

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

API 47-095-02112 County Tyler District Centerville
Quad Shirley Pad Name SHR 1 Field/Pool Name _____
Farm name Noble Energy, Inc Well Number SHR 1DHS
Operator (as registered with the OOG) Noble Energy, Inc
Address 333 Technology Drive Suite 110 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 4362831.97 Easting 513259.33
Landing Point of Curve Northing 4362739.61 Easting 513697.04
Bottom Hole Northing 4360184.08 Easting 514675.78

Elevation (ft) 1013.30' 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 7/25/2013 Date drilling commenced 9/15/2013 Date drilling ceased 1/13/2014
Date completion activities began 5/5/2014 Date completion activities ceased 6/25/2014
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 321', 351', 599' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1501' Void(s) encountered (Y/N) depths N
Coal depth(s) ft _____ Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

RECEIVED
Office of Oil and Gas

Reviewed by: _____

SEP 15 2014

API 47-095-02112 Farm name Noble Energy, Inc Well number SHR 1DHS

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24	20	120	N	J-55 133#		
Surface	17-1/2	13-3/8	718	N	J-55 54.5#		Y
Coal							
Intermediate 1	12-3/8	9-5/8	2399	N	J-55 36#		Y
Intermediate 2							
Intermediate 3							
Production	8-3/4	5-1/2	15973	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	Class A	608	15.6	1.19	128	0	8
Coal							
Intermediate 1	Class A	930	15.6	1.19	197	0	8
Intermediate 2							
Intermediate 3							
Production	Class A	2684	14.8	1.41	697	0	8
Tubing							

Drillers TD (ft) 15980 Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 6200

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: 6 Centralizers, On every 3 joints of casing; Intermediate: 38 Centralizers, On every 3 joints of casing. Production: 242 Centralizers, on every 3rd joint of casing from Surface to Top of Curve then 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: 47-095-02112

Farm name: Noble Energy, Inc

Well Name: SHR 1D-HS

Stage No.	Perf Date	Top Perf	Bottom Perf	# of Perfs	Formation
Toe Sleeve	3/26/2014	15839	15841	0	Marcellus
1	5/4/2014	15,567	15,819	48	Marcellus
2	5/5/2014	15,256	15,506	40	Marcellus
3	5/5/2014	14,956	15,206	40	Marcellus
4	5/6/2014	14,656	14,906	40	Marcellus
5	5/10/2014	14,356	14,606	40	Marcellus
6	5/10/2014	14,056	14,306	40	Marcellus
7	5/11/2014	13,756	14,006	40	Marcellus
8	5/11/2014	13,456	13,706	40	Marcellus
8 Reperf	5/12/2014	13,442	13,505	40	Marcellus
9	5/12/2014	13,156	13,406	40	Marcellus
10	5/13/2014	12,856	13,106	40	Marcellus
11	5/13/2014	12,556	12,806	40	Marcellus
12	5/13/2014	12,256	12,506	40	Marcellus
13	5/14/2014	11,956	12,206	40	Marcellus
14	5/15/2014	11,656	11,906	40	Marcellus
15	5/15/2014	11,356	11,606	40	Marcellus
16	5/16/2014	11,056	11,306	40	Marcellus
17	5/17/2014	10,756	11,006	40	Marcellus
18	5/17/2014	10,456	10,706	40	Marcellus
19	5/17/2014	10,156	10,406	40	Marcellus
20	5/18/2014	9,856	10,106	40	Marcellus
21A	5/19/2014	9,556	9,806	40	Marcellus
21 Reperf	5/19/2014	9,546	9,567	16	Marcellus
21C	5/20/2014	9,519	9,560	32	Marcellus
22	5/30/2014	9,256	9,506	40	Marcellus
23	5/30/2014	8,956	9,206	40	Marcellus
24	5/31/2014	8,656	8,906	40	Marcellus
25	5/31/2014	8,356	8,606	40	Marcellus
26	6/1/2014	8,056	8,306	40	Marcellus
27	6/1/2014	7,756	8,006	40	Marcellus
28	6/2/2014	7,456	7,706	40	Marcellus
28B	6/2/2014	7,446	7,489	24	Marcellus
29	6/2/2014	7,156	7,406	40	Marcellus
30	6/2/2014	6,856	7,106	40	Marcellus

API 47- 095 - 02112 Farm name Noble Energy, Inc Well number SHR 1DHS

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6546.5</u> TVD	<u>15980'</u> MD

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 _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ 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	
	0		0		
		Please See Attached			

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Rig #542
 Address 10350 Richmond Ave City Houston State TX Zip 77042

Logging Company Diversified Well Logging
 Address 440 Pennsylvania 519 City Eighty Four State PA Zip 15330

Cementing Company Schlumberger
 Address 4600 J Barry Ct., 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 Logue Telephone 724-820-3559
 Signature Regina Logue Title Regulatory Analyst Date 9/11/14

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

SHR 1D
47-095-02112

Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Shale	0	1205	0	1205	
Shale and Sandstone	1205	1928	1205	1928	
Big Lime	1928	2056	1928	2056	
Big Injun	2056	2163	2056	2163	
Price	2163	2314	2163	3484	
Weir	2314	2418	2314	2418	
Shale	2418	2505	2418	2505	
Berea	2505	2513	2505	2513	
Shale	2513	2694	2513	2694	
Sandstone	2694	2796	2694	2796	
Shale	2796	2932	2796	2933	
Sandstone	2932	2950	2933	2951	
Shale	2950	3424	2951	3436	
Warren	3424	3470	3436	3484	
Shale and Sandstone	3470	3822	3484	3860	
Lower Huron	3822	4580	3860	4670	
Sandstone	4580	4618	4670	4711	
Shale	4618	4812	4711	4919	
Sandstone	4812	4868	4919	4979	
Shale	4868	4992	4979	5112	
Benson	4992	5036	5112	5159	
Shale	5036	5236	5159	5373	
Alexander	5236	5294	5373	5435	
Shale	5294	6235	5435	6445	
Cashaqua	6235	6346	6445	6586	
Middlesex	6346	6380	6586	6636	
West River	6380	6448	6636	6754	
Burkett	6448	6482	6754	6830	
Tully	6482	6485	6830	6837	
Hamilton	6485	6502	6837	6882	
Marcellus	6502	6566	6882	not encountered	Gas
Onondaga	6566	6573	not encountered	not encountered	
Huntersville	6573	not encountered	not encountered	not encountered	

10/03/2014

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/5/2014
Job End Date:	6/3/2014
State:	West Virginia
County:	Tyler
API Number:	47-095-02112-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	SHR 1D
Longitude:	-80.84614400
Latitude:	39.41482500
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,546
Total Base Water Volume (gal):	14,346,873
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	88.08815	
40/70 White	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	8.69565	
100 Mesh Sand	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	2.25717	
Hydrochloric Acid (HCl)	FTSI	Acid	Water	7732-18-5	92.50000	0.73069	
			Hydrogen Chloride	7647-01-0	7.50000	0.05925	
FRW-600	FTSI	Friction Reducer	Acrylamide Polymer	Trade Secret	75.00000	0.05541	
			Hydrotreated light distillate	54742-47-8	20.00000	0.01478	
			Ammonium acetate	531-61-8	5.00000	0.00369	
CS-500 SI	FTSI	Scale inhibitor	Water	7732-18-5	55.00000	0.02611	
			Acrylic Polymer	Proprietary	24.00000	0.01139	
			Ethylene glycol	107-21-1	10.00000	0.00475	
			Sodium chloride	7647-14-5	6.00000	0.00285	
			Sodium Polyacrylate	9003-04-7	5.00000	0.00237	

CI-3240	FTSI	Biocide				
			Water	7732-18-5	53.00000	0.02056
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00931
			Sodium Hydroxide	1310-73-2	23.00000	0.00892
HVG-1	FTSI	Water Gelling Agent				
			Guar Gum	9000-30-0	35.00000	0.00150
			Petroleum Distillate	64742-47-8	30.00000	0.00128
			Raffinates (Petroleum), Sorption Process	64741-85-1	25.00000	0.00107
			Clay	1302-78-9	3.00000	0.00013
			Clay	14808-60-7	2.00000	0.00009
			Surfactant	Proprietary	2.00000	0.00009
			Surfactant	24938-91-8	1.00000	0.00004
			Surfactant	154518-36-2	1.00000	0.00004
			Surfactant	9043-30-5	1.00000	0.00004
FE-100L	FTSI	Iron control				
			Citric acid	77-92-9	55.00000	0.00134
			Water	7732-18-5	45.00000	0.00110
CI-150	FTSI	Acid Corrosion Inhibitor				
			Isopropanol	67-63-0	24.70000	0.00034
			Organic amine resin salt	Proprietary	24.00000	0.00033
			Ethylene Glycol	107-21-1	20.00000	0.00027
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00014
			Quaternary ammonium compound	Proprietary	5.00000	0.00007
			Water	7732-18-5	5.00000	0.00007
			Aromatic aldehyde	Proprietary	5.00000	0.00007
			Dimethylformamide	68-12-2	5.00000	0.00007
			Diethylene glycol	111-46-6	1.00000	0.00001
			Aliphatic alcohol	Proprietary	0.10000	0.00000
			Fatty Acid	Proprietary	0.10000	0.00000
			Fatty Acid Salt	Proprietary	0.10000	0.00000
NE-100	FTSI	Non-emulsifier				
			Water	7732-18-5	71.50000	0.00049
			2-Butoxyethanol	111-76-2	10.00000	0.00007
			2-Propanol	67-63-0	10.00000	0.00007
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00003
			Benzene, C10-16 Alkyl Derivatives	68648-87-3	1.00000	0.00001
			Sulfur Dioxide	7446-09-5	1.00000	0.00001
			Unsulphonated Matter	Proprietary	1.00000	0.00001
			Sulfuric Acid	7664-93-9	0.50000	0.00000
APB-1	FTSI	Gel breaker				

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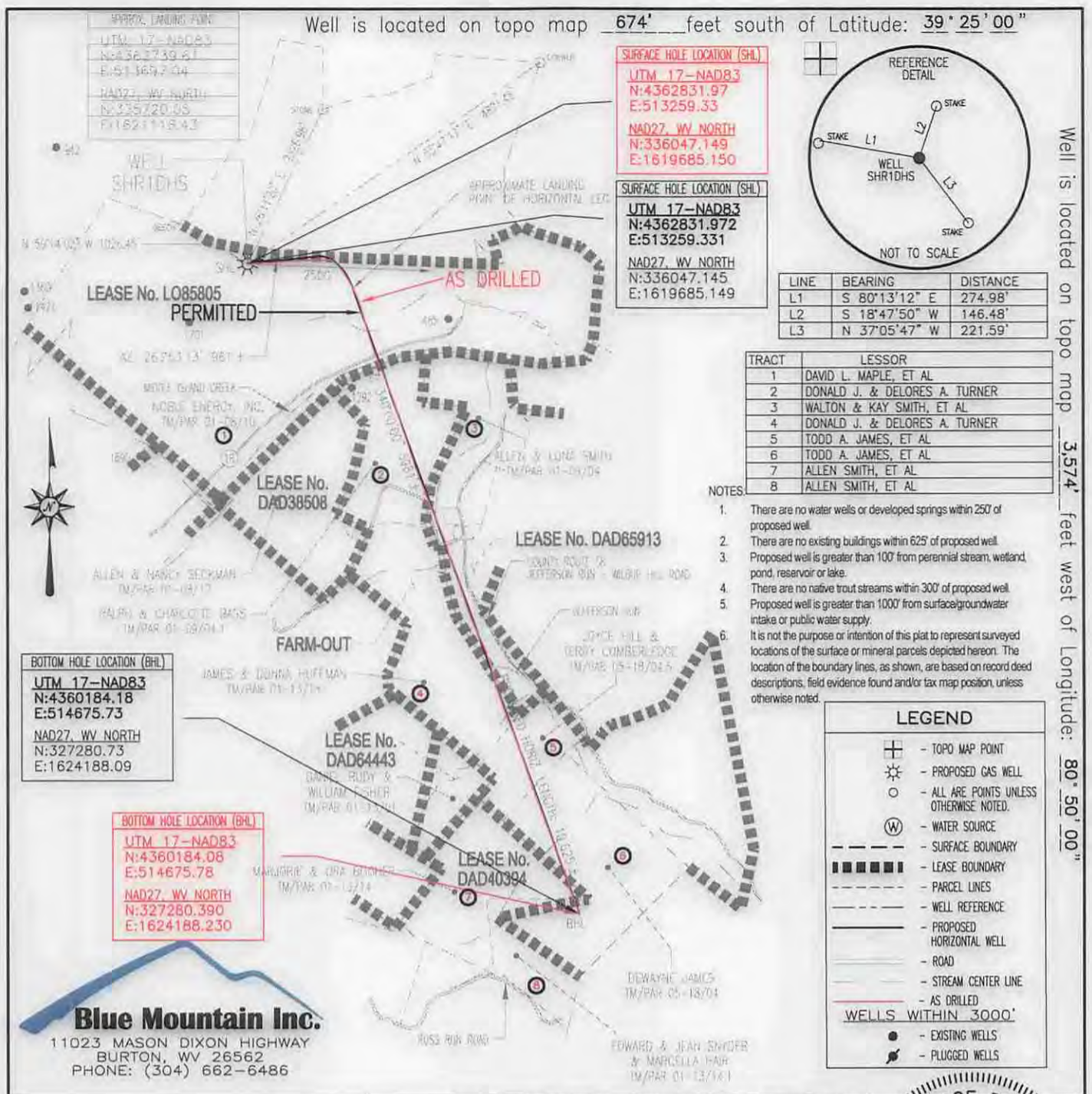
		Ammonium Persulfate	7727-54-0	100.00000	0.00021
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Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* 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)



Well is located on topo map 3,574' feet west of Longitude: 80° 50' 00"

FILE #: SHR1DHS-AS DRILLED
 DRAWING #: SHR1DHS-AS DRILLED
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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

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

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

PLACE SEAL HERE

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



DATE: AUGUST 26, 2014
 OPERATOR'S WELL #: SHR1DHS-AS DRILLED
 API WELL #: 47 95 02112H6A
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE ISLAND CREEK ELEVATION: 1016.30'

COUNTY/DISTRICT: TYLER COUNTY / CENTERVILLE DISTRICT QUADRANGLE: SHIRLEY, WV 7.5'
 SURFACE OWNER: NOBLE ENERGY, INC. ACREAGE: 580.207±
 OIL & GAS ROYALTY OWNER: SEE TABLE IN DRAWING ACREAGE: 949.321±

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: 6,621'± TMD: 16,347'±
 WELL OPERATOR NOBLE ENERGY, INC. DESIGNATED AGENT STEVEN M. GREEN
 Address 333 TECHNOLOGY DRIVE, SUITE 110 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590
 City CANONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301

10/03/2014