

TR

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

API 47-095-02109 County Tyler District Centerville
Quad Shirley Pad Name SHR 1 Field/Pool Name _____
Farm name Noble Energy, Inc Well Number SHR 1AHS
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 4362820.04 Easting 513245.51
Landing Point of Curve Northing 4362526.97 Easting 512798.35
Bottom Hole Northing 4360082.71 Easting 513742.13

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 5/23/2013 Date drilling commenced 9/7/2013 Date drilling ceased 2/6/2014
Date completion activities began 4/10/2014 Date completion activities ceased 6/17/2014
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

WV Department of
Environmental Protection

10/03/2014

API 47-095 - 02109 Farm name Noble Energy, Inc Well number SHR 1AHS

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	707	N	J-55 54.5#		Y
Coal							
Intermediate 1	12-3/8	9-5/8	2417	N	K-55 36#		Y
Intermediate 2							
Intermediate 3							
Production	8-3/4	5-1/2	15960	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 1	608	15.6	1.2	128	0	8
Coal							
Intermediate 1	Class A	930	15.6	1.19	197	0	8
Intermediate 2							
Intermediate 3							
Production	Class A	2033	14.8	1.41	510	0	8
Tubing							

Drillers TD (ft) 15972 Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 6270

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: 39 Centralizers, On every 3 joints of casing; Production: 275 Centralizers, On every 3rd joint from surface to Top of Curve, then a centralizer on 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 _____

API 47- 095 - 02109 Farm name Noble Energy, Inc Well number SHR 1AHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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)

Please See Attached

Please insert additional pages as applicable.

PERFORATION RECORD

API: 47-095-02109

Farm name: Noble Energy, Inc

Well Name: SHR 1A-HS

Stage No.	Perf Date	Top Perf	Bottom Perf	# of Perfs	Formation
Toe Sleeve	3/26/2014	15,836	15,838	NA	Marcellus
1	4/9/2014	15,564	15,826	48	Marcellus
2	4/10/2014	15,263	15,513	40	Marcellus
3	4/11/2014	14,963	15,213	40	Marcellus
4	4/12/2014	14,663	14,913	40	Marcellus
5	4/13/2014	14,363	14,613	40	Marcellus
6	4/15/2014	14,063	14,313	40	Marcellus
7	4/16/2014	13,763	14,013	40	Marcellus
8	4/17/2014	13,463	13,713	40	Marcellus
9	4/18/2014	13,163	13,413	40	Marcellus
10	4/19/2014	12,863	13,113	40	Marcellus
11	4/20/2014	12,563	12,813	40	Marcellus
12	4/21/2014	12,263	12,513	40	Marcellus
13	4/22/2014	11,963	12,213	40	Marcellus
14	4/23/2014	11,663	11,913	40	Marcellus
15	4/23/2014	11,363	11,613	40	Marcellus
16	4/24/2014	11,063	11,313	40	Marcellus
17	4/25/2014	10,763	11,013	40	Marcellus
18	4/25/2014	10,463	10,713	40	Marcellus
19A	4/26/2014	10,163	10,413	40	Marcellus
19B	4/27/2014	10,135	10,180	40	Marcellus
20	4/27/2014	9,863	10,113	40	Marcellus
21	4/27/2014	9,563	9,813	40	Marcellus
22	4/28/2014	9,263	9,513	40	Marcellus
23	4/28/2014	8,963	9,213	40	Marcellus
24	4/29/2014	8,663	8,913	40	Marcellus
25	4/29/2014	8,363	8,613	40	Marcellus
26	4/30/2014	8,063	8,313	40	Marcellus
27	4/30/2014	7,763	8,013	40	Marcellus
28	5/1/2014	7,463	7,713	40	Marcellus
29	5/1/2014	7,163	7,413	40	Marcellus

STIMULATION INFORMATION PER STAGE

API: 47-095-02109

Noble Energy
 Farm name: Inc

Well Name: SHR 1A-HS

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N ² / other
1inj test	4/10/2014					-	465	
1	4/10/2014	87.9	8,326	0	5299	491,800	11,655	
2	4/11/2014	87.9	8,790	6,537	4468	470,000	9,844	
3	4/12/2014	84.8	8,722	5,382	3501	521,819	11,504	
4	4/13/2014	90.1	8,684	5,995	4679	493,500	10,110	
5	4/15/2014	88.3	8,206	6,045	4357	499,200	9,553	
6	4/16/2014	88.7	8,638	5,660	3640	498,995	9,782	
7	4/17/2014	90.7	8,309	5,394	3548	496,056	9,906	
8	4/18/2014	88.3	8,311	5,335	4324	494,895	9,997	
9	4/19/2014	87.1	8,696	5,499	5809	495,957	10,404	
10	4/20/2014	87.2	7,923	5,528	4474	495,781	10,128	
11	4/21/2014	86.7	7,919	6,884	3551	496,026	11,526	
12	4/22/2014	90.6	8,071	6,407	4495	498,994	9,453	
13	4/22/2014	87.6	7,733	5,571	4975	493,500	9,475	
14	4/23/2014	88.9	7,638	5,798	4680	464,618	9,390	
15	4/24/2014	89.1	7,577	5,640	3963	520,816	9,301	
16	4/24/2014	88.0	7,395	5,598	3700	491,300	9,253	
17	4/25/2014	77.2	7,181	5,940	3405	492,600	8,994	
18	4/26/2014	89.2	7,292	6,361	3533	495,629	9,026	
19A	4/27/2014	64.8	8,132	6,465	5113	281,500	9,678	
19B	4/27/2014	89.6	7,949	0	4924	225,419	6,521	
20	4/27/2014	90.6	7,268	5,257	5015	490,100	9,154	
21	4/28/2014	87.6	7,624	5,678	3603	495,500	12,641	
22	4/28/2014	89.1	7,449	5,665	4906	491,500	9,586	
23	4/29/2014	89.3	7,379	5,733	5218	492,650	9,600	
24	4/29/2014	89.9	6,894	6,005	3738	495,560	9,061	
25	4/30/2014	81.3	7,380	5,468	4004	495,200	9,104	
26	4/30/2014	90.0	6,832	5,797	4577	495,000	9,268	
27	5/1/2014	81.8	7,485	6,132	4335	498,000	12,191	
28	5/1/2014	92.7	7,156	5,767	5296	493,680	9,530	
29	5/1/2014	90.1	6,779	5,789	5072	495,303	8,874	

API 47- 095 - 02109 Farm name Noble Energy, Inc Well number SHR 1AHS

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6553.7'</u> TVD	<u>15972'</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

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		

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

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

SHR 1A
47-095-02109

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	3495	
Weir	2314	2418	2314	2418	
Shale	2418	2505	2418	2505	
Berea	2505	2513	2505	2513	
Shale	2513	2694	2513	2694	
Sandstone	2694	2796	2694	2797	
Shale	2796	2932	2797	2934	
Sandstone	2932	2950	2934	2953	
Shale	2950	3424	2953	3446	
Warren	3424	3470	3446	3495	
Shale and Sandstone	3470	3822	3495	3876	
Lower Huron	3822	4580	3876	4724	
Sandstone	4580	4618	4724	4767	
Shale	4618	4812	4767	4984	
Sandstone	4812	4868	4984	5047	
Shale	4868	4992	5047	5188	
Benson	4992	5036	5188	5238	
Shale	5036	5236	5238	5464	
Alexander	5236	5294	5464	5529	
Shale	5294	6235	5529	6595	
Cashaqua	6235	6346	6595	6743	
Middlesex	6346	6380	6743	6796	
West River	6380	6448	6796	6920	
Burkett	6448	6482	6920	6995	
Tully	6482	6485	6995	7002	
Hamilton	6485	6502	7002	7047	
Marcellus	6502	6566	7047	not encountered	Gas
Onondaga	6566	6573	not encountered	not encountered	
Huntersville	6573	not encountered	not encountered	not encountered	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/10/2014
Job End Date:	5/1/2014
State:	West Virginia
County:	Tyler
API Number:	47-095-02109-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	SHR 1A
Longitude:	-80.84630400
Latitude:	39.41471800
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,553
Total Base Water Volume (gal):	12,388,444
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	87.01848	
40/70 White	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	9.62698	
100 Mesh Sand	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	2.46814	
Hydrochloric Acid (HCl)	FTSI	Acid	Water	7732-18-5	92.50000	0.68394	
			Hydrogen Chloride	7647-01-0	7.50000	0.05546	
FRW-600	FTSI	Friction Reducer	Acrylamide Polymer	Trade Secret	75.00000	0.04284	
			Hydrotreated light distillate	64742-47-8	20.00000	0.01142	
			Ammonium acetate	631-61-8	5.00000	0.00286	
CS-500 SI	FTSI	Scale inhibitor	Water	7732-18-5	55.00000	0.02594	
			Acrylic Polymer	Proprietary	24.00000	0.01132	
			Ethylene glycol	107-21-1	10.00000	0.00472	
			Sodium chloride	7647-14-5	6.00000	0.00283	
			Sodium Polyacrylate	9003-04-7	5.00000	0.00236	

CI-3240	FTSI	Biocide					
			Water	7732-18-5	53.00000	0.02028	
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00919	
			Sodium Hydroxide	1310-73-2	23.00000	0.00880	
FE-100L	FTSI	Iron control					
			Citric acid	77-92-9	55.00000	0.00129	
			Water	7732-18-5	45.00000	0.00105	
CI-150	FTSI	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	24.70000	0.00032	
			Organic amine resin salt	Proprietary	24.00000	0.00031	
			Ethylene Glycol	107-21-1	20.00000	0.00026	
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00013	
			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	
			Fatty Acid	Proprietary	0.10000	0.00000	
			Aliphatic alcohol	Proprietary	0.10000	0.00000	
			Fatty Acid Salt	Proprietary	0.10000	0.00000	
NE-100	FTSI	Non-emulsifier					
			Water	7732-18-5	71.50000	0.00047	
			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	
			Sulfur Dioxide	7446-09-5	1.00000	0.00001	
			Unsulphonated Matter	Proprietary	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	
HVG-1	FTSI	Water Gelling Agent					
			Guar Gum	9000-30-0	35.00000	0.00005	
			Petroleum Distillate	64742-47-8	30.00000	0.00004	
			Raffinates (Petroleum), Sorption Process	64741-85-1	25.00000	0.00004	
			Clay	1302-78-9	3.00000	0.00000	
			Surfactant	Proprietary	2.00000	0.00000	
			Clay	14808-60-7	2.00000	0.00000	
			Surfactant	24938-91-8	1.00000	0.00000	
			Surfactant	9043-30-5	1.00000	0.00000	
			Surfactant	154518-36-2	1.00000	0.00000	
APB-1	FTSI	Gel breaker					

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		Ammonium Persulfate	7727-54-0	100.0000g	0.0000g
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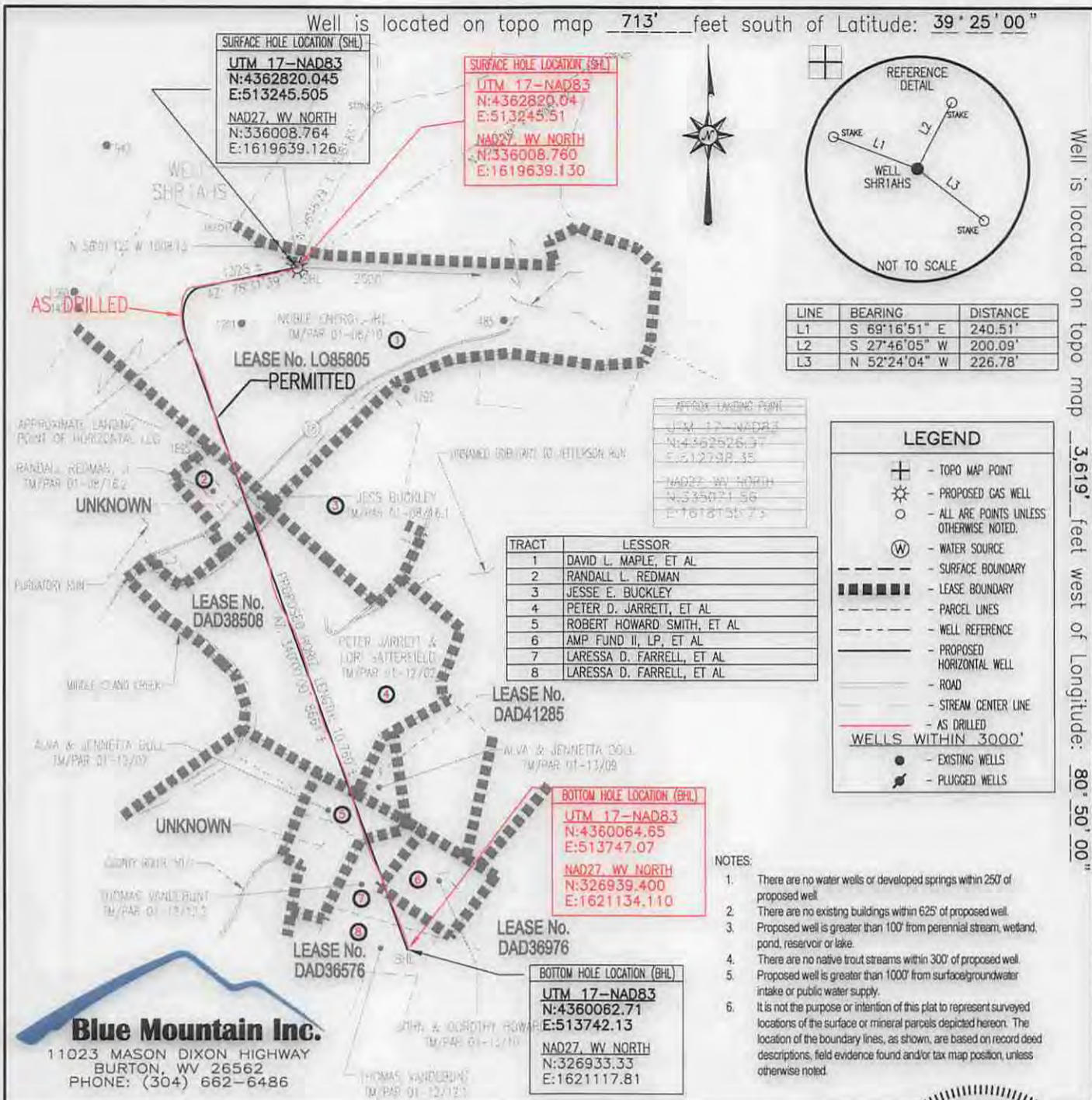
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* 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 713' feet south of Latitude: 39° 25' 00"

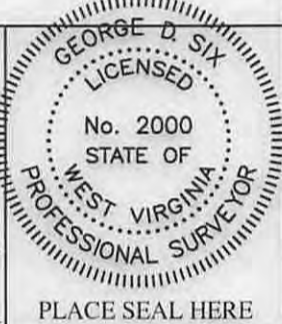


Well is located on topo map 3,619' feet west of Longitude: 80° 50' 00"

FILE #: SHR1AHS-AS DRILLED
 DRAWING #: SHR1AHS-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: *[Signature]*
 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: AUGUST 26, 2014
 OPERATOR'S WELL #: SHR1AHS-AS DRILLED
 API WELL #: 47 95 02109H6A
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE ISLAND CREEK ELEVATION: 1013.30'

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: 788.135±

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: 16,209'±

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

10/03/2014