

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

RECEIVED
Office of Oil and Gas
OCT 03 2022
WV Department of
Environmental Protection

API 47 - 051 - 02289 County Marshall District Mead
Quad Glen Easton 7.5' Pad Name Knob Creek Field/Pool Name _____
Farm name David Lee Franklin Well Number Knob Creek S-15HU
Operator (as registered with the OOG) Tug Hill Operating, LLC
Address 380 Southpointe Boulevard, Plaza II, Suite 200 City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,402,282.36 Easting 525,234.08
Landing Point of Curve Northing 4,402,370.5 Easting 525,318.7
Bottom Hole Northing 4,399,906.2 Easting 526,719.8

Elevation (ft) 734.67' 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 3/5/2020 Date drilling commenced spud:3/30/2020 big rig: 10/19/2020 Date drilling ceased 11/16/2020
Date completion activities began 12/30/2021 Date completion activities ceased 1/19/2022
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 413' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 920' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 325-331', 407-413' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED
Reviewed by:
SO 10-11-2022
STRADLER GOWEN

API 47- 051 - 02289 Farm name David Lee Franklin Well number Knob Creek S-15HU

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	26"	20"	516'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,226'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	10,107'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 1/2"	5 1/2"	20,998'	NEW	23#	N/A	Y
Tubing		2 7/8"	10,499'	NEW	4.7#	N/A	Y
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	A	547	15.16	1.18	646	0	8
Surface	A	955	15.6	1.206	1151.73	0	8
Coal							
Intermediate 1	A	1750	15.6	1.18	2065	0	8
Intermediate 2	A	3940	14.5	1.336	5263.84	0	8
Intermediate 3							
Production	A	5100	16.5	1.03	5253	0	8
Tubing							

Drillers TD (ft) 21,035' Loggers TD (ft) n/a
 Deepest formation penetrated Trenton Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 10,157'

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 _____

**KNOB CREEK S-15HU
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	83.00	12193	12757	12757	245480	7,144	0
2	88.00	12200	10578	10578	498220	9,101	0
3	86.00	11930	10410	10410	492580	8,920	0
4	86.00	11868	9805	9805	490180	11,582	0
5	86.00	11838	10627	10627	507960	10,909	0
6	89.00	11933	10326	10326	507420	9,281	0
7	89.00	12040	9605	9605	500480	9,230	0
8	88.00	11878	9546	9546	493600	8,915	0
9	90.00	11881	9714	9714	503000	9,739	0
10	88.00	11686	9847	9847	501820	9,227	0
11	87.00	11916	10371	10371	506880	9,794	0
12	88.00	11579	9909	9909	503980	9,321	0
13	88.00	11549	9933	9933	504660	11,232	0
14	90.00	11663	9659	9659	507600	9,001	0
15	90.00	11640	9543	9543	500000	8,969	0
16	89.00	11601	9759	9759	502320	9,146	0
17	90.00	11560	9326	9326	497040	8,980	0
18	90.00	11423	9017	9017	497300	8,915	0
19	89.00	11396	9215	9215	495260	8,869	0
20	89.00	11267	8876	8876	501500	9,033	0
21	88.00	10872	9364	9364	509770	9,124	0
22	90.00	11071	8974	8974	509860	9,113	0
23	90.00	10959	9216	9216	499500	8,884	0
24	90.00	11194	9208	9208	504120	9,019	0
25	90.00	11141	8981	8981	507220	8,917	0
26	89.00	10977	8926	8926	500660	8,928	0
27	90.00	10894	8674	8674	503560	8,886	0
28	89.00	10843	8565	8565	502600	8,907	0
29	88.00	11118	9489	9489	497580	8,933	0
30	89.00	11111	9031	9031	498560	8,899	0
31	88.00	11018	5000	5000	500080	8,930	0
32	88.00	10923	8941	8941	496520	8,900	0

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)
33	88.00	11019	9179	9179	495680	8,836	0
34	89.00	10877	9147	9147	501340	8,956	0
35	88.00	11087	8843	8843	497880	8,747	0
36	88.00	11119	9229	9229	507300	8,910	0
37	89.00	11195	5000	5000	508320	8,844	0
38	89.00	11266	9478	9478	508380	8,951	0
39	85.00	11038	9965	9965	499520	8,902	0
40	89.00	10958	9685	9685	501000	8,892	0
41	88.00	10625	9195	9195	506340	8,852	0
42	85.00	10640	8871	8871	506960	8,821	0
43	90.00	10545	8531	8531	497900	8,740	0
44	88.00	10486	8414	8414	506900	8,807	0
45	87.00	10657	8894	8894	481820	9,318	0
46	87.00	10335	9106	9106	499620	8,812	0
47	87.00	10715	9048	9048	498960	9,286	0

Knob Creek S-15HU

Lithology Information

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	1458	1637	1458	1637	Sandstone
Big Lime	1637	1702	1637	1702	Limestone
Big Injun	1702	1922	1702	1922	Sandstone
Weir	1922	2124	1922	2124	Sandstone
Berea	2124	2385	2124	2385	Sandstone
Gordon	2385	2468	2385	2468	Sandstone
Fifty Foot	2468	3054	2468	3054	Sandstone
Speechley	3054	4500	3054	4504	Sandstone
Benson	4500	4917	4504	4922	Sandstone
Alexander	4917	5546	4922	5553	Siltstone
Rhinestreet	5546	6016	5553	6025	Black Shale
Middlesex	6016	6085	6025	6094	Black Shale
Geneseo/Burkett	6085	6118	6094	6128	Black Shale
Tully	6118	6151	6128	6161	Limestone
Hamilton	6151	6231	6161	6220	Gray Shale
Marcellus	6231	6281	6220	6270	Black Shale
Onondaga	6281	6509	6270	6496	Limestone
Oriskany	6509	6634	6496	6619	Sandstone
Heiderberg	6634	6999	6619	6979	Limestone
Salina	6999	8139	6979	8096	Salt/Anhydrite/LS
Lockport	8139	8518	8096	8470	Dolomite
Rose Hill	8518	8801	8470	8749	Shale
Packer Shell	8801	9023	8749	8968	Limestone
Clinton/Tuscarora	9023	9133	8968	9076	Sandstone
Juniata/Queenston	9133	9939	9076	9867	Red Shale
Reedsville	9939	10993	9867	10860	Gray Shale
Utica	10993	11427	10860	11122	Black Shale
Point Pleasant	11427	-	11122	-	Shale/Limestone

**Knob Creek S-15HU
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	12/30/2021	20,814	20,863	48	Utica
2	12/30/2021	20,588	20,763	48	Utica
3	12/30/2021	20,389	20,564	48	Utica
4	12/31/2021	20,190	20,365	48	Utica
5	12/31/2021	19,991	20,166	48	Utica
6	1/1/2022	19,792	19,967	48	Utica
7	1/1/2022	19,594	19,769	48	Utica
8	1/1/2022	19,395	19,570	48	Utica
9	1/2/2022	19,196	19,371	48	Utica
10	1/2/2022	18,997	19,172	48	Utica
11	1/3/2022	18,798	18,973	48	Utica
12	1/3/2022	18,600	18,775	48	Utica
13	1/4/2022	18,401	18,576	48	Utica
14	1/5/2022	18,202	18,377	48	Utica
15	1/5/2022	18,003	18,178	48	Utica
16	1/5/2022	17,804	17,979	48	Utica
17	1/6/2022	17,606	17,781	48	Utica
18	1/6/2022	17,407	17,582	48	Utica
19	1/7/2022	17,208	17,383	48	Utica
20	1/7/2022	17,009	17,184	48	Utica
21	1/7/2022	16,810	16,985	48	Utica
22	1/8/2022	16,612	16,787	48	Utica
23	1/8/2022	16,413	16,588	48	Utica
24	1/9/2022	16,214	16,389	48	Utica
25	1/9/2022	16,015	16,190	48	Utica
26	1/9/2022	15,816	15,991	48	Utica
27	1/10/2022	15,618	15,793	48	Utica
28	1/10/2022	15,419	15,594	48	Utica
29	1/11/2022	15,220	15,395	48	Utica
30	1/11/2022	15,021	15,196	48	Utica
31	1/11/2022	14,822	14,997	48	Utica
32	1/12/2022	14,624	14,799	48	Utica
33	1/12/2022	14,425	14,600	48	Utica
34	1/13/2022	14,226	14,401	48	Utica
35	1/13/2022	14,027	14,202	48	Utica
36	1/13/2022	13,828	14,003	48	Utica
37	1/14/2022	13,630	13,805	48	Utica
38	1/14/2022	13,431	13,606	48	Utica
39	1/15/2022	13,232	13,407	48	Utica
40	1/15/2022	13,033	13,208	48	Utica
41	1/16/2022	12,834	13,009	48	Utica

10/21/2022

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	1/16/2022	12,636	12,811	48	Utica
43	1/16/2022	12,437	12,612	48	Utica
44	1/18/2022	12,238	12,413	48	Utica
45	1/18/2022	12,039	12,214	48	Utica
46	1/18/2022	11,840	12,015	48	Utica
47	1/19/2022	11,642	11,817	48	Utica

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	12/30/2021
Job End Date	1/19/2022
State	West Virginia
County	Marshall
API Number	47-051-02289-00-00
Operator Name	Tug Hill Operating, LLC
Well Name and Number	Knob Creek 15HU
Latitude	39.77009798
Longitude	-80.70536548
Datum	NAD27
Federal Well	NO
Indian Well	NO
True Vertical Depth	11,557
Total Base Water Volume (gal)	17,993,724
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
Water	Tug Hill Operating	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.24230	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	10.54985	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	2.83540	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.21124	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09195	None
SlimStream FR 9800	Chemstream	Friction Reducer	Alkanes, C16-20-ISO-	90622-59-6	25.00000	0.01934	None
			Butene, homopolymer	9003-29-6	25.00000	0.01934	None
MC MX 9-4743	Multi-Chem	Biocide	Ethoxylated alcohols (C12-18)	58213-23-0	3.00000	0.00232	None
LD-7750W	Multi-Chem	Scale Inhibitor	Sodium Nitrate	7631-99-4	60.00000	0.02187	None

			Methanol	67-56-1	60.00000	0.00496	None
ProHib 100	CNR	Acid Inhibitor	Phosphonic Acid Salt	Proprietary	5.00000	0.00041	None
			2-Butoxyethanol	111-76-2	60.00000	0.00051	None
			Proprietary material	Proprietary	30.00000	0.00026	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	None
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	None
ProFE 105	CNR	Iron Control	Citric Acid	77-92-9	20.00000	0.00021	None
			Acetic Acid	64-19-7	5.00000	0.00005	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	85.00000	0.21124	
			Butene, homopolymer	9003-29-6	25.00000	0.01934	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00232	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00041	
			Proprietary material	Proprietary	30.00000	0.00026	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	
			Acetic Acid	64-19-7	5.00000	0.00005	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

**KNOB CREEK S LEASE
UTICA UNIT - 292.62 AC±
WELL 15HU
TUG HILL OPERATING**

A.D.
B.H.

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°45'00"

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

NAD'83 S.P.C.(FT) N. 464,881.79 E. 1,629,700.56
NAD'83 GEO. LAT-(N) 39.770098 LONG-(W) 80.705365
NAD'83 UTM (M) N. 4,402,282.36 E. 525,234.08

LANDING POINT

NAD'83 S.P.C.(FT) N. 465,188.7 E. 1,629,961.6
NAD'83 GEO. LAT-(N) 39.770950 LONG-(W) 80.704451
NAD'83 UTM (M) N. 4,402,377.2 E. 525,312.0

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 456,995.2 E. 1,634,420.5
NAD'83 GEO. LAT-(N) 39.748621 LONG-(W) 80.688204
NAD'83 UTM (M) N. 4,399,903.7 E. 526,712.2

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"
495' B.H. A.D.

**AS DRILLED COORDINATES
FOR WELL NO. 15HU**

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

NAD'83 S.P.C.(FT) N. 464,881.76 E. 1,629,700.56
NAD'83 GEO. LAT-(N) 39.770098 LONG-(W) 80.705365
NAD'83 UTM (M) N. 4,402,282.36 E. 525,234.08

LANDING POINT

NAD'83 S.P.C.(FT) N. 465,188.5 E. 1,629,963.0
NAD'83 GEO. LAT-(N) 39.770890 LONG-(W) 80.704374
NAD'83 UTM (M) N. 4,402,370.5 E. 525,312.7

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 457,003.0 E. 1,634,445.7
NAD'83 GEO. LAT-(N) 39.748643 LONG-(W) 80.688115
NAD'83 UTM (M) N. 4,399,906.2 E. 526,719.8

TAG	SURFACE OWNER	PARCEL	ACRES
A	DAVID LEE FRANKLIN	9-14-33	65.824
B	MARGARET FOX - LIFE	9-14-39	8,675 SQ. FT
C	DAVID LEE FRANKLIN	9-14-44	2.913
D	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
E	TWILA C. COFFIELD	9-14-32	0.583
F	TWILA C. COFFIELD	9-14-32.1	0.184
G	JOHN C. LAGOS, ET UX	9-14-42	1.87
H	JAMES G. FOX	9-14-43	0.66
I	MARGARET FOX - LIFE	9-13-13	15.513
J	NILA JEAN FROHNAPFEL	9-13-12	91.1007
K	MARGARET K. FOX - LIFE	9-13-14	3.00
L	MARGARET K. FOX - LIFE	9-14-46	18.888
M	JAMES E. PEELMAN	9-14-53	0.555
N	JAMES E. PEELMAN	9-14-52	0.439
O	GEORGE R. TAYLOR, ET UX	9-14-51	1.621
P	GEORGE R. TAYLOR, ET UX	9-14-44.1	4.423
Q	RICHARD L. HARVETH, ET UX	9-14-54	1.649
R	WILFORD F. NELSON, JR., ET UX	9-14-31	0.954
S	ERIC J. YOUNG	9-16-15.1	1.98
T	JOHN F. CUNNINGHAM, ET UX	9-14-22	75.22
U	RONALD R. YOUNG, ET UX - LIFE	9-16-15	52.02
V	ROBIN D. & DAVID G. STEWART	9-16-18.1	3.333
W	ALICE FAYE WINLAND	9-16-18	48.667
X	ALICE FAYE WINLAND	9-16-19	75.00
Y	I. C. YOUNG ESTATE	9-17-2	140.00
Z	ROBERT J. COMBS, ET AL	9-18-9	110.75
AA	BETTY J. GOULDSBERRY ESTATE, ET AL	9-18-10	20.00
BB	BETTY J. GOULDSBERRY ESTATE, ET AL	9-18-11	60.00
CC	LOUIS T. FOX	9-18-12	50.00
DD	I. C. YOUNG ESTATE	9-19-1	80.00
EE	LOUIS T. FOX	9-19-19.1	21.68

A.D.
T.H.

7,857' T.H. A.D.

NOTES ON SURVEY

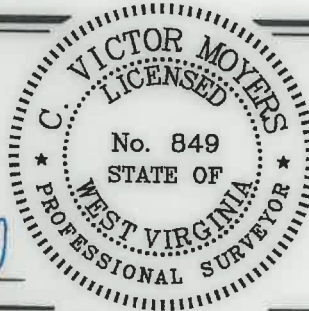
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- SEE REFERENCES FOR DWELLINGS LOCATED WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
- BASED ON WV DOT COUNTY ROUTE 74 IS A 40' STRIP OF LAND ACQUIRED IN NUMEROUS DEEDS.
- PROPOSED LATERAL OR TOP HOLE OF KNOB CREEK S-15HU (47-051-02289) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF EXISTING WELLS
KNOB CREEK N-11HU (47-051-02287),
KNOB CREEK N-12HU (47-051-02288),
KNOB CREEK N-13HU (47-051-02289),
KNOB CREEK S-14HU (47-051-02288),
KNOB CREEK S-16HU (47-051-02290),
KEITH STERN N-13HU (47-051-02265),
KEITH STERN S-17HU (47-051-02266).
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW AS-DRILLED PATH.



12 Yanhorn 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 | 304.255.5298
slsrv.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 21, 20 21
REVISED _____, 20 ____
OPERATORS WELL NO. KNOB CREEK S-15HU
API WELL NO. 47 - 051 - 02289
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8789P15HUAD.dwg
KNOB CREEK S-15HU REV4
HORIZONTAL & VERTICAL SCALE 1" = 2000'
CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

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

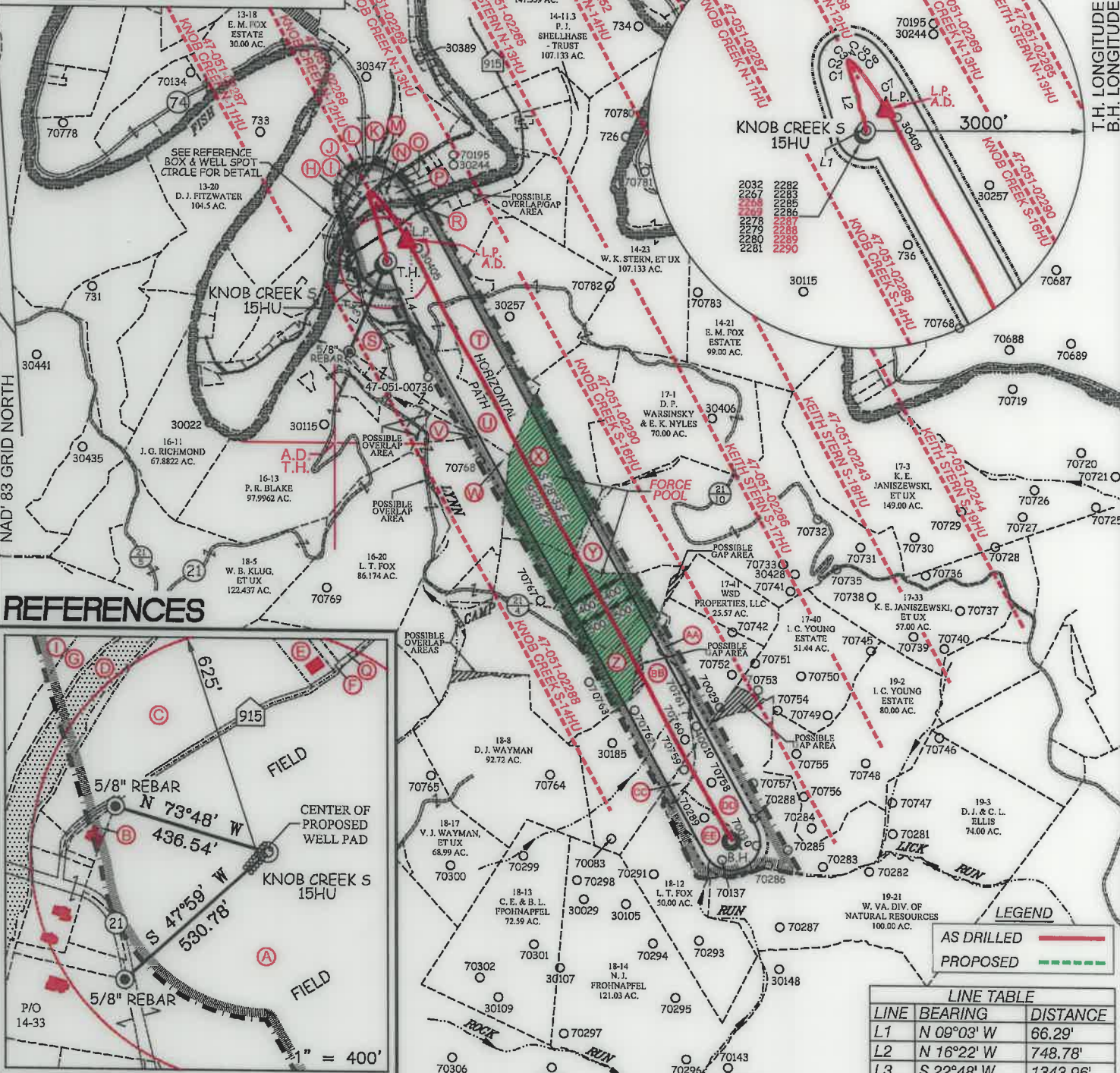
WELL TYPE: OIL _____ GAS X INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION X STORAGE _____ DEEP X SHALLOW _____
LOCATION: GROUND = 729.90'
ELEVATION PROPOSED = 734.67' WATERSHED FISH CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'
SURFACE OWNER DAVID LEE FRANKLIN ACREAGE 65.824±
ROYALTY OWNER DAVID LEE FRANKLIN, ET AL - SEE ADDITIONAL SHEETS ACREAGE 65.824±
PROPOSED WORK: LEASE NO. SEE ADDITIONAL SHEETS
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 POINT PLEASANT
ESTIMATED DEPTH TVD: 11,315' TMD: 21,065'

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

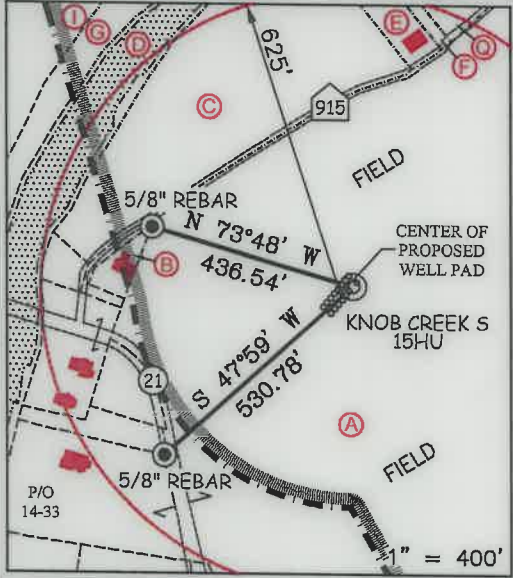
COUNTY NAME
PERMIT

10/21/2021

**KNOB CREEK S LEASE
UTICA UNIT - 292.62 AC ±
WELL 15HU
TUG HILL OPERATING**



REFERENCES



SLS
FROM THE GROUND UP

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
slsvv.com

P.S. 849 *C. Victor Moyers*

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

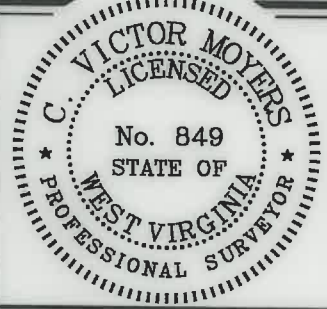
NAD'83 S.P.C.(FT)	N. 464,881.79	E. 1,629,700.56
NAD'83 GEO.	LAT-(N) 39.770098	LONG-(W) 80.705365
NAD'83 UTM (M)	N. 4,402,282.36	E. 525,234.08

LANDING POINT

NAD'83 S.P.C.(FT)	N. 465,188.7	E. 1,629,961.6
NAD'83 GEO.	LAT-(N) 39.770950	LONG-(W) 80.704451
NAD'83 UTM (M)	N. 4,402,377.2	E. 525,312.0

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 456,995.2	E. 1,634,420.5
NAD'83 GEO.	LAT-(N) 39.748621	LONG-(W) 80.688204
NAD'83 UTM (M)	N. 4,399,903.7	E. 526,712.2



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

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

LEGEND

- UNIT BOUNDARY
- LEASED TRACTS INSIDE UNIT BOUNDARY
- SURFACE LINE
- PROPOSED UTICA
- WELL LATERAL
- 400' OFFSET LINE
- 500' OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- FORCE POOL TRACT
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- SURFACE OWNER (SEE TABLE)
- LEASE # (SEE ADDITIONAL SHEETS)

SCALE 1" = 2000' FILE NO. 8789P15HUAD.dwg
KNOB CREEK S-15HU REV4

DATE MAY 21, 20 21
REVISED _____, 20 ____

OPERATORS WELL NO. KNOB CREEK S-15HU
API WELL NO. 47-051-02289
STATE COUNTY PERMIT

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

CHORD BEARING

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	105.33'	530.99'	N 10°59' W	105.16'
C2	36.84'	112.82'	N 05°26' E	36.67'
C3	22.87'	25.90'	N 42°50' E	22.14'
C4	27.05'	43.78'	S 80°27' E	26.62'
C5	63.89'	236.87'	S 53°36' E	63.70'
C6	161.69'	1111.48'	S 41°27' E	161.54'
C7	557.59'	3534.10'	S 32°32' E	557.01'

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 09°03' W	66.29'
L2	N 16°22' W	748.78'
L3	S 22°48' W	1343.96'
L4	S 19°36' E	1667.17'

T.H. LONGITUDE 80°40'00" B.H. LONGITUDE 80°40'00" 495' B.H. A.D. 7,857' T.H. A.D.

10/21/2022

**KNOB CREEK S LEASE
UTICA UNIT - 292.62 AC±
WELL 15HU
TUG HILL OPERATING**



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
stlww.com

NO.	Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Deed Book/Page
1	10*47051.219.1	9-14-33	A	DAVID LEE FRANKLIN	874 312
2	10*47051.219.1	9-14-39	B	DAVID LEE FRANKLIN	937 385
3	10*47051.219.1	9-14-44	C	DAVID LEE FRANKLIN	937 385
4	10*23458	FISC CREEK	D	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	1019 373
5	10*47051.219.1	9-14-32	E	DAVID LEE FRANKLIN	937 385
6	10*47051.219.1	9-14-32.1	F	DAVID LEE FRANKLIN	937 385
7	10*19538	9-14-42	G	JOHN C LAGOS AND CYNTHIA M LAGOS	936 531
8	10*18732	9-14-43	H	SHERRILL M LEAVERS AND JAMES H LEAVERS, ET AL.	938 245
9	10*18732	9-13-13	I	SHERRILL M LEAVERS AND JAMES H LEAVERS, ET AL.	938 245
10	10*47051.243.1	9-13-14	K	MARY A FOX, ET AL.	879 332
11	10*18298	9-14-46	L	MAUREEN GREGG, ET AL.	929 273
12	10*19565	9-14-53	M	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	947 566
13	10*47051.219.1	9-14-53	M	DAVID LEE FRANKLIN	874 312
14	10*47051.219.41	9-14-53	M	WILLIAM K STERN AND BETTY L STERN	894 485
15	10*19565	9-14-52	N	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	947 566
16	10*47051.219.1	9-14-52	N	DAVID LEE FRANKLIN	874 312
17	10*47051.219.41	9-14-52	N	WILLIAM K STERN AND BETTY L STERN	894 485
18	10*19565	9-14-51	O	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	947 566
19	10*47051.219.1	9-14-51	O	DAVID LEE FRANKLIN	874 312
20	10*47051.219.41	9-14-51	O	WILLIAM K STERN AND BETTY L STERN	894 485
21	10*19565	9-14-44.1	P	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS	947 566
22	10*47051.219.1	9-14-44.1	P	DAVID LEE FRANKLIN	874 312
23	10*47051.219.41	9-14-44.1	P	WILLIAM K STERN AND BETTY L STERN	894 485
24	10*15523	9-14-54	Q	RICHARD L HARVETH AND SANDRA J HARVETH	729 638
25	10*47051.219.1	9-14-31	R	DAVID LEE FRANKLIN	937 385
26	10*23112	9-16-15.1	S	JOHN V AND RACHEL M SHEPHERD	63 219
27	10*16479	9-14-22	T	JOHN F CUNNINGHAM AND BERNEICE K CUNNINGHAM	826 88
28	10*23112	9-16-15	U	JOHN V AND RACHEL M SHEPHERD	63 219
29	10*47051.161.0	9-16-18.1	V	DAVID G STEWART & ROBIN D STEWART	885 65
30	10*47051.187.1	9-16-18	W	ALICE F WINLAND	881 133
31	10*18424	9-16-19	X	BRENDA J LOHRUM, ET AL.	932 590
32	*FORCE POOL* 10*23112	9-16-19	X	JOHN V AND RACHEL M SHEPHERD	63 219
33	10*15910	9-17-2	Y	SHIRLEY KOONTZ, ET AL.	701 303
34	*FORCE POOL*	9-18-9	Z	CATHARINE V B YOUNG AND A J YOUNG	164 534
35	10*15938	9-18-10	AA	MARK W YOHO, ET AL.	695 157
36	PENDING	9-18-12	CC	SMITH RICHMOND AND BELLE RICHMOND	132 503
37	10*15937	9-19-1	DD	SHIRLEY KOONTZ, ET AL.	707 619
38	PENDING	9-19-19.1	EE	SMITH RICHMOND AND BELLE RICHMOND	132 503

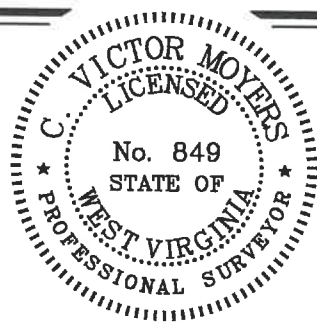
FILE NO. 8789P15HUAD.dwg
KNOB CREEK S-15HU REV4

DATE MAY 21, 2021

REVISED _____, 20_____

OPERATORS WELL NO. KNOB CREEK S-15HU

API WELL NO. 47 — 051 — 02289
STATE COUNTY PERMIT



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



10/21/2022

P.S. 849

C. Victor Moyers

WELL OPERATOR TUG HILL OPERATING, LLC
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FORT WORTH, TX 76107

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

COUNTY NAME
PERMIT