

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

API 47-051-02008 County MARSHALL District WEBSTER
Quad MAJORSVILLE Pad Name MAJ6HSU Field/Pool Name _____
Farm name MAJORSVILLE Well Number MAJ6FHSU
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 4420606.84 Easting 538569.33
Landing Point of Curve Northing 4420444.41 Easting 538704.85
Bottom Hole Northing 4418968.70 Easting 539776.97

Elevation (ft) 1344 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 7/31/2018 Date drilling commenced 8/20/2018 Date drilling ceased 3/28/2019
Date completion activities began 5/20/2019 Date completion activities ceased 7/8/2019
Verbal plugging (Y/N) Y (PLUGBACK) Date permission granted 2/3/2019 Granted by JIM NICHOLSON

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 175 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1960 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 716, 824 TRACE: 350, 450, 500 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed

*John Sharron for
Jim Nicholson 2/18/2020*

REC'D
Office of Oil and Gas
FEB 14 2020
WV Department of
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Department of Environmental Protection - Office of Oil and Gas
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As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4420606.84 Easting 538569.33
Landing Point of Curve Northing 4420427.66 Easting 538718.80
Bottom Hole Northing 4418968.70 Easting 539776.97



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Is coal being mined in area (Y/N) N

Reviewed by: _____

Reviewed

~~VOID~~
Approved for Jim Nicholson 2/5/2020

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Department of Environmental Protection - Office of Oil and Gas
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As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 524244.37 (NAD 27) Easting 1705900.01 (NAD 27)
Landing Point of Curve Northing 523688.73 (NAD 27) Easting 1706351.95 (NAD 27)
Bottom Hole Northing 518806.28 (NAD 27) Easting 1709776.74 (NAD 27)

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Is coal being mined in area (Y/N) N

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As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 524281.581 Easting 1674465.209
Landing Point of Curve Northing 523665.404 Easting 1674945.881
Bottom Hole Northing 518839.764 Easting 1678338.118

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Is coal being mined in area (Y/N) N

Reviewed

Jim Nicholson
Spencer Johnston 1/23/2020

Reviewed by: _____

API 47- 051 - 02008

Farm name MAJORSVILLE

Well number MAJ6FHSU

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		30"	112	NEW	lb/ft	N/A	GROUT TO SURFACE
Surface	24"	18.625"	870	NEW	J-55 87.5lb/ft	N/A	Y - CEMENT TO SURFACE
Coal							
Intermediate 1	17.5"	13.375"	See attachment	NEW	See attachment	N/A	Y - CEMENT TO SURFACE
Intermediate 2	12.25"	9.625"	10823	NEW	P-110 47lb/ft	N/A	Y - TOC @ 1315
Intermediate 3							
Production	8.75" & 8.5"	5.5"	See attachment	NEW	See attachment	N/A	Y - TOC @ 4475
Tubing	5.5"	2.875	11,965.0	NEW	P-110 6.5 lb/ft	N/A	N/A
Packer type and depth set		N/A					

Comment Details ALL 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	1264	15.6	1.197	1512	0	8
Coal							
Intermediate 1	CLASS A	2363				0	8
Intermediate 2	NEOCEM (LEAD) / HALCEM (TAIL)	1930 (LEAD) / 315 (TAIL)	13.5 (LEAD) / 15 (TAIL)	1.399 (LEAD) / 1.137 (TAIL)	2700 (LEAD) / 358 (TAIL)	1315	8
Intermediate 3							
Production	GASSTOP (LEAD) / NEOCEM (TAIL)	1390 (LEAD) / 1600 (TAIL)	16.5	1.096 (LEAD) / 1.093 (TAIL)	1523 (LEAD) / 1749 (TAIL)	4475	8
Tubing							

Drillers TD (ft) 18257

Loggers TD (ft) 18257

Deepest formation penetrated POINT PLEASANT

Plug back to (ft) 9900

Plug back procedure Plug back with Halliburton BHKA tool and 17.5 ppg DenseCem from pilot hole TD (12,194') to inside the 9-5/8" shoe (run 48 joints of 3-1/2" fiberglass tubing)

Kick off depth (ft) 11285

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 first joint and then every 3rd joint to surface

INTERMEDIATE 1: Centralize first joint and then on every joint to 200' above the Storage Zone (from 13-3/8" shoe to 1,728). Then centralize every 3rd joint from 1,728' to surface.

INTERMEDIATE 2: Centralize every 3rd joint from shoe to 2,515'.

PRODUCTION: Centralize every joint from shoe to 4,984'

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

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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API 47- 051 - 02008 Farm name MAJORSVILLE Well number MAJ6FHSU

PRODUCING FORMATION(S)	DEPTHS		
	12031	TVD	6107 MD
Utica			

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 5062 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 3267.70 mcfpd Oil 0 bpd NGL 0 bpd Water 1186 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	300	0	300	SANDSTONE
UNDIFFER. SAND / SILT	300	580	300	580	SANDSTONE / SILTSTONE
UNDIFFERENTIATED SILT	580	600	580	580	SILTSTONE
UNDIFFER. SAND / SILT	600	650	600	650	SANDSTONE / SILTSTONE
UNDIFFERENTIATED LIME	650	716	650	716	LIMESTONE
SEWICKLEY COAL	716	824	716	824	LIMESTONE / SANDSTONE / SILTSTONE
PITTSBURGH COAL	824	831	824	831	SANDSTONE / SILTSTONE
UNDIFFERENTIATED SILT	831	950	831	950	SILTSTONE/ TRACES OF LIMESTONE
UNDIFFERENTIATED SAND	950	1580	950	1580	SANDSTONE / LIMESTONE / TRACES OF RED SHALE
UNDIFFERENTIATED SILT	1580	1780	1580	1780	SILTSTONE
UNDIFFERENTIATED SAND	1780	1910	1780	1910	SANDSTONE
BIG LIME	1910	1960	1910	1960	SANDSTONE / LIMESTONE
BIG INJUN	1960	2480	1960	2480	SANDSTONE/ SILTSTONE
GANTZ	2480	2790	2480	2790	SILTSTONE

Please insert additional pages as applicable.

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

Logging Company SEE ATTACHMENT
Address _____ City _____ State _____ Zip _____

Cementing Company SEE ATTACHMENT
Address _____ City _____ State _____ Zip _____

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

Please insert additional pages as applicable.

Completed by Michael Honce Telephone 304-884-2138
Signature [Signature] Title Superintendent Completions Date 8/21/2019

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

MAJ6FHSU – PERFORATION RECORD – ATTACHMENT 1

Stage No.	Perforation Date	Perforation from MD ft.	Perforation to MD ft.	Number of Perforations	Formation(s)
1	5/20/2019	18,021.0	18,166.0	40	Utica Shale
2	5/20/2019	17,801.0	17,962.0	40	Utica Shale
3	5/21/2019	17,603.0	17,764.0	40	Utica Shale
4	5/21/2019	17,405.0	17,566.0	40	Utica Shale
5	5/21/2019	17,207.0	17,368.0	40	Utica Shale
6	5/22/2019	17,009.0	17,170.0	40	Utica Shale
7	5/22/2019	16,811.0	16,972.0	40	Utica Shale
8	5/23/2019	16,613.0	16,774.0	40	Utica Shale
9	5/24/2019	16,415.0	16,576.0	40	Utica Shale
10	5/24/2019	16,217.0	16,378.0	40	Utica Shale
11	5/24/2019	16,019.0	16,180.0	40	Utica Shale
12	5/25/2019	15,821.0	15,982.0	40	Utica Shale
13	5/25/2019	15,623.0	15,784.0	40	Utica Shale
14	5/25/2019	15,425.0	15,586.0	40	Utica Shale
15	5/26/2019	15,227.0	15,388.0	40	Utica Shale
16	5/26/2019	15,029.0	15,190.0	40	Utica Shale
17	5/26/2019	14,831.0	14,992.0	40	Utica Shale
18	5/27/2019	14,633.0	14,794.0	40	Utica Shale
19	5/27/2019	14,435.0	14,596.0	40	Utica Shale
20	5/27/2019	14,237.0	14,398.0	40	Utica Shale
21	5/28/2019	14,039.0	14,200.0	40	Utica Shale
22	5/28/2019	13,841.0	14,002.0	40	Utica Shale
23	5/28/2019	13,643.0	13,804.0	40	Utica Shale
24	5/29/2019	13,445.0	13,606.0	40	Utica Shale
25	5/29/2019	13,247.0	13,408.0	40	Utica Shale
26	5/30/2019	13,049.0	13,210.0	40	Utica Shale
27	5/30/2019	12,851.0	13,012.0	40	Utica Shale
28	5/30/2019	12,653.0	12,814.0	40	Utica Shale
29	5/31/2019	12,455.0	12,616.0	40	Utica Shale
30	5/31/2019	12,257.0	12,418.0	40	Utica Shale
31	5/31/2019	12,059.0	12,220.0	40	Utica Shale

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MAJ6FHSU – 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	5/20/2019	88	11,137.0	10,958.0	7,703.0	577,816.0	13,034.00	N/A
2	5/21/2019	79	11,220.0	10,278.0	7,790.0	616,643.0	15,154.00	N/A
3	5/21/2019	80	11,159.0	10,036.0	7,650.0	607,122.0	12,180.98	N/A
4	5/21/2019	82	11,064.0	9,412.0	7,981.0	608,280.0	12,137.95	N/A
5	5/22/2019	83	11,135.0	9,601.0	7,778.0	606,197.0	12,241.00	N/A
6	5/22/2019	81	11,241.0	10,251.0	7,144.0	607,379.0	12,023.98	N/A
7	5/22/2019	86	11,601.0	11,343.0	7,920.0	600,858.0	11,776.00	N/A
8	5/23/2019	86	11,305.0	10,520.0	8,170.0	600,700.0	11,800.00	N/A
9	5/24/2019	80	11,040.0	9,341.0	8,001.0	607,672.0	11,657.00	N/A
10	5/24/2019	86	11,549.0	9,319.0	7,869.0	596,783.0	11,737.00	N/A
11	5/25/2019	86	11,563.0	9,358.0	7,579.0	599,952.0	11,012.00	N/A
12	5/25/2019	83	11,028.0	9,586.0	7,941.0	603,541.0	11,036.00	N/A
13	5/25/2019	83	11,072.0	9,227.0	8,353.0	597,720.0	11,073.00	N/A
14	5/26/2019	87	11,547.0	9,829.0	7,835.0	597,137.0	10,568.02	N/A
15	5/26/2019	83	10,948.0	8,861.0	8,164.0	592,051.0	11,103.95	N/A
16	5/26/2019	87	11,408.0	8,079.0	7,537.0	598,379.0	10,035.00	N/A
17	5/27/2019	87	11,254.0	11,088.0	7,585.0	603,887.0	10,385.00	N/A
18	5/27/2019	82	10,800.0	8,166.0	8,069.0	596,023.0	10,948.00	N/A
19	5/27/2019	86	11,122.0	8,329.0	8,280.0	595,796.0	12,287.98	N/A
20	5/27/2019	88	11,452.0	8,158.0	7,223.0	601,916.0	10,489.00	N/A
21	5/28/2019	90	11,071.0	7,872.0	7,468.0	597,472.0	10,750.02	N/A
22	5/28/2019	88	11,208.0	7,891.0	7,145.0	599,626.0	10,385.98	N/A
23	5/29/2019	90	11,032.0	10,968.0	7,399.0	581,796.0	12,260.00	N/A
24	5/29/2019	84	10,924.0	9,160.0	7,272.0	609,642.0	11,082.00	N/A
25	5/29/2019	90	11,368.0	9,963.0	7,699.0	600,156.0	10,392.00	N/A
26	5/30/2019	90	11,195.0	9,043.0	7,891.0	600,734.0	10,335.00	N/A
27	5/30/2019	90	10,770.0	8,028.0	7,230.0	590,817.0	13,029.00	N/A
28	5/30/2019	88	11,106.0	9,672.0	7,870.0	598,196.0	10,185.00	N/A
29	5/31/2019	91	11,018.0	9,419.0	8,399.0	607,349.0	10,373.00	N/A
30	5/31/2019	90	10,961.0	9,603.0	8,135.0	602,342.0	11,161.00	N/A
31	5/31/2019	91	10,959.0	9,339.0	7,225.0	595,488.0	10,169.00	N/A

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INTERMEDIATE 1 CASING

N-80 68LB/FT: 0' - 2,143'

J-55 68LB/FT: 2,143' - 3,191'

PRODUCTION CASING

P-110CY 23LB/FT: 0' - 12,160'

Q-125 23LB/FT: 12,160' - 18,122'

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)
50 FOOT	2790	2900	2790	2900	SANDSTONE
FOURTH	2900	4264	2900	4265	SANDSTONE/ SILTSTONE
ELK	4264	6366	4265	6368	SILTSTONE
RHINESTREET	6366	6625	6368	6627	SILTSTONE/ SHALE
BURKET	6625	6649	6627	6651	SHALE
TULLY	6649	6675	6651	6677	LIMESTONE
HAMILTON	6675	6789	6677	6791	SHALE
MARCELLUS	6789	6809	6791	6811	SHALE
MIDDLE MARCELLUS	6809	6828	6811	6830	SHALE
CHERRY VALLEY	6828	6833	6830	6835	SHALE
LOWER MARCELLUS	6833	6842	6835	6844	SHALE
ONONDAGA	6842	7072	6844	7074	LIME STONE
ORISKANY	7072	7180	7074	7182	SANDSTONE/ SILTSTONE
HELDERBERG	7180	7370	7182	7372	LIMESTONE
SALINA	7370	8983	7372	8985	DOLOMITE TRACES OF SALT
LOCKPORT	8983	9098	8985	9100	DOLOMITE
ROCHESTER	9098	9370	9100	9372	SHALE
PACKER SHELL	9370	9530	9372	9532	SHALE
TUSCARORA	9530	9763	9532	9765	SANDSTONE/ SILTSTONE
QUEENSTON	9763	10598	9765	10600	RED SHALE
BALD EAGLE	10598	10718	10600	10720	GREY/ RED SHALE
REEDSVILLE	10718	11732	10720	11790	SHALE
UTICA	11732	11872	11790	12039	DARK GREY SHALE
POINT PLEASANT	11872		12039		BLACK SHALE
TD				18257	

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47-051-02008



LOGGING COMAPNY

TOPHOLE

COMPLETE DRILLING SOLUTIONS
160 TECHNOLOGY DRIVE SUITE 201
CANONSBURG, PA 15317

BIG RIGL5

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

LOGGING COMAPNY

MUDLOG

DIVERSIFIED WELL LOGGING LLC
71 N. MAIN STREET STREET
WASHINGTON, PA 15301

TRIPLE COMBO LOG

SCHLUMBERGER
300 SCHLUMBERGER DRIVE
SUGAR LAND, TX 77478

CEMENTING COMPANY

(18" CASING & 13" CASING)

BJ SERVICES
11211 FARM TO MARKET 2920
TOMBALL, TX 77375

(9" CASING, PLUGBACK, & 5.5" CASING)

HALLIBURTON
121 CHAMPION WAY SUITE #210
CANONSBURG, PA 15317

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Office of Oil and Gas

AUG 27 2019

WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/20/2019
Job End Date:	5/31/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-02008-00-00
Operator Name:	CNX Gas Company LLC
Well Name and Number:	MAJ6FHSU
Latitude:	39.93469800
Longitude:	-80.54858600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	12,032
Total Base Water Volume (gal):	14,817,684
Total Base Non Water Volume:	0

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	CNX	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.25195	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	12.97748	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor	Water	7732-18-5	92.50000	0.60482	None
			Hydrochloric Acid	7647-01-0	7.50000	0.04904	None
KFR-48	Keane	Friction Reducer	Water	7732-18-5	47.00000	0.03122	None
			butene, homopolymer	9003-29-6	25.00000	0.01660	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01660	None
			Alcohols, C12-18, ethoxylated	58213-23-0	3.00000	0.00199	None
KSI-22	Keane	Scale Inhibitor	Methanol	67-56-1	50.00000	0.01140	None
			2-propenoic acid, polymer with 2-(1-methyl-2-[(1-oxo-2-propenyl)amino]-1-propensulfonic acid monosodium salt and sodium phosphinite	110224-99-2	10.00000	0.00228	None



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MBC-516	Keane	Bioicide	glutaral	111-30-8	26.70000	0.00478	None	
			didecyldimethylammonium chloride	7173-51-5	8.00000	0.00143	None	
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00095	None	
			Ethanol	64-17-5	2.80000	0.00050	None	
KFEAC-30	Keane	Iron Control	acetic acid	64-19-7	60.00000	0.00255	None	
			Citric acid	77-92-9	40.00000	0.00170	None	
KWG-111LS	Keane	Gel	Disillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00177	None	
			Guar gum	9000-30-0	55.00000	0.00177	None	
KAI-12	Keane	Acid Inhibitor	Methanol	67-56-1	90.00000	0.00188	None	
			Fatty imidazoline	61790-69-0	5.00000	0.00010	None	
			Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00010	None	
			xylene	1330-20-7	5.00000	0.00010	None	
			soproyl alcohol	67-63-0	5.00000	0.00010	None	
			prop-2-yn-1-ol	107-19-7	5.00000	0.00010	None	
			ethylbenzene	100-41-4	1.00000	0.00002	None	
KWBO-2	Keane	Breaker	Sodium persulfate	7775-27-1	99.00000	0.00004	None	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.								
Other Chemical(s)	Listed Above	See Trade Name(s) List	Water	7732-18-5	92.50000	0.60482		
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01660		
			butene, homopolymer	9003-29-6	25.00000	0.01660		
			2-propenoic acid, polymer with 2-(1-methyl-2-[(1-oxo-2-propenyl)amino]-1-propensulfonic acid monosodium salt and sodium phosphinite	110224-99-2	10.00000	0.00228		
			Alcohols, C12-18, ethoxylated	68213-23-0	3.00000	0.00199		
			Disillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00177		
			Citric acid	77-92-9	40.00000	0.00170		
			didecyldimethylammonium chloride	7173-51-5	8.00000	0.00143		
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00095		
			Ethanol	64-17-5	2.80000	0.00050		
			prop-2-yn-1-ol	107-19-7	5.00000	0.00010		
			xylene	1330-20-7	5.00000	0.00010		
			soproyl alcohol	67-63-0	5.00000	0.00010		

	Fatty imidazoline	61790-69-0	5.00000	0.00010	
	Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00010	
	ethylbenzene	100-41-4	1.00000	0.00002	
	Water	7732-18-5	85.00000		

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
 Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

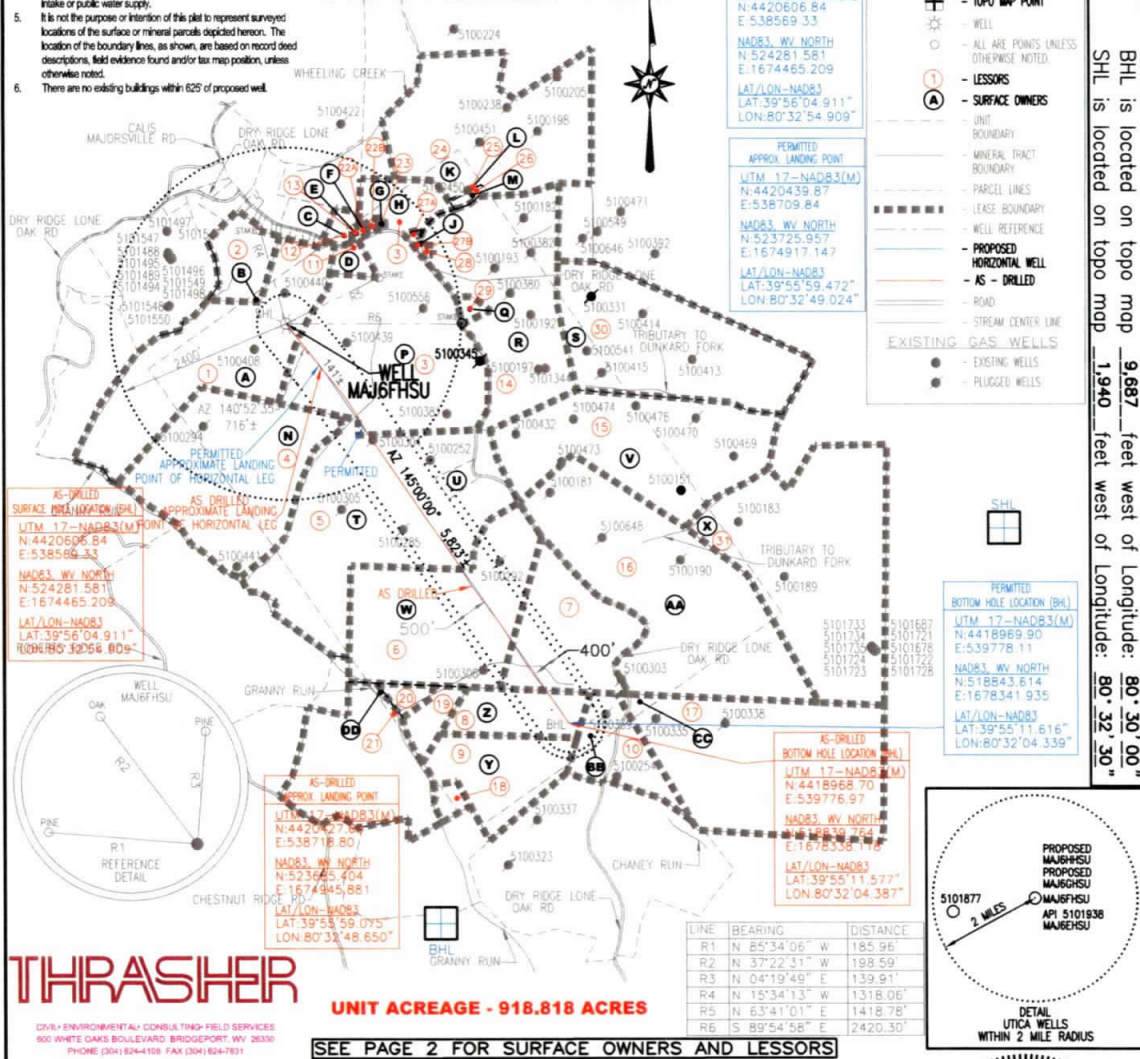
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NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
3. There are no native trout streams within 300' of proposed well.
4. Proposed well is greater than 1000' from surface groundwater intake or public water supply.
5. 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.
6. There are no existing buildings within 625' of proposed well.

BHL is located on topo map 14,003 feet south of Latitude: 39° 57' 30"
 SHL is located on topo map 8,610 feet south of Latitude: 39° 57' 30"

AS DRILLED PLAT



LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- LESSORS
- SURFACE OWNERS
- UNIT BOUNDARY
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- LEASE BOUNDARY
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- AS - DRILLED
- ROAD
- STREAM CENTER LINE
- EXISTING GAS WELLS
- EXISTING WELLS
- PLUGGED WELLS

BHL is located on topo map 9,687 feet west of Longitude: 80° 30' 00"
 SHL is located on topo map 1,940 feet west of Longitude: 80° 32' 30"

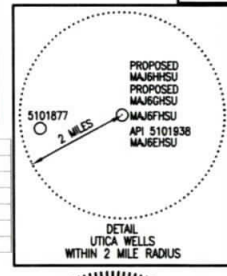
THRASHER

UNIT ACREAGE - 918.818 ACRES

CIVIL/ENVIRONMENTAL CONSULTING-FIELD SERVICES
 900 WHITE OAKS BOULEVARD BRIDGEPORT WV 26330
 PHONE (204) 624-1038 FAX (204) 624-7891

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

LINE	BEARING	DISTANCE
R1	N 85°34'06" W	185.96
R2	N 37°22'31" W	198.59
R3	N 04°19'49" E	139.91
R4	N 15°34'13" W	1318.06
R5	N 63°41'01" E	1418.78
R6	S 89°54'58" E	2420.30



FILE #: MAJ6FHSU-AS DRILLED
 DRAWING #: MAJ6FHSU-AS DRILLED
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

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



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



DATE: JULY 22, 2019
 OPERATOR'S WELL #: MAJ6FHSU-AS DRILLED
 API WELL #: 47 51 02008
 STATE COUNTY PERMIT

RECEIVED
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 AUG 27 2019
 WV Department of Environmental Protection

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

WATERSHED: WHEELING CREEK ELEVATION: 1370.01'

COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV 7.5'

SURFACE OWNER: CNX LAND, LLC ACREAGE: 95.23±

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY LLC ACREAGE: 1679.35±

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 11,850± TMD: 19,121±

WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT CHRIS TURNER
 Address 1000 CONSOL ENERGY DRIVE Address 1 DOMINION DRIVE
 City CANONSBURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378

MAJ6FHSU

PAGE 2 OF 2

AS DRILLED PLAT

	SURFACE OWNER	DIST-TM/PAR
A	CNX LAND, LLC	15-5/13
B	CONSOLIDATION COAL COMPANY	15-5/14
C	ROBERT R. RIGGLE	15-5/34.1
D	CONSOL MINING COMPANY LLC	15-5/39
E	ROBERT R. RIGGLE ET UX	15-5/35
F	MT HOPE CEMETERY ASSOC	15-5/36
G	MT HOPE CEMETERY	15-5/37.1
H	ALBERT J. PACZEWSKI JR. ET UX	15-5/37
J	BOARD OF EDUCATION	15-5/38
K	DANFORD & DEBORAH A. O'BRIAN	15-4/14
L	ELIZABETH ANN CAIN - LIFE	15-4/14.2
M	ELIZABETH ANN CAIN - LIFE	15-4/14.1
N	CNX LAND, LLC	15-5/12
P	ALBERT J. PACZEWSKI, JR. ET UX	15-5/40
Q	BRIAN K. & MARY MILLIKEN TRUST	15-5/43.1
R	BRIAN K. & MARY MILLIKEN - TRUST	15-5/43
S	CHARLES ALBERT WITSBERGER II	15-5/44
T	RANDALL B. SCHMIDT	15-5/41
U	RANDALL B. SCHMIDT	15-5/41.1
V	MIKE ROSS INC	15-5/42
W	RANDALL B. SCHMIDT	15-11/10
X	TIM M. TURLEY & TAMMY JENKINS	15-5/48
Y	CNX LAND, LLC	15-11/12
Z	CNX LAND, LLC	15-11/11
AA	ROGER D. MCCrackEN ET AL	15-11/21
BB	MICHAEL S. RIGGLE	15-11/20
CC	MICHAEL S. RIGGLE	15-11/19
DD	DAVID L. KINNEY ET AL	15-11/9

	LESSOR	DIST-TM/PAR
1	ELMER AND OTA HARTLEY	15-5/13
2	HAZEL SAMMONS	P/O 15-5/14
3	THOMAS J. AND RUTH ELDER	15-5/37
		15-5/40
4	ELLSWORTH H. AND BESSIE E. HARSH	15-5/12
	MILDRED HARSH	
	PAUL HARSH	
	CATHERINE H. AND GEORGE E. MCCARRIAN	
	SHERE E. AND BARBARA HARSH	
	JOHN A. AND LUCILLE HARSH	
5	SANDRA C. KOONTZ	15-5/41
	DRY RIDGE RESOURCES, LLC	15-5/41.1
	MARTHA KAY AND CHARLES D. HILL	
6	SANDRA C. KOONTZ	15-11/10
	DRY RIDGE RESOURCES LLC	
	MARTHA KAY AND CHARLES D. HILL	
7, 16	AUGUST W. CHAMBERS, ET AL	P/O 15-11/21
	CHESTNUT HOLDINGS	
8	MARGARET MORAN	15-11/11
9, 18	MARGARET MORAN	P/O 15-11/12
19, 20		
10	MICHAEL S. RIGGLE	15-11/20
11	H. B. CHAMBERS	15-5/39
	AUGUST AND BESSIE CHAMBERS	
	GAIL DOLAN	
12	ROBERT R. AND DONNA S. RIGGLE	15-5/34.1
13	ROBERT R. AND DONNA S. RIGGLE	15-5/35
14	BRIAN K. AND MARY LYNN MILLIKEN	P/O 15-5/43
	JAY K. AND PATRICIA L. WALLACE	
	SARA JANE WALLACE	
15	J. L. AND ELIZABETH V. CROW	15-5/42
17	MICHAEL S. RIGGLE	15-11/19
21	DAVID L. AND RAYMOND P. KINNEY	15-11/9
22A, 22B	CAROL L. COOPER & DALES GITTINGS, CO TRUSTEES OF THE MOUNT HOPE CEMETERY ASSOCIATION	P/O 15-5/36
	VIRGINIA M. BLAKE AND LAURENCE F. PARSONS	
23	MOUNT HOPE CEMETERY ASSOCIATION	15-5/37.1
24	ELLSWORTH H. AND THELMA L. SCHERICH	15-4/14
	JACKIE L. FRYE	
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
25	JACKIE L. FRYE	15-4/14.2
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
	ELIZABETH ANN CAIN(LIFE TENANT) AND JACK A. AND NANCY C. CAIN(REMAINDERMEN)	
26	JACKIE L. FRYE	15-4/14.1
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
	ELIZABETH ANN CAIN(LIFE TENANT) AND JACK A. AND NANCY C. CAIN(REMAINDERMEN)	
27A, 27B	THOMAS J. AND RUTH L. ELDER	P/O 15-5/38
	THE BOARD OF EDUCATION OF MARSHALL CO.	
28	THE BOARD OF EDUCATION OF MARSHALL CO.	P/O 15-5/43
29	BRIAN K. AND MARY LYNN MILLIKEN	15-5/43.1
30	J. L. AND ELIZABETH V. CROW	P/O 15-5/44
31	DORCAS DOMAN, FRANCIS E. DOMAN AND JUNE DOMAN	15-5/48

AS-DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
N:4420606.84
E:538569.33
NAD83, WV NORTH
N:524281.581
E:1674465.209
LAT/LON-NAD83
LAT:39°56'04.911"
LON:80°32'54.909"

AS-DRILLED
APPROX. LANDING POINT
UTM 17-NAD83(M)
N:4420427.66
E:538718.80
NAD83, WV NORTH
N:523685.404
E:1674945.881
LAT/LON-NAD83
LAT:39°55'59.075"
LON:80°32'48.650"

AS-DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4418968.70
E:539776.97
NAD83, WV NORTH
N:518839.764
E:1678338.118
LAT/LON-NAD83
LAT:39°55'11.577"
LON:80°32'04.387"

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UTM 17-NAD83(M)
N:4420439.87
E:538709.84
NAD83, WV NORTH
N:523725.957
E:1674917.147
LAT/LON-NAD83
LAT:39°55'59.472"
LON:80°32'49.024"

PERMITTED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4418969.90
E:539778.11
NAD83, WV NORTH
N:518843.614
E:1678341.935
LAT/LON-NAD83
LAT:39°55'11.616"
LON:80°32'04.339"

API WELL #: 47 51 02008
STATE COUNTY PERMIT



JULY 22, 2019

CIVIL & ENVIRONMENTAL CONSULTING-FIELD SERVICES
800 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330
PHONE (304) 624-4108 FAX (304) 624-7031

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AS DRILLED PLAT

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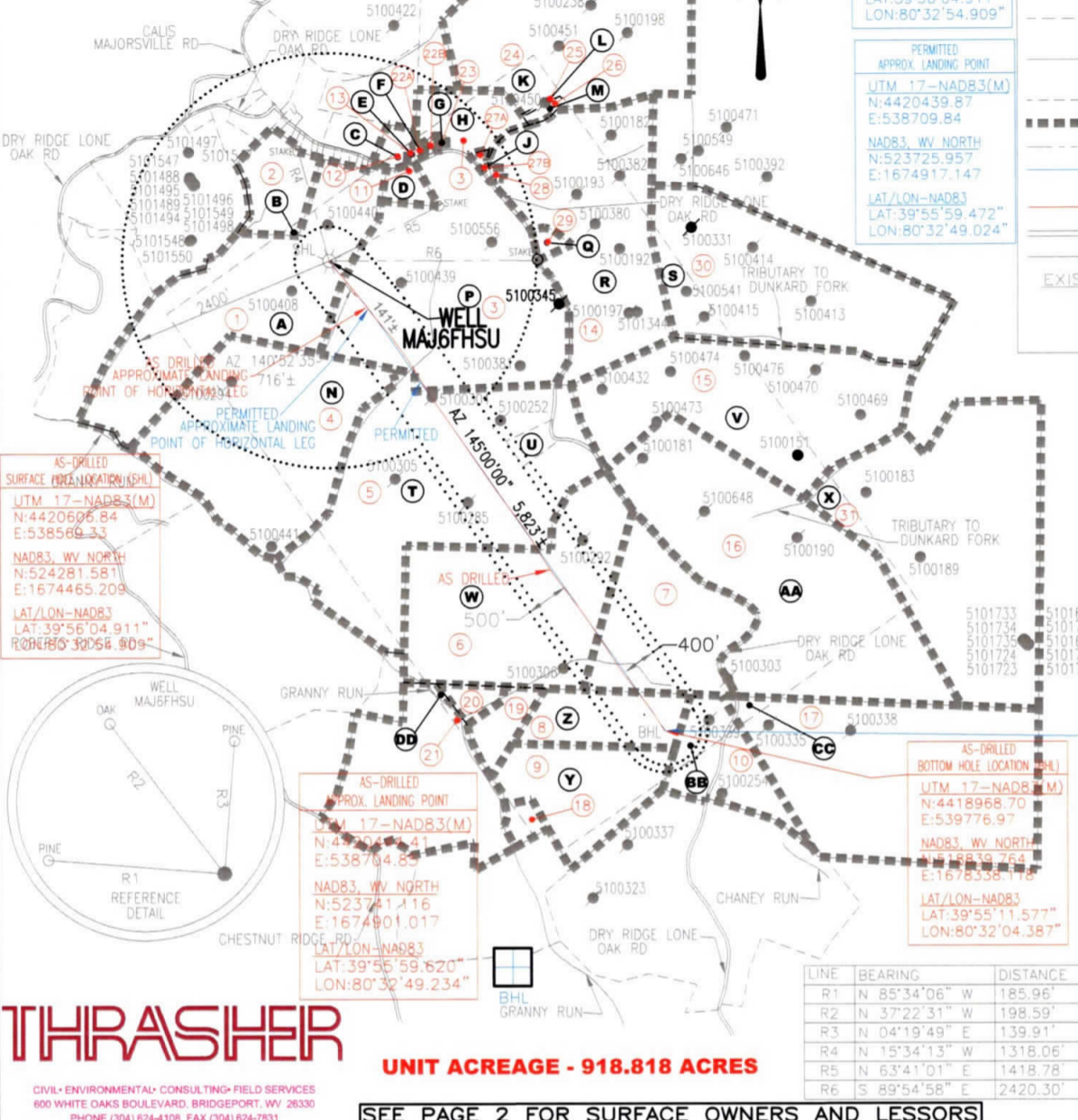
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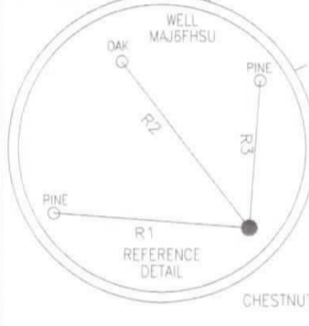
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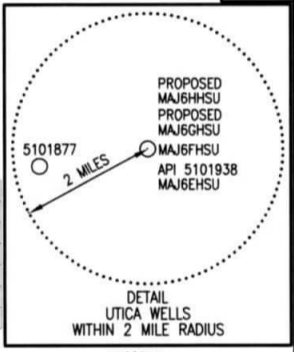


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THRASHER
 CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES
 600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330
 PHONE (304) 624-4108 FAX (304) 624-7831

UNIT ACREAGE - 918.818 ACRES

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

FILE #: MAJ6FHSU-AS DRILLED
 DRAWING #: MAJ6FHSU-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

RECEIVED
 Office of Oil and Gas
 FEB 14 2020
 WV Department of Environmental Protection

DATE: FEBRUARY 10, 2020
 OPERATOR'S WELL #: MAJ6FHSU-AS DRILLED
 API WELL #: 47 51 02008
 STATE COUNTY PERMIT

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

WATERSHED: WHEELING CREEK ELEVATION: 1370.01'

COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV 7.5'

SURFACE OWNER: CNX LAND, LLC ACREAGE: 95.23±

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY LLC ACREAGE: 1679.35±

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 11,850'± TMD: 19,121'±

WELL OPERATOR: CNX GAS COMPANY LLC DESIGNATED AGENT: CHRIS TURNER
 Address: 1000 CONSOL ENERGY DRIVE Address: 1 DOMINION DRIVE
 City: CANONSBURG State: PA Zip Code: 15317 City: JANE LEW State: WV Zip Code: 26378

BHL is located on topo map 14,003 feet west of Longitude: 80° 30' 00"
 SHL is located on topo map 1,940 feet west of Longitude: 80° 32' 30"

MAJ6FHSU

PAGE 2 OF 2

AS DRILLED PLAT

	SURFACE OWNER	DIST-TM/PAR
A	CNX LAND, LLC	15-5/13
B	CONSOLIDATION COAL COMPANY	15-5/14
C	ROBERT R. RIGGLE	15-5/34.1
D	CONSOL MINING COMPANY LLC	15-5/39
E	ROBERT R. RIGGLE ET UX	15-5/35
F	MT HOPE CEMETERY ASSOC	15-5/36
G	MT HOPE CEMETERY	15-5/37.1
H	ALBERT J. PACZEWSKI JR. ET UX	15-5/37
J	BOARD OF EDUCATION	15-5/38
K	DANFORD & DEBORAH A. O'BRIAN	15-4/14
L	ELIZABETH ANN CAIN - LIFE	15-4/14.2
M	ELIZABETH ANN CAIN - LIFE	15-4/14.1
N	CNX LAND, LLC	15-5/12
P	ALBERT J. PACZEWSKI, JR. ET UX	15-5/40
Q	BRIAN K. & MARY MILLIKEN TRUST	15-5/43.1
R	BRIAN K. & MARY MILLIKEN - TRUST	15-5/43
S	CHARLES ALBERT WITSBERGER II	15-5/44
T	RANDALL B. SCHMIDT	15-5/41
U	RANDALL B. SCHMIDT	15-5/41.1
V	MIKE ROSS INC	15-5/42
W	RANDALL B. SCHMIDT	15-11/10
X	TIM M. TURLEY & TAMMY JENKINS	15-5/48
Y	CNX LAND, LLC	15-11/12
Z	CNX LAND, LLC	15-11/11
AA	ROGER D. MCCrackEN ET AL	15-11/21
BB	MICHAEL S. RIGGLE	15-11/20
CC	MICHAEL S. RIGGLE	15-11/19
DD	DAVID L. KINNEY ET AL	15-11/9

	LESSOR	DIST-TM/PAR
1	ELMER AND OTA HARTLEY	15-5/13
2	HAZEL SAMMONS	P/O 15-5/14
3	THOMAS J. AND RUTH ELDER	15-5/37
		15-5/40
4	ELLSWORTH H. AND BESSIE E. HARSH	15-5/12
	MILDRED HARSH	
	PAUL HARSH	
	CATHERINE H. AND GEORGE E. MCCARRIAN	
	SHERE E. AND BARBARA HARSH	
	JOHN A. AND LUCILLE HARSH	
5	SANDRA C. KOONTZ	15-5/41
	DRY RIDGE RESOURCES, LLC	15-5/41.1
	MARTHA KAY AND CHARLES D. HILL	
6	SANDRA C. KOONTZ	15-11/10
	DRY RIDGE RESOURCES LLC	
	MARTHA KAY AND CHARLES D. HILL	
7, 16	AUGUST W. CHAMBERS, ET AL	P/O 15-11/21
	CHESTNUT HOLDINGS	
8	MARGARET MORAN	15-11/11
9, 18	MARGARET MORAN	P/O 15-11/12
19, 20		
10	MICHAEL S. RIGGLE	15-11/20
11	H. B. CHAMBERS	15-5/39
	AUGUST AND BESSIE CHAMBERS	
	GAIL DOLAN	
12	ROBERT R. AND DONNA S. RIGGLE	15-5/34.1
13	ROBERT R. AND DONNA S. RIGGLE	15-5/35
14	BRIAN K. AND MARY LYNN MILLIKEN	P/O 15-5/43
	JAY K. AND PATRICIA L. WALLACE	
	SARA JANE WALLACE	
15	J. L. AND ELIZABETH V. CROW	15-5/42
17	MICHAEL S. RIGGLE	15-11/19
21	DAVID L. AND RAYMOND P. KINNEY	15-11/9
22A, 22B	CAROLL L. COOPER & DALES GITTINGS, CO TRUSTEES OF THE MOUNT HOPE CEMETERY ASSOCIATION	P/O 15-5/36
	VIRGINIA M. BLAKE AND LAURENCE F. PARSONS	
23	MOUNT HOPE CEMETERY ASSOCIATION	15-5/37.1
24	ELLSWORTH H. AND THELMA L. SCHERICH	15-4/14
	JACKIE L. FRYE	
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
25	JACKIE L. FRYE	15-4/14.2
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
	ELIZABETH ANN CAIN(LIFE TENANT) AND JACK A. AND NANCY C. CAIN(REMAINDERMEN)	
26	JACKIE L. FRYE	15-4/14.1
	RICHARD P. AND MARY LEE BARTO	
	SCOTT DOUGLAS REED	
	ROBERT B. ELLIOTT	
	TIERRA OIL COMPANY	
	ELIZABETH ANN CAIN(LIFE TENANT) AND JACK A. AND NANCY C. CAIN(REMAINDERMEN)	
27A, 27B	THOMAS J. AND RUTH L. ELDER	P/O 15-5/38
	THE BOARD OF EDUCATION OF MARSHALL CO.	
28	THE BOARD OF EDUCATION OF MARSHALL CO.	P/O 15-5/43
29	BRIAN K. AND MARY LYNN MILLIKEN	15-5/43.1
30	J. L. AND ELIZABETH V. CROW	P/O 15-5/44
31	DORCAS DOMAN, FRANCIS E. DOMAN AND JUNE DOMAN	15-5/48

AS-DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
N:4420606.84
E:538569.33
NAD83, WV NORTH
N:524281.581
E:1674465.209
LAT/LON-NAD83
LAT:39°56'04.911"
LON:80°32'54.909"

AS-DRILLED
APPROX. LANDING POINT
UTM 17-NAD83(M)
N:4420444.41
E:538704.85
NAD83, WV NORTH
N:523741.116
E:1674901.017
LAT/LON-NAD83
LAT:39°55'59.620"
LON:80°32'49.234"

AS-DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4418968.70
E:539776.97
NAD83, WV NORTH
N:518839.764
E:1678338.118
LAT/LON-NAD83
LAT:39°55'11.577"
LON:80°32'04.387"

PERMITTED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
N:4420606.84
E:538569.33
NAD83, WV NORTH
N:524281.581
E:1674465.209
LAT/LON-NAD83
LAT:39°56'04.911"
LON:80°32'54.909"

PERMITTED
APPROX. LANDING POINT
UTM 17-NAD83(M)
N:4420439.87
E:538709.84
NAD83, WV NORTH
N:523725.957
E:1674917.147
LAT/LON-NAD83
LAT:39°55'59.472"
LON:80°32'49.024"

PERMITTED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4418969.90
E:539778.11
NAD83, WV NORTH
N:518843.614
E:1678341.935
LAT/LON-NAD83
LAT:39°55'11.616"
LON:80°32'04.339"

RECEIVED
Office of Oil and Gas
FEB 14 2020
WV Department of
Environmental Protection

API WELL #: 47 51 02008
STATE COUNTY PERMIT

THRASHER

FEBRUARY 10, 2020