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West Virginia Department of Environmental Protection

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

API 47-095-02570 County TYLER District McELROY  
Quad SHIRLEY Pad Name SHR38 Field/Pool Name \_\_\_\_\_  
Farm name SECKMAN Well Number SHR38EHSM  
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 320156.68 (NAD 27) Easting 1622472 (NAD 27)  
Landing Point of Curve Northing 319183.05 (NAD 27) Easting 1625556.99 (NAD 27)  
Bottom Hole Northing 306852.91 (NAD 27) Easting 1621309.60 (NAD 27)

Elevation (ft) 1012 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 2/26/2019 Date drilling commenced 3/5/2019 Date drilling ceased 7/4/2019  
Date completion activities began 8/4/2019 Date completion activities ceased 9/19/2019  
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 225 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1920 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 430, 580, 900 TRACES: 160, 260, 1380, 1400, 1480, 1500 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by: JCB  
12/18/2019  
**Reviewed**

API 47-095 - 02570 Farm name SECKMAN Well number SHR38EHSM

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	24"	20"	112	NEW	94lb/ft	N/A	GROUT TO SURFACE
Surface	17.5"	13.375"	586	NEW	J-55 54.5lb/ft	N/A	Y - CEMENT TO SURFACE
Coal							
Intermediate 1	12.25"	9.625"	2594	NEW	J-55 36lb/ft	N/A	Y - CEMENT TO SURFACE
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	20118	NEW	P-1110 20lb/ft	N/A	Y - TOC @ 1400
Tubing	5.5"	2.875	6,976	NEW	P110 6.5 IB/FT	N/A	N/A
Packer type and depth set		N/A					

Comment Details ALL TOPHOLE DEPTHS ARE REFERENCED TO RKB = 12' GLE  
PRODUCTION DEPTHS ARE REFERENCED TO RKB = 29' GLE

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							
Surface	CLASS A	500	16	1.14	570	0	8
Coal							
Intermediate 1	CLASS A	848	15.6	1.19	1009	0	8
Intermediate 2							
Intermediate 3							
Production	NEOCEM	1085 (LEAD) / 3025 (TAIL)	15	1.136 (LEAD) / 1.132 (TAIL)	1233 (LEAD) / 3424 (TAIL)	1400	8
Tubing							

Drillers TD (ft) 20160 Loggers TD (ft) 20160  
Deepest formation penetrated MARCELLUS Plug back to (ft) N/A  
Plug back procedure N/A

Kick off depth (ft) 6096

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: Centralize every 3rd joint from shoe to surface

INTERMEDIATE: Centralize every 3rd joint from shoe to surface

PRODUCTION: Centralize every joint from shoe to TOC

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 \_\_\_\_\_

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SE  
OIL  
FIELD



API 47- 095 - 02570 Farm name SECKMAN Well number SHR38EHSM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>6,497</u>	<u>TVD</u>	<u>7,034</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1618 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 2201.40 mcfpd Oil 29 bpd NGL 0 bpd Water 1337 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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 (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
UNDIFFERENTIATED SAND	0	250	0	250	SANDSTONE / TRACES OF SILTSTONE & LIMESTONE & COAL
UNDIFFERENTIATED SILT	250	300	250	300	SILTSTONE/ TRACES OF SANDSTONE & COAL
UNDIFFERENTIATED SAND	300	400	300	400	SANDSTONE / TRACES OF SILTSTONE & LIMESTONE
UNDIFFERENTIATED SHALE	400	430	400	430	RED SHALE / TRACES OF SILTSTONE
WASHINGTON COAL	430	431	430	431	SANDSTONE/ RED SHALE/ COAL
UNDIFFERENTIATED SAND	431	480	431	480	SANDSTONE/ RED SHALE
UNDIFFERENTIATED SHALE	480	510	480	510	RED SHALE / TRACES OF SANDSTONE & GRAY SHALE
UNDIFFERENTIATED QUARTZ	510	580	510	580	QUARTZ / TRACES OF RED SHALE, SILTSTONE & SANDSTONE
WAYNESBURG COAL	580	582	580	582	QUARTZ / TRACES OF GRAY SHALE, QUARTZ, SILTSTONE & SANDSTONE
UNDIFFERENTIATED SAND	582	610	582	610	SANDSTONE / TRACES OF GRAY SHALE, QUARTZ & SILTSTONE
UNDIFFERENTIATED SILT	610	740	610	740	SILTSTONE / TRACES OF LIMESTONE & SANDSTONE
UNDIFFERENTIATED SAND	740	760	740	760	SANDSTONE / TRACES RED SHALE
UNDIFFERENTIATED SHALE	760	900	760	900	RED SHALE/ TRACES OF SILTSTONE, SANDSTONE, LIMESTONE
PITTSBURGH COAL	900	901	900	901	SANDSTONE/ COAL

Please insert additional pages as applicable.

Drilling Contractor SEE ATTACHMENT  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company SEE ATTACHMENT  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company KEANE  
Address 5825 North Sam Houston Parkway West Suite 600 City Houston State TX Zip 77086

Please insert additional pages as applicable.

Completed by Michael Honce Telephone 304-884-2138  
Signature [Signature] Title Superintendent Completions Date 11/20/2019

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

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SHR38EHSM – PERFORATION RECORD – ATTACHMENT 1					
Stage No.	Perforation Date	Perforation from MD ft.	Perforation to MD ft.	Number of Perforations	Formation(s)
1	8/4/2019	19,974.6	20,064.1	24	Marcellus Shale
2	8/5/2019	19,730.2	19,913.0	40	Marcellus Shale
3	8/5/2019	19,504.2	19,687.0	40	Marcellus Shale
4	8/5/2019	19,278.2	19,461.0	40	Marcellus Shale
5	8/6/2019	19,052.2	19,235.0	40	Marcellus Shale
6	8/6/2019	18,826.2	19,009.0	40	Marcellus Shale
7	8/6/2019	18,600.2	18,783.0	40	Marcellus Shale
8	8/6/2019	18,374.2	18,557.0	40	Marcellus Shale
9	8/7/2019	18,148.2	18,331.0	40	Marcellus Shale
10	8/7/2019	17,922.2	18,105.0	40	Marcellus Shale
11	8/7/2019	17,696.2	17,879.0	40	Marcellus Shale
12	8/7/2019	17,470.2	17,653.0	40	Marcellus Shale
13	8/8/2019	17,244.2	17,427.0	40	Marcellus Shale
14	8/8/2019	17,018.2	17,201.0	40	Marcellus Shale
15	8/8/2019	16,792.2	16,975.0	40	Marcellus Shale
16	8/8/2019	16,566.2	16,749.0	40	Marcellus Shale
17	8/8/2019	16,340.2	16,523.0	40	Marcellus Shale
18	8/9/2019	16,114.2	16,297.0	40	Marcellus Shale
19	8/9/2019	15,887.3	16,070.9	40	Marcellus Shale
20	8/9/2019	15,660.3	15,843.9	40	Marcellus Shale
21	8/10/2019	15,433.3	15,616.9	40	Marcellus Shale
22	8/10/2019	15,206.3	15,389.9	40	Marcellus Shale
23	8/10/2019	14,979.3	15,162.9	40	Marcellus Shale
24	8/11/2019	14,752.3	14,935.9	40	Marcellus Shale
25	8/11/2019	14,525.3	14,708.9	40	Marcellus Shale
26	8/11/2019	14,298.3	14,481.9	40	Marcellus Shale
27	8/11/2019	14,071.3	14,254.9	40	Marcellus Shale
28	8/12/2019	13,844.3	14,027.9	40	Marcellus Shale
29	8/12/2019	13,617.3	13,800.9	40	Marcellus Shale
30	8/14/2019	13,390.3	13,573.9	40	Marcellus Shale
31	8/14/2019	13,163.3	13,346.9	40	Marcellus Shale
32	8/14/2019	12,936.3	13,119.9	40	Marcellus Shale
33	8/14/2019	12,709.3	12,892.9	40	Marcellus Shale
34	8/15/2019	12,482.3	12,665.9	40	Marcellus Shale
35	8/15/2019	12,255.3	12,438.9	40	Marcellus Shale
36	8/15/2019	12,028.3	12,211.9	40	Marcellus Shale
37	8/15/2019	11,801.3	11,984.9	40	Marcellus Shale
38	8/16/2019	11,574.3	11,757.9	40	Marcellus Shale
39	8/16/2019	11,347.3	11,530.9	40	Marcellus Shale
40	8/17/2019	11,120.3	11,303.9	40	Marcellus Shale
41	8/17/2019	10,893.3	11,076.9	40	Marcellus Shale
42	8/17/2019	10,666.3	10,849.9	40	Marcellus Shale
43	8/17/2019	10,439.3	10,622.9	40	Marcellus Shale
44	8/18/2019	10,212.3	10,395.9	40	Marcellus Shale
45	8/18/2019	9,985.3	10,168.9	40	Marcellus Shale
46	8/18/2019	9,758.3	9,941.9	40	Marcellus Shale
47	8/18/2019	9,531.3	9,714.9	40	Marcellus Shale
48	8/19/2019	9,304.3	9,487.9	40	Marcellus Shale
49	8/19/2019	9,077.3	9,260.9	40	Marcellus Shale
50	8/19/2019	8,850.3	9,033.9	40	Marcellus Shale
51	8/19/2019	8,623.3	8,806.9	40	Marcellus Shale
52	8/19/2019	8,396.3	8,579.9	40	Marcellus Shale
53	8/20/2019	8,169.3	8,352.9	40	Marcellus Shale
54	8/20/2019	7,942.3	8,125.9	40	Marcellus Shale
55	8/20/2019	7,715.3	7,898.9	40	Marcellus Shale
56	8/20/2019	7,488.3	7,671.9	40	Marcellus Shale
57	8/20/2019	7,261.3	7,444.9	40	Marcellus Shale
58	8/21/2019	7,034.3	7,217.9	40	Marcellus Shale

**SHR38EHSM – 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 (ibs)	Amount of Water (bbls)	Amount of Nitrogen/Other (units)
1	8/4/2019	99	8,904.0	6,722.0	3,161.0	411,926.0	8,671.00	N/A
2	8/5/2019	92	8,832.0	8,278.0	3,265.0	394,077.0	7,367.00	N/A
3	8/5/2019	96	8,877.0	5,452.0	3,699.0	398,529.0	7,387.00	N/A
4	8/5/2019	98	8,937.0	5,904.0	3,934.0	387,524.0	7,285.00	N/A
5	8/6/2019	97	9,024.0	4,365.0	3,825.0	398,382.0	7,429.00	N/A
6	8/6/2019	99	8,961.0	5,032.0	4,680.0	399,894.0	7,414.00	N/A
7	8/6/2019	99	8,863.0	4,909.0	3,958.0	397,836.0	7,458.00	N/A
8	8/6/2019	99	9,074.0	4,033.0	3,838.0	397,038.0	7,198.00	N/A
9	8/7/2019	98	8,997.0	4,738.0	4,003.0	396,229.0	7,276.00	N/A
10	8/7/2019	94	8,770.0	5,050.0	4,082.0	400,349.0	7,377.00	N/A
11	8/7/2019	99	8,948.0	5,068.0	3,939.0	402,956.0	7,007.00	N/A
12	8/7/2019	98	8,700.0	5,985.0	5,358.0	403,500.0	6,708.00	N/A
13	8/8/2019	99	8,661.0	5,582.0	5,025.0	414,404.0	6,898.00	N/A
14	8/8/2019	98	8,921.0	6,402.0	3,476.0	375,800.0	5,895.98	N/A
15	8/8/2019	100	8,778.0	5,798.0	3,558.0	405,850.0	6,556.00	N/A
16	8/8/2019	99	8,757.0	5,017.0	3,811.0	392,643.0	6,769.00	N/A
17	8/9/2019	99	8,667.0	5,362.0	3,881.0	374,378.0	7,052.00	N/A
18	8/9/2019	100	8,667.0	5,880.0	4,262.0	402,798.0	6,324.00	N/A
19	8/9/2019	99	8,411.0	5,553.0	3,876.0	403,067.0	6,323.98	N/A
20	8/9/2019	98	8,549.0	5,796.0	3,441.0	393,493.0	6,770.00	N/A
21	8/10/2019	100	8,424.0	4,929.0	4,025.0	396,256.0	6,667.98	N/A
22	8/10/2019	99	8,490.0	6,223.0	4,107.0	402,937.0	6,274.98	N/A
23	8/10/2019	100	8,421.0	6,126.0	3,772.0	400,271.0	6,236.00	N/A
24	8/11/2019	98	8,390.0	6,494.0	3,483.0	394,617.0	6,201.00	N/A
25	8/11/2019	99	8,583.0	6,085.0	3,627.0	390,436.0	6,002.02	N/A
26	8/11/2019	100	8,562.0	6,452.0	3,533.0	404,293.0	6,323.00	N/A
27	8/12/2019	99	8,232.0	5,514.0	3,408.0	396,986.0	6,231.98	N/A
28	8/12/2019	100	8,198.0	6,221.0	3,510.0	401,794.0	6,180.02	N/A
29	8/13/2019	100	8,398.0	6,028.0	3,667.0	407,779.0	6,229.00	N/A
30	8/14/2019	99	8,437.0	6,551.0	4,054.0	338,594.0	6,121.00	N/A
31	8/14/2019	98	8,412.0	6,668.0	3,647.0	346,310.0	5,831.02	N/A
32	8/14/2019	96	8,060.0	6,281.0	3,661.0	398,936.0	7,933.98	N/A
33	8/14/2019	94	7,549.0	6,476.0	3,555.0	406,771.0	6,285.00	N/A
34	8/15/2019	99	8,170.0	6,045.0	3,287.0	396,328.0	5,981.00	N/A
35	8/15/2019	100	8,137.0	6,523.0	3,508.0	395,545.0	5,941.98	N/A
36	8/15/2019	94	7,820.0	6,215.0	3,203.0	401,731.0	6,188.00	N/A
37	8/16/2019	93	7,804.0	6,293.0	4,389.0	377,612.0	7,421.02	N/A
38	8/16/2019	98	7,922.0	6,274.0	3,330.0	395,724.0	6,035.00	N/A
39	8/17/2019	99	7,833.0	6,364.0	3,409.0	403,422.0	6,125.00	N/A
40	8/17/2019	100	8,030.0	6,868.0	3,393.0	405,711.0	5,920.00	N/A
41	8/17/2019	100	8,324.0	6,749.0	4,185.0	404,502.0	5,902.00	N/A
42	8/17/2019	100	8,308.0	6,963.0	3,726.0	402,461.0	5,925.00	N/A
43	8/17/2019	100	7,990.0	5,870.0	4,270.0	401,930.0	6,087.00	N/A
44	8/18/2019	101	7,913.0	5,895.0	3,931.0	396,134.0	5,952.00	N/A
45	8/18/2019	99	7,603.0	6,458.0	4,094.0	406,825.0	5,957.00	N/A
46	8/18/2019	98	7,708.0	6,699.0	3,638.0	399,654.0	5,565.98	N/A
47	8/18/2019	99	7,719.0	6,911.0	3,699.0	401,973.0	5,773.00	N/A
48	8/19/2019	98	7,610.0	6,597.0	3,504.0	401,017.0	5,787.00	N/A
49	8/19/2019	100	7,561.0	6,163.0	3,495.0	403,993.0	5,641.00	N/A
50	8/19/2019	100	8,093.0	6,973.0	3,218.0	398,920.0	5,559.00	N/A
51	8/19/2019	99	7,358.0	6,415.0	3,503.0	403,810.0	5,744.00	N/A
52	8/20/2019	99	7,285.0	6,192.0	3,595.0	405,514.0	5,733.00	N/A
53	8/20/2019	100	8,065.0	5,849.0	3,477.0	378,871.0	5,390.00	N/A
54	8/20/2019	99	7,618.0	7,000.0	3,333.0	404,655.0	5,668.00	N/A
55	8/20/2019	100	7,521.0	6,422.0	3,383.0	403,299.0	5,688.02	N/A
56	8/20/2019	99	7,860.0	5,890.0	3,470.0	327,102.0	5,631.00	N/A
57	8/20/2019	93	7,083.0	6,385.0	3,965.0	401,211.0	5,702.00	N/A
58	8/21/2019	100	7,040.0	6,114.0	3,975.0	403,321.0	5,617.00	N/A



## LITHOLOGIES CONTINUED

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	901	940	901	940	SANDSTONE / TRACES OF GRAY SHALE, LIMESTONE & SILTSTONE
UNDIFFERENTIATED SHALE	940	980	940	980	RED SHALE / TRACES OF LIMESTONE & SANDSTONE
UNDIFFERENTIATED SAND	980	1000	980	1000	SANDSTONE / TRACES OF RED SHALE
UNDIFFERENTIATED SHALE	1000	1040	1000	1040	GRAY SHALE / TRACES OF LIMESTONE, SILTSTONE & SANDSTONE
UNDIFFERENTIATED SAND	1040	1060	1040	1060	SANDSTONE / SILTSTONE
UNDIFFERENTIATED QUARTZ	1060	1100	1060	1100	QUARTZ / TRACES OF SANDSTONE & SILTSTONE
UNDIFFERENTIATED LIME	1100	1120	1100	1120	LIMESTONE / TRACES OF SANDSTONE & SILTSTONE
UNDIFFERENTIATED SAND	1120	1160	1120	1160	SANDSTONE / SILTSTONE
UNDIFFERENTIATED SILT	1160	1280	1160	1280	SILTSTONE / TRACES OF SANDSTONE & LIMESTONE
UNDIFFERENTIATED QUARTZ	1280	1320	1280	1320	QUARTZ
UNDIFFERENTIATED SILT	1320	1340	1320	1340	SILTSTONE / TRACES OF SANDSTONE
UNDIFFERENTIATED QUARTZ	1340	1380	1340	1380	QUARTZ / TRACES OF SILTSTONE & SANDSTONE
UPPER KITANNING	1380	1480	1380	1480	QUARTZ & SILTSTONE / TRACES OF SANDSTONE & COAL
LOWER KITANNING	1480	1840	1480	1840	SANDSTONE & SILTSTONE / TRACES OF QUARTZ & COAL
BIG LIME	1840	1920	1840	1920	LIMESTONE / TRACES OF SILTSTONE
BIG INJUN	1920	2060	1920	2060	SANDSTONE & LIMESTONE / TRACES OF SILTSTONE
PRICE	2060	2210	2060	2210	SILTSTONE / TRACES OF RED SHALE
WEIR	2210	2360	2210	2360	SANDSTONE & SILTSTONE / TRACES OF LIMESTONE
BEREA	2360	2540	2360	2540	SILTSTONE
GORDON	2540	3350			SILTSTONE / TRACES OF SANDSTONE & PYRITE
WARREN SAND	3350	4940			SILTSTONE & SANDSTONE
BENSON	4940	5150			SILTSTONE & SANDSTONE
ALEXANDER	5150	6302			SILTSTONE / TRACES OF GRAY SHALE
MIDDLESEX	6302	6371			GRAY SHALE / TRACES OF SILTSTONE
WEST RIVER	6371	6445			GRAY SHALE
BURKET	6445	6481			GRAY SHALE
TULLY	6481	6503			GRAY SHALE
HAMILTON	6503	6517			GRAY SHALE & LIMESTONE
UPPER MARCELLUS	6517	6537			GRAY SHALE
MIDDLE MARCELLUS	6537				GRAY SHALE
TD - MARCELLUS				20160	

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SHR38EHSM

47-095-02570



**DRILLING CONTRACTOR**

**TOPHOLE**

DECKER DRILLING, INC  
11565 OH-676  
VINCENT, OH 45784

**KOP TO TD**

PATTERSON-UTI DRILLING COMPANY  
207 CARLTON DRIVE  
EIGHTY FOUR, PA 15330

**CEMENTING COMPANY**

**TOPHOLE**

UNIVERSAL PUMPING PRESSURE  
2198 UNIVERSITY DRIVE  
LEMONT FURNACE, PA 15456

**PRODUCTION**

HALLIBURTON  
121 CHAMPION WAY SUITE #210  
CANONSBURG, PA 15317

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# Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date	8/4/2019
Job End Date	8/21/2019
State	West Virginia
County	Tyler
API Number	47-095-02570-00-00
Operator Name	CNX Gas Company LLC
Well Name and Number	SHR38EHSM
Latitude	39.37139600
Longitude	-80.83527300
Datum	NAD83
Federal Well	NO
Indian Well	NO
True Vertical Depth	6,545
Total Base Water Volume (gal)	16,495,626
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	CNX	Carrier/Base Fluid	Water	7732-18-5	100.00000	85.03200	None
Sand (Proppant)	Xeane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	14.25060	None
Hydrochloric Acid (7.5%)	Xeane	Acid Inhibitor	Water	7732-18-5	92.50000	0.54123	None
			Hydrochloric Acid	7647-01-0	7.50000	0.04388	None
XFR-48	Xeane	Friction Reducer	Water	7732-18-5	47.00000	0.03301	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01756	None
			butene, homopolymer	9003-29-6	25.00000	0.01756	None
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00211	None
XSI-22	Xeane	Scale Inhibitor	Methanol	67-56-1	50.00000	0.01122	None
			2-propanoic acid, polymer with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propensulfonic acid monosodium salt and sodium phosphinite	110224-99-2	10.00000	0.00224	None

KWG-111LS	Keane	Gel	Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00443	None
			Guar gum	9000-30-0	55.00000	0.00443	None
Hydrochloric Acid (15%)	Keane	Acidizing	Water	7732-18-5	85.00000	0.00703	None
			Hydrochloric Acid	7647-01-0	15.00000	0.00124	None
MBC-516	Keane	Biocide	glutaral	111-30-8	26.70000	0.00456	None
			didecyltrimethylammonium chloride	7173-51-5	8.00000	0.00136	None
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.0009	None
			Ethanol	64-17-5	2.80000	0.00048	None
KFEAC-30	Keane	Iron Control	acetic acid	64-19-7	60.00000	0.00234	None
			Citric acid	77-92-9	40.00000	0.00156	None
KAI-12	Keane	Acid Inhibitor	Methanol	67-56-1	90.00000	0.00174	None
	RECEIVED		prop-2-yn-1-ol	107-19-7	5.00000	0.00010	None
	Office of Oil and Gas		Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00010	None
			Fatty imidazoline	61790-69-0	5.00000	0.00010	None
			isopropyl alcohol	67-63-0	5.00000	0.00010	None
			xylene	1330-20-7	5.00000	0.00010	None
			ethylbenzene	100-41-4	1.00000	0.00002	None
Chemliquid 250	Environmental Protection Keane	pH Buffer	water	7732-18-5	75.00000	0.00023	None
			sodium hydroxide	1310-73-2	25.00000	0.00008	None
KWBO-2	Keane	Breaker	Sodium persulfate	7775-27-1	99.00000	0.00009	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	92.50000	0.54123	
			butene, homopolymer	9003-29-6	25.00000	0.01756	
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01756	
			Water	7732-18-5	85.00000	0.00703	
			Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00443	
			2-propenoic acid, polymer with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propensulfonic acid monosodium salt and sodium phosphinite	110224-99-2	10.00000	0.00224	
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00211	
			Citric acid	77-92-9	40.00000	0.00156	

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					7173-51-5	8.00000	0.00136
					didecyltrimethylammonium chloride		
					68424-85-1	5.30000	0.00091
					quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides		
					64-17-5	2.80000	0.00048
					Ethanol		
					7732-18-5	75.00000	0.00023
					water		
					61790-69-0	5.00000	0.00010
					Fatty imidazoline		
					67-63-0	5.00000	0.00010
					isopropyl alcohol		
					107-19-7	5.00000	0.00010
					prop-2-yn-1-ol		
					1330-20-7	5.00000	0.00010
					xylylene		
					68526-83-0	5.00000	0.00010
					Alcohols, C7-9-iso-, C8-rich		
					100-41-4	1.00000	0.00002
					ethylbenzene		

\* 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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## CNX SHR-38E-HSM Surveys Off to 20160ft MD Survey Geodetic Report

(Def Survey)

Report Date: July 18, 2019 - 04:11 PM  
 Client: CNX Gas  
 Field: WV Tyler Field (NAD 27)  
 Structure / Slot: CNX SHR-38 Pad / SHR-38E-HSM  
 Well: SHR-38E-HSM  
 Borehole: Original Borehole  
 UWI / API#: Unknown / Unknown  
 Survey Name: CNX SHR-38E-HSM Surveys Off to 20160ft MD  
 Survey Date: June 25, 2019  
 Tors / AHD / DDI / ERD Ratio: 319.108 / 1.14234.178 / 7 / 167 / 12.281  
 Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet  
 Location Lat / Long: N 30° 22' 16.73502" W 80° 50' 7.80192"  
 Location Grid N/E Y/X: N 320156.670 N/E, E 1022471.900 N/E  
 CRS Grid Convergence Angle: -0.8517"  
 Grid Scale Factor: 0.999995067  
 Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 161.000° (Grid North)  
 Vertical Section Origin: 0.000 R, 0.000 H  
 TVD Reference Datum: KB  
 TVD Reference Elevation: 1040.650 R above MSL  
 Seabed / Ground Elevation: 1011.650 R above MSL  
 Magnetic Declination: -7.708°  
 Total Gravity Field Strength: 969.3213mg (9.80665 Banded)  
 Gravity Model: GARM  
 Total Magnetic Field Strength: 51823.771 nT  
 Magnetic Dip Angle: 66.450°  
 Declination Date: June 25, 2019  
 Magnetic Declination Model: HDGM 2019  
 North Reference: Grid North  
 Grid Convergence Used: -0.8517"  
 Total Corr Mag North-Grid North: -0.8563°  
 Local Coord Referenced To: Wall Head

Comments	MD	Incl	Azim Grid	TVD	TVSS	VSEC	NS	EW	DLS	TF	BR	TR	Northing	Easting	Latitude	Longitude	Directional
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SHL	0.00	0.00	0.00	0.00	-1074.55	0.00	0.00	0.00	N/A	346.839	0.00	N/A	320155.66	1022472.00	30.37131521	-80.83544488	0.00
	115.00	0.18	348.30	115.00	-625.85	-0.18	0.18	-0.04	0.14	96.24M	0.14	0.00	320156.84	1022471.96	30.37131571	-80.83544512	0.00
	215.00	0.12	90.24	215.00	-625.85	-0.25	0.28	0.03	0.23	51.07M	-0.04	100.85	320156.96	1022472.03	30.37131606	-80.83544488	0.00
	315.00	0.23	51.07	315.00	-625.85	-0.28	0.40	0.29	0.17	309.30M	0.11	-45.17	320157.07	1022472.20	30.37131638	-80.83544396	0.00
	415.00	0.18	309.35	415.00	-625.85	-0.47	0.01	0.34	0.31	23.27M	-0.07	-101.72	320157.29	1022472.34	30.37131697	-80.83544380	0.00
	515.00	0.15	23.27	515.00	-625.85	-0.68	0.82	0.29	0.19	281.92M	-0.01	73.92	320157.50	1022472.28	30.37131754	-80.83544401	0.07
	615.00	0.25	281.92	615.00	-625.85	-0.86	1.12	0.32	0.32	314.92M	0.10	-101.35	320157.66	1022472.12	30.37131799	-80.83544459	0.28
	715.00	0.21	314.92	715.00	-625.85	-1.17	1.10	-0.22	0.14	235.92M	-0.04	33.00	320157.84	1022471.78	30.37131845	-80.83544562	0.43
	815.00	0.20	235.92	815.00	-625.85	-1.29	1.19	-0.49	0.28	348.24M	-0.01	-79.00	320157.87	1022471.51	30.37131853	-80.83544679	0.57
	915.00	0.10	348.24	915.00	-125.85	-1.33	1.18	-0.66	0.26	289.92M	-0.10	112.32	320157.88	1022471.34	30.37131849	-80.83544730	0.67
	1015.00	0.25	289.92	1015.00	-25.85	-1.55	1.34	-0.88	0.22	258.63M	0.15	-58.32	320158.02	1022471.12	30.37131892	-80.83544816	0.78
	1115.00	0.26	258.63	1115.00	74.35	-1.72	1.37	-1.31	0.14	258.90M	0.01	-31.29	320158.05	1022470.99	30.37131898	-80.83544967	0.85
	1215.00	0.23	258.90	1215.00	174.34	-1.77	1.27	-1.03	0.03	272.99M	-0.02	-2.73	320158.06	1022470.28	30.37131871	-80.83545134	0.92
	1315.00	0.19	272.99	1315.00	274.34	-1.84	1.23	-2.08	0.07	140.95M	-0.04	17.00	320157.91	1022469.92	30.37131858	-80.83545241	0.97
	1415.00	0.10	140.95	1415.00	374.34	-1.82	1.17	-2.10	0.27	240.27M	-0.06	-132.04	320157.85	1022469.80	30.37131842	-80.83545280	1.04
	1515.00	0.20	240.27	1515.00	474.34	-1.71	1.02	-2.29	0.24	111.01M	0.10	90.32	320157.70	1022469.71	30.37131799	-80.83545313	1.10
	1615.00	0.20	111.01	1615.00	574.34	-1.57	0.87	-2.28	0.36	113.33M	0.00	-129.26	320157.55	1022469.72	30.37131758	-80.83545300	1.17
	1715.00	0.11	113.33	1715.00	674.34	-1.39	0.77	-2.03	0.09	87.49M	-0.09	2.32	320157.45	1022469.07	30.37131731	-80.83545219	1.21
	1815.00	0.48	87.48	1815.00	774.34	-1.21	0.51	-1.54	0.36	80.04M	0.35	-25.85	320157.43	1022470.40	30.37131728	-80.83545246	1.29
	1915.00	0.51	80.04	1915.00	874.34	-1.18	0.90	-0.75	0.24	74.83M	0.05	-27.44	320157.87	1022471.25	30.37131707	-80.83544760	1.38
	2015.00	0.53	74.83	2015.00	974.33	-1.23	1.33	0.08	0.14	61.54M	0.02	14.70	320158.01	1022472.08	30.37131895	-80.83544477	1.48
	2115.00	0.43	61.54	2115.00	1074.33	-1.58	1.06	0.08	0.13	63.04M	0.10	-12.50	320158.02	1022472.07	30.37131921	-80.83544572	1.56
	2215.00	0.43	61.54	2215.00	1174.33	-1.42	2.08	1.70	0.12	67.28M	-0.12	1.50	320158.76	1022473.70	30.37132107	-80.83543906	1.65
	2315.00	0.58	67.28	2315.00	1274.32	-1.50	2.44	2.40	0.13	55.22M	0.13	4.24	320159.12	1022474.49	30.37132208	-80.83543630	1.64
	2415.00	0.36	55.22	2415.00	1374.32	-1.61	2.81	3.20	0.22	46.33M	-0.20	-12.06	320159.49	1022475.20	30.37132312	-80.83543382	1.80
	2515.00	0.38	46.33	2515.00	1474.32	-1.84	3.22	3.70	0.06	77.09M	0.02	-8.89	320159.60	1022475.91	30.37132426	-80.83543208	1.73
	2558.00	0.32	77.09	2558.00	1574.32	-1.88	3.34	3.92	0.45	92.92M	-0.14	71.53	320160.02	1022476.91	30.37132462	-80.83543130	1.75
	2658.00	0.30	92.92	2658.00	1674.31	-1.76	3.39	4.45	0.66	104.67M	0.06	1.86	320160.07	1022477.84	30.37132477	-80.83542942	1.78
	2741.00	1.23	274.67	2740.99	1700.31	-2.03	3.45	3.78	1.84	266.95M	1.12	-214.78	320160.13	1022475.78	30.37132481	-80.83543180	1.92
	2825.00	4.63	258.95	2824.84	1784.19	-2.75	2.78	-0.42	4.14	250.84M	4.05	-21.10	320159.44	1022471.58	30.37132284	-80.83544062	2.23
	2910.00	7.38	250.84	2909.36	1868.71	-3.00	0.19	-8.92	3.32	251.94M	3.24	-7.19	320158.67	1022463.08	30.37131545	-80.83547655	2.52
	2984.00	10.17	251.94	2982.37	1951.72	-3.19	-0.88	-21.07	3.30	112.82M	3.32	11.29	320158.80	1022450.93	30.37130378	-80.83561930	2.78
	3079.00	13.84	254.84	3075.53	2034.88	-3.99	-8.83	-37.86	4.14	110.19M	4.08	3.41	320147.85	1022434.11	30.37128951	-80.83567851	3.03
	3163.00	14.19	255.24	3157.07	2116.42	-5.41	-14.04	-57.40	1.98	1.98M	0.85	0.48	320142.64	1022470.40	30.37131728	-80.83545246	3.18
	3247.00	15.50	255.96	3238.24	2197.50	-6.07	-19.57	-78.27	1.87	4.3L	0.87	-0.21	320137.11	1022363.74	30.37125836	-80.83572075	3.32
	3334.00	18.31	254.41	3321.46	2280.81	-6.61	-26.26	-102.73	3.13	4.72M	3.13	-0.75	320130.42	1022399.28	30.37123000	-80.83580661	3.47
	3412.00	22.79	252.30	3399.73	2359.06	-7.30	-32.49	-126.34	2.67	2.81M	2.66	0.68	320123.23	1022427.87	30.37118271	-80.83590863	3.60
	3502.00	22.09	256.78	3478.92	2438.27	-13.01	-41.08	-159.28	2.01	40.43L	1.85	2.15	320115.80	1022312.72	30.37119031	-80.83606114	3.71
	3587.00	22.21	256.49	3557.85	2517.00	-16.15	-48.50	-190.46	1.19	159.53M	0.14	-0.32	320108.19	1022281.55	30.37114368	-80.83611602	3.78
	3674.00	21.41	255.67	3638.42	2597.77	-19.02	-56.27	-221.83	0.98	56.42L	-0.92	-0.94	320100.41	1022250.18	30.37111573	-80.83622557	3.86
	3760.00	21.81	254.86	3718.43	2677.78	-21.36	-64.29	-252.33	0.42	55.82M	0.23	-0.94	320092.39	1022219.68	30.37112850	-80.83633399	3.91
	3844.00	22.20	257.10	3796.37	2755.72	-24.09	-71.87	-292.73	1.22	57.28M	0.70	2.67	320084.81	1022189.28	30.37110944	-80.83644111	3.98
	3928.00	22.79	256.23	3873.66	2833.33	-28.13	-78.45	-314.17	1.22	32.15L	1.22	3.15	320078.26	1022157.84	30.37088969	-80.83655865	4.40
	4012.00	23.14	258.74	3951.33	2910.68	-32.71	-84.66	-344.34	0.52	100.36L	0.44	-0.70	320072.03	1022125.68	30.37108875	-80.83669539	4.08
	4095.00	23.03	257.08	4027.86	2987.04	-36.63	-91.47	-378.16	0.80	43.77L	-0.13	-2.30	320065.21	1022093.86	30.37104874	-80.83677556	4.13
	4182.00	23.17	256.74	4107.71	3067.06	-40.14	-99.20	-411.40	0.22	42.87M	0.16	-0.30	320057.48	1022060.62	30.37102616	-80.83689474	4.16
	4267.00	24.01	258.63	4185.91	3144.96	-44.11	-106.45	-444.63	1.33	170.03L	0.96	2.22	320050.24	1022027.30	30.37100491	-80.83701188	4.21
	4354.00	23.40	256.36	4265.27	3224.02	-48.67	-113.42	-478.91	0.71	142.31L	-0.70	-0.31	320043.28	1021993.12	30.37098437	-80.83713273	4.25
	4438.00	21.87	255.35	4342.77	3302.12	-52.00	-120.79	-510.45	2.19	162.56M	-1.70	-3.58	320035.92	1021961.58	30.37096293	-80.83724386	4.30
	4522.00	20.87	256.23	4420.94	3380.29	-54.56	-128.31	-540.25	1.25	8.34M	-1.10	1.05	320028.37	1021931.78	30.37094008	-80.83734889	4.34
	4608.00	21.86	256.50	4501.06	3460.41	-57.49	-135.88										

Comments	MD (ft)	Incl (°)	Asm Grid (ft)	TVD (ft)	TVDSS (ft)	VREG (ft)	NS (ft)	EW (ft)	DLB (ft)	TF (ft)	BR (ft)	TR (ft)	Northing (ft)	Easting (ft)	Latitude (ft)	Longitude (ft)	Directional (ft)
	7022.00	00.67	156.83	6514.25	6473.80	1358.45	-1728.23	-690.01	1.85	118.70R	0.18	1.84	318420.54	1621802.23	-90.26551567	-80.83482090	5.73
	8117.00	00.08	168.04	6513.65	6473.00	1453.27	-1823.39	-633.43	1.33	60R	-0.04	1.17	318332.70	1621836.61	-90.26527418	-80.83429642	5.76
	8006.00	00.06	156.68	6513.55	6472.00	1647.20	-1811.95	-700.53	1.74	94.46R	0.00	1.04	318245.12	1621872.51	-90.26503486	-80.83417102	5.77
	8206.00	00.78	163.27	6513.88	6473.03	1841.18	-2000.77	-799.67	3.63	93.72R	-0.30	3.82	318156.01	1621921.70	-90.26491645	-80.83401803	5.80
	8300.00	00.50	167.50	6514.28	6473.03	1735.87	-2092.86	-745.78	3.59	94.44L	-0.20	3.56	318064.10	1621976.29	-90.26465410	-80.83397730	5.83
	8304.00	00.72	167.13	6514.02	6474.27	1829.20	-2184.41	-725.21	0.54	127.12L	0.23	-0.40	317972.36	1622047.83	-90.26452816	-80.83394747	5.85
	8408.00	00.44	166.76	6516.61	6474.96	1923.78	-2278.95	-703.75	0.49	111.13L	-0.29	-0.30	317878.85	1622118.28	-90.26440200	-80.83391767	5.87
	8503.00	00.27	165.32	6516.97	6475.02	2017.23	-2368.30	-693.87	0.60	93.45L	-0.18	-0.41	317786.44	1622190.19	-90.26427596	-80.83389178	5.86
	8678.00	00.61	166.05	6517.00	6475.05	2111.94	-2460.61	-659.19	0.46	70.84L	0.30	-0.28	317695.20	1622261.84	-90.26415385	-80.83386471	5.91
	8772.00	00.00	164.94	6517.92	6477.27	2205.65	-2561.81	-635.65	1.25	123.33R	0.41	-1.18	317605.20	1622333.60	-90.26402786	-80.83383766	5.92
	8896.00	00.27	166.06	6518.52	6477.87	2290.30	-2642.61	-612.10	1.41	88.81L	-0.78	1.18	317514.20	1622405.03	-90.26390360	-80.83374705	5.94
	8901.00	00.36	166.87	6519.64	6478.90	2364.23	-2723.64	-585.07	1.45	72.13L	0.12	-0.45	317423.18	1622476.90	-90.26378117	-80.83365723	5.97
	9056.00	00.76	159.03	6520.33	6478.88	2486.22	-2823.06	-552.07	1.37	153.78R	0.42	-1.31	317333.77	1622549.00	-90.26365404	-80.83357200	6.00
	9152.00	00.55	166.87	6520.88	6480.23	2563.10	-2911.24	-530.62	2.98	98.58L	-0.24	0.28	317243.56	1622621.50	-90.26352729	-80.83349410	6.03
	9244.00	00.38	168.13	6521.78	6481.11	2677.13	-3008.85	-496.75	1.80	62.36L	-0.18	-1.85	317153.85	1622693.27	-90.26340278	-80.83340938	6.03
	9336.00	00.27	165.48	6522.88	6482.23	2771.95	-3088.20	-448.34	0.74	70.14R	-0.12	-0.79	317070.54	1622765.08	-90.26328464	-80.83331801	6.05
	9433.00	00.18	165.98	6524.17	6483.82	2935.45	-3171.88	-410.71	2.70	90.19R	-0.12	0.53	316984.98	1622837.31	-90.26316810	-80.83323057	6.08
	9528.00	00.55	166.96	6525.24	6484.50	3090.13	-3258.97	-372.55	0.83	93.75L	0.41	0.77	316897.87	1622909.46	-90.26305374	-80.83314510	6.10
	9622.00	00.38	169.30	6526.12	6485.47	3053.98	-3348.10	-337.52	2.81	86.66R	-0.18	2.81	316810.75	1622981.70	-90.26293821	-80.83305918	6.08
	9717.00	00.50	161.37	6527.04	6486.39	3149.97	-3435.55	-305.35	2.18	98.09R	0.13	2.18	316721.30	1623053.98	-90.26282300	-80.83297414	6.11
	9811.00	00.56	164.44	6527.82	6487.17	3242.90	-3525.30	-277.72	3.27	81.45R	0.05	3.27	316631.47	1623124.20	-90.26270817	-80.83288912	6.13
	9906.00	00.72	165.57	6528.62	6487.77	3336.87	-3616.18	-253.40	1.22	108.03L	0.10	1.20	316540.86	1623194.81	-90.26259281	-80.83280404	6.15
	10004.00	00.36	163.50	6530.05	6490.00	3425.38	-3707.83	-201.31	0.30	115.16L	0.30	0.19	316450.04	1623265.70	-90.26247700	-80.83271917	6.18
	10180.00	00.83	190.70	6531.30	6490.85	3520.35	-3808.25	-172.18	3.08	21.45L	0.47	-0.04	316359.63	1623336.83	-90.26236148	-80.83263443	6.20
	10283.00	00.40	160.48	6531.12	6490.47	3714.35	-3978.00	-140.04	0.64	118.71R	0.00	-0.23	316269.86	1623407.86	-90.26224633	-80.83254931	6.21
	10378.00	00.17	160.83	6530.96	6490.01	3903.33	-4068.57	-108.55	0.53	81.78R	-0.23	-0.40	316180.32	1623478.45	-90.26213143	-80.83246416	6.24
	10472.00	00.45	162.87	6530.15	6490.50	4090.33	-4156.91	-80.36	2.90	91.22R	0.30	2.06	316090.88	1623549.08	-90.26201680	-80.83237900	6.23
	10567.00	00.55	165.28	6530.45	6490.23	4278.10	-4244.28	-52.62	3.86	98.37L	-0.18	0.41	316001.38	1623619.50	-90.26190244	-80.83229387	6.25
	10661.00	00.00	163.23	6529.13	6488.48	4061.98	-4337.90	-20.45	2.90	78.09L	-0.41	-2.63	315910.10	1623690.25	-90.26178830	-80.83220908	6.28
	10766.00	00.11	162.71	6529.04	6488.30	4186.82	-4428.74	-1.83	0.56	38.79L	0.12	-0.55	315820.17	1623760.37	-90.26167417	-80.83212416	6.28
	10861.00	00.23	162.83	6528.63	6488.03	4311.63	-4519.59	1.03	1.60	105.81R	0.54	-0.42	315730.82	1623830.83	-90.26156004	-80.83203921	6.30
	10945.00	00.94	160.90	6527.98	6487.53	4375.88	-4608.26	57.40	2.43	51.34L	-0.72	-2.53	315641.86	1623901.32	-90.26144591	-80.83195427	6.32
	11039.00	00.22	165.55	6527.85	6487.20	4460.80	-4698.43	80.97	0.88	110.52R	0.30	-0.37	315552.99	1623971.97	-90.26133178	-80.83186938	6.34
	11134.00	00.65	161.34	6528.04	6487.39	4564.85	-4789.59	121.77	2.01	90.29L	-0.71	-1.88	315464.09	1624042.56	-90.26121765	-80.83178453	6.33
	11228.00	00.05	161.75	6528.06	6488.04	4658.84	-4874.08	151.91	0.15	90L	0.12	-0.10	315375.15	1624113.00	-90.26110352	-80.83170000	6.35
	11322.00	00.86	158.81	6529.25	6488.00	4753.82	-4964.26	184.51	2.78	80.00L	0.00	-0.78	315286.28	1624183.50	-90.26098938	-80.83161511	6.37
	11417.00	00.11	162.81	6529.81	6488.11	4848.81	-5054.46	118.78	1.60	120.58L	0.40	-0.41	315197.48	1624254.00	-90.26087525	-80.83153022	6.38
	11511.00	00.27	158.01	6530.00	6490.04	4941.63	-5146.10	253.44	0.82	74.09R	-0.41	-0.70	315108.74	1624324.53	-90.26076112	-80.83144539	6.36
	11606.00	00.55	158.00	6531.05	6491.01	5036.53	-5237.48	288.20	1.07	19.44R	0.20	1.03	314920.46	1624395.24	-90.26064700	-80.83136044	6.40
	11700.00	00.72	158.05	6532.26	6491.81	5130.48	-5331.25	321.91	1.10	110.74R	0.18	0.06	314831.70	1624465.86	-90.26053287	-80.83127551	6.41
	11794.00	00.33	160.08	6533.04	6492.30	5224.44	-5424.33	354.73	1.17	83.16L	-0.41	1.10	314743.02	1624536.71	-90.26041870	-80.83119067	6.43
	11888.00	00.61	157.75	6533.82	6493.27	5318.37	-5519.95	388.90	2.47	72.81R	0.29	-0.45	314654.34	1624607.60	-90.26030453	-80.83110571	6.44
	11982.00	00.18	162.58	6534.10	6493.80	5412.33	-5614.18	423.48	0.67	97.33R	0.40	-0.42	314565.66	1624678.50	-90.26019036	-80.83102086	6.46
	12076.00	00.06	160.36	6533.91	6493.28	5506.75	-5708.55	458.00	0.80	83.89R	-0.12	-2.85	314476.98	1624749.27	-90.26007621	-80.83093595	6.44
	12170.00	00.34	162.90	6533.58	6492.83	5603.25	-5798.90	493.84	2.88	135R	0.20	2.86	314388.28	1624820.00	-90.26000000	-80.83085100	6.48
	12264.00	00.11	163.23	6533.25	6492.37	5699.70	-5890.21	530.07	0.42	116.82R	0.30	0.30	314299.58	1624890.83	-90.25992383	-80.83076604	6.46
	12358.00	00.83	163.67	6533.35	6492.70	5792.11	-5980.83	564.26	0.40	90L	-0.24	0.42	314211.15	1624961.23	-90.25984765	-80.83068100	6.50
	12452.00	00.83	161.41	6533.82	6492.87	5886.07	-6072.47	608.54	2.30	6.81L	0.00	-0.30	314122.82	1625031.50	-90.25977141	-80.83059604	6.51
	12546.00	00.50	161.33	6533.35	6492.70	5981.07	-6164.40	658.80	0.71	147.53L	0.71	-0.08	314034.50	1625101.86	-90.25969528	-80.83051100	6.52
	12640.00	00.17	161.12	6532.80	6492.15	6075.07	-6258.40	692.14	0.42	105.74L	-0.36	-0.22	313946.51	1625172.11	-90.25961901	-80.83042604	6.53
	12740.00	00.55	158.92	6533.03	6492.38	6170.05	-6352.78	735.10	1.41	84.87L	-0.66	-2.32	313858.24	1625242.56	-90.25954286	-80.83034100	6.54
	12834.00	00.18	162.81	6533.58	6492.87	6264.04	-6446.18	778.02	1.92	81.94L	-0.56	-0.41	313770.17	1625312.90	-90.25946668	-80.83025604	6.57
	12928.00	00.78	165.40	6534.05	6493.40	6358.08	-6540.19	820.85	1.72	101.86R	0.05	-1.72	313682.10	1625383.22	-90.25939051		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLB (°/100ft)	TF (ft)	BR (°/100ft)	TR (°/100ft)	Northing (ft)	Easting (ft)	Latitude (°)	Longitude (°)	Directional
	10605.00	90.73	163.05	6532.90	5492.25	13069.45	-12806.61	2910.70	1.03	160.25L	0.00	-1.03	307350.73	1625301.55	36.33627768	-80.82445125	7.13
	10730.00	90.34	162.91	6532.02	5491.37	13154.39	-12807.44	2947.51	0.44	74.48L	-0.41	-0.15	307259.90	1625410.35	36.33602975	-80.82434623	7.14
	10824.00	90.38	162.73	6531.42	5490.77	13246.34	-12987.25	2975.27	0.20	29.2L	0.05	-0.19	307170.10	1625447.12	36.33578434	-80.82424540	7.15
	10918.00	90.73	162.54	6530.50	5489.85	13342.29	-13076.96	3003.33	0.41	174.92L	0.30	-0.20	307080.39	1625475.17	36.33553621	-80.82414150	7.15
	20013.00	89.83	162.49	6530.04	5489.39	13437.28	-13187.58	3031.89	0.95	78.55L	-0.95	-0.08	306989.80	1625503.73	36.33529165	-80.82403587	7.16
	20107.00	89.84	162.00	6530.22	5489.57	13531.24	-13257.07	3090.58	0.50	95.37R	0.12	-0.49	306900.29	1625532.42	36.33504708	-80.82392979	7.16
Final Survey	20131.00	89.83	163.17	6530.27	5489.62	13565.23	-13279.97	3067.76	4.90	HS	-0.46	4.88	306877.39	1625539.80	36.33498451	-80.82390321	7.17
PTB	20180.00	89.83	163.17	6530.36	5489.71	13564.21	-13307.73	3079.16	0.00		0.00	0.00	306849.83	1625548.00	36.33490855	-80.82387209	7.17

Survey Type: Def Survey

Survey Error Model: ISOWSA Rev 0 \*\*\* 3-D 65 000% Confidence 2.7955 sigma  
 Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	20.000	1/66 425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / CNX SHR-38E-HSM Surveys 0ft to 20160ft MD
	1	20.000	20.000	Act Str	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / CNX SHR-38E-HSM Surveys 0ft to 20160ft MD
	1	20.000	2558.000	Act Str	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / CNX SHR-38E-HSM Surveys 0ft to 20160ft MD
	1	2558.000	6481.000	Act Str	30.000	30.000	NAL_MWD-NCH_SLB	Original Borehole / CNX SHR-38E-HSM Surveys 0ft to 20160ft MD
	1	6481.000	20180.000	Act Str	30.000	30.000	NAL_MWD_1.0_DEG	Original Borehole / CNX SHR-38E-HSM Surveys 0ft to 20160ft MD

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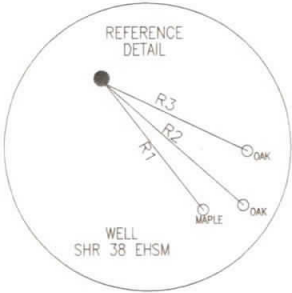
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Environmental Protection

# SHR 38 EHSM

## PAGE 2 OF 4

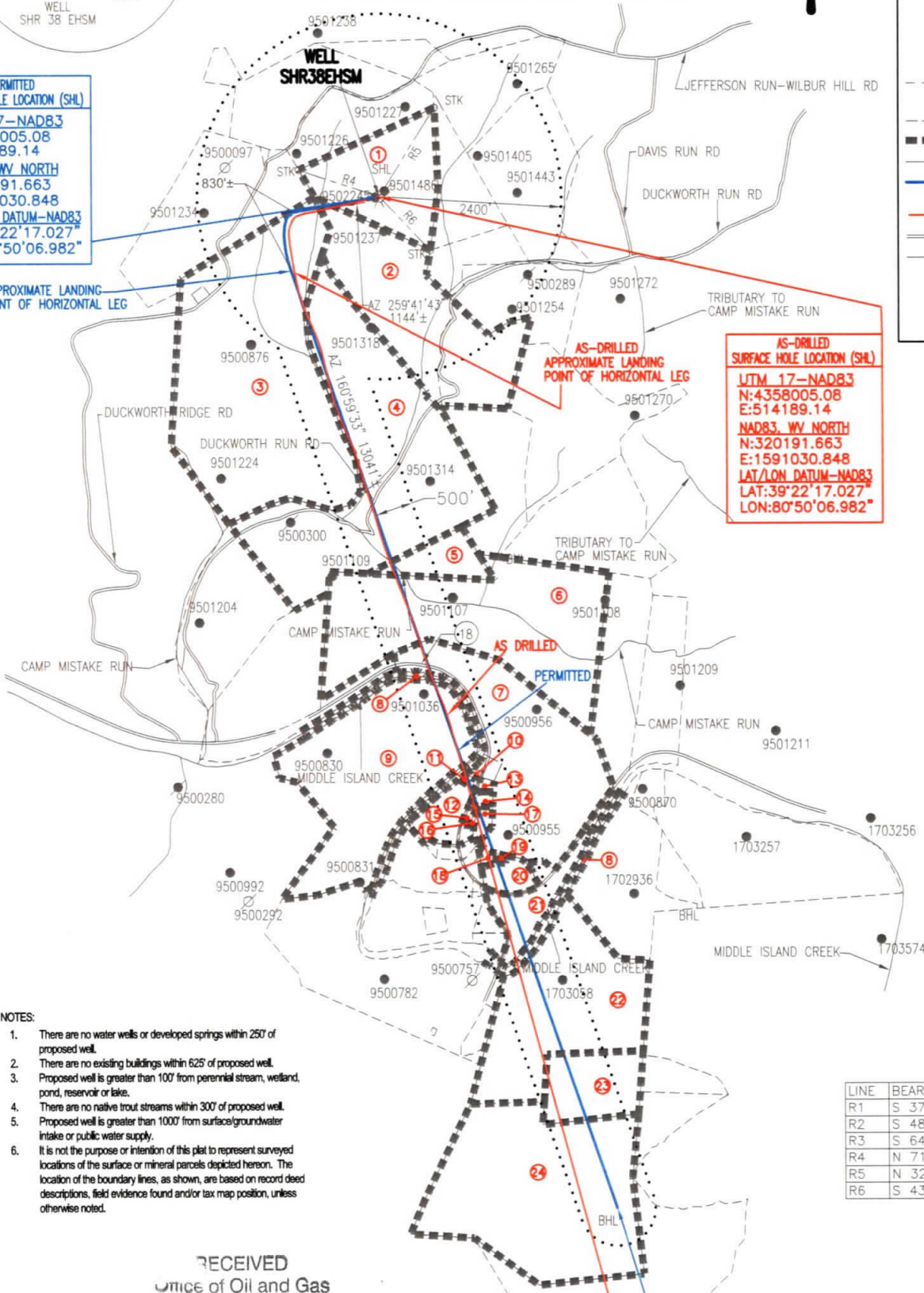
### AS DRILLED PLAT



LEGEND	
	- TOPO MAP POINT
	- WELL
	- ALL ARE POINTS UNLESS OTHERWISE NOTED.
	- 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  
 N:4358005.08  
 E:514189.14  
 NAD83, WV NORTH  
 N:320191.663  
 E:1591030.848  
 LAT/LON DATUM-NAD83  
 LAT:39°22'17.027"  
 LON:80°50'06.982"

**AS-DRILLED SURFACE HOLE LOCATION (SHL)**  
 UTM 17-NAD83  
 N:4358005.08  
 E:514189.14  
 NAD83, WV NORTH  
 N:320191.663  
 E:1591030.848  
 LAT/LON DATUM-NAD83  
 LAT:39°22'17.027"  
 LON:80°50'06.982"



- NOTES:
1. There are no water wells or developed springs within 250' of proposed well.
  2. There are no existing 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 hereon. 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 37°58'41" E	165.06'
R2	S 48°49'28" E	190.22'
R3	S 64°45'00" E	162.89'
R4	N 71°43'32" W	1116.44'
R5	N 32°03'26" E	1375.77'
R6	S 43°39'07" E	976.44'

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**AS-DRILLED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4357697.13  
 E:513854.23  
 NAD83, WV NORTH  
 N:319199.452  
 E:1589914.971  
 LAT/LON DATUM-NAD83  
 LAT:39°22'07.057"  
 LON:80°50'21.002"

**PERMITTED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4357702.55  
 E:513839.97  
 NAD83, WV NORTH  
 N:319218.001  
 E:1589868.452  
 LAT/LON DATUM-NAD83  
 LAT:39°22'07.233"  
 LON:80°50'21.598"

**AS-DRILLED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4353966.72  
 E:515193.90  
 NAD83, WV NORTH  
 N:306884.670  
 E:1594106.832  
 LAT/LON DATUM-NAD83  
 LAT:39°20'05.966"  
 LON:80°49'25.319"

**PERMITTED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4353967.77  
 E:515196.62  
 NAD83, WV NORTH  
 N:306887.950  
 E:1594115.822  
 LAT/LON DATUM-NAD83  
 LAT:39°20'05.999"  
 LON:80°49'25.206"

API WELL #: 47 95 02570  
 STATE COUNTY PERMIT

**THRASHER**

SEPTEMBER 17, 2019

*George D. Six*





BHL is located on topo map 14,569 feet south of Latitude: 39° 22' 30"  
 SHL is located on topo map 1,313 feet south of Latitude: 39° 22' 30"

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL

SEE PAGE 3 & 4 FOR SURFACE OWNERS AND LESSORS

## AS DRILLED PLAT

PERMITTED  
SURFACE HOLE LOCATION (SHL)  
 UTM 17-NAD83  
 N:4358005.08  
 E:514189.14  
 NAD83, WV NORTH  
 N:320191.663  
 E:1591030.848  
 LAT/LON DATUM-NAD83  
 LAT:39°22'17.027"  
 LON:80°50'06.982"

AS-DRILLED  
SURFACE HOLE LOCATION (SHL)  
 UTM 17-NAD83  
 N:4358005.08  
 E:514189.14  
 NAD83, WV NORTH  
 N:320191.663  
 E:1591030.848  
 LAT/LON DATUM-NAD83  
 LAT:39°22'17.027"  
 LON:80°50'06.982"

PERMITTED  
APPROX. LANDING POINT  
 UTM 17-NAD83  
 N:4357702.55  
 E:513839.97  
 NAD83, WV NORTH  
 N:319218.001  
 E:1589868.452  
 LAT/LON DATUM-NAD83  
 LAT:39°22'07.233"  
 LON:80°50'21.598"

AS-DRILLED  
APPROX. LANDING POINT  
 UTM 17-NAD83  
 N:4357697.13  
 E:513854.23  
 NAD83, WV NORTH  
 N:319199.452  
 E:1589914.971  
 LAT/LON DATUM-NAD83  
 LAT:39°22'07.057"  
 LON:80°50'21.002"

PERMITTED  
BOTTOM HOLE LOCATION (BHL)  
 UTM 17-NAD83  
 N:4353967.77  
 E:515196.62  
 NAD83, WV NORTH  
 N:306887.950  
 E:1594115.822  
 LAT/LON DATUM-NAD83  
 LAT:39°20'05.999"  
 LON:80°49'25.206"

AS-DRILLED  
BOTTOM HOLE LOCATION (BHL)  
 UTM 17-NAD83  
 N:4353966.72  
 E:515193.90  
 NAD83, WV NORTH  
 N:306884.670  
 E:1594106.832  
 LAT/LON DATUM-NAD83  
 LAT:39°20'05.966"  
 LON:80°49'25.319"

SHL is located on topo map 9,052 feet west of Longitude: 80° 47' 30"  
 SHL is located on topo map 548 feet west of Longitude: 80° 50' 00"

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NOV 21 2019

WV Department of  
Environmental Protection

# THRASHER

CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES  
 600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
 PHONE (304) 624-4108 • FAX (304) 624-7831



FILE #: SHR 38 EISM AS-DRILLED  
 DRAWING #: SHR 38 EISM 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: SEPTEMBER 17, 2019  
 OPERATOR'S WELL #: SHR 38 EISM AS-DRILLED  
 API WELL #: 47 95 02570  
 STATE COUNTY PERMIT

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

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 1012'±  
 COUNTY/DISTRICT: TYLER / CENTERVILLE QUADRANGLE: WEST UNION, WV 7.5'  
 SURFACE OWNER: JAMES E. ASH ET AL ACREAGE: 111±  
 OIL & GAS ROYALTY OWNER: JAMES E. ASH ET AL ACREAGE: 1016.393±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,480'± TMD: 20,198'±  
 WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT CHRIS TURNER  
 Address 1000 CONSOL ENERGY DRIVE Address 1 DOMINION DR.  
 City CANONSBURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378



# SHR 38 EHSM

## PAGE 3 OF 4

### AS DRILLED PLAT

	SURFACE OWNER	LESSOR	DIST-TM/PAR
1	JAMES E. ASH ET AL	VERNA O. ASH, JAMES E. ASH AND THELMA B. ASH, BESSIE HAUGHT AND HAROLD WARNER ERNEST G. SECKMAN AND O. JOANNE SECKMAN RALPH E. PHILLIPS AND VELINDA PHILLIPS, H/W	P/O 1-16/19
2	RICHARD H. METCALF JOHN R. ANDERS II	JOHN MICHAEL LEONIAN JOSEPH ROBERT LEONIAN MARGO L. KIEHL AND CHARLES F. KIEHL, W/H BERDINA ROSE AND NORMAN W. ROSE, W/H PHILLIP LEONIAN, AKA PHILLIP MARSHALL LEONIAN MARION RAY BACHELOR, AKA MARION R. BACHELOR AND GLOM JEAN BACHELOR, H/W RITA G. JARVIS MIKE ROSS, INC. I.L. MORRIS JO ELLEN HARPER DAY MARY LEE LILLY ARMEN LEONIAN, AKA ARMEN LANHAM LEONIAN JOHN FULTON LEONIAN NILA ASH SAYLOR REVOCABLE TRUST, BY JOSEPH F. SILEK, JR. BAILEY ANN MILLS WILLIAM PAUL HARPER DAVID PAUL LOCOCO MARY LYNNE SLATTERY, FKA MARY LYNNE LOCOCO DONALD VINCENT LOCOCO ROSE MARIE VANHEUVELN THERESA LEE ROBERTSON MARTHA SUE MUZIO, FKA MARTHA SUE LOCOCO MICHELE LOCOCO BUSHMIRE, FKA MICHELLE LUCRETIA BUSHMIRE ELIZABETH FLORENCE LOCOCO RALPH E. PHILLIPS AND VELINDA PHILLIPS, H/W BRC APPALACHIAN MINERALS I, LLC BRC APPALACHIAN MINERALS I, LLC	1-16/17 1-16/21
3	RONALD R. & ROWLAND & REVA D. ROWLAND	JACOB L. DILLON AND EDNA DILLON, H/W	P/O 1-16/20
4	D. RALPH THACKER & J. MAURICE CARLISLE JR.	CHARLES W. HENDERSON AND DOROTHY M. HENDERSON, H/W AND CHARLES W. HENDERSON, POWER OF ATTORNEY FOR THE A. I. DONK HEIRS JOHN A. CONKLIN AND JEAN CONKLIN, H/W GEORGE B. CONKLIN AND BETTY M. CONKLIN, H/W BETTY L. CONKLIN ROBERT LEE REED LEWIS H. REED AND CAROL J. REED, H/W KATHY PRANGER VIRGINIA O'REAR AND RALPH O'REAR, W/H ROBERT H. MELVIN BETTY L. MELVIN MARY S. LARTZ AND WILLIAM LARTZ, W/H LILLIAN CRABILL AND WILLIAM CRABILL, W/H MELISSA COLL ROBERT BARTHOLOMEW AND BARBARA BARTHOLOMEW, H/W PHILLIP L. MELVIN JOANNE GREENMAN AND GERALD GREENMAN, H/W	1-16/26
5		PAUL W. HYLBERT AND CHARLOTTE J. HYLBERT, H/W	1-18/1
6	STEVEN E. MALICKI JR. FRED M. DOTSON JR. KAREN DOTSON KEVIN DOTSON STEVEN E. MALICKI JR.		1-18/1.1
7	MARY MONNIE COLLINS	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JAY COLLINS AND MARY M. COLLIN, H/W	1-18/15
8	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	N/A
9	EDWIN D. MULVAY AND PATRICIA L. MULVAY	EDWIN DELMER MULVAY AND PATRICIA VAUGHN MULVAY A. E. PRATT HEIRS, EXECUTED BY JEAN COLE AND ROBERT L. COLE A. E. PRATT HEIRS, EXECUTED BY PATRICIA P. PRATT AND ALLEN T. PRATT A. E. PRATT HEIRS, EXECUTED BY DARRYL A. PRATT A. E. PRATT HEIRS, EXECUTED BY ROBERT F. AND GLENNA Z. PRATT A. E. PRATT HEIRS, EXECUTED BY RICHARD F. MEAD AND MARGARET MEAD A. E. PRATT HEIRS, EXECUTED BY JANET TINGHAM AND ELVIN I. TINGHAM A. E. PRATT HEIRS, EXECUTED BY KENNETH E. PRATT AND LAURA L. PRATT A. E. PRATT HEIRS, EXECUTED BY MALCOLM E. GREENWOOD AND DOROTHY ANN A. E. PRATT HEIRS, EXECUTED BY DONALD E. BORER AND MARY JANE BORER A. E. PRATT HEIRS, EXECUTED BY THERESA C. PRATT	1-18/14
10	EVERETT L. CARMICHAEL	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE EVERETT L. CARMICHAEL	1-18/25 1-18/26.1
11		CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JACOB MYER	1-18/26 1-18/26.3 1-18/26.4
12	JERRY D. & CHRISINA D. MYER AMANDA D. GIST & KYLE J. GIST JEREMY D. MYER	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JACOB MYER	1-18/26 1-18/26.3 1-18/26.4
13	JOSEPH J. DUFF	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE L. JUANITA BAKER	1-18/27
14	PHIL LEONARD KOONTZ	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINLGE PHIL KOONTZ LEONARD	1-18/28

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Environmental Protection

AS-DRILLED  
SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83  
N:4358005.08  
E:514189.14  
NAD83, WV NORTH  
N:320191.663  
E:1591030.848  
LAT/LON DATUM-NAD83  
LAT:39°22'17.027"  
LON:80°50'06.982"

APPROX. LANDING POINT

UTM 17-NAD83  
N:4357697.13  
E:513854.23  
NAD83, WV NORTH  
N:319199.452  
E:1589914.971  
LAT/LON DATUM-NAD83  
LAT:39°22'07.057"  
LON:80°50'21.002"

AS-DRILLED  
BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83  
N:4353966.72  
E:515193.90  
NAD83, WV NORTH  
N:306884.670  
E:1594106.832  
LAT/LON DATUM-NAD83  
LAT:39°20'05.966"  
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NAD83, WV NORTH  
N:319218.001  
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CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES  
600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
PHONE (304) 624-4108 • FAX (304) 624-7831

SEPTEMBER 17, 2019

# SHR 38 EHSM

## PAGE 4 OF 4

### AS DRILLED PLAT

	SURFACE OWNER	LESSOR	DIST-TM/PAR
15	JAMES C. WILLIAMS & PATRICIA L. WILLIAMS	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE PATRICIA L. WILLIAMS	1-18/30
16 17	JACOB MYER	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JACOB MYER	1-18/29
18	CLIFFORD A. & TOBY A. WEEKLEY	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE CLIFFORD A. WEEKLEY AND TOBY A. WEEKLEY, H/W	1-18/23
19	JAY GLENN COLLINS, ET AL	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE DANIEL VINCENT LANTZ NINA MAE MOLNAR DELVERNA JUNE MCKITRICK JAY GLENN COLLINS DAVID CARL LANTZ	1-18/22
20	JON M. MONTGOMERY	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JON M. MONTGOMERY	1-18/20
21	EDWIN D. & PATRICIA L. MULVAY	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H GLENDA L. HEDRICK THERESA MARIE SMITH, SINGLE EDWIN DELMER MULVAY AND PATRICIA L. MULVAY, H/W	1-18/18
22	RALPH MCCUTCHAN II CHIPPS REVOCABLE LIVING TRUST 2004	CLARENCE L. HURST AND BETTY ANN	8-3/3
23	RALPH P. MCCUTCHAN II	CLARENE W. MUTSCHELKNAUS AND MARY F. MUTSCHELKNAUS, H/W	8-3/4.1
24	PHYLLIS MARIE STEELE (LE)	WILLIAM PAUL MCCUTCHAN AND VIRGINIA B. MCCUTCHAN, H/W JACQUELINE L. STANDAER AND WARREN G. STANDAER, W/H MARYLYNN H. ROBERTS AND JOHN E. ROBERTS, W/H J. W. MORTON FIELD	8-3/7

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# THRASHER

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