

JZ

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

API 47 - 051 - 01666 County Marshall District Webster
Quad Majorsville Pad Name WEB13 Field/Pool Name NA
Farm name Lucille Hartley Well Number WEB13 FHS
Operator (as registered with the OOG) Noble Energy, Inc.
Address 333 Technology Drive, Suite 116 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 4422750.74 Easting 538462.46
Landing Point of Curve Northing 4422522.78 Easting 538441.85
Bottom Hole Northing 4421254.67 Easting 539434.74

Elevation (ft) 1266.25 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 Oil Based

Date permit issued 8/15/2013 Date drilling commenced 11/28/2013 Date drilling ceased 4/2/2014
Date completion activities began 6/29/2014 Date completion activities ceased 10/2/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft 128', 200', 300' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None noted for Offsets Void(s) encountered (Y/N) depths None noted for Offsets
Coal depth(s) ft 703' - Pittsburgh Cavern(s) encountered (Y/N) depths N

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

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Reviewed by: _____

API 47-051 - 01666 Farm name Lucille Hartley Well number WEB13 FHS

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	36	30	40	N			
Surface	24	20	410.8	N	J-55 94#		Y
Coal							
Intermediate 1	17 1/2	13 3/8	1182.5	N	J-55 54.5#		Y
Intermediate 2	12 3/8	9 5/8	3151.5	N	K-55 36#		Y
Intermediate 3							
Production	8 3/4	5 1/2	12437.9	N	P-110 20#		Y
Tubing							
Packer type and depth set							

Comment Details _____

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	Type I	555	15.6	1.19	122	0	8
Coal							
Intermediate 1	Type I	793	15.8	1.16	205	0	8
Intermediate 2	Type I	1150	16.0	1.12	245	0	8
Intermediate 3							
Production	Class A	Lead - 560 Tail - 1346	Lead - 14.2 Tail - 14.8	Lead - 1.58 Tail - 1.41	Lead - 156 Tail 333	1857	8
Tubing							

Drillers TD (ft) 12449 Loggers TD (ft) 12424

Deepest formation penetrated Marcellus Plug back to (ft) Not a Pilot Hole

Plug back procedure Not a Pilot Hole

Kick off depth (ft) 5974

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 _____

4 Centralizers on Surface (1 every 3rd joint) 10 Centralizers on Coal String (1 every 3rd joint) 58 Centralizers on Intermediate 1 (1 every 3rd joint)
188 Centralizers on Production (1 every 3rd to Curve, then 1 every joint to TD)

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

Perforation Record

API: 47-051-01666

Farm name
Hartley, Lucille)

Well Name: WEB-13-F-HS

Stage No.	Stim Date	Top Perf	Bottom Perf	# of Perfs	Formation
Toe Sleeve	6/13/2014	12,307	12,311		
1	6/29/2014	12,032	12,284	60	Marcellus
2	7/1/2014	11,730	11,984	50	Marcellus
2 Reperf	7/1/2014	11,761	11,952	48	Marcellus
3	7/2/2014	11,430	11,684	50	Marcellus
4	7/2/2014	11,130	11,384	50	Marcellus
5	7/3/2014	10,830	11,084	50	Marcellus
6	7/4/2014	10,530	10,784	50	Marcellus
6 Reperf	7/4/2014	10,541	10,597	48	Marcellus
7	7/13/2014	10,230	10,484	50	Marcellus
8	7/13/2014	9,930	10,184	50	Marcellus
8 Reperf	7/23/2014	9,961	10,152	48	Marcellus
9	7/24/2014	9,630	9,884	50	Marcellus
9 Reperf	7/24/2014	9,620	9,663	24	Marcellus
9B.2	7/25/2014	9,620	9,663	-	Marcellus
9C	7/25/2014	9,610	9,626	24	Marcellus
10	7/28/2014	9,330	9,532	50	Marcellus
11	7/29/2014	9,030	9,284	50	Marcellus
12	7/30/2014	8,730	8,985	50	Marcellus
12B	7/31/2014	8,726	8,794	50	Marcellus
13	7/31/2014	8,430	8,684	50	Marcellus
14	8/1/2014	8,130	8,384	50	Marcellus
15	8/2/2014	7,830	8,084	50	Marcellus
16	8/3/2014	7,530	7,784	50	Marcellus
17	8/4/2014	7,230	7,484	50	Marcellus
17B	8/5/2014	7,225	7,298	50	Marcellus
18	8/7/2014	6,920	7,094	50	Marcellus

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STIMULATION INFORMATION PER STAGE

API: 47-051-01666

Farm name
Hartley, Lucille

Well Name: WEB-13-F-HS

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N ² / other (units)
1	6/29/2014	89.8	7,392	-	4,708	603,313	11,847.00	
2	7/1/2014	66.9	8,669	6,809	-	3,087	3,561.00	
2 Reperf	7/1/2014	81.1	7,343	-	4,605	600,088	10,992.57	
3	7/2/2014	88.2	7,615	5,961	4,637	602,910	11,449.57	
4	7/2/2014	89.3	7,611	6,515	7,804	603,312	10,910.00	
5	7/3/2014	88.8	7,849	5,500	4,550	600,190	10,993.57	
6	7/4/2014	68.9	7,675	6,487	7,684	351,621	10,164.00	
6 Reperf	7/4/2014	78.6	7,408	-	5,800	115,894	4,188.86	
7	7/13/2014	89.7	6,906	5,820	4,654	606,587	12,753.86	
8	7/13/2014	76.1	7,876	6,365	-	133,416	4,988.57	
8 Reperf	7/23/2014	85.4	7,002	5,290	4,496	504,920	16,079.43	
9	7/24/2014	27.3	8,617	6,812	4,848	4,834	4,295.14	
9 Reperf	7/24/2014	51	8,500	-	4,797	8,432	2,989.57	
9B.2	7/25/2014	38.9	8,803	-	4,752	18,763	6,028.57	
9C	7/25/2014	53.5	7,529	-	4,557	569,072	17,952.57	
10	7/28/2014	88.1	7,104	5,970	4,726	602,092	12,320.57	
11	7/29/2014	88.5	6,841	6,500	4,857	603,184	12,561.57	
12	7/30/2014	82.9	7,538	6,991	4,337	373,875	15,326.14	
12B	7/31/2014	83.1	7,431	-	4,615	261,140	7,392.57	
13	7/31/2014	83.4	7,299	6,103	4,767	601,600	15,982.57	
14	8/1/2014	86.8	7,172	6,204	4,727	510,028	12,596.57	
15	8/2/2014	69.7	6,311	6,557	4,362	600,243	11,280.57	
16	8/3/2014	70.5	6,292	6,439	4,606	572,602	10,070.57	
17	8/4/2014	53.4	6,519	7,033	6,313	286,221	7,130.57	
17B	8/5/2014	67.2	6,750	-	4,321	343,904	10,379.14	
18	8/7/2014	69.8	5,949	8,811	3,976	603,708	12,009.57	

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6726</u>	<u>TVD</u>	<u>12449</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

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

OPEN FLOW Gas 4454 mcfpd Oil 33 bpd NGL 250 bpd Water 816 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
	PLEASE SEE ATTACHED FORMATION SHEET				

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Please insert additional pages as applicable.

Drilling Contractor NOMAC
Address 171 Locust Avenue Ext City Mt. Morris State PA Zip 15349

Logging Company Baker Hughes
Address 400 Technology Drive #120 City Canonsburg State PA Zip 15317

Cementing Company Schlumberger
Address 4600 J Barry Court, Suite 200 City Canonsburg State PA Zip 15317

Stimulating Company FTS International
Address 6000 Town Center Boulevard, Suite 120 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Regina A. Logue Telephone 724-820-3559
Signature Regina A. Logue Title Regulatory Analyst Date 12/16/14

WEB 13 FHS

47-051-01666

Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Shale	0	729	0	729	
Pittsburgh Coal	729	739	729	739	
Shale and Sandstone	739	1355	739	1355	
Gas Sand	1355	1418	1355	1418	
Shale	1418	1490	1418	1490	
1st Salt Sand	1490	1514	1490	1514	
Shale	1514	1640	1514	3181	
Maxton Sand	1640	1756	1640	3201	
Shale	1756	1786	1756	4282	
Big Lime	1786	1861	1786	4287	
Big Injun	1861	2010	1861	4960	
Price	2010	2361	2010	5068	
Murrysville	2361	2374	2361	5170	
Shale	2374	2834	2374	5824	
Fifth Sand	2834	2871	2834	6299	
Shale	2871	3181	2871	6429	
Speechley Sand	3181	3201	3181	3201	
Shale	3201	4272	3201	4282	
Warren Sand	4272	4277	4282	4287	
Shale	4277	4943	4287	4960	
Java Shale	4943	5050	4960	5068	
Pipe Creek Shale	5050	5151	5068	5170	
Angola Shale	5151	5798	5170	5824	
Rhinestreet	5798	6258	5824	6299	
Cashaqua	6258	6366	6299	6429	
Middlesex	6366	6397	6429	6471	
West River	6397	6468	6471	6584	
Burkett	6468	6487	6584	6620	
Tully Limestone	6487	6517	6620	6686	
Hamilton	6517	6634	6686	7145	Gas
Marcellus	6634	6685	7145	not encountered	
Onondaga	6685	6693	not encountered	not encountered	
Huntersville	6693		not encountered	not encountered	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/29/2014
Job End Date:	8/7/2014
State:	West Virginia
County:	Marshall
API Number:	47-051-01666-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	WEB - 13F
Longitude:	-80.54991400
Latitude:	39.95394200
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,726
Total Base Water Volume (gal):	11,166,960
Total Base Non Water Volume:	0

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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	Operator	Carrier	Water	7732-18-5	100.00000	88.74953	
40/70 White	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	8.00979	
100 Mesh Sand	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	2.17239	
Hydrochloric Acid (HCl)	FTSI	Acid	Water	7732-18-5	92.50000	0.82268	
			Hydrogen Chloride	7647-01-0	7.50000	0.06670	
FRW-600	FTSI	Friction Reducer	Acrylamide Polymer	Trade Secret	75.00000	0.05694	
			Hydrotreated light distillate	64742-47-8	20.00000	0.01518	
			Ammonium acetate	631-61-8	5.00000	0.00380	
CS-500 SI	FTSI	Scale inhibitor	Water	7732-18-5	55.00000	0.02680	
			Acrylic Polymer	Proprietary	24.00000	0.01170	
			Ethylene glycol	107-21-1	10.00000	0.00487	
			Sodium chloride	7647-14-5	6.00000	0.00292	
			Sodium Polyacrylate	9003-04-7	5.00000	0.00244	

CI-3240	FTSI	Biocide					
			Water	7732-18-5	53.00000	0.02090	
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00947	
			Sodium Hydroxide	1310-73-2	23.00000	0.00907	
HVG-1	FTSI	Water Gelling Agent					
			Guar Gum	9000-30-0	35.00000	0.00334	
			Petroleum Distillate	64742-47-8	30.00000	0.00286	
			Raffinates (Petroleum), Sorption Process	64741-85-1	25.00000	0.00238	
			Clay	1302-78-9	3.00000	0.00029	
			Surfactant	Proprietary	2.00000	0.00019	
			Clay	14808-60-7	2.00000	0.00019	
			Surfactant	9043-30-5	1.00000	0.00010	
			Surfactant	24938-91-8	1.00000	0.00010	
			Surfactant	154518-36-2	1.00000	0.00010	
FE-100L	FTSI	Iron control					
			Citric acid	77-92-9	55.00000	0.00148	
			Water	7732-18-5	45.00000	0.00121	
CI-150	FTSI	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	24.70000	0.00037	
			Organic amine resin salt	Proprietary	24.00000	0.00036	
			Ethylene Glycol	107-21-1	20.00000	0.00030	
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00015	
			Quaternary ammonium compound	Proprietary	5.00000	0.00008	
			Aromatic aldehyde	Proprietary	5.00000	0.00008	
			Water	7732-18-5	5.00000	0.00008	
			Dimethylformamide	68-12-2	5.00000	0.00008	
			Diethylene glycol	111-46-6	1.00000	0.00002	
			Aliphatic alcohol	Proprietary	0.10000	0.00000	
			Fatty Acid Salt	Proprietary	0.10000	0.00000	
			Fatty Acid	Proprietary	0.10000	0.00000	
NE-100	FTSI	Non-emulsifier					
			Water	7732-18-5	71.50000	0.00054	
			2-Butoxyethanol	111-76-2	10.00000	0.00008	
			2-Propanol	67-63-0	10.00000	0.00008	
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00004	
			Unsulphonated Matter	Proprietary	1.00000	0.00001	
			Sulfur Dioxide	7446-09-5	1.00000	0.00001	
			Benzene, C10-16 Alkyl Derivatives	68648-87-3	1.00000	0.00001	
			Sulfuric Acid	7664-93-9	0.50000	0.00000	
APB-1	FTSI	Gel breaker					

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CHEMICAL
 ANALYSIS
 REPORT
 12/22/14

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	Ammonium Persulfate	7727-54-0	100.00000	0.00032
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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.

* 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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Well is located on topo map 1,630' feet south of Latitude: 39° 57' 30"

Well is located on topo map 2,257' feet west of Longitude: 80° 32' 30"

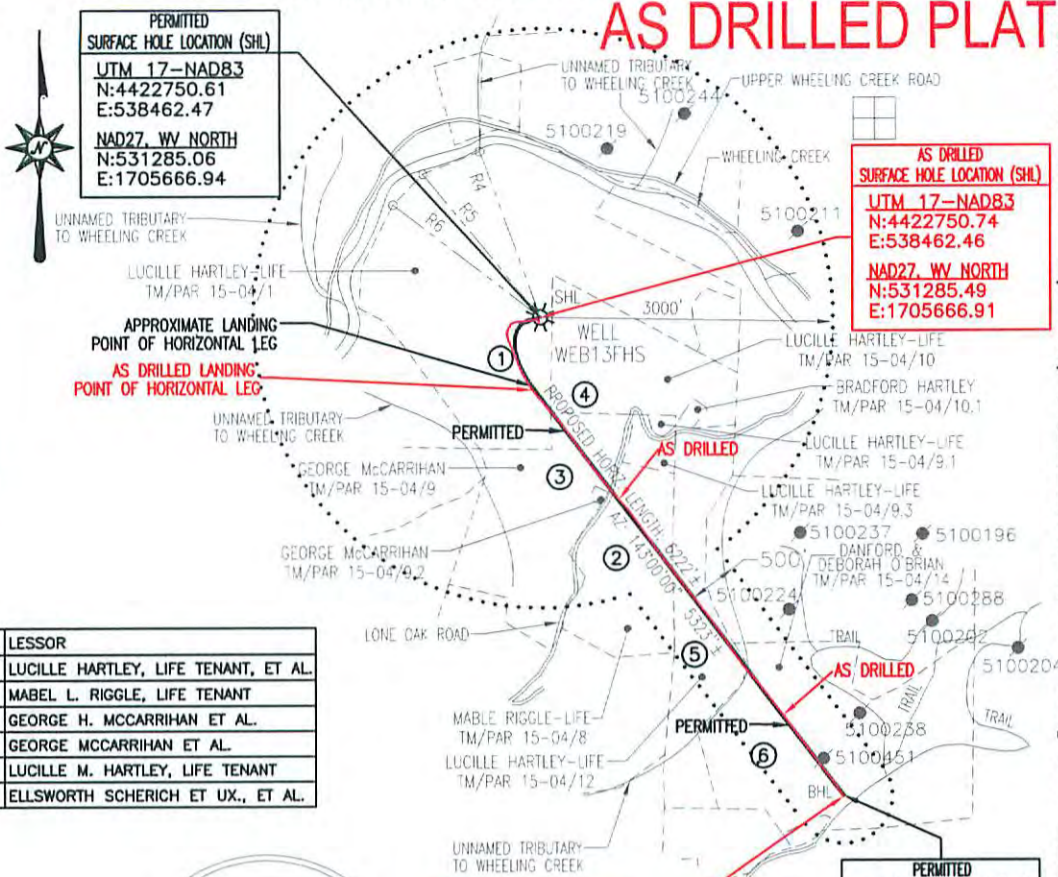
AS DRILLED PLAT

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- LEASE NUMBER
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- AS DRILLED

WELLS WITHIN 3000'

- EXISTING WELLS
- PLUGGED WELLS



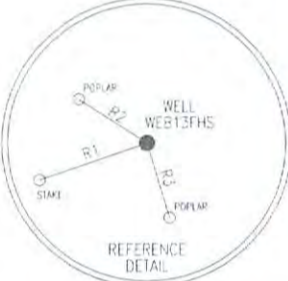
PERMITTED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4422750.61
 E:538462.47
 NAD27, WV NORTH
 N:531285.06
 E:1705666.94

AS DRILLED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4422750.74
 E:538462.46
 NAD27, WV NORTH
 N:531285.49
 E:1705666.91

PARCEL	LESSOR
1	LUCILLE HARTLEY, LIFE TENANT, ET AL.
2	MABEL L. RIGGLE, LIFE TENANT
3	GEORGE H. MCCARRIHAN ET AL.
4	GEORGE MCCARRIHAN ET AL.
5	LUCILLE M. HARTLEY, LIFE TENANT
6	ELLSWORTH SCHERICH ET UX., ET AL.

PERMITTED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4422535.92
 E:538438.08
 NAD27, WV NORTH
 N:530581.89
 E:1705575.14

AS DRILLED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4422522.78
 E:538441.85
 NAD27, WV NORTH
 N:530538.56
 E:1705586.80



LINE	BEARING	DISTANCE
R1	S 71°08'00" W	244.45'
R2	N 56°50'58" W	174.91'
R3	S 16°28'23" E	169.33'
R4	N 20°54'37" W	1868.79'
R5	N 39°46'58" W	1966.32'
R6	N 52°32'08" W	1924.38'

AS DRILLED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4421254.67
 E:539434.74
 NAD27, WV NORTH
 N:526322.66
 E:1708775.30

PERMITTED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4421257.21
 E:539435.66
 NAD27, WV NORTH
 N:526330.94
 E:1708778.46

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

Blue Mountain Inc.
 10125 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-6486

FILE #: WEB13FHS-AS DRILLED
 DRAWING #: WEB13FHS-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 W. Six*
 R.P.E.: _____ L.L.S.: P.S. No. 2000

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP

OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304

DATE: DECEMBER 8, 2014
 OPERATOR'S WELL #: WEB13FHS-AS DRILLED
 API WELL #: 47 51 01666
 STATE COUNTY PERMIT

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

WATERSHED: WHEELING CREEK ELEVATION: 1266.25'
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV-PA 7.5'
 SURFACE OWNER: LUCILLE HARTLEY-LIFE (BRADFORD W. HARTLEY) ACREAGE: 153.408±
 OIL & GAS ROYALTY OWNER: LUCILLE HARTLEY, LIFE TENANT, ET AL. ACREAGE: 432.193±

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: 6,668'± TMD: 12,462'±
 WELL OPERATOR NOBLE ENERGY, INC. DESIGNATED AGENT STEVEN M. GREEN
 Address 333 TECHNOLOGY DRIVE, SUITE 116 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590
 City CANONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301