

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

API 47-051-0974 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-7HM
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 4,406,351.76 Easting 527,330.06
Landing Point of Curve Northing 4,406,268.0 Easting 527,468.0
Bottom Hole Northing 4,403,813.6 Easting 528,877.0

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 Complete Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other Oil and Gas
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other
Drilled with Cable Rotary

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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 1/5/2019 Date drilling ceased 1/19/2019
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

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 1595' Void(s) encountered (Y/N) depths N
Coal depth(s) ft Sewickley - 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:
Jim Nicholas
6/23/2020

API 47-051 - 01974 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-7HM

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"	1,136'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,136'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,873'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	16,793'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,397'	NEW	4.7#	N/A	
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Ceme	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	1177	15.6	1.19	1412	0	8
Coal	A	1177	15.6	1.19	1412	0	8
Intermediate 1	A	903	15.6	1.19	1244	0	8
Intermediate 2							
Intermediate 3							
Production	A	4441	14.5	1.17	4596	0	8
Tubing							

Drillers TD (ft) 16,832' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a
 Kick off depth (ft) 5,907'

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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
(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 AS OPEN HOLE? Yes No DETAILS _____

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

API 47- 051 - 01974 Farm name Lawrence & Shirley Conkle, ests. Well number Ten High 1S-7HM

PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6921' - 6989'</u>	<u>TVD 7305' - 16832' MD</u>
_____	_____	_____
_____	_____	_____

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 bpd Oil 0 bpd NGL 0 bpd Water 600 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME	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 (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	<u>0</u>		<u>0</u>		
<u>attached</u>					

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Please insert additional pages as applicable.

Drilling Contractor Nabor 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 Hallsburton Energy Services, Inc.
Address 121 Champion Way, Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

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

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

**Ten High 1S-7HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
Toe	4/27/2019	16,642	16,693	48	Marcellus
1	4/27/2019	16,420	16,573	48	Marcellus
2	4/27/2019	16,244	16,398	48	Marcellus
3	4/27/2019	16,069	16,222	48	Marcellus
4	4/27/2019	15,893	16,047	48	Marcellus
5	4/27/2019	15,718	15,871	48	Marcellus
6	4/27/2019	15,543	15,696	48	Marcellus
7	4/27/2019	15,367	15,521	48	Marcellus
8	4/27/2019	15,192	15,345	48	Marcellus
9	4/27/2019	15,016	15,170	48	Marcellus
10	4/27/2019	14,841	14,994	48	Marcellus
11	4/27/2019	14,666	14,819	48	Marcellus
12	4/27/2019	14,490	14,644	48	Marcellus
13	4/30/2019	14,315	14,468	48	Marcellus
14	4/30/2019	14,139	14,293	48	Marcellus
15	5/1/2019	13,964	14,117	48	Marcellus
16	5/1/2019	13,789	13,942	48	Marcellus
17	5/2/2019	13,613	13,767	48	Marcellus
18	5/3/2019	13,438	13,591	48	Marcellus
19	5/3/2019	13,262	13,416	48	Marcellus
20	5/4/2019	13,087	13,240	48	Marcellus
21	5/5/2019	12,912	13,065	48	Marcellus
22	5/5/2019	12,736	12,890	48	Marcellus
23	5/6/2019	12,561	12,714	48	Marcellus
24	5/7/2019	12,385	12,539	48	Marcellus
25	5/8/2019	12,210	12,363	48	Marcellus
26	5/8/2019	12,035	12,188	48	Marcellus
27	5/17/2019	11,859	12,013	48	Marcellus
28	5/17/2019	11,684	11,837	48	Marcellus
29	5/17/2019	11,508	11,662	48	Marcellus
30	5/17/2019	11,333	11,486	48	Marcellus
31	5/17/2019	11,158	11,311	48	Marcellus
32	5/17/2019	10,982	11,136	48	Marcellus
33	5/17/2019	10,807	10,960	48	Marcellus
34	5/17/2019	10,631	10,785	48	Marcellus
35	5/17/2019	10,456	10,609	48	Marcellus
36	5/17/2019	10,281	10,434	48	Marcellus
37	5/17/2019	10,105	10,259	48	Marcellus
38	5/17/2019	9,930	10,083	48	Marcellus
39	5/18/2019	9,754	9,908	48	Marcellus
40	5/18/2019	9,579	9,732	48	Marcellus
41	5/19/2019	9,404	9,557	48	Marcellus
42	5/19/2019	9,228	9,382	48	Marcellus
43	5/20/2019	9,053	9,206	48	Marcellus
44	5/20/2019	8,877	9,031	48	Marcellus
45	5/20/2019	8,702	8,855	48	Marcellus

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46	5/22/2019	8,527	8,680	48	Marcellus
47	5/23/2019	8,351	8,505	48	Marcellus
48	5/23/2019	8,176	8,329	48	Marcellus
49	5/24/2019	8,000	8,154	48	Marcellus
50	5/25/2019	7,825	7,978	48	Marcellus
51	5/25/2019	7,650	7,803	48	Marcellus
52	5/26/2019	7,474	7,628	48	Marcellus
53	5/26/2019	7,299	7,452	48	Marcellus

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Ten High 1S-7HM

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	27.1	6981	6418	4625	0	642	0
1	82.9	7573	5419	4874	435910	8414	0
2	89.6	7475	5421	5032	439600	7854	0
3	89.7	8004	5387	4819	441010	7840	0
4	86.2	7240	5204	4540	436460	7769	0
5	89.6	7504	5940	5101	441070	7897	0
6	89.4	7635	5402	4837	438490	7803	0
7	84.3	7877	5371	4790	440140	8894	0
8	84.4	8297	5337	5143	436590	8164	0
9	89.5	7245	5187	4971	441670	7932	0
10	88.6	7493	5494	4504	439780	8003	0
11	89.4	7241	5304	4977	440380	7816	0
12	89.3	7222	5326	4865	441250	8217	0
13	89	7640	5268	4721	397320	7231	0
14	87.6	7513	5260	4556	439540	8686	0
15	89.4	7304	5337	4570	440230	8168	0
16	88.6	7197	5381	4319	439830	7693	0
17	88.9	7342	5203	4622	346660	7176	0
18	88.9	7088	5430	4705	441390	7593	0
19	87.3	7438	5353	4815	359820	8966	0
20	88.9	6855	5399	4967	441360	7763	0
21	89.6	7374	5376	4765	436830	7941	0
22	87.9	7054	5442	4706	439670	9792	0
23	85.7	6978	5423	4732	439750	7463	0
24	84.9	7621	5543	4818	435840	7536	0
25	84.7	6773	5900	5241	439970	7660	0
26	86.9	6849	5625	4674	440550	7500	0
27	88.2	6833	5829	4732	437960	7772	0
28	89.2	6778	5697	5037	439640	7684	0
29	89.4	7138	5766	4559	440200	7529	0
30	89.4	6909	5326	5075	441030	7895	0

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33	88.7	6803	5606	4962	440450	7650	0
34	89.9	6855	5449	4934	438730	7478	0
35	88.8	6640	5016	4824	440770	7615	0
36	89.7	6898	5610	4739	440300	7480	0
37	89.7	6872	5591	4808	441260	7472	0
38	89.4	6941	5319	4861	438960	7555	0
39	89.9	6833	5447	4811	441360	7979	0
40	89.5	6874	5547	4779	440980	7395	0
41	88.6	7024	5439	4961	439570	7395	0
42	89.4	6889	5108	4938	441040	8025	0
43	88.9	7061	5461	4940	441460	8106	0
44	89.2	6854	5563	4888	439390	7544	0
45	89.8	6784	5562	5037	441550	7866	0
46	89.3	6887	5763	4809	441990	7287	0
47	89.3	6435	5486	4957	441150	7472	0
48	88.9	6618	5544	4340	442600	7132	0
49	89.1	6660	6197	4789	361730	7442	0
50	89.9	6345	5451	4978	445480	7940	0
51	89.3	6399	6199	4677	440760	7372	0
52	89.7	6453	6097	4635	441600	7404	0
53	89.9	6332	5186	4633	441570	7255	0

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TEN HIGH 1S-7HM

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	2036	2208	Sandstone
Big Lime	2207	2338	2208	2339	Limestone
Big Injun	2338	2633	2339	2634	Sandstone
Berea	2831	3093	2832	3094	Sandstone
Gordon	3093	3178	3094	3176	Sandstone
Fifty Foot	3178	3760	3176	3761	Sandstone
Speechley	3760	5221	3761	5230	Sandstone
Benson	5221	5593	5230	5620	Sandstone
Alexander	5593	6215	5620	6275	Siltstone
Rhinestreet	6215	6670	6275	6762	Black shale
Middlesex	6670	6746	6762	6861	Black shale
Geneseo/Burkett	6746	6771	6861	6899	Black shale
Tully	6771	6800	6899	6947	Limestone
Hamilton	6800	6890	6947	7168	Grey shale
Marcellus	6890	-	7168	-	Black shale

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TUG HILL
OPERATING

Well: Ten High 1S-07HM (Q)
Site: Ten High
Project: Marshall County, West Virginia.
Design: rev5
Rig: Nabors X08

ANNOTATIONS SURVEYS

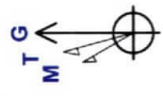
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
192.00	0.07	216.80	192.00	-0.09	-0.07	0.04	MWD surveys
16777.00	89.10	148.19	6987.90	-8280.56	5046.42	9697.11	Survey @ 16777.00 MD 6987.90 TVD
16832.00	89.10	148.19	6988.76	-8327.29	5075.41	9752.10	Survey projected to 16832.00 MD 6988.76 TVD

Geographic System: Universal Transverse Mercator (UTM Survey Feet)

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

Northing	Easting	Latitude	Longitude
14456505.72	1730082.03	39.80669854	-80.68072351

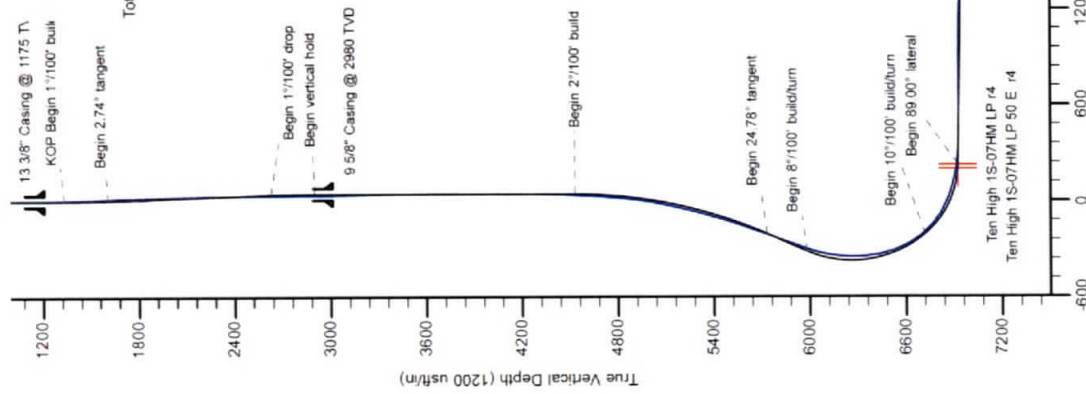
Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.96°



Azimuths to Grid North
True North: 0.26°
Magnetic North: -8.96°
Magnetic Field
Strength: 52000.6nT
Dip Angle: 66.84°
Date: 1/6/2019
Model: IGRF2015



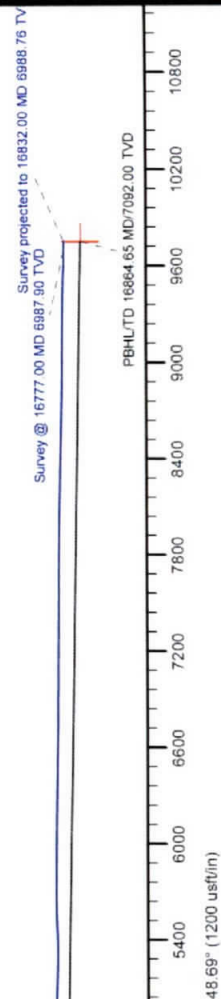
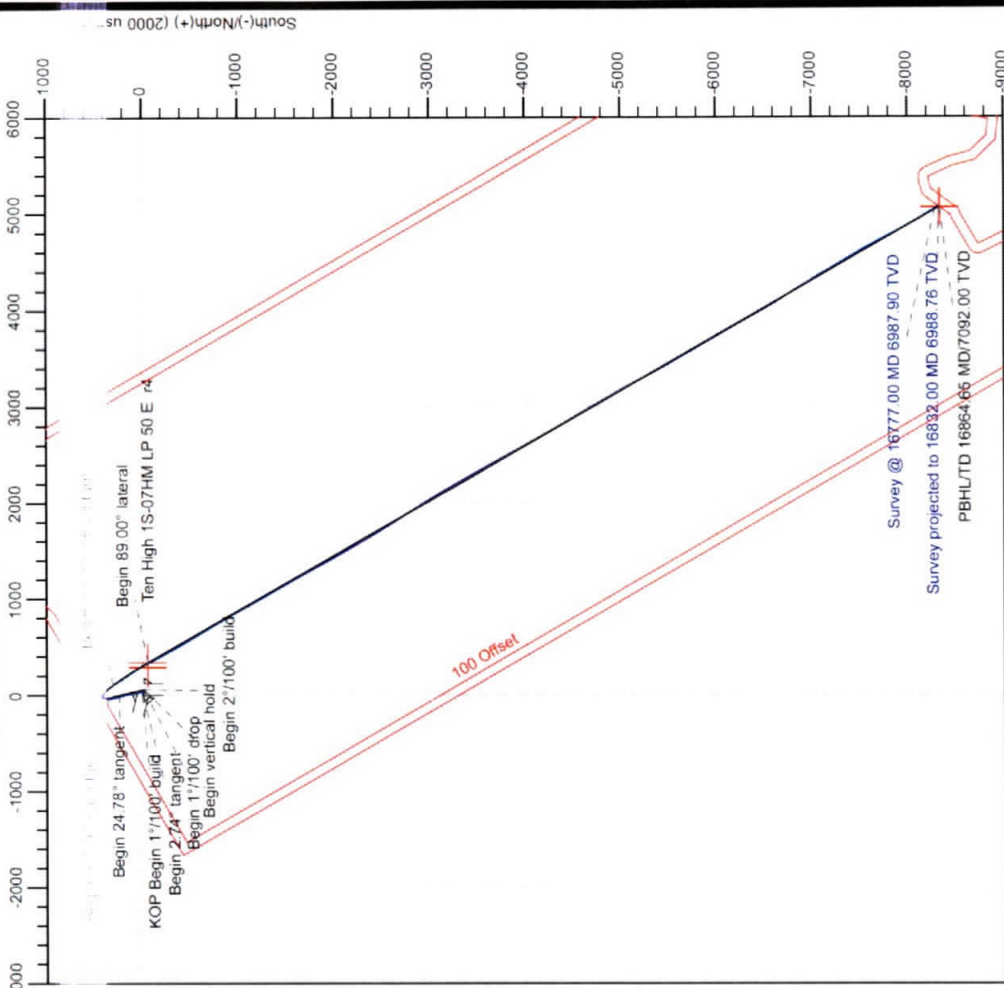
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SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1'100" build
2	1333.00	0.00	0.00	1333.00	0.00	0.00	0.00	0.00	0.00	Begin 2.74" tangent
3	1606.82	2.74	104.04	1606.72	-1.59	6.35	1.00	104.04	4.65	Begin 1'100" drop
4	2627.55	0.00	104.04	2626.28	-13.41	53.65	0.00	0.00	39.34	Begin vertical hold
5	2901.37	0.00	0.00	2900.00	-15.00	60.00	1.00	180.00	44.00	Begin 2'100" build
6	4534.37	0.00	0.00	4533.84	-15.00	60.00	0.00	0.00	44.00	Begin 24.78" tangent
7	5773.60	24.78	346.97	5733.94	242.08	0.49	2.00	346.97	-206.56	Begin 8'100" buildturn
8	6045.95	24.78	346.97	5981.21	353.31	-25.26	0.00	0.00	-314.97	Begin 10'100" buildturn
9	6836.42	40.00	142.46	6719.29	308.65	105.75	8.00	162.63	-208.73	Begin 89.00" lateral
10	7330.88	89.00	150.26	6926.00	-54.84	339.92	10.00	10.29	223.52	PBHL/TD 16864.65 MD/7092.00 TVD
11	16864.68	89.00	150.26	7093.00	-8331.67	5068.51	0.00	0.00	9752.25	PBHL/TD 16864.65 MD/7092.00 TVD

West(-)East(+)(2000 usft/m)



Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/21/2019
Job End Date:	5/26/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-01974-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Ten High 1S-07HM
Latitude:	39.80669854
Longitude:	-80.68072351
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,984
Total Base Water Volume (gal):	17,443,863
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	Operator	Base Fluid					
			Water	7732-18-5	100.00000	85.71293	Density = 8.330 RECEIVED Office of Oil and Gas JUN 10 2020 West Virginia Department of Environmental Protection
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.62432	

OILPERM A	Halliburton	Non-ionic Surfactant			Listed Below				
FDP-S1296-17	Halliburton	Corrosion Inhibitor			Listed Below				
SAND-PREMIUM WHITE 30/50, BULK	Halliburton	Proppant							
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant			Listed Below				
LD-2850	Halliburton	Friction Reducer			Listed Below				
LD-2950	Halliburton	Friction Reducer			Listed Below				
HYDROCHLORIC ACID	Halliburton	Solvent			Listed Below				
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant			Listed Below				

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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	13.58399
				Hydrochloric acid	7647-01-0	60.00000	0.37459
				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02334
				Ethanediamine, N,N,N-trimethyl-2-[(1-oxo-2-propen-1-yl)oxy]-, chloride (1:1), polymer with 2-propenamide	69418-26-4	30.00000	0.01763
				Complex amine compound	Proprietary	60.00000	0.01142
				Ammonium chloride	12125-02-9	10.00000	0.00588
				Sodium chloride	7647-14-5	10.00000	0.00588
				9-Octadecenamide, n,n-bis-2-(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00294
				Polyoxy-1,2-ethanediyl),.alpha.-tridecyl-,omega.-hydroxy-,branched	69011-36-5	5.00000	0.00095
				Ethoxylated alcohol	Proprietary	5.00000	0.00095
				Methanol	67-56-1	100.00000	0.00047
				Ethanol	64-17-5	60.00000	0.00029
				Oxyalkylated phenolic resin	Proprietary	30.00000	0.00020
				Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00015
				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
				Naphthalene	91-20-3	5.00000	0.00002

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			Propargyl alcohol	107-19-7	5.00000	0.00002
			Ethoxyiated alcohols	Proprietary	5.00000	0.00002
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00000

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

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10,613' B.H. AS DRILLED

3,949' T.H. AS DRILLED

TEN HIGH 1S LEASE
WELL 7HM
TUG HILL OPERATING

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

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,120.50	E. 1,636,801.64
NAD'83 GEO.	LAT-(N) 39.806699	LONG-(W) 80.680724
NAD'83 UTM (M)	N. 4,406,351.76	E. 527,330.06
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 478,010.7	E. 1,637,089.8
NAD'83 GEO.	LAT-(N) 39.806408	LONG-(W) 80.679693
NAD'83 UTM (M)	N. 4,406,319.8	E. 527,418.4
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 469,702.5	E. 1,641,731.9
NAD'83 GEO.	LAT-(N) 39.783767	LONG-(W) 80.662788
NAD'83 UTM (M)	N. 4,403,812.3	E. 528,874.9

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

B.H.

AS DRILLED COORDINATES
FOR WELL NO. 7HM

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,120.50	E. 1,636,801.64
NAD'83 GEO.	LAT-(N) 39.806699	LONG-(W) 80.680724
NAD'83 UTM (M)	N. 4,406,351.76	E. 527,330.06
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 477,838.0	E. 1,637,249.5
NAD'83 GEO.	LAT-(N) 39.805939	LONG-(W) 80.679116
NAD'83 UTM (M)	N. 4,406,268.0	E. 527,468.0
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 469,706.7	E. 1,641,738.9
NAD'83 GEO.	LAT-(N) 39.783779	LONG-(W) 80.662783
NAD'83 UTM (M)	N. 4,403,813.6	E. 528,877.0

9,702' T.H. AS DRILLED

T.H.

NOTES ON SURVEY

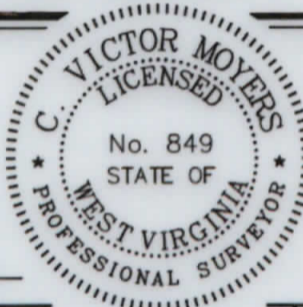
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPD MARK SCALE IS 1"=2000'
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW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



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26034 | 486.25634
1412 Kanawha Boulevard, East | Charleston, WV 25304 | 346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 35.5298
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. 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-7HM

API WELL NO. 47 - 051 - 1974
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 8655P7HMAD.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY GPS (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 = 1,315.70' 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 FALL & 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: 16,649'

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

COUNTY NAME

PERMIT

TUG HILL OPERATING
WELL 7HM
TEN HIGH 12 LEASE

B.H.

NAD83 UTM (M)		N 4403 813	E 528 874 9
NAD83 GEO.		LAT (N) 38 783797	LONG (W) 80 682788
NAD83 S.P.C (FT)		N 489 705 2	E 1 841 731 9
NAD83 UTM (M)		N 4408 318 8	E 527 418 4
NAD83 GEO.		LAT (N) 38 808408	LONG (W) 80 679993
NAD83 S.P.C (FT)		N 478 010 7	E 1 837 089 8
NAD83 UTM (M)		N 4408 321 78	E 527 330 08
NAD83 GEO.		LAT (N) 38 808699	LONG (W) 80 680724
NAD83 S.P.C (FT)		N 478 120 20	E 1 838 801 84
NAD83 UTM (M)		N 4403 813	E 528 874 9
NAD83 GEO.		LAT (N) 38 783797	LONG (W) 80 682788
NAD83 S.P.C (FT)		N 489 705 2	E 1 841 731 9
NAD83 UTM (M)		N 4408 318 8	E 527 418 4
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NAD83 S.P.C (FT)		N 478 010 7	E 1 837 089 8
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NAD83 GEO.		LAT (N) 38 808699	LONG (W) 80 680724
NAD83 S.P.C (FT)		N 478 120 20	E 1 838 801 84

AS DRILLED COORDINATES
FOR WELL NO. 7HM

T.H.

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.



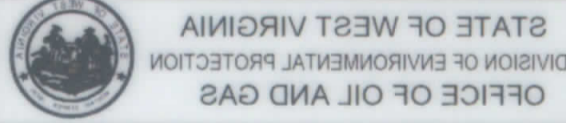
124 East Beckley Avenue | Beckley, WV 26001 | 304.332.2398
 1412 Kanawha Boulevard East | Charleston, WV 25301 | 304.242.2922
 12 Vanhook Drive | P.O. Box 100 | Glenville, WV 26031 | 304.483.2824

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

P. S. 849
C. Victor Moyers



DATE MARCH 24, 2010
 REVISED _____
 OPERATORS WELL NO. TEN HIGH 12-7HM
 API WELL NO. 47-051-1974
 STATE COUNTY PERMIT



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

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

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

ROYALTY OWNER ANDY PAUL & JACKIE KUHN, ET AL - WW-6A1
 SURFACE OWNER LAWRENCE & SHIRLEY CONKLE ESTS
 DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON T.S.
 ELEVATION PROPOSED = 1,310.06' WATERSHED MIDDLE BOWMAN RUN OF FISH CREEK (HUC 10)
 LOCATION: GROUND = 1,315.70'

WELL TYPE: OIL GAS LIQUID WASTE IF STORAGE DEEP SHALLOW

CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
 SCALE 1" = 2000'
 FILE NO. 8655P7HMAD.dwg

MINIMUM DEGREE OF ACCURACY 1:2500
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

5813.8 H.H. AS DRILLED
 5813.8 H.H. AS DRILLED
 3949.7 H.H. AS DRILLED
 80.37.30
 80.40.00
 80.37.30
 80.40.00
 3949.7 H.H. AS DRILLED
 5813.8 H.H. AS DRILLED
 5813.8 H.H. AS DRILLED

10,613' B.H. AS DRILLED

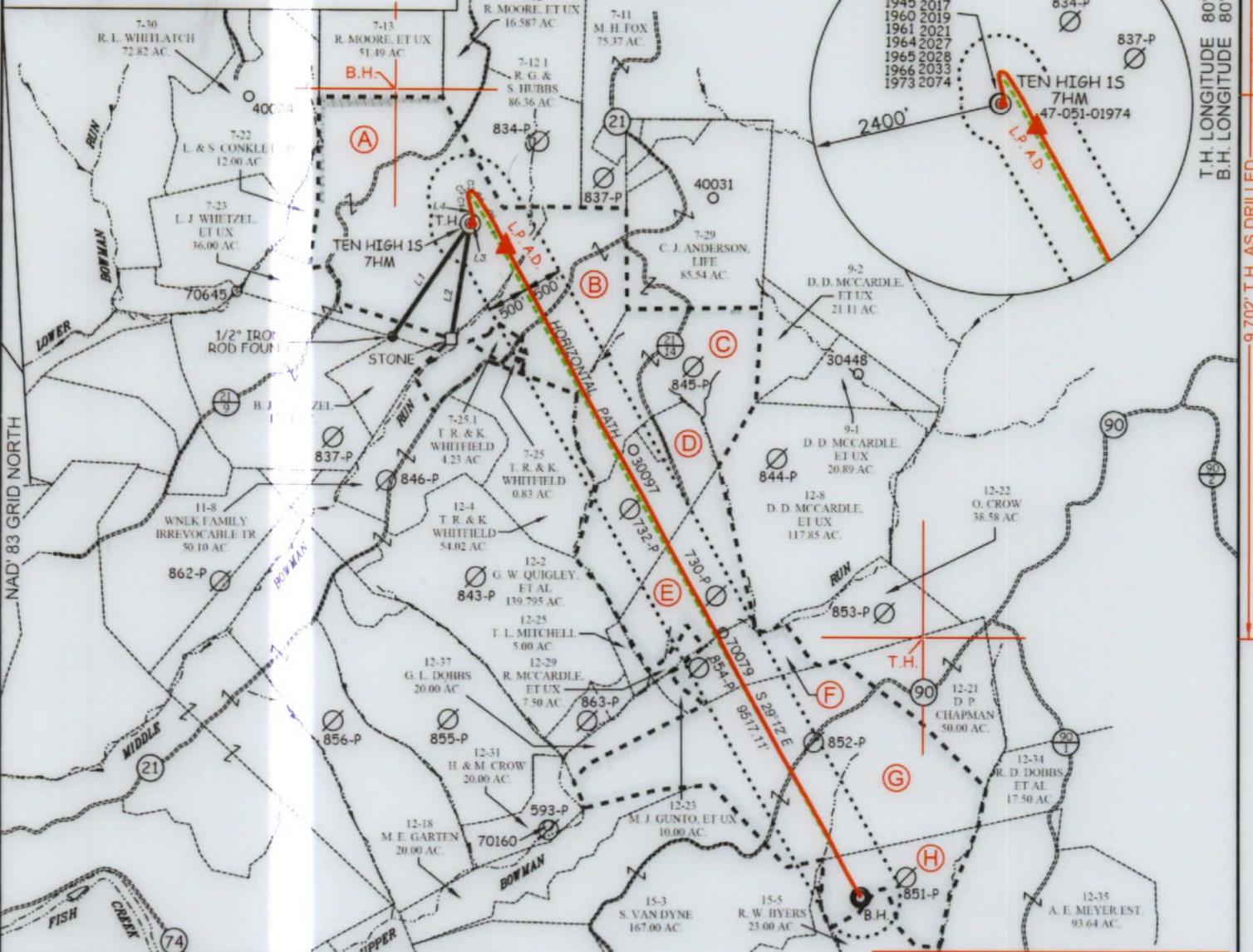
3,949' T.H. AS DRILLED

TEN HIGH 1S LEASE
WELL 7HM
TUG HILL OPERATING

LINE	BEARING	DISTANCE
L1	S 34°38' W	1715.22'
L2	S 09°15' W	1453.16'
L3	S 77°44' E	76.50'
L4	N 16°07' W	354.75'

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	9-7-24	139.79
B	THOMAS R. & KIMBERLY WHITFIELD	9-7-25.2	76.40
C	DONALD DALE MCCARDLE ET UX	9-12-5	75.28
D	DONALD DALE MCCARDLE ET UX	9-12-6	53.38
E	DONALD DALE MCCARDLE ET UX	9-12-7	53.00
F	EVERETT E. MOORE HUBBS	9-12-24	70.00
G	DAVID P. CHAPMAN	9-12-32	150.00
H	DAVID P. CHAPMAN	9-12-33	32.00

AS DRILLED COORDINATES FOR WELL NO. 7HM

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

NAD'83 S.P.C.(FT)	N 478,120.50	E 1,636,801.64
NAD'83 GEO.	LAT-(N) 39.806699	LONG-(W) 80.680724
NAD'83 UTM (M)	N 4,406,351.76	E 527,330.06

LANDING POINT

NAD'83 S.P.C.(FT)	N 477,838.0	E 1,637,249.5
NAD'83 GEO.	LAT-(N) 39.805939	LONG-(W) 80.679118
NAD'83 UTM (M)	N 4,406,268.0	E 527,468.0

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N 469,706.7	E 1,641,738.9
NAD'83 GEO.	LAT-(N) 39.783779	LONG-(W) 80.662783
NAD'83 UTM (M)	N 4,403,813.6	E 528,877.0

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	27.17'	136.56'	N 10°59' W	27.13'
C2	10.46'	9.47'	N 24°38' E	9.94'
C3	14.20'	25.69'	S 63°47' E	14.02'
C4	169.77'	902.92'	S 37°19' E	169.52'
C5	383.86'	5588.20'	S 30°59' E	383.78'



LEGEND

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

P.S.
849

C. Victor Moyers

12 Vanhorn Drive | P.O. Box 150 | Glenview, WV 26034 | 462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25311 | 346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 462.5296
slsw.com

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

NAD'83 S.P.C.(FT)	N 478,120.50	E 1,636,801.64
NAD'83 GEO.	LAT-(N) 39.806699	LONG-(W) 80.680724
NAD'83 UTM (M)	N 4,406,351.76	E 527,330.06

LANDING POINT

NAD'83 S.P.C.(FT)	N 478,010.7	E 1,637,089.8
NAD'83 GEO.	LAT-(N) 39.806408	LONG-(W) 80.679693
NAD'83 UTM (M)	N 4,406,319.6	E 527,418.4

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N 469,702.5	E 1,641,731.9
NAD'83 GEO.	LAT-(N) 39.783787	LONG-(W) 80.662788
NAD'83 UTM (M)	N 4,403,812.3	E 528,874.9



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

LEGEND

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

SCALE 1" = 2000' FILE NO. 8655P7HMAD.dwg

DATE MARCH 24, 2020

REVISED _____, 20____

OPERATORS WELL NO. TEN HIGH 1S-7HM

API WELL NO. 47-051-1974

NO. STATE COUNTY PERMIT

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



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

COUNTY NAME
PERMIT

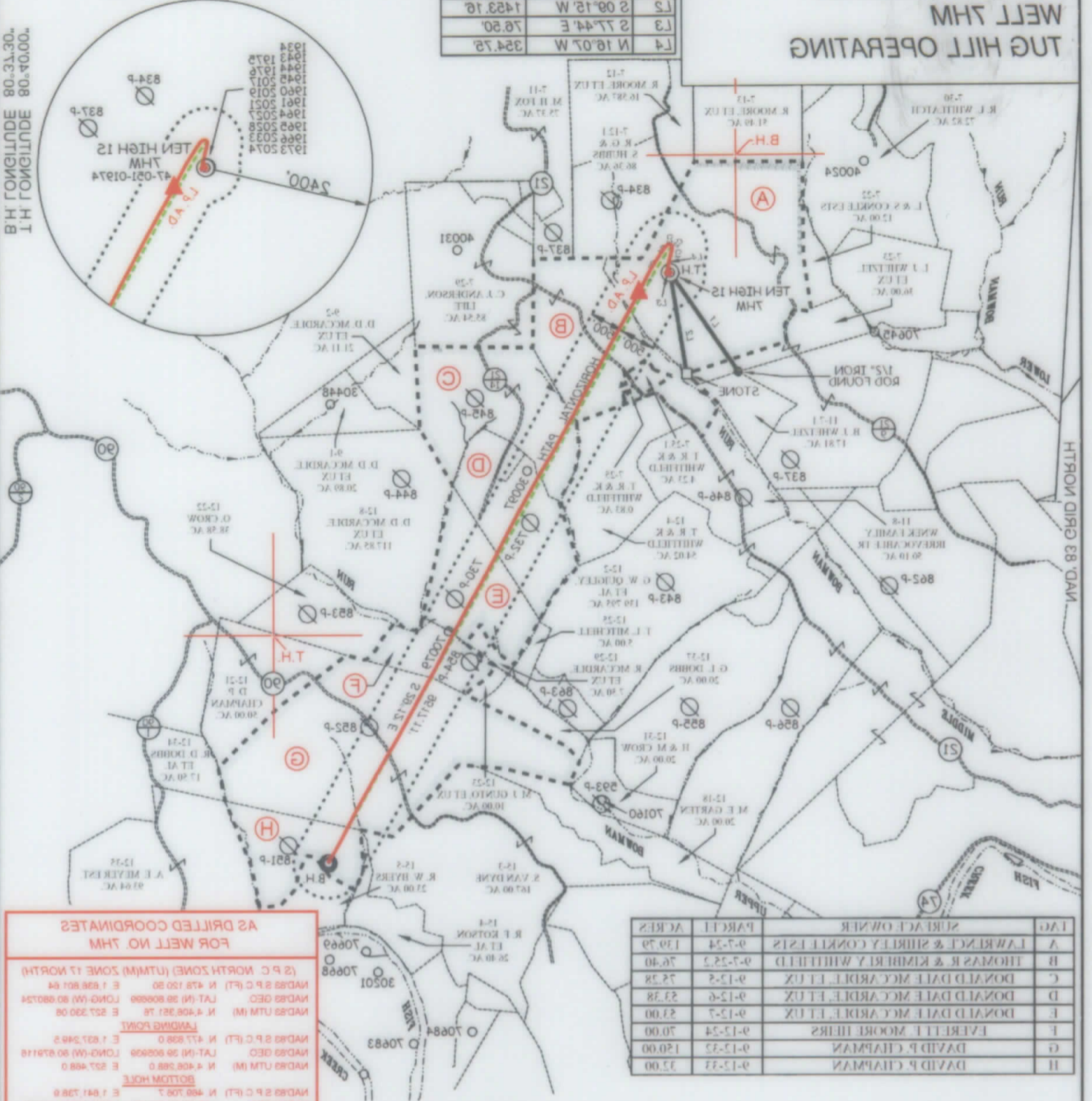
**TUG HILL OPERATING
WELL 7HM
TEN HIGH 12 LEASE**

LINE	BEARING	DISTANCE
L1	S 34°38' W	1715.22
L2	S 08°15' W	1483.18
L3	S 77°44' E	78.50
L4	N 18°07' W	324.75

T.H. LATITUDE 39°47.30'
B.H. LATITUDE 39°50.00'

T.H. LONGITUDE 80°37.30'
B.H. LONGITUDE 80°40.00'

DRILLED 24 H.T. 507' 8"
B.H. AS DRILLED 10,613'



LINE	OWNER	ACRES
A	LAWRENCE & SHIRLEY CONKLIN	9-7-24
B	THOMAS R & KIMBERLY WHITFIELD	9-7-22.5
C	DONALD DALE MCCARDLE ET UX	9-12-2
D	DONALD DALE MCCARDLE ET UX	9-12-6
E	DONALD DALE MCCARDLE ET UX	9-12-7
F	EVERETT MOORE IIIERS	9-12-24
G	DAVID P. CHAPMAN	9-12-22
H	DAVID P. CHAPMAN	9-12-22

AS DRILLED COORDINATES FOR WELL NO. 7HM

POINT	NAD83 UTM (M)	Easting	Northing
LANDING POINT	N 478,898.0	E 527,230.8	N 478,898.0
BOTTOM HOLE	N 489,708.7	E 528,874.9	N 489,708.7

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	57.17	138.58	N 10°59' W	57.13
C2	10.48	9.47	N 24°38' E	9.94
C3	14.20	25.89	S 83°47' E	14.02
C4	189.77	902.92	S 37°19' E	189.52
C5	383.88	5288.20	S 30°50' E	383.78

C. Victor Moyers
P. 2
849

LEGEND

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

SLS
FROM THE GROUND UP

12 Vinton Drive | P.O. Box 100 | Greenville, WA 38801 | 304.482.5824
1425 Kinsale Boulevard, East | Charleston, WV 25301 | 304.248.2883
224 East Buckley Square | Beckley, WV 25801 | 304.222.5288

LEGEND

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

COUNTY NAME

PERMIT

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

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

SCALE 1" = 2000'
FILE NO. 88557HMAD.dwg

DATE MARCH 24, 2020

REVISED _____

OPERATORS WELL NO. TEN HIGH 12-7HM

APR 47 - 051 - 1974

WELL PERMIT

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

DESIGNATED AGENT DIANNA STAMPER
Address 3400 D BIG TYLER ROAD
CHARLESTON, WV 25313