

23/13

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

API 47 - 051 - 00976 County Marshall District Meade
 Quad Glen Easton 7.5' Pad Name Ten High Field/Pool Name _____
 Farm name Lawrence & Shirley Conkle, ests. Well Number Ten High 1S-9HM
 Operator (as registered with the OOG) Tug Hill Operating, LLC
 Address 1320 S. University Drive, Suite 500 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 4,406,357.15 Easting 527,335.20
 Landing Point of Centre Northing 4,406,562.7 Easting 527,809.4
 Bottom Hole Northing 4,404,041.6 Easting 529,266.3

Elevation (ft) 1310' 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 Completion 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

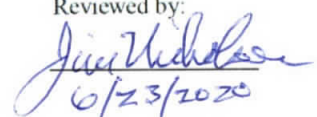
Mud Type(s) and Additives SOBM; Base oil, osmotic inhibitor, weighting agent, viscosifier, emulsifier, hardness buffer, fluid loss additive, LCM, Shale inhibitor, de-foamer, soaping agent, coagulant, flocculant; specific additives per WSSP and Permit.

Date permit issued 3/5/2018 Date drilling commenced 2/20/2019 Date drilling ceased 3/8/2019
 Date completion activities began 3/26/2019 Date completion activities ceased 6/19/2019
 Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A Office _____

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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 2180' Void(s) encountered (Y/N) depths N
 Coal depth(s) ft Sewickel Coal - 935' and Pittsburgh Coal - 1020' Cavern(s) encountered (Y/N) depths N
 Is coal being mined in area (Y/N) _____

Reviewed by:

 6/23/2020

API 47-051 - 01976 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-9HM

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"	1,175'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,175'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,879'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	17,267'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,364'	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	1219	15.6	1.19	1473	0	8
Coal	A	1219	15.6	1.19	1473	0	8
Intermediate 1	A	945	15.6	1.19	1302	0	8
Intermediate 2							
Intermediate 3							
Production	A	4058	14.5	1.17	4728	0	8
Tubing							

Drillers TD (ft) 17,288' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 6,375'

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 lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED AS OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 051 - 01976 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-9HM

<u>PRODUCING FORMATIONS(S)</u>	<u>DEPTHS</u>	
Marcellus	6922' - 6966'	TVD 7621' - 17288' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1132 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas _____ Oil _____ 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 ₂ S, ETC)
	DEPTH IN NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
*attached	0		0		

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

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Please insert additional pages as applicable.
 Completed by Amy L. Miller Telephone 304-376-0111
 Signature [Signature] Title Permitting Specialist Date 3/23/2020

**Ten High 1S-9HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
Toe	5/30/2019	17126	17178	48	Marcellus
1	5/30/2019	16926	17067	48	Marcellus
2	5/30/2019	16757	16898	48	Marcellus
3	5/31/2019	16588	16736	48	Marcellus
4	5/31/2019	16419	16567	48	Marcellus
5	5/31/2019	16251	16398	48	Marcellus
6	6/1/2019	16082	16229	48	Marcellus
7	6/1/2019	15913	16061	48	Marcellus
8	6/1/2019	15744	15892	48	Marcellus
9	6/1/2019	15575	15723	48	Marcellus
10	6/2/2019	15406	15554	48	Marcellus
11	6/2/2019	15237	15378	48	Marcellus
12	6/2/2019	15068	15209	48	Marcellus
13	6/3/2019	14899	15040	48	Marcellus
14	6/4/2019	14730	14871	48	Marcellus
15	6/5/2019	14562	14702	48	Marcellus
16	6/5/2019	14393	14533	48	Marcellus
17	6/5/2019	14224	14365	48	Marcellus
18	6/6/2019	14055	14196	48	Marcellus
19	6/6/2019	13886	14027	48	Marcellus
20	6/6/2019	13717	13858	48	Marcellus
21	6/7/2019	13548	13689	48	Marcellus
22	6/7/2019	13379	13520	48	Marcellus
23	6/8/2019	13210	13351	48	Marcellus
24	6/8/2019	13041	13182	48	Marcellus
25	6/8/2019	12873	13013	48	Marcellus
26	6/8/2019	12704	12844	48	Marcellus
27	6/9/2019	12535	12676	48	Marcellus
28	6/9/2019	12366	12507	48	Marcellus
29	6/10/2019	12197	12338	48	Marcellus
30	6/10/2019	12028	12169	48	Marcellus
31	6/10/2019	11859	12000	48	Marcellus
32	6/11/2019	11690	11831	48	Marcellus
33	6/11/2019	11521	11662	48	Marcellus
34	6/11/2019	11352	11493	48	Marcellus
35	6/12/2019	11184	11324	48	Marcellus
36	6/12/2019	11015	11155	48	Marcellus
37	6/13/2019	10846	10987	48	Marcellus
38	6/13/2019	10677	10818	48	Marcellus
39	6/13/2019	10508	10649	48	Marcellus
40	6/13/2019	10339	10480	48	Marcellus
41	6/14/2019	10170	10311	48	Marcellus
42	6/14/2019	10001	10142	48	Marcellus
43	6/14/2019	9832	9973	48	Marcellus
44	6/15/2019	9663	9804	48	Marcellus
45	6/15/2019	9495	9635	48	Marcellus

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46	6/15/2019	9326	9481	48	Marcellus
47	6/15/2019	9157	9312	48	Marcellus
48	6/16/2019	8988	9143	48	Marcellus
49	6/16/2019	8819	8974	48	Marcellus
50	6/16/2019	8650	8805	48	Marcellus
51	6/17/2019	8481	8636	48	Marcellus
52	6/17/2019	8312	8467	48	Marcellus
53	6/17/2019	8143	8298	48	Marcellus
54	6/17/2019	7974	8115	48	Marcellus
55	6/17/2019	7806	7946	48	Marcellus
56	6/18/2019	7637	7777	48	Marcellus

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Ten High 1S-9HM

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 (bbbls)	Amount of Nitrogen/other (units)
Toe	26.6	7037	6418	4758	0	601	0
1	83.7	7760	5885	2957	439440	9635	0
2	89.1	7911	5713	5111	121800	4673	0
3	87.9	8038	5337	4529	470535	8301	0
4	82.9	7534	5469	5156	528715	9531	0
5	85.9	7496	5035	4961	530035	9153	0
6	89	7710	5348	4664	530775	8861	0
7	89.1	7619	5200	5167	528815	8906	0
8	89.3	7522	5230	5146	528760	9036	0
9	80.9	7869	5311	5188	529560	9243	0
10	89.2	7812	8484	4287	530520	8967	0
11	89.3	7554	5096	5134	440580	388476	0
12	89.4	7879	5365	5126	441850	384038	0
13	88.3	7971	5445	5149	441730	384518	0
14	86.8	8047	5571	5019	440840	369559	0
15	88.9	7627	5411	5469	440610	384785	0
16	88.3	7776	5398	4959	400790	357043	0
17	88.2	7538	5280	5123	439690	390336	0
18	89	7551	5405	5286	440370	390943	0
19	87.4	7604	5325	4787	404060	316028	0
20	87.2	7613	5170	4833	396790	314206	0
21	87.8	7557	5250	5351	424460	391905	0
22	87.3	7652	5263	4819	446560	371993	0
23	89	7582	5271	4865	446210	338203	0
24	89.5	7545	5388	5160	446250	335130	0
25	88.5	7786	5319	4546	446910	354947	0
26	89.2	7573	5409	5119	448000	340058	0
27	87.6	7833	5572	4765	440810	377239	0
28	76	8106	5559	4507	347130	302405	0
29	85.4	7916	5531	5168	441550	360620	0
30	82.7	7858	5062	4585	369790	443402	0
31	75.4	7493	5225	4685	194035	230006	0
32	86.6	7190	5250	4401	440130	394064	0

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8106
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33	82.2	7738	5421	4660	290450	313324	0
34	85.7	7409	5320	5155	220050	224735	0
35	85.3	7326	5224	4488	439650	409198	0
36	83.6	7876	5429	4241	440675	420787	0
37	87.1	7386	5489	4708	220205	252384	0
38	88.7	7353	5482	4803	479560	403516	0
39	85.7	7060	5355	4934	479400	371412	0
40	87.0	7215	5377	5000	500000	412007	0
41	88.8	6682	5290	4916	529200	413379	0
42	88.9	7056	5661	4993	498755	393795	0
43	86.8	7069	5196	4878	521285	398077	0
44	89.9	6842	5173	4947	529150	400296	0
45	89.3	6854	5410	4944	535840	403312	0
46	87.9	7015	5503	4989	437480	351993	0
47	86.5	7255	5418	4900	442470	352259	0
48	85.8	7249	5357	5103	405840	334127	0
49	84	6963	5430	5053	306640	278273	0
50	87	6779	5368	4744	426060	347048	0
51	89.3	6569	5394	5076	445120	351808	0
52	84.6	6464	5850	5097	439460	342030	0
53	85.3	6366	6457	4905	439320	339480	0
54	85.9	6512	5904	5202	438160	335950	0
55	88.4	6897	6248	5447	434670	336182	0
56	88.9	6738	5520	5097	441070	362080	0

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TEN HIGH 1S-9HM

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	2035	2207	2038	2210	Sandstone
Big Lime	2207	2338	2210	2342	Limestone
Big Injun	2338	2633	2342	2638	Sandstone
Berea	2831	3093	2837	3100	Sandstone
Gordon	3093	3178	3100	3185	Sandstone
Fifty Foot	3178	3760	3185	3771	Sandstone
Speechley	3760	5221	3771	5448	Sandstone
Benson	5221	5593	5448	5896	Sandstone
Alexander	5593	6215	5896	6634	Siltstone
Rhinestreet	6215	6675	6634	7162	Black shale
Middlesex	6675	6751	7162	7261	Black shale
Geneseo/Burkett	6751	6780	7261	7303	Black shale
Tully	6780	6808	7303	7343	Limestone
Hamilton	6808	6896	7343	7526	Grey shale
Marcellus	6896	-	7526	-	Black shale

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Well: Ten High 1S-09HM (I)
Site: Ten High
Project: Marshall County, West Virginia.
Design: rev5
Rig: Nabors X08

Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.96°
 Magnetic Field
 Strength: 51988.45nT
 Dip Angle: 66.83°
 Date: 2/20/2019
 Model: IGRF2015

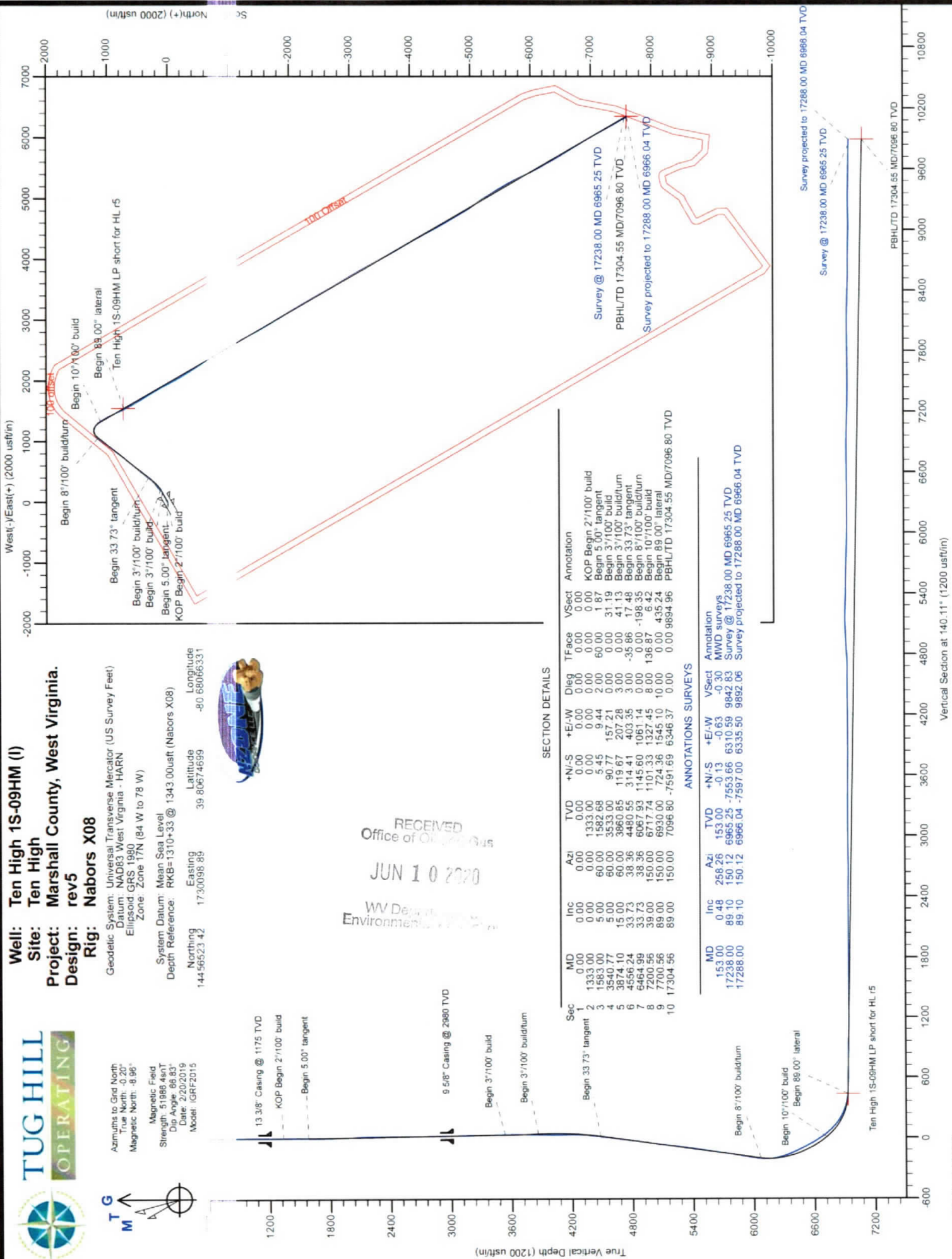
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: RKB=1310+33 @ 1343.00usft (Nabors X08)

Northing: 14456523.42
 Easting: 1730098.89
 Latitude: 39.80674699
 Longitude: -80.68066331



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SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	VFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1333.00	0.00	60.00	1333.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1583.00	5.00	60.00	1582.68	5.45	9.44	2.00	60.00	1.87	Begin 5.00° tangent
4	3540.77	5.00	60.00	3533.00	90.77	157.21	0.00	0.00	31.19	Begin 3°/100' build
5	3874.10	15.00	60.00	3860.85	119.67	207.28	3.00	0.00	41.13	Begin 3°/100' build/tum
6	4556.24	33.73	38.36	4480.55	314.41	403.35	3.00	-35.86	17.48	Begin 33.73° tangent
7	6464.99	33.73	38.36	6067.93	1145.60	1061.14	0.00	-198.35	6.42	Begin 8°/100' build/tum
8	7200.56	39.00	150.00	6717.74	1101.33	1327.45	8.00	136.87	6.42	Begin 10°/100' build
9	7700.56	89.00	150.00	6930.00	724.36	1545.10	10.00	0.00	0.00	Begin 89.00° lateral
10	17304.56	89.00	150.00	7096.80	-7591.69	6346.37	0.00	0.00	9894.96	PBHL/TD 17304.55 MD/7096.80 TVD

ANNOTATIONS SURVEYS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VFace	Annotation
153.00	0.48	266.26	153.00	-0.13	-0.63	-0.30	MWD surveys
17238.00	89.10	150.12	6965.25	-7553.66	6310.59	9842.83	Survey @ 17238.00 MD 6965.25 TVD
17288.00	89.10	150.12	6966.04	-7597.00	6335.50	9892.06	Survey projected to 17288.00 MD 6966.04 TVD

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/30/2019
Job End Date:	6/17/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-01976-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Ten High 1S-9HM
Latitude:	39.80674699
Longitude:	-80.68066331
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,963
Total Base Water Volume (gal):	20,882,434
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	Operator	Base Fluid					
			Water	7732-18-5	100.00000	94.60184	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.61236	

SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant			Listed Below				
SAND - COMMON WHITE	Halliburton	Proppant				Listed Below			
FDP-S1296-17	Halliburton	Corrosion Inhibitor							
MX 8-4743	Halliburton	Biocide							
OILPERM A	Halliburton	Non-ionic Surfactant				Listed Below			
LD-7750W	Halliburton	Scale Inhibitor							
HYDROCHLORI C ACID	Halliburton	Solvent				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant				Listed Below			

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			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00000
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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)

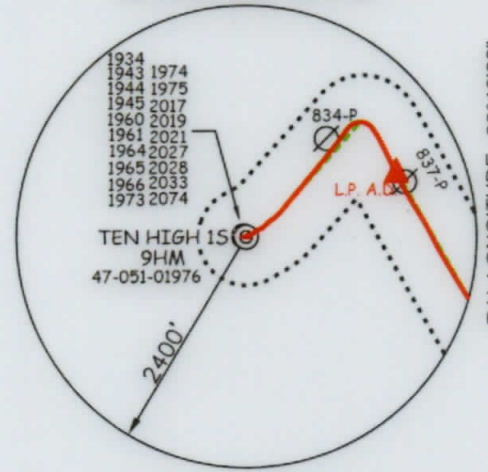
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**TEN HIGH 1S LEASE
WELL 9HM
TUG HILL OPERATING**

9,332' B.H. AS DRILLED

3,932' T.H. AS DRILLED

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



T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°37'30"

2,130' B.H. A.D.
9,685' T.H. AS DRILLED



(S.P.C. NORTH ZONE) (UTM, M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,137.92	E. 1,636,818.78
NAD'83 GEO.	LAT-(N) 39.826747	LONG-(W) 80.680663
NAD'83 UTM (M)	N. 4,406,357.15	E. 527,335.20
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 478,836.5	E. 1,638,376.3
NAD'83 GEO.	LAT-(N) 39.828121	LONG-(W) 80.675152
NAD'83 UTM (M)	N. 4,406,577.9	E. 527,806.1
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 470,438.7	E. 1,643,039.6
NAD'83 GEO.	LAT-(N) 39.735834	LONG-(W) 80.658169
NAD'83 UTM (M)	N. 4,404,043.2	E. 529,269.6

AS DRILLED COORDINATES FOR WELL NO. 9HM		
(S.P.C. NORTH ZONE) (UTM, M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,137.92	E. 1,636,818.78
NAD'83 GEO.	LAT-(N) 39.826747	LONG-(W) 80.680663
NAD'83 UTM (M)	N. 4,406,357.15	E. 527,335.20
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 478,786.4	E. 1,638,385.2
NAD'83 GEO.	LAT-(N) 39.828121	LONG-(W) 80.675115
NAD'83 UTM (M)	N. 4,406,577.9	E. 527,809.4
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 470,438.7	E. 1,643,028.5
NAD'83 GEO.	LAT-(N) 39.735834	LONG-(W) 80.658208
NAD'83 UTM (M)	N. 4,404,043.2	E. 529,266.3

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 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26035 | 4462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25304 | 346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 55.5296
slsvv.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 MARCH 24, 20 20
REVISED _____, 20 ____
OPERATORS WELL NO. TEN HIGH 1S-9HM
API WELL NO. 47 - 051 - 1976
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8655P9HMAD.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION: GROUND = 1,317.00' PROPOSED = 1,310.06' WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC 10)

DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER LAWRENCE & SHIRLEY CONKLE ESTS ACREAGE 139.79±

ROYALTY OWNER ANDY PAUL & JACKIE KUHN, ET AL - WW-6A1 ACREAGE 139.79±

PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___

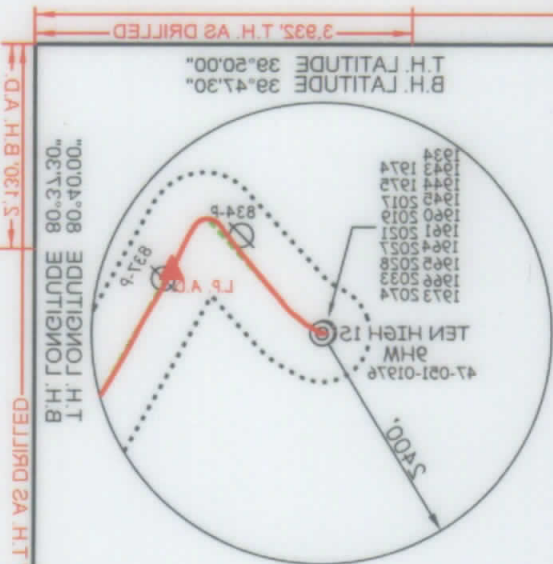
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,865' / TMD: 17,101'

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

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

COUNTY NAME
PERMIT

TUG HILL OPERATING WELL 9HM TEN HIGH 12 LEASE



LANDING POINT	
NAD83 S.P.C. (FT)	N 478.838 8 E 1.838 378 3
NAD83 GEO.	LAT-(N) 39.808721 LONG-(W) 80.875125
NAD83 UTM (M)	N 478.838 8 E 527.392 20
BOTTOM HOLE	
NAD83 S.P.C. (FT)	N 470.438 7 E 1.843 038 8
NAD83 GEO.	LAT-(N) 39.788834 LONG-(W) 80.881889
NAD83 UTM (M)	N 470.438 7 E 528.588 8

LANDING POINT	
NAD83 S.P.C. (FT)	N 478.788 4 E 1.838 378 3
NAD83 GEO.	LAT-(N) 39.808844 LONG-(W) 80.875115
NAD83 UTM (M)	N 478.788 4 E 527.392 20
BOTTOM HOLE	
NAD83 S.P.C. (FT)	N 470.438 7 E 1.843 038 8
NAD83 GEO.	LAT-(N) 39.788820 LONG-(W) 80.882008
NAD83 UTM (M)	N 470.438 7 E 528.588 8

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 & TOP MARK SCALE IS 1" = 2000'
- 3. AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- 4. PLAT UPDATED TO SHOW AS-DRILLED PATH.

1212 Kanawha Boulevard East | Charleston, WV 25301 | 304.348.3822
 254 East Beckley Highway | Beckley, WV 25801 | 304.322.2288
 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

Victor Moyers
 P. S. 849

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

APL
 WELL NO. 47-051-1976
 COUNTY STATE PERMIT

OPERATORS WELL NO. TEN HIGH 12-9HM
 REVISED _____, 20____
 DATE MARCH 24, 20____
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
 HORIZONTAL & VERTICAL SCALE _____ 1" = 2000'
 MINIMUM DEGREE OF ACCURACY _____ 1 2500
 FILE NO. _____ 885594MAD.dwg

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: 8,885' \ TMD: 17,101'

ROYALTY OWNER ANDY PAUL & JACKIE KUHNI, ET AL - WW-6A1
 SURFACE OWNER LAWRENCE & SHIRLEY CONKLE ESTS
 DISTRICT MEADE
 COUNTY MARSHALL
 WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC 10)
 ELEVATION PROPOSED = 1,310.06'
GROUND = 1,317.00'
 TYPE: OIL GAS LIQUID WASTE
 INJECTION DISPOSAL "GAS" PRODUCTION STORAGE DEEP SHALLOW

WELL OPERATOR TUG HILL OPERATING, LLC
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
 FORT WORTH, TX 76102

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

3,932'. B.H. AS DRILLED

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

B.H. LONGITUDE 80°37'30"
T.H. LONGITUDE 80°40'00"

AS DRILLED 24 H.T. 8888'



B.H.

T.H.

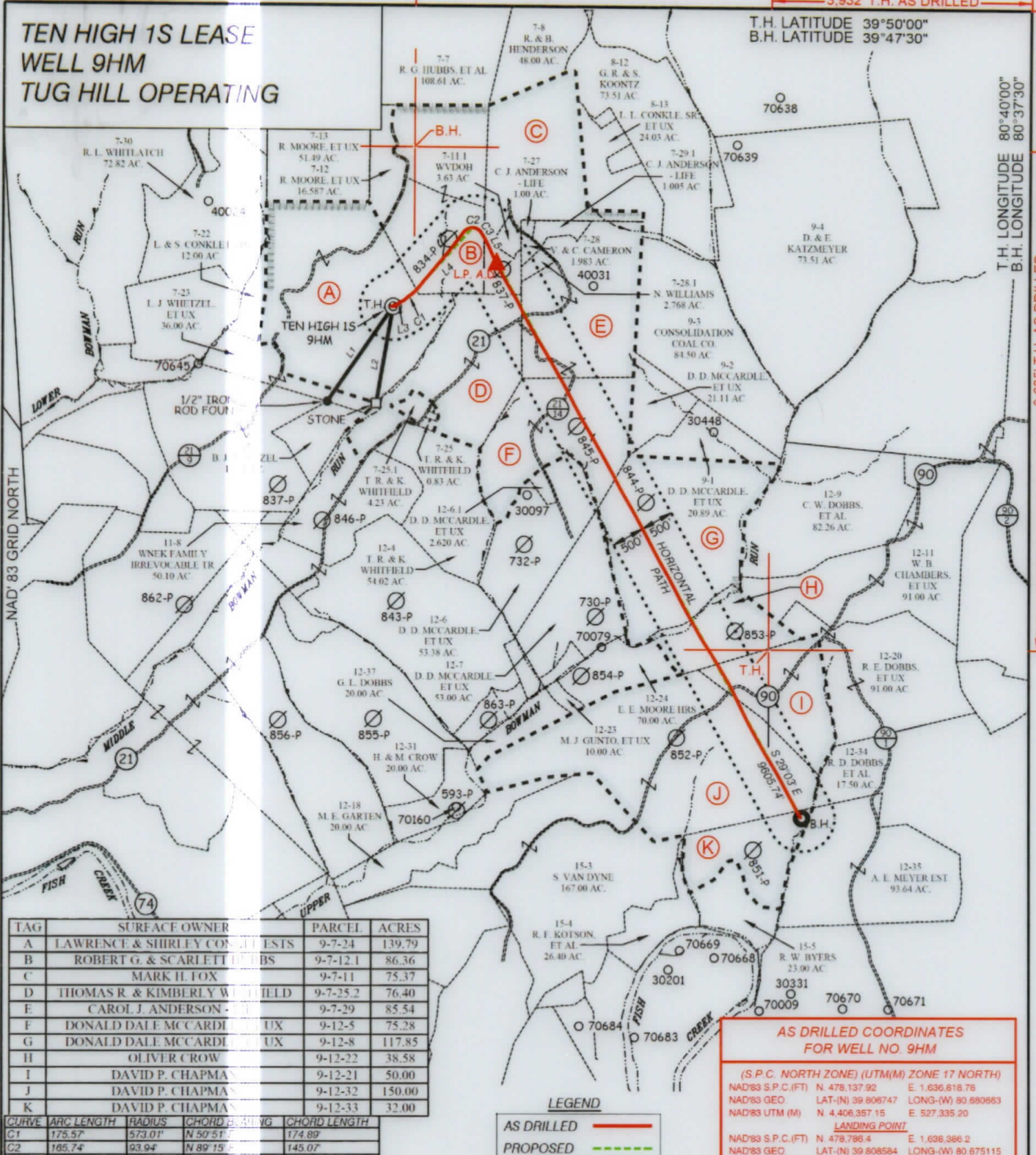
9,332' B.H. AS DRILLED

3,932' T.H. AS DRILLED

TEN HIGH 1S LEASE
WELL 9HM
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°37'30"



TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONNORS ESTATE	9-7-24	139.79
B	ROBERT G. & SCARLETT HUBBS	9-7-12.1	86.36
C	MARK H. FOX	9-7-11	75.37
D	THOMAS R. & KIMBERLY WHITFIELD	9-7-25.2	76.40
E	CAROL J. ANDERSON - LIFE	9-7-29	85.54
F	DONALD DALE MCCARDLE ET UX	9-12-5	75.28
G	DONALD DALE MCCARDLE ET UX	9-12-8	117.85
H	OLIVER CROW	9-12-22	38.58
I	DAVID P. CHAPMAN	9-12-21	50.00
J	DAVID P. CHAPMAN	9-12-32	150.00
K	DAVID P. CHAPMAN	9-12-33	32.00

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	175.57'	573.01'	N 50° 51' E	174.89'
C2	165.74'	93.94'	N 89° 15' E	145.07'
C3	84.34'	314.07'	S 35° 33' E	84.09'

LINE	BEARING	DISTANCE
L1	S 34° 46' W	1739.30'
L2	S 09° 48' W	1473.18'
L3	N 60° 57' E	203.25'
L4	N 42° 13' E	1254.70'
L5	S 29° 03' E	426.90'

AS DRILLED COORDINATES FOR WELL NO. 9HM

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

NAD'83 S.P.C.(FT)	N 478,137.92	E 1,636,818.78
NAD'83 GEO.	LAT-(N) 39.806747	LONG-(W) 80.680663
NAD'83 UTM (M)	N 4,406,357.15	E 527,335.20

LANDING POINT

NAD'83 S.P.C.(FT)	N 478,786.4	E 1,638,386.2
NAD'83 GEO.	LAT-(N) 39.808584	LONG-(W) 80.675115
NAD'83 UTM (M)	N 4,406,562.7	E 527,809.4

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N 470,433.5	E 1,643,028.5
NAD'83 GEO.	LAT-(N) 39.785820	LONG-(W) 80.658208
NAD'83 UTM (M)	N 4,404,041.6	E 529,268.3

LEGEND
AS DRILLED ———
PROPOSED - - - - -



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26034 | 462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 5396
slls.com

P.S.
849

C. Victor Moyers



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

LEGEND

- LEASE LINE [Symbol]
- SURFACE LINE [Symbol]
- WELL LATERAL [Symbol]
- OFFSET LINE [Symbol]
- TIE LINE [Symbol]
- CREEK [Symbol]
- ROAD [Symbol]
- COUNTY ROUTE [Symbol]
- PROPOSED WELL [Symbol]
- EXISTING WELL [Symbol]
- PERMITTED WELL [Symbol]
- TAX MAP-PARCEL 00-00 [Symbol]
- SURFACE OWNER (SEE TABLE) (A) [Symbol]
- LEASE # (SEE WW-6A1) [Symbol]

SCALE 1" = 2000' FILE NO. 8655P9HMAD.dwg
DATE MARCH 24, 2020
REVISED _____, 20____
OPERATORS WELL NO. TEN HIGH 1S-9HM
API WELL NO. 47-051-1976
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 DIANNA STAMPER
ADDRESS CT CORPORATION SYSTEM 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME
PERMIT

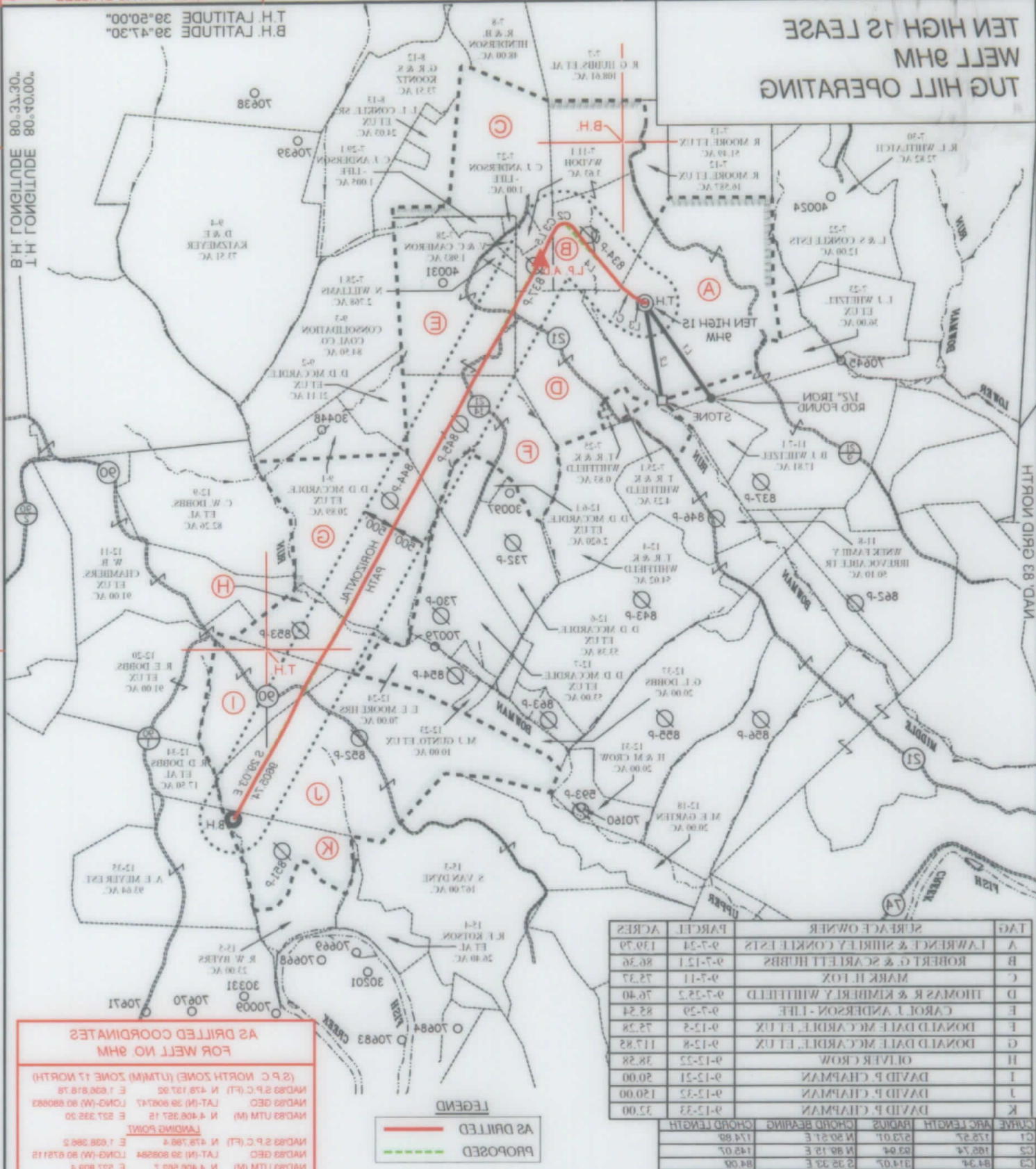
**TUG HILL OPERATING
WELL 9HM
TEN HIGH 12 LEASE**

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

3.935' T.H. AS DRILLED

0.882' T.H. AS DRILLED

B.H. LONGITUDE 80°33'30"
T.H. LONGITUDE 80°40'00"



TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-24	17.70
B	ROBERT G & SCARLETT HURBS	9-7-121	86.36
C	MARK H. FOX	9-7-11	73.77
D	THOMAS R & KIMBERLY WHITEFIELD	9-7-252	76.40
E	CAROL J. ANDERSON - LIFE	9-7-29	82.24
F	DONALD DALE MCCARDLE ET UX	9-12-3	73.28
G	DONALD DALE MCCARDLE ET UX	9-12-8	117.82
H	OLIVER CROW	9-12-22	38.28
I	DAVID P. CHAPMAN	9-12-21	20.00
J	DAVID P. CHAPMAN	9-12-22	19.00
K	DAVID P. CHAPMAN	9-12-23	22.00

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	178.27	573.07	N 50°21' E	174.89
C2	188.74	62.94	N 89°12' E	142.07
C3	84.34	314.07	S 23°32' E	84.09

**AS DRILLED COORDINATES
FOR WELL NO. 9HM**

(2 P.C. NORTH ZONE) (UTM) (ZONE 17 NORTH)
 NAD83 S.P.C. (FT) N 478 137.92 E 1 696 818.78
 NAD83 GEO. LAT. (N) 39 808247 LONG. (W) 80 880883
 NAD83 UTM (M) N 4408 257.12 E 227 232.20

LANDING POINT
 NAD83 S.P.C. (FT) N 478 138.4 E 1 696 828.2
 NAD83 GEO. LAT. (N) 39 808284 LONG. (W) 80 878112
 NAD83 UTM (M) N 4408 262.7 E 227 238.4

BOTTOM HOLE
 NAD83 S.P.C. (FT) N 470 428.2 E 1 643 028.2
 NAD83 GEO. LAT. (N) 39 782820 LONG. (W) 80 828208
 NAD83 UTM (M) N 4404 041.2 E 229 288.2

LEGEND

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

LINE	BEARING	DISTANCE
L1	S 34°48' W	1738.30
L2	S 09°48' W	1473.18
L3	N 80°27' E	203.25
L4	N 42°13' E	1254.70
L5	S 29°03' E	428.90

C. Victor Moyers
 P.S. 849

U S L S
 FROM THE GROUND UP

12 Anthony Drive | P.O. Box 150 | Greenville, WV 26031 | 304 482 2824
 1125 Kanawha Boulevard East | Charleston, WV 25301 | 304 248 2022
 324 East Bankley Highway | Beckley, WV 25801 | 304 252 2286
 sls.com

LEGEND

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

00-00

COUNTY NAME
 PERMIT

VICTOR MOYERS
 LICENSED
 STATE OF WEST VIRGINIA
 No. 849
 PROFESSIONAL SURVEYOR

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

(2 P.C. NORTH ZONE) (UTM) (ZONE 17 NORTH)
 NAD83 S.P.C. (FT) N 478 137.92 E 1 696 818.78
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 NAD83 S.P.C. (FT) N 470 428.2 E 1 643 028.2
 NAD83 GEO. LAT. (N) 39 782820 LONG. (W) 80 828208
 NAD83 UTM (M) N 4404 041.2 E 229 288.2

SCALE 1" = 2000'
 FILE NO. 8625P3HAMD.dwg

DATE MARCH 24 2020
 REVISED
 OPERATORS WELL NO. TEN HIGH 12-9HM
 WELL 47-051-1976
 COUNTY PERMIT

WELL OPERATOR TUG HILL OPERATING, LLC
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
 FORT WORTH, TX 76102

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

DIANNA STAMPER
 CT CORPORATION SYSTEM