

NOV 21 2019

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

WV Department of
Environmental Protection

API 47-095-02571 County TYLER District McELROY
Quad SHIRLEY Pad Name SHR38 Field/Pool Name _____
Farm name SECKMAN Well Number SHR38FHSM
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 320162.54 (NAD 27) Easting 1622491.12 (NAD 27)
Landing Point of Curve Northing 319955.36 (NAD 27) Easting 1621838.68 (NAD 27)
Bottom Hole Northing 311095.09 (NAD 27) Easting 1624889.50 (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 6/25/2019
Date completion activities began 8/4/2019 Date completion activities ceased 9/8/2019
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 - 02571 Farm name SECKMAN Well number SHR38FHSM

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"	585	NEW	J-55 54.5lb/ft	N/A	Y - CEMENT TO SURFACE
Coal							
Intermediate 1	12.25"	9.625"	2595	NEW	J-55 36lb/ft	N/A	Y - CEMENT TO SURFACE
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	16362	NEW	P-110 20lb/ft	N/A	Y - TOC @ 668
Tubing	5.5"	2.875	6,950	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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	CLASS A	462	16	1.14	527	0	8
Coal							
Intermediate 1	CLASS A	863	16	1.19	1027	0	8
Intermediate 2							
Intermediate 3							
Production	NEOCEM	1075 (LEAD) / 2315 (TAIL)	15	1.136 (LEAD) / 1.132 (TAIL)	1221 (LEAD) / 2621 (TAIL)	668	8
Tubing							

Drillers TD (ft) 16418 Loggers TD (ft) 16418
Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 6138

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 _____

RECEIVED
Office of Oil and Gas
NOV 21 2019

API 47- 095 - 02571

Farm name SECKMAN

Well number SHR38FHSM

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
		SEE	ATTACHMENT 1	2				

RECEIVED
Office of Oil and Gas

Please insert additional pages as applicable.

NOV 21 2019

API 47- 095 - 02571 Farm name SECKMAN Well number SHR38FHSM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,495</u> TVD	<u>6,991</u> MD

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3425 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 2824.20 mcfpd Oil 9 bpd NGL 0 bpd Water 505 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 ₂ 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.

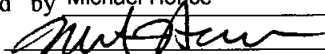
Drilling Contractor SEE ATTACHMENT
Address _____ City _____ State _____ Zip _____

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  Title Superintendent Completions Date 11/20/2019

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

SHR38FHSM – 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	16,216.5	16,307.2	24	Marcellus Shale
2	8/7/2019	15,973.0	16,155.0	40	Marcellus Shale
3	8/8/2019	15,748.0	15,930.0	40	Marcellus Shale
4	8/8/2019	15,523.0	15,705.0	40	Marcellus Shale
5	8/8/2019	15,298.0	15,480.0	40	Marcellus Shale
6	8/8/2019	15,073.0	15,255.0	40	Marcellus Shale
7	8/9/2019	14,848.0	15,030.0	40	Marcellus Shale
8	8/9/2019	14,623.0	14,805.0	40	Marcellus Shale
9	8/9/2019	14,398.0	14,580.0	40	Marcellus Shale
10	8/10/2019	14,173.0	14,355.0	40	Marcellus Shale
11	8/10/2019	13,948.0	14,130.0	40	Marcellus Shale
12	8/10/2019	13,723.0	13,905.0	40	Marcellus Shale
13	8/11/2019	13,575.0	13,680.0	40	Marcellus Shale
14	8/11/2019	13,277.5	13,453.5	40	Marcellus Shale
15	8/11/2019	13,144.5	13,234.5	40	Marcellus Shale
16	8/11/2019	12,840.5	13,022.5	40	Marcellus Shale
17	8/12/2019	12,615.5	12,797.5	40	Marcellus Shale
18	8/12/2019	12,390.5	12,572.5	40	Marcellus Shale
19	8/13/2019	12,165.5	12,347.5	40	Marcellus Shale
20	8/13/2019	11,940.5	12,122.5	40	Marcellus Shale
21	8/14/2019	11,715.5	11,897.5	40	Marcellus Shale
22	8/14/2019	11,490.5	11,672.5	40	Marcellus Shale
23	8/14/2019	11,265.5	11,447.5	40	Marcellus Shale
24	8/14/2019	11,040.5	11,222.5	40	Marcellus Shale
25	8/15/2019	10,815.5	10,993.0	40	Marcellus Shale
26	8/15/2019	10,590.5	10,772.5	40	Marcellus Shale
27	8/15/2019	10,365.5	10,547.5	40	Marcellus Shale
28	8/16/2019	10,140.5	10,322.5	40	Marcellus Shale
29	8/16/2019	9,915.5	10,097.5	40	Marcellus Shale
30	8/16/2019	9,690.5	9,872.5	40	Marcellus Shale
31	8/17/2019	9,465.5	9,647.5	40	Marcellus Shale
32	8/17/2019	9,240.5	9,422.5	40	Marcellus Shale
33	8/17/2019	9,015.5	9,197.5	40	Marcellus Shale
34	8/17/2019	8,790.5	8,972.5	40	Marcellus Shale
35	8/18/2019	8,565.5	8,747.5	40	Marcellus Shale
36	8/18/2019	8,340.5	8,522.5	40	Marcellus Shale
37	8/18/2019	8,115.5	8,297.5	40	Marcellus Shale
38	8/18/2019	7,890.5	8,070.5	40	Marcellus Shale
39	8/18/2019	7,665.5	7,847.5	40	Marcellus Shale
40	8/19/2019	7,440.5	7,622.5	40	Marcellus Shale
41	8/19/2019	7,215.5	7,397.5	40	Marcellus Shale
42	8/19/2019	6,990.5	7,172.5	40	Marcellus Shale

SHR38FHSM – 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	98	8,341.0	7,405.0	3,203.0	397,626.0	8,700.00	N/A
2	8/8/2019	98	8,490.0	5,264.0	4,263.0	404,555.0	7,492.00	N/A
3	8/8/2019	100	8,492.0	6,127.0	4,450.0	398,750.0	7,310.00	N/A
4	8/8/2019	99	8,333.0	6,205.0	3,896.0	396,701.0	7,054.00	N/A
5	8/8/2019	99	8,524.0	6,626.0	3,290.0	407,112.0	6,695.05	N/A
6	8/8/2019	100	8,461.0	6,905.0	3,546.0	410,025.0	7,088.00	N/A
7	8/9/2019	100	8,421.0	6,581.0	3,533.0	394,204.0	6,277.98	N/A
8	8/9/2019	99	8,566.0	6,579.0	4,603.0	318,224.0	5,757.98	N/A
9	8/9/2019	98	8,235.0	6,722.0	3,868.0	403,536.0	6,763.00	N/A
10	8/10/2019	99	8,188.0	6,190.0	3,816.0	396,386.0	6,821.00	N/A
11	8/10/2019	99	8,199.0	6,608.0	3,499.0	400,932.0	6,672.00	N/A
12	8/10/2019	99	8,001.0	6,415.0	3,850.0	401,315.0	6,999.95	N/A
13	8/11/2019	99	8,336.0	6,653.0	3,609.0	401,490.0	6,299.00	N/A
14	8/11/2019	98	8,233.0	7,269.0	4,143.0	394,581.0	6,751.00	N/A
15	8/11/2019	100	8,053.0	6,245.0	3,187.0	406,128.0	6,464.00	N/A
16	8/12/2019	100	7,821.0	5,580.0	3,051.0	406,361.0	6,270.00	N/A
17	8/12/2019	99	7,843.0	5,472.0	3,135.0	405,319.0	6,025.00	N/A
18	8/12/2019	99	7,937.0	5,989.0	3,217.0	409,321.0	6,222.98	N/A
19	8/13/2019	99	8,268.0	5,899.0	4,646.0	384,458.0	6,018.00	N/A
20	8/13/2019	99	7,937.0	6,271.0	3,799.0	404,766.0	6,253.00	N/A
21	8/14/2019	98	8,270.0	5,951.0	4,390.0	396,382.0	6,836.98	N/A
22	8/14/2019	99	7,839.0	5,315.0	3,137.0	398,387.0	6,041.00	N/A
23	8/14/2019	98	7,490.0	5,948.0	3,078.0	385,634.0	5,767.00	N/A
24	8/15/2019	98	7,615.0	6,208.0	2,957.0	404,608.0	6,166.00	N/A
25	8/15/2019	99	8,107.0	5,732.0	3,859.0	401,121.0	6,843.02	N/A
26	8/15/2019	100	7,768.0	6,556.0	3,666.0	404,094.0	5,976.02	N/A
27	8/15/2019	98	7,491.0	5,989.0	3,393.0	405,930.0	6,121.00	N/A
28	8/16/2019	100	7,536.0	5,866.0	3,613.0	403,992.0	6,014.02	N/A
29	8/16/2019	98	7,489.0	6,407.0	3,694.0	405,227.0	6,111.00	N/A
30	8/16/2019	99	7,428.0	6,229.0	3,901.0	399,715.0	6,038.00	N/A
31	8/17/2019	100	7,630.0	6,322.0	3,701.0	395,184.0	5,828.00	N/A
32	8/17/2019	100	7,555.0	6,311.0	3,956.0	399,090.0	5,828.00	N/A
33	8/17/2019	100	7,555.0	6,152.0	3,501.0	400,261.0	5,775.00	N/A
34	8/17/2019	100	7,459.0	6,413.0	4,430.0	400,345.0	5,956.00	N/A
35	8/18/2019	100	7,348.0	5,899.0	3,658.0	404,439.0	5,968.00	N/A
36	8/18/2019	99	7,215.0	5,853.0	3,389.0	408,497.0	5,691.02	N/A
37	8/18/2019	100	6,856.0	6,732.0	4,258.0	403,027.0	5,710.00	N/A
38	8/18/2019	100	7,299.0	6,002.0	3,775.0	399,142.0	5,666.00	N/A
39	8/19/2019	100	7,505.0	5,899.0	3,699.0	401,627.0	5,698.98	N/A
40	8/19/2019	100	7,414.0	6,035.0	4,492.0	368,727.0	5,393.98	N/A
41	8/19/2019	100	7,340.0	6,087.0	3,405.0	409,766.0	5,756.00	N/A
42	8/19/2019	99	7,172.0	5,921.0	2,958.0	400,528.0	5,624.00	N/A

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection

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				16418	

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection

SHR38FHSM

47-095-02571



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

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/4/2019
Job End Date:	8/19/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02571-00-00
Operator Name:	CNX Gas Company LLC
Well Name and Number:	SHR38FHSM
Latitude:	39.37141300
Longitude:	-80.83520600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,548
Total Base Water Volume (gal):	11,605,146
Total Base Non Water Volume:	0

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical 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	84.72348	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	14.59180	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor	Water	7732-18-5	92.50000	0.52222	None
			Hydrochloric Acid	7647-01-0	7.50000	0.04234	None
XFR-48	Keane	Friction Reducer	Water	7732-18-5	47.00000	0.03303	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01757	None
			putene, homopolymer	9003-29-6	25.00000	0.01757	None
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00211	None
XSI-22	Keane	Scale Inhibitor	Methanol	67-56-1	50.00000	0.01115	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	0.00223	None

Borehole: Original Borehole	Well: SHR-38F-HSM	Field: WV Tyler County (NAD 27)	Structure: Patterson 801
Gravity & Magnetic Parameters Model: HDGM 2019 Dip: 66.462° Date: 16-Jun-2019 MagDec: -7.708° FS: 61925.90mT Gravity FS: 999.321mgn (8.80665 Based)		Surface Location NAD27 West Virginia State Plane, Northern Zone, US Feet Lat: N 39 22 16.80 Lon: W 80 50 7.36 Northing: 320162.549US Easting: 1622491.129US Grid Conv: -8.817' Scale Fact: 0.99996057	
Miscellaneous Slot: SHR-38F-HSM TVD Ref: KB(1040.53ft above MSL) Plan: CNX SHR-38F-HSM Surveys OR to 1641BR MD			

Critical Point	MD	BHCL	AZM	TVD	VSEC	WV9504	WV9904	DLR
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Buried Top	6767.00	67.54	168.73	6447.86	-290.64	44.75	-732.02	8.42
Tuff Top	6646.00	71.30	164.33	6449.26	-290.41	-27.27	-713.28	7.06
Hammer Top	6035.00	76.76	162.63	6489.83	-126.14	-159.88	-688.44	6.30
Upper Marcellite Top	7917.00	81.87	161.16	6502.91	-138.22	-189.83	-662.90	1.97
SHL CL	7995.00	82.83	162.81	6512.90	-142.13	-207.97	-638.27	1.42
Target Top	7195.00	83.59	161.74	6523.02	-152.81	-220.84	-618.82	1.42
Landing Point	7260.00	86.61	162.72	6527.72	-202.30	-415.81	-686.51	6.98
Final Survey	16330.00	96.17	162.85	6545.77	-498.21	-2396.42	-2396.42	3.38
PTB	16418.00	96.17	162.85	6545.77	-498.21	-2396.42	-2396.42	0.00

PART	Seq	Survey Start	Survey End	Velocity	Min Rate	Max Rate	Equip	Mag Dec	MD From	MD To	Survey	Frequency	WV9504	WV9904	Comments
1	1	NAL_2010-08-01	2010-08-01	30	30	30	0	26.88	168.420	1.261	1.25				
1	2	NAL_2010-08-01	2010-08-01	30	30	30	28.88	28.88	Ad Str	1.261	1.25				
1	3	NAL_2010-08-01	2010-08-01	30	30	30	28.88	28.88	Ad Str	1.261	1.25				
1	4	NAL_2010-08-01	2010-08-01	30	30	30	26.61	26.61	Ad Str	1.261	1.25				
1	5	NAL_2010-08-01	2010-08-01	30	30	30	63.17	164.18	Ad Str	309.642	18.365				

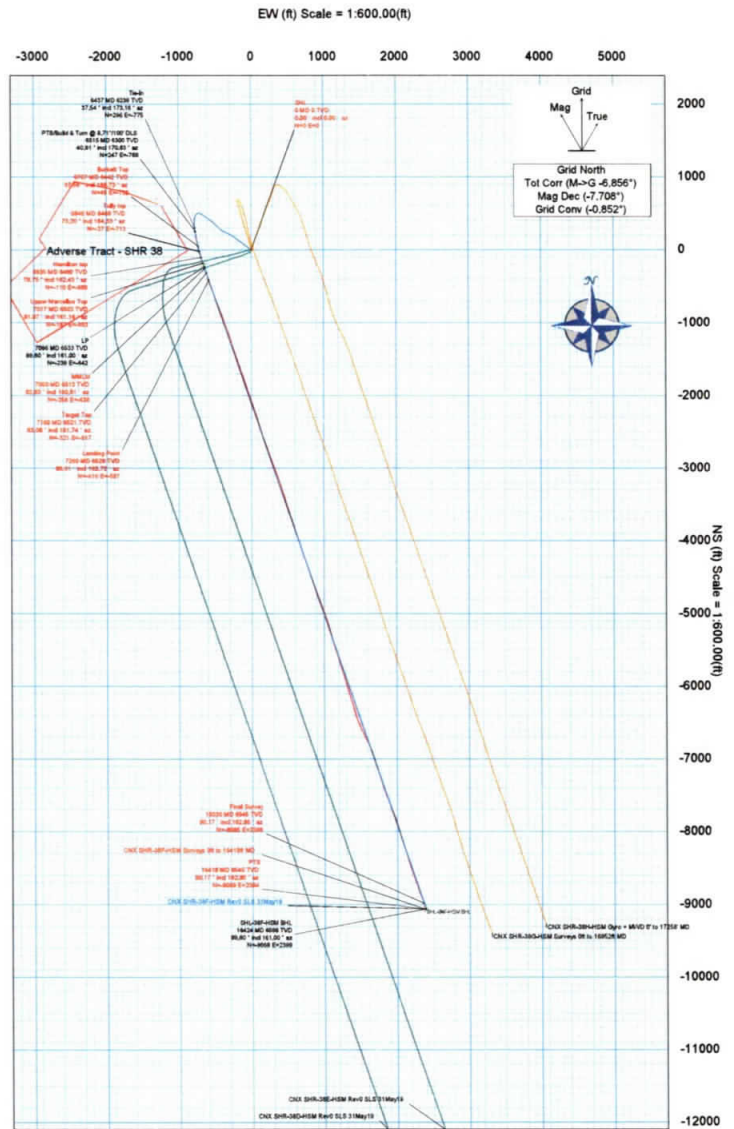
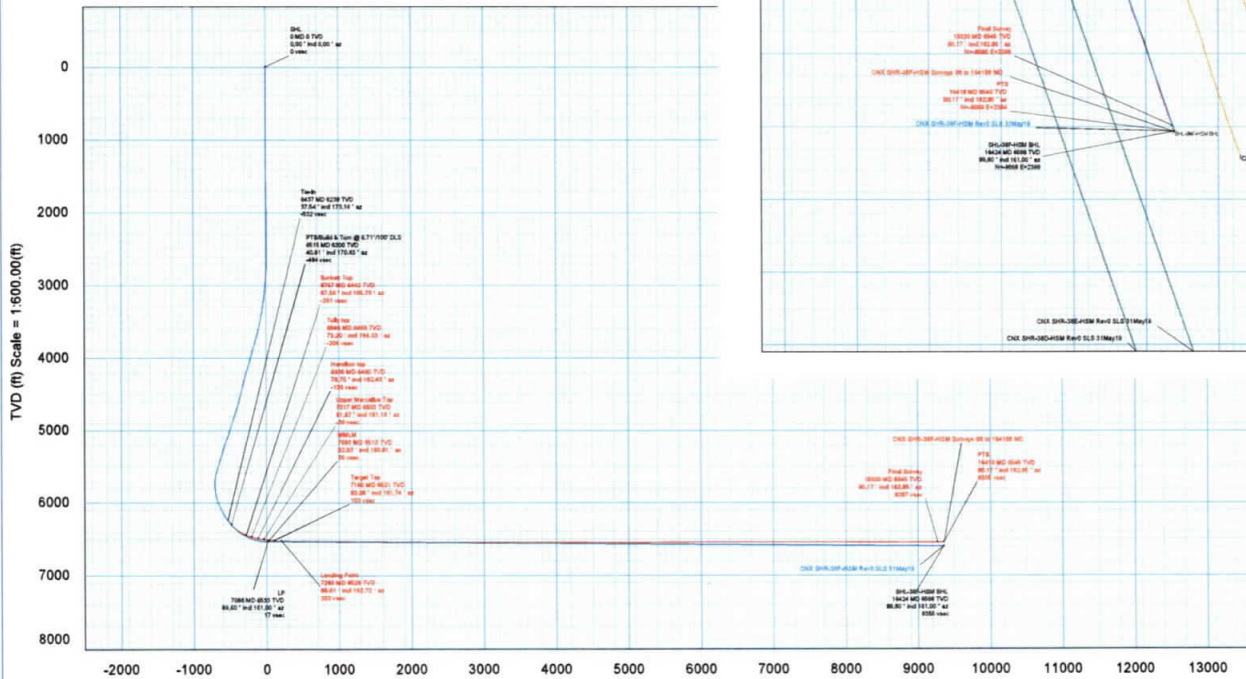
Surface Location		Grid Coord		Local Coord						
Northing:	320162.544	Easting:	1622491.12	Latitude:	N 39 22 16.80					
Longitude:	W 80 50 7.36	VSec Azimuth:	161.80							
Target Name	Shape	Dimension	Latitude	Longitude	Northing	Easting	TVD	VSec	WV9504	WV9904
Adverse Tract - SHR 38	Point	N/A	N 39 24 52.89	W 80 50 40.70	320076.79	1619028.13	1546.83	-1591.23	11047.04	-292.14
SHL-38F-HSM BHL	Point	N/A	N 39 25 47.51	W 80 49 38.12	311996.09	1624898.50	8631.00	8354.78	-8067.82	-2398.50
SHL-38F-HSM LP	Point	N/A	N 39 23 14.95	W 80 50 15.63	318667.36	1621938.68	8631.00	-16.82	-1207.20	-462.68

RECEIVED
Office of Oil and Gas

NOV 21 2019

WV Department of
Environmental Protection

- CNX SHR-38F-HSM Surveys OR to 1641BR MD
- CNX SHR-38F-HSM Surveys OR to 1641BR MD
- CNX SHR-38F-HSM Surveys OR to 1641BR MD
- CNX SHR-38F-HSM Surveys OR to 1641BR MD
- CNX SHR-38F-HSM Surveys OR to 1641BR MD
- Adverse Tract - SHR 38
- SHL-38F-HSM BHL
- SHL-38F-HSM LP



CONTROLLED

Drawn By: E. Shannon

Copy number: 1

CNX SHR-38F-HSM Surveys Off to 16418ft MD Survey Geodetic Report

(Def Survey)

Report Date: July 17, 2019 - 04:17 PM
 Client: CNX Gas
 Fluid: WV Tyler County (NAD 27)
 Structure / Slot: CNX SHR-38F Pad / SHR-38F-HSM
 Well: SHR-38F-HSM
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: CNX SHR-38F-HSM Surveys Off to 16418ft MD
 Survey Date: June 10, 2019
 Tort / AHD / DDI / ERD Ratio: 284.0011 / 11033.968 ft / 0.895 / 1.886
 Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
 Location Lat / Long: N 30° 22' 10.7650" W 80° 52' 7.3665"
 Location Grid NE / YX: N 320162 544 NUS, E 1022401.120 NUS
 CR8 Grid Convergence Angle: -0.8517"
 Grid Scale Factor: 0.99996067
 Version / Patch: 2.10.763.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Admitt: 161.000 " (Grid Norm)
 Vertical Section Origin: 0.000 R, 0.000 R
 TVD Reference Datum: KB
 TVD Reference Elevation: 1040 630 ft above MSL
 Subsoil / Ground Elevation: 1011.650 ft above MSL
 Magnetic Declination: -7.708"
 Total Gravity Field Strength: 990.3213mgn (0.80065 Base)
 Gravity Model: GARM
 Total Magnetic Field Strength: 51825.908 nT
 Magnetic Dip Angle: 95.452"
 Declination Date: June 18, 2019
 Magnetic Declination Model: HDQM 2010
 North Reference: Grid North
 Grid Convergence Used: -0.8517"
 Total Corr Mag North-Grid North: -0.8602"
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Asm Grid (ft)	TVD (ft)	TVDBS (ft)	VREB (ft)	NS (ft)	EW (ft)	DLS (ft)	TF (ft)	BR (ft)	TR (ft)	Northing (ft)	Easting (ft)	Latitude (ft)	Longitude (ft)	Directional (ft)
SHL	0.00	0.00	0.00	0.00	-1040.53	0.00	0.00	0.00	N/A	82.59M	N/A	N/A	320162.54	1022401.12	30.37133217	-80.83537785	0.00
	118.00	0.34	82.09	118.00	-1040.53	0.06	0.06	0.24	0.20	87.29M	0.00	0.00	320162.56	1022401.48	30.37133231	-80.83537947	0.00
	215.00	0.26	67.29	215.00	-1040.53	0.11	0.10	0.87	0.10	84.35M	-0.05	-14.80	320162.73	1022401.90	30.37133271	-80.83537401	0.00
	315.00	0.31	84.35	315.00	-1040.53	0.20	0.20	1.37	0.14	130.61M	0.02	27.06	320162.89	1022402.48	30.37133264	-80.83537283	0.00
	415.00	0.22	130.61	415.00	-1040.53	0.47	0.12	1.78	0.10	127.87M	-0.00	38.10	320162.89	1022402.90	30.37133256	-80.83537136	0.15
	515.00	0.09	127.87	515.00	-1040.53	0.70	-0.08	1.90	0.13	109.36M	-0.13	-2.54	320162.40	1022401.11	30.37133209	-80.83537061	0.28
	615.00	0.15	109.36	615.00	-1040.53	0.85	-0.15	2.18	0.07	248.23M	0.00	-18.02	320162.40	1022401.30	30.37133185	-80.83536965	0.35
	715.00	0.26	248.23	715.00	-1040.53	1.10	-0.21	2.21	0.20	278.43M	-0.30	130.87	320162.23	1022400.37	30.37133168	-80.83536906	0.45
	815.00	0.20	278.43	815.00	-1040.53	0.80	-0.22	2.13	0.06	198.77M	0.03	33.21	320162.32	1022400.25	30.37133165	-80.83537012	0.50
	915.00	0.10	198.77	915.00	-1040.53	0.90	-0.20	2.02	0.12	204.98M	0.01	-80.05	320162.26	1022400.14	30.37133145	-80.83537040	0.60
	1015.00	0.08	204.98	1015.00	-1040.53	1.04	-0.42	1.97	0.04	4.94M	-0.04	8.21	320162.12	1022400.00	30.37133100	-80.83537006	0.90
	1115.00	0.07	4.94	1115.00	-1040.53	1.02	-0.41	1.95	0.01	158.05	0.01	158.05	320162.14	1022400.07	30.37133113	-80.83537072	0.94
	1215.00	0.10	265.52	1215.00	-1040.53	0.94	-0.36	1.87	0.13	136.87M	0.03	-48.17	320162.19	1022400.30	30.37133127	-80.83537102	0.70
	1315.00	0.23	1315.00	1315.00	-1040.53	1.14	-0.51	1.62	0.20	147.98M	0.15	-129.65	320162.04	1022400.04	30.37133084	-80.83537053	0.90
	1415.00	0.29	147.98	1415.00	-1040.53	1.53	-0.80	2.20	0.08	175.37M	0.08	10.21	320161.98	1022400.32	30.37132998	-80.83536904	0.87
	1515.00	0.42	175.37	1515.00	-1040.53	2.13	-1.44	2.30	0.21	130.02M	0.13	28.20	320161.10	1022400.48	30.37133020	-80.83536922	0.68
	1615.00	0.34	130.02	1615.00	-1040.53	2.83	-2.06	2.24	0.27	138.05M	0.00	-45.26	320160.45	1022400.80	30.37132953	-80.83536786	1.12
	1715.00	0.78	138.05	1715.00	-1040.53	3.88	-2.76	3.53	0.28	138.21M	0.27	8.04	320159.05	1022400.85	30.37132939	-80.83536902	1.26
	1815.00	0.82	138.21	1815.00	-1040.53	5.17	-3.93	4.46	0.40	164.05M	0.04	0.15	320158.82	1022400.58	30.37132917	-80.83536167	1.36
	1915.00	0.41	164.05	1915.00	-1040.53	6.18	-4.81	5.03	0.49	134.22M	-0.41	29.84	320157.74	1022400.18	30.37131018	-80.83536560	1.47
	2015.00	0.30	134.22	2015.00	-1040.53	7.44	-6.30	5.37	0.21	148.75M	-0.02	-0.74	320157.16	1022400.49	30.37131759	-80.83536530	1.60
	2115.00	0.34	148.75	2115.00	-1040.53	8.84	-6.88	5.77	0.10	200.95M	-0.06	14.53	320156.85	1022400.80	30.37131629	-80.83536599	1.57
	2215.00	0.26	200.95	2215.00	-1040.53	11.44	-7.50	5.21	0.23	170.78M	0.00	51.81	320156.28	1022401.24	30.37131668	-80.83536541	1.83
	2315.00	0.10	170.75	2315.00	-1040.53	12.74	-8.24	5.93	0.00	150.29M	0.09	-29.91	320156.31	1022401.05	30.37131629	-80.83536537	1.83
	2415.00	0.22	150.29	2415.00	-1040.53	13.74	-8.40	6.04	0.13	224.37M	0.12	-20.40	320156.05	1022401.19	30.37131460	-80.83536567	1.96
	2515.00	0.12	224.37	2515.00	-1040.53	14.74	-8.34	6.06	0.22	227.14M	-0.10	7.16	320155.81	1022401.17	30.37131364	-80.83536568	1.90
	2550.00	0.06	227.14	2550.00	-1040.53	15.15	-8.36	6.01	0.15	214.4M	-0.15	8.71	320155.77	1022401.13	30.37131361	-80.83536560	1.70
	2648.00	0.11	214.40	2648.00	-1040.53	16.07	-8.44	5.93	0.06	322.87M	0.06	-17.11	320155.86	1022401.07	30.37131561	-80.83536532	1.71
	2733.00	0.21	322.87	2733.00	-1040.53	17.52	-9.25	5.92	0.15	318.18M	0.17	318.18	320155.28	1022401.54	30.37131498	-80.83537053	2.00
	2818.00	4.30	318.18	2818.00	-1040.53	18.44	-8.40	2.11	3.19	310.78M	3.16	-7.60	320154.94	1022403.23	30.37132511	-80.83537000	2.18
	2903.00	5.27	310.75	2903.00	-1040.53	18.61	-9.18	2.20	1.16	307.8M	1.04	-5.34	320154.84	1022403.01	30.37132333	-80.83536876	2.38
	2988.00	3.01	307.80	2988.00	-1040.53	19.12	-10.18	-9.40	0.78	307.17M	0.88	-3.47	320154.84	1022403.03	30.37132333	-80.83536876	2.54
	3072.00	7.45	307.17	3072.00	-1040.53	20.30	-10.41	-17.21	1.91	306.5M	1.90	-0.75	320154.85	1022403.01	30.37132333	-80.83536876	2.71
	3168.00	8.50	306.50	3168.00	-1040.53	21.31	-11.21	-20.54	1.25	214.8M	1.25	-0.80	320154.84	1022403.00	30.37132333	-80.83536876	2.86
	3242.00	8.94	307.81	3242.00	-1040.53	21.96	-11.74	-28.25	0.55	131.81M	0.51	1.29	320154.79	1022403.18	30.37131422	-80.83536500	2.97
	3327.00	10.52	300.84	3327.00	-1040.53	22.81	-12.67	-36.19	2.03	7.00L	1.98	2.02	320154.84	1022403.03	30.37131422	-80.83536500	3.10
	3411.00	12.26	300.88	3411.00	-1040.53	23.64	-13.44	-41.86	1.87	6.51L	1.95	-1.14	320154.80	1022403.00	30.37131415	-80.83536518	3.26
	3495.00	14.20	248.67	3495.00	-1040.53	24.45	-14.14	-47.20	2.02	2.00L	1.96	0.67	320154.82	1022403.00	30.37131415	-80.83536518	3.42
	3582.00	15.70	306.61	3582.00	-1040.53	25.26	-14.74	-50.70	2.02	0.81L	1.98	-0.80	320154.82	1022403.00	30.37131415	-80.83536518	3.60
	3608.00	17.81	305.52	3608.00	-1040.53	26.08	-15.47	-53.20	2.30	1.14L	2.27	-1.30	320249.92	1022377.93	30.37150741	-80.83536759	3.67
	3758.00	18.45	305.41	3758.00	-1040.53	26.90	-16.24	-55.87	2.04	0.12	-0.10	-0.12	320296.61	1022354.64	30.37181201	-80.83536565	3.57
	3842.00	19.43	303.52	3842.00	-1040.53	27.77	-17.03	-58.61	0.05	164.9L	-0.02	0.12	320283.11	1022331.32	30.37185954	-80.83540117	3.74
	3928.00	19.48	306.38	3928.00	-1040.53	28.64	-17.89	-61.42	1.15	35.82R	-1.10	0.94	320289.40	1022308.70	30.37170009	-80.83539300	3.80
	4011.00	20.21	306.88	4011.00	-1040.53	29.52	-18.74	-64.25	0.37	3.76R	0.30	0.67	320315.28	1022291.44	30.37174319	-80.83539102	3.85
	4095.00	19.28	308.99	4095.00	-1040.53	30.16	-19.50	-66.83	0.00	20.93L	0.05	0.13	320331.72	1022296.58	30.37178739	-80.83541420	3.91
	4180.00	19.80	308.11	4180.00	-1040.53	30.93	-20.24	-69.20	0.70	58.37L	0.81	-1.04	320348.65	1022292.74	30.37182393	-80.83542563	3.92
	4268.00	21.00	296.84	4268.00	-1040.53	31.77	-21.01	-71.22	2.24	88.29L	1.24	-5.35	320365.24	1022271.91	30.37187748	-80.83544482	4.02
	4352.00	21.00	296.84	4352.00	-1040.53	32.57	-21.43	-73.20	2.30	106.75L	1.38	-6.00	320379.90	1022260.90	30.37191678	-80.83546024	4.20
	4438.00	20.27	290.02	4438.00	-1040.53	33.36	-22.12	-74.80	2.58	130.19R	-0.75	-6.03	320391.53	1022245.70	30.37194742	-80.83547475	4.15
	4522.00	19.01	295.24	4522.00	-1040.53	34.17	-22.82	-76.18	2.66	123.70R	-1.58	0.67	320402.82	1022230.90	30.37197978	-80.83548286	4.21
	4608.00	18.67	296.80	4608.00	-1040.53	34.99	-23.51	-77.55	0.74	79.24R	0.44	1.59	320414.53	1022215.59	30.37200849	-80.83549770	4.24
	4691.00	18.04	301.78	4691.00	-1040.53	35.77	-24.22	-78.82	1.92	81.93R	0.44	0.70	320427.68	1022200.81	30.37203443	-80.83551622	4.28
	4778.00	20.21	315.25	4778.00	-1040.53	36.57	-24.90	-80.00	5.49	177.05L	1.38	15.86	320445.12	1022187.54	30.37205923	-80.83553414	4.26
	4861.00	19.57	315.20	4861.00	-1040.53	37.37	-25.12	-81.14	4.42	125.63L	-0.64	-0.07	320460.30	1022174.00	30.37214789	-80.83556872	4.30
	4948.00	18.23	311.80	4948.00	-1040.53	38.17	-25.36	-82.13	0.86	8.94R	-0.87	-3.80	320486.86	1022025.79	30.37220200	-80.83700469	4.42
	5031.00	19.82	312.14	5031.00	-1040.53	38.97	-25.61	-83.11	0.82	4.55R	0.81	0.20	320504.44	1022000.94	30.37225090	-80.83711521	4.45

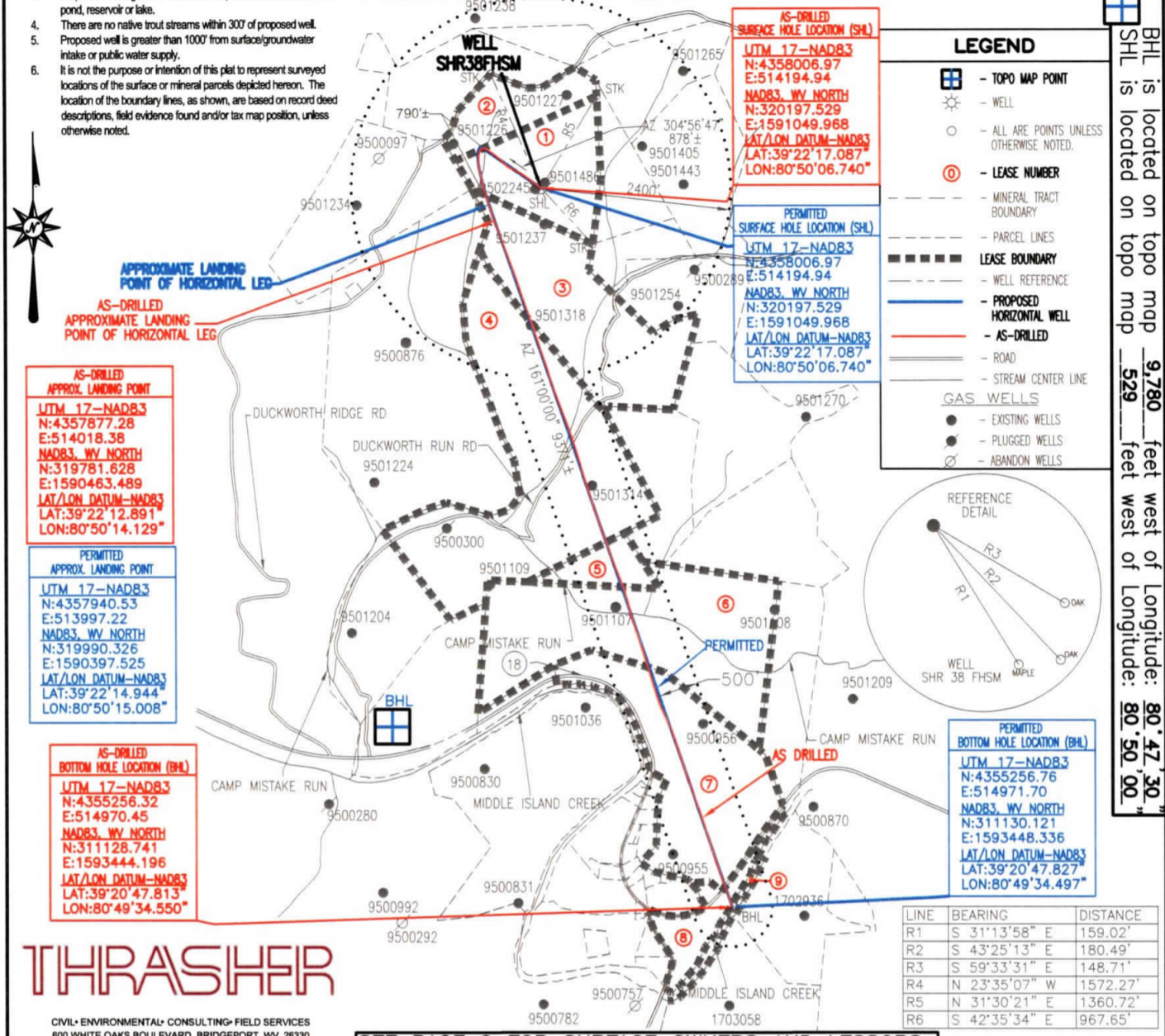
Comments	MD (ft)	Incl (°)	Asm Grid (ft)	TVD (ft)	TVD85 (ft)	VSEC (ft)	NS (ft)	EW (ft)	DL8 (ft)	TF (ft)	BR (ft)	TR (ft)	Northing (ft)	Easting (ft)	Latitude (ft)	Longitude (ft)	Directional
	7630.00	00.00	168.51	6520.71	5480.18	5804.04	-700.20	-462.30	0.13	83.54L	-0.08	0.12	319203.36	1622008.84	30.26670214	-80.83060670	6.65
	7730.00	00.72	157.98	6530.22	5480.99	674.83	-467.43	-417.00	0.56	81.60R	0.00	-0.56	319205.10	1622074.06	30.26691157	-80.83060762	5.87
	7827.00	00.85	160.02	6530.73	5490.20	786.89	-445.18	-383.40	2.17	136.17R	-0.00	-2.17	319217.41	1622107.74	30.26872180	-80.83060838	5.70
	7922.00	00.16	180.50	6531.71	5491.18	863.85	-1004.80	-361.32	0.73	72.55L	-0.63	0.51	319218.00	1622136.82	30.26847772	-80.83060971	5.72
	8010.00	00.55	159.28	6532.77	5492.24	957.82	-1122.85	-348.99	1.38	88.09R	0.41	-1.32	319208.75	1622172.15	30.26823818	-80.83061492	5.75
	8111.00	00.80	164.20	6533.23	5492.70	1032.78	-1212.03	-280.22	0.21	85.27L	0.36	5.20	319049.57	1622201.92	30.26799042	-80.83062000	6.18
	8206.00	00.76	190.07	6533.50	5492.97	1148.74	-1302.71	-291.00	3.44	119.54L	-0.12	-3.44	318850.90	1622230.05	30.26774530	-80.83062549	5.81
	8298.00	00.51	190.27	6534.00	5493.47	1240.74	-1391.48	-230.00	0.27	87.71R	-0.18	-0.26	318771.12	1622260.93	30.26750201	-80.83063184	5.83
	8388.00	00.55	181.27	6534.70	5494.17	1335.70	-1481.30	-190.23	0.63	117.96L	-0.00	0.63	318681.32	1622291.90	30.26726787	-80.83063835	5.85
	8488.00	00.38	160.95	6535.58	5495.05	1429.73	-1570.23	-158.80	0.39	87.16L	-0.18	-0.34	318592.30	1622322.33	30.26703370	-80.83064478	5.87
	8583.00	00.63	159.88	6536.23	5495.70	1524.72	-1660.73	-136.65	1.22	112.09R	0.47	-1.13	318502.90	1622354.17	30.26679000	-80.83065120	5.89
	8677.00	00.27	161.26	6536.67	5496.44	1618.71	-1748.37	-106.00	1.58	80.89R	-0.00	1.47	318414.28	1622385.44	30.26654630	-80.83065690	5.90
	8768.00	00.38	181.50	6538.09	5497.56	1713.70	-1838.41	-75.40	0.34	80.64R	0.12	0.32	318324.23	1622416.72	30.26630240	-80.83066270	5.93
	8868.00	00.72	161.98	6538.83	5498.30	1807.80	-1927.88	-45.98	0.50	82.90L	0.36	0.43	318234.09	1622448.14	30.26605853	-80.83066853	5.94
	8961.00	00.85	161.02	6539.34	5498.81	1902.88	-2017.77	-15.83	0.80	111.11R	-0.00	-0.98	318144.88	1622479.50	30.26581427	-80.83067437	5.96
	9055.00	00.44	161.80	6540.08	5499.55	1998.08	-2108.81	14.28	0.05	85.82L	-0.23	0.01	318055.84	1622510.40	30.26557000	-80.83068020	5.98
	9150.00	00.55	160.78	6540.95	5500.43	2091.87	-2198.73	44.81	0.87	85.43R	0.00	-0.86	317965.92	1622541.93	30.26532596	-80.83068600	6.00
	9244.00	00.06	161.13	6541.45	5501.12	2185.07	-2285.58	75.58	0.41	88.99R	0.17	0.37	317877.00	1622573.00	30.26508100	-80.83069187	6.01
	9338.00	00.72	164.37	6542.16	5501.83	2279.01	-2375.34	103.45	3.45	84.84L	0.00	3.45	317787.32	1622604.67	30.26483674	-80.83069764	6.04
	9433.00	00.89	182.49	6542.48	5501.96	2374.55	-2469.38	130.56	1.90	105.32L	0.18	-0.31	317698.28	1622636.18	30.26459248	-80.83070344	6.05
	9527.00	00.84	158.02	6543.44	5502.81	2468.50	-2555.12	181.52	3.83	133.05L	-1.01	-3.80	317607.55	1622667.83	30.26434820	-80.83070921	6.08
	9622.00	00.22	158.71	6544.14	5503.81	2563.43	-2643.70	199.77	1.30	80.98R	1.35	-0.30	317516.95	1622699.88	30.26410376	-80.83071497	6.10
	9716.00	00.11	180.29	6543.86	2957.40			228.80	1.86	81.23L	-0.12	1.88	317426.80	1622731.80	30.26385921	-80.83072074	6.13
	9811.00	00.17	158.04	6543.83	2503.10			275.07	1.32	102.91R	0.00	-0.32	317334.84	1622763.80	30.26361467	-80.83072651	6.00
	9906.00	00.06	158.52	6543.44	2502.81	2848.33	-2908.77	294.08	0.52	80L	-0.12	0.51	317243.92	1622795.67	30.26337013	-80.83073228	6.14
	9996.00	00.05	158.42	6543.35	2502.82	2940.29	-2999.80	327.93	0.11	83.94L	0.00	-0.11	317153.00	1622827.60	30.26312560	-80.83073805	6.16
	10084.00	00.17	160.45	6543.15	3036.27	3036.27	-3086.03	390.52	1.00	81.36R	0.12	1.02	317062.16	1622859.12	30.26288100	-80.83074382	6.18
	10188.00	00.22	160.78	6542.83	3032.29	3129.27	-3174.70	391.72	0.36	100.67R	0.06	0.35	316970.91	1622890.82	30.26263646	-80.83074959	6.10
	10285.00	00.83	162.85	6542.79	3032.29	3224.20	-3263.25	421.37	0.61	81.24R	0.12	0.61	316879.75	1622922.44	30.26239190	-80.83075536	6.17
	10378.00	00.85	163.24	6542.63	3032.60	3319.16	-3352.82	447.07	0.62	79.80L	0.06	0.41	316788.59	1622954.10	30.26214734	-80.83076113	6.20
	10472.00	00.11	162.01	6543.35	3032.60	3413.18	-3442.53	477.14	1.33	102.41R	0.23	-1.13	316697.19	1622985.84	30.26190271	-80.83076690	6.21
	10567.00	00.00	162.51	6542.93	3032.60	3508.13	-3538.01	508.00	0.54	80L	-0.12	0.53	316605.76	1622917.18	30.26165816	-80.83077267	6.24
	10661.00	00.00	161.80	6542.93	3032.60	3602.11	-3623.51	534.81	0.85	104.74R	0.00	-0.85	316514.32	1622948.91	30.26141363	-80.83077844	6.25
	10756.00	00.78	161.98	6543.12	3032.60	3697.10	-3713.83	564.28	0.24	81.11L	-0.23	0.24	316422.87	1622980.67	30.26116910	-80.83078421	6.27
	10849.00	00.84	161.97	6543.35	3032.60	3791.00	-3803.19	592.02	0.35	86.89R	0.17	0.31	316331.41	1623012.43	30.26092457	-80.83078998	6.20
	10944.00	00.06	163.85	6543.35	3032.60	3884.94	-3891.41	619.47	2.33	94.16L	0.13	2.33	316240.04	1623044.18	30.26068004	-80.83079575	6.29
	11089.00	00.04	162.21	6543.35	3032.60	3978.97	-3986.77	648.19	1.74	83.29L	-0.13	-1.74	316148.68	1623076.00	30.26043551	-80.83080152	6.31
	11133.00	00.80	160.34	6543.49	3032.60	4073.89	-4073.89	678.58	0.69	81.80R	-0.06	-0.69	316057.32	1623107.81	30.26019100	-80.83080729	6.32
	11228.00	00.11	161.31	6544.13	3032.60	4168.90	-4168.90	708.00	0.50	72.72L	-0.59	-0.03	315965.71	1623139.60	30.26094642	-80.83081306	6.35
	11322.00	00.81	160.41	6545.00	3032.60	4262.80	-4253.85	738.82	1.00	104.45R	0.30	-0.06	315874.01	1623171.40	30.26070189	-80.83081883	6.30
	11417.00	00.44	159.07	6545.79	3032.60	4357.95	-4348.53	771.16	0.78	86.78L	-0.18	0.80	315782.34	1623202.24	30.26045736	-80.83082460	6.37
	11511.00	00.55	159.12	6546.82	3032.60	4451.93	-4443.91	803.18	2.02	89.45R	0.12	2.02	315690.71	1623234.03	30.26021283	-80.83083037	6.30
	11605.00	00.84	160.16	6547.04	3032.60	4545.80	-4537.83	835.80	1.18	100.00L	0.41	1.11	315600.04	1623265.82	30.26096812	-80.83083614	6.38
	11699.00	00.83	159.84	6547.23	3032.60	4639.56	-4631.59	868.24	0.87	116.80R	-0.12	0.87	315509.37	1623297.61	30.26072359	-80.83084191	6.41
	11794.00	00.85	159.24	6547.85	3032.60	4733.16	-4725.16	900.44	1.18	83.3L	-0.18	0.01	315418.66	1623329.40	30.26047906	-80.83084768	6.46
	11889.00	00.72	158.82	6548.16	3032.60	4826.80	-4818.80	932.20	0.77	86.84R	0.00	-0.77	315327.91	1623361.19	30.26023453	-80.83085345	6.42
	11983.00	00.11	158.48	6548.30	3032.60	4920.75	-4912.75	968.87	0.80	131.35R	0.41	0.88	315236.16	1623393.00	30.25999000	-80.83085922	6.43
	12078.00	00.80	158.71	6548.30	3032.60	5014.72	-5006.72	1001.81	0.35	83.7R	-0.23	0.20	315144.41	1623424.81	30.25974547	-80.83086499	6.44
	12172.00	00.06	161.23	6548.34	3032.60	5108.71	-5099.71	1033.21	1.85	80.09R	0.18	1.84	315052.66	1623456.60	30.25950094	-80.83087076	6.45
	12267.00	00.28	162.51	6548.00	3032.60	5202.70	-5193.70	1065.70	1.35	90.92R	0.23	1.33	314960.91	1623488.40	30.25925641	-80.83087653	6.48
	12361.00	00.27	160.21	6547.95	3032.60	5296.72	-5287.72	1098.10	3.84	98.45L	-0.00	3.84	314869.16	1623520.19	30.25901188	-80.83088230	6.48
	12456.00	00.56	166.94	6547.00	3032.60	5390.15	-5382.15	1130.90	0.46	92.72L	0.36	-0.28	314777.41	1623551.98	30.25876735	-80.83088807	6.40
	12550.00	00.36	162.38	6548.22	3032.60	5483.99	-5475.99	1163.81	3.79	83.82L	-0.18	-3.79	314685.76	1623583.77	30.25852282	-80.83089384	6.42
	12645.00	00.56															

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 herein. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

BHL is located on topo map 10,377 feet south of Latitude: 39° 22' 30"
 SHL is located on topo map 1,306 feet south of Latitude: 39° 22' 30"

AS DRILLED PLAT



BHL is located on topo map 9,780 feet west of Longitude: 80° 47' 30"
 SHL is located on topo map 529 feet west of Longitude: 80° 50' 00"

THRASHER

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

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

FILE #: SHR 38 FHSM AS-DRILLED
 DRAWING #: SHR 38 FHSM 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

GEORGE D. SIX
 LICENSED
 No. 2000
 STATE OF WEST VIRGINIA
 PROFESSIONAL SURVEYOR

PLACE SEAL HERE

(+) 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 FHSM AS-DRILLED
 API WELL #: 47 95 02571
 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: 520.254±

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: 16,408±
 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

AS DRILLED PLAT

SHR 38 FHSM

PAGE 2 OF 2

	SURFACE OWNER	LESSOR	DIST-TM/PAR
1 2	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
3	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, A/K/A PHILLIP MARSHALL LEONIAN MARION RAY BACHELOR, A/K/A MARION 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, A/K/A ARMEN LANHAM LEONIAN JOHN FULTON LEONIAN NILA ASH SAYLOR REVOCABLE TRUST, BY JOSEPH F. SILEK, JR. BAILEY ANN MILLS WILLIAM PAUL HARPER DAVID VINCENT LOCOCO MARY LYNNE SLATTERY, F/K/A MARY LYNNE LOCOCO DONALD VINCENT LOCOCO ROSE MARIE VANHEUVELN THERESA LEE ROBERTSON MARTHA SUE MUZIO, F/K/A MARTHA SUE LOCOCO MICHELLE LOCOCO BUSHMIRE, F/K/A 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
4 5	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. DOAK HEIRS JOHN A. CONKLIN AND JEAN CONKLIN, H/W GEORGE B. CONKLIN AND JEAN 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
6	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 & 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. COLLINS, H/W	1-18/15
8	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
9	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	N/A

RECEIVED
Office of Oil and Gas

NOV 21 2019

West Virginia Department of
Environmental Protection

AS-DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4358006.97
E:514194.94
NAD83, WV NORTH
N:320197.529
E:1591049.968
LAT/LON DATUM-NAD83
LAT:39°22'17.087"
LON:80°50'06.740"

AS-DRILLED
APPROX. LANDING POINT
UTM 17-NAD83
N:4357877.28
E:514018.38
NAD83, WV NORTH
N:319781.628
E:1590463.489
LAT/LON DATUM-NAD83
LAT:39°22'12.891"
LON:80°50'14.129"

AS-DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4355256.32
E:514970.45
NAD83, WV NORTH
N:311128.741
E:1593444.196
LAT/LON DATUM-NAD83
LAT:39°20'47.813"
LON:80°49'34.550"

PERMITTED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4358006.97
E:514194.94
NAD83, WV NORTH
N:320197.529
E:1591049.968
LAT/LON DATUM-NAD83
LAT:39°22'17.087"
LON:80°50'06.740"

PERMITTED
APPROX. LANDING POINT
UTM 17-NAD83
N:4357940.53
E:513997.22
NAD83, WV NORTH
N:319990.326
E:1590397.525
LAT/LON DATUM-NAD83
LAT:39°22'14.944"
LON:80°50'15.008"

PERMITTED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4355256.76
E:514971.70
NAD83, WV NORTH
N:311130.121
E:1593448.336
LAT/LON DATUM-NAD83
LAT:39°20'47.827"
LON:80°49'34.497"

API WELL #: 47 95 02571

STATE COUNTY PERMIT

SEPTEMBER 17, 2019

THRASHER

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