



Oil and Gas Production Data and WR-35 Completion Reports Update



west virginia department of environmental protection

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Office of Oil and Gas

Oil and Gas Workshop
Charleston Civic Center
October 9, 2014

Production Data Reporting

- Approximately 600 companies report production
- Required annually by March 31st for previous year
- We strongly encourage electronic reporting
- Use the WR-39e form
 - READ INSTRUCTIONS
 - DO NOT CHANGE THE FORM
 - Do not use formulas, just data, do not add totals column
 - Cut and paste data if needed
 - Keep it simple
- Blank spaces can be used for zero production
- State tax department sometimes refer to these
- Only numbers in data section, no letters, negative signs, do not need decimals
- If you use formulas, cut and paste numbers only

WR-29e Form

Form WR-39e, "Report of Monthly Production", West Virginia Department of Environmental Protection, Office of Oil and Gas.
A month with no production, whether oil, gas, or NGL, you may enter 0 (zero), or leave blank. A blank space will register a 0 in the compute
Do not alter the column headings below. They are required for data processing.

Year	Operator_ID	API	Jan_Oil	Jan_Gas	Jan_NGL	Feb_Oil	Feb_Gas	Feb_NGL	Mar_Oil	Mar_Gas	Mar_NGL	Apr_Oil

WR-29e Example

Form WR-39e, "Report of Monthly Production", West Virginia Department of Environmental Protection, Office of Oil and Gas.
A month with no production, whether oil, gas, or NGL, you may entered 0 (zero), or leave blank. A blank space will register a 0 in the computer.
Do not alter the column headings below. They are required for data processing.

Year	Operator ID	API	Jan Oil	Jan Gas	Jan NGL	Feb Oil	Feb Gas	Feb NGL	Mar Oil	Mar Gas	Mar NGL	Apr Oil
2013	494507062	3302797	0	0	0	0	183	0	0	211	0	0
2013	494507062	3305592	0	179458	0	0	144934	0	0	150382	0	0
2013	494507062	3305472	0	128519	0	0	97050	0	0	98761	0	0
2013	494507062	3305473	0	83887	0	0	78475	0	0	94223	0	0
2013	494507062	3304467	0	0	0	0	184	0	0	315	0	42
2013	494507062	3305596	0	166525	0	0	136446	0	0	137794	0	0
2013	494507062	3305601	0	199303	0	0	171475	0	0	170582	0	0
2013	494507062	8509963	0	0	0	0	0	0	0	0	0	0
2013	494507062	3305617	0	0	0	0	484	0	0	299824	0	0
2013	494507062	3305618	0	0	0	0	42553	0	0	224304	0	0
2013	494507062	3305590	0	152491	0	0	68016	0	0	117437	0	0
2013	494507062	1705751	0	124	0	0	352	0	0	609	0	0
2013	494507062	3305382	0	60136	0	0	53749	0	0	58135	0	0
2013	494507062	3305327	0	51633	0	0	44077	0	0	45129	0	0
2013	494507062	1705545	0	365	0	0	330	0	0	345	0	0
2013	494507062	1703109	0	0	0	0	30	0	0	77	0	0
2013	494507062	1703139	0	0	0	0	25	0	0	5	0	0
2013	494507062	3303256	0	201	0	0	38	0	0	0	0	0
2013	494507062	3303255	0	118	0	0	111	0	0	378	0	0
2013	494507062	1701476	0	0	0	0	0	0	0	0	0	56
2013	494507062	3304564	0	286	0	0	282	0	0	0	0	0
2013	494507062	3300290	0	0	0	0	0	0	0	0	0	0
2013	494507062	8510036	0	0	0	0	0	0	0	0	0	0
2013	494507062	3305390	0	134235	0	0	43196	0	0	98664	0	0
2013	494507062	3305391	0	101673	0	0	68606	0	0	83643	0	0
2013	494507062	1704843	0	0	0	0	257	0	0	345	0	0
2013	494507062	1705322	0	0	0	0	318	0	0	365	0	0
2013	494507062	1704743	0	0	0	0	180	0	0	277	0	0

New for 2014 Data:

- Electronic Submission System (ESS)
 - (Formerly known as “E-Permitting”)
- Direct import of data by companies
- Will require login ID
- Companies that registered aboveground tanks will now have a login ID
- Your ESS security administrator can assign rights to individuals for submittal
- There will be data validation
- Data validation will require accuracy
- Details to come by January 1st.
- See WV DEP OOG web page for instruction:
- <http://www.dep.wv.gov/oil-and-gas/rr/Pages/default.aspx>



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Home

Annual Reporting Requirements

****New Updates January, 2014****

The Office of Oil and Gas has updated our procedures for reporting production data. New for the 2014 reporting of 2013 production data are the following changes listed below. Further description of the details are discussed in the [Instruction](#) link. The updated procedures are :

- A. [Requirement to report natural gas liquids \(NGL\) for horizontal "H6A" wells.](#)
- B. [New file name requirement.](#)
- C. [New email address to send production data.](#)
- D. [New email subject line requirement.](#)
- E. [Preparation for e-Permitting data system for 2014.](#)

Under WV Legislative Rule Title 35 Series 4 Section 15.1, and Title 35 Series 8 Section 11, an annual report of oil, gas, and natural gas liquids (H6A horizontal wells only) production shall be filed with the Chief of the Office of Oil and Gas on or before the succeeding March 31st.

All operators of wells in West Virginia must submit the following to the Office of Oil and Gas:

Between January 1 - March 31, for the previous calendar year, their:

1. Annual Production Report
 - Electronic Filing of a [WR-39E](#); (Zipped Excel file) ([Instructions with Example](#)) or
 - Paper Filing of a [WR-39](#)
2. Certification of Annual Inspection [WR-99](#)

Please email completed electronic [WR-39E](#) files to the Office of Oil and Gas at:

DEPOOGEP@wv.gov

General Information

Resources

Annual Production Reporting Requirements

Air Quality - Oil and Gas Related

Database and Map Information

Horizontal Drilling

Pits and Impoundments

Water Management Plans



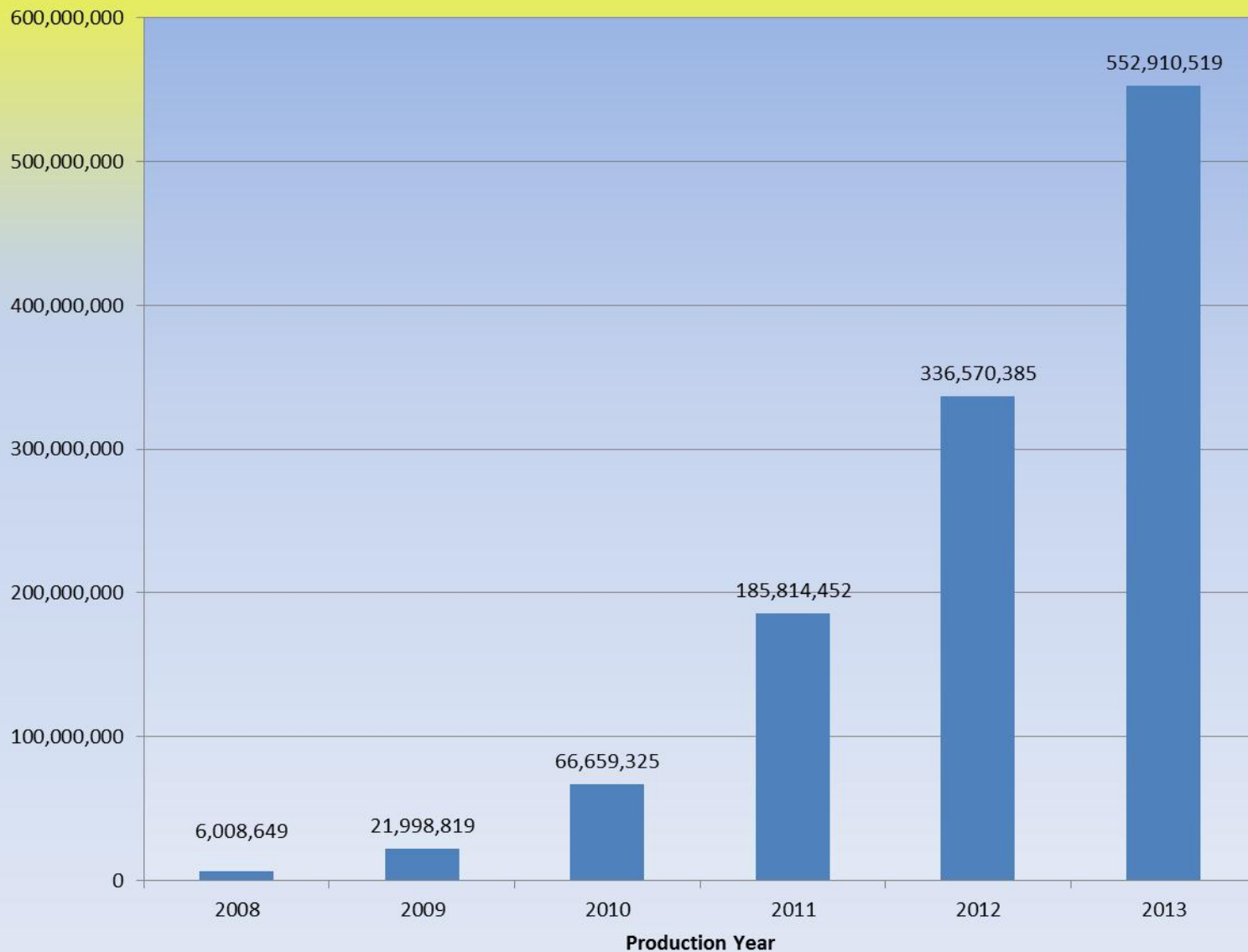
Total West Virginia Natural Gas Annual Production (MCF)





Horizontal Well Gas Annual Production (MCF)

Gas Production in MCF
(MCF = 1,000 Cubic
Feet of Gas)



Overview – Completion Reports

H6A Horizontal Wells

- H6A horizontal wells require more information. Required now for all H6A permitted wells
- Required to be submitted 90 days after completion of well
- When is “completion”? When frac plugs are drilled out
- WR-35 form- Complete it properly
- Perforation details
- Frac Details
- Geology log – SURFACE TO TD – should contain good detail of geologic formations, particularly; coal seams, major lithology types, historic oil and gas zones, lithology near your target formation, i.e. Tully Limestone.
- Directional Survey – paper copy. WV DEP is researching best computer file format for well bore description
- Frac Focus – file with the online service and a copy to WV DEP
- As-Drilled Plat – Profile View, often gotten from Service Company – Show proposed profile and as-drilled profile.

Overview – Completion Reports

H6A Horizontal Wells – con't

- As-Drilled Plat – On mylar, same as application plat, with proposed borehole well bore path, and as-drill well bore path, and legend explaining, see example.
- **MUST BE LEGIBLE.** Consider font sizes, reproductions, resizes, etc. They serve no purpose if they are not legible.

Updated Form

Fillable PDF Format

Captures More Information

Available at WVDEP OOG

Webpage:

<http://www.dep.wv.gov/oil-and-gas/GI/Forms/Pages/default.aspx>

Instructions page is also there for reference.

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

API 47-____-____ County _____ District _____
Quad _____ Pad Name _____ Field/Pool Name _____
Fam name _____ Well Number _____
Operator (as registered with the OOG) _____
Address _____ City _____ State _____ Zip _____

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

Elevation (ft) _____ 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)

Date permit issued _____ Date drilling commenced _____ Date drilling ceased _____

Date completion activities began _____ Date completion activities ceased _____

Verbal plugging (Y/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 _____ Open mine(s) (Y/N) depths _____

Saltwater depth(s) ft _____ Void(s) encountered (Y/N) depths _____

Coal depth(s) ft _____ Cavern(s) encountered (Y/N) depths _____

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

Reviewed by: _____

Example of WR-35 Completion Report

- Double click the document below to open:

WR-35
Rev. 8/23/13

PM Page of

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

API 47-051-01658 County Marshall District Sandhill
 Quad Majorsville Pad Name SHL-26 Field/Pool Name _____
 Farm name Russell Lee and Barbara Ann Bennett Well Number SHL26BHS
 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 4424832.534034 Easting 538561.10695
 Landing Point of Curve Northing 4426104.726699 Easting 539697.150976
 Bottom Hole Northing 4426969.836298 Easting 637393.251574

Elevation (ft) 1308.39 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 06/26/2013 Date drilling commenced 09/28/2013 Date drilling ceased 02/07/2014
 Date completion activities began 03/27/2014 Date completion activities ceased 6/5/2014
 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 198', 300' Open mine(s) (Y/N) depths SEP 11 2014
 Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
 Coal depth(s) ft 761' to 771' Pittsburgh Cover(s) encountered (Y/N) depths WV Department of Environmental Protection
 Is coal being mined in area (Y/N) Y

Reviewed by: _____

WR-35 Completion Report Take-A-Way

- Provide all required information.
- Tell the story of the well. Don't be afraid to use words. Describe what happened, how the well was constructed.
- Add additional sheets for ANY relevant information. If the form doesn't quite have a space for relevant well information, add an additional sheets of paper.
- Everything submitted must be legible. Do not submit information if not legible.
- Provide coordinates in NAD 83, UTM (metric)
- Proofread, Proofread, Proofread.
- Visit WVDEP OOG Webpage often to look for Updates.

- Finally, think of future generations that will need this information.

PM

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

API 47-051-01656 County Marshall District Sandhill
Quad Majorsville Pad Name SHL-26 Field/Pool Name _____
Farm name Russell Lee and Barbara Ann Bennett Well Number SHL26BHS
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 4424882.534034 Easting 538581.10995
Landing Point of Curve Northing 4425164.726599 Easting 538697.150976
Bottom Hole Northing 4426959.838266 Easting 537393.251574

Elevation (ft) 1308.39 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 06/26/2013 Date drilling commenced 09/28/2013 Date drilling ceased 02/07/2014
Date completion activities began 03/27/2014 Date completion activities ceased 6/5/2014
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 198', 300' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
Coal depth(s) ft 761' to 771' Pittsburgh Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) Y

RECEIVED
Office of Oil and Gas
SEP 11 2014
WV Department of
Environmental Protection

Reviewed by: _____

API 47- 051 - 01656 Farm name Russell Lee and Barbara Ann Bennett Well number SHL26BHS

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	K-55 94#		
Surface	24	20	415.7	N	J-55 94#		Y
Coal	17 1/2	13 3/8	1196	N	J-55 54.5#		Y
Intermediate 1	12 3/8	9 5/8	3218	N	K-55 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4	5 1/2	14672	N	P-110 20#		Y
Tubing							
Packer type and depth set							

Comment Details 2 Baskets on Surface Casing

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	490	15.6	1.19	104	0	8
Coal	Type 1	1027	15.6	1.2	223	0	8
Intermediate 1	Class A	1170	16.2	1.09	227	0	14
Intermediate 2							
Intermediate 3							
Production	Class A	2470	14.8	1.25	551	2087	12
Tubing							

Drillers TD (ft) 14,672 ft. Loggers TD (ft) 14590
 Deepest formation penetrated Marcellus Plug back to (ft) Not a Pilot Hole
 Plug back procedure not a pilot Hole

Kick off depth (ft) 7389

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 casing. 10 Centralizers on Coal casing. 38 Centralizers on Intermediate casing. 234 Centralizers on Production casing.
On the Surface, Coal, and Intermediate Strings, the centralizers are on every 3 joint of casing.
On the Production String, they are on every 3rd from Surface to Top of Curve, then every joint until 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- 051 - 01656 Farm name Russell Lee and Barbara Ann Bennett Well number SHL26BHS

PERFORATION RECORD

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

PLEASE SEE ATTACHED
PERFORATION RECORD

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
STIMULATION INFORMATION
PER STAGE SHEET

Please insert additional pages as applicable.

Perforation Record

API: 47-051-01656

Farm name:

Russell Lee and Barbara
Ann Bennett

Well Name: SHL-26B-HS

Stage No.	Stim Date	Top Perf	Bottom Perf	# of Perfs	Formation
TOE SLEEVE	3/7/2014	14585	14,587		Marcellus
1	3/18/2014	14426	14,520	48	Marcellus
2	3/27/2014	14275	14,377	40	Marcellus
3	3/28/2014	14125	14,227	40	Marcellus
4	3/28/2014	13975	14,077	40	Marcellus
5	3/29/2014	13825	13,927	40	Marcellus
6	3/30/2014	13675	13,777	40	Marcellus
7	3/30/2014	13525	13,627	40	Marcellus
8	3/31/2014	13375	13,477	40	Marcellus
9	4/1/2014	13225	13,327	40	Marcellus
10	4/1/2014	13075	13,177	40	Marcellus
11	4/1/2014	12925	13,027	40	Marcellus
12	4/1/2014	12775	12,877	40	Marcellus
13	4/2/2014	12625	12,727	40	Marcellus
14	4/2/2014	12475	12,577	40	Marcellus
15	4/3/2014	12325	12,427	40	Marcellus
16	4/3/2014	12175	12,277	40	Marcellus
17	4/4/2014	12025	12,127	40	Marcellus
18	4/4/2014	11875	11,977	40	Marcellus
19	4/7/2014	11725	11,827	40	Marcellus
20	4/8/2014	11575	11,677	40	Marcellus
21	4/8/2014	11425	11,527	40	Marcellus
22	4/9/2014	11275	11,377	40	Marcellus
23	4/9/2014	11125	11,227	40	Marcellus
24	4/9/2014	10975	11,077	40	Marcellus
24 REPERF	4/9/2014	10984	11,018	32	Marcellus
24C	4/10/2014	10825	10,927	40	Marcellus
25	4/10/2014	10675	10,777	40	Marcellus
26	4/10/2014	10525	10,627	40	Marcellus
27	4/11/2014	10375	10,477	40	Marcellus
28	4/12/2014	10225	10,327	40	Marcellus
29	4/12/2014	10075	10,177	40	Marcellus
30	4/12/2014	9925	10,027	40	Marcellus
31	4/13/2014	9775	9,877	40	Marcellus
31C	4/14/2014	9615	9,715	40	Marcellus
32	4/15/2014	9475	9,577	40	Marcellus
32C	4/16/2014	9325	9,427	40	Marcellus
33	4/16/2014	9175	9,277	60	Marcellus
34	4/16/2014	9025	9,127	40	Marcellus
34 REPERF	4/17/2014	9013	9,096	40	Marcellus
35	4/17/2014	8875	8,977	48	Marcellus

Perforation Record

API: 47-051-01656

Farm name:

Russell Lee and Barbara
Ann Bennett

Well Name: SHL-26B-HS

Stage No.	Stim Date	Top Perf	Bottom Perf	# of Perfs	Formation
36	4/18/2014	8725	8,827	48	Marcellus
37	4/18/2014	8575	8,677	48	Marcellus
38	4/18/2014	8425	8,527	48	Marcellus
39	4/19/2014	8275	8,377	48	Marcellus
40	4/19/2014	8125	8,227	48	Marcellus
41	4/20/2014	7975	8,077	48	Marcellus
42	4/20/2014	7825	7,927	48	Marcellus
43	4/21/2014	7675	7,777	48	Marcellus
44	4/21/2014	7525	7,627	48	Marcellus
45	4/22/2014	7375	7,477	48	Marcellus

STIMULATION INFORMATION PER STAGE

API: 47-051-01656

Farm name:

Russell Lee and Barbara Ann
Bennett

Well Name: SHL-26B-HS

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N ² / other
1 INJ TEST	3/18/2014	17.6	7,086		4,816	-	380.50	
1	3/27/2014	88.9	7,635	-	3,395	301,005	6,951.25	
2	3/27/2014	88.1	7,801	5,874	4,157	305,435	7,125.50	
3	3/28/2014	88.2	8,029	6,305	4,002	303,488	7,025.78	
4	3/28/2014	87.5	7,891	5,885	4,736	295,814	6,961.67	
5	3/29/2014	85.8	7,640	5,800	4,125	295,117	6,792.69	
6	3/30/2014	89.1	7,866	5,933	4,556	303,052	7,261.83	
7	3/30/2014	88.8	7,926	5,723	4,205	295,977	7,007.75	
8	3/31/2014	86.6	7,808	5,863	4,126	292,414	6,917.99	
9	3/31/2014	88.4	7,954	6,712	4,069	302,263	7,480.98	
10	3/31/2014	87.4	8,149	5,871	4,316	302,308	7,256.86	
11	4/1/2014	88.6	8,227	6,531	4,095	302,482	6,649.17	
12	4/1/2014	82.2	8,118	5,276	4,255	301,120	8,488.91	
13	4/2/2014	88.6	8,078	5,455	4,541	304,022	6,605.40	
14	4/2/2014	86.2	8,015	5,545	4,330	299,894	7,390.79	
15	4/3/2014	87.6	8,150	5,720	4,100	300,092	7,991.00	
16	4/3/2014	81.7	8,152	5,482	4,170	302,067	9,561.14	
17	4/4/2014	86.8	8,064	5,233	4,640	300,446	7,457.36	
18	4/5/2014	86.8	8,166	5,422	6,096	262,362	6,589.86	
18 Inj Test	4/7/2014	6	9,636		-		1,058.98	
19	4/7/2014	85.2	8,081	5,592	4,096	304,900	8,268.12	
20	4/8/2014	84.7	8,289	5,636	4,229	300,488	9,411.76	
21	4/8/2014	88.3	8,063	6,122	4,229	302,426	6,818.66	
22	4/9/2014	88.6	7,617	5,529	4,557	302,024	6,653.32	
23	4/9/2014	88.6	8,103	5,947	4,216	302,198	6,623.57	
24	4/9/2014	49	8,469	5,515	4,583	5,915	4,262.73	
24 REPERF	4/10/2014	13	8,176	6,672	5,773	3,764	2,811.15	
24C	4/10/2014	86.2	7,602	6,280	4,064	302,219	6,712.29	
25	4/10/2014	87	7,673	5,885	4,046	301,417	7,050.55	
26	4/11/2014	89.4	7,549	6,032	4,175	296,791	6,352.97	
27	4/11/2014	88.4	7,501	5,876	4,344	301,791	6,569.03	
28	4/12/2014	86.3	7,569	5,990	4,429	297,714	8,035.40	
29	4/12/2014	88.4	7,432	5,666	4,000	302,089	6,530.31	
30	4/13/2014	84.8	7,935	6,120	4,382	300,269	6,673.65	
31A	4/14/2014	61.4	8,516	5,972	4,125	3,543	2,198.04	
31C	4/14/2014	89.4	7,571	6,049	4,231	301,426	6,600.88	
32	4/15/2014	51	8,554	6,672	5,503	72,130	10,923.48	
32B	4/15/2014	22.4	8,598	6,395	5,122	6,592	5,273.11	
32C	4/16/2014	85.8	7,479	5,687	4,211	600,887	11,999.61	
33	4/16/2014	82.2	7,881	5,681	5,448	250,120	8,267.38	
34	4/17/2014	49.5	8,319	6,170	5,582	1,162	4,508.30	

STIMULATION INFORMATION PER STAGE

API: 47-051-01656

Farm name:

Russell Lee and Barbara Ann
Bennett

Well Name: SHL-26B-HS

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N ² / other
34B	4/17/2014	72	7,733	6,552	6,366	352,485	8,483.26	
35	4/18/2014	89.4	7,571	6,073	4,184	283,834	6,235.38	
36	4/18/2014	86.7	7,341	5,908	3,816	317,788	6,286.60	
37	4/18/2014	89.3	7,388	5,771	4,205	300,407	6,115.04	
38	4/19/2014	87.9	7,169	5,320	4,545	306,860	6,239.30	
39	4/19/2014	89.4	7,191	6,067	4,130	302,082	5,962.79	
40	4/20/2014	89.4	7,084	6,701	4,219	301,242	5,987.66	
41	4/20/2014	83.6	7,496	5,825	4,261	299,181	8,006.63	
42	4/20/2014	88.6	7,696	5,974	4,046	302,434	6,199.21	
43	4/21/2014	88.4	7,489	6,733	4,484	302,594	6,132.93	
44	4/22/2014	86.8	6,829	5,623	4,197	300,632	6,130.60	
45	4/22/2014	87.7	6,964	6,079	4,325	303,277	5,770.51	

API 47- 051 - 01656

Farm name Russell Lee and Barbara Ann Bennett Well number SHL26BHS

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6629.4</u>	TVD	<u>14672</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 2450 mcfpd Oil 74 bpd NGL 111 bpd Water 1273 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 FORMATIONS SHEET					

Please insert additional pages as applicable.

Drilling Contractor Nabors Drilling USA, LP
Address 515 West Greens Rd, Suite 1000 City Houston State TX Zip 77067-4525

Logging Company Horizon Well Logging, LLC
Address 7136 S. Yale Ave. Suite 414 City Tulsa State OK Zip 74136

Cementing Company CalFrac
Address 717 17th St., Suite 1445 City Denver State CO Zip 80202

Stimulating Company Halliburton Energy Services
Address 121 Champion Way, Suite 210 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Dee Swiger Telephone 724-820-3061
Signature [Signature] Title Reg. Analyst Date 8/5/14

FORMATIONS

API 47-051-5101656		Russell Lee and Barbara Ann Bennett		Well Name SHL26B	
Lithology/Formation	Top Depth in FT 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, H2S, ETC)
Shale	0	808	0	808	
Pittsburgh Coal	808	817	808	817	
Shale and Sandstone	817	1264	817	1264	
Dunkard Sand	1264	1275	1264	1275	
Shale	1275	1446	1275	1446	
Gas Sand	1446	1485	1446	1485	
Shale	1485	1577	1485	1578	
1st Salt Sand	1577	1601	1578	1602	
Shale	1601	1610	1602	1611	
2nd Salt Sand	1610	1655	1611	1656	
Shale	1655	1738	1656	1739	
Maxton Sand	1738	1750	1739	1751	
Shale	1750	1793	1751	1794	
Big Lime	1793	1873	1794	1875	
Big Injun	1873	2067	1875	2069	
Price	2067	2425	2069	2427	
Murrysville	2425	2439	2427	2441	
Shale	2439	2636	2441	2638	
50' Sand	2636	2638	2638	2640	
Shale	2638	2691	2640	2693	
30' Sand	2691	2700	2693	2702	
Shale	2700	2742	2702	2744	
Gordon Stray	2742	2757	2744	2759	
Shale	2757	2793	2759	2795	
Gordon	2793	2806	2795	2808	
Shale	2806	2902	2808	2904	
Fifth Sand	2902	2936	2904	2938	
Shale	2936	3342	2938	3344	
Speechley Sand	3342	3370	3344	3372	
Shale	3370	4378	3372	4380	
Warren Sand	4378	4387	4380	4389	
Shale	4387	5045	4389	5047	
Java Shale	5045	5216	5047	5218	
Pipe Creek Shale	5216	5273	5218	5275	
Angola Shale	5273	5898	5275	5903	
Rhinestreet	5898	6314	5903	6435	
Cashaqua	6314	6405	6435	6576	
Middlesex	6405	6440	6576	6633	
West River	6440	6492	6633	6726	
Burkett	6492	6515	6726	6770	
Tully Limestone	6515	6545	6770	6832	
Hamilton	6545	6656	6832	7148	
Marcellus	6656	6706	7148	not encountered	Gas

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/18/2014
Job End Date:	4/22/2014
State:	West Virginia
County:	Marshall
API Number:	47-051-01656-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	SHL26 B
Longitude:	-80.54840000
Latitude:	39.97314400
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,629
Total Base Water Volume (gal):	14,828,013
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
Fresh Water	Operator	Base Fluid					
			Fresh Water	7732-18-5	100.00000	89.02451	Density = 8.400
SAND - PREMIUM WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	7.77870	
SAND - COMMON WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	1.99840	
HYDROCHLORIC ACID 5-10%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	10.00000	0.10744	
FR-66	Halliburton	Friction Reducer					
			Hydrotreated light petroleum distillate	54742-47-8	30.00000	0.01212	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive					
			Acetic anhydride	108-24-7	100.00000	0.00596	
			Acetic acid	54-19-7	60.00000	0.00357	
FDP-S1078-12	Halliburton	Friction Reducer					
			Hydrotreated light petroleum distillate	54742-47-8	30.00000	0.00347	
			Alcohols, C12-16, ethoxylated	58551-12-2	10.00000	0.00116	

			Ammonium chloride	12125-02-9	10.00000	0.00116	
			9-Octadecenamide, n,n-bis-2 (hydroxy-ethyl)-, (Z)	93-83-4	5.00000	0.00058	
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	30.00000	0.00576	
BE-9	Halliburton	Biocide					
			Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00384	
LP-65 MC	Halliburton	Scale Inhibitor					
			Ammonium chloride	12125-02-9	10.00000	0.00235	
LOSURF-300 NONIONIC SURFACTANT	Halliburton	Surfactant					
			isopropanol	67-63-0	60.00000	0.00121	
			Light aromatic solvent	54742-95-6	30.00000	0.00061	
			Ethoxylated nonylphenol	Confidential	10.00000	0.00020	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
LGC-36 UC	Halliburton	Liquid Gel Concentrate					
			Guar gum	9000-30-0	60.00000	0.00075	
			Naphtha, hydrotreated heavy	54742-48-9	60.00000	0.00075	
LCA-1	Halliburton	Solvent					
			Paraffinic solvent	Confidential	100.00000	0.00141	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
			Methanol	67-56-1	60.00000	0.00057	
			Propargyl alcohol	107-19-7	10.00000	0.00010	
SP BREAKER	Halliburton	Breaker					
			Sodium persulfate	7775-27-1	100.00000	0.00002	
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 Ingredient(s)					
			Water	7732-18-5		1.17377	
		Other Ingredient(s)					
			Organic phosphonate	Confidential		0.01411	
		Other Ingredient(s)					
			Polyacrylamide copolymer	Confidential		0.01212	
		Other Ingredient(s)					
			Polyacrylate	Confidential		0.00347	
		Other Ingredient(s)					
			Inorganic salt	Confidential		0.00347	
		Other Ingredient(s)					
			Sodium chloride	7647-14-5		0.00202	
		Other Ingredient(s)					
			Ammonium chloride	12125-02-9		0.00202	
		Other Ingredient(s)					

			Alcohols, C12-16, ethoxylated	68551-12-2		0.00202	
		Other Ingredient(s)					
			Fatty acid tall oil amide	Confidential		0.00202	
		Other Ingredient(s)					
			Fatty acid ester	Confidential		0.00058	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
		Other Ingredient(s)					
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8		0.00040	
		Other Ingredient(s)					
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6		0.00040	
		Other Ingredient(s)					
			Formaldehyde	50-00-0		0.00024	
		Other Ingredient(s)					
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	68953-58-2		0.00006	
		Other Ingredient(s)					
			Fatty alcohol polyglycol ether surfactant	9043-30-5		0.00001	
		Other Ingredient(s)					
			Crystalline silica, quartz	14808-60-7		0.00000	
		Other Ingredient(s)					
			Sodium sulfate	7757-82-6		0.00000	

* 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)

Noble Energy SHL-26B-HS Gyro+MWD 0ft to 14627ft MD Survey Report

(Def Survey)

Report Date:	February 10, 2014 - 09:17 AM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Noble Energy	Vertical Section Azimuth:	331.229 ° (Grid North)
Field:	WV Marshall County (NAD 27)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Noble Energy SHL-26 Pad / SHL-26B-HS	TVD Reference Datum:	KB
Well:	SHL-26B-HS	TVD Reference Elevation:	1332.180 ft above MSL
Borehole:	Original Borehole	Seabed / Ground Elevation:	1309.180 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	-8.418 °
Survey Name:	Noble Energy SHL-26B-HS Gyro+MWD 0ft to 14627ft MD	Total Gravity Field Strength:	999.3453mgn (9.80665 Based)
Survey Date:	January 22, 2014	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	220.442 ° / 8574.489 ft / 6.618 / 1.282	Total Magnetic Field Strength:	53112.508 nT
Coordinate Reference System:	NAD27 West Virginia State Plane, Northern Zone, US Feet	Magnetic Dip Angle:	67.500 °
Location Lat / Long:	N 39° 58' 23.31726", W 80° 32' 54.23833"	Declination Date:	January 22, 2014
Location Grid N/E Y/X:	N 538274.492 IUS, E 1706173.176 IUS	Magnetic Declination Model:	HDGM 2013
CRS Grid Convergence Angle:	-0.6686 °	North Reference:	Grid North
Grid Scale Factor:	0.99995906	Grid Convergence Used:	-0.6686 °
Version / Patch:	2.7.1043.0	Total Corr Mag North->Grid North:	-7.7489 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	BR (*/100ft)	TR (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)	Directional Difficulty Index
SHL	0.00	0.00	0.00	0.00	-1332.18	0.00	0.00	0.00	N/A	N/A	N/A	538274.49	1706173.18	N 39 58 23.32	W 80 32 54.24	0.00
	123.00	0.13	288.51	123.00	-1209.18	0.10	0.04	-0.13	0.11	0.11	0.00	538274.54	1706173.04	N 39 58 23.32	W 80 32 54.24	0.00
	223.00	0.08	304.42	223.00	-1109.18	0.25	0.12	-0.30	0.06	-0.05	15.91	538274.61	1706172.88	N 39 58 23.32	W 80 32 54.24	0.00
	323.00	0.06	247.40	323.00	-1009.18	0.32	0.14	-0.40	0.07	-0.02	-57.02	538274.63	1706172.77	N 39 58 23.32	W 80 32 54.24	0.00
	423.00	0.15	203.72	423.00	-909.18	0.24	0.00	-0.50	0.11	0.09	-43.68	538274.49	1706172.67	N 39 58 23.32	W 80 32 54.24	0.00
	523.00	0.24	224.29	523.00	-809.18	0.10	-0.27	-0.70	0.11	0.09	20.57	538274.22	1706172.47	N 39 58 23.31	W 80 32 54.25	0.00
	623.00	0.17	213.73	623.00	-709.18	-0.03	-0.54	-0.93	0.08	-0.07	-10.56	538273.95	1706172.24	N 39 58 23.31	W 80 32 54.25	0.00
	723.00	0.24	205.58	723.00	-609.18	-0.22	-0.86	-1.10	0.08	0.07	-8.15	538273.64	1706172.07	N 39 58 23.31	W 80 32 54.25	0.03
	823.00	0.14	251.58	823.00	-509.18	-0.32	-1.08	-1.31	0.17	-0.10	46.00	538273.41	1706171.86	N 39 58 23.31	W 80 32 54.26	0.21
	923.00	0.06	245.72	923.00	-409.18	-0.29	-1.14	-1.47	0.08	-0.08	-5.86	538273.35	1706171.70	N 39 58 23.31	W 80 32 54.26	0.28
	1023.00	0.05	239.29	1023.00	-309.18	-0.29	-1.19	-1.56	0.04	-0.01	-6.43	538273.30	1706171.62	N 39 58 23.31	W 80 32 54.26	0.31
	1123.00	0.08	211.20	1123.00	-209.18	-0.33	-1.27	-1.63	0.04	0.03	-28.09	538273.22	1706171.54	N 39 58 23.30	W 80 32 54.26	0.35
	1158.00	0.04	204.12	1158.00	-174.18	-0.35	-1.30	-1.65	0.12	-0.11	-20.23	538273.19	1706171.52	N 39 58 23.30	W 80 32 54.26	0.37
	1241.00	0.59	1.68	1241.00	-91.18	0.00	-0.90	-1.65	0.76	0.66	189.83	538273.59	1706171.53	N 39 58 23.31	W 80 32 54.26	0.66
	1273.00	0.70	10.12	1272.99	-59.19	0.30	-0.54	-1.61	0.45	0.34	26.38	538273.95	1706171.56	N 39 58 23.31	W 80 32 54.26	0.75
	1305.00	0.95	30.65	1304.99	-27.19	0.59	-0.12	-1.44	1.20	0.78	64.16	538274.37	1706171.73	N 39 58 23.32	W 80 32 54.26	0.89
	1336.00	1.46	46.03	1335.98	3.80	0.82	0.37	-1.03	1.93	1.65	49.61	538274.86	1706172.15	N 39 58 23.32	W 80 32 54.25	1.07
	1366.00	2.07	54.66	1367.97	35.79	0.99	0.99	-0.26	2.07	1.91	26.97	538275.48	1706172.91	N 39 58 23.33	W 80 32 54.24	1.25
	1399.00	2.72	58.36	1398.94	66.76	1.09	1.70	0.82	2.15	2.10	11.94	538276.19	1706174.00	N 39 58 23.33	W 80 32 54.23	1.43
	1431.00	3.31	60.98	1430.90	98.72	1.14	2.55	2.28	1.89	1.84	8.19	538277.04	1706175.45	N 39 58 23.34	W 80 32 54.21	1.59
	1462.00	3.64	62.33	1461.84	129.06	1.12	3.44	3.93	1.10	1.06	4.35	538277.93	1706177.11	N 39 58 23.35	W 80 32 54.19	1.71
	1526.00	5.03	74.71	1525.66	193.48	0.43	5.12	8.44	2.61	2.17	19.34	538279.61	1706181.61	N 39 58 23.37	W 80 32 54.13	2.00
	1629.00	5.32	81.86	1619.27	287.09	-2.07	6.82	16.72	0.75	0.31	7.61	538281.32	1706189.90	N 39 58 23.39	W 80 32 54.02	2.24
	1715.00	4.68	82.23	1713.91	381.73	-5.01	7.97	24.92	0.67	-0.67	0.39	538282.46	1706198.10	N 39 58 23.40	W 80 32 53.92	2.41
	1810.00	4.33	88.62	1809.62	476.44	-8.05	8.58	32.35	0.64	-0.37	6.73	538283.07	1706205.52	N 39 58 23.41	W 80 32 53.82	2.53
	1938.00	3.25	84.65	1936.34	604.16	-11.71	9.04	40.79	0.87	-0.84	-3.10	538283.53	1706213.97	N 39 58 23.41	W 80 32 53.72	2.67
	2033.00	2.06	95.48	2031.23	699.05	-13.74	9.12	45.17	1.35	-1.25	11.40	538283.62	1706218.35	N 39 58 23.41	W 80 32 53.66	2.76
	2128.00	0.81	109.27	2126.20	794.02	-15.20	8.74	47.51	1.36	-1.32	14.52	538283.23	1706220.68	N 39 58 23.41	W 80 32 53.63	2.83
	2222.00	0.87	122.81	2220.19	888.01	-16.33	8.13	48.73	0.22	0.06	14.40	538282.63	1706221.91	N 39 58 23.40	W 80 32 53.61	2.84
	2317.00	0.40	260.93	2315.10	983.01	-16.85	7.69	49.01	1.26	-0.49	145.39	538282.18	1706222.19	N 39 58 23.40	W 80 32 53.61	2.89
	2412.00	0.49	271.86	2410.19	1078.01	-16.53	7.65	48.28	0.13	0.09	11.51	538282.14	1706221.45	N 39 58 23.40	W 80 32 53.62	2.90
	2506.00	0.76	240.20	2504.18	1172.00	-16.34	7.35	47.34	0.46	0.29	-33.68	538281.85	1706220.51	N 39 58 23.40	W 80 32 53.63	2.92
	2601.00	0.42	267.47	2599.18	1267.00	-16.19	7.03	46.44	0.45	-0.36	28.71	538281.52	1706219.62	N 39 58 23.39	W 80 32 53.64	2.94
	2695.00	0.82	237.44	2693.17	1360.99	-16.08	6.74	45.67	0.35	0.21	-31.95	538281.23	1706218.84	N 39 58 23.39	W 80 32 53.65	2.96
	2790.00	0.66	238.92	2788.17	1455.99	-16.13	6.18	44.77	0.05	0.04	1.56	538280.67	1706217.94	N 39 58 23.38	W 80 32 53.66	2.98
	2885.00	0.81	239.68	2883.16	1550.98	-16.17	5.56	43.72	0.16	0.16	0.80	538280.05	1706216.89	N 39 58 23.38	W 80 32 53.68	2.98
	2978.00	0.91	261.42	2976.15	1643.97	-15.93	5.11	42.42	0.36	0.11	23.38	538279.61	1706215.60	N 39 58 23.37	W 80 32 53.69	3.00
	3073.00	1.19	248.77	3071.13	1738.95	-15.54	4.65	40.76	0.35	0.29	-13.32	538279.14	1706213.93	N 39 58 23.37	W 80 32 53.72	3.02
	3167.00	1.23	246.34	3165.11	1832.93	-15.33	3.89	38.92	0.07	0.04	-2.59	538278.38	1706212.10	N 39 58 23.36	W 80 32 53.74	3.03

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	BR (*/100ft)	TR (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)	Directional Difficulty Index
	13227.00	91.03	325.64	6634.20	5302.02	6418.66	5703.60	-2948.54	0.07	0.07	0.01	543977.85	1703224.76	N 39 59 19.34	W 80 33 32.97	6.47
	13321.00	90.96	326.33	6632.56	5300.38	6512.25	5781.50	-3001.12	0.74	-0.07	0.73	544055.75	1703172.19	N 39 59 20.10	W 80 33 33.66	6.48
	13416.00	90.93	325.34	6631.00	5298.82	6806.81	5860.10	-3054.46	1.04	-0.03	-1.04	544134.34	1703118.85	N 39 59 20.87	W 80 33 34.38	6.49
	13511.00	90.48	325.33	6629.83	5297.85	6701.30	5938.23	-3108.49	0.47	-0.47	-0.01	544212.46	1703064.82	N 39 59 21.64	W 80 33 35.06	6.50
	13605.00	90.41	325.81	6629.10	5296.92	6794.84	6015.76	-3161.64	0.52	-0.07	0.51	544289.99	1703011.68	N 39 59 22.40	W 80 33 35.76	6.51
	13700.00	90.21	325.65	6628.58	5296.40	6889.40	6094.26	-3215.13	0.27	-0.21	-0.17	544368.49	1702958.18	N 39 59 23.17	W 80 33 36.46	6.52
	13795.00	90.00	324.04	6628.41	5296.23	6983.81	6171.93	-3269.83	1.71	-0.22	-1.69	544446.16	1702903.49	N 39 59 23.93	W 80 33 37.17	6.53
	13889.00	89.90	324.16	6628.49	5296.31	7077.08	6248.08	-3324.95	0.17	-0.11	0.13	544522.30	1702848.37	N 39 59 24.67	W 80 33 37.89	6.54
	13984.00	90.03	324.54	6628.55	5296.37	7171.40	6325.27	-3380.32	0.42	0.14	0.40	544599.49	1702793.01	N 39 59 25.43	W 80 33 38.61	6.55
	14079.00	89.93	324.51	6628.58	5296.40	7265.75	6402.64	-3435.45	0.11	-0.11	-0.03	544676.85	1702737.87	N 39 59 26.19	W 80 33 39.33	6.56
	14173.00	89.73	323.65	6628.88	5296.88	7359.02	6478.76	-3490.59	0.94	-0.21	-0.91	544752.97	1702682.73	N 39 59 26.93	W 80 33 40.05	6.57
	14268.00	89.90	324.40	6629.17	5296.99	7453.27	6555.64	-3546.40	0.81	0.18	0.79	544829.65	1702626.93	N 39 59 27.69	W 80 33 40.78	6.58
	14362.00	90.07	324.19	6629.19	5297.01	7546.58	6631.97	-3601.26	0.29	0.18	-0.22	544906.18	1702572.07	N 39 59 28.44	W 80 33 41.50	6.59
	14457.00	90.00	324.08	6629.14	5296.96	7640.85	6708.96	-3656.92	0.14	-0.07	-0.12	544983.18	1702516.42	N 39 59 29.19	W 80 33 42.22	6.59
	14551.00	89.90	324.87	6629.22	5297.04	7734.20	6785.46	-3711.54	0.85	-0.11	0.84	545059.66	1702461.80	N 39 59 29.94	W 80 33 42.94	6.60
Survey 07-Feb-14	14590.00	89.93	322.85	6629.28	5297.10	7772.87	6816.96	-3734.53	5.18	0.08	-5.18	545091.15	1702438.80	N 39 59 30.25	W 80 33 43.24	6.61
PTB	14672.00	89.93	322.85	6629.38	5297.20	7854.00	6882.31	-3784.06	0.00	0.00	0.00	545156.51	1702389.28	N 39 59 30.89	W 80 33 43.88	6.62

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95 000% Confidence 2.7955 sigma
 Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	23.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Noble Energy SHL-26B-HS Gyro+MWD 0ft to 14627ft MD
	1	23.000	1158.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Noble Energy SHL-26B-HS Gyro+MWD 0ft to
	1	1158.000	14590.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Noble Energy SHL-26B-HS Gyro+MWD 0ft to
	1	14590.000	14672.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Noble Energy SHL-26B-HS Gyro+MWD 0ft to

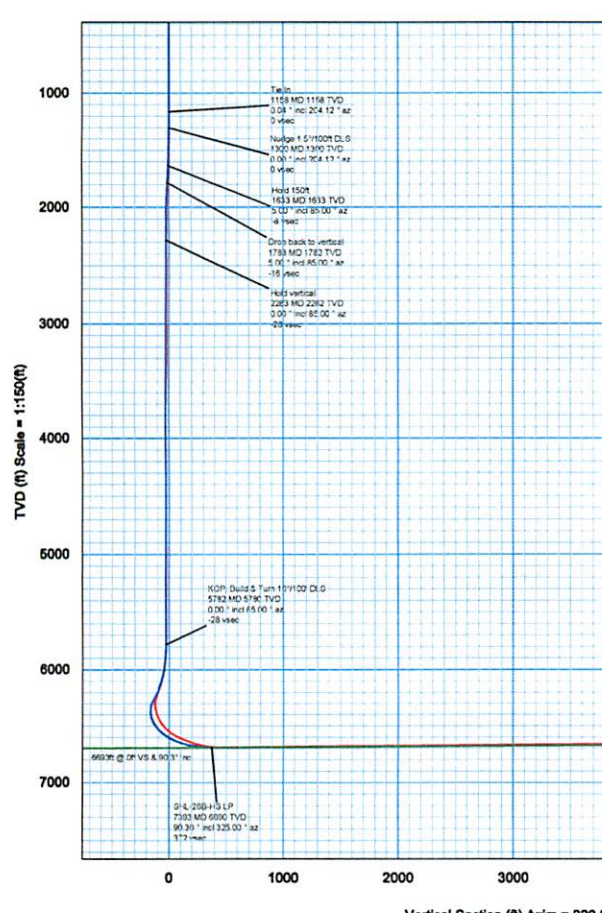
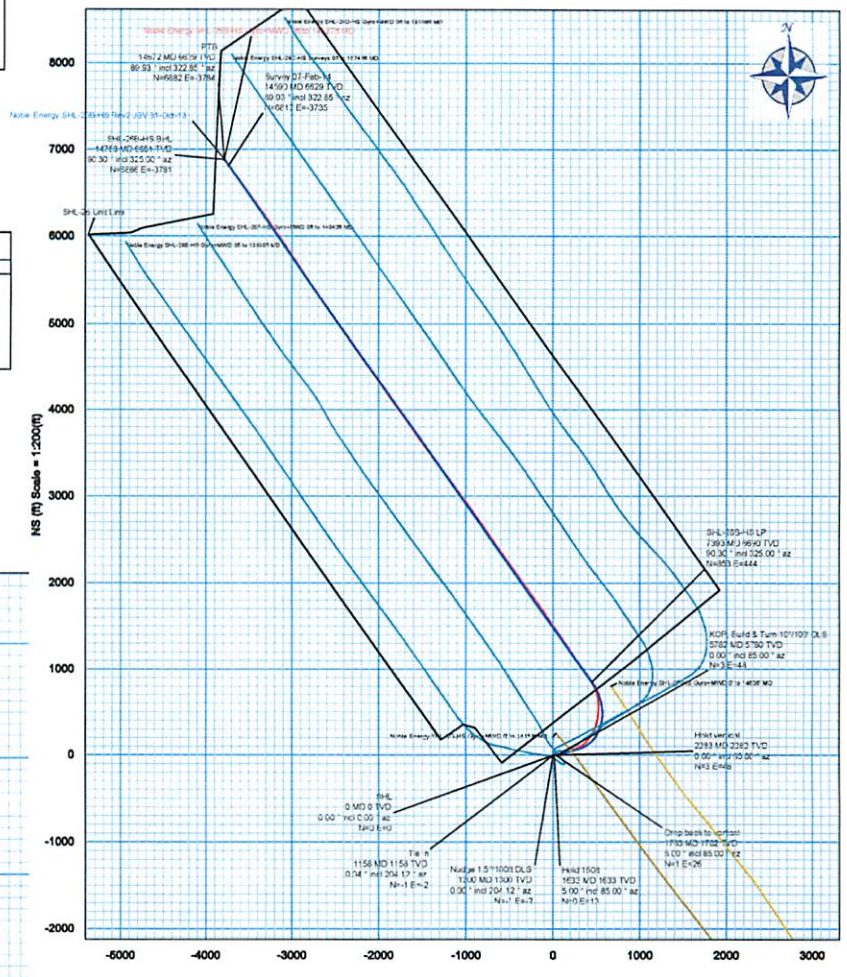
Borehole: Original Borehole	Well: SHL-26B-HS	Field: WV Marshall County (NAD 27)	Structure: Nabors M59
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Gravity & Magnetic Parameters Model: HDGM 2013 Dip: 67.5° Date: 22-Jan-2014 MagDec: -8.418° FS: 53112.508nT Gravity FS: 999.345mgm (9.80665 Based)	Surface Location NAD27 West Virginia State Plane, Northern Zone, US Feet Lat: N 39 58 23.32 Northing: 538274.492ftUS Grid Conv: -0.6686° Lon: W 80 32 54.24 Easting: 1706173.176ftUS Scale Fact: 0.99995906	Miscellaneous Slot: SHL-26B-HS TVD Ref: KB(1332.18ft above MSL) Plan: Noble Energy SHL-26B-HS Gyro-MVD Ort to 14627ft MD
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PKT	Seq	Survey Tool	Vendor/Tool	Max Size (in)	CPMG Bits (in)	MD From (ft)	MD To (ft)	Survey Frequency (Hz)	EDU Size (ft)	EDU Size (ft)	Comments
1	1	SLB_N50-MSHOT-Dough		30	30	0	23	Act Site	1.25	1.25	
1	2	SLB_N50-MSHOT		30	30	23	1158	Act Site	3.77	2.61	
1	3	SLB_MVD-STD		30	30	1158	1490	Act Site	211.28	194.2	
1	4	SLB_IL-MD-TREND		30	30	1490	1472	Act Site	231.11	214	

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	NOYR61	EOYR61
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Survey DT Feb-14	14590.00	89.83	322.85	96.28	7772.87	6818.96	3734.53
PTB	14672.00	89.83	322.85	96.28	7934.36	6882.31	3734.58

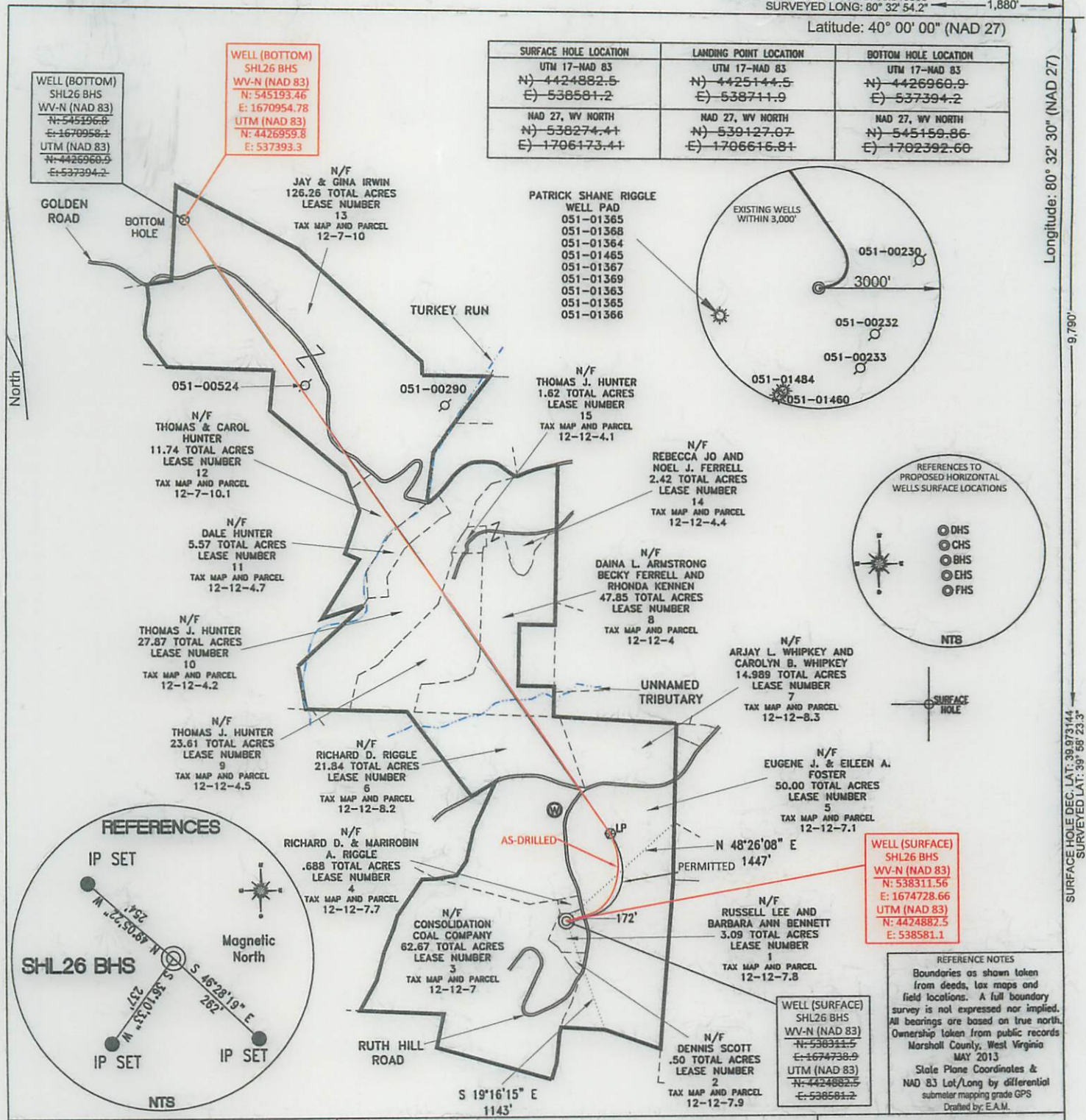
Surface Location									
Northing	Easting	Latitude	Longitude	UTM Zone	UTM Easting	UTM Northing	UTM Easting	UTM Northing	Local Count
538274.492	1706173.176	N 39 58 23.32	W 80 32 54.24	18Q	1706173.176	538274.492	1706173.176	538274.492	231.228



SHL-26B-HS LP	7000 MD 6950 TVD	89.83° incl 322.85° az	3.77' vsec
SHL-26B-HS BHL	14590 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14758 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec
SHL-26B-HS BHL	14900 MD 6651 TVD	89.83° incl 322.85° az	7.11' vsec

Grid North
Tot Corr (M→G -7.748")
Mag Dec (-8.418")
Grid Conv (-0.668")

Vertical Section (ft) Azim = 320.254° Scale = 1:150(ft) Origin = 0N-S, 0E-W



FILE #: NOB 002
 DRAWING #: 2219
 SCALE: PLAT - 1" = 1400'
 TICK MARK - 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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]*
 L.L.S. #2124 : Ernest J. Benchek III



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

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

WATERSHED: WHEELING CREEK
 COUNTY/DISTRICT: MARSHALL / SANDHILL
 SURFACE OWNER: RUSSELL LEE AND BARBARA ANN BENNETT
 OIL & GAS ROYALTY OWNER: JAMES O. WHIPKEY ET AL
 LEASE NUMBERS: _____

DATE: AUGUST 8, 2014
 OPERATOR'S WELL #: SHL26 BHS AS-DRILLED
 API WELL #: 47 51 011656
 STATE COUNTY PERMIT

ELEVATION: 1,320'
 QUADRANGLE: MAJORSVILLE WV-PA
 ACREAGE: 3.09 +/-
 ACREAGE: 317.83 +/-

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: NOBLE ENERGY, INC.
 ADDRESS: 333 TECHNOLOGY DRIVE SUITE 116
 CITY: CANONSBURG STATE: PA ZIP CODE: 15317

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

ESTIMATED DEPTH: TVD: 6,698' TMD: 14,783'
 DESIGNATED AGENT: STEVEN M. GREEN
 ADDRESS: 500 VIRGINIA STREET EAST
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301