

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

API 47-095-02666 County TYLER District CENTERVILLE  
Quad WEST UNION Pad Name SHR37 Field/Pool Name \_\_\_\_\_  
Farm name CNX GAS COMPANY LLC Well Number SHR37HHSM  
Operator (as registered with the OOG) CNX GAS COMPANY LLC  
Address 1000 CONSOL ENERGY DRIVE 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 4355989.06 Easting 513314.60  
Landing Point of Curve Northing 4356187.60 Easting 513659.99  
Bottom Hole Northing 4360130.03 Easting 512234.59

Elevation (ft) 828' 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)  
SYNTHETIC BASED FLUID  
ADDITIVES: ABS MUL (EMULSIFIER), CALCIUM CHLORIDE, FLR PLUS (GILSONITE), CLAYTONE EM (SUSPENSION AGENT), AES WA II (WETTING AGENT), LIME

Date permit issued 01.08.2020 Date drilling commenced 02.06.2020 Date drilling ceased 02.17.2020  
Date completion activities began 3/11/2021 Date completion activities ceased 3/27/2021  
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A RECEIVED  
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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 92', 126', 144', 148', 150', 176', 220' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1,748' 2,458' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft No mineable seams; trace @ 154', 528', 618', 965', 992, 1044. Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
DH

08/27/2021

WR-35  
Rev. 8/23/13

API 47-095 - 02666

Farm name **CNX GAS COMPANY LLC**

Well number **SHR37HHSM**

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	100'	NEW	94 lb/ft	N/A	GROUT TO SURFACE
Surface	17.5"	13.375"	431	NEW	J-55 54.5 lb/ft	N/A	Y - CEMENT TO SURFACE
Coal							
Intermediate 1	12.25"	9.625"	2,258'	NEW	J-55 36 lb/ft	N/A	Y - CEMENT TO SURFACE
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	20,774'	NEW	P-110NY 20 lb/ft	N/A	Y - TOC @ 451
Tubing	5.5"	2.875"	8,904.6	NEW	P-110 8.5 LB/FT	N/A	N/A
Packer type and depth set							

Comment Details ALL DEPTHS ARE REFERENCE TO GROUND LEVEL (-29' KB)

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							8
Surface	HALCEM	345	15.8	1.18	407	0	
Coal						0	8
Intermediate 1	HALCEM	750	15.8	1.15	863		
Intermediate 2							
Intermediate 3							
Production	EXP NEOCEM / NEOCEM	925 (L) / 3,495 (T)	15	1.14 (L) / 1.13 (T)	1,055 (L) / 3,948 (T)	451'	8
Tubing							

Drillers TD (ft) 20,799' (MD @GL)      Loggers TD (ft) 20,799' (MD @GL)  
 Deepest formation penetrated MARCELLUS      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5,819' (MD @GL)

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 \_\_\_\_\_

SURFACE = 0: Centralize every other joint from shoe to surface  
 INTERMEDIATE = 28: Centralize every other joint from shoe to surface  
 PRODUCTION = 488: Centralize every joint from shoe to TOC

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WAS WELL COMPLETED AS SHOT HOLE     Yes     No      DETAILS    Plug and Perforation

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WAS WELL COMPLETED OPEN HOLE?     Yes     No      DETAILS

WERE TRACERS USED     Yes     No      TYPE OF TRACER(S) USED \_\_\_\_\_

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WR-35  
Rev. 8/23/13

API 47- 095 - 02666 Farm name CNX GAS COMPANY LLC Well number SHR37HSM

### PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMENT	1		

Please insert additional pages as applicable.

### STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	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)
		SEE	ATTACHMENT	2				

Please insert additional pages as applicable.

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API 47- 095 - 02666 Farm name CNX GAS COMPANY LLC Well number SHR37HHSM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,932.4'</u> TVD	<u>6,286.9'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1400 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 6922.9 mcfpd Oil 143 bpd NGL 0 bpd Water 813 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>		<u>BOTTOM</u>		<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		
					FORMATION LOG ATTACHED

Please insert additional pages as applicable.

Drilling Contractor PATTERSON UTI DRILLING  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company WORKOVER SOLUTIONS  
Address 13996 US-6 City Mansfield State PA Zip 16933

Cementing Company HALLIBURTON  
Address 121 Champion Way, Suite #210 City Canonsburg State PA Zip 15317

Stimulating Company NexTier Oilfield Solutions Inc.  
Address 3990 Rogerdale Rd City Houston State TX Zip 77042

Please insert additional pages as applicable.

Completed by Michael Honc Telephone 304-406-8909  
Signature [Signature] Title Completions Superintendent Date 6/29/2021

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

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**SHR37HSM – PERFORATION RECORD – ATTACHMENT 1**

Stage No.	Perforation Date	Perforation from MD ft.	Perforation to MD ft.	Number of Perforations	Formation(s)
1	3/11/2021	20,649.8	20,747.0	24	Marcellus Shale
2	3/11/2021	20,423.4	20,590.0	40	Marcellus Shale
3	3/12/2021	20,215.6	20,384.0	40	Marcellus Shale
4	3/12/2021	20,007.6	20,176.0	40	Marcellus Shale
5	3/12/2021	19,799.6	19,968.0	40	Marcellus Shale
6	3/12/2021	19,591.6	19,760.0	40	Marcellus Shale
7	3/12/2021	19,383.6	19,552.0	40	Marcellus Shale
8	3/13/2021	19,175.6	19,344.0	40	Marcellus Shale
9	3/13/2021	18,942.5	19,126.0	40	Marcellus Shale
10	3/13/2021	18,715.5	18,899.0	40	Marcellus Shale
11	3/13/2021	18,488.5	18,672.0	40	Marcellus Shale
12	3/13/2021	18,261.5	18,445.0	40	Marcellus Shale
13	3/13/2021	18,034.5	18,218.0	40	Marcellus Shale
14	3/14/2021	17,807.5	17,991.0	40	Marcellus Shale
15	3/14/2021	17,580.5	17,764.0	40	Marcellus Shale
16	3/14/2021	17,353.5	17,537.0	40	Marcellus Shale
17	3/14/2021	17,126.5	17,310.0	40	Marcellus Shale
18	3/14/2021	16,899.5	17,083.0	40	Marcellus Shale
19	3/14/2021	16,672.5	16,856.0	40	Marcellus Shale
20	3/15/2021	16,445.5	16,629.0	40	Marcellus Shale
21	3/15/2021	16,218.5	16,402.0	40	Marcellus Shale
22	3/15/2021	15,991.5	16,175.0	40	Marcellus Shale
23	3/15/2021	15,764.5	15,948.0	40	Marcellus Shale
24	3/15/2021	15,537.5	15,721.0	40	Marcellus Shale
25	3/16/2021	15,310.5	15,494.0	40	Marcellus Shale
26	3/16/2021	15,083.5	15,267.0	40	Marcellus Shale
27	3/16/2021	14,856.5	15,040.0	40	Marcellus Shale
28	3/16/2021	14,629.5	14,813.0	40	Marcellus Shale
29	3/17/2021	14,402.5	14,586.0	40	Marcellus Shale
30	3/17/2021	14,175.5	14,359.0	40	Marcellus Shale
31	3/17/2021	13,948.5	14,132.0	40	Marcellus Shale
32	3/17/2021	13,721.5	13,905.0	40	Marcellus Shale
33	3/17/2021	13,494.5	13,678.0	40	Marcellus Shale
34	3/18/2021	13,267.5	13,451.0	40	Marcellus Shale
35	3/18/2021	13,040.5	13,224.0	40	Marcellus Shale
36	3/18/2021	12,813.5	12,997.0	40	Marcellus Shale
37	3/18/2021	12,586.5	12,770.0	40	Marcellus Shale
38	3/18/2021	12,359.5	12,543.0	40	Marcellus Shale
39	3/19/2021	12,132.5	12,316.0	40	Marcellus Shale
40	3/19/2021	11,905.5	12,089.0	40	Marcellus Shale
41	3/19/2021	11,678.5	11,862.0	40	Marcellus Shale
42	3/19/2021	11,452.4	11,635.0	40	Marcellus Shale
43	3/19/2021	11,226.4	11,409.0	40	Marcellus Shale
44	3/20/2021	11,000.4	11,183.0	40	Marcellus Shale
45	3/20/2021	10,774.4	10,957.0	40	RECEIVED Marcellus Shale
46	3/20/2021	10,548.4	10,731.0	40	Office of Oil and Gas Marcellus Shale
47	3/21/2021	10,322.4	10,505.0	40	Marcellus Shale
48	3/21/2021	10,096.4	10,279.0	40	JUL 12 2021 Marcellus Shale
49	3/21/2021	9,870.4	10,053.0	40	Marcellus Shale
50	3/22/2021	9,644.4	9,827.2	40	Department of Marcellus Shale
51	3/22/2021	9,418.4	9,601.2	40	Environmental Protection Marcellus Shale
52	3/23/2021	9,192.4	9,375.2	40	Marcellus Shale
53	3/23/2021	8,966.4	9,149.2	40	Marcellus Shale
54	3/23/2021	8,740.4	8,923.2	40	Marcellus Shale
55	3/24/2021	8,514.4	8,697.2	40	Marcellus Shale
56	3/24/2021	8,288.4	8,471.2	40	Marcellus Shale
57	3/25/2021	8,062.4	8,245.2	40	Marcellus Shale
58	3/25/2021	7,836.4	8,019.2	40	Marcellus Shale
59	3/25/2021	7,579.0	7,793.2	40	Marcellus Shale

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60	3/26/2021	7,384.4	7,555.0	40	Marcellus Shale
61	3/26/2021	7,158.4	7,341.2	40	Marcellus Shale
62	3/26/2021	6,932.4	7,115.2	40	Marcellus Shale

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**SHR37HSM – STIMULATION INFORMATION PER STAGE – ATTACHMENT 2**

Stage No.	Stimulations Date	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	3/11/2021	181	17,819.0	9,550.0	4,745.0	234,000.00	7,340.57	N/A
2	3/11/2021	83	9,384.0	9,593.0	3,689.0	400,000.00	6,862.40	N/A
3	3/12/2021	83	9,428.0	9,768.0	3,241.0	400,000.00	6,964.88	N/A
4	3/12/2021	91	9,530.0	9,784.0	4,738.0	400,000.00	6,833.86	N/A
5	3/12/2021	92	9,541.0	9,771.0	5,105.0	400,000.00	6,418.98	N/A
6	3/12/2021	87	9,470.0	9,931.0	3,476.0	400,000.00	6,712.62	N/A
7	3/12/2021	91	9,399.0	9,730.0	3,793.0	402,000.00	6,469.10	N/A
8	3/13/2021	91	9,384.0	9,752.0	4,261.0	401,000.00	6,434.67	N/A
9	3/13/2021	94	9,565.0	9,828.0	4,301.0	400,000.00	6,489.71	N/A
10	3/13/2021	94	9,534.0	9,748.0	4,409.0	400,000.00	6,626.57	N/A
11	3/13/2021	93	9,538.0	9,793.0	3,855.0	400,000.00	6,557.55	N/A
12	3/13/2021	92	9,464.0	9,786.0	3,916.0	393,000.00	6,597.76	N/A
13	3/14/2021	184	19,063.0	9,763.0	4,834.0	402,000.00	6,520.81	N/A
14	3/14/2021	96	9,556.0	9,806.0	4,787.0	400,000.00	6,472.21	N/A
15	3/14/2021	93	9,584.0	9,860.0	4,502.0	400,000.00	6,366.48	N/A
16	3/14/2021	95	9,585.0	9,825.0	4,225.0	386,000.00	6,214.21	N/A
17	3/14/2021	96	9,483.0	9,797.0	4,301.0	400,000.00	6,363.33	N/A
18	3/14/2021	97	9,501.0	9,781.0	4,715.0	403,000.00	6,441.93	N/A
19	3/15/2021	98	9,476.0	9,774.0	4,315.0	399,000.00	6,433.74	N/A
20	3/15/2021	98	9,583.0	9,836.0	4,532.0	400,000.00	6,375.29	N/A
21	3/15/2021	93	9,529.0	9,946.0	3,771.0	400,000.00	6,320.60	N/A
22	3/15/2021	95	9,487.0	9,822.0	4,405.0	400,000.00	6,297.31	N/A
23	3/15/2021	100	9,433.0	9,789.0	4,714.0	398,000.00	6,451.95	N/A
24	3/16/2021	97	9,486.0	9,782.0	4,448.0	398,000.00	6,338.36	N/A
25	3/16/2021	100	9,454.0	9,922.0	4,882.0	400,000.00	6,334.71	N/A
26	3/16/2021	100	9,485.0	9,788.0	4,524.0	400,000.00	6,284.40	N/A
27	3/16/2021	100	9,485.0	9,734.0	3,653.0	400,000.00	6,284.24	N/A
28	3/17/2021	100	9,519.0	9,766.0	4,333.0	402,000.00	6,293.02	N/A
29	3/17/2021	102	9,404.0	9,702.0	3,795.0	400,000.00	6,288.76	N/A
30	3/17/2021	103	9,339.0	9,711.0	4,141.0	400,000.00	6,274.45	N/A
31	3/17/2021	98	9,382.0	9,761.0	4,153.0	400,000.00	6,293.76	N/A
32	3/17/2021	97	9,169.0	9,769.0	4,486.0	400,000.00	6,287.12	N/A
33	3/18/2021	98	9,335.0	9,788.0	4,115.0	400,000.00	6,288.62	N/A
34	3/18/2021	102	9,280.0	9,704.0	3,985.0	400,000.00	6,193.71	N/A
35	3/18/2021	103	9,164.0	9,642.0	4,223.0	400,000.00	6,243.24	N/A
36	3/18/2021	179	18,234.0	9,781.0	4,673.0	400,000.00	7,432.48	N/A
37	3/18/2021	103	9,425.0	9,733.0	3,848.0	400,000.00	6,249.48	N/A
38	3/19/2021	101	9,365.0	9,744.0	3,745.0	400,000.00	6,232.12	N/A
39	3/19/2021	103	9,390.0	9,746.0	3,654.0	400,000.00	6,257.60	N/A
40	3/19/2021	101	9,339.0	9,713.0	4,422.0	400,000.00	6,264.36	N/A
41	3/19/2021	99	9,467.0	9,757.0	4,443.0	400,000.00	6,158.31	N/A
42	3/19/2021	101	9,272.0	9,801.0	3,203.0	390,000.00	6,068.38	N/A
43	3/20/2021	95	8,767.0	9,736.0	4,140.0	400,000.00	6,196.88	N/A
44	3/20/2021	104	9,177.0	9,690.0	3,864.0	400,000.00	6,190.98	N/A
45	3/20/2021	103	9,266.0	9,718.0	4,572.0	400,000.00	6,235.29	N/A
46	3/21/2021	104	9,309.0	9,750.0	5,032.0	400,000.00	6,182.69	N/A
47	3/21/2021	104	9,210.0	9,750.0	4,324.0	400,000.00	6,218.62	N/A
48	3/21/2021	104	9,264.0	9,774.0	3,959.0	400,000.00	6,168.21	N/A
49	3/22/2021	104	9,268.0	9,710.0	3,928.0	397,000.00	6,263.62	N/A
50	3/22/2021	104	9,153.0	9,696.0	3,821.0	400,000.00	6,174.71	N/A
51	3/23/2021	104	9,145.0	9,696.0	4,738.0	400,000.00	6,091.98	N/A
52	3/23/2021	103	8,994.0	9,343.0	3,969.0	400,000.00	6,226.88	N/A
53	3/23/2021	103	9,420.0	9,808.0	4,266.0	390,000.00	6,015.02	N/A
54	3/24/2021	105	8,726.0	9,418.0	4,670.0	400,000.00	6,149.48	N/A

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55	3/24/2021	104	8,981.0	9,606.0	3,697.0	399,000.00	6,197.21	N/A
56	3/24/2021	104	9,039.0	9,662.0	3,965.0	400,000.00	6,080.81	N/A
57	3/25/2021	104	8,800.0	9,547.0	3,785.0	403,000.00	6,265.93	N/A
58	3/25/2021	103	9,193.0	9,741.0	3,743.0	399,950.00	6,190.48	N/A
59	3/26/2021	249	26,419.0	10,050.0	4,246.0	403,600.00	9,842.50	N/A
60	3/26/2021	103	9,049.0	9,686.0	3,727.0	400,500.00	6,135.43	N/A
61	3/26/2021	101	9,050.0	9,875.0	4,091.0	400,000.00	6,090.38	N/A
62	3/27/2021	102	8,963.0	9,712.0	3,677.0	398,000.00	6,161.48	N/A

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API: 47-095-02666

FARM NAME: CNX GAS COMPANY LLC

WELL NUMBER: SHR37HSM

Lithologies

LITHOLOGY / FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT NAME TVD	TOP DEPTH IN FT NAME MD	BOTTOM DEPTH IN FT NAME MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H2S, ETC)
UNDIFFERENTIATED SAND	0	456	0	456	SANDSTONE / TRACES OF SILTSTONE & LIMESTONE & COAL
HARLEM COAL	456	459	456	459	COAL
UNDIFFERENTIATED SAND & SILTSTONE	459	1,621	459	1,621	SANDSTONE / TRACES OF GRAY SHALE, COAL, QUARTZ & SILTSTONE
BIG LIME	1,621	1,740	1,621	1,741	LIMESTONE / TRACES OF SILTSTONE
BIG INJUN SAND	1,740	1,980	1,741	1,981	SANDSTONE & LIMESTONE / TRACES OF SILTSTONE
PRICE FORMATION	1,980	2,130	1,981	2,131	SILTSTONE / TRACES OF RED SHALE
BEREA SAND	2,130	2,220	2,131	2,221	SANDSTONE / TRACES OF SILTSTONE & PYRITE
GORDON SAND	2,220	3,128	2,221	2,231	SANDSTONE / TRACES OF SILTSTONE & PYRITE
WARREN SAND	3,128	3,198	3,130	3,201	SANDSTONE AND SILTSTONE
UNDIFFERENTIATED SHALE	3,198	4,721	3,201	4,998	GRAY SHALE
BENSON	4,721	4,909	4,998	5,256	SANDSTONE
ALEXANDER	4,909	5,014	5,256	5,361	SANDSTONE AND SILTSTONE
UNDIFFERENTIATED SHALE	5,014	6,116	5,361	6,836	GRAY SHALE
MIDDLESEX	6,116	6,154	6,836	6,910	GRAY SHALE / TRACES OF SILTSTONE
WEST RIVER	6,154	6,226	6,910	7,098	GRAY SHALE
BURKET SHALE	6,226	6,261	7,098	7,228	BLACK SHALE, GAS SHOW
TULLY LIMESTONE	6,261	6,286	7,228	7,358	GRAY SHALE
HAMILTON SHALE	6,286	6,298	7,358	7,442	GRAY SHALE & LIMESTONE
UPPER MARCELLUS SHALE	6,298	6,305	7,442	7,484	BLACK SHALE
MIDDLE MARCELLUS SHALE	6,305	TD	7,496	TD	BLACK SHALE, GAS SHOW
TD - MARCELLUS	6,322			20,828	

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 Office of Oil and Gas  
 JUL 12 2021  
 WV Department of  
 Environmental Protection

47-095-02666



**DRILLING CONTRACTOR**

PATTERSON-UTI DRILLING COMPANY  
4000 TOWN CENTER BOULEVARD SUITE 240  
CANONSBURG, PA 15317

**CEMENTING COMPANY**

HALLIBURTON  
121 CHAMPION WAY SUITE #210  
CANONSBURG, PA 15317



WV Department of  
Environmental Protection

RECEIVED  
Office of Oil and Gas  
JUL 12 2021

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/11/2021
Job End Date:	3/27/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02666-00-00
Operator Name:	CNX Gas Company LLC
Well Name and Number:	SHR37 M1 HHSM
Latitude:	39.35316300
Longitude:	-80.84563790
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,300
Total Base Water Volume (gal):	17,398,552
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	Operator	Carrier/Base Fluid	Water	7732-18-5	100.00000	84.95155	None
Proppant (Sand)	Nextier	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	14.39296	None
7.5% HCl	NexTier	Acid	Water	7732-18-5	92.50000	0.51466	None
7.5% HCl	NexTier	Acid	Hydrochloric Acid	7647-01-0	7.50000	0.04173	None
StimStream FR 9800	Chemstream	Friction Reducer	Water	7732-18-5	47.00000	0.03319	None
StimStream FR 9800	Chemstream	Friction Reducer	alkanes, C16-20-iso-	90622-59-6	25.00000	0.01765	None
StimStream FR 9800	Chemstream	Friction Reducer	butène, homopolymer	9003-29-6	25.00000	0.01765	None
StimStream SC-398	Chemstream	Scale Inhibitor	Non-Hazardous substances	Proprietary	90.00000	0.01165	None
Clearal 268	Chemstream	Biocide	Non-Hazardous substances	Proprietary	80.00000	0.00823	None

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 JUL 12 2021

StimStream FR 9800	Chemstream	Friction Reducer					
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00212	None
CoilStream VB 625	Chemstream	Gelling Agent					
			Heavy Aliphatic Naphtha	64742-96-7	60.00000	0.00206	None
Clearal 268	Chemstream	Biocide					
			Glutaraldehyde	111-30-8	20.00000	0.00206	None
CoilStream VB 625	Chemstream	Gelling Agent					
			Guara Gum	9000-30-0	50.00000	0.00172	None
StimStream SC-398	Chemstream	Scale Inhibitor					
			Bis(HexaMethylene Triamone Penta(Methylene Phoshonic Acid) (BHMT))	34690-00-1	10.00000	0.00129	None
PVS Iron Control 1	Chemstream	Iron Control					
			Citric Acid	77-92-9	50.50000	0.00050	None
PVS Iron Control 1	Chemstream	Iron Control					
			Water	7732-18-5	49.50000	0.00049	None
ACI-250	Chemstream	Acid Inhibitor					
			Methyl Alcohol	67-56-1	45.00000	0.00032	None
Clearal 268	Chemstream	Biocide					
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00031	None
Clearal 268	Chemstream	Biocide					
			Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00031	None
CoilStream VB 625	Chemstream	Gelling Agent					
			Trade Secret	Proprietary	5.00000	0.00017	None
Clearal 268	Chemstream	Biocide					
			Ethanol	64-17-5	1.50000	0.00015	None
ACI-250	Chemstream	Acid Inhibitor					
			Ethylene Glycol	107-21-1	20.00000	0.00014	None
Ammonium Persulfate	Chemstream	Breaker					
			Ammonium persulfate	7727-54-0	100.00000	0.00012	None
ACI-250	Chemstream	Acid Inhibitor					
			Trade Secret	Proprietary	15.00000	0.00011	None
CoilStream VB 625	Chemstream	Gelling Agent					
			Trade Secret	Proprietary	3.00000	0.00010	None
CoilStream VB 625	Chemstream	Gelling Agent					
			Trade Secret	Proprietary	3.00000	0.00010	None
ACI-250	Chemstream	Acid Inhibitor					
			N, N-Dimethylformamide	68-12-2	10.00000	0.00007	None
ACI-250	Chemstream	Acid Inhibitor					
			Water	7732-18-5	10.00000	0.00007	None
ACI-250	Chemstream	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	5.00000	0.00004	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.

\* 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)

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JUL 12 2021

WV Department of  
Environmental Protection

BHL is located on topo map 9,510 feet south of Latitude: 39° 25' 00"  
 SHL is located on topo map 7,925 feet south of Latitude: 39° 22' 30"

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL

SEE PAGE 3 FOR SURFACE OWNERS AND LESSORS

# AS DRILLED PLAT

**SURFACE HOLE LOCATION (SHA)**  
 UTM 17-NAD83  
 N:4355989.06  
 E:513314.60  
 NAD83 WY NORTH  
 N:313623.922  
 E:1588050.621  
 LAT/LON DATUM-NAD83  
 LAT:39°21'11.679"  
 LON:80°50'43.677"

**PERMITTED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4356176.54  
 E:513665.25  
 NAD83 WY NORTH  
 N:314219.945  
 E:1589211.549  
 LAT/LON DATUM-NAD83  
 LAT:39°21'17.741"  
 LON:80°50'29.012"

**PERMITTED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4360128.35  
 E:512230.33  
 NAD83 WY NORTH  
 N:327266.471  
 E:1584719.261  
 LAT/LON DATUM-NAD83  
 LAT:39°23'26.010"  
 LON:80°51'28.709"

**AS-DRILLED SURFACE HOLE LOCATION (SHA)**  
 UTM 17-NAD83  
 N:4355989.06  
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 NAD83 WY NORTH  
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**AS-DRILLED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4356187.60  
 E:513659.99  
 NAD83 WY NORTH  
 N:314256.53  
 E:1589194.89  
 LAT/LON DATUM-NAD83  
 LAT:39°21'18.10"  
 LON:80°50'29.23"

**AS-DRILLED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4360130.03  
 E:512234.59  
 NAD83 WY NORTH  
 N:327271.761  
 E:1584733.335  
 LAT/LON DATUM-NAD83  
 LAT:39°23'26.065"  
 LON:80°51'28.530"



BHL is located on topo map 6,964 feet west of Longitude: 80° 50' 00"  
 SHL is located on topo map 3,431 feet west of Longitude: 80° 50' 00"

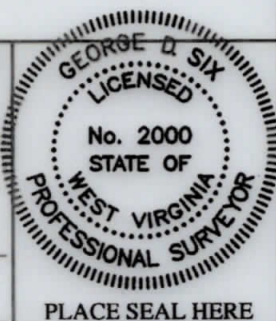
# THRASHER

CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES  
 800 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
 PHONE (304) 824-4108 • FAX (304) 824-7831

FILE #: SHR 37 HHSM AS-DRILLED  
 DRAWING #: SHR 37 HHSM AS-DRILLED  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: George D. Six  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: FEBRUARY 24, 2020  
 OPERATOR'S WELL #: SHR 37 HHSM AS-DRILLED  
 API WELL #: 47 95 02666  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 828.57'±  
 COUNTY/DISTRICT: TYLER / CENTERVILLE QUADRANGLE: WEST UNION, WV 7.5'  
 SURFACE OWNER: CNX GAS COMPANY ACREAGE: 18±  
 OIL & GAS ROYALTY OWNER: ELEANOR V. & DEAN A. EARNHEART, ET AL ACREAGE: 893.950±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): AS-DRILLED PLAT

08/27/2021

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,302'± TMD: 20,746'±  
 WELL OPERATOR: CNX GAS COMPANY LLC DESIGNATED AGENT: ANTHONY KENDZIORA  
 Address: 1000 CONSOL ENERGY DRIVE Address: 1000 CONSOL ENERGY DRIVE  
 City: CANONSBURG State: PA Zip Code: 15317 City: CANONSBURG State: PA Zip Code: 15317

# SHR 37 HHSM PAGE 2 OF 3

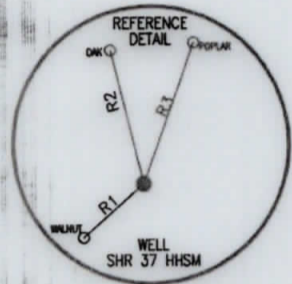
## AS DRILLED PLAT

**PERMITTED  
BOTTOM HOLE LOCATION (BHL)**  
UTM 17-NAD83  
N:4360128.35  
E:512230.33  
NAD83\_WV NORTH  
N:327266.471  
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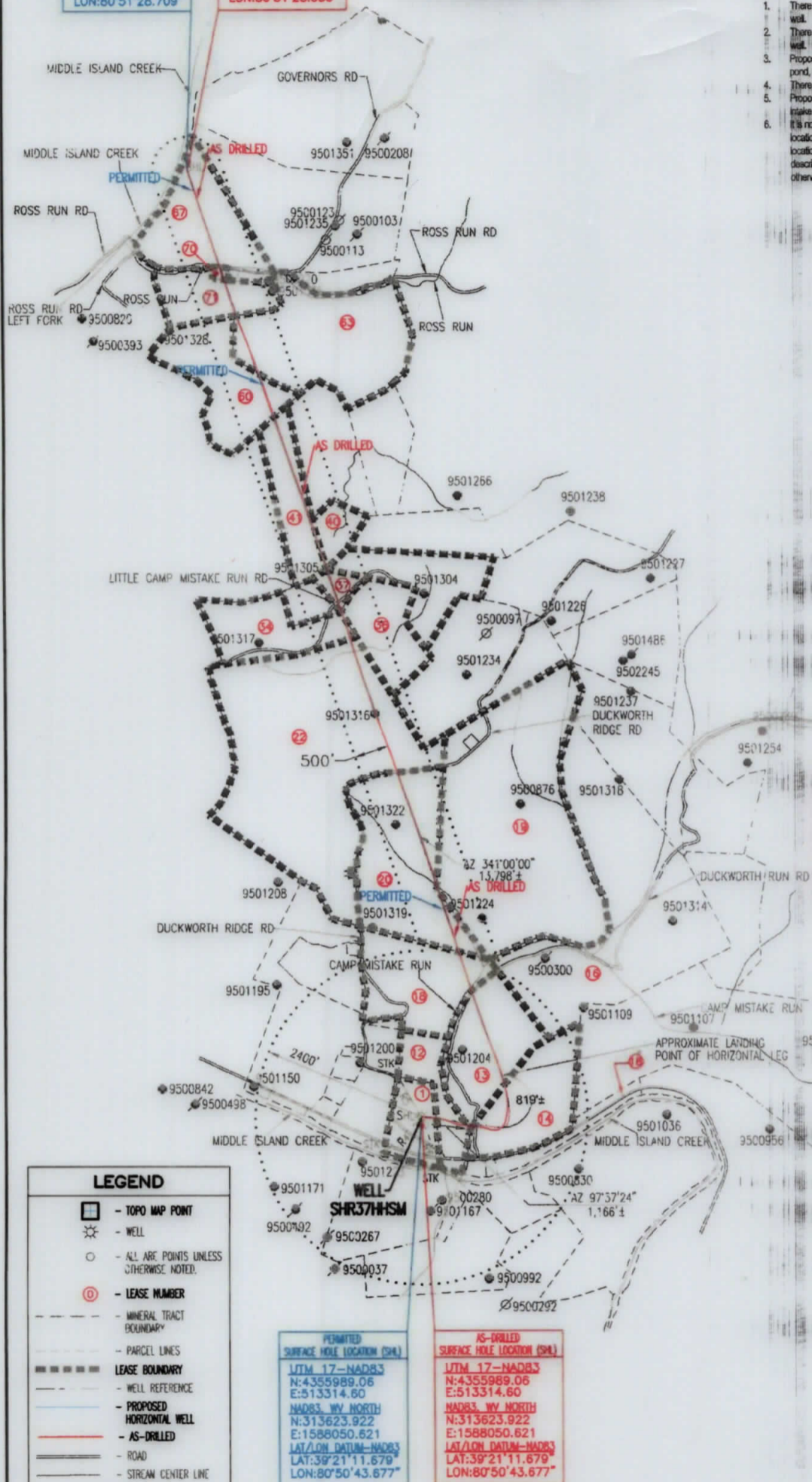
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N:4360130.03  
E:512234.59  
NAD83\_WV NORTH  
N:327271.761  
E:1584733.335  
LAT/LON DATUM-NAD83  
LAT:39°23'26.065"  
LON:80°51'28.530"

**NOTES:**

1. There are water wells or developed springs within 250' of proposed well.
2. There is an existing house and buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted herein. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.



LINE	BEARING	DISTANCE
R1	S 48°09'29" W	151.32'
R2	N 13°54'30" W	257.44'
R3	N 19°45'08" E	281.26'
R4	S 46°51'55" W	760.61'
R5	N 30°35'47" W	674.32'
R6	S 20°08'34" E	775.56'



**AS-DRILLED  
APPROX. LANDING POINT**  
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E:513659.99  
NAD83\_WV NORTH  
N:314256.53  
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N:4356176.54  
E:513665.25  
NAD83\_WV NORTH  
N:314219.945  
E:1589211.549  
LAT/LON DATUM-NAD83  
LAT:39°21'17.741"  
LON:80°50'29.012"

**LEGEND**

- - TOPO MAP POINT
- ☀ - WELL
- - ALL ARE POINTS UNLESS OTHERWISE NOTED.
- ① - LEASE NUMBER
- - - MINERAL TRACT BOUNDARY
- - - PARCEL LINES
- ===== LEASE BOUNDARY
- - - WELL REFERENCE
- - - PROPOSED HORIZONTAL WELL
- AS-DRILLED
- ROAD
- STREAM CENTER LINE
- GAS WELLS**
- - EXISTING WELLS
- - PLUGGED WELLS
- ⊘ - ABANDON WELLS

**PERMITTED  
SURFACE HOLE LOCATION (SHL)**  
UTM 17-NAD83  
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API WELL #: 47      95      02666  
STATE COUNTY PERMIT



**THRASHER**

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600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
PHONE (304) 624-4108 • FAX (304) 624-7831

FEBRUARY 24, 2020

*George D. Six*

# SHR 37 HHSM

## PAGE 3 OF 3

SURFACE OWNER	LESSOR	DIST/TM/PAR
1 CNX GAS COMPANY	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-17/5
12 GAIL WILLIAMSON 18	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H REVA ROWLAND AND RONALD ROYCE ROWLAND	P/O 1-17/6
13 DANNY CARL & PATRICIA J. HARRIS	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-18/5
14 DANNY & PATRICIA J. HARRIS	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-18/6.1
19 RONALD R. & REVA D. ROWLAND	JACOB L. DILLON AND EDNA DILLON, H/W	1-18/20
20 JAMES ROBERT BAGLEY	JACOB C. COTTRILL, ATTORNEY-IN-FACT FOR CHARLES D. COTTRILL HEIRS; JACOB C. COTTRILL AND SHIRLEY A. COTTRILL, H/W	1-15/16
22 JAMES ROBERT BAGLEY	JACOB C. COTTRILL, ATTORNEY-IN-FACT FOR CHARLES D. COTTRILL HEIRS; JACOB C. COTTRILL AND SHIRLEY A. COTTRILL, H/W	P/O 1-15/15
34 SANDRA SUE & CLARENCE D. CLARK & JEFFREY G. CLARK & KEVIN SCOTT	SANDRA SUE CLARK AND CLARENCE DUANE CLARK, H/W AND MILDRED GREGG SANDRA SUE CLARK AND CLARENCE DUANE CLARK, H/W AND MILDRED GREGG DAVID C. GREGG	1-15/10
36 SANDRA SUE CLARK & CLARENCE DUANE & JEFFREY GREGG CLARK & KEVIN SCOTT	MILDRED GREGG	P/O 1-15/11
37 SANDRA SUE CLARK & CLARENCE DUANE & JEFFREY GREGG CLARK & KEVIN SCOTT	MILDRED GREGG BETTY R. FONNER FRANCES ELIZABETH FONNER ALLOWAY FREDERICK R. FONNER JAMES R. FONNER LAURA LOUISE FONNER MOORE AND RICHARD C. MOORE, W/H	P/O 1-15/11
38 DUANE CLARK, ET AL C/O DUANE & SUE CLARK	CLARENCE DUANE CLARK AND SANDRA SUE CLARK, H/W JEFFREY G. CLARK, SINGLE KEVIN S. CLARK, SINGLE JOHN BAKER, INDIVIDUALLY AND AS ATTORNEY-IN-FACT FOR THE "GORRELL DOAK HEIRS"	1-15/6
40 DUANE CLARK, ET AL C/O DUANE & SUE CLARK	BRC APPALACHIAN MINERALS I, LLC	P/O 1-15/6.1
41 ROY DEAN ASH & MARY F. CARPENTER	ROY DEAN ASH	1-15/3.2
MICHAEL HAUGHT	MARY FRANCES CARPENTER	1-15/3.4
60 HAROLD D., JR & SUSAN D. MOORE	ANN ELAINE JONES CASEY AND ERNEST LEE CASEY, W/H	P/O 1-12/24
63 RYAN J. & SUSAN J. LIND GENEVA (DENNISON) BULLMAN LIFE	ORA NELSON MOORE AND MARY EDNA MOORE, H/W, AND OLETHA MOORE, WIDOW ROSEMARY EAGLE	1-12/23 & 1-12/23.1
67 JASON ELDER GENEVA (DENNISON) FOUTS LIFE ADAM S. & VICKI M. FORRESTER GENEVA (DENNISON) FOUTS LIFE ESTATE	ORA NELSON MOORE AND MARY EDNA MOORE, H/W AND OLETHA MOORE, WIDOW ROSEMARY EAGLE	1-12/21 1-12/21.3 1-12/21.4
70 GENEVA F. DENNISON & BILLY KENNETH FOUTS	FRANK WILLIAM BASIL AND KAREN E. BASIL GENEVA F. DENNISON BILLY KENNETH FOUTS	P/O 1-12/21.2
71 MARK WILLIAM TRUSTEE PIERSON	WILLIAM BASIL AND KAREN BASIL, H/W	P/O 1-12/21.1

AS DRILLED PLAT

08/27/2021

API WELL #:    47                      95                      02666  
STATE            COUNTY            PERMIT

THRASHER

FEBRUARY 24, 2020

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