

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

API 47-051-02328 County Marshall District Meade
Quad Glen Easton 7.5' Pad Name Hudson Field/Pool Name _____
Farm name CNX Land, LLC Well Number Hudson 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 4,408,795.58 Easting 528,013.08
Landing Point of Curve Northing 4,408,155.8 Easting 528,797.0
Bottom Hole Northing 4,404,548.0 Easting 531,459.3

Elevation (ft) 1334.81' 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 2/23/2021 Date drilling commenced 4/10/2022 spud: 3/20/2021 big rig: 7/14/2021 Date drilling ceased 1/25/2022
Date completion activities began 4/10/2022 Date completion activities ceased 6/3/2022
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 1013' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1477' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 921-927', 1007-1013' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED
Reviewed by: SG 10-12-2022
STRADER GOUTH
10/21/2022

API 47-051-02328

Farm name CNX Land, LLC

Well number Hudson 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"	1,112'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,868'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	10,832'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 1/2"	5 1/2"	29,718'	NEW	23#	N/A	Y
Tubing		2 7/8"	14,859'	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	1170	15.6	1.18	1380	0	8
Surface	A	1877	15.6	1.18	2214.86	0	8
Coal							
Intermediate 1	A	2241	15.6	1.18	2644.38	0	8
Intermediate 2	A	3948	14.5	1.4	5527.2	0	8
Intermediate 3							
Production	A	7215	16.5	1.03	7431.45	0	8
Tubing							

Drillers TD (ft) 30,457'

Loggers TD (ft) n/a

Deepest formation penetrated Trenton

Plug back to (ft) n/a

Plug back procedure n/a

Kick off depth (ft) 11,164'

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 _____

**HUDSON S-15HU
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	4/10/2022	29,531	29,579	12	Utica
2	4/11/2022	29,305	29,480	48	Utica
3	4/11/2022	29,106	29,281	48	Utica
4	4/11/2022	28,907	29,082	48	Utica
5	4/12/2022	28,708	28,883	48	Utica
6	4/12/2022	28,509	28,684	48	Utica
7	4/12/2022	28,310	28,485	48	Utica
8	4/13/2022	28,111	28,286	48	Utica
9	4/13/2022	27,912	28,087	48	Utica
10	4/15/2022	27,713	27,888	48	Utica
11	4/15/2022	27,514	27,689	48	Utica
12	4/15/2022	27,316	27,491	48	Utica
13	4/15/2022	27,117	27,292	48	Utica
14	4/16/2022	26,918	27,093	48	Utica
15	4/16/2022	26,719	26,894	48	Utica
16	4/16/2022	26,520	26,695	48	Utica
17	4/17/2022	26,321	26,496	48	Utica
18	4/19/2022	26,122	26,297	48	Utica
19	4/19/2022	25,923	26,098	48	Utica
20	4/19/2022	25,724	25,899	48	Utica
21	4/19/2022	25,525	25,700	48	Utica
22	4/20/2022	25,327	25,502	48	Utica
23	4/20/2022	25,128	25,303	48	Utica
24	4/20/2022	24,929	25,104	48	Utica
25	4/20/2022	24,730	24,905	48	Utica
26	4/21/2022	24,531	24,706	48	Utica
27	4/21/2022	24,332	24,507	48	Utica
28	4/22/2022	24,133	24,308	48	Utica
29	4/22/2022	23,934	24,109	48	Utica
30	4/22/2022	23,735	23,910	48	Utica

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
31	4/23/2022	23,536	23,711	48	Utica
32	4/23/2022	23,338	23,513	48	Utica
33	5/6/2022	23,139	23,314	48	Utica
34	5/7/2022	22,940	23,115	48	Utica
35	5/7/2022	22,741	22,916	48	Utica
36	5/7/2022	22,542	22,717	48	Utica
37	5/7/2022	22,343	22,518	48	Utica
38	5/8/2022	22,144	22,319	48	Utica
39	5/8/2022	21,945	22,120	48	Utica
40	5/8/2022	21,746	21,921	48	Utica
41	5/9/2022	21,547	21,722	48	Utica
42	5/9/2022	21,349	21,524	48	Utica
43	5/9/2022	21,150	21,325	48	Utica
44	5/10/2022	20,951	21,126	48	Utica
45	5/10/2022	20,752	20,927	48	Utica
46	5/10/2022	20,553	20,728	48	Utica
47	5/10/2022	20,354	20,529	48	Utica
48	5/11/2022	20,155	20,330	48	Utica
49	5/11/2022	19,956	20,131	48	Utica
50	5/12/2022	19,757	19,932	48	Utica
51	5/13/2022	19,558	19,733	48	Utica
52	5/13/2022	19,360	19,535	48	Utica
53	5/14/2022	19,161	19,336	48	Utica
54	5/14/2022	18,962	19,137	48	Utica
55	5/15/2022	18,763	18,938	48	Utica
56	5/15/2022	18,564	18,739	48	Utica
57	5/16/2022	18,365	18,540	48	Utica
58	5/16/2022	18,166	18,341	48	Utica
59	5/17/2022	17,967	18,142	48	Utica
60	5/18/2022	17,768	17,943	48	Utica
61	5/18/2022	17,569	17,744	48	Utica
62	5/19/2022	17,371	17,546	48	Utica

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
63	5/20/2022	17,172	17,347	48	Utica
64	5/20/2022	16,973	17,148	48	Utica
65	5/21/2022	16,774	16,949	48	Utica
66	5/21/2022	16,575	16,750	48	Utica
67	5/22/2022	16,376	16,551	48	Utica
68	5/22/2022	16,177	16,352	48	Utica
69	5/23/2022	15,978	16,153	48	Utica
70	5/23/2022	15,779	15,954	48	Utica
71	5/24/2022	15,580	15,755	48	Utica
72	5/25/2022	15,382	15,557	48	Utica
73	5/25/2022	15,183	15,358	48	Utica
74	5/26/2022	14,984	15,159	48	Utica
75	5/27/2022	14,785	14,960	48	Utica
76	5/28/2022	14,586	14,761	48	Utica
77	5/28/2022	14,387	14,562	48	Utica
78	5/28/2022	14,188	14,363	48	Utica
79	5/28/2022	13,989	14,164	48	Utica
80	6/1/2022	13,790	13,965	48	Utica
81	6/2/2022	13,591	13,766	48	Utica
82	6/2/2022	13,393	13,568	48	Utica
83	6/2/2022	13,194	13,369	48	Utica
84	6/3/2022	12,995	13,170	48	Utica

Hudson 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	1918	2117	1919	2119	Sandstone
Big Lime	2117	2240	2119	2243	Limestone
Big Injun	2240	2538	2243	2542	Sandstone
Weir	2538	2735	2542	2740	Sandstone
Berea	2735	2988	2740	2994	Sandstone
Gordon	2988	3088	2994	3095	Sandstone
Fifty Foot	3088	3661	3095	3670	Sandstone
Speechley	3661	5124	3670	5140	Sandstone
Benson	5124	5505	5140	5524	Sandstone
Alexander	5505	6115	5524	6137	Siltstone
Rhinestreet	6115	6583	6137	6608	Black Shale
Middlesex	6583	6648	6608	6673	Black Shale
Geneseo/Burkett	6648	6681	6673	6706	Black Shale
Tully	6681	6712	6706	6737	Limestone
Hamilton	6712	6794	6737	6819	Gray Shale
Marcellus	6794	6844	6819	6869	Black Shale
Onodaga	6844	7069	6869	7095	Limestone
Oriskany	7069	7198	7095	7225	Sandstone
Heidelberg	7198	7544	7225	7577	Limestone
Salina	7544	8666	7577	8761	Salt/Anhydrite/LS
Lockport	8666	9039	8761	9154	Dolomite
Rose Hill	9039	9324	9154	9459	Shale
Packer Shell	9324	9532	9459	9682	Limestone
Clinton/Tuscarora	9532	9640	9682	9798	Sandstone
Juniata/Queenston	9640	10495	9798	10706	Red Shale
Reedsville	10495	11473	10706	11952	Gray Shale
Utica	11473	11716	11952	12705	Black Shale
Point Pleasant	11716	-	12705	-	Shale/Limestone

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/10/2022
Job End Date:	6/3/2022
State:	West Virginia
County:	Marshall
API Number:	47-051-02328-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Hudson S 15HU
Latitude:	39.82869500
Longitude:	-80.67264000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,882
Total Base Water Volume (gal):	28,527,996
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	84.76676	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	11.65040	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.16606	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.23702	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.10317	None
StimStream FR 9800	Chemstream	Friction Reducer	Butene, homopolymer	9003-29-6	25.00000	0.02297	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.02297	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00276	None
MC MX 9-4743	Multi-Chem	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.02155	None
LD-7750W	Multi-Chem	Scale Inhibitor					

			Methanol	67-56-1	60.00000	0.00488	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00041	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00054	None
			Proprietary material	Proprietary	30.00000	0.00027	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00018	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	0.00022	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	0.23702	
			Butene, homopolymer	9003-29-6	25.00000	0.02297	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00276	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00041	
			Proprietary material	Proprietary	30.00000	0.00027	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00018	
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	
			Acetic Acid	64-19-7	5.00000	0.00005	

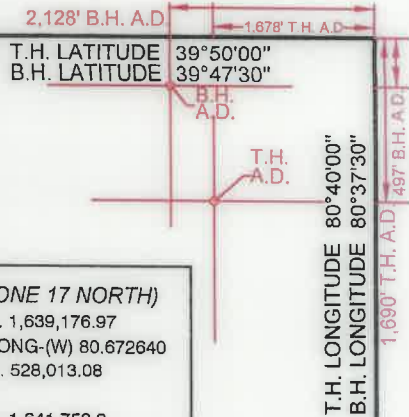
* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** 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)

**HUDSON S LEASE
UTICA UNIT - 581.83 AC ±
WELL 15HU
TUG HILL OPERATING**



TAG	SURFACE OWNER	PARCEL	ACRES
A	CNX LAND LLC	9-3-1	106.935
B	JOHN W. & RACHEL A. HOLPP	9-3-2.5	56.259
C	JOHN W. & RACHEL A. HOLPP	9-3-2.4	0.618
D	JAMES & GINGER REGIEC	9-3-2	29.49
E	KENNETH F. LIGHTNER, ET UX	9-3-2.1	0.940
F	STEPHEN W. JOHNSON	9-3-2.3	0.591
G	RAYMOND E. & CINDY L. WHITE	9-3-2.6	0.619
H	JAMES & GINGER REGIEC	9-3-4.7	25.025
I	GRANT M. & MALISSA D. CARTER	9-3-4	7.507
J	RAYMOND E. & CINDY L. WHITE	9-3-20	127.00
K	GRANT M. & MALISSA D. CARTER	9-3-4.2	0.720
L	LLOYD ANDREW BEE, ET UX	9-3-18.1	1.010
M	LLOYD ANDREW BEE, ET UX	9-3-18	19.921
N	RAYMOND E. & CINDY L. WHITE	9-3-18.2	2.103
O	CNX LAND RESOURCES, INC.	9-8-5.2	4.586
P	MARK E. WOOD & SUNNI H. HARTLEY	9-8-6.1	1.423
Q	CNX LAND LLC	9-3-17	77.66
R	CNX LAND LLC	9-8-6	27.596
S	CNX LAND LLC	9-8-5	110.37
T	LARRY S. NEELY	9-8-7.1	76.055
U	JAMES RICHARD BLAKE, ET UX	9-8-9	42.49
V	JUDY KAY MCKINLEY	9-8-10	34.00
W	JAMES RICHARD BLAKE, ET UX	9-8-8	49.86
X	MARY LOU RUBINI, ET AL	9-9-4	268.39
Y	JOSEPH B. & JUDITH PATRELLO	9-9-1	149.924
Z	MARVIN D. & ADA C. DOBBS (LIFE), ET AL	9-9-5	76.25
AA	TODD L. SCHERICH, ET AL	9-9-16	168.204
BB	GARY W. MORRIS	9-9-12	54.74
CC	JESSICA R. & DAVID A. II DEMPFWOLF	9-9-12.1	1.26
DD	AMERICAN ENERGY-MARCELLUS LLC	9-9-14.1	0.40
EE	GARY W. MORRIS	9-9-11	14.00
FF	DANNY R. & FRANCES V. KERNS ESTATE	9-9-14	48.308
GG	DANNY R. & FRANCES V. KERNS ESTATE	7-1-3	58.00
HH	DANNY R. & FRANCES V. KERNS ESTATE	7-8-1	27.00
II	CONSOL MINING CO. LLC	9-12-14	127.61
JJ	DANNY R. & FRANCES V. KERNS ESTATE	7-8-2	94.00
KK	DANNY R. & FRANCES V. KERNS ESTATE	9-9-13	25 AC. 47 P.
LL	BLAINE E. STERN, JR.	7-8-13	104.92
MM	BLAINE E. STERN, JR.	7-8-11	60.62
NN	JOHN ALFRED & LEORA JEAN DOBBS - LIFE	7-8-4	65.65
OO	BLAINE E. STERN, JR.	7-8-12	33.00
PP	JOHN W. & RACHEL A. HOLPP	9-3-2.2	0.483

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

NAD'83 S.P.C.(FT) N. 486,102.39 E. 1,639,176.97
 NAD'83 GEO. LAT-(N) 39.828695 LONG-(W) 80.672640
 NAD'83 UTM (M) N. 4,408,795.58 E. 528,013.08

LANDING POINT

NAD'83 S.P.C.(FT) N. 487,260.6 E. 1,641,758.2
 NAD'83 GEO. LAT-(N) 39.831966 LONG-(W) 80.663503
 NAD'83 UTM (M) N. 4,409,161.6 E. 528,793.6

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 471,978.1 E. 1,650,244.3
 NAD'83 GEO. LAT-(N) 39.790312 LONG-(W) 80.632602
 NAD'83 UTM (M) N. 4,404,548.9 E. 531,456.7

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-2-9.2	CONSOLIDATION COAL CO.	1.00
9-2-9.3	RAYMOND E. & CINDY WHITE, ET AL	1.008
9-3-1.1	CONSOLIDATION COAL CO.	5.00
9-3-1.2	CONSOLIDATION COAL CO.	1.00
9-3-1.3	CNX LAND CO. LLC	2.245
9-3-4.3	JOHN W. & RACHEL A. HOLPP	0.870
9-3-4.4	JIM & GINGER REGIEC	1.004
9-3-6.1	JOSEPH L. MILETO, II	1.0468
9-3-18.3	RAYMOND & CINDY WHITE	0.086
9-3-19	CNX LAND CO. LLC	0.5
9-5-10	ROBERT J. & MELINDA J. WHITE	27.957
9-8-5.1	CNX LAND CO. LLC	1.040

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

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

NAD'83 S.P.C.(FT) N. 486,102.39 E. 1,639,176.97
 NAD'83 GEO. LAT-(N) 39.828695 LONG-(W) 80.672640
 NAD'83 UTM (M) N. 4,408,795.58 E. 528,013.08

LANDING POINT

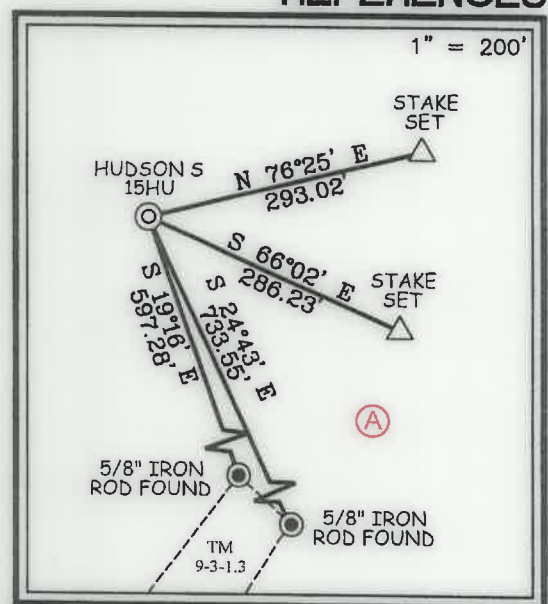
NAD'83 S.P.C.(FT) N. 487,241.6 E. 1,641,769.0
 NAD'83 GEO. LAT-(N) 39.831915 LONG-(W) 80.663464
 NAD'83 UTM (M) N. 4,409,155.8 E. 528,797.0

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 471,975.0 E. 1,650,252.7
 NAD'83 GEO. LAT-(N) 39.790304 LONG-(W) 80.632572
 NAD'83 UTM (M) N. 4,404,548.0 E. 531,459.3

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 ARE 1"=2000'
- PROPOSED LATERAL OR TOP HOLE OF HUDSON S-15HU (47-051-02328) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF HUDSON S-11HU (47-051-02296), HUDSON S-12HU (47-051-02292), HUDSON S-13HU (47-051-02293), HUDSON S-14HU (47-051-02327), HUDSON S-16HU (47-051-02329), FITZGERALD S-19HU (47-051-02326).
- MINIMUM OFFSET SPACING REQUIREMENTS EXEMPTED BY WAIVER WITH THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS AND OFFSET LEASEHOLDER AGREEMENTS AS PROVIDED BY TUG HILL OPERATING.
- PLAT UPDATED TO SHOW AS DRILLED PATH.
- AS DRILLED DATA PROVIDED BY TUG HILL OPERATING.



SLS
FROM THE GROUND UP

12 Vanhorn Drive | P.O. Box 156 | Glenville, WV 26031 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.546.3652
 254 East Beckley Bypass | Beckley, WV 25801 | 304.285.5295

slsww.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.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE SEPTEMBER 30, 20 22
 REVISED _____
 OPERATORS WELL NO. HUDSON S-15HU
 API WELL NO. 47 - 051 - 02328
 STATE WEST VIRGINIA COUNTY MARSHALL PERMIT 10/21/2022

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8911P15HUAD.dwg
HUDSON S-15HU REV6
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGMS (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 = 1,366.80' PROPOSED = 1,344.81' WATERSHED HOT HOLLOW OF GRAVE CREEK (HUC 10)
 DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER CNX LAND LLC ACREAGE 106.935±
 ROYALTY OWNER CHARLENE L. BAKER, ET AL ACREAGE 106.935±

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

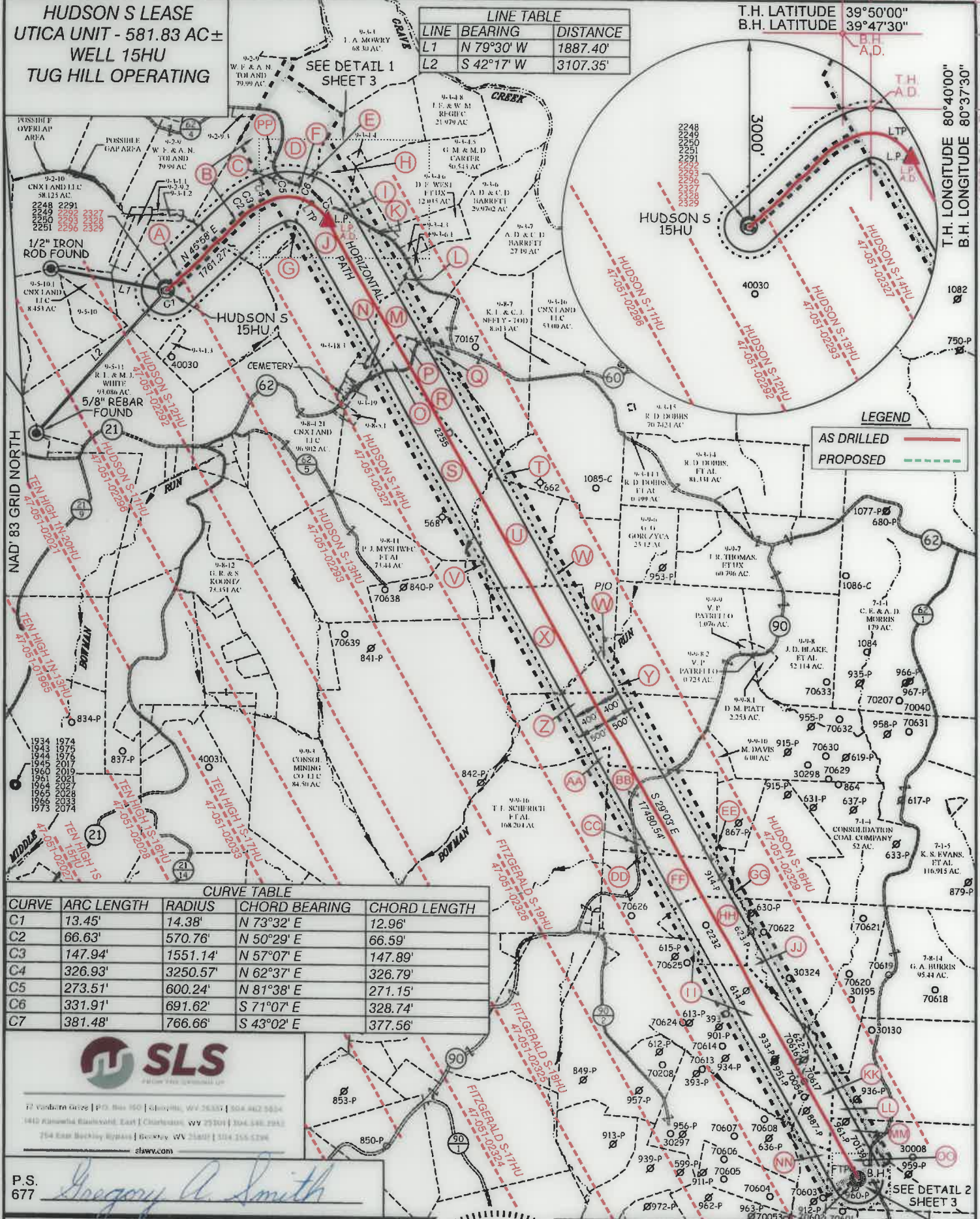
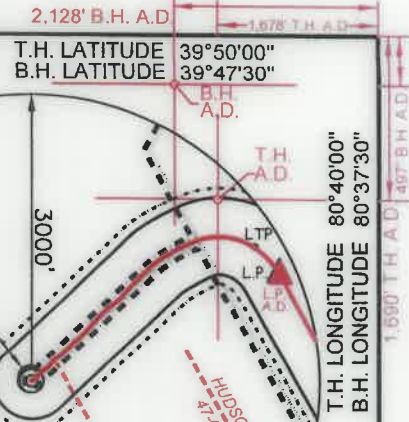
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION POINT PLEASANT
 ESTIMATED DEPTH TVD: 11,990' / TMD: 30,463'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN - CT CORPORATION
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W, STE 407
FORT WORTH, TX 76107 CHARLESTON, WV 25313-1561

COUNTY NAME
 PERMIT

**HUDSON S LEASE
UTICA UNIT - 581.83 AC±
WELL 15HU
TUG HILL OPERATING**

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 79°30' W	1887.40'
L2	S 42°17' W	3107.35'



LEGEND

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

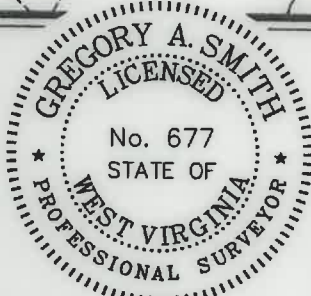
CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	13.45'	14.38'	N 73°32' E	12.96'
C2	66.63'	570.76'	N 50°29' E	66.59'
C3	147.94'	1551.14'	N 57°07' E	147.89'
C4	326.93'	3250.57'	N 62°37' E	326.79'
C5	273.51'	600.24'	N 81°38' E	271.15'
C6	331.91'	691.62'	S 71°07' E	328.74'
C7	381.48'	766.66'	S 43°02' E	377.56'



72 Vanborn Grove | P.O. Box 160 | Chesapeake, WV 25835 | 304.462.9854
1410 Alexander Boulevard, East | Charleston, WV 25301 | 304.546.7943
754 East Beckley Highway | Beckley, WV 25807 | 304.256.5296
slaww.com

P.S. 677 *Gregory A. Smith*



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

LEGEND

UNIT BOUNDARY	(Dashed line)
LEASED TRACTS INSIDE	(Dotted line)
UNIT BOUNDARY	(Long dashed line)
SURFACE LINE	(Thin solid line)
PROPOSED UTICA	(Red dashed line)
WELL LATERAL	(Red solid line)
400' OFFSET LINE	(Thin solid line)
500' OFFSET LINE	(Thick solid line)
TIE LINE	(Thin solid line)
CREEK	(Wavy line)
ROAD	(Double line)
PROPOSED FIRST TAKE POINT	(Circle with crosshair)
PROPOSED LAST TAKE POINT	(Circle with crosshair)
COUNTY ROUTE	(Circle with number)
PROPOSED WELL	(Circle with dot)
EXISTING WELL	(Circle with dot)
PERMITTED WELL	(Circle with dot)
SURFACE OWNER (SEE TABLE)	(Circle with letter)
LEASE # (SEE ADDITIONAL SHEETS)	(Circle with letter)

SCALE 1" = 2000' FILE NO. 8911P15HUAD.dwg
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WELL OPERATOR TUG HILL OPERATING, LLC ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107
DESIGNATED AGENT DARREN BROWN - CT CORPORATION ADDRESS 5098 WASHINGTON ST. W, STE 407 CHARLESTON, WV 25313-1561

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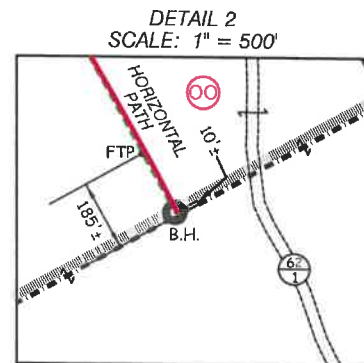
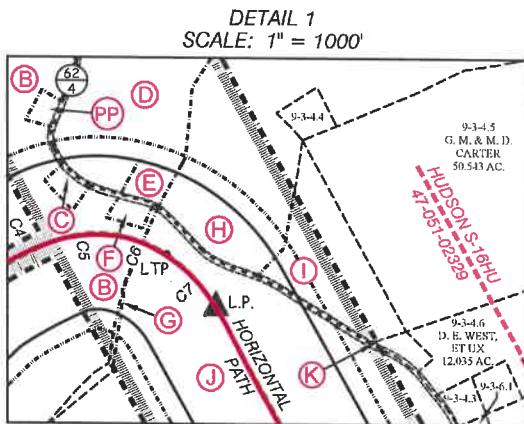
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**HUDSON S LEASE
UTICA UNIT - 581.83 AC±
WELL 15HU
TUG HILL OPERATING**



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
slswv.com

NO.	Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Deed Book/Page	
1	10*26041	9-3-1	A	FREDDIE C WHITE AND VIOLET L WHITE, ET AL	728	527
2	10*28190	9-3-2.5	B	J RUSSELL LOGSDON, ET AL	1068	309
3	10*28190	9-3-2.4	C	J RUSSELL LOGSDON, ET AL	1068	309
4	10*28190	9-3-2	D	J RUSSELL LOGSDON, ET AL	1068	309
5	10*28190	9-3-2.1	E	J RUSSELL LOGSDON, ET AL	1068	309
6	10*28190	9-3-2.3	F	J RUSSELL LOGSDON, ET AL	1068	309
7	10*28190	9-3-2.6	G	J RUSSELL LOGSDON, ET AL	1068	309
8	NA	9-3-4.7	H	WILLIAM N. LOGSDON, ET AL	690	347
9	NA	9-3-4	I	WILLIAM N. LOGSDON, ET AL	690	347
10	10*21345	9-3-20	J	AARON PARRY SR AND JANA PARRY TRUSTEES AARON PARRY SR & JANA PARRY REV LIV TRUS, ET AL	957	280
11	NA	9-3-4.2	K	WILLIAM N. LOGSDON, ET AL	690	347
12	10*21412	9-3-18.1	L	GARY DOBBS AND SUSAN DOBBS, ET AL	957	270
13	10*21412	9-3-18	M	GARY DOBBS AND SUSAN DOBBS, ET AL	957	270
14	10*21412	9-3-18.2	N	GARY DOBBS AND SUSAN DOBBS, ET AL	957	270
15	10*21602	9-8-5.2	O	CAROL STACY SAUNDERS, ET AL	959	289
16	10*21602	9-8-6.1	P	CAROL STACY SAUNDERS, ET AL	959	289
17	10*21602	9-3-17	Q	CAROL STACY SAUNDERS, ET AL	959	289
18	10*21602	9-8-6	R	CAROL STACY SAUNDERS, ET AL	959	289
19	10*23739	9-8-5	S	APPALACHIAN BASIN MINERALS LP, ET AL	1011	538
20	10*28092	9-8-7.1	T	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	1073	370
21	10*22055	9-8-9	U	STONE HILL MINERALS HOLDINGS LLC, ET AL	1010	226
22	10*21246	9-8-10	V	THE ESTATE OF THERESA M ROGERSON CHARLES J ROGERSON EXECUTOR	952	422
23	10*22055	9-8-8	W	STONE HILL MINERALS HOLDINGS LLC, ET AL	1010	226
24	10*31001	9-9-4	X	ERIC KATZMEYER, ET AL	791	226
25	10*22615	9-9-9.1	Y	DAVID D MURRAY AND MARY ANN MURRAY, ET AL	965	591
26	10*28244	9-9-5	Z	MICHAEL D DOBBS AND STEPHANIE J DOBBS, ET AL	1068	569
27	10*19987	9-9-16	AA	LESLEY D BALLA, ET AL	955	103
28	10*21859	9-9-12	BB	GARY WAYNE MORRIS	960	192
29	10*28170	9-9-12.1	CC	DAVID ALAN DEMPEWOLF II AND JESSICA R DEMPEWOLF	1067	391
30	10*28697	9-9-14.1	DD	DANNY S KERNS, ET AL, ET AL	1075	134
31	10*21859	9-9-11	EE	GARY WAYNE MORRIS	960	192
32	10*28697	9-9-14	FF	DANNY S KERNS, ET AL	1075	134
33	**	7-1-3	GG	SUSAN SHRIVER, ET AL	NA	NA
34	10*25518	7-8-1	HH	DANNY S KERNS, ET AL	1010	532
35	10*18339	9-12-14	II	RESOURCE MINERALS HEADWATER I LP, ET AL	940	448
36	10*25518	7-8-2	JJ	DANNY S KERNS, ET AL	1010	532
37	10*25518	9-9-13	KK	DANNY S KERNS, ET AL	1010	532
38	10*25501	7-8-13	LL	AMP FUND III LP, ET AL	925	459
39	10*23026	7-8-11	MM	BLAINE E STERN JR AND CONNIE J STERN	977	339
40	10*18988	7-8-4	NN	MICHAEL R DOBBS AND LEANNE DOBBS, ET AL	957	307
41	10*23026	7-8-12	OO	BLAINE E STERN JR AND CONNIE J STERN	940	238
42	10*28190	9-3-2.2	PP	J RUSSELL LOGSDON, ET AL	1068	309



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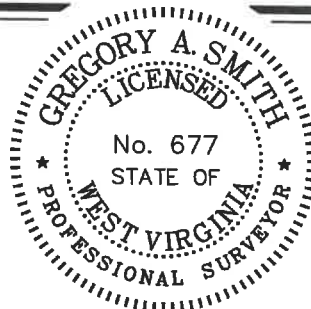
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