



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

November 2, 2017
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit Modification Approval for SHL 27 EHS
47-051-01939-00-00

Modified Surface Location

HG ENERGY II APPALACHIA, 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: SHL 27 EHS
Farm Name: WARD, STEVE & ED
U.S. WELL NUMBER: 47-051-01939-00-00
Horizontal 6A / New Drill
Date Issued: November 2, 2017

Promoting a healthy environment.

11/03/2017

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

- 1) Well Operator: HG Energy II Appalachia, L 494519932 Marshall Webster Majorsville
Operator ID County District Quadrangle
- 2) Operator's Well Number: SHL27 EHS Well Pad Name: SHL27
- 3) Farm Name/Surface Owner: Steve and Ed Ward Public Road Access: Irish Ridge Road
- 4) Elevation, current ground: 1154' Elevation, proposed post-construction: 1154'
- 5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____
(b) If Gas Shallow Deep _____
Horizontal
- 6) Existing Pad: Yes or No Yes *JN 9/11/17*
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6163'/6214' and 51' in thickness. Anticipated pressure at 4314#.
- 8) Proposed Total Vertical Depth: 6200'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 15906'
- 11) Proposed Horizontal Leg Length: 8836'
- 12) Approximate Fresh Water Strata Depths: 349'
- 13) Method to Determine Fresh Water Depths: Offset well data
- 14) Approximate Saltwater Depths: None noted in offsets
- 15) Approximate Coal Seam Depths: 634' to 644'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None - drilling into an interior barrier
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No _____
- (a) If Yes, provide Mine Info: Name: Same as Above
Depth: 634' to 644' - drilling into an interior barrier 934' from proposed mining
Seam: Pittsburgh No. 8
Owner: Consolidation Coal Company (Murray American Energy, Inc.)

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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	30"	New	LS	157.5	40'	40'	CTS
Fresh Water	20"	NEW	J-55	94	450'	450'	CTS 30% excess yield = 1.20, CTS
Coal	13 3/8"	NEW	J-55	54.5	1050'	1050'	30% excess yield = 1.20, CTS
Intermediate	9 5/8"	NEW	J-55	40	3032' or 250' below 5th Sand	3032' or 250' below 5th Sand	30% excess yield = 1.27, CTS
Production	5 1/2"	NEW	P-110	20	15906'	15906'	30% excess yield = 1.15, net yield = 1.34
Tubing							
Liners							

JN 9/11/17

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	30"	36"	.500				CTS
Fresh Water	20"	24"	.438	2110	1200	Type 1	30% excess yield = 1.20, CTS
Coal	13 3/8"	17 1/2"	.380	2730		Type 1/Class A	30% excess yield = 1.20, CTS
Intermediate	9 5/8"	12 3/8"	.395	3950		Type 1/Class A	30% excess yield = 1.27, CTS
Production	5 1/2"	8 3/4" & 8 1/2"	.361	12640	10000	Type 1/Class A	30% excess yield = 1.15, net yield = 1.34
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B
(10/14)

API NO. 47-051 - 01939
OPERATOR WELL NO. SHL27 EHS
Well Pad Name: SHL27

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

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6200 feet. Drill horizontal leg - stimulate and be capable of producing from the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. See attached list. Maximum pressure not to exceed 10,000 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.325 acres (this is a built pad)

22) Area to be disturbed for well pad only, less access road (acres): 10.228 acres

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing. Freshwater every 3 joints to surface. Coal - Bow Spring on first 2 joints then every third joint to 100' from surface. Intermediate - Bow Spring on first 2 joints then every third joint to 100' from surface. Production - Run 1 spiral centralizer every 5 joints from the top of the curve to surface.

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

Conductor - 40% Slurry to be added to Wet Fracture (W) /
Fresh Water - 15.8 ppg FW-1 = 2.0% Inert CaCl₂, 20 % Excess Yield = 1.20 / CTS
Cement - 15.8 ppg FW-1 = 2.0% Inert CaCl₂, 20% Excess Yield = 1.20 / CTS
Intermediate - 15.8 ppg FW-1 = 2.0% Inert CaCl₂, 20% Excess Yield = 1.20 / CTS
Production - Lame - 14.5 ppg POZ-FW-1 = 0.2% Inert CaCl₂, 1% Inert EC-1 = 0.75 gal/bbl FPH-1, = 0.2% Inert MP-1/TOT-1, 14.8 ppg FW-1 = 0.25% Inert R-1 = 0.75 gal/bbl FPH-1, = 50% Inert ASC-1 = 1.0% Inert MP-1/TOT-1, Excess-Loss Yield = 1.18/Tal Yield = 1.84/CTS
Run 1 spiral centralizer every 5 joints from the top 5.0' long joint to the top of the curve.

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD.
Fresh Water - Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.
Cement - Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Intermediate - Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Production - Check on bottom/TD with casing, circulate at well schedule pump rate for at least 20 bottom up, if sand returns and pump pressure INDICATE the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.

*Note: Attach additional sheets as needed.



SHL 27E
Macellus Shale Horizontal
Marshall County, WV

Ground Elevation		1154'		SHL 27E SHL				533023.387N 1695647.585E			
Azm		160°		SHL 27E LP				533458.492N 1697043.178E			
WELLBORE DIAGRAM		160°		SHL 27E BHL				525155.009N 1700065.399E			
HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS		
30"	30" 157.5# LS	Conductor	0	40	AIR	N/A. Casing to be drilled in w/ Dual Rotary Rig	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.5" wall thickness		
		Fresh Water		349	AIR	15.6 ppg PNE-1 + 2.5% bwoc CaCl 30% Excess Yield = 1.20 / CTS	Centralized every 3 joints to surface	Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.	Surface casing = 0.438" wall thickness Burst=2110 psi		
24"	20" 94# J-55	Water String	0	450							
		Pittsburgh Coal	634	644	AIR / KCL Salt Polymer	15.6 ppg PNE-1 + 2.5% bwoc CaCl 30% Excess Yield=1.20 / CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.380" wall thickness Burst=2730 psi		
17.5"	13-3/8" 54.5# J-55 BTC	Int. Casing	0	1050							
		Big Lime	1639	1719	AIR / KCL Salt Polymer	15.2 ppg PNE-1 + 2.5% bwoc CaCl 30% Excess Yield=1.27 CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.395" wall thickness Burst=3950 psi		
12.375" - 12.25"	9-5/8" 40# J-55 BTC	Gordon	2639	2652							
		Fifth Sand	2748	2782							
8.5" Vertical		Warren Sand	3901	3910	9.0ppg SOBM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 5 joints from the top of the curve to surface.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note:Actual centralizer schedules may be changed due to hole conditions		
		Java Shale	4568	4739							
8.5" Curve	5-1/2" 20# P-110 HC CDC HTQ	Angola Shale	4786	5421	11.5ppg- 12.5ppg SOBM		Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.				
		Rhinestreet	5421	5837							
8.5" Lateral		Cashaqua	5827	5915	11.5ppg- 12.5ppg SOBM						
		Middlesex	5915	5948							
		West River	5948	6003							
		Burkett	6003	6023							
		Tully Limestone	6023	6050							
		Hamilton	6050	6163							
		Marcellus	6163	6214							
		TMD / TVD	15892	6200							
		Onondaga	6214								

LP @ 6200' TVD / 7056' MD

8.5" Hole - Cemented Long String
5-1/2" 20# P-110 HC CDC HTQ

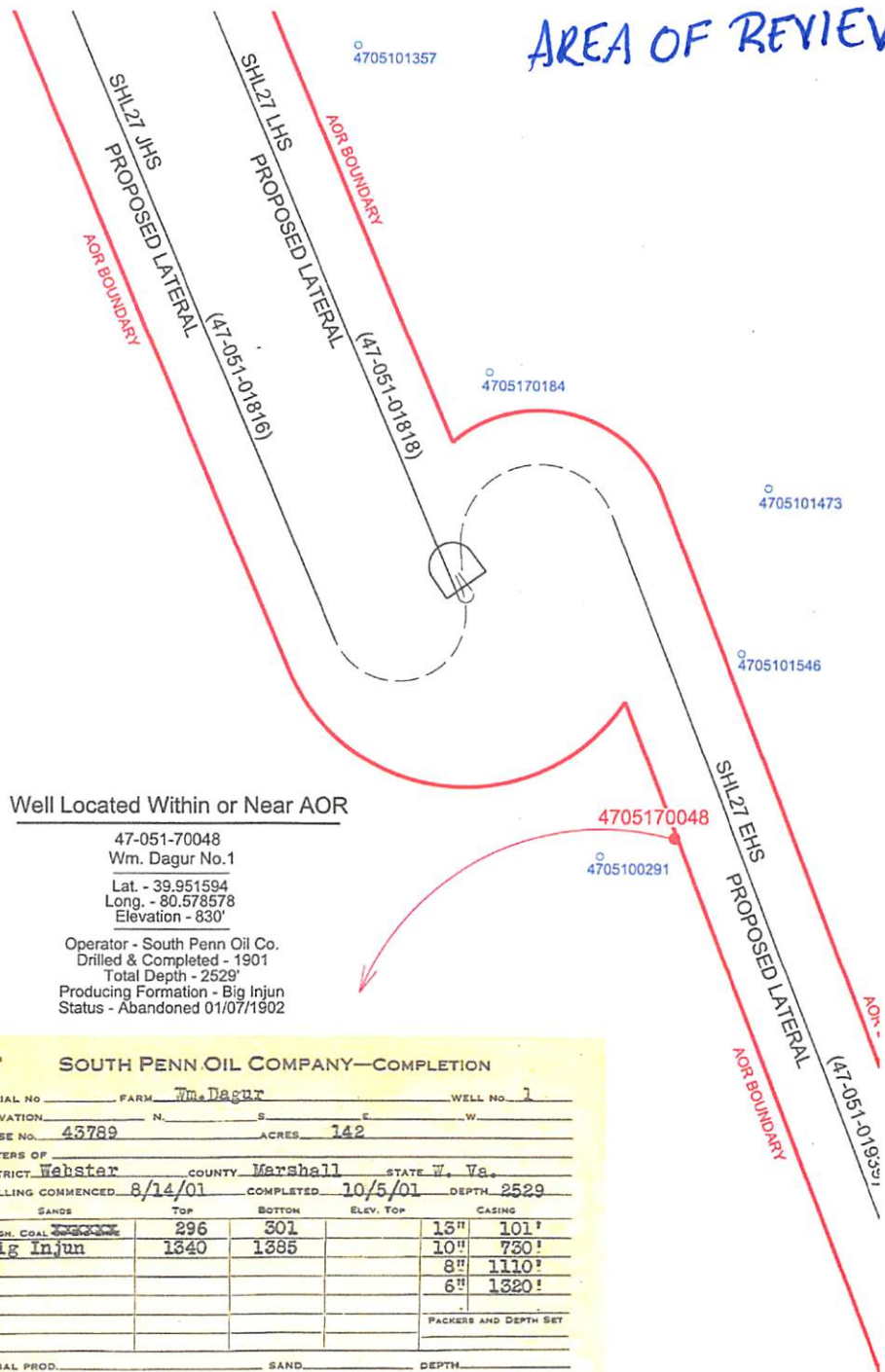
+/-8836' R Lateral

TD @ +/-6200' TVD
+/-15892' MD

X=centralizers

SI-019394000

AREA OF REVIEW



NO. 1 SOUTH PENN OIL COMPANY—COMPLETION

SERIAL NO. _____ FARM Wm. Dagur WELL No. 1
 ELEVATION _____ N. _____ S. _____ E. _____ W. _____
 LEASE No. 45789 ACRES 142
 WATERS OF _____
 DISTRICT Webster COUNTY Marshall STATE W. Va.
 DRILLING COMMENCED 8/14/01 COMPLETED 10/5/01 DEPTH 2529

SANDS	TOP	BOTTOM	ELEV. TOP	CASING
Pgm. Coal	296	301		15" 101'
<u>Big Injun</u>	1340	1385		10" 730'
				8" 1110'
				6" 1320'
PACKERS AND DEPTH SET				

INITIAL PROD. _____ SAND _____ DEPTH _____
 GAS TEST _____
 SHOT _____ QUARTS _____
 REMARKS No further record available.
 REPORTED BY G. L. King NINEVEH DISTRICT ABANDONED 1/7/02

NOTE:
 No Additional Wells Located Within AOR

Area of Review for:

SHL27 PAD

SHL27 EHS Wellbore (47-051-01939)
 SHL27 JHS Wellbore (47-051-01816)
 SHL27 LHS Wellbore (47-051-01818)

Webster District, Marshall County, W.Va.

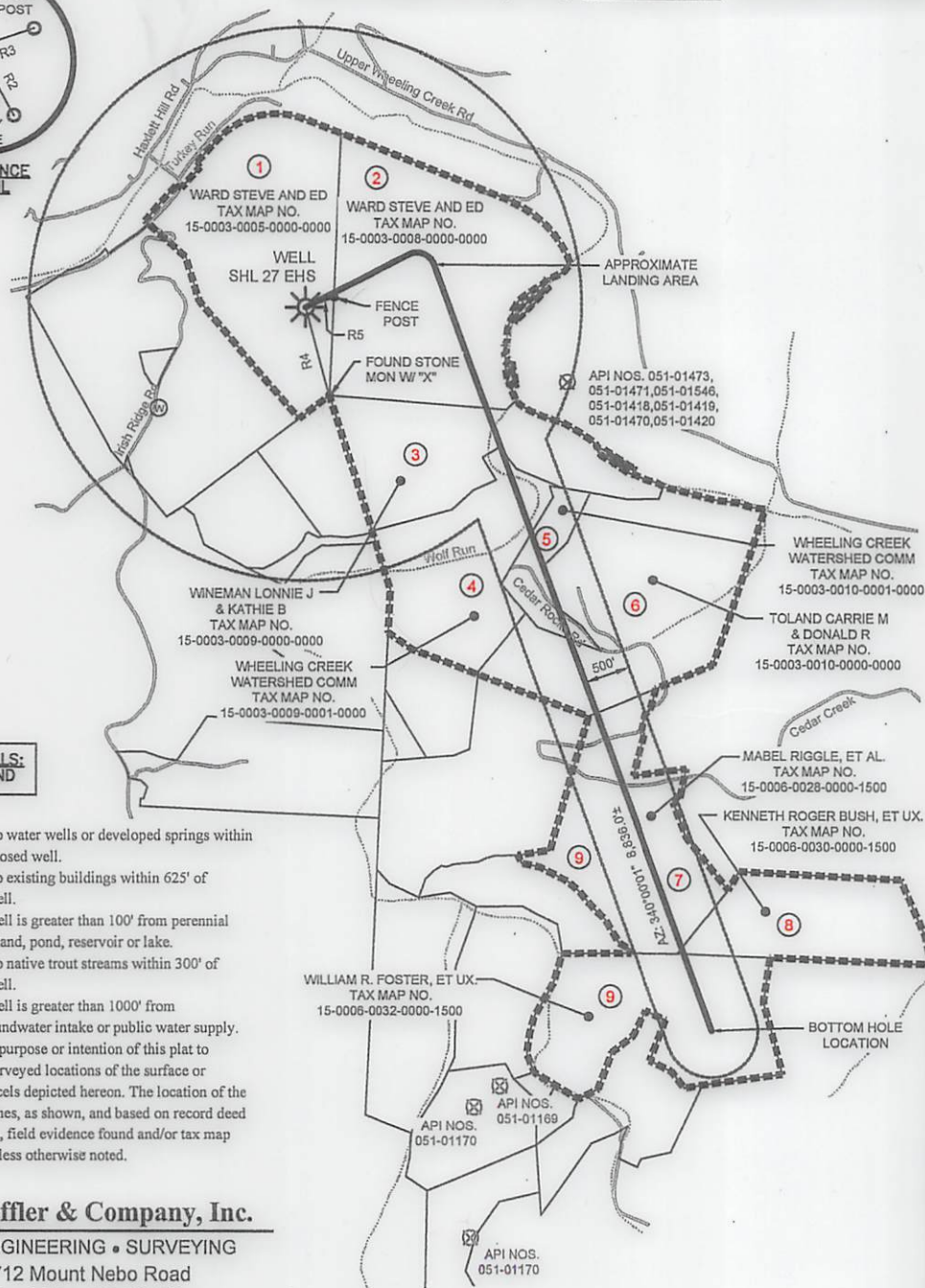
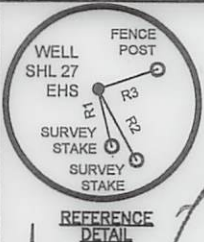
DATA SOURCE
 WVGES Data Disk - 2017



SCALE: 1" = 1,320' 11/03/2017

Well is located on topo map 15,131 feet south of Latitude: 40° 00' 00"

Well is located on topo map 613 feet west of Longitude: 80° 35' 00"



SURFACE HOLE LOCATION (SHL)
 UTM 17 - NAD83
 N: 4423219.809
 E: 535400.427
 NAD27, WV NORTH
 N: 532993.000
 E: 1695644.900
 LAT/LON DATUM-NAD83
 LAT: 39.958378
 LON: -80.585532

APPROX. LANDING POINT
 UTM 17 - NAD83
 N: 4423368.754
 E: 535824.060
 NAD27, WV NORTH
 N: 533458.492
 E: 1697043.178
 LAT/LON DATUM-NAD83
 LAT: 39.959702
 LON: -80.580564

BOTTOM HOLE LOCATION
 UTM 17 - NAD83
 N: 4420854.503
 E: 536787.093
 NAD27, WV NORTH
 N: 525155.009
 E: 1700065.399
 LAT/LON DATUM-NAD83
 LAT: 39.937008
 LON: -80.569431

LINE TABLE

LINE	BEARING	DISTANCE
R1	N13°45'29"W	305.39'
R2	N28°31'15"W	420.29'
R3	S71°26'25"W	327.73'
R4	N14°59'29"W	1008.65'
R5	S71°26'25"W	327.73'

LEGEND

- TOPO MAP POINT
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WM6A1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD

WELLS WITHIN 3000'

- EXISTING GAS WELL
- RECORD GAS WELL

WATER WELLS: NONE FOUND

- NOTES:**
1. There are no water wells or developed springs within 250' of proposed well.
 2. There are no existing buildings within 625' of proposed well.
 3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 4. There are no native trout streams within 300' of proposed well.
 5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

Sheffler & Company, Inc.
 ENGINEERING • SURVEYING
 1712 Mount Nebo Road
 Sewickley, PA 15143
 Office Phone: 412-219-4509
 Email: Info@ShefflerCo.com

FILE #: SHL 27 EHS
 DRAWING #: SHL 27 EHS
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE: USGS MONUMENT U 124: 951.16'

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:

R.P.E.: _____ L.L.S.: P.S. NO. _____



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

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

WATERSHED: WHEELING CREEK
 COUNTY/DISTRICT: MARSHALL / WEBSTER
 SURFACE OWNER: STEVE WARD AND ED WARD
 OIL & GAS ROYALTY OWNER: BOUNTY MINERALS, LLC



DATE: OCTOBER 16, 2014 - REV. SEPTEMBER 8, 2017

OPERATOR'S WELL #: SHL 27 EHS

API WELL # 47 051 01939mob
 STATE COUNTY PERMIT
 H6A

ELEVATION: 1,158.6'
 QUADRANGLE: MAJORSVILLE, W. VA
 ACREAGE: 122.47

11/03/2017

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

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC
 Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101

ESTIMATED DEPTH: TVD: 6,200' ± TMD: 15,906' ±
 DESIGNATED AGENT: DIANE WHITE
 Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101

Well is located on topo map 7,769 feet south of Latitude: 39° 57' 30"

Well is located on topo map 7,765 feet west of Longitude: 80° 32' 30"



Sheffler & Company, Inc.

ENGINEERING • SURVEYING
 1712 Mount Nebo Road
 Sewickley, PA 15143
 Office Phone: 412-219-4509
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FILE #: SHL 27 EHS
 DRAWING #: SHL 27 EHS
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: USGS MONUMENT U 124: 951.16'

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: *[Signature]*
 R.P.E.: _____ L.L.S.: _____ P.S. NO. _____



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



DATE: OCTOBER 16, 2014 - REV. SEPTEMBER 8, 2017
 OPERATOR'S WELL #: SHL 27 EHS
 API WELL # 47 051 01939 A6A
 STATE COUNTY PERMIT
MDP

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

WATERSHED: WHEELING CREEK ELEVATION: 1,158.6'
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, W. VA
 SURFACE OWNER: STEVE WARD AND ED WARD ACREAGE: 122.47
 OIL & GAS ROYALTY OWNER: BOUNTY MINERALS, LLC ACREAGE: 122.47

11/03/2017

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,200' ± TMD: 15,906' ±
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE WHITE
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

**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
1. Q086779000 Tax Map 15-3-8	American Premier Underwriters, Inc., formerly, The Penn Central Corporation	TriEnergy Holdings, LLC	Not less than 1/8	709/67
	American Premier Underwriters, Inc., formerly known as The Penn Central Corporation	TriEnergy Holdings, LLC	Not less than 1/8	731/36
	TriEnergy Holdings, LLC and TriEnergy, Inc.	Chevron U.S.A. Inc.	N/A	28/356
	Chevron U.S.A. Inc.	Statoil USA Onshore Properties Inc.	N/A	30/494
	Chevron U.S.A. Inc.	Chesapeake Appalachia, L.L.C.	N/A	30/532

(Please see attached for continued Leasehold chains)

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

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Office of Oil and Gas
SEP 13 2017

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

Received

MAY 18 2017

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, 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: Noble Energy, Inc.
By: [Signature]
Its: [Signature]

51-01939 MW

SHL 27 - EHS
LEASEHOLD CHAIN

ITEM NUMBER	LEASE NAME OR NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	BOOK/PAGE
1 15-3-8 (continued)	Q086779000 (continued)	Chesapeake Appalachia, L.L.C. and Statoil USA Onshore Properties Inc.	Noble Energy, Inc. and CNX Gas Company, LLC	N/A	32/526
		Bounty Minerals, LLC	Noble Energy, Inc. and CNX Gas Company, LLC	not less than 1/8	879/249
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	37/169
2 15-3-5	Q086779000 (continued)	American Premier Underwriters, Inc., formerly, The Penn Central Corporation	TriEnergy Holdings, LLC	not less than 1/8	709/67
		American Premier Underwriters, Inc., formerly known as The Penn Central Corporation	TriEnergy Holdings, LLC	not less than 1/8	731/36
		TriEnergy Holdings, LLC and TriEnergy, Inc.	Chevron U.S.A. Inc.	N/A	28/356
		Chevron U.S.A., Inc.	Statoil USA Onshore Properties Inc.	N/A	30/494
		Chevron U.S.A., Inc.	Chesapeake Appalachia, L.L.C.	N/A	30/532
		Chesapeake Appalachia, L.L.C. and Statoil USA Onshore Properties Inc.	Noble Energy, Inc. and CNX Gas Company, LLC	N/A	32/526
3 15-3-9	3027757	Bounty Minerals, LLC	Noble Energy, Inc. and CNX Gas Company, LLC	not less than 1/8	879/249
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	37/169
		W. Frank Wineman, as guardian for Lonnie J. Wineman and Kathie B. Wineman, his wife, both infants, and W. Frank Wineman and Louise M. Wineman, his wife, and Wesley C. Fisher and Mary L. Fisher, his wife	Columbia Gas Transmission Corporation, Successor to The Manufacturers Light and Heat Company	not less than 1/8	417/498

Office of Oil and Gas
Environmental Protection

MAY 8 2017

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WV Department of
Environmental Protection

SEP 13 2017

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Office of Oil and Gas

**SHL 27 - EHS
LEASEHOLD CHAIN**

ITEM NUMBER	LEASE NAME OR NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	BOOK/PAGE
3 15-3-9 (continued)	3027757 (continued)	Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NiSource Energy Ventures, LLC	N/A	21/428
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	697/295
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		Columbia Energy Ventures, LLC	CNX Gas Company LLC and Noble Energy, Inc.	N/A	37/129
		CNX Gas Company LLC	Noble Energy, Inc.	N/A	37/169
4 15-3-9.1	3027757	W. Frank Wineman, as guardian for Lonnie J. Wineman and Kathie B. Wineman, his wife, both infants, and W. Frank Wineman and Louise M. Wineman, his wife, and Wesley C. Fisher and Mary L. Fisher, his wife	Columbia Gas Transmission Corporation, Successor to The Manufacturers Light and Heat Company	not less than 1/8	417/498
		Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NiSource Energy Ventures, LLC	N/A	21/428
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	693/414
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		Columbia Energy Ventures, LLC	CNX Gas Company LLC and Noble Energy, Inc.	N/A	37/129
5 15-3-10.1	3028062	H. L. Daugherty and Carrie Daugherty, his wife	The Manufacturers Light and Heat Company	not less than 1/8	375/401
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	N/A	422/204

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LEASEHOLD CHAIN**

ITEM NUMBER	LEASE NAME OR NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	BOOK/PAGE
5 15-3-10.1 (continued)	3028062 (continued)	Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NIsource Energy Ventures, LLC	N/A	21/428
		NIsource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136 693/414
		NIsource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	697/295
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		Wheeling Creek Watershed and Flood Protection Commission	Columbia Energy Ventures, LLC f/k/a NIsource Energy Ventures, Columbia Gas Transmission, CNX Gas Company LLC and Noble Energy, Inc.	not less than 1/8	862/191
		Columbia Energy Ventures, LLC	CNX Gas Company LLC and Noble Energy, Inc.	N/A	37/129
		CNX Gas Company LLC	Noble Energy, Inc.	N/A	37/169
6 15-3-10	3028062	H. L. Daugherty and Carrie Daugherty, his wife	The Manufacturers Light and Heat Company	not less than 1/8	375/401
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	N/A	422/204
		Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NIsource Energy Ventures, LLC	N/A	21/428
		NIsource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136 693/414
		NIsource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	697/295
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		Donald R. Toland and Susan Toland, his wife, and Carrie M. Toland, a widow	NIsource Energy Ventures, Columbia Gas Transmission, CNX Gas Company LLC and Noble, Inc. [sic]	not less than 1/8	833/54

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ITEM NUMBER	LEASE NAME OR NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	BOOK/PAGE
6 15-3-10 (continued)	3028062 (continued)	Columbia Energy Ventures, LLC	CNX Gas Company LLC and Noble Energy, Inc.	N/A	37/129
		CNX Gas Company LLC	Noble Energy, Inc.	N/A	37/169
7 15-6-28	3023816	Ota E. Elliott, widow	The Manufacturers Light and Heat Company	not less than 1/8	326/339
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	N/A	422/204
		Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NiSource Energy Ventures, LLC	N/A	21/428
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	693/414
		CNX Gas Company, LLC	CNX Gas Company, LLC	N/A	697/295
		Robert B. Elliott	Noble Energy, Inc.	N/A	26/225
		Mable L. Riggle and Nicholas R. Riggle	NiSource Energy Ventures and Columbia Gas Transmission	not less than 1/8	773/117
		CNX Gas Company, LLC	NiSource Energy Ventures and Columbia Gas Transmission	not less than 1/8	773/166
8 15-6-30	3023207	Lloyd Bush and Charlotte Bush, his wife	Noble Energy, Inc.	N/A	37/169
		The Manufacturers Light and Heat Company	The Manufacturers Light and Heat Company	not less than 1/8	395/582
		Columbia Gas Transmission Corporation	Columbia Gas Transmission Corporation	N/A	422/204
		Columbia Gas Transmission, LLC	Columbia Gas Transmission, LLC	N/A	683/459
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	NiSource Energy Ventures, LLC	N/A	21/428
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136
		NiSource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	693/414
		Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	697/295

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ITEM NUMBER	LEASE NAME OR NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	BOOK/PAGE
8 15-6-30 (continued)	3023207 (continued)	CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		Kenneth R. Bush, Jeri Lynn Bush and Shawn R. Bush	NISource Energy Ventures, LLC, Columbia Gas Transmission, LLC and CNX Gas Company LLC	not less than 1/8	780/606
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	37/169
9 15-6-32	3023799	Elmer F. Riggle and Alvia H. Riggle, his wife	The Manufacturers Light and Heat Company	not less than 1/8	395/604
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	N/A	422/204
		Columbia Gas Transmission Corporation	Columbia Gas Transmission, LLC	N/A	683/459
		Columbia Gas Transmission, LLC	NISource Energy Ventures, LLC	N/A	21/428
		NISource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	685/136 693/414
		NISource Energy Ventures, LLC, with the joinder of Columbia Gas Transmission, LLC	CNX Gas Company, LLC	N/A	697/295
		CNX Gas Company, LLC	Noble Energy, Inc.	N/A	26/225
		William R. Foster and Janet L. Foster, husband and wife	Columbia Energy Ventures, LLC, f/k/a NISource Energy Ventures, LLC, Columbia Gas Transmission, CNX Gas Company LLC and Noble Energy, Inc.	not less than 1/8	879/207
CNX Gas Company, LLC	Noble Energy, Inc.	N/A	37/169		

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Marshall County
Jan Pest, Clerk
Instrument 1426483
07/05/2017 @ 10:49:34 AM
DEED
Book 931 @ Page 16
Pages Recorded 27
Recording Cost \$ 70.00
Transfer Tax \$ 21918.60

MINERAL DEED

This MINERAL DEED (this "Deed") is from NOBLE ENERGY, INC., a Delaware corporation ("Grantor"), whose address is 1001 Noble Energy Way, Houston, Texas 77070, to HG ENERGY II APPALACHIA, LLC, a Delaware limited liability company ("Grantee"), whose address is 5260 Dupont Road Parkersburg, West Virginia 26101, and is dated as of the date of the earliest acknowledgement appearing below but is effective as of 12:01 a.m. (Houston, Texas Time) on January 1, 2017 (the "Effective Time").

RECITALS

WHEREAS, Grantor desires to grant and convey to Grantee, and Grantee desires to receive from Grantor, all of Grantor's right, title and interest in and to the Acquired Mineral Fee Interests (as defined hereinafter) in accordance with that certain Purchase and Sale Agreement between Grantee and Grantor dated May 1, 2017 (as the same may be amended in accordance therewith, the "Purchase Agreement").

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Purchase Agreement, the benefits to be derived by each party hereunder and under the Purchase Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor and Grantee agree as follows:

**ARTICLE I
DEFINED TERMS**

1.1 *Definitions.* Capitalized terms used herein and not otherwise defined herein or throughout the Deed shall have the meanings given such terms in the Purchase Agreement.

**ARTICLE II
GRANT OF NOBLE TRANSFERRED FEE MINERALS**

2.1 *Deed.* Subject to the terms and conditions of this Deed, Grantor does hereby GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER and DELIVER to Grantee, and Grantee hereby acquires, all of Grantor's right, title and interest in and to all the oil and gas mineral fee interests located in the Covered Areas, as described in Exhibit A (less and except for the Excluded Assets, such right, title and interest collectively, the "Acquired Mineral Fee Interests").

TO HAVE AND TO HOLD the Acquired Mineral Fee Interests unto Grantee, its successors and assigns, forever, subject, however, to all the terms and conditions of the Purchase Agreement and this Deed, including, without limitation, Article III.

2.2 *Excluded Assets and Reservation.* The Acquired Mineral Fee Interests shall not include, and Grantor hereby reserves and retains unto itself all of the following (the "Excluded Assets"):

- (a) all accounts receivable or rights to payment, refund, or indemnity accruing or attributable to any period before the Effective Time or to any Excluded Assets, including the

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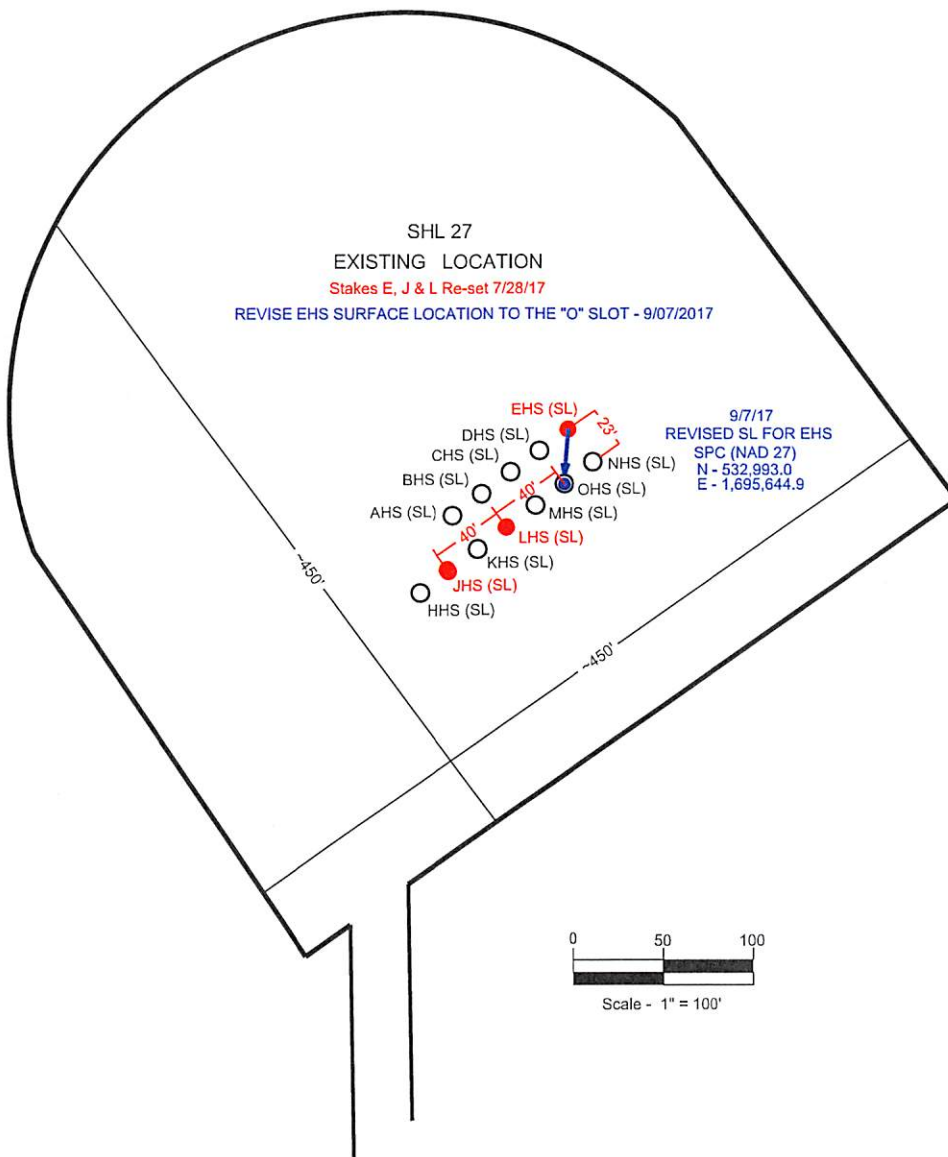
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MARSHALL COUNTY, WV

11/03/2017

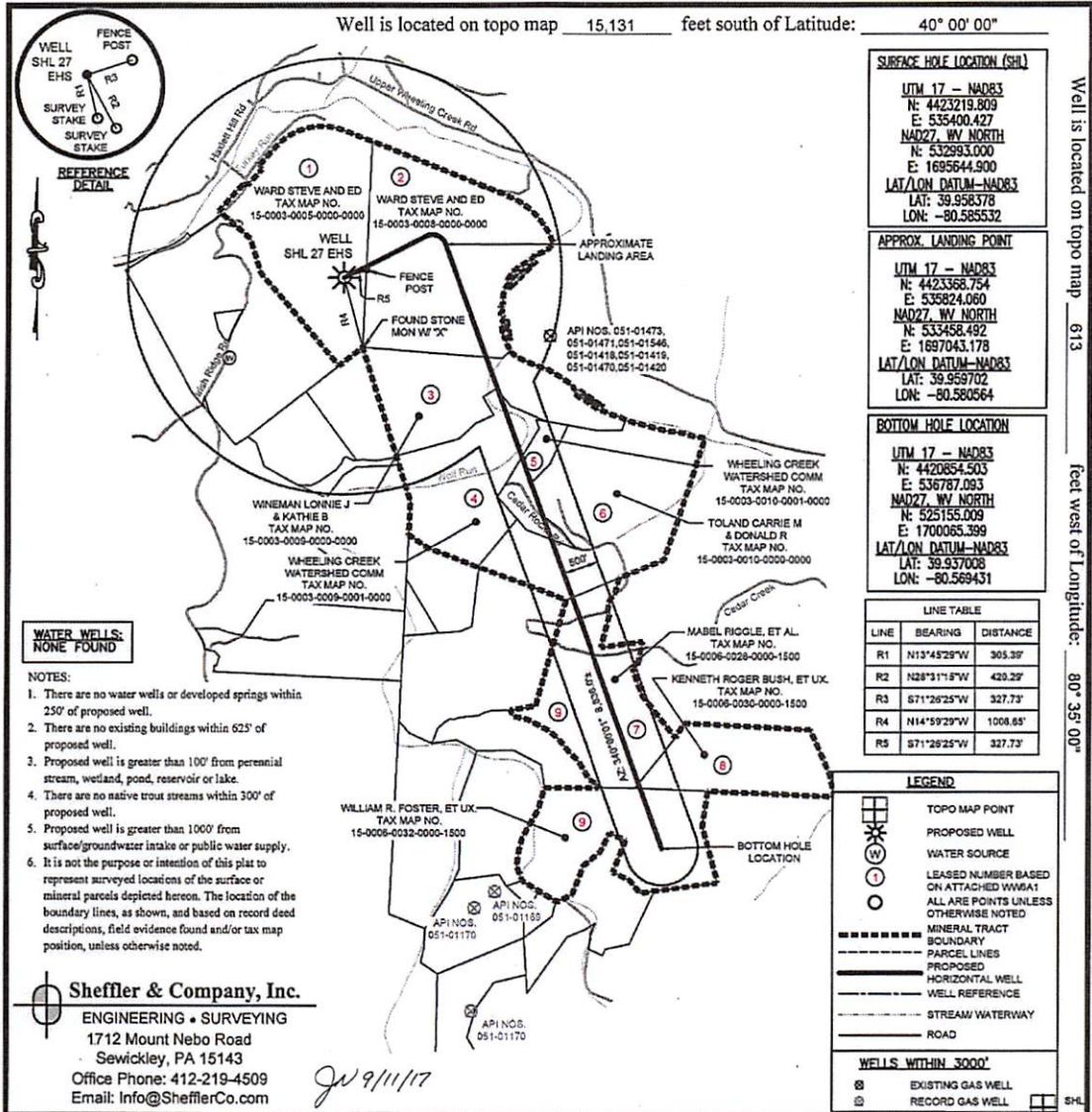
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FILE #: SHL 27 EHS
 DRAWING #: SHL 27 EHS
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: USGS MONUMENT U 124: 951.16'

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: *[Signature]*
 R.P.E.: _____ L.L.S.: P.S. NO. _____

GARY A. SHEFFLER, JR.
 REGISTERED PROFESSIONAL ENGINEER
 21452
 STATE OF WEST VIRGINIA

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

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

WATERSHED: WHEELING CREEK ELEVATION: 1,158.6'
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, W. VA
 SURFACE OWNER: STEVE WARD AND ED WARD ACREAGE: 122.47
 OIL & GAS ROYALTY OWNER: BOUNTY MINERALS, LLC ACREAGE: 122.47

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,200' ± TMD: 15,905' ±
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE WHITE
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

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Well is located on topographic map 613 feet west of Longitude: 80° 35' 00"

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www

7014 3490 0001 9122 4706

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CERTIFIED MAIL® RECEIPT	
Domestic Mail Only	
For delivery information, visit our website at www.usps.com ®.	
OFFICIAL USE	
Postage	\$ 1.61
Certified Fee	3.35
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 7.71

Postmark Here
SEP 08 2017
EPESBURG, WV 26101
SHL27EHS - R2

Sent To	Alex O'Neill - Murray Energy
Street & Apt. No., or PO Box No.	46226 National Road
City, State, ZIP+4	St Clairsville OH 43950

PS Form 3800, July 2014 See Reverse for Instructions

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