

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

API 47 - 051 - 01973 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-6HM
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 4,406,353.45 Easting 527,322.64
Landing Point of Curve Northing 4,406,126.5 Easting 527,263.2
Bottom Hole Northing 4,403,563.9 Easting 528,754.0

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 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 3/6/2018 Date drilling commenced 12/4/2018 Date drilling ceased 12/20/2018
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

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 70' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1595' Void(s) encountered (Y/N) depths N
Coal depth(s) ft Sewickely Coal - 968 - 974' and Pittsburgh Coal - 1053 - 1058' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
Joe Nicholas
7/1/2020

API 47-051 - 01973 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-6HM

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"	1,142'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,142'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,844'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	17,255'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,628'	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 ²)	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1138	15.6	1.19	1422	0	8
Coal	A	1138	15.6	1.19	1422	0	8
Intermediate 1	A	926	15.6	1.19	1276	0	8
Intermediate 2							
Intermediate 3							
Production	A	4220	14.5	1.17	4724	0	8
Tubing							

Drillers TD (ft) 17,151' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 6,047'

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 - 01973 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-6HM

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6915' - 6971'	TVD 7402' - 17274' 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 0 mcfpd Oil 0 bpd NGL 0 bpd Water 600 bpd GAS MEASURED BY Estimated Orifice Pilot

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

Please insert additional pages as applicable.

Drilling Contractor Nabors Drilling US
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

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Please insert additional pages as applicable.

Completed by Amy L. Miller Telephone 304-376-0111
Signature *Amy Miller* Title Permitting Specialist Date 3/23/2020

**Ten High 1S-6HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
Toe	4/20/2019	17,103	17,154	48	Marcellus
1	4/22/2019	16,882	17,042	48	Marcellus
2	4/23/2019	16,706	16,867	48	Marcellus
3	4/24/2019	16,531	16,692	48	Marcellus
4	4/24/2019	16,355	16,516	48	Marcellus
5	4/25/2019	16,180	16,341	48	Marcellus
6	4/25/2019	16,005	16,165	48	Marcellus
7	4/26/2019	15,829	15,990	48	Marcellus
8	4/26/2019	15,654	15,815	48	Marcellus
9	4/27/2019	15,478	15,639	48	Marcellus
10	4/28/2019	15,303	15,464	48	Marcellus
11	4/28/2019	15,128	15,288	48	Marcellus
12	4/29/2019	14,952	15,113	48	Marcellus
13	4/29/2019	14,777	14,938	48	Marcellus
14	4/30/2019	14,601	14,762	48	Marcellus
15	4/30/2019	14,426	14,587	48	Marcellus
16	5/1/2019	14,251	14,411	48	Marcellus
17	5/2/2019	14,075	14,236	48	Marcellus
18	5/2/2019	13,900	14,061	48	Marcellus
19	5/3/2019	13,724	13,885	48	Marcellus
20	5/3/2019	13,549	13,710	48	Marcellus
21	5/4/2019	13,374	13,534	48	Marcellus
22	5/5/2019	13,198	13,359	48	Marcellus
23	5/6/2019	13,023	13,184	48	Marcellus
24	5/7/2019	12,847	13,008	48	Marcellus
25	5/7/2019	12,672	12,833	48	Marcellus
26	5/8/2019	12,497	12,657	48	Marcellus
27	5/9/2019	12,321	12,482	48	Marcellus
28	5/10/2019	12,146	12,307	48	Marcellus
29	5/11/2019	11,970	12,131	48	Marcellus
30	5/11/2019	11,795	11,956	48	Marcellus
31	5/12/2019	11,620	11,780	48	Marcellus
32	5/13/2019	11,444	11,605	48	Marcellus
33	5/13/2019	11,269	11,430	48	Marcellus
34	5/14/2019	11,093	11,254	48	Marcellus
35	5/15/2019	10,918	11,079	48	Marcellus
36	5/15/2019	10,743	10,903	48	Marcellus
37	5/16/2019	10,567	10,728	48	Marcellus
38	5/17/2019	10,392	10,553	48	Marcellus
39	5/17/2019	10,216	10,377	48	Marcellus
40	5/18/2019	10,041	10,202	48	Marcellus

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41	5/18/2019	9,866	10,026	48	Marcellus
42	5/19/2019	9,690	9,851	48	Marcellus
43	5/20/2019	9,515	9,676	48	Marcellus
44	5/21/2019	9,339	9,500	48	Marcellus
45	5/21/2019	9,164	9,325	48	Marcellus
46	5/22/2019	8,989	9,149	48	Marcellus
47	5/23/2019	8,813	8,974	48	Marcellus
48	5/23/2019	8,638	8,799	48	Marcellus
49	5/24/2019	8,462	8,623	48	Marcellus
50	5/24/2019	8,287	8,448	48	Marcellus
51	5/25/2019	8,112	8,272	48	Marcellus
52	5/25/2019	7,936	8,097	48	Marcellus
53	5/26/2019	7,761	7,922	48	Marcellus
54	5/27/2019	7,585	7,746	48	Marcellus
55	5/27/2019	7,410	7,571	48	Marcellus

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Ten High 1S-6HM

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)
Toe	27.4	6754	6260	4900	0	610	0
1	88.5	7971	5696	4806	440280	7828	0
2	87.2	7953	5278	4520	438550	8083	0
3	89.4	7537	5466	4643	437410	8520	0
4	89.6	7550	5655	4673	443490	7806	0
5	89	7513	5848	4948	440380	7966	0
6	86.6	8401	5714	4480	438590	8070	0
7	89.3	7416	5871	4777	435880	7674	0
8	89.4	7540	5542	4806	437030	7646	0
9	86.8	7870	5332	4797	434410	8863	0
10	88.6	7791	5163	4809	438940	8092	0
11	89.5	7287	5263	4900	442480	7849	0
12	89.1	7242	5395	5041	441440	8005	0
13	89.3	7282	5417	5090	441870	9769	0
14	89.3	7156	5352	4753	440490	8217	0
15	89.8	7407	5627	4942	439880	8517	0
16	83.3	7638	5295	4956	446160	7793	0
17	86.9	7564	5553	4549	440970	9038	0
18	89.1	7012	5116	5036	440990	7768	0
19	89.4	7187	5719	4945	439920	7721	0
20	88.5	7504	5470	5144	407170	7270	0
21	89.3	7087	5579	4626	438980	8052	0
22	89.3	7046	5549	4690	436060	8933	0
23	89.4	7024	6148	4660	446540	8046	0
24	88.9	7288	5910	4763	300100	6442	0
25	84.2	6838	5333	5027	437800	10066	0
26	86.9	7036	5562	4964	439940	7974	0
27	83.7	7440	6103	4703	441040	9922	0
28	85.5	6926	5732	4806	440000	7658	0
29	89.1	6915	5315	4822	438160	7444	0
30	88.9	6796	5103	4862	439940	7917	0
31	88.9	6676	5894	4949	440940	7850	0
32	89.2	7039	5490	4963	442380	7556	0

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33	89.2	6918	5522	5026	441250	7596	0
34	89.6	6775	5642	4747	439140	7703	0
35	89.7	6933	5626	4994	440020	7478	0
36	89.8	6855	5299	4987	439130	7535	0
37	88.4	7184	5129	4587	440210	8212	0
38	89.5	7054	5330	4946	441030	7553	0
39	89.4	6883	5592	4993	440360	7957	0
40	89.5	6748	6030	4916	445010	7611	0
41	89.7	7005	6009	4556	439370	7373	0
42	89.5	6589	5414	4905	433050	7475	0
43	89.5	6811	5448	4776	441800	7542	0
44	89.2	6919	5658	5041	438720	7540	0
45	89.4	6826	5201	5098	443740	7905	0
46	88.1	6858	5203	4809	400610	7065	0
47	89.4	6658	5192	4931	442100	286	0
48	89.4	6399	5498	4646	405290	7383	0
49	88.4	6854	6284	4461	440320	7677	0
50	89.4	6395	5941	4334	444300	7563	0
51	89.1	6339	5674	4847	440850	7456	0
52	89.6	6726	5346	4690	441520	8762	0
53	89.5	6388	5403	5143	432860	7352	0
54	88.7	6582	5728	4317	444970	7446	0
55	89.5	6202	5866	4622	440290	7724	0

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TEN HIGH 1S-6HM

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	2035	2208	Sandstone
Big Lime	2207	2338	2208	2339	Limestone
Big Injun	2338	2633	2339	2635	Sandstone
Weir	2633	2831	2635	2834	Sandstone
Berea	2831	3093	2834	3097	Sandstone
Gordon	3093	3178	3097	3182	Sandstone
Fifty Foot	3178	3760	3182	3770	Sandstone
Speechley	3760	5221	3770	5257	Sandstone
Benson	5221	5593	5257	5637	Sandstone
Alexander	5593	6215	5637	6266	Siltstone
Rhinestreet	6215	6666	6266	6762	Black shale
Middlesex	6666	6745	6762	6881	Black shale
Geneseo/Burkett	6745	6772	6881	6929	Black shale
Tully	6772	6799	6929	6981	Limestone
Hamilton	6799	6882	6981	7216	Grey shale
Marcellus	6882	-	7216	-	Black shale

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/20/2019
Job End Date:	5/29/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-01973-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Ten High 1S-06HM
Latitude:	39.80671402
Longitude:	-80.68081024
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,971
Total Base Water Volume (gal):	18,324,790
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	85.82756	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.61775	

				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	13.47430	
				Hydrochloric acid	7647-01-0	15.00000	0.37065	
				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02383	
				Ethaniminium, N,N,N-trimethyl-2-[(1-oxo-2-propen-1-yl)oxy]-,chloride (1:1), polymer with 2-propenamide	69418-26-4	30.00000	0.01741	
				Complex amine compound	Proprietary	60.00000	0.01285	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
				Ammonium chloride	12125-02-9	10.00000	0.00580	
				Sodium chloride	7647-14-5	10.00000	0.00580	
				9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00290	
				Poly(oxy-1,2-ethanediyl),.alpha.-tridecyl-.omega.-hydroxyl-,branched	69011-36-5	5.00000	0.00107	
				Ethoxylated alcohol	Proprietary	5.00000	0.00107	
				Methanol	67-56-1	100.00000	0.00046	
				Ethanol	64-17-5	60.00000	0.00029	
				Oxyalkylated phenolic resin	Proprietary	30.00000	0.00019	
				Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00014	
				Modified thiourea polymer	Proprietary	30.00000	0.00014	
				Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.00002	

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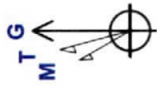


Well: Ten High 1S-06HM (O)
Site: Ten High
Project: Marshall County, West Virginia.
Design: rev6
Rig: Nabors X08

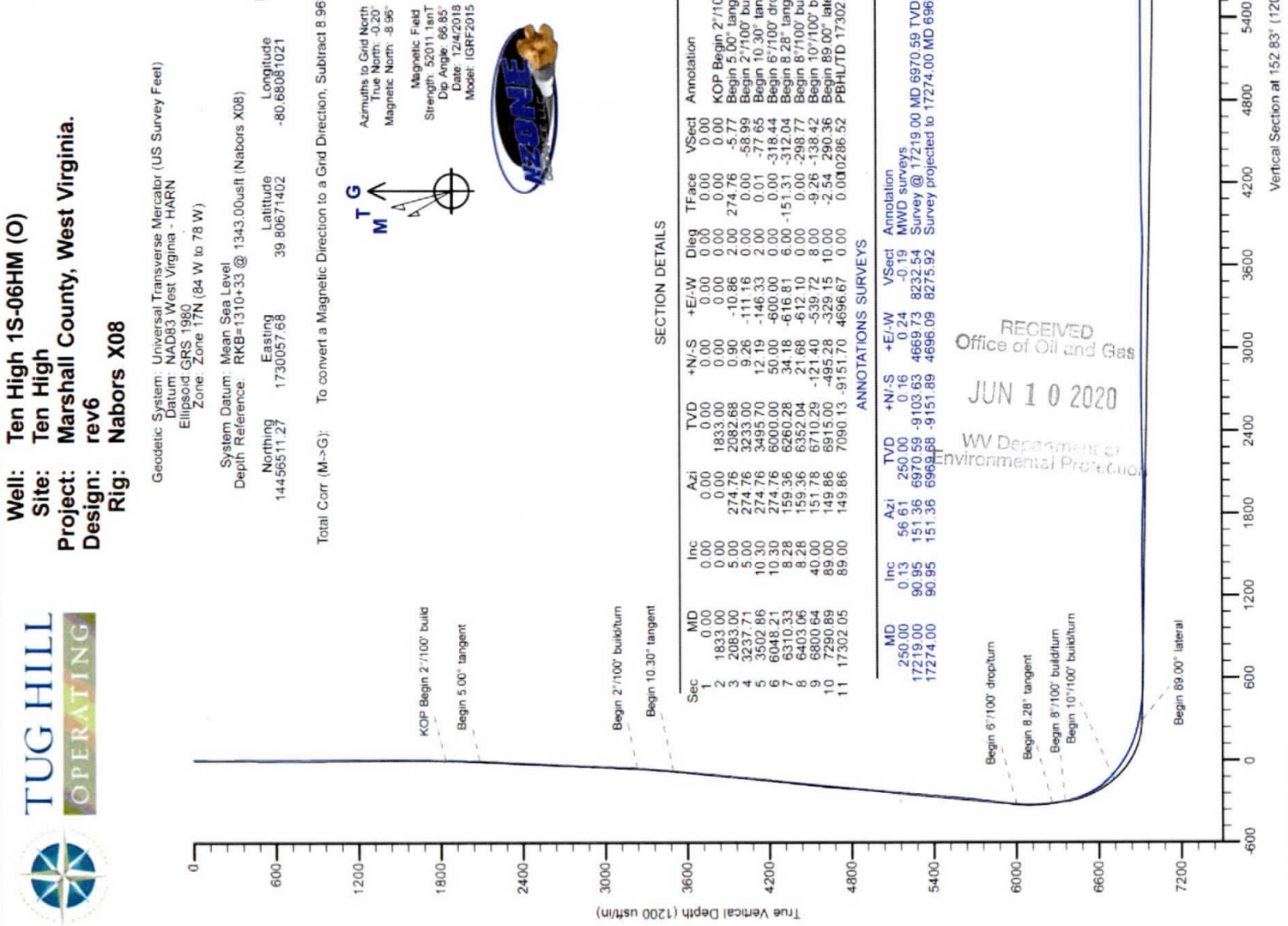
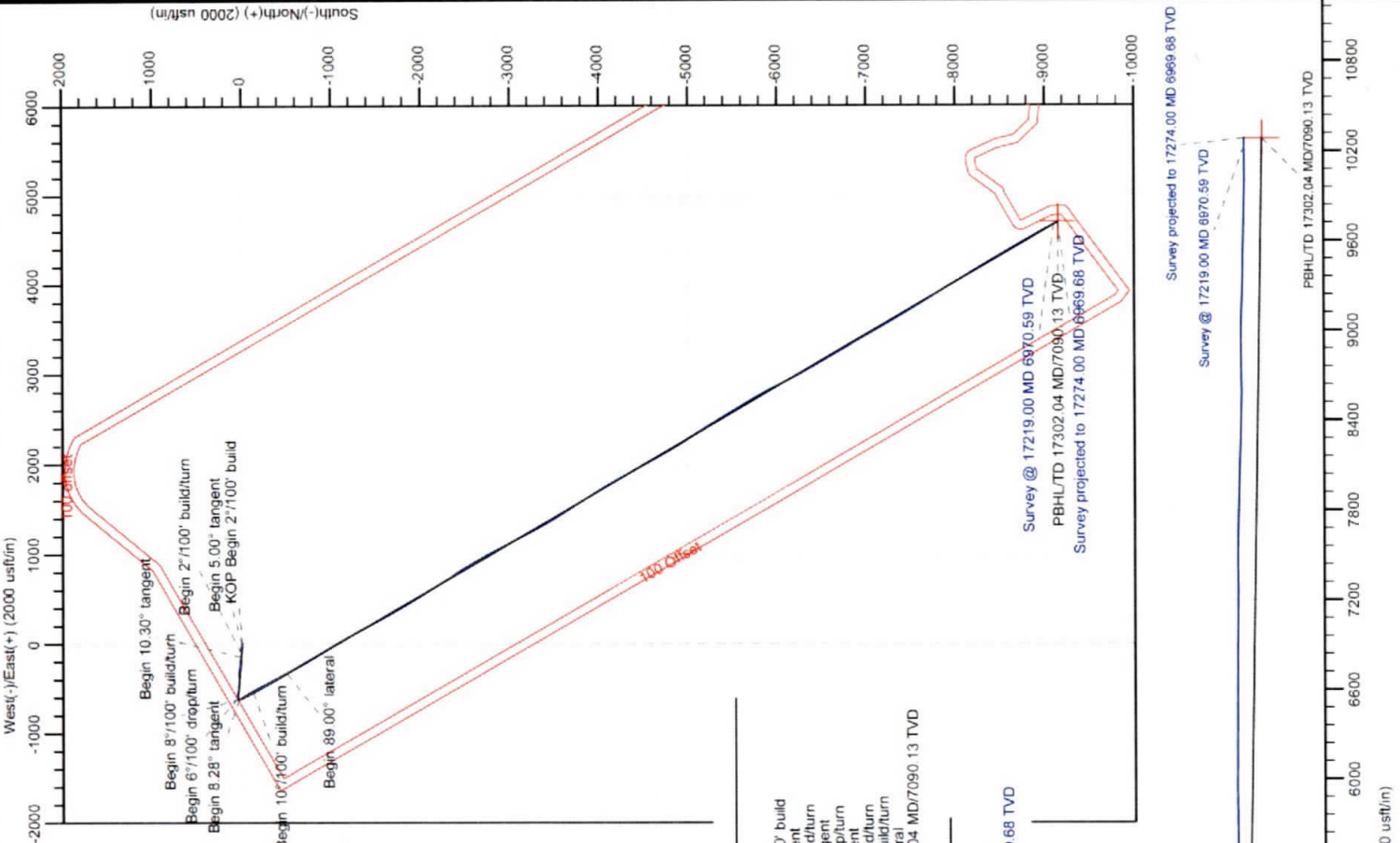
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: RKB=1310+33 @ 1343.00usft (Nabors X08)
 Northing: 14456511.27
 Easting: 1730057.68
 Latitude: 39.80671402
 Longitude: -80.66081021

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.96°



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: -8.96°
 Magnetic Field
 Strength: 52011 Gauss
 Dip Angle: 66.85°
 Date: 12/2018
 Model: IGRF2015



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	VFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1833.00	0.00	0.00	1833.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2/100' build
3	2083.00	5.00	274.76	2082.68	0.90	-10.86	2.00	274.76	-5.77	Begin 5.00' tangent
4	3237.71	5.00	274.76	3233.00	9.26	-111.16	0.00	0.00	-59.99	Begin 2/100' build
5	3502.86	10.30	274.76	3495.70	12.19	-146.33	2.00	0.01	-77.65	Begin 10.30' tangent
6	6048.21	10.30	274.76	6000.00	50.00	-600.00	0.00	0.00	-318.44	Begin 6/100' dropturn
7	6310.33	8.28	159.36	6260.28	34.18	-616.81	6.00	-151.31	-312.04	Begin 8.28' tangent
8	6403.06	8.28	159.36	6352.04	21.68	-612.10	0.00	0.00	-298.77	Begin 6/100' dropturn
9	6800.54	40.00	151.78	6710.29	-121.40	-539.72	8.00	-9.26	-138.42	Begin 10/100' build
10	7290.89	89.00	149.86	6915.00	-495.28	-329.15	10.00	-2.54	290.36	Begin 89.00' lateral
11	17302.05	89.00	149.86	7090.13	-9151.70	4696.67	0.00	0.00	0286.52	PBHL/TD 17302.04 MD/7090.13 TVD

ANNOTATIONS SURVEYS

MD	Inc	Azi	TVD	+N-S	+E-W	VFace	VSect	Annotation
250.00	0.13	56.61	250.00	0.16	0.24	-0.19	MWD surveys	
17219.00	90.95	151.36	6970.59	-9103.63	4669.73	8232.54	Survey @ 17219.00 MD 6970.59 TVD	
17274.00	90.95	151.36	6969.68	-9151.89	4686.09	8275.92	Survey projected to 17274.00 MD 6969.68 TVD	

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11,020' B.H. AS DRILLED

3,973' T.H. AS DRILLED

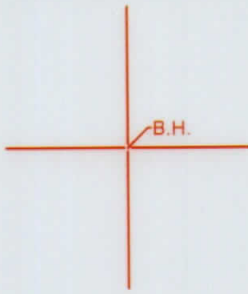
TEN HIGH 1S LEASE
WELL 6HM
TUG HILL OPERATING

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

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD83 S.P.C.(FT)	N. 478,126.46	E. 1,636,777.36
NAD83 GEO.	LAT (N) 39.806714	LONG (W) 80.680810
NAD83 UTM (M)	N. 4,406,353.45	E. 527,322.64
LANDING POINT		
NAD83 S.P.C.(FT)	N. 477,636.4	E. 1,636,439.5
NAD83 GEO.	LAT (N) 39.805356	LONG (W) 80.681990
NAD83 UTM (M)	N. 4,406,202.4	E. 527,222.2
BOTTOM HOLE		
NAD83 S.P.C.(FT)	N. 468,871.3	E. 1,641,335.1
NAD83 GEO.	LAT (N) 39.781471	LONG (W) 80.664161
NAD83 UTM (M)	N. 4,403,557.0	E. 528,758.3

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

9,697' T.H. AS DRILLED



NOTES ON SURVEY

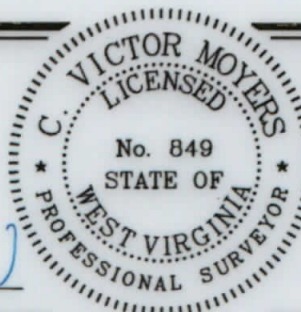
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW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



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 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

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 MARCH 24, 20 20
OPERATORS WELL NO. TEN HIGH 1S-6HM
API WELL NO. 47 - 051 - 1973
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8655P6HMADR.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 LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: GROUND = 1,318.70' 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 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: 6,865' / TMD: 17,151'

COUNTY NAME

PERMIT

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS CT CORPORATION SYSTEM
FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

TUG HILL OPERATING
WELL 6HM
TEN HIGH 12 LEASE



NAD83 UTM (M)	N 4408,257.0	E 528,788.3
NAD83 GEO.	LAT (N) 39.781471	LONG (W) 80.684181
NAD83 S.P.C. (FT)	N 488,871.3	E 1,841,325.1
BOTTOM HOLE		
NAD83 UTM (M)	N 4408,202.4	E 527,222.2
NAD83 GEO.	LAT (N) 39.802328	LONG (W) 80.681980
NAD83 S.P.C. (FT)	N 477,898.4	E 1,830,438.2
LANDING POINT		
NAD83 UTM (M)	N 4408,253.42	E 527,222.84
NAD83 GEO.	LAT (N) 39.808714	LONG (W) 80.680810
NAD83 S.P.C. (FT)	N 478,128.48	E 1,830,777.28
(S.P.C. NORTH ZONE) UTM(M) ZONE 17 NORTH		

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

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

3.981 T.H. AS DRILLED

NOTES ON SURVEY

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

324 East Beckley Street | Beckley, WV 26001 | 304.322.2386
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.246.2922
12 Vincent Drive | P.O. Box 120 | Glenville, WV 26025 | 304.462.8234
slc.com



C. Victor Moyers
P. 849

BY THE DIVISION OF ENVIRONMENTAL PROTECTION THE REGULATIONS ISSUED AND PRESCRIBED THE INFORMATION REQUIRED BY LAW AND KNOWLEDGE AND BELIEF AND SHOWS ALL THIS PLAT IS CORRECT TO THE BEST OF MY I THE UNDERSIGNED, HEREBY CERTIFY THAT

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

STATE COUNTY PERMIT
NO. WELL NO. 47 - 051 - 1973

OPERATORS WELL NO. TEN HIGH 12-6HM

REVISED MARCH 24, 2020

DATE JANUARY 17, 2019

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

CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
HORIZONTAL & VERTICAL SCALE 1" = 2000'
FILE NO. 8825P6HMADR.dwg

PROPOSED WORK:
ROYALTY OWNER ANDY PAUL & JACKIE KUHN, ET AL - WW-6A1
SURFACE OWNER LAWRENCE & SHIRLEY CONKLE ESTS
DISTRICT MADE COUNTY MARSHALL QUADRANGLE GLEN EASTON T.S.
ELEVATION PROPOSED = 1,310.06' WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC 10)WELL TYPE: OIL GAS INJECTION DISPOSAL "GAS" PRODUCTION STORAGE DEEP SHALLOW LIQUID WASTE IF

PHYSICAL CHANGE IN WELL (SPECIFY) _____
PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD

LEASE NO. SEE WW-6A1
ACREAGE 139.79±
ACREAGE 139.79±
COUNTY NAME

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

DESIGNATED AGENT DIANA STAMPER
CT CORPORATION SYSTEM
ADDRESS 2400 D BIG TYLER ROAD CHARLESTON, WV 25313

PERMIT ESTIMATED DEPTH TVD: 6,885' \ TMD: 17,121'
TARGET FORMATION MARCELLUS

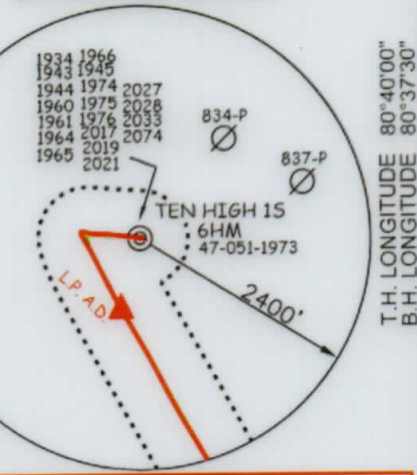
11,020' B.H. AS DRILLED

3,973' T.H. AS DRILLED

**TEN HIGH 1S LEASE
WELL 6HM
TUG HILL OPERATING**

LINE	BEARING	DISTANCE
L1	N 11°51' W	1615.56'
L2	N 77°01' E	957.10'
L3	N 86°07' W	546.40'

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



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

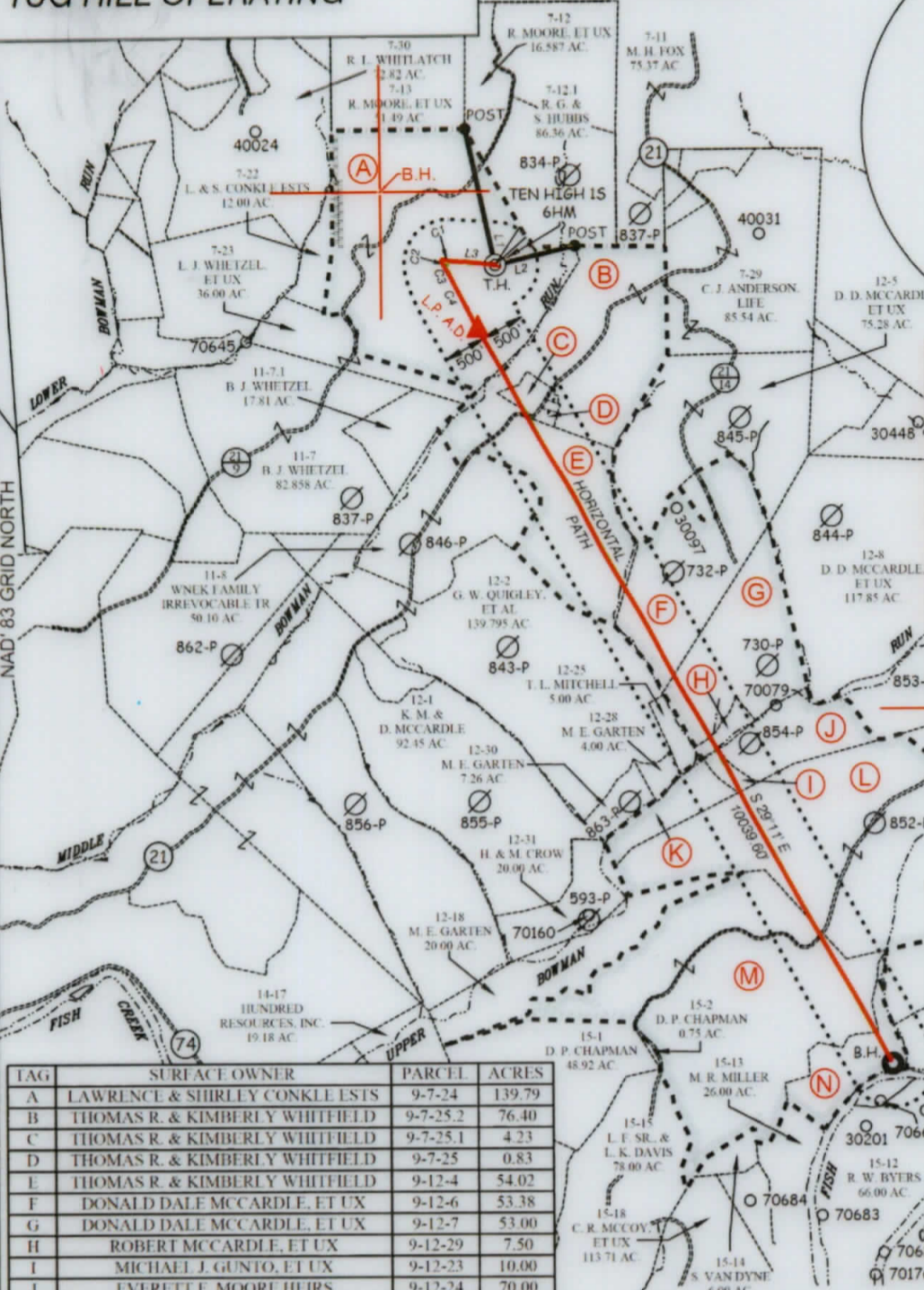
**AS DRILLED COORDINATES
FOR WELL NO. 6HM**

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

NAD83 S.P.C. (FT)	N. 478,126.46	E. 1,636,777.36
NAD83 GEO.	LAT. (N) 39.806714	LONG. (W) 80.680810
NAD83 UTM (M)	N. 4,406,353.45	E. 527,322.64
LANDING POINT		
NAD83 S.P.C. (FT)	N. 477,385.1	E. 1,636,599.8
NAD83 GEO.	LAT. (N) 39.804671	LONG. (W) 80.681514
NAD83 UTM (M)	N. 4,406,126.5	E. 527,263.2
BOTTOM HOLE		
NAD83 S.P.C. (FT)	N. 468,894.3	E. 1,641,321.4
NAD83 GEO.	LAT. (N) 39.781533	LONG. (W) 80.664211
NAD83 UTM (M)	N. 4,403,563.9	E. 528,754.0

LEGEND

AS DRILLED	— (Solid Line)
PROPOSED	- - - (Dashed Line)



TAG	SURFACE OWNER	PARCEL	ACRES
A	LAWRENCE & SHIRLEY CONKLE ESTS	9-7-24	139.79
B	THOMAS R. & KIMBERLY WHITEFIELD	9-7-25.2	76.40
C	THOMAS R. & KIMBERLY WHITEFIELD	9-7-25.1	4.23
D	THOMAS R. & KIMBERLY WHITEFIELD	9-7-25	0.83
E	THOMAS R. & KIMBERLY WHITEFIELD	9-12-4	54.02
F	DONALD DALE MCCARDLE, ET UX	9-12-6	53.38
G	DONALD DALE MCCARDLE, ET UX	9-12-7	53.00
H	ROBERT MCCARDLE, ET UX	9-12-29	7.50
I	MICHAEL J. GUNTO, ET UX	9-12-23	10.00
J	EVERETT F. MOORE HLIRS	9-12-24	70.00
K	GARY L. DOBBS	9-12-37	20.00
L	DAVID P. CHAPMAN	9-12-32	150.00
M	SUSAN VAN DYNE	9-15-3	167.00
N	ROBERT FRANK KOITSON, ET AL	9-15-4	26.40

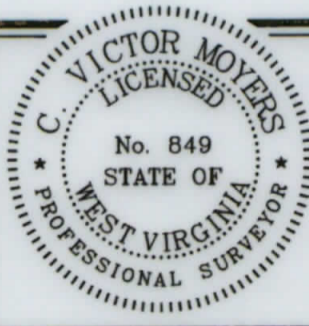
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	18.98'	12.82'	S 44°54' W	17.30'
C2	45.63'	145.20'	S 06°05' E	45.45'
C3	148.80'	1019.23'	S 19°38' E	148.67'
C4	368.72'	3691.14'	S 26°33' E	368.57'



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 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slsw.com

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

NAD83 S.P.C. (FT)	N. 478,126.46	E. 1,636,777.36
NAD83 GEO.	LAT. (N) 39.806714	LONG. (W) 80.680810
NAD83 UTM (M)	N. 4,406,353.45	E. 527,322.64
LANDING POINT		
NAD83 S.P.C. (FT)	N. 477,836.4	E. 1,636,439.5
NAD83 GEO.	LAT. (N) 39.805356	LONG. (W) 80.681990
NAD83 UTM (M)	N. 4,406,202.4	E. 527,222.2
BOTTOM HOLE		
NAD83 S.P.C. (FT)	N. 468,871.3	E. 1,641,335.1
NAD83 GEO.	LAT. (N) 39.781471	LONG. (W) 80.664161
NAD83 UTM (M)	N. 4,403,557.0	E. 528,758.3



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

P.S. 849 *C. Victor Moyers*

LEGEND

LEASE LINE	— (Dashed)
SURFACE LINE	— (Dashed)
WELL LATERAL	— (Dashed)
OFFSET LINE	— (Dashed)
TIE LINE	— (Dashed)
CREEK	— (Wavy)
ROAD	— (Solid)
COUNTY ROUTE	— (Solid)
PROPOSED WELL	⊙ (Dashed)
EXISTING WELL	⊙ (Solid)
PERMITTED WELL	⊙ (Solid)
TAX MAP—PARCEL	00-00
SURFACE OWNER (SEE TABLE)	(A)
LEASE # (SEE WW-6A1)	(A)

SCALE 1" = 2000' FILE NO. 8655P6HMDR.dwg
 DATE JANUARY 17, 2019
 REVISED MARCH 24, 2020
 OPERATORS WELL NO. TEN HIGH 1S-6HM
 API WELL NO. 47-051-1973
 NO. STATE COUNTY PERMIT

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

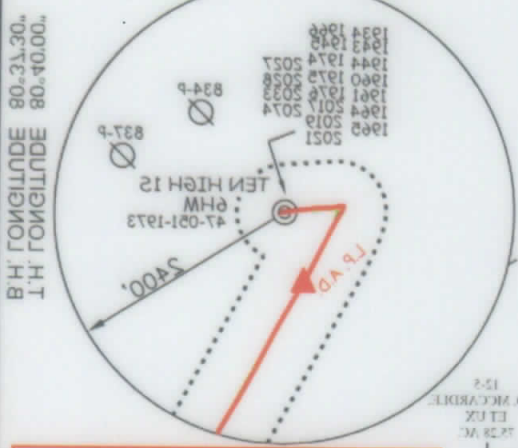
WELL OPERATOR TUG HILL OPERATING, LLC
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107
 DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT

**TUG HILL OPERATING
WELL 6HM
TEN HIGH 12 LEASE**

LINE	BEARING	DISTANCE
L1	N 17° 51' W	1812.58
L2	N 77° 01' E	957.10
L3	N 86° 07' W	548.40

T.H. LATITUDE 39° 47.30"
B.H. LATITUDE 39° 50.00"

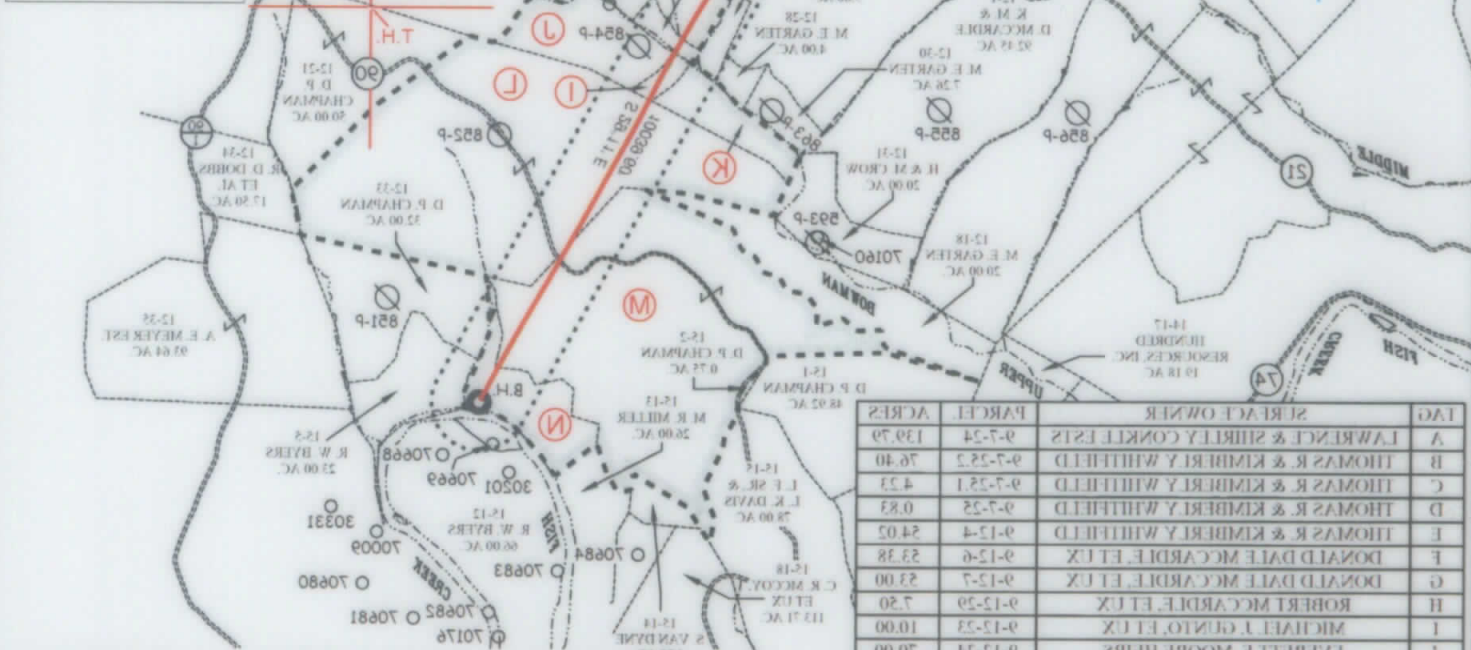


**AS DRILLED COORDINATES
FOR WELL NO. 6HM**

BOTTOM HOLE	
NAD83 UTM (M)	N 4408.252 45 E 5217.222 84
NAD83 GEO	LAT (N) 39 8082714 LONG (W) 80 880810
NAD83 S.P.C. (FT)	N 4777.282 4 E 1 898.777 38
LANDING POINT	
NAD83 UTM (M)	N 4408.252 45 E 5217.222 84
NAD83 GEO	LAT (N) 39 8082714 LONG (W) 80 880810
NAD83 S.P.C. (FT)	N 4777.282 4 E 1 898.777 38
NORTH ZONE (UTM) ZONE 17 NORTH	
NAD83 UTM (M)	N 4408.252 45 E 5217.222 84
NAD83 GEO	LAT (N) 39 8082714 LONG (W) 80 880810
NAD83 S.P.C. (FT)	N 4777.282 4 E 1 898.777 38

LEGEND

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



TRACT OWNER	PARCEL	ACRES
ROBERT FRANK KOTSON, ET AL	9-1-4	56.40
SUSAN VAN DYNE	9-1-3	167.00
DAVID P. CHAMMAN	9-1-3-1	120.00
GARY L. DOBBS	9-1-3-2	20.00
EVERETT MOORE HERS	9-1-3-3	70.00
MICHAEL J. GUNTO, ET UX	9-1-3-4	10.00
ROBERT MCCARDLE, ET UX	9-1-3-5	10.00
DONALD DALE MCCARDLE, ET UX	9-1-3-6	23.00
THOMAS R. & KIMBERLY WHITEFIELD	9-1-4	24.05
THOMAS R. & KIMBERLY WHITEFIELD	9-1-5	0.83
THOMAS R. & KIMBERLY WHITEFIELD	9-1-6	0.83
THOMAS R. & KIMBERLY WHITEFIELD	9-1-7	4.23
THOMAS R. & KIMBERLY WHITEFIELD	9-1-8	76.40
LAWRENCE & SHIRLEY CONKLE ESTS	9-1-9	139.20

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	18.98	12.82	S 44° 54' W	17.30
C2	45.83	148.20	S 08° 08' E	45.45
C3	148.80	1018.23	S 19° 38' E	148.67
C4	388.72	3891.14	S 28° 33' E	388.57



224 East Beulah Street, Beckley, WV 26001 | 304.332.2298
1412 Kanawha Boulevard, East Charleston, WV 26031 | 304.346.2923
12 Anthony Drive | PO Box 150 | Grafton, WV 26031 | 304.483.2824

DESIGNATED AGENT
CT CORPORATION SYSTEM
Address 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

DIANNA STAMPER

PERMIT

COUNTY NAME

LEGEND

- LEASE # (SEE W-601)
- SURFACE OWNER (SEE TABLE)
- TAX MAP - PARCEL
- PERMITTED WELL
- EXISTING WELL
- PROPOSED WELL
- COUNTY ROUTE
- ROAD
- CREEK
- THE LINE
- OFFSET LINE
- WELL LATERAL
- SURFACE LINE
- LEASE LINE

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

STATE OF WEST VIRGINIA

PROFESSIONAL SURVEYOR
STATE OF WEST VIRGINIA
No. 848
C. VICTOR MOYERS
LICENSED

848 P.S.
C. Victor Moyers

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

NO. STATE
47 - 051 - 1973

WELL NO. TEN HIGH 12-6HM

REVISED MARCH 24

DATE JANUARY 17

SCALE 1" = 2000'

FILE NO. 8825P6HMADR.dwg

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

NO. STATE COUNTY PERMIT

WELL NO. TEN HIGH 12-6HM

REVISED MARCH 24

DATE JANUARY 17

SCALE 1" = 2000'

FILE NO. 8825P6HMADR.dwg