim Whitlatch*
7/27/2020

API 47-051 - 01963 Farm name Ricky L. Whitlatch Well number Heaven Hill 3-3HM

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"	1160'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1160'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2834'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	18217'	NEW	20#	N/A	Y
Tubing		2 3/6"	9109'	NEW	4.7#	N/A	
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1184	15.6	1.19	1421	0	8
Coal	A	988	15.6	1.19	1176	0	8
Intermediate 1	A	988	15.6	1.19	1176	0	8
Intermediate 2							
Intermediate 3							
Production	A	4443	14.5	1.17	4998	0	8
Tubing							

Drillers TD (ft) 18,261' Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

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Kick off depth (ft) 6,823' _____

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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 _____

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

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	5/20/2019	17842	17995	48	Marcellus
2	5/20/2019	17666	17820	48	Marcellus
3	5/20/2019	17491	17644	48	Marcellus
4	5/21/2019	17315	17469	48	Marcellus
5	5/21/2019	17140	17293	48	Marcellus
6	5/21/2019	16964	17118	48	Marcellus
7	5/22/2019	16789	16942	48	Marcellus
8	5/23/2019	16613	16767	48	Marcellus
9	5/23/2019	16438	16591	48	Marcellus
10	5/24/2019	16262	16416	48	Marcellus
11	5/24/2019	16087	16240	48	Marcellus
12	5/24/2019	15911	16065	48	Marcellus
13	5/25/2019	15736	15889	48	Marcellus
14	5/25/2019	15560	15714	48	Marcellus
15	5/26/2019	15385	15538	48	Marcellus
16	5/26/2019	15209	15363	48	Marcellus
17	5/27/2019	15034	15187	48	Marcellus
18	5/27/2019	14858	15012	48	Marcellus
19	5/28/2019	14683	14836	48	Marcellus
20	5/28/2019	14507	14661	48	Marcellus
21	5/28/2019	14332	14485	48	Marcellus
22	5/28/2019	14156	14310	48	Marcellus
23	5/29/2019	13981	14134	48	Marcellus
24	5/29/2019	13805	13959	48	Marcellus
25	5/30/2019	13630	13783	48	Marcellus
26	5/30/2019	13454	13608	48	Marcellus
27	5/30/2019	13279	13432	48	Marcellus
28	5/31/2019	13103	13257	48	Marcellus
29	5/31/2019	12928	13081	48	Marcellus
30	5/31/2019	12752	12906	48	Marcellus
31	5/31/2019	12577	12730	48	Marcellus
32	6/1/2019	12401	12555	48	Marcellus
33	6/1/2019	12226	12379	48	Marcellus
34	6/2/2019	12050	12204	48	Marcellus
35	6/2/2019	11875	12028	48	Marcellus
36	6/2/2019	11699	11853	48	Marcellus
37	6/3/2019	11524	11677	48	Marcellus
38	6/3/2019	11348	11502	48	Marcellus
39	6/4/2019	11173	11326	48	Marcellus
40	6/4/2019	10997	11151	48	Marcellus
41	6/4/2019	10822	10975	48	Marcellus
42	6/5/2019	10646	10800	48	Marcellus
43	6/5/2019	10471	10624	48	Marcellus
44	6/5/2019	10295	10449	48	Marcellus
45	6/6/2019	10120	10274	48	Marcellus
46	6/6/2019	9944	10098	48	Marcellus

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47	6/6/2019	9769	9923	48	Marcellus
48	6/6/2019	9593	9747	48	Marcellus
49	6/7/2019	9418	9572	48	Marcellus
50	6/7/2019	9242	9396	48	Marcellus
51	6/7/2019	9067	9221	48	Marcellus
52	6/8/2019	8892	9045	48	Marcellus
53	6/8/2019	8716	8870	48	Marcellus
54	6/8/2019	8541	8694	48	Marcellus
55	6/9/2019	8365	8519	48	Marcellus
56	6/9/2019	8190	8343	48	Marcellus
57	6/9/2019	8014	8168	48	Marcellus
58	6/10/2019	7839	7992	48	Marcellus
59	6/10/2019	7663	7817	48	Marcellus

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**Heaven Hill 3-3HM
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	86.7	7866	5803	4064	523000	9371	0
2	84.3	7687	5431	4636	530605	9857	0
3	87	7912	5197	4214	531250	10265	0
4	89.5	7853	5277	4968	532710	9948	0
5	86.7	7637	5128	4967	530600	9843	0
6	88.8	7964	5078	4534	531420	9912	0
7	85.2	7490	5211	4869	530780	9863	0
8	83.9	7841	5450	4326	411460	9159	0
9	87.1	7484	5200	4944	531820	9855	0
10	88	7776	5095	4811	532950	9818	0
11	84.8	7592	5102	5062	532030	9767	0
12	88.4	7484	5139	4967	530910	10116	0
13	87.1	7719	5121	4613	531915	10252	0
14	86.3	7594	5236	4828	530755	10278	0
15	89.5	7294	5089	5011	528435	10243	0
16	89.2	7641	5194	5017	529795	10231	0
17	89.3	7516	5352	4723	531955	10144	0
18	87.1	7303	5048	5090	529510	10280	0
19	89.3	7256	5015	5075	530755	10242	0
20	88.8	7269	5051	5053	530495	10198	0
21	87.2	7579	5184	4719	528325	10137	0
22	89.2	7575	5420	4702	531215	10392	0
23	89.4	7335	5109	4951	530675	10110	0
24	80.4	6856	5149	4639	531495	10095	0
25	79.9	7053	5131	4668	482200	9675	0
26	88.1	7317	5202	4764	529855	10115	0
27	88.8	7224	5234	4783	531025	10217	0
28	88.6	7101	5135	4652	531525	10295	0
29	89.3	7118	5181	4815	534845	10250	0
30	88.8	7047	5004	5098	531365	10265	0
31	88.8	7222	5122	4768	529565	10153	0
32	87.2	7222	5168	4757	488875	10378	0
33	89.2	6977	5136	4746	531495	10171	0

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34	89.1	6785	5133	4859	480280	9432	0
35	88.9	6871	5062	5105	529615	10073	0
36	89.4	6771	5010	4567	529035	10161	0
37	88.9	6774	5220	4852	530935	10191	0
38	88.8	6730	5310	4696	524175	10229	0
39	89.2	6565	5652	4910	532505	10035	0
40	89.2	6780	4991	4908	532915	10260	0
41	89.4	6668	5386	4940	532335	10361	0
42	88.6	6534	5309	4523	530925	9938	0
43	89.5	6689	5484	4514	530955	10506	0
44	89.3	6547	4996	4997	531515	10435	0
45	88.9	6551	5310	5011	534615	10115	0
46	89.5	6512	5127	5138	528895	10220	0
47	89.3	6642	5800	5069	542060	10296	0
48	88.6	6476	5225	4918	535430	10092	0
49	88.9	6526	5210	4974	535550	10084	0
50	89.4	6680	6031	4999	534435	10108	0
51	89.3	6668	5971	5157	534915	10003	0
52	88.1	6575	5773	4764	531855	9996	0
53	89.3	6318	5822	4799	462180	9232	0
54	88.6	6259	5248	4862	531975	10060	0
55	88.5	6378	5443	5060	530690	9890	0
56	89.5	6527	6226	4827	533270	10102	0
57	88.3	6281	5298	4956	484080	9413	0
58	88.6	6311	6092	5086	533290	9944	0
59	89.5	6350	5826	4943	529910	9987	0

HEAVEN HILL 3-3HM

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	1884	2070	1884	2071	Sandstone
Big Lime	2070	2197	2071	2198	Limestone
Big Injun	2197	2493	2198	2494	Sandstone
Weir	2493	2691	2494	2692	Sandstone
Berea	2691	2948	2692	2949	Sandstone
Gordon	2948	3041	2949	3042	Sandstone
Fifty Foot	3041	3618	3042	3628	Sandstone
Speechley	3618	5105	3628	5292	Sandstone
Benson	5105	5457	5292	5689	Sandstone
Alexander	5457	6131	5689	6446	Siltstone
Rhinestreet	6131	6652	6446	7085	Black shale
Middlesex	6652	6724	7085	7198	Black shale
Genesee/Burkett	6724	6751	7198	7242	Black shale
Tully	6751	6778	7242	7289	Limestone
Hamilton	6778	6856	7289	7478	Grey shale
Marcellus	6856	-	7478	-	Black shale

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True Vertical Depth (1500 usft/m)

7500
6750
6000
5250
4500
3750
3000
2250
1500
750
0

9-17, September 08 2018

Vertical Section at 153.70° (1500 usft/m)

13500
12750
12000
11250
10500
9750
9000
8250
7500
6750
6000
5250
4500
3750
3000
2250
1500
750
0

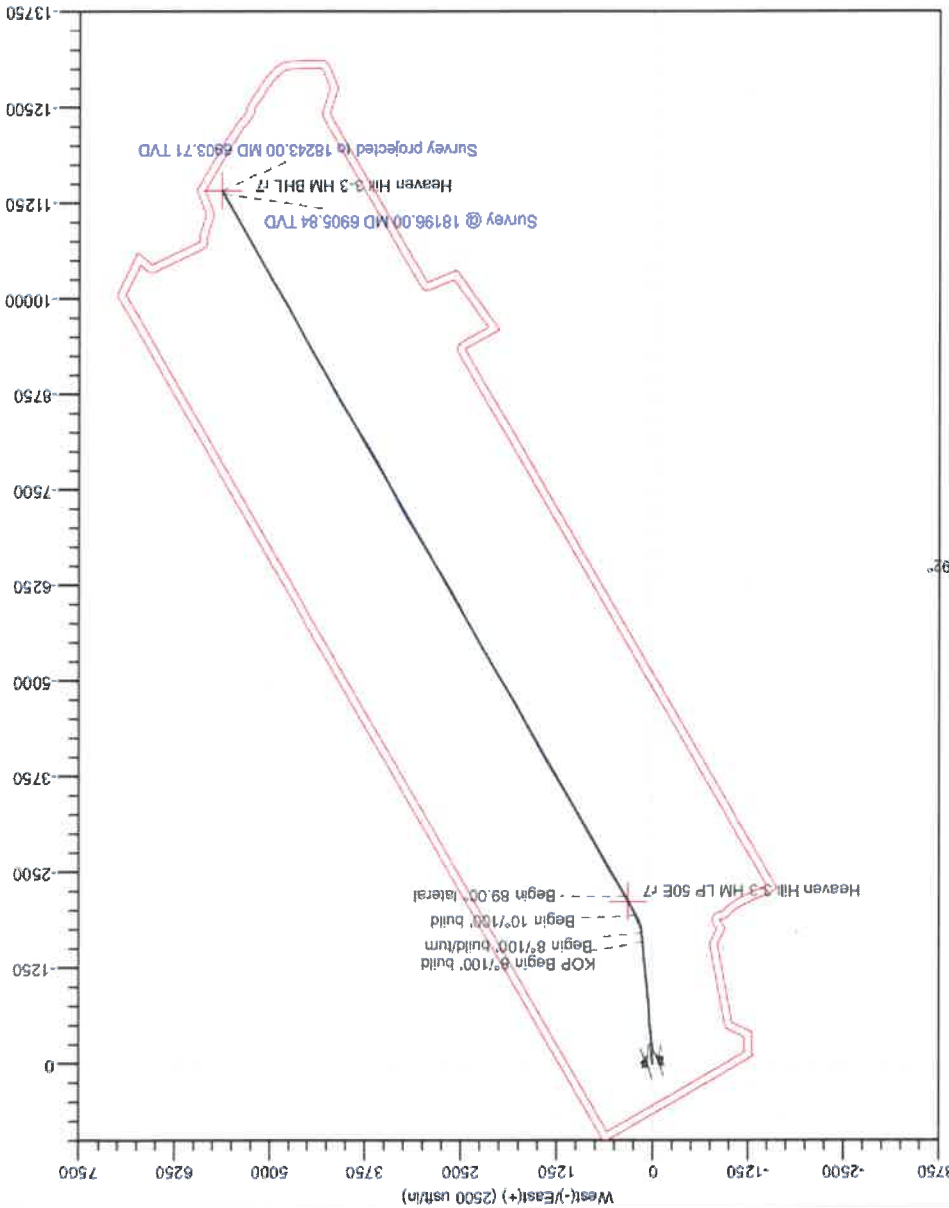
Heaven Hill 3-3 HM BHL r7

Heaven Hill 3-3 HM LP 50E r7

Survey @ 18196.00 MD 6905.84 TVD
Survey projected to 18243.00 MD 6903.71 TVD

KOP Begin 8'100" build
Begin 8'7100" build/burn
Begin 10'7100" build
Begin 89.00" lateral

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Azimuths to Grid North
True North: -0.20°
Magnetic North: 8.92°
Magnetic Field
Strength 52107 asmt
Dip Angle: 66.92°
Date: 2/10/2018
Model: IGRF2015

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.92°

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 @ 1352.00ush
Northing 14457180.08
Easting 1726566.13
Latitude 39.80858427
Longitude -80.69323444

ANNOTATIONS SURVEYS

MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
18196.00	92.60	337.28	160.00	-0.61	-0.25	Survey @ 18196.00 MD 6905.84 TVD
18243.00	92.60	151.10	6905.84	-11373.43	5611.54	Survey projected to 18243.00 MD 6903.71 TVD
18260.55	89.00	150.23	7073.00	-11412.49	5640.18	0.00
7617.60	89.00	150.23	8886.34	-2175.47	356.72	10.00
7321.95	49.43	150.23	8806.79	-1931.25	217.03	8.00
7016.90	44.87	175.30	6618.27	-1706.81	141.86	8.00
6808.90	28.07	175.30	6450.00	-1582.65	131.67	0.00
6369.00	28.07	175.30	6063.61	-1377.29	114.73	0.00
						Survey @ 8369.00 MD 6063.59 TVD
						1285.59
						1477.17
						0.00
						KOP Begin 8'100" build
						1592.82
						0.00
						Begin 8'7100" build/burn
						1827.50
						-62.01
						Begin 10'7100" build
						2108.34
						0.00
						2730.14
						0.00
						18260.53 MD/7073.00 TVD
						PHLUTD
						89.00" lateral
						Begin 89.00" lateral
						10'7100" build
						Begin 8'100" build
						89.00" lateral
						Begin 89.00" lateral

SECTION DETAILS

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



South(-)/North(+)
(2500 usft/m)

-3750
-2500
-1250
0
1250
2500
3750
5000
6250
7500

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	RECEIVED Office of Oil and Gas JUL 10 2020 WV Department of Environmental Protection	5/20/2019
Job End Date:		6/10/2019
State:		West Virginia
County:		Marshall
API Number:		47-051-01963-00-00
Operator Name:		Tug Hill Operating, LLC
Well Name and Number:		Heaven Hill 3 3HM
Latitude:		39.80860000
Longitude:		-80.69320000
Datum:		NAD83
Federal Well:	NO	
Indian Well:	NO	
True Vertical Depth:	6,915	
Total Base Water Volume (gal):	24,908,386	
Total Base Non Water Volume:	0	



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.47074	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.49973	

FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor					
			RECEIVED Office of Oil and Gas JUL 10 2020 WV Department of Environmental Protection	Listed Below			
Sand-Premium White-30/50	Halliburton	Proppant					
				Listed Below			
OilPerm A	Halliburton	Non-ionic Surfactant					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
MC MX 8-4743	MultiChem	Additive					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
LD-2950	MultiChem	Friction Reducer					
				Listed Below			
Sand-Premium White-40/70	Halliburton	Proppant					
				Listed Below			
LEGEND(TM) LD-7750W	MultiChem	Scale Control					

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	12.89300
			Hydrochloric acid	7647-01-0	15.00000	0.73742
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02906
			Sodium nitrate	7631-99-4	60.00000	0.02294
			Methanol	67-56-1	100.00000	0.00604
			Ethoxylated alcohols	Proprietary	1.00000	0.00097
			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00097
			Sodium chloride	7647-14-5	5.00000	0.00044
			Phosphoric Acid Salt	Proprietary	5.00000	0.00044
			Ethanol	64-17-5	60.00000	0.00044
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00022
			Oxyalkylated nonyl phenolic resin	Proprietary	30.00000	0.00022
			Modified thiourea polymer	Proprietary	30.00000	0.00021
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00021
			Oxyalkylated phenolic resin	Proprietary	10.00000	0.00007
			Naphthalene	91-20-3	5.00000	0.00004
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.00004
			Hexadecene	629-73-2	5.00000	0.00003
			Propargyl alcohol	107-19-7	5.00000	0.00003
			Ethoxylated alcohols	Proprietary	5.00000	0.00003
			Formaldehyde	50-00-0	0.10000	0.00001

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

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

7,464' T.H. A.D. 1,870' B.H. A.D.

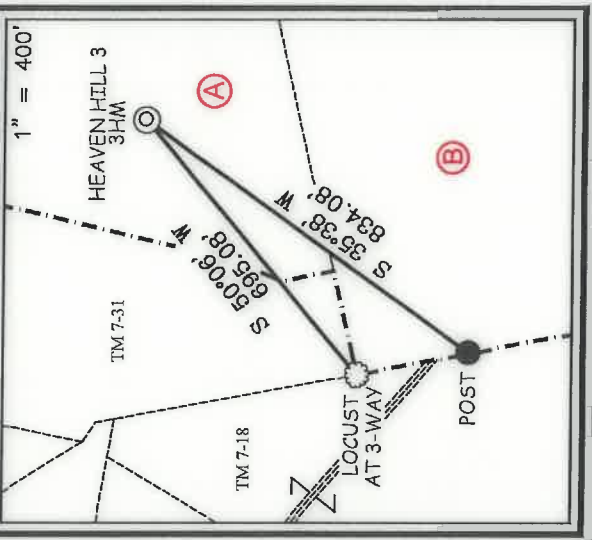
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)	
NAD'83 S.P.C.(FT)	N. 478,863.76 E. 1,633,296.29
NAD'83 GEO.	LAT-(N) 39.808684 LONG-(W) 80.693284
NAD'83 UTM (M)	N. 4,406,557.30 E. 526,258.41
LANDING POINT	
NAD'83 S.P.C.(FT)	N. 476,732.8 E. 1,633,583.5
NAD'83 GEO.	LAT-(N) 39.802773 LONG-(W) 80.692112
NAD'83 UTM (M)	N. 4,405,912.6 E. 526,356.7
BOTTOM HOLE	
NAD'83 S.P.C.(FT)	N. 467,344.8 E. 1,638,746.8
NAD'83 GEO.	LAT-(N) 39.777188 LONG-(W) 80.673299
NAD'83 UTM (M)	N. 4,403,078.8 E. 527,977.5

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

B.H. A.D.

T.H. A.D.

REFERENCES



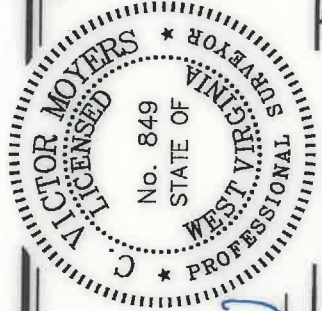
NOTES ON SURVEY

- 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 190 | Glenville, WV 26031 | 304.462.8324
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25601 | 304.255.5296
slsinc.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 MAY 26, 2020
REVISED
OPERATORS WELL NO. HEAVEN HILL 3-3HM
API WELL NO. 47-051-1963
STATE COUNTY PERMIT

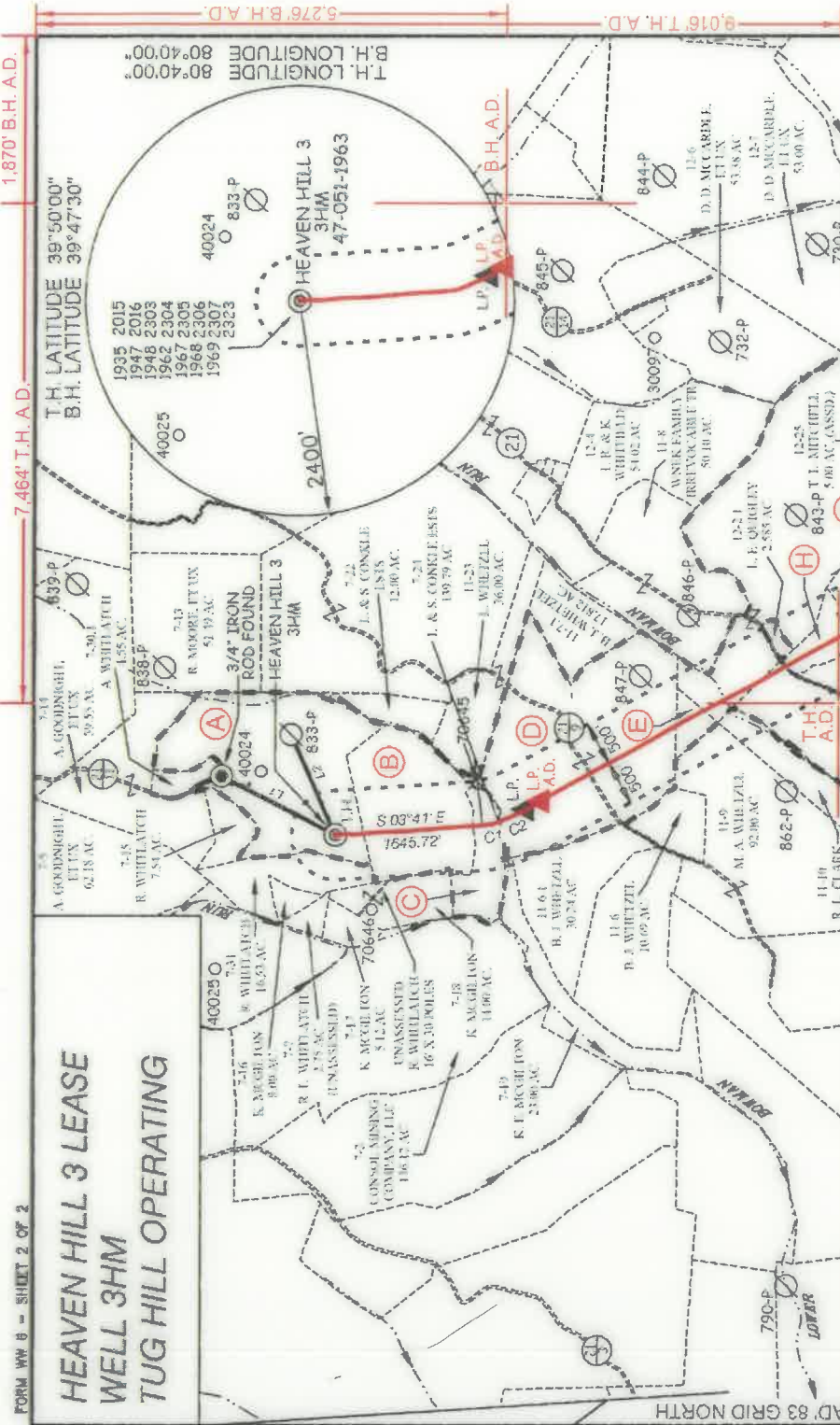
STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P3HMAD.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

WELL TYPE: OIL GAS LIQUID WASTE DISPOSAL INJECTION "GAS" PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION PROPOSED = 1,326.35' GROUND = 1,343.0'
 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: 18,261'

COUNTY NAME PERMIT
 DESIGNATED AGENT DIANNA STAMPER
 CT CORPORATION SYSTEM
 ADDRESS 5400 D BIG TYLER ROAD
 FORT WORTH, TX 76107
 CHARLESTON, WV 25313

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



**AS DRILLED COORDINATES
FOR WELL NO. 3HM**

(S.P.C. NORTH ZONE) (UTM/M) ZONE 17 NORTH

NAD83 S.P.C. (FT) N 478,853.76 E 1,633,296.29
 NAD83 GEO. LAT. (N) 39.808584 LONG. (W) 80.693234
 NAD83 UTM (M) N 4,406,557.30 E 526,258.41

LANDING POINT

NAD83 S.P.C. (FT) N 476,582.9 E 1,633,675.6
 NAD83 GEO. LAT. (N) 39.802909 LONG. (W) 80.691776
 NAD83 UTM (M) N 4,405,861.3 E 526,395.6

BOTTOM HOLE

NAD83 S.P.C. (FT) N 487,342.8 E 1,638,740.9
 NAD83 GEO. LAT. (N) 39.777182 LONG. (W) 80.673320
 NAD83 UTM (M) N 4,403,678.1 E 527,975.8

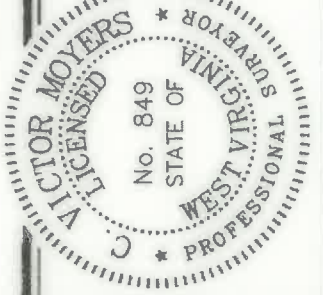
PARCEL	ACRES
A	9-7-30
B	9-7-31
C	9-7-30
D	9-11-7
E	9-12-7
F	9-12-2
G	9-11-11
H	9-12-11
I	9-7-1
J	9-12-11
K	9-11-18
L	9-15-3
M	9-15-1
N	9-15-15

P.S. *C. Victor Moyers*
849

LEGEND

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

CURVE ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	184.52'	S 13°40' E	184.06'
C2	330.22'	S 24°39' E	329.90'



(S.P.C. NORTH ZONE) (UTM/M) ZONE 17 NORTH)

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SCALE 1" = 2000'

DATE MAY 26, 2020

REVISED

OPERATORS WELL NO. HEAVEN HILL 3-3HM

API WELL NO. **47-051-1963**

NO. STATE COUNTY PERMIT

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

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

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

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)

COUNTY NAME PERMIT