

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

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Office of Oil and Gas  
NOV 21 2019  
WV Department of  
Environmental Protection

API 47-095-02569 County TYLER District McELROY  
Quad SHIRLEY Pad Name SHR38 Field/Pool Name \_\_\_\_\_  
Farm name SECKMAN Well Number SHR38DHSM  
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 320137.56 (NAD 27) Easting 1622477.87 (NAD 27)  
Landing Point of Curve Northing 318789.24 (NAD 27) Easting 1620652.32 (NAD 27)  
Bottom Hole Northing 306709.22 (NAD 27) Easting 1624813.25 (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 07/13/2019  
Date completion activities began 8/4/2019 Date completion activities ceased 9/5/2019  
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

Reviewed by:  
JEB  
12/18/2019

API 47-095 - 02569 Farm name SECKMAN Well number SHR38DHSM

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"	590	NEW	J-55 54.5lb/ft	N/A	Y - CEMENT TO SURFACE
Coal							
Intermediate 1	12.25"	9.625"	2588	NEW	J-55 36lb/ft	N/A	Y - CEMENT TO SURFACE
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	20287	NEW	P-1110 20lb/ft	N/A	Y - TOC @ 1273
Tubing	5.5"	2.875	7,433	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	527	16	1.14	601	0	8
Coal							
Intermediate 1	CLASS A	814	15.6	1.19	969	0	8
Intermediate 2							
Intermediate 3							
Production	NEOCEM	1130 (LEAD) / 3025 (TAIL)	15	1.136 (LEAD) / 1.133 (TAIL)	1284 (LEAD) / 3427 (TAIL)	1273	8
Tubing							

Drillers TD (ft) <sup>20316</sup> \_\_\_\_\_ Loggers TD (ft) <sup>20316</sup> \_\_\_\_\_ RECEIVED  
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A Office of Oil and Gas  
 Plug back procedure N/A  
 NOV 21 2019

Kick off depth (ft) <sup>6510</sup> \_\_\_\_\_ WV Department of Environmental Protection

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 \_\_\_\_\_



API 47- 095 - 02569 Farm name SECKMAN Well number SHR38DHSM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>6,585</u>	<u>TVD</u>	<u>7,521</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 3401 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 3465.70 mcfpd Oil 14 bpd NGL 0 bpd Water 583 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

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

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**SHR38DHSM – 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	20,139.3	20,232.2	24	Marcellus Shale
2	8/5/2019	19,895.8	20,077.8	40	Marcellus Shale
3	8/5/2019	19,670.8	19,852.8	40	Marcellus Shale
4	8/5/2019	19,445.8	19,627.8	40	Marcellus Shale
5	8/6/2019	19,220.8	19,402.8	40	Marcellus Shale
6	8/6/2019	18,995.8	19,177.8	40	Marcellus Shale
7	8/6/2019	18,770.8	18,952.8	40	Marcellus Shale
8	8/6/2019	18,545.8	18,727.8	40	Marcellus Shale
9	8/6/2019	18,320.8	18,502.8	40	Marcellus Shale
10	8/7/2019	18,095.8	18,277.8	40	Marcellus Shale
11	8/7/2019	17,870.8	18,052.8	40	Marcellus Shale
12	8/9/2019	17,645.8	17,827.8	40	Marcellus Shale
13	8/9/2019	17,420.8	17,602.8	40	Marcellus Shale
14	8/9/2019	17,195.8	17,377.8	40	Marcellus Shale
15	8/9/2019	16,970.8	17,152.8	40	Marcellus Shale
16	8/10/2019	16,745.8	16,927.8	40	Marcellus Shale
17	8/10/2019	16,520.8	16,702.8	40	Marcellus Shale
18	8/10/2019	16,295.8	16,477.8	40	Marcellus Shale
19	8/11/2019	16,070.8	16,252.8	40	Marcellus Shale
20	8/11/2019	15,845.8	16,027.8	40	Marcellus Shale
21	8/11/2019	15,620.8	15,802.8	40	Marcellus Shale
22	8/12/2019	15,395.8	15,577.8	40	Marcellus Shale
23	8/13/2019	15,170.8	15,352.8	40	Marcellus Shale
24	8/14/2019	14,942.0	15,127.8	64	Marcellus Shale
25	8/14/2019	14,720.8	14,902.8	40	Marcellus Shale
26	8/14/2019	14,495.8	14,677.8	40	Marcellus Shale
27	8/15/2019	14,270.8	14,452.8	40	Marcellus Shale
28	8/15/2019	14,045.8	14,227.8	40	Marcellus Shale
29	8/15/2019	13,820.8	14,002.8	40	Marcellus Shale
30	8/15/2019	13,595.8	13,777.8	40	Marcellus Shale
31	8/16/2019	13,370.8	13,552.8	40	Marcellus Shale
32	8/16/2019	13,145.8	13,327.8	40	Marcellus Shale
33	8/17/2019	12,920.8	13,102.8	40	Marcellus Shale
34	8/17/2019	12,695.8	12,877.8	40	Marcellus Shale
35	8/17/2019	12,470.8	12,652.8	40	Marcellus Shale
36	8/17/2019	12,245.8	12,427.8	40	Marcellus Shale
37	8/17/2019	12,020.8	12,202.8	40	Marcellus Shale
38	8/18/2019	11,795.8	11,977.8	40	Marcellus Shale
39	8/18/2019	11,570.8	11,752.8	40	Marcellus Shale
40	8/18/2019	11,345.8	11,527.8	40	Marcellus Shale
41	8/18/2019	11,120.8	11,302.8	40	Marcellus Shale
42	8/19/2019	10,895.8	11,077.8	40	Marcellus Shale
43	8/19/2019	10,670.8	10,852.8	40	Marcellus Shale
44	8/19/2019	10,445.8	10,627.8	40	Marcellus Shale
45	8/19/2019	10,220.8	10,402.8	40	Marcellus Shale
46	8/20/2019	9,995.8	10,177.8	40	Marcellus Shale
47	8/20/2019	9,770.8	9,952.8	40	Marcellus Shale
48	8/20/2019	9,545.8	9,724.8	40	Marcellus Shale
49	8/20/2019	9,320.8	9,502.8	40	Marcellus Shale
50	8/20/2019	9,095.8	9,277.8	40	Marcellus Shale
51	8/20/2019	8,870.8	9,052.8	40	Marcellus Shale
52	8/21/2019	8,645.8	8,827.8	40	Marcellus Shale
53	8/22/2019	8,420.8	8,602.8	40	Marcellus Shale
54	8/22/2019	8,195.8	8,377.8	40	Marcellus Shale
55	8/22/2019	7,970.8	8,152.8	40	Marcellus Shale
56	8/22/2019	7,745.8	7,927.8	40	Marcellus Shale
57	8/22/2019	7,520.8	7,702.8	40	Marcellus Shale

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**SHR38DHSM – 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	8/4/2019	93	8,905.0	5,416.0	4,067.0	385,949.0	9,600.00	N/A
2	8/5/2019	90	8,830.0	5,358.0	3,660.0	399,882.0	7,740.00	N/A
3	8/5/2019	95	9,046.0	5,152.0	3,780.0	400,157.0	7,482.00	N/A
4	8/5/2019	87	8,929.0	4,051.0	4,509.0	393,142.0	7,514.00	N/A
5	8/6/2019	98	9,589.0	4,475.0	3,723.0	401,784.0	7,605.00	N/A
6	8/6/2019	91	8,866.0	5,096.0	3,657.0	397,804.0	7,371.00	N/A
7	8/6/2019	91	8,862.0	5,260.0	4,016.0	395,663.0	7,389.00	N/A
8	8/6/2019	99	9,389.0	5,624.0	4,434.0	398,171.0	7,285.00	N/A
9	8/7/2019	99	9,480.0	4,866.0	3,743.0	400,975.0	7,627.00	N/A
10	8/7/2019	94	9,155.0	5,165.0	3,944.0	397,223.0	7,348.02	N/A
11	8/7/2019	96	9,092.0	5,305.0	3,635.0	399,562.0	7,098.00	N/A
12	8/9/2019	97	9,150.0	6,342.0	3,609.0	368,277.0	6,994.00	N/A
13	8/9/2019	96	8,971.0	6,204.0	3,880.0	400,212.0	6,496.00	N/A
14	8/9/2019	100	9,336.0	5,809.0	3,952.0	402,691.0	6,648.00	N/A
15	8/10/2019	99	8,943.0	5,258.0	4,106.0	413,118.0	7,082.00	N/A
16	8/10/2019	99	8,973.0	6,149.0	3,604.0	403,249.0	6,405.00	N/A
17	8/10/2019	98	8,869.0	6,145.0	3,537.0	403,689.0	6,208.98	N/A
18	8/10/2019	97	8,849.0	5,940.0	3,591.0	394,685.0	6,334.00	N/A
19	8/11/2019	99	8,665.0	5,683.0	3,565.0	407,859.0	6,202.98	N/A
20	8/11/2019	99	8,860.0	5,777.0	3,470.0	398,290.0	6,087.00	N/A
21	8/11/2019	92	8,809.0	6,529.0	4,210.0	428,915.0	8,391.00	N/A
22	8/13/2019	96	8,651.0	5,339.0	4,036.0	405,698.0	9,446.36	N/A
23	8/13/2019	96	8,651.0	5,339.0	4,036.0	405,698.0	9,446.36	N/A
24	8/14/2019	92	8,482.0	7,044.0	3,755.0	412,427.0	10,385.98	N/A
25	8/14/2019	93	8,510.0	5,014.0	4,069.0	403,844.0	7,027.00	N/A
26	8/15/2019	89	8,015.0	6,039.0	4,175.0	404,101.0	7,429.00	N/A
27	8/15/2019	99	8,196.0	4,248.0	3,975.0	402,358.0	6,073.02	N/A
28	8/15/2019	99	8,531.0	5,957.0	3,661.0	402,573.0	6,007.05	N/A
29	8/15/2019	93	8,218.0	6,070.0	3,441.0	406,635.0	6,267.00	N/A
30	8/16/2019	98	8,296.0	6,344.0	3,703.0	399,675.0	6,353.02	N/A
31	8/16/2019	97	8,249.0	6,207.0	3,684.0	399,289.0	6,695.00	N/A
32	8/16/2019	90	7,700.0	4,908.0	4,087.0	401,626.0	6,232.00	N/A
33	8/17/2019	99	7,999.0	5,685.0	4,329.0	408,744.0	6,196.00	N/A
34	8/17/2019	99	8,755.0	5,830.0	3,571.0	403,168.0	5,947.98	N/A
35	8/17/2019	99	8,603.0	6,401.0	3,373.0	402,379.0	6,007.00	N/A
36	8/17/2019	99	8,229.0	5,770.0	3,445.0	405,479.0	6,182.00	N/A
37	8/17/2019	95	7,797.0	5,598.0	4,031.0	402,476.0	6,132.00	N/A
38	8/18/2019	97	8,457.0	5,710.0	3,591.0	402,963.0	6,459.00	N/A
39	8/18/2019	99	7,678.0	5,596.0	3,740.0	405,890.0	6,305.98	N/A
40	8/18/2019	98	7,818.0	6,050.0	4,152.0	401,136.0	5,873.02	N/A
41	8/18/2019	94	7,703.0	5,959.0	3,714.0	397,934.0	5,813.00	N/A
42	8/19/2019	100	8,254.0	6,288.0	3,649.0	406,754.0	5,682.00	N/A
43	8/19/2019	99	8,056.0	6,743.0	3,806.0	405,207.0	5,695.02	N/A
44	8/19/2019	100	7,784.0	6,647.0	3,169.0	406,273.0	5,727.98	N/A
45	8/19/2019	99	7,665.0	5,016.0	3,224.0	405,967.0	5,826.00	N/A
46	8/20/2019	99	7,775.0	6,609.0	3,485.0	401,775.0	5,774.00	N/A
47	8/20/2019	100	7,849.0	8,893.0	3,462.0	403,660.0	5,757.00	N/A
48	8/20/2019	99	8,046.0	7,293.0	3,985.0	410,286.0	6,834.98	N/A
49	8/20/2019	99	7,923.0	6,634.0	3,140.0	407,052.0	5,727.95	N/A
50	8/20/2019	98	7,389.0	6,299.0	3,537.0	395,267.0	5,743.00	N/A
51	8/21/2019	100	7,326.0	5,966.0	3,922.0	401,601.0	5,788.00	N/A
52	8/21/2019	99	7,314.0	4,874.0	3,661.0	392,641.0	5,550.05	N/A
53	8/22/2019	100	7,270.0	5,169.0	3,728.0	399,914.0	5,713.98	N/A
54	8/22/2019	98	7,341.0	6,387.0	4,440.0	403,227.0	5,736.00	N/A
55	8/22/2019	99	7,263.0	6,218.0	3,161.0	401,846.0	5,690.00	N/A
56	8/22/2019	99	7,116.0	5,843.0	3,644.0	404,981.0	5,755.00	N/A
57	8/22/2019	99	7,033.0	5,778.0	3,263.0	400,595.0	6,283.00	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					

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SHR38DHSM

47-095-02569



**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	8/22/2019
State	West Virginia
County	Tyler
API Number	47-095-02569-00-00
Operator Name	CNX Gas Company LLC
Well Name and Number	SHR38DHSM
Latitude	39.37134400
Longitude	-80.83525100
Datum	NAD83
Federal Well	NO
Indian Well	NO
True Vertical Depth	6,531
Total Base Water Volume (gal)	16,785,678
Total Base Non Water Volume	0

## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract 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	85.25130	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	13.90256	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor	Water	7732-18-5	92.50000	0.59263	None
XFR-48	Keane	Friction Reducer	Hydrochloric Acid	7647-01-0	7.50000	0.04805	None
			Water	7732-18-5	47.00000	0.03418	None
			butene, homopolymer	9003-29-6	25.00000	0.01818	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01818	None
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00218	None
Hydrochloric Acid (15%)	Keane	Acidizing					
			Water	7732-18-5	85.00000	0.05310	None
			Hydrochloric Acid	7647-01-0	15.00000	0.00937	None
KWG-111LS	Keane	Gel					
			Guar gum	9000-30-0	55.00000	0.01232	None

				Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.01232	None
KSI-22	Keane	Scale Inhibitor		Methanol	67-56-1	50.00000	0.01113	None
				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	0.00223	None
MBC-516	Keane	Biocide		glutaral	111-30-8	26.70000	0.00456	None
				dicyldimethylammonium chloride	7173-51-5	8.00000	0.00136	None
				quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00091	None
				Ethanol	64-17-5	2.80000	0.00048	None
KFEAC-30	Keane	Iron Control		acetic acid	64-19-7	60.00000	0.00297	None
				Citric acid	77-92-9	40.00000	0.00198	None
KAI-12	Keane	Acid Inhibitor		Methanol	67-56-1	90.00000	0.00220	None
				isopropyl alcohol	67-63-0	5.00000	0.00012	None
				Fatty imidazoline	61790-69-0	5.00000	0.00012	None
				xylene	1330-20-7	5.00000	0.00012	None
				prop-2-yn-1-ol	107-19-7	5.00000	0.00012	None
				Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00012	None
				ethylbenzene	100-41-4	1.00000	0.00002	None
Chemiliquid 250	Keane	pH Buffer		water	7732-18-5	75.00000	0.00069	None
				sodium hydroxide	1310-73-2	25.00000	0.00023	None
KWBO-2	Keane	Breaker		Sodium persulfate	7775-27-1	99.00000	0.00024	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	0.59263	
				Water	7732-18-5	85.00000	0.05310	
				alkanes, C16-20-iso-	90622-59-6	25.00000	0.01818	
				butene, homopolymer	9003-29-6	25.00000	0.01818	
				Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.01232	
				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	0.00223	
				Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00218	
				Citric acid	77-92-9	40.00000	0.00198	

				7173-51-5	8.00000	0.00136
				58424-85-1	5.30000	0.00091
				7732-18-5	75.00000	0.00069
				54-17-5	2.80000	0.00048
				58526-83-0	5.00000	0.00012
				107-19-7	5.00000	0.00012
				57-63-0	5.00000	0.00012
				51790-69-0	5.00000	0.00012
				1330-20-7	5.00000	0.00012
				100-41-4	1.00000	0.00002

\* 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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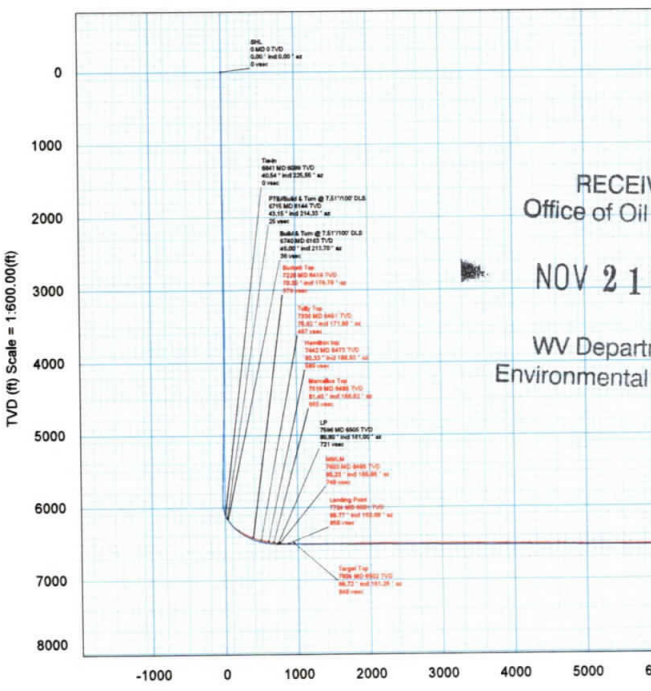
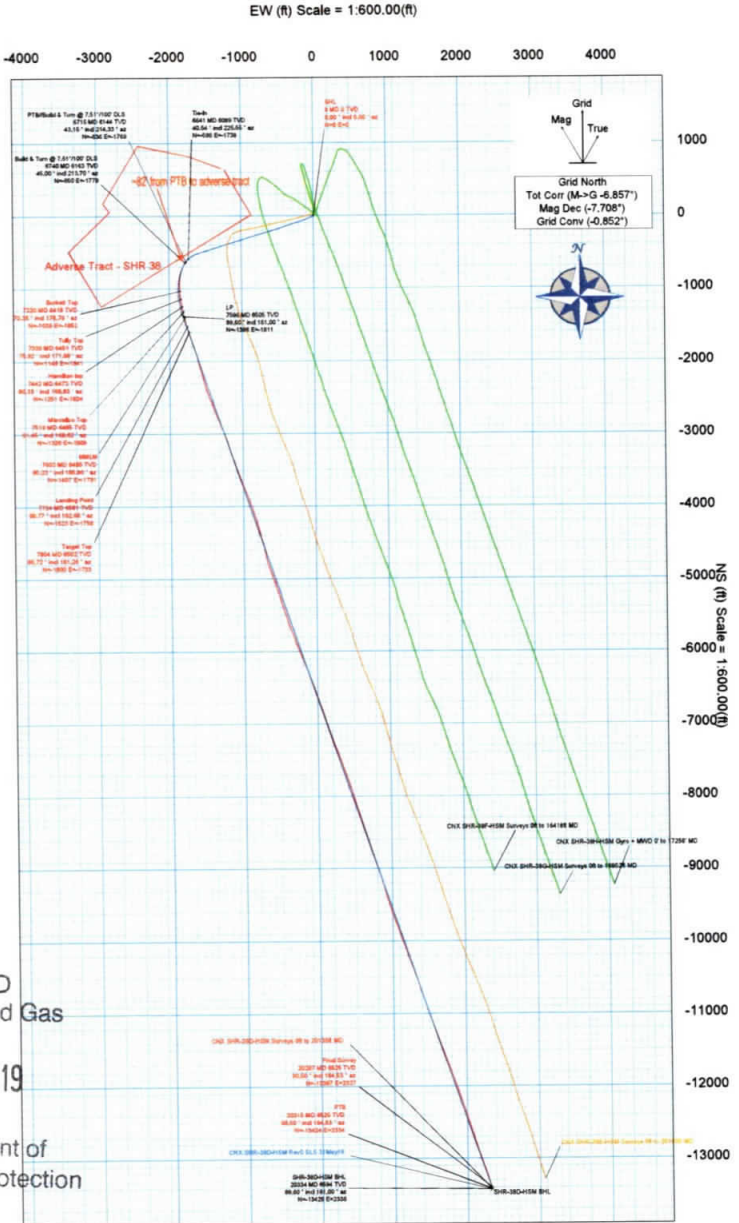
<b>Borehole:</b>	<b>Original Borehole</b>	<b>Well:</b>	<b>SHR-38D-HSM</b>	<b>Field:</b>	<b>WV Tyler County (NAD 27)</b>	<b>Structure:</b>	<b>Patterson 801</b>
<b>Gravity &amp; Magnetic Parameters</b>		<b>Surface Location</b>			<b>Miscellaneous</b>		
Model:	HDDM 2019	Dip:	66.448°	Date:	01-Jul-2019	Lat:	N 39 22 16.55
MagDec:	-7.708°	FS:	51822.02mT	Gravity FS:	999.321mgn (8.80666 Based)	Northing:	320137.66NUS
						Grid Conv:	-0.8517°
						Eastng:	1622477.877NUS
						Scale Fact:	0.89996067
						Slot:	SHR-38D-HSM TYD Ref: KB(1040.42ft above MSL)
						Plan:	CNX SHR-38D-HSM Surveys 0ft to 201358 MD

Critical Points							
Point	Easting	Northing	Depth (ft)	Depth (m)	Depth (ft)	Depth (m)	Depth (ft)
Borehole Top	580	620	0.00	0.00	0.00	0.00	0.00
Surface Top	7226.00	7026.00	176.79	611.08	579.88	-1038.67	-1853.44
Tubing Top	7336.00	752.00	171.89	641.08	487.04	-1148.11	-1841.31
Handover Top	7442.00	80.53	168.83	647.74	589.38	-1211.33	-1823.79
Marathon Top	7518.00	91.45	169.82	648.83	594.72	-1221.89	-1828.80
M&L	7802.00	95.23	169.88	649.23	747.58	-1407.27	-1790.26
Landing Point	7724.00	89.77	162.88	608.21	686.22	-1522.45	-1787.73
Target Top	7964.00	88.72	161.24	602.46	848.18	-1640.53	-1723.87
Final Survey	20287.00	86.50	164.53	654.82	1343.77	-13387.09	2324.93
PTB	20318.00	86.50	164.53	654.82	1343.77	-13426.09	2324.40

PART	Seq	Survey Tool	Survey Tool Code	Vendor/Tool	Make/Mod	Casing Size (in)	Equivalent Meq (ft)	MD From (ft)	MD To (ft)	Survey Frequency (Hz)	MD/Sec	MD/Min	Comment/Contingency
1	1	Only	NAI_MSD-MSHOT-Caspi		30	30		0	26.77	198.425	1.251	1.25	
1	2	Only	NAI_MSD-MSHOT		30	30		26.77	26.77	Aut Stm	1.251	1.25	
1	3		NAI_MSD-MSHOT		30	30		26.77	26.77	Aut Stm	4.618	2.33	
1	4		NAI_MSD-MSHOT		30	30		26.77	26.77	Aut Stm	56.458	17.754	
1	5		NAI_MSD-MSHOT		30	30		66.61	203.15	Aut Stm	432.454	49.395	

Surface Location		Grid Easting		Grid Northing		Local Count	
Northing:	320137.66	Eastng:	1622477.87	Latitude:	N 39 22 16.55	Longitude:	W 80 50 7.62
						V-Asc:	191.00
Target Name	Adverse Tract - SHR 38	Shape	Polygon	Latitude	N 39 24 52.89	Longitude	W 80 50 44.70
Adverse Tract - SHR 38	Point	N/A	N/A	Latitude	N 39 24 52.89	Longitude	W 80 50 44.70
SHR-38D-HSM BHL	Point	N/A	N/A	Latitude	N 39 25 4.18	Longitude	W 80 49 35.26
SHR-38D-HSM LP	Point	N/A	N/A	Latitude	N 39 22 2.86	Longitude	W 80 50 35.51

- CNX SHR-38D-HSM Surveys 0ft to 201358 MD
- CNX SHR-38D-HSM Surveys 0ft to 164198 MD
- CNX SHR-38D-HSM Surveys 0ft to 141198 MD
- CNX SHR-38D-HSM Surveys 0ft to 134198 MD
- CNX SHR-38D-HSM Surveys 0ft to 124198 MD
- CNX SHR-38D-HSM Surveys 0ft to 114198 MD
- CNX SHR-38D-HSM Surveys 0ft to 104198 MD
- CNX SHR-38D-HSM Surveys 0ft to 94198 MD
- CNX SHR-38D-HSM Surveys 0ft to 84198 MD
- CNX SHR-38D-HSM Surveys 0ft to 74198 MD
- CNX SHR-38D-HSM Surveys 0ft to 64198 MD
- CNX SHR-38D-HSM Surveys 0ft to 54198 MD
- CNX SHR-38D-HSM Surveys 0ft to 44198 MD
- CNX SHR-38D-HSM Surveys 0ft to 34198 MD
- CNX SHR-38D-HSM Surveys 0ft to 24198 MD
- CNX SHR-38D-HSM Surveys 0ft to 14198 MD
- CNX SHR-38D-HSM Surveys 0ft to 4198 MD
- CNX SHR-38D-HSM Surveys 0ft to 0 MD
- Adverse Tract - SHR 38
- SHR-38D-HSM BHL
- SHR-38D-HSM LP



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Vertical Section (ft) Azim = 161.00° Scale = 1:600.00(ft) Origin = 0N/-S, 0E/-W

**CONTROLLED**

Drawn By: J. Shannon  
Copy number: 1/1

CNX SHR-38D-HSM Surveys 0ft to 20135ft MD Survey Geodetic Report

(Def Survey)

Report Date: July 17, 2019 - 04:51 PM
Client: CNX Gas
Field: WV Tyler County (NAD 27)
Structure / Slot: CNX SHR-38 Pad / SHR-38D-HSM
Well: SHR-38D-HSM
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: CNX SHR-38D-HSM Surveys 0ft to 20135ft MD
Survey Date: May 31, 2019
Tort / AHD / DDI / ERD Ratio: 257.009 / 15415.082 / 7.001 / 2.360
Coordinate Reference System: NAD2011 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 30° 22' 16.546011", W 80° 07' 52.52350"
Location Grid NE Y/X: N 320137.558 NUS, E 1622477.867 NUS
CRS Grid Convergence Angle: -0.8517 °
CRS Scale Factor: 0.99995057
Version / Patch: 2.10.753.0
Vertical / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 161.000 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVS Reference Datum: KB
TVS Reference Elevation: 1040.420 above MSL
Seated / Ground Elevation: 1011.650 above MSL
Magnetic Declination: -7.708 °
Total Gravity Field Strength: 999.3213mgn (0.80065 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 51222.020 nT
Magnetic Dip Angle: 96.448 °
Declination Date: July 01, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: -0.8517 °
Total Corr Mag North-Grid North: -6.8565 °
Local Coord Referenced To: Well Head

Table with columns: Comments, MD (m), Incl (°), Azim Grid, TVD (m), TVDSS (m), VSECC (m), NS, EW, DLS (Ft/m), TF, BR (Ft/m), TR, Northing (mUS), Easting (mUS), Latitude (mUS), Longitude (mUS), Directional Index. Rows include data for various depths from 11.00 to 812.00 meters.



Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	TF (ft)	BR (ft/100ft)	TR (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (°)	Longitude (°)	Directional Dip/azim Index
	10010.00	90.17	100.82	6527.12	5486.70	13047.64	-13038.53	2210.80	0.49	102.06L	-0.05	-0.45	307069.70	1824688.66	30.33556035	-80.827602326	7.08
	20004.00	90.11	100.54	6526.80	5486.47	13141.84	-13127.23	2241.60	0.30	75.78R	-0.06	-0.30	307011.00	1824710.88	30.33531810	-80.827606890	7.07
	20008.00	90.45	101.88	6526.43	5486.01	13226.83	-13216.22	2272.18	1.47	87.86R	0.38	1.43	306922.02	1824749.93	30.33507504	-80.82760703	7.06
	20183.00	90.50	103.12	6526.04	5485.22	13230.89	-13206.82	2300.75	1.31	90R	0.05	1.31	306831.42	1824778.40	30.33482749	-80.82760132	7.08
Final Survey	20267.00	90.50	104.53	6524.82	5484.40	13424.77	-13397.09	2329.83	1.50	HS	0.00	1.50	306741.15	1824804.88	30.33458074	-80.82764406	7.09
FTB	20316.00	90.50	104.53	6524.58	5484.16	13452.72	-13424.06	2334.40	0.00		0.00	0.00	306714.17	1824812.14	30.33450987	-80.827649225	7.09

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% 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	28.770	1/88.425	30.000	30.000	NAL_MSG+MSHOT-Depth Only	Original Borehole / CNX SHR-38D-HSM Surveys 0ft to 20135ft MD
	1	28.770	28.770	Act Str	30.000	30.000	NAL_MSG+MSHOT-Depth Only	Original Borehole / CNX SHR-38D-HSM Surveys 0ft to 20135ft MD
	1	28.770	2552.000	Act Str	30.000	30.000	NAL_MSG+MSHOT	Original Borehole / CNX SHR-38D-HSM Surveys 0ft to 20135ft MD
	1	2552.000	6641.000	Act Str	30.000	30.000	NAL_MWD-NON_SLB	Original Borehole / CNX SHR-38D-HSM Surveys 0ft to 20135ft MD
	1	6641.000	20316.000	Act Str	30.000	30.000	NAL_MWD_1.0_DEG	Original Borehole / CNX SHR-38D-HSM Surveys 0ft to 20135ft MD

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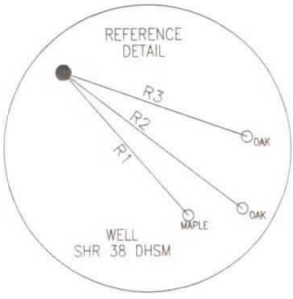
# SHR 38 DHSM

## PAGE 2 OF 3

### 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



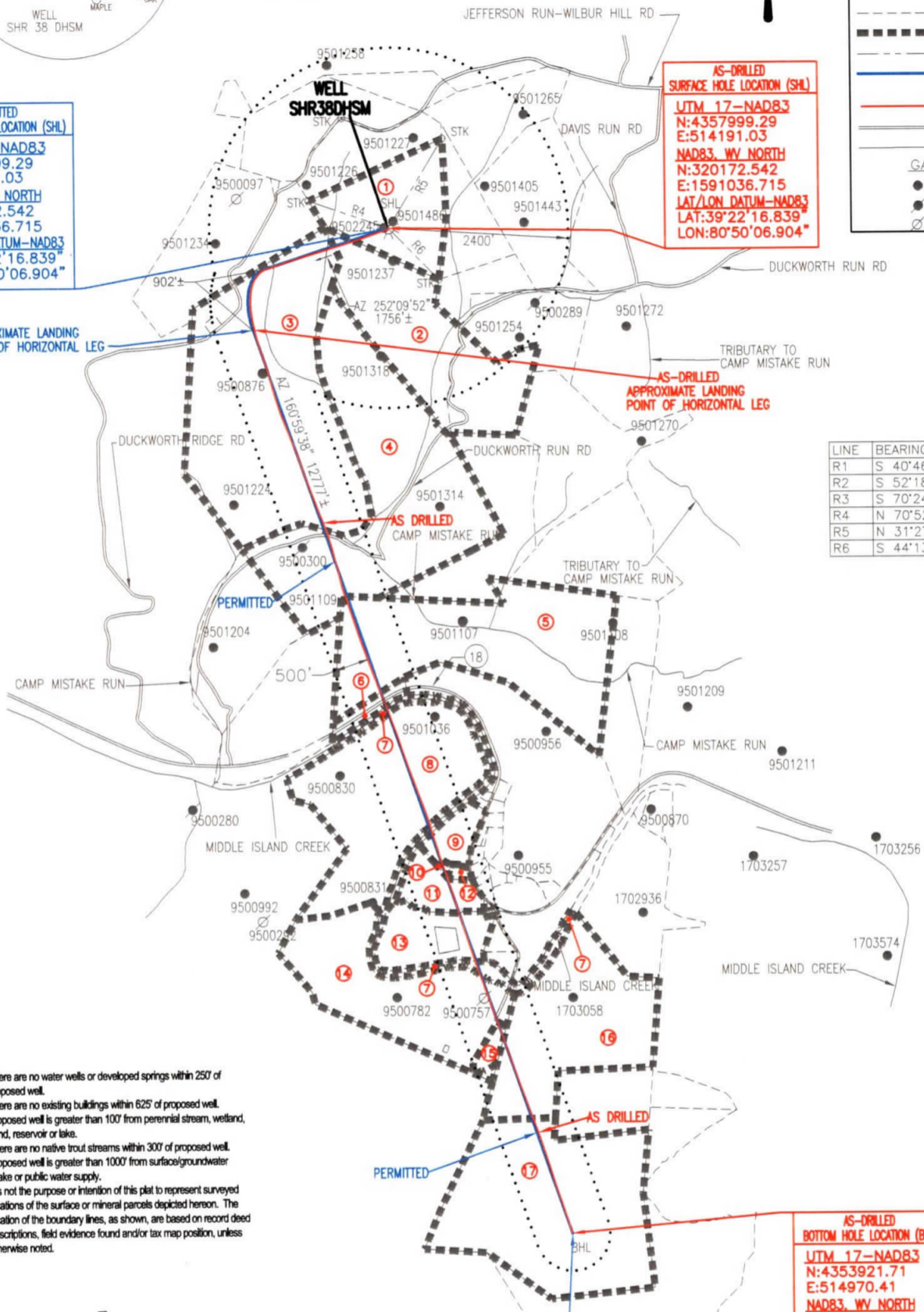
**PERMITTED SURFACE HOLE LOCATION (SHL)**

UTM 17-NAD83  
N:4357999.29  
E:514191.03  
NAD83, WV NORTH  
N:320172.542  
E:1591036.715  
LAT/LON DATUM-NAD83  
LAT:39°22'16.839"  
LON:80°50'06.904"

**AS-DRILLED SURFACE HOLE LOCATION (SHL)**

UTM 17-NAD83  
N:4357999.29  
E:514191.03  
NAD83, WV NORTH  
N:320172.542  
E:1591036.715  
LAT/LON DATUM-NAD83  
LAT:39°22'16.839"  
LON:80°50'06.904"

LINE	BEARING	DISTANCE
R1	S 40°46'12" E	146.55'
R2	S 52°18'08" E	173.53'
R3	S 70°24'08" E	150.16'
R4	N 70°52'28" W	1127.53'
R5	N 31°27'12" E	1389.50'
R6	S 44°13'36" E	958.93'



- 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.

**AS-DRILLED APPROX. LANDING POINT**

UTM 17-NAD83  
N:4357581.45  
E:513647.74  
NAD83, WV NORTH  
N:318831.156  
E:1589231.013  
LAT/LON DATUM-NAD83  
LAT:39°22'03.316"  
LON:80°50'29.641"

**PERMITTED APPROX. LANDING POINT**

UTM 17-NAD83  
N:4357579.22  
E:513641.73  
NAD83, WV NORTH  
N:318824.173  
E:1589211.174  
LAT/LON DATUM-NAD83  
LAT:39°22'03.244"  
LON:80°50'29.892"

**PERMITTED BOTTOM HOLE LOCATION (BHL)**

UTM 17-NAD83  
N:4353920.21  
E:514970.77  
NAD83, WV NORTH  
N:306744.240  
E:1593372.084  
LAT/LON DATUM-NAD83  
LAT:39°20'04.471"  
LON:80°49'34.644"

**AS-DRILLED BOTTOM HOLE LOCATION (BHL)**

UTM 17-NAD83  
N:4353921.71  
E:514970.41  
NAD83, WV NORTH  
N:306749.1920  
E:1593370.9790  
LAT/LON DATUM-NAD83  
LAT:39°20'04.520"  
LON:80°49'34.659"

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API WELL #: 47 95 02569  
STATE COUNTY PERMIT



**THRASHER**

SEPTEMBER 17, 2019

*George D. Six*

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



BHL is located on topo map 14,724 feet south of Latitude: 39°22'30"  
 SHL is located on topo map 1,332 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

SHL is located on topo map 9,793 feet west of Longitude: 80°47'30"  
 SHL is located on topo map 542 feet west of Longitude: 80°50'00"

**PERMITTED SURFACE HOLE LOCATION (SHL)**  
 UTM 17-NAD83  
 N:4357999.29  
 E:514191.03  
 NAD83, WV NORTH  
 N:320172.542  
 E:1591036.715  
 LAT/LON DATUM-NAD83  
 LAT:39°22'16.839"  
 LON:80°50'06.904"

**AS-DRILLED SURFACE HOLE LOCATION (SHL)**  
 UTM 17-NAD83  
 N:4357999.29  
 E:514191.03  
 NAD83, WV NORTH  
 N:320172.542  
 E:1591036.715  
 LAT/LON DATUM-NAD83  
 LAT:39°22'16.839"  
 LON:80°50'06.904"

**PERMITTED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4357579.22  
 E:513641.73  
 NAD83, WV NORTH  
 N:318824.173  
 E:1589211.174  
 LAT/LON DATUM-NAD83  
 LAT:39°22'03.244"  
 LON:80°50'29.892"

**AS-DRILLED APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4357581.45  
 E:513647.74  
 NAD83, WV NORTH  
 N:318831.156  
 E:1589231.013  
 LAT/LON DATUM-NAD83  
 LAT:39°22'03.316"  
 LON:80°50'29.641"

**PERMITTED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4353920.21  
 E:514970.77  
 NAD83, WV NORTH  
 N:306744.240  
 E:1593372.084  
 LAT/LON DATUM-NAD83  
 LAT:39°20'04.471"  
 LON:80°49'34.644"

**AS-DRILLED BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4353921.71  
 E:514970.41  
 NAD83, WV NORTH  
 N:306749.1920  
 E:1593370.9790  
 LAT/LON DATUM-NAD83  
 LAT:39°20'04.520"  
 LON:80°49'34.659"

RECEIVED  
 Office of Oil and Gas

NOV 21 2019

WV Department of  
 Environmental Protection

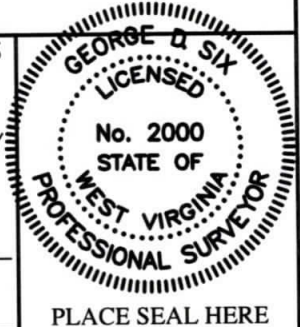
# THRASHER

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

FILE #: SHR 38 DHSM AS-DRILLED  
 DRAWING #: SHR 38 DHSM 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 DHSM AS-DRILLED  
 API WELL #: 47 95 02569  
 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: 985.357±

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: 20,283'±  
 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 DHSM

## PAGE 3 OF 3

### 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 WARREN RAY BACHELOR, AKA WARREN R. BACHELOR AND GLORIA 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. SILEX, 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 MUZZO, FKA MARTHA SUE LOCOCO MICHELLE LOCOCO BUSHMIRE, FKA MICHELLE LUORETHA 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. L. DOWK 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	STEVEN E. MALICKI JR. FRED M. DOTSON JR. KAREN DOTSON KEVIN DOTSON STEVEN E. MALICKI JR.	PAUL W. HYLBERT AND CHARLOTTE J. HYLBERT, H/W	1-18/1
6	ROY A CAMPBELL, ET AL	ROY A. CAMPBELL	1-18/17.1
7	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	N/A
8	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 L. 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
9	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
10	JERRY D. & CHRISTINA D. MYER	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE JERRY D. MYER AND CHRISTINA D. MYER, H/W	1-18/26.2
11	FRED M. DOTSON JR. & LINNEA B. DOTSON	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H	1-18/38
12	KAREN SUE DOTSON FRED M. DOTSON JR. STEVEN E. MALICKI JR.	WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE KAREN SUE DOTSON FRED M. DOTSON, JR. AND LINNEA B. DOTSON, H/W STEVEN E. MALICKI JR.	1-18/31
13	THOMAS R. & SHARON L. NUTTER	CECILIA LOUISE BOOMER AND JAMES BOOMER, W/H WOODBERRY ROYALTY, INC. NANCY FOUT AND JOHN FOUT, W/H THERESA MARIE SMITH, SINGLE THOMAS R. NUTTER AND SHARON L. NUTTER, H/W	1-18/38.1
14	EDWIN D. & PATRICIA L. MULVAY	EDWIN DELMER MULVAY AND PATRICIA VAUGHN MULVAY MARTHA C. PRICE	1-18/13
15	EDWIN D. & P. L. MULVAY	VIOLETTA ELISE HOKMAN, A/K/A VIOLETTA E. HOKMAN ANN LENZ DENLINGER, FKA ANN HOKMAN LENZ	8-3/22
16	RALPH MCCUTCHAN II CHIPPS REVOCABLE LIVING TRUST 2004	CLARENCE L. HURST AND BETTY ANN	8-3/3
17	PHYLLIS MARIE STEELE (LIFE)	WILLIAM PAUL MCCUTCHAN AND VIRGINIA B. MCCUTCHAN, H/W JACQUELINE L. STANDAFER AND WARREN G. STANDAFER, W/H MARYLYNN H. ROBERTS AND JOHN E. ROBERTS, W/H J. W. MORTON FIELD	8-3/7

AS-DRILLED  
SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83  
N:4357999.29  
E:514191.03  
NAD83, WV NORTH  
N:320172.542  
E:1591036.715  
LAT/LON DATUM-NAD83  
LAT:39°22'16.839"  
LON:80°50'06.904"

AS-DRILLED  
APPROX. LANDING POINT

UTM 17-NAD83  
N:4357581.45  
E:513647.74  
NAD83, WV NORTH  
N:318831.156  
E:1589231.013  
LAT/LON DATUM-NAD83  
LAT:39°22'03.316"  
LON:80°50'29.641"

AS-DRILLED  
BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83  
N:4353921.71  
E:514970.41  
NAD83, WV NORTH  
N:306749.1920  
E:1593370.9790  
LAT/LON DATUM-NAD83  
LAT:39°20'04.520"  
LON:80°49'34.659"

PERMITTED  
SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83  
N:4357999.29  
E:514191.03  
NAD83, WV NORTH  
N:320172.542  
E:1591036.715  
LAT/LON DATUM-NAD83  
LAT:39°22'16.839"  
LON:80°50'06.904"

PERMITTED  
APPROX. LANDING POINT

UTM 17-NAD83  
N:4357579.22  
E:513641.73  
NAD83, WV NORTH  
N:318824.173  
E:1589211.174  
LAT/LON DATUM-NAD83  
LAT:39°22'03.244"  
LON:80°50'29.892"

PERMITTED  
BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83  
N:4353920.21  
E:514970.77  
NAD83, WV NORTH  
N:306744.240  
E:1593372.084  
LAT/LON DATUM-NAD83  
LAT:39°20'04.471"  
LON:80°49'34.644"

API WELL #:    47                      95                      02569  
STATE            COUNTY            PERMIT

# THRASHER

SEPTEMBER 17, 2019

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