



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
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Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, January 29, 2020
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

CNX GAS COMPANY LLC
1000 CONSOL ENERGY DR

CANONSBURG, PA 15370

Re: Permit Modification Approval for SHR 37 IHSM
47-095-02664-00-00

Modified Well Bore Design and Length of Lateral for TMD of 22,205'

CNX GAS COMPANY LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: SHR 37 IHSM
Farm Name: CNX GAS COMPANY
U.S. WELL NUMBER: 47-095-02664-00-00
Horizontal 6A New Drill
Date Modification Issued: January 29, 2020

Promoting a healthy environment.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: CNX Gas Company, LLC 494458046 Tyler Centerville West Union
Operator ID County District Quadrangle

2) Operator's Well Number: SHR37IHSM Well Pad Name: SHR37

3) Farm Name/Surface Owner: CNX Gas Company LLC Public Road Access: Duckworth Ridge Road

4) Elevation, current ground: 828' Elevation, proposed post-construction: 828'

5) Well Type (a) Gas X Oil _____ Underground Storage _____
Other _____

(b) If Gas Shallow X Deep _____
Horizontal X

6) Existing Pad: Yes or No Yes *DMAH 1/17/20*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target formation is Marcellus Shale @ 6290'-6337' TVD, 47' thick, expected formation pressure ~4000 psi

8) Proposed Total Vertical Depth: 6302'

9) Formation at Total Vertical Depth: Marcellus Shale (will not penetrate Onondaga)

10) Proposed Total Measured Depth: 22,205'

11) Proposed Horizontal Leg Length: 14,785'

12) Approximate Fresh Water Strata Depths: 92', 126', 144', 148', 150', 176', 220'

13) Method to Determine Fresh Water Depths: Offset water well information

14) Approximate Saltwater Depths: 1748', 2458'

15) Approximate Coal Seam Depths: No mineable coal seams; trace @ 154', 526', 618', 955', 992', 1044'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No X

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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18) **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft./CTS)
Conductor	20	New	L/S	<94.0	100	100	96 / CTS
Fresh Water	13.375	New	J-55	54.5	400	400	278 / CTS
Coal	13.375	New	J-55	54.5	400	400	278 / CTS
Intermediate	9.625	New	J-55	36.0	2600	2600	834 / CTS
Production	5.5	New	P-110	20.0	22,205	22,205	4559 / TOC @ 2100'
Tubing	2.375	New	J-55	4.7		TBD	N/A
Liners	N/A						

DWH 1/17/20

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	24	0.375	N/A	N/A	Type 1	1.18
Fresh Water	13.375	17.5	0.380	2730	<500	Class A	1.19
Coal	13.375	17.5	0.380	2730	<500	Class A	1.19
Intermediate	9.625	12.25	0.352	3520	<2815	Class A	1.19
Production	5.5	8.75 x 8.5	0.361	14340	~11000 during frac	Class A or H	1.10
Tubing	2.375	N/A	0.190	7700	N/A	N/A	N/A
Liners	N/A						

PACKERS

Kind:	N/A			
Sizes:				
Depths Set:				

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Utilize conductor rig to set 20" conductor into solid rock and cement back to surface. MIRU drilling rig. Air drill 17-1/2" hole. Run and cement 13-3/8" fresh water casing. Note that there are no known mineable coal seams in this area. Air drill 12-1/4" hole. Run and cement 9-5/8" intermediate casing. Air drill 8-3/4" production hole to curve KOP (this section is typically directionally drilled with a slant/tangent profile for anti-collision and for lateral spacing). Displace hole with 12.0-12.8 ppg SOBMs. Drill 8-1/2" curve from KOP to landing point. Continue drilling 8-1/2" lateral to TD (geosteer this section to remain in Marcellus target window). Perform clean-up cycle to condition well. Run and cement 5-1/2" production casing. Suspend well and skid to next well or RDMO drilling rig.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Run CBL to ~60 degrees in the curve and back to surface to determine production casing TOC. Test production casing and toe prep well. MIRU stimulation/hydraulic fracturing equipment. Fracture well by pumping required number of stages utilizing plug-and-perf method. Max anticipated treating pressure is ~11,000 psi and max anticipated treating pump rate is ~100 bpm. Number of stages and stage spacing to be finalized after drilling. After last stimulation stage, drill out frac plugs and clean-out well to PBT. Flow back and clean-up well. Tie well into production. Run tubing when required.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 8.5

22) Area to be disturbed for well pad only, less access road (acres): 8

23) Describe centralizer placement for each casing string:

Fresh water string: centralize shoe joint and every other joint to surface - utilize bow spring centralizers. Intermediate string: centralize shoe joint and every 3rd joint to surface - utilize bow spring centralizers. Production string: centralize every joint from shoe to TOC - utilize single piece/rigid bow centralizers. Actual centralizer placement may be changed based on hole conditions.

24) Describe all cement additives associated with each cement type:

Fresh water string: Class A cement with 1%-3% CaCl₂ and 1/4 pps cello-flake/LCM. Intermediate string: Class A cement with 0%-2% CaCl₂ and 1/4 pps cello-flake/LCM. Production string: Class A or Class H with dry blend and/or liquid additives including retarder, suspension agent, gas block, defoamer, fluid loss control, extender, dispersant, anti-settling agent. Actual cement blends may vary slightly depending upon cementing service company utilized.

25) Proposed borehole conditioning procedures:

Air sections are typically vertical holes - will ensure the hole is clean at section TD prior to TOOH to run casing (may require mist and/or soap to clean the hole). For the production hole - once at TD, circulate at max flowrate with max rotation until the shakers clean-up (typically requires multiple bottoms-up). For the production casing - once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.

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*Note: Attach additional sheets as needed.

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DRILLING WELL PLAN
SHR-371-HSM (Marcellus HZ)
Marcellus Shale Horizontal
Tyler County, WV

SHR-371-HSM SHL				N 313605.21, E 1619480.01 (NAD27)						
Ground Elevation	828 GL Elevation			SHR-371-HSM LP				N 314429.2, E 1621361.84 (NAD27)		
Azimuth	341°			SHR-371-HSM BHL				N 328523.27, E 1616905.473 (NAD27)		
WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	MD	TVD	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	24"	20" L/S	Conductor	100	100	AIR	To Surface	N/A	N/A	Stabilize surface fill/soil
	17-1/2"	13-3/8" 54.5# J-55 BTC	Shallowest Fresh Water		92	AIR / FW Mist	15.6 ppg Class A + 1% to 3% CaCl2 + 1/4 pps Flake 20% OH Excess Yield = 1.19 TOC @ surface	Centralize every other joint from shoe to surface Bow spring centralizers	Ensure the hole is clean at section TD	Set through fresh water zones Cemented to surface No known mineable coal seams
			Deepest Fresh Water		220					
			Fresh Water Casing	400	400					
	12-1/4"	9-5/8" 36.0# J-55 LTC	No mineable coal zones		N/A	AIR / Soap	15.6 ppg Class A + 0% to 2% CaCl2 + 1/4 pps Flake 20% OH Excess Yield = 1.19 TOC @ surface	Centralize every 3rd joint from shoe to surface Bow spring centralizers	Soap the hole as needed and ensure the hole is clean at section TD	Set through potential salt water zones Cemented to surface Casing to be set below the Big Injun and Berea and into Devonian Shale
			Big Lime		1683					
			Big Injun		1748					
			Price		1888					
			Weir		2018					
			Berea		2238					
			Gordon		2458					
	Intermediate Casing	2600	2600							
	8-3/4" Tangent 8-1/2" Curve & Lateral	5-1/2" 20.0# P-110 VAR	Warren		3153	AIR	15.0 ppg Class A or H with additives (retarder, suspension agent, gas block, defoamer, fluid loss, extender, etc.) 10% OH Excess Yield = 1.10 TOC @ >= 500' above 9-5/8" shoe	Centralize every joint from shoe to TOC Single-piece/rigid bow centralizers	Once at TD, circulate at max flowrate with max rotation until shakers clean-up (typically requires multiple bottoms-up) Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement	Note: Actual centralizer placement may be changed due to hole conditions Note: Actual cement blends may vary slightly depending upon service company utilized
			Benson		4733					
			Alexander		4978					
Cashaqua				5978						
Middlesex				6083						
West River				6123						
Burkett				6193						
Tully				6223						
Hamilton				6243						
Marcellus				6261						
Production Casing	22205	6302								

LP @ +/- 6302' TVD

8-3/4" x 8-1/2" Hole - Cemented Long String
5-1/2" 20.0# VA-EP-P110-NY VAR (115-125 MYS, 95% RBW, API Modified BTC)

+/- 14785' Lateral

TD @ +/- 6302' TVD



SHR37 Pad Frac - SOG Review

In accordance with WVDEP 35CSR8 Section 5.11, all known shallow oil and gas (SOG) wells have been identified within a 500' radius of the SHR37 pad. Any SOG well that falls within the Area of Review (AOR) has been reviewed and is provided in a list that includes API, Operator, Well Name, Well Number, Current Status, Total Depth, and Producing Formation at Total Depth. See following pages, including (Figures 3 and 4).

The Marcellus Shale of the Shirley area is found at an approximate True Vertical Depth (TVD) of 6500'. In the Shirley area, there are very few producing formations between the Big Injun and the Benson Sand. Most wells are either approximately 2000' or 5000' deep. Although there are a significant number of SOG Communication events in the Shirley area, it is highly unlikely that communication will occur with any wells producing from formations shallower than the Benson Sand, found at an approximate TVD of 5000'. This is based on previous experience and study of SOG Communication with Marcellus fracs throughout Ritchie and Doddridge counties.

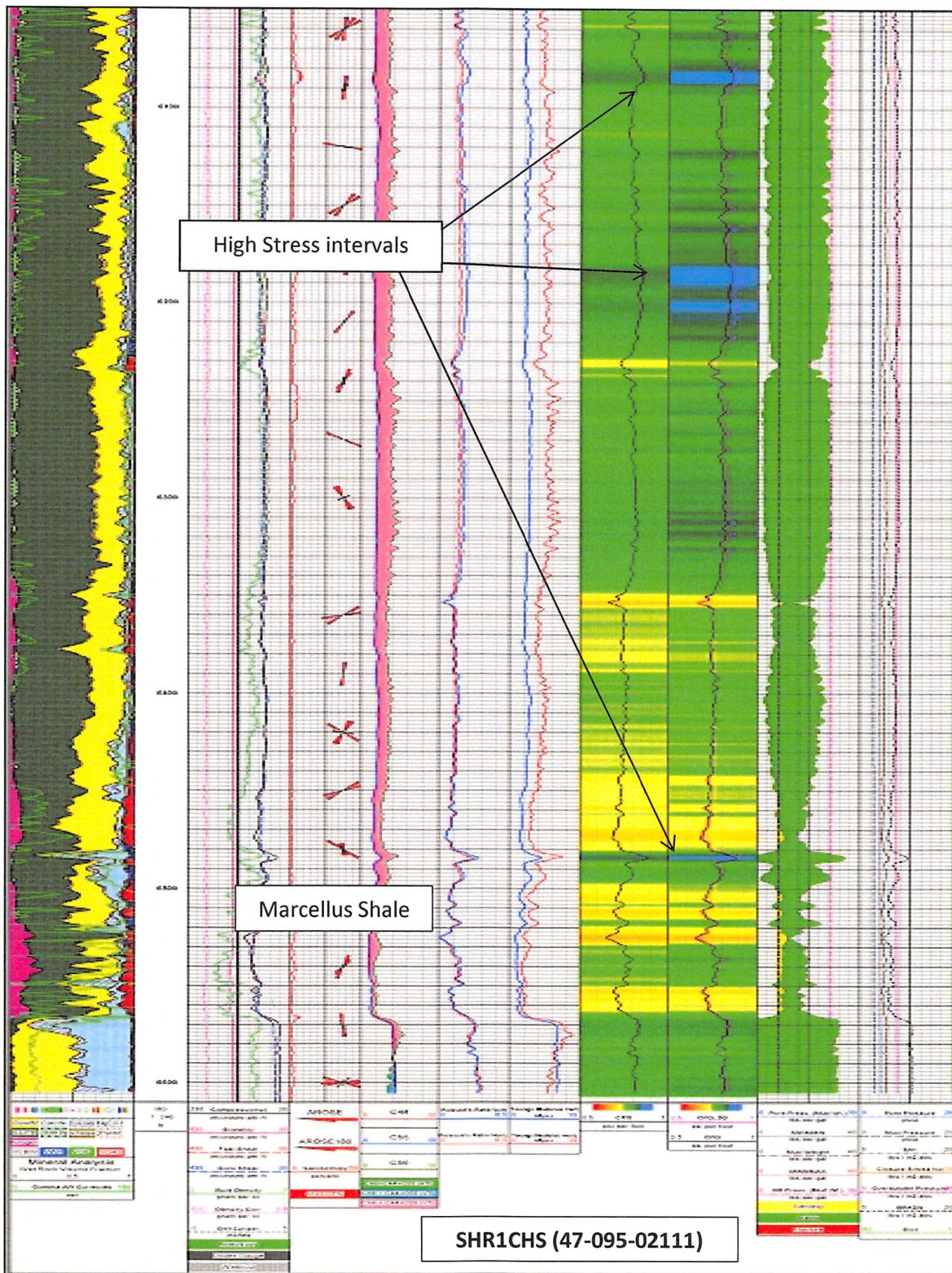
The current hypothesis for SOG Communication is that Marcellus frac fluids and pressure intersect and migrate up a nearby fault that acts as a conduit for upward migration and intersection with high permeability reservoirs of the Alexander and Benson. Both of these reservoirs are primarily depleted, allowing an easier pressure migration throughout these formations. Geomechanical data is collected from dipole sonic logs. CNX's nearest sonic data is from the SHR1C well (Figure 1), immediately north of the SHR38 pad. Frac modeling (Figure 2) of the Marcellus in the area does not show significant upward frac growth. In fact, typical frac height would need to be more than double to reach the Alexander, approximately 1000' above the Marcellus Shale.

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Figure 1. Stratigraphic intervals of high stress should serve as adequate confining layers, or frac barriers, for a Marcellus frac, seen below in the SHR1C Stress Profile log.

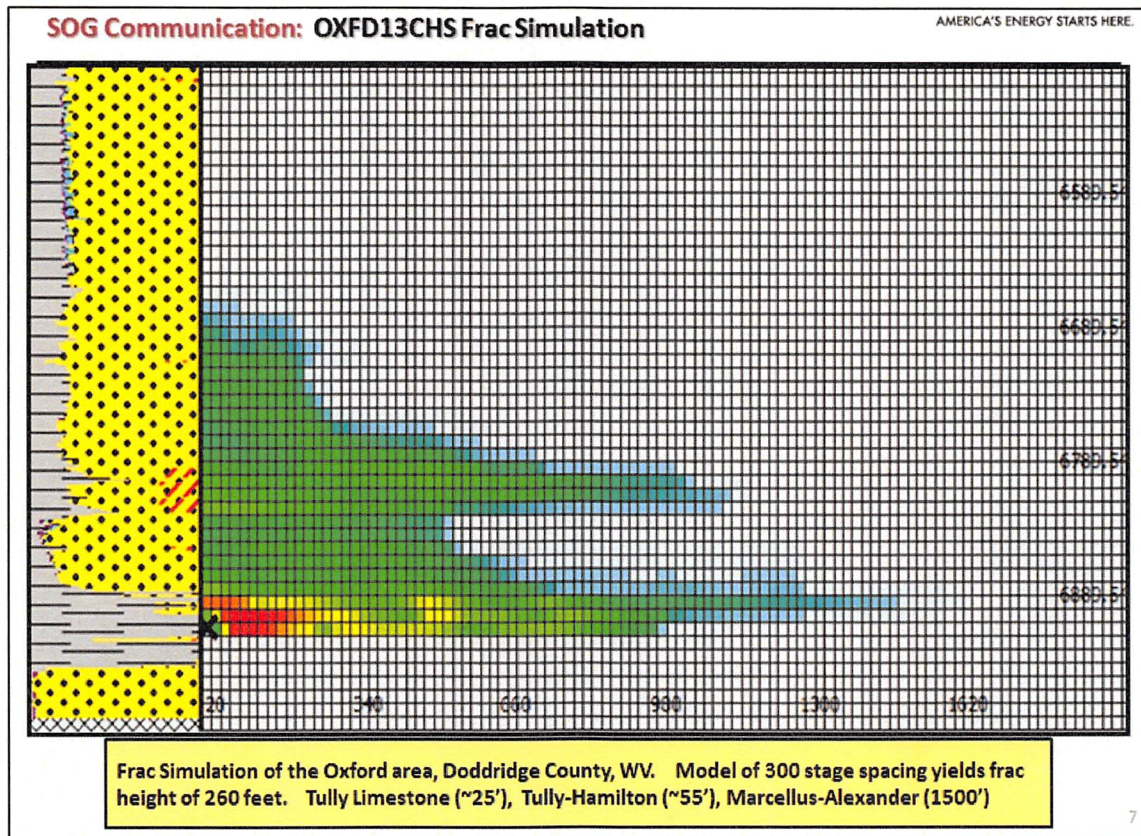


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Figure 2. Stratigraphic intervals of high stress should serve as adequate frac barriers for a Marcellus frac. The frac modeling example below is from the Oxford area of western Doddridge County, where the Marcellus and adjacent shallower shales are lithologically similar to Pennsboro. Frac modeling only yields frac height of approximately 300' and falls far short of the 1000' required to communicate with the Alexander or Benson formations. Therefore, faulting is the primary suspect for upward frac migration.



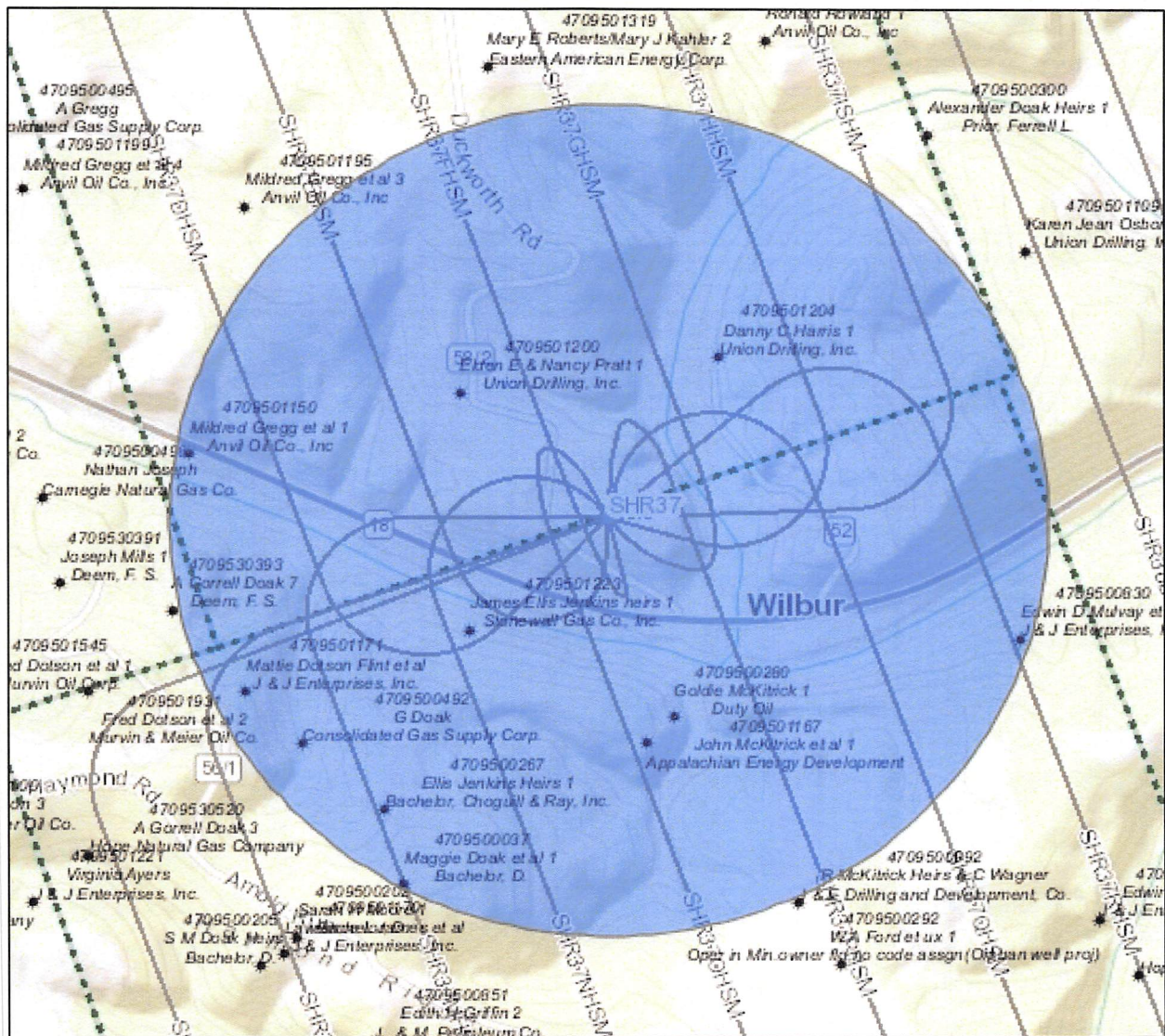
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Figure 3. All wells within a 2640' buffer around the SHR37 pad center have been reviewed and listed below.

API	STATE	COUNTY	LATITUDE	LONGITUDE	OPERATOR	STATUS	WELL_NAME	WELL_NO	PLUG_DATE	TD	FMTD	ELEVATION	FIELD_NAME	COMMENTS
4709500492	WV	Tyler	39.34947696	-80.85201064	Consolidated Gas Supply Corp.	Gas	G Doak			1916	Squaw	862	Unnamed	Ground Level
4709500992	WV	Tyler	39.34683572	-80.84205087	J & E Drilling and Development, Co.	Gas	R McKittrick Heirs & C Wagner			5014	Benson	960	Wilbur	Ground Level
4709501200	WV	Tyler	39.35527799	-80.84883673	Union Drilling, Inc.	Gas	Elden E & Nancy Pratt	1		4927	Benson	833	Wilbur	Ground Level
4709500280	WV	Tyler	39.34991182	-80.84453982	Duty Oil	Dry			9/22/1959	945	1st Cow Rn/Moundsvle	818	Wilbur	Ground Level
4709501167	WV	Tyler	39.34947683	-80.8450998	Appalachian Energy Development	Gas	John McKittrick et al	1		4866	Benson	818	Wilbur	Ground Level
4709530393	WV	Tyler	39.35169904	-80.85462559	Deem, F. S.	Gas	A Gorrell Doak	7		2110	Big Injun (undliff)	1082	Stanley	Ground Level
4709500037	WV	Tyler	39.34715688	-80.8495569	Bachelor, D.	Dry	Maggie Doak et al	1	10/4/1935	1193	1st Cow Rn/Moundsvle	1109	Wilbur	Field Topo Map
4709501204	WV	Tyler	39.3558579	-80.84360685	Union Drilling, Inc.	Gas	Danny C Harris	1		4919	Benson	778	Wilbur	Ground Level
4709500267	WV	Tyler	39.34838191	-80.85035268	Bachelor, Chogull & Ray, Inc.	Dry	Ellis Jenkins Heirs	1	4/11/1958	1103	1st Cow Rn/Moundsvle	1098	Wilbur	Ground Level
4709501223	WV	Tyler	39.35136192	-80.84964873	Stonewall Gas Co., Inc.	Gas	James Ellis Jenkins heirs	1		4954	Benson	850	Wilbur	Ground Level
4709501171	WV	Tyler	39.35034699	-80.85313162	J & J Enterprises, Inc.	Gas	Mattie Dotson Flint et al			5469	Alexander	948	Wilbur	Ground Level
4709500830	WV	Tyler	39.35118671	-80.83757998	J & J Enterprises, Inc.	Gas	Edwin D Mulvay et ux			5136	Alexander	800	Wilbur	Ground Level
4709501150	WV	Tyler	39.35426208	-80.85423561	Anvil Oil Co., Inc	Gas	Mildred Gregg et al	1		4795	Benson	719	Wilbur	Ground Level



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SHR37 Pad Frac SOG Review / CRSD Review Tuesday, March 12, 2019 (updated 1/16/20)

Figure 4. All wells within a 500' buffer around the SHR37 pad have been reviewed and listed below.

API Num	Current Operator	Fluid Type	Formation At TD	Current Status	Total Dep	State	County	Latitude - WGS	Longitude - WGS
4701700014	RITCHIE PETROLEUM CORPORATION, INC.	OIL & GAS	UNKNOWN	ACTIVE	1845	WV	DODDRIDGE	39.3229649	-80.8436159
4701700022	DOMINION ENERGY TRANSMISSION, INC.	OTHER	UNKNOWN	P & A	2682	WV	DODDRIDGE	39.3203517	-80.8449222
4701700204	EQUITRANS	OTHER	UNKNOWN	P & A	1916	WV	DODDRIDGE	39.3322544	-80.8327488
4701700205	EQUITRANS	OTHER	UNKNOWN	P & A	1006	WV	DODDRIDGE	39.3322544	-80.8308819
4701701065	OPERATOR UNKNOWN	OTHER	UNKNOWN	ABANDONED	1985	WV	DODDRIDGE	39.3186779	-80.8392126
4701701070	PRIOR FERRELL L	OTHER	BIG INJUN (UNDIFF)	ABANDONED	1792	WV	DODDRIDGE	39.3211626	-80.8389134
4701701079	PRIOR FERRELL L	OTHER	UNKNOWN	P & A	2553	WV	DODDRIDGE	39.324763	-80.8347575
4701701082	PRIOR FERRELL L DBA PRIOR OIL COMPANY	UNKNOWN	UNKNOWN	EXPIRED PERMIT		WV	DODDRIDGE	39.3220957	-80.8340947
4701701092	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	1865	WV	DODDRIDGE	39.3213126	-80.8411277
4701702356	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE	2303	WV	DODDRIDGE	39.3295394	-80.837148
4701702359	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE	2300	WV	DODDRIDGE	39.3369214	-80.8317096
4701702514	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE	2380	WV	DODDRIDGE	39.327098	-80.8369077
4701702787	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5070	WV	DODDRIDGE	39.3232053	-80.8401779
4701702964	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5267	WV	DODDRIDGE	39.3262395	-80.8351821
4701703018	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5305	WV	DODDRIDGE	39.3393777	-80.831069
4701703249	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5363	WV	DODDRIDGE	39.3350237	-80.831069
4701703389	ALLIANCE PETROLEUM CORPORATION	GAS	UNKNOWN	ACTIVE	5321	WV	DODDRIDGE	39.3223853	-80.8318152
4701703559	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4951	WV	DODDRIDGE	39.3369107	-80.8355887
4701703586	DOMINION APPALACHIAN DEVELOPMENT, INC.	GAS	UNKNOWN	ACTIVE		WV	DODDRIDGE	39.3336081	-80.8392751
4701703829	ALLIANCE PETROLEUM CORPORATION	OTHER	RILEY	ACTIVE	5150	WV	DODDRIDGE	39.3337178	-80.8391352
4701703859	HARPER CROSBY HOLDINGS	GAS	RILEY	ACTIVE	5091	WV	DODDRIDGE	39.3260132	-80.8288283
4701704123	KEY OIL	OTHER	RILEY	ACTIVE	5436	WV	DODDRIDGE	39.3278993	-80.8410025
4701704124	KEY OIL	OTHER	RILEY	ACTIVE	5216	WV	DODDRIDGE	39.3247062	-80.8466018
4701704126	KEY OIL	OTHER	RILEY	ACTIVE	5375	WV	DODDRIDGE	39.3212234	-80.8438019
4701704160	KEY OIL	OTHER	RILEY	ACTIVE	5320	WV	DODDRIDGE	39.3309476	-80.8306959
4701704161	KEY OIL	OTHER	RILEY	ACTIVE	5336	WV	DODDRIDGE	39.3296416	-80.8361488
4701704162	KEY OIL	OTHER	RILEY	ACTIVE	5532	WV	DODDRIDGE	39.3300761	-80.845482
4701704186	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE		WV	DODDRIDGE	39.3258676	-80.8411893
4701704200	MURVIN&MEIER OIL	OTHER	RILEY	ACTIVE	5350	WV	DODDRIDGE	39.3199177	-80.8359615
4701704570	BLACKROCK ENTERPRISES, LLC	OTHER	UNKNOWN	ACTIVE		WV	DODDRIDGE	39.3186111	-80.839135
4701706872	ANTERO RESOURCES	GAS	MARCELLUS	INACTIVE		WV	DODDRIDGE	39.3199976	-80.8351167
4701730056	HOPE NATURAL GAS COMPANY	GAS	UNKNOWN	INACTIVE	1800	WV	DODDRIDGE	39.3338336	-80.834296
4701730101	DEEM, F S	OIL & GAS	UNKNOWN	INACTIVE	1880	WV	DODDRIDGE	39.3321917	-80.834296
4701730102	DEEM, F S	OIL & GAS	UNKNOWN	INACTIVE	1987	WV	DODDRIDGE	39.3321916	-80.8372841
4701730160	HOPE NATURAL GAS COMPANY	GAS	BIG INJUN (UNDIFF)	INACTIVE	1930	WV	DODDRIDGE	39.3326267	-80.8310949
4701730182	(N/A)	OIL & GAS	BIG INJUN (UNDIFF)	INACTIVE	1899	WV	DODDRIDGE	39.3191277	-80.8419502
4701730277	HOPE CONSTRUCTION & REFINING	OIL & GAS	UNKNOWN	INACTIVE	1978	WV	DODDRIDGE	39.3274055	-80.8475533
4701730286	CLIFTON OIL & GAS	OIL & GAS	UNKNOWN	INACTIVE	2142	WV	DODDRIDGE	39.3392456	-80.8321969
4701730335	JJ GRAHAM AGT ET AL	OIL	UNKNOWN	INACTIVE	1795	WV	DODDRIDGE	39.3213047	-80.8397092
4701730443	CLIFTON OIL & GAS	OIL & GAS	UNKNOWN	INACTIVE	1882	WV	DODDRIDGE	39.3185597	-80.8423242
4701730949	DROPPELMAN, J. P.	OIL & GAS	BIG INJUN (UNDIFF)	INACTIVE	2012	WV	DODDRIDGE	39.3236266	-80.8466163
4701731194	HICKMAN, CHARLES L.	OIL & GAS	BIG INJUN (UNDIFF)	INACTIVE	1973	WV	DODDRIDGE	39.3268197	-80.8389621
4701770063	CARTER RESOURCES	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3184017	-80.8441893
4701771425	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3230466	-80.8434432
4701771427	LUCAS ENERGY	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3231918	-80.8372831
4701771428	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3259496	-80.8408302
4701771429	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3253686	-80.8456833
4701771430	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3255135	-80.8471763
4701771431	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3297235	-80.8441902
4701771433	HOPE NATURAL GAS COMPANY	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3310297	-80.835416
4701771434	HOPE NATURAL GAS COMPANY	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3329156	-80.8399621
4701771435	HOPE NATURAL GAS COMPANY	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3374266	-80.833176
4701771436	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3371367	-80.8295899
4701771438	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3303037	-80.83295
4701771439	BRADWATER	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3282718	-80.8301499
4701771447	HOPE NATURAL GAS COMPANY	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3213059	-80.83295
4701771448	(N/A)	UNKNOWN	UNKNOWN	INACTIVE		WV	DODDRIDGE	39.3208698	-80.8393361
4709500037	BACHELOR, D.	DRY HOLE	UNKNOWN	P & A	1193	WV	TYLER	39.347214	-80.8497754
4709500044	(N/A)	UNKNOWN	UNKNOWN	ABANDONED		WV	TYLER	39.393234	-80.8556028
4709500202	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	1096	WV	TYLER	39.3463571	-80.8519428
4709500205	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	1100	WV	TYLER	39.3458859	-80.8526667
4709500220	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	2605	WV	TYLER	39.3862547	-80.8537593
4709500267	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	1103	WV	TYLER	39.3484625	-80.8501812
4709500280	APPALACHIAN ENERGY DEV INC	OTHER	UNKNOWN	P & A	945	WV	TYLER	39.3499714	-80.8443623
4709500288	OPERATOR UNKNOWN	OTHER	UNKNOWN	ABANDONED	1849	WV	TYLER	39.339544	-80.8470556
4709500292	FLO-WELL INC	UNKNOWN	UNKNOWN	ABANDONED		WV	TYLER	39.345894	-80.841014
4709500300	PRIOR FERRELL L	OTHER	BIG INJUN (UNDIFF)	P & A	1836	WV	TYLER	39.359597	-80.839243
4709500393	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	1900	WV	TYLER	39.3837867	-80.8626716
4709500400	APPALACHIAN ENERGY DEV INC	OTHER	UNKNOWN	P & A	2610	WV	TYLER	39.3779944	-80.8602773
4709500427	OPERATOR UNKNOWN	OTHER	UNKNOWN	P & A	6816	WV	TYLER	39.3665725	-80.8510097
4709500428	APPALACHIAN ENERGY DEV INC	OTHER	UNKNOWN	P & A	2052	WV	TYLER	39.376834	-80.8589688
4709500492	ROSS&WHARTON GAS CO	OTHER	UNKNOWN	P & A	1916	WV	TYLER	39.349536	-80.8518293
4709500495	ALLIANCE PETROLEUM	OIL	2ND SALT SAND	ACTIVE	1206	WV	TYLER	39.3595508	-80.8585497
4709500498	MURVIN&MEIER OIL	OTHER	UNKNOWN	P & A		WV	TYLER	39.3536001	-80.8570563

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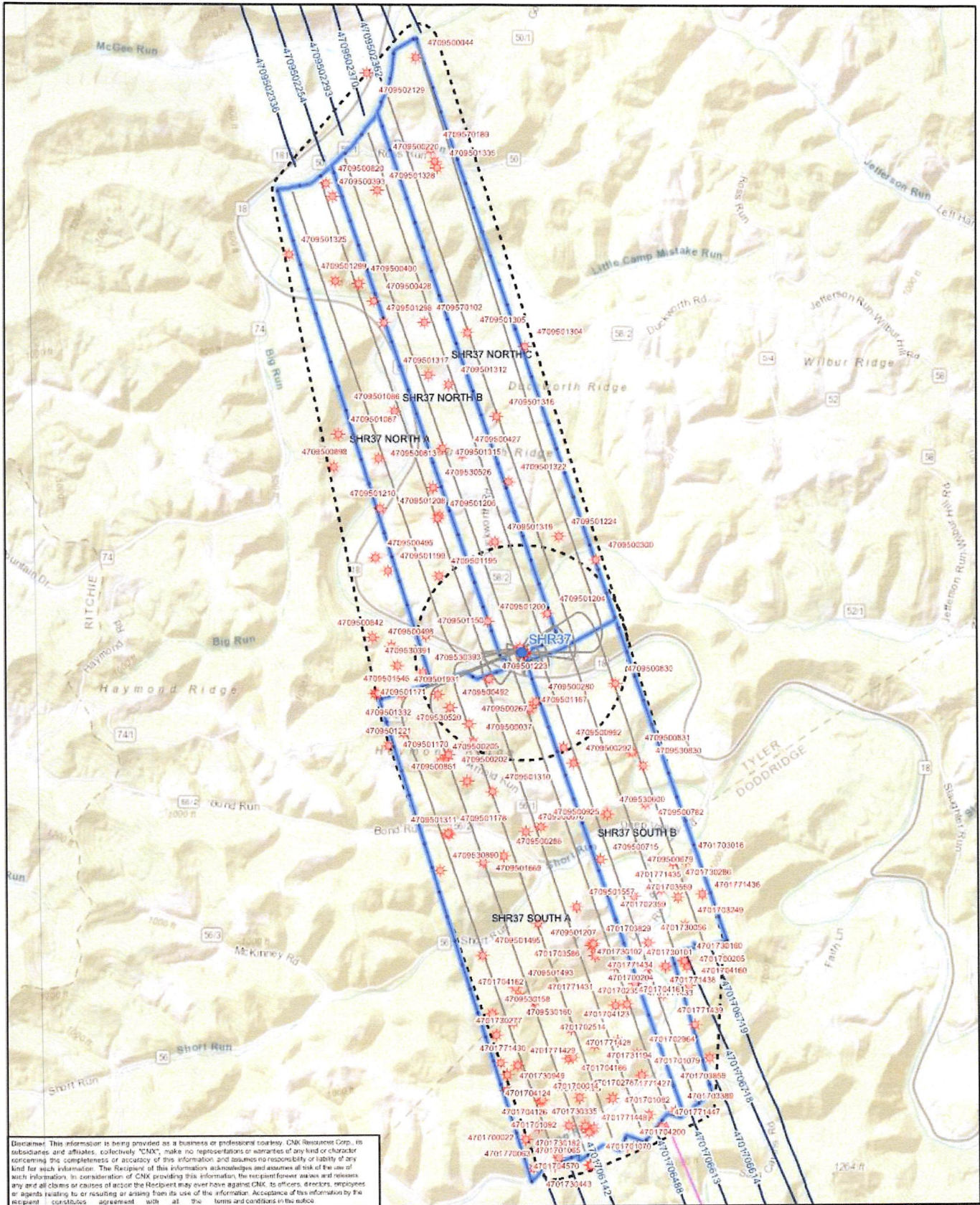
SHR37 Pad Frac SOG Review / CRSD Review Tuesday, March 12, 2019 (updated 1/16/20)

4709500676	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE	2466	WV	TYLER	39.341204	-80.8451244
4709500679	RITCHIE PETROLEUM CORPORATION, INC.	GAS	UNKNOWN	ACTIVE	2313	WV	TYLER	39.3402834	-80.8355263
4709500715	INDUSTRIAL GAS/FRONTIER ENERGY CO.	OTHER	UNKNOWN	ABANDONED	948	WV	TYLER	39.3393776	-80.8385757
4709500782	BRAXTON OIL&GAS	GAS	UNKNOWN	ACTIVE	5100	WV	TYLER	39.3431566	-80.8346469
4709500813	TRIAD HUNTER	GAS	WEIR	ABANDONED	4839	WV	TYLER	39.3662267	-80.8583621
4709500820	TRIAD HUNTER	OIL	RILEY	ABANDONED	5337	WV	TYLER	39.3846713	-80.8632702
4709500830	GREYLOCK OPCO LLC	OTHER	BENSON	ACTIVE	5136	WV	TYLER	39.3512684	-80.8374086
4709500831	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5512	WV	TYLER	39.346632	-80.8358294
4709500842	TRIAD HUNTER	GAS	RILEY	ACTIVE	4868	WV	TYLER	39.3541806	-80.8587358
4709500851	TRIAD HUNTER	GAS	WEIR	ABANDONED	5025	WV	TYLER	39.3446016	-80.8503357
4709500898	TRIAD HUNTER	GAS	UNKNOWN	ACTIVE	4952	WV	TYLER	39.3656466	-80.8622823
4709500925	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5428	WV	TYLER	39.3415338	-80.8437997
4709500992	GREYLOCK OPCO LLC	GAS	UNKNOWN	ACTIVE	5014	WV	TYLER	39.3469179	-80.8418798
4709501086	ALLIANCE PETROLEUM CORPORATION	GAS	UNKNOWN	ACTIVE	5656	WV	TYLER	39.3694203	-80.8570554
4709501087	ALLIANCE PETROLEUM CORPORATION	GAS	UNKNOWN	ACTIVE	5833	WV	TYLER	39.3678232	-80.86191
4709501150	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4795	WV	TYLER	39.3543263	-80.8540697
4709501167	TRIAD HUNTER	GAS	RILEY	ABANDONED	4866	WV	TYLER	39.349536	-80.8449227
4709501170	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5530	WV	TYLER	39.3460529	-80.8522022
4709501171	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5469	WV	TYLER	39.3504069	-80.8529497
4709501178	EQUITABLE PRODUCTION COMPANY	UNKNOWN	UNKNOWN	UNKNOWN		WV	TYLER	39.341035	-80.8519097
4709501195	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5578	WV	TYLER	39.3583896	-80.8529492
4709501199	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4893	WV	TYLER	39.3586799	-80.857429
4709501200	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4927	WV	TYLER	39.3553421	-80.8486553
4709501204	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4919	WV	TYLER	39.3559236	-80.8434287
4709501206	ANVIL OIL CO., INC.	GAS	UNKNOWN	INACTIVE		WV	TYLER	39.3622543	-80.8531111
4709501207	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5056	WV	TYLER	39.3350228	-80.8439894
4709501208	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5068	WV	TYLER	39.3624535	-80.8529488
4709501210	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4892	WV	TYLER	39.3628889	-80.8581762
4709501221	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5579	WV	TYLER	39.3469242	-80.8572429
4709501223	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	4954	WV	TYLER	39.351423	-80.8484688
4709501224	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5010	WV	TYLER	39.3611477	-80.8424954
4709501298	SCHULTZ RUN GAS COMPANY	GAS	RILEY	ACTIVE	4858	WV	TYLER	39.3753822	-80.8580336
4709501299	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	4927	WV	TYLER	39.3781401	-80.8623344
4709501304	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	4923	WV	TYLER	39.3739202	-80.8456687
4709501305	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	5016	WV	TYLER	39.37479	-80.850709
4709501310	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5490	WV	TYLER	39.343876	-80.8480952
4709501311	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5130	WV	TYLER	39.340973	-80.8518288
4709501312	EASTERN AMERICAN ENERGY	UNKNOWN	UNKNOWN	UNKNOWN		WV	TYLER	39.3712431	-80.852314
4709501315	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5014	WV	TYLER	39.3669523	-80.852763
4709501316	BRAXTON OIL&GAS	GAS	WARREN	ACTIVE	4954	WV	TYLER	39.3691296	-80.848095
4709501317	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	4859	WV	TYLER	39.3718874	-80.8540691
4709501319	GREYLOCK OPCO LLC	GAS	WARREN	ACTIVE	5141	WV	TYLER	39.3607118	-80.8480959
4709501322	GREYLOCK OPCO LLC	GAS	RILEY	ACTIVE	5127	WV	TYLER	39.364776	-80.846975
4709501325	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	4851	WV	TYLER	39.3798813	-80.8664481
4709501328	SCHULTZ RUN GAS COMPANY	GAS	BRADFORD	ACTIVE	5133	WV	TYLER	39.3842352	-80.858782
4709501332	EASTERN AMERICAN ENERGY	UNKNOWN	UNKNOWN	UNKNOWN		WV	TYLER	39.3503845	-80.8584711
4709501335	ALLIANCE PETROLEUM CORPORATION	GAS	WEIR	ACTIVE	4955	WV	TYLER	39.3858318	-80.8535454
4709501493	EASTERN AMERICAN ENERGY	UNKNOWN	UNKNOWN	UNKNOWN		WV	TYLER	39.3306746	-80.8459205
4709501495	ALLIANCE PETROLEUM CORPORATION	GAS	RILEY	ACTIVE	5180	WV	TYLER	39.3328342	-80.8488419
4709501545	MURVIN&MEIER OIL	OTHER	ELK	ACTIVE	5271	WV	TYLER	39.3504071	-80.8581759
4709501557	KEY OIL	OTHER	RILEY	ACTIVE	5321	WV	TYLER	39.3361843	-80.8406287
4709501669	ALLIANCE PETROLEUM CORPORATION	OTHER	RILEY	ACTIVE	5175	WV	TYLER	39.3390868	-80.8488424
4709501931	MURVIN&MEIER OIL	OTHER	UNKNOWN	ACTIVE	2531	WV	TYLER	39.3503933	-80.8561428
4709502129	BOWYER, DAVID	OTHER	BIG INJUN (UNDIFF)	ABANDONED	2711	WV	TYLER	39.3921525	-80.8598681
4709502588	CNX GAS COMPANY	OTHER	MARCELLUS	PERMITTED		WV	TYLER	39.3535955	-80.8458056
4709502664	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3532882	-80.8455082
4709502665	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3531674	-80.8454799
4709502666	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3532445	-80.8454658
4709502667	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3532552	-80.8455647
4709502668	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3532113	-80.8455223
4709502669	CNX GAS COMPANY	UNKNOWN	MARCELLUS	PERMITTED		WV	TYLER	39.3532004	-80.8454233
4709530158	HOPE CONSTRUCTION & REFINING	UNKNOWN	UNKNOWN	INACTIVE		WV	TYLER	39.3288555	-80.8479273
4709530160	HOPE CONSTRUCTION & REFINING	UNKNOWN	UNKNOWN	INACTIVE		WV	TYLER	39.3282755	-80.8460603
4709530391	DEEM, F S	GAS	BIG INJUN (UNDIFF)	INACTIVE	2968	WV	TYLER	39.3522959	-80.8565245
4709530393	DEEM, F S	GAS	UNKNOWN	INACTIVE	2110	WV	TYLER	39.351861	-80.8542824
4709530520	HOPE NATURAL GAS COMPANY	OIL & GAS	BIG INJUN (UNDIFF)	INACTIVE	2105	WV	TYLER	39.347801	-80.8559625
4709530526	PITTSBURGH & WV GAS	OIL & GAS	BIG INJUN (UNDIFF)	INACTIVE	1923	WV	TYLER	39.3643318	-80.8535394
4709530600	HOPE NATURAL GAS COMPANY	GAS	UNKNOWN	INACTIVE	2495	WV	TYLER	39.3424354	-80.8380321
4709530830	HOPE NATURAL GAS COMPANY	GAS	BIG INJUN (UNDIFF)	INACTIVE	2922	WV	TYLER	39.3457714	-80.834857
4709530890	HOPE NATURAL GAS COMPANY	UNKNOWN	UNKNOWN	INACTIVE		WV	TYLER	39.3385202	-80.8525984
4709570102	CARNEGIE NATURAL GAS	GAS	UNKNOWN	INACTIVE		WV	TYLER	39.3754636	-80.8544953
4709570189	PHILADELPHIA COMPANY, THE	GAS	UNKNOWN	INACTIVE	1901	WV	TYLER	39.3870744	-80.8541213

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● SHR37	— CNX Drilled Lateral Locations	— 3rd Party Drilled Lateral Producing
■ CNX Unit Boundary	— SHR37 Proposed Laterals	— 3rd Party Drilled Lateral Completed
■ Lateral Buffer - 500 ft	★ Adjacent Wells	— 3rd Party Drilled Lateral Spudded
■ Pad Center Buffer - Half Mile	★ PADEP Historical Well Locations	— 3rd Party Permitted Laterals
▲ CNX Drilled Well Locations		

Date: 1/16/2020	Prepared By: GIS
Revisions: 1	Approved By:

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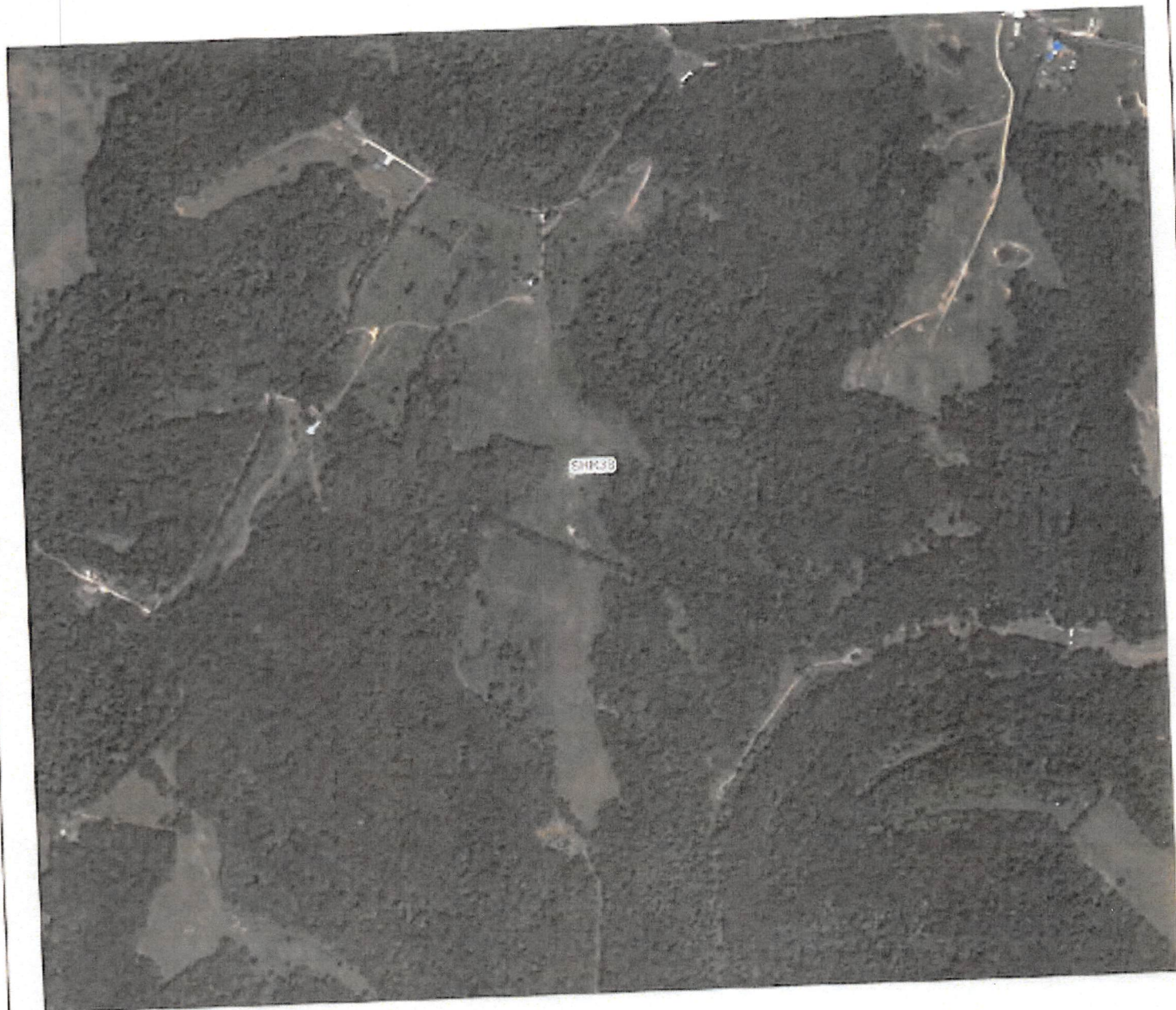
CNX

SHR37 (Marcellus) with Intersecting Well Information



95-02664
MOD

Site Safety Plan for Well SHR37IHSM CNX Gas Company, LLC.



DWAH 1/17/20

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

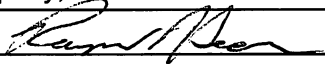
Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See attached				

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: CNX Gas Company, LLC
 By: Raymond Hoon 
 Its: Project Manager

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<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
36	1-15-11	259021000	Mildred Gregg Manna Oil & Gas Co. Anvil Oil Company Dominion Appalachian Development, Inc. Dominion Appalachian Development, LLC CONSOL Gas Appalachian Development Properties LLC CONSOL Gas Reserves Inc. CONSOL Gas Company CNX Gas Company LLC Noble Energy Inc.	Manna Oil & Gas Co. Anvil Oil Company Dominion Appalachian Development, Inc. Dominion Appalachian Development, LLC CONSOL Gas Appalachian Development Properties LLC CONSOL Gas Reserves Inc. CONSOL Gas Company CNX Gas Company LLC Noble Energy Inc. CNX Gas Company LLC	Not less than 1/8 Name Change Assignment Name Change Merger Merger Merger Merger Assignment Assignment	265/419 Unrecorded 323/383 WVSOS 384/191 384/191 384/191 384/191 388/286 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
38	1-15-6	288617000	Clarence Duane Clark and Sandra Sue Clark, h/w Jeffrey G. Clark, single Kevin S. Clark, single Manna Oil & Gas Co. Anvil Oil Company Antero Resources Corporation Noble Energy, Inc. John Baker, individually and as Attorney-in-Fact for the "Gorrell Doak Heirs" Anvil Oil Company Antero Resources Corporation Noble Energy, Inc.	Manna Oil & Gas Co. Anvil Oil Company Antero Resources Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company, LLC Anvil Oil Company Antero Resources Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company, LLC	Not less than 1/8 Name Change Assignment Assignment Assignment Not less than 1/8 Assignment Assignment Assignment	265/405 Unrecorded 445/774 468/769 550/273 265/413 445/774 468/769 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
39	1-15-6.1	259026000	Ora Nelson Moore and Mary Edna Moore, husband and wife, and Oletha Moore, widow Rosemary Eagle Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation Noble Energy Inc.	Clarence W. Mutschelknaus Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Assignment Merger Merger Assignment Assignment	267/637 273/80 376/822 379/537 WVSOS 433/7 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
61	1-15-4	259008000	James R. Ash and Frances M. Ash, h/w Anvil Oil Company Dominion Appalachian Development, Inc. Dominion Appalachian Development, LLC CONSOL Gas Appalachian Development Properties LLC CONSOL Gas Reserves Inc. CONSOL Gas Company CNX Gas Company LLC Noble Energy Inc.	Anvil Oil Company Dominion Appalachian Development, Inc. Dominion Appalachian Development, LLC CONSOL Gas Appalachian Development Properties LLC CONSOL Gas Reserves Inc. CONSOL Gas Company CNX Gas Company LLC Noble Energy Inc. CNX Gas Company LLC	Not less than 1/8 Assignment Name Change Merger Merger Merger Merger Assignment Assignment	271/712 323/383 WVSOS 384/191 384/191 384/191 384/191 388/286 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
63	1-12-23 1-12-23.1	259026000	Ora Nelson Moore and Mary Edna Moore, husband and wife, and Oletha Moore, widow Rosemary Eagle Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation Noble Energy Inc.	Clarence W. Mutschelknaus Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Assignment Merger Merger Assignment Assignment	267/637 273/80 376/822 379/537 WVSOS 433/7 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
64	1-12-10.1	259026000	Ora Nelson Moore and Mary Edna Moore, husband and wife, and Oletha Moore, widow Rosemary Eagle Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation Noble Energy Inc.	Clarence W. Mutschelknaus Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC Antero Resources Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Assignment Merger Merger Assignment Assignment	267/637 273/80 376/822 379/537 WVSOS 433/7 550/273

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
65	1-12-10	243400000	Billy Kenneth Fouts and Marianne B. Fouts, h/w Erwin Lawrence Fouts Sheila Kay Forrester and Robert Forrester, w/h	CNX Gas Company LLC CNX Gas Company LLC CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Not less than 1/8	649/68 649/73 649/78

<u>Tract ID</u>	<u>Tax Map & Parcel</u>	<u>Title Opinion OLS #</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
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66	1-12-11 1-12-11.1	243936000	Robert H. Tennant, a single man and Opal V. Tennant, a widow	Anvil Oil Company	Not less than 1/8	267/56
			Justin L. Henderson d/b/a Anvil Oil Company	Anvil 1989-3 Joint Venture	Assignment	284/107
			Anvil Oil Company	Dominion Appalachian Development, Inc.	Assignment	329/855
			Dominion Appalachian Development, Inc.	Dominion Appalachian Development, Inc.	Assignment	323/383
				Dominion Appalachian Development, LLC	Name Change	WVSOS
				CONSOL Gas Appalachian Development Properties LLC		
			Dominion Appalachian Development, LLC	CONSOL Gas Appalachian Development Properties LLC	Merger	384/191
			CONSOL Gas Reserves Inc.	CONSOL Gas Reserves Inc.	Merger	384/191
			CONSOL Gas Company	CONSOL Gas Company	Merger	384/191
			CNX Gas Company LLC	CNX Gas Company LLC	Merger	384/191
			Noble Energy Inc.	Noble Energy Inc.	Assignment	388/286
				CNX Gas Company LLC	Assignment	550/273

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BHL is located on topo map 8,207 feet south of Latitude: 39° 25' 00"
 SHL is located on topo map 7,908 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

BHL is located on topo map 6,238 feet west of Longitude: 80° 50' 00"
 SHL is located on topo map 3,443 feet west of Longitude: 80° 50' 00"



SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
 N:4355993.93
 E:513310.94
 NAD83, WV NORTH
 N:313640.103
 E:1588038.866
 LAT/LON DATUM-NAD83
 LAT:39°21'11.838"
 LON:80°50'43.829"

APPROX. LANDING POINT
UTM 17-NAD83
 N:4356254.54
 E:513880.05
 NAD83, WV NORTH
 N:314464.140
 E:1589920.686
 LAT/LON DATUM-NAD83
 LAT:39°21'20.259"
 LON:80°50'20.031"

APPROX. DEFLECTION POINT
UTM 17-NAD83
 N:4357391.42
 E:513467.24
 NAD83, WV NORTH
 N:318217.443
 E:1588628.316
 LAT/LON DATUM-NAD83
 LAT:39°21'57.162"
 LON:80°50'37.198"

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
 N:4360525.64
 E:512450.85
 NAD83, WV NORTH
 N:328558.125
 E:1585464.642
 LAT/LON DATUM-NAD83
 LAT:39°23'38.887"
 LON:80°51'19.467"



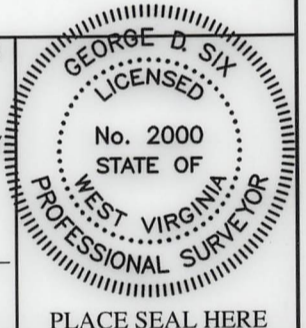
THRASHER

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

FILE #: SHR 37 IHSM
 DRAWING #: SHR 37 IHSM
 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: JANUARY 16, 2020
 OPERATOR'S WELL #: SHR 37 IHSM
 API WELL #: 47 95 02664
 STATE COUNTY PERMIT

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

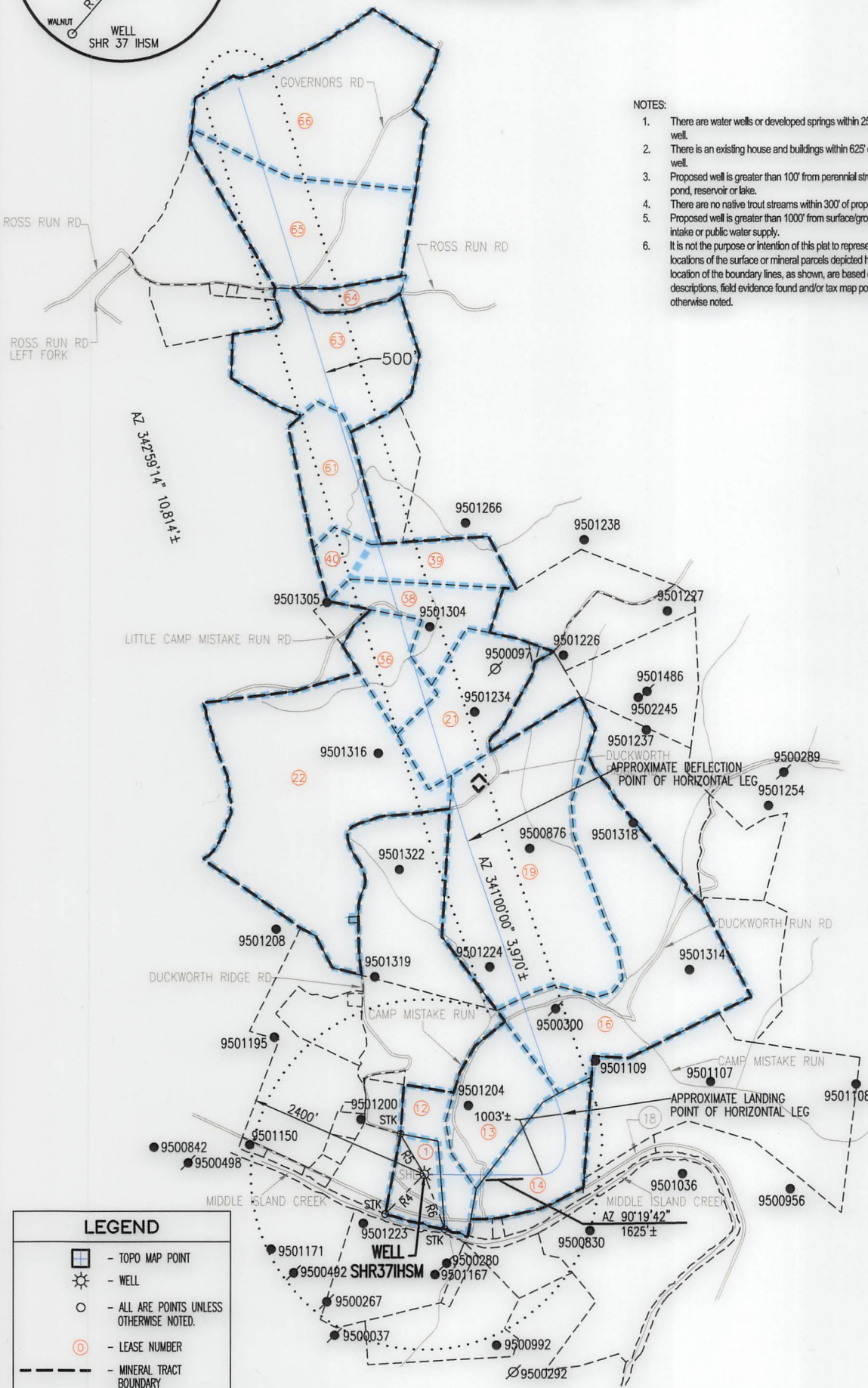
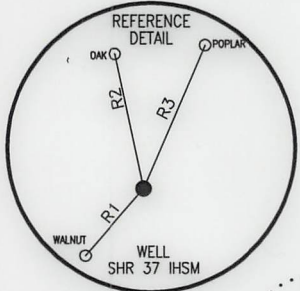
WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 828.57'±
 COUNTY/DISTRICT: TYLER / CENTERVILLE QUADRANGLE: WEST UNION, WV 7.5'
 SURFACE OWNER: CNX GAS COMPANY ACREAGE: 18±
 OIL & GAS ROYALTY OWNER: ELEANOR V. & DEAN A. EARNHEART, ET AL ACREAGE: 1058.068±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,302'± TMD: 22,205'±
 WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT ANTHONY KENDZIORA
 Address 1000 CONSOL ENERGY DRIVE Address 1000 CONSOL ENERGY DRIVE
 City CANONSBURG State PA Zip Code 15317 City CANONSBURG State PA Zip Code 15317

SHR 37 IHSM

PAGE 2 OF 3



- NOTES:
1. There are water wells or developed springs within 250' of proposed well.
 2. There is an existing house and buildings within 625' of proposed well.
 3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 4. There are no native trout streams within 300' of proposed well.
 5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted 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.

SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
 N:4355993.93
 E:513310.94
 NAD83, WV NORTH
 N:313640.103
 E:1588038.866
 LAT/LON DATUM-NAD83
 LAT:39°21'11.838"
 LON:80°50'43.829"

APPROX. LANDING POINT
UTM 17-NAD83
 N:4356254.54
 E:513880.05
 NAD83, WV NORTH
 N:314464.140
 E:1589920.686
 LAT/LON DATUM-NAD83
 LAT:39°21'20.259"
 LON:80°50'20.031"

APPROX. DEFLECTION POINT
UTM 17-NAD83
 N:4357391.42
 E:513467.24
 NAD83, WV NORTH
 N:318217.443
 E:1588628.316
 LAT/LON DATUM-NAD83
 LAT:39°21'57.162"
 LON:80°50'37.198"

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
 N:4360525.64
 E:512450.85
 NAD83, WV NORTH
 N:328558.125
 E:1585464.642
 LAT/LON DATUM-NAD83
 LAT:39°23'38.887"
 LON:80°51'19.467"

LINE	BEARING	DISTANCE
R1	S 40°46'04" W	154.65'
R2	N 12°06'23" W	239.03'
R3	N 23°15'18" E	270.51'
R4	S 45°10'33" W	767.27'
R5	N 30°42'17" W	650.82'
R6	N 20°21'35" W	798.89'

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
- ROAD
- STREAM CENTER LINE

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS
- ABANDON WELLS

API WELL #: 47 95 02664 MOD
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JANUARY 16, 2020

George D. Six

SHR 37 IHSM

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	SURFACE OWNER	LESSOR	DIST-TM/PAR
1	CNX GAS COMPANY	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNESS GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-17/5
12	GAIL WILLIAMSON	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H REVA ROWLAND AND RONALD ROYCE ROWLAND	P/O 1-17/6
13	DANNY CARL & PATRICIA J. HARRIS	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-18/5
14	DANNY & PATRICIA J. HARRIS	ELEANOR V. EARNHEART AND DEAN A. EARNHEART, W/H CLELLA BOICE, WIDOW LUELLA I. MCCONNELL, WIDOW AGNES GODWIN, WIDOW NANCY P. MCCLAIN AND RALPH E. MCCLAIN, W/H GEORGIA P. SNYDER, DIVORCED BRADIE PIPES AND GOLDIE PIPES, H/W PURSIE PIPES AND NORMA J. PIPES, H/W DOROTHY BELLE WELLS AND BYRON WELLS, W/H MYRNA MORGAN AND DAVID MORGAN, W/H	1-18/6.1
16	D. RALPH THACKER & CARLISE J. MAURICE JR.	CHARLES W. HENDERSON AND DOROTHY M. HENDERSON, H/W CHARLES W. HENDERSON, POWER OF ATTORNEY FOR THE A. I. DOAK 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	P/O 1-16/26
19	RONALD R. & REVA D. ROWLAND	JACOB L. DILLON AND EDNA DILLON, H/W	1-16/20
21	JAMES E. ASH	GAIL V. DAVISSON ROSEMARY EAGLE ELEANOR L. ROTH, ATTORNEY-IN-FACT FOR THE J. D. AND RUTH FOLEY HEIRS	P/O 1-16/19.1
22	JAMES ROBERT BAGLEY	JACOB C. COTTRILL, ATTORNEY-IN-FACT FOR CHARLES D. COTTRILL HEIRS; JACOB C. COTTRILL AND SHIRLEY A. COTTRILL, H/W	1-15/15
36	SANDRA SUE CLARK & CLARENCE DUANE & JEFFREY GREGG CLARK & KEVIN SCOTT	MILDRED GREGG	P/O 1-15/11
38	DUANE CLARK, ET AL C/O DUANE & SUE CLARK	CLARENCE DUANE CLARK AND SANDRA SUE CLARK, H/W JEFFREY G. CLARK, SINGLE KEVIN S. CLARK, SINGLE JOHN BAKER, INDIVIDUALLY AND AS ATTORNEY-IN-FACT FOR THE "GORRELL DOAK HEIRS"	1-15/6
39	DUANE CLARK, ET AL C/O DUANE & SUE CLARK	ORA NELSON MOORE AND MARY EDNA MOORE, H/W OLETHA MOORE, WIDOW ROSEMARY EAGLE BRC APPALACHIAN MINERALS I, LLC	P/O 1-15/6.1
40			
61	DAVID & MARY ANN PRESTON (LIFE ESTATE)	JAMES R. ASH AND FRANCIS M. ASH, H/W	P/O 1-15/4
63	RYAN J. & SUSAN J. LIND	ORA NELSON MOORE AND MARY EDNA MOORE, H/W, AND OLETHA MOORE, WIDOW ROSEMARY EAGLE	1-12/23 & 1-12/23.1
64	GENEVA (DENNISON) BULLMAN LIFE	ORA NELSON MOORE AND MARY EDNA MOORE, H/W, AND OLETHA MOORE, WIDOW	1-12/10.1
65	GENEVA (DENNISON) FOUTS LIFE	BILLY KENNETH FOUTS AND MARIANNE B. FOUTS, H/W ERWIN LAWRENCE FOUTS SHEILA KAY FORRESTER AND ROBERT FORRESTER, W/H	1-12/10
66	JEFFREY J. & KAY A. HEIKENFELD JAMES F. & PATRICIA A. WOOD	ROBERT H. TENNANT, SINGLE AND OPAL V. TENNANT, WIDOW	1-12/11 & 1-12/11.1

API WELL #: 47 95 02664 *MOD*
STATE COUNTY PERMIT



JANUARY 16, 2020



Raymond Hoon
Senior Project Manager
1000 Consol Energy Drive
Canonsburg, PA 15317
724-485-3540

January 20, 2020

West Virginia Department of Environmental Protection
Office of Oil & Gas
Attn: Taylor Brewer
601 57th Street, SE
Charleston, WV 25304-2345

RECEIVED
Office of Oil and Gas

JAN 22 2020

WV Department of
Environmental Protection

Horizontal Drilling Permit Application Modification
SHR37IHSM 47-095-02664

Dear Mr. Brewer,

CNX Gas Company LLC (CNX) is requesting a modification SHR37IHSM permit issued 1/8/2020, located in Tyler County. Due to the unexpected plugging of the SHR38IHSM well who's proposed lateral ran adjacent to the SHR37IHSM well, CNX is proposing a change to the lateral alignment in attempt to capture a portion of the reserves that were to be previously extracted by the SHR38IHSM well. Enclosed is the completed modification package for your review.

Due to this short timeline please let me know of anything CNX can do to assist in expediting this review.

If any further information or correspondence is required, please contact me at 724-485-3540 or RaymondHoon@CNX.com.

Sincerely,

A handwritten signature in black ink that reads "Raymond Hoon".

Raymond Hoon
Senior Project Manager

Attachments

- Updated WW-6B signed by inspector
- Updated Mylar Plats Showing the including of tract #64
- SHR37 Area of Review updated to reflected new buffer and shallow wells in vicinity
- Updated WW6A1 with owner list
- Updated SSP signed by inspector.