

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

API 47-085-10070 County Ritchie District Clay
Quad Pennsboro Pad Name PEN 2 Field/Pool Name NA
Farm name Terry & Helen Kiessling Well Number PEN 2 EHS
Operator (as registered with the OOG) Noble Energy, Inc.
Address 1000 Noble Energy Drive 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 4344135.28 Easting 498930.29
Landing Point of Curve Northing 4354162.12 Easting 499276.60
Bottom Hole Northing 4352101.16 Easting 501063.45

Elevation (ft) 1074.85 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 10/30/2013 Date drilling commenced 01/19/2014 Date drilling ceased 09/02/2014
Date completion activities began 12/2/2014 Date completion activities ceased 2/11/2015
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 454 Open mine(s) (Y/N) depths none
Salt water depth(s) ft None noted for Offsets Void(s) encountered (Y/N) depths none
Coal depth(s) ft no coal Cavern(s) encountered (Y/N) depths none
Is coal being mined in area (Y/N) N

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Reviewed by:
A.L. 5/26/15
W.S. 06/12/15
06/12/2015

API 47-085 - 10070 Farm name Terry & Helen Kiessling Well number PEN 2 EHS

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				
Surface	17 1/2	13 3/8	595.3	N	J-55 54.5#		Y
Coal							
Intermediate 1	12 3/8	9 5/8	5,514.0	N	K-55 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4	5 1/2	15,936.0	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	532	15.6	1.20	114.5	0	8
Coal							
Intermediate 1	Class A	Lead 945 Tail 300	Lead 12.0 Tail 15.6	Lead 1.93 Tail 1.19	Lead 201 Tail 167	0	8
Intermediate 2							
Intermediate 3							
Production	Class A	Lead 415 Tail 2105	Lead 12.3 Tail 14.8	Lead 1.62 Tail 1.37	Lead 167 Tail 208	5530	8
Tubing							

Drillers TD (ft) 15,593 Loggers TD (ft) 15,927

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

Plug back procedure Not a Pilot Hole

Kick off depth (ft) 6986

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 Conductor - No centralizers used. Fresh Water/Surface-Surface - 5 centralizers used, one every third joint Intermediate - 67 centralizers - bow spring centralizers on every joint to KOP, on every third joint from KOP to 100' from surface.
 Production - 272 centralizers - rigid bow spring every third joint from KOP to TOC, rigid bow spring every joint to KOP.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

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API 47- 085 - 10070 Farm name Terry & Helen Kiessler Well number PEN 2 EHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
		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)
		SEE ATTACHED STIMULATION INFORMATION PER STAGE RECORD						

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Please insert additional pages as applicable.

Perforation Record

API: 47-085-10070

Farm name: TERRY & HELEN KIESSLING

Well Name: PEN-2-E-HS

Stage No.	Stim Date	Top Perf	Bottom Perf	# of Perfs	Formation
Trigger Toe	12/2/2014	15809	15,814	-	Marcellus
1	12/2/2014	15630	15,791	50	Marcellus
2	12/3/2014	15431	15,592	50	Marcellus
3	12/3/2014	15232	15,393	50	Marcellus
4	12/3/2014	15033	15,194	50	Marcellus
4 Inj Test I	12/5/2014	-	-	-	Marcellus
4 Inj Test II	12/5/2014	-	-	-	Marcellus
5	12/6/2014	14834	14,995	50	Marcellus
6	12/6/2014	14635	14,796	50	Marcellus
7	12/7/2014	14436	14,597	50	Marcellus
8	12/8/2014	14237	14,398	50	Marcellus
9	12/12/2014	14038	14,199	50	Marcellus
10	12/13/2014	13839	14,000	50	Marcellus
11	12/13/2014	13640	13,801	50	Marcellus
12	12/14/2014	13441	13,602	50	Marcellus
13	12/14/2014	13242	13,403	50	Marcellus
14	12/15/2014	13043	13,204	50	Marcellus
15	12/15/2014	12844	13,005	50	Marcellus
16	12/16/2014	12645	12,806	50	Marcellus
17	12/16/2014	12446	12,607	50	Marcellus
18	12/17/2014	12247	12,408	50	Marcellus
19	12/17/2014	12048	12,209	50	Marcellus
20	12/17/2014	11849	12,010	50	Marcellus
21	12/18/2014	11650	11,811	50	Marcellus
22	12/18/2014	11448	11,612	50	Marcellus
23	12/19/2014	11252	11,413	50	Marcellus
24	12/19/2014	11053	11,214	50	Marcellus
25	12/19/2014	10854	11,015	50	Marcellus
26	12/20/2014	10655	10,816	50	Marcellus
26 Inj Test	12/20/2014	0	-	-	Marcellus
26B (Reperf)	12/21/2014	10649	10,688	36	Marcellus
27	12/21/2014	10456	10,617	50	Marcellus
27B	12/21/2014	10436	10,452	24	Marcellus
28	12/22/2014	10257	10,402	50	Marcellus
29	12/29/2014	10058	10,219	50	Marcellus
29 Inj Test	12/23/2014	0	-	-	Marcellus
29B (Reperf)	12/23/2014	10052	10,122	50	Marcellus
29C (Commingle)	12/23/2014	9859	10,020	50	Marcellus
31	12/24/2014	9660	9,821	50	Marcellus
32	12/24/2014	9461	9,622	50	Marcellus
33	12/26/2014	9262	9,423	50	Marcellus

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Perforation Record

API: 47-085-10070

Farm name: TERRY & HELEN KIESSLING

Well Name: PEN-2-E-HS

Stage No.	Stim Date	Top Perf	Bottom Perf	# of Perfs	Formation
34	12/26/2014	9063	9,224	50	Marcellus
35	12/27/2014	8864	9,025	50	Marcellus
36	12/27/2014	8665	8,826	50	Marcellus
36B (Reperf)	12/27/2014	8650	8,694	36	Marcellus
36C (Commingle)	12/27/2014	8466	8,627	50	Marcellus
38	12/27/2014	8267	8,428	50	Marcellus
39	12/28/2014	8068	8,229	50	Marcellus
40	12/29/2014	7869	8,030	50	Marcellus
41	12/29/2014	7670	7,831	50	Marcellus
42	12/29/2014	7471	7,632	50	Marcellus

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STIMULATION INFORMATION PER STAGE

API: 47-085-10070

Farm name: TERRY & HELEN KIESSLING

Well Name: PEN-2 -E-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)
Trigger Toe	12/2/2014	6.0	7,470	9,724	4,106	-	347	
1	12/2/2014	81.8	8,062	6,459	3,533	329,750	8,416	
2	12/3/2014	78.9	8,251	6,183	4,041	315,700	9,323	
3	12/3/2014	79.6	8,456	5,822	3,547	345,850	8,874	
4	12/3/2014	87.0	8,537	5,701	5,010	268,500	6,431	
4 Inj Test I	12/5/2014	4.1	5,900	7,489	-	-	1,143	
4 Inj Test II	12/5/2014	7.1	6,676	9,040	4,957	-	1,353	
5	12/6/2014	81.7	8,192	5,747	3,916	381,150	11,254	
6	12/6/2014	80.7	8,143	6,223	3,762	331,150	7,273	
7	12/7/2014	82.2	8,174	5,676	3,508	330,750	9,333	
8	12/8/2014	80.5	8,214	5,454	4,528	333,650	10,501	
9	12/12/2014	71.0	8,402	5,529	3,726	331,260	11,029	
10	12/13/2014	77.8	8,319	5,600	3,494	330,500	9,338	
11	12/13/2014	76.0	8,121	5,250	3,659	331,580	8,560	
12	12/14/2014	77.5	8,225	5,393	3,787	330,750	7,130	
13	12/14/2014	76.1	8,312	5,797	3,351	331,450	9,347	
14	12/15/2014	77.0	8,439	5,518	4,020	331,260	10,001	
15	12/15/2014	83.4	8,120	5,189	3,920	330,800	7,571	
16	12/16/2014	82.0	8,011	4,996	4,159	330,660	8,279	
17	12/16/2014	79.0	8,083	5,357	3,777	330,900	8,775	
18	12/17/2014	83.0	7,978	6,008	3,952	331,340	8,199	
19	12/17/2014	85.2	8,074	5,468	3,787	329,500	8,166	
20	12/17/2014	84.0	8,237	5,643	4,717	327,420	8,096	
21	12/18/2014	87.1	8,062	5,786	3,809	330,250	8,217	
22	12/18/2014	86.2	8,130	5,887	3,541	329,500	8,155	
23	12/19/2014	86.0	7,979	5,772	3,963	330,360	8,018	
24	12/19/2014	87.2	7,618	3,316	3,655	330,050	8,057	
25	12/19/2014	86.0	7,930	6,226	3,905	331,040	7,934	
26	12/20/2014	71.4	8,430	6,022	-	5,500	1,755	
26 Inj Test	12/20/2014	8.0	7,890	5,500	-	-	1,578	
26B (Reperf)	12/21/2014	56.0	7,755	7,292	3,619	331,000	12,318	
27	12/21/2014	57.0	8,703	6,673	4,560	9,500	4,416	
27B	12/21/2014	69.0	7,673	7,678	4,156	331,990	11,365	
28	12/22/2014	85.0	7,826	5,901	3,855	330,250	8,417	
29	12/29/2014	75.3	8,154	5,475	7,077	4,000	2,345	
29 Inj Test	12/23/2014	20.0	6,116	5,271	4,638	1,000	3,360	
29B (Reperf)	12/23/2014	46.0	8,216	6,927	5,397	184,250	11,895	
29C (Commingle)	12/23/2014	83.0	7,238	6,319	4,402	478,891	10,860	
31	12/24/2014	86.0	7,491	5,897	4,520	338,876	8,898	
32	12/24/2014	87.0	7,705	6,469	5,075	328,768	7,973	
33	12/26/2014	86.0	7,546	5,901	4,088	330,500	10,969	

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STIMULATION INFORMATION PER STAGE

API: 47-085-10070

Farm name: TERRY & HELEN KIESSLING

Well Name: PEN-2 -E-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)
34	12/26/2014	86.0	7,426	6,537	4,395	327,250	7,955	
35	12/27/2014	88.0	7,267	6,165	4,467	330,600	8,037	
36	12/27/2014	80.0	8,522	5,790	4,696	14,200	4,019	
36B (Reperf)	12/27/2014	47.0	8,770	6,491	4,470	4,500	3,381	
36C (Commingle)	12/27/2014	87.0	7,052	5,436	3,948	705,700	14,291	
38	12/27/2014	88.0	7,373	5,396	3,880	331,350	8,014	
39	12/28/2014	81.0	7,921	5,865	4,081	313,278	10,933	
40	12/29/2014	76.9	7,440	6,219	4,835	340,000	10,783	
41	12/29/2014	82.0	7,585	6,595	3,415	327,100	8,939	
42	12/29/2014	-	-	7,081	4,780	-	468	

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API 47- 085 - 10070 Farm name Terry & Helen Kiessling Well number PEN 2 DHS

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6,313</u>	<u>TVD</u>	<u>15,727</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 3868 mcfpd Oil 117 bpd NGL 429 bpd Water 883 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>		
	<u>SEE ATTACHED</u>				
	<u>FORMATION SHEET</u>				

Please insert additional pages as applicable.

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

Logging Company _____
Address _____ City _____ State _____ Zip _____

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

Stimulating Company U. S Well Service
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26070

Please insert additional pages as applicable.

Completed by Regina A. Logue Telephone 724-820-3559
Signature Regina A. Logue Title Regulatory Analyst Date 4/6/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACDISC to Regulatory

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Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Shale and Sandstone	0	1309	0	1309	
Sandstone	1309	1433	1309	1423	
Shale and Sandstone	1423	1593	1423	1593	
Sandstone	1593	1635	1593	1635	
Shale and Sandstone	1635	1737	1635	1737	
Maxton Sand	1737	1820	1737	1820	
Shale and Sandstone	1820	1943	1820	1943	
Big Lime	1943	1998	1943	1998	
Big Injun	1998	2133	1998	2133	
Price	2133	2405	2133	2405	
Weir	2405	2444	2405	2444	
Shale	2444	2724	2444	2724	
Gordon	2724	2741	2724	6301	
Shale and Sandstone	2741	2921	2741	6302	
5th Sand	2921	2933	2921	6371	
Shale	2933	3076	2933	not encountered	
Sandstone	3076	3090	3076	not encountered	
Shale	3090	3498	3090	not encountered	
Warren	3498	3560	3500	6300	
Shale	3560	3894	3562	6301	
Sandstone	3894	3931	3900	6302	
Shale and Sandstone	3931	4925	3937	6371	
Benson	4925	4987	4941	not encountered	
Shale	4987	5147	5004	not encountered	
Alexander	5147	5215	5166	not encountered	
Shale	5215	5725	5234	not encountered	
Rheinstreet	5725	6051	5750	not encountered	
Cashaqua	6051	6143	6080	not encountered	
Middlesex	6143	6172	6176	not encountered	
West River	6172	6216	6206	not encountered	
Burkett	6216	6259	6253	not encountered	
Tully Limestone	6259	6260	6300	not encountered	
Hamilton	6260	6261	6301	6302	Gas
Marcellus	6261	6320	6302	6371	
Onondaga	6320		6371	not encountered	

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/2/2014
Job End Date:	12/29/2014
State:	West Virginia
County:	Ritchie
API Number:	47-085-10070-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	Pen 2 E
Longitude:	-81.01258100
Latitude:	39.33656400
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,313
Total Base Water Volume (gal):	16,464,000
Total Base Non Water Volume:	720,266



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	Noble Energy	Base Fluid	Water	7732-18-5	100.00000	90.50441	
40/70 Sand	U.S. Well Services	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	6.41537	
100 Mesh Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	2.56436	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.28831	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	Hydrogen Chloride	7647-01-0	18.00000	0.06887	
			Anionic Polyacrylamide	Proprietary	40.00000	0.03500	
			Water	7732-18-5	40.00000	0.03500	
			Petroleum Distillates	64742-47-8	40.00000	0.02818	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00438	
			Crystalline Salt	12125-02-9	5.00000	0.00438	
		Scale Inhibitor	DI Water	7732-18-5	80.00000	0.01360	
			Ethylene Glycol	107-21-1	40.00000	0.00769	

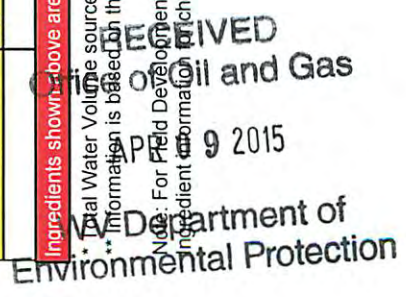
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				Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	10.00000	0.00230
				2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1	10.00000	0.00219
				hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6	10.00000	0.00213
				Copolymer of Maleic and Acrylic acid	26677-99-6	10.00000	0.00201
				bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4	10.00000	0.00196
				Acrylic polymer	52255-49-9	5.00000	0.00085
K-BAC 1020	J.S. Well Services, LLC	Anti-Bacterial Agent					
				2,2-dibromo-3-nitripropionamide	10222-01-2	20.00000	0.00832
LGC-15	J.S. Well Services, LLC	Gelling Agents		Deionized Water	7732-18-5	28.00000	0.00475
				Guar Gum	9000-30-0	50.00000	0.00202
				Petroleum Distillates	64742-47-8	60.00000	0.00192
				Suspending agent (solid)	14808-60-7	3.00000	0.00031
				Surfactant	88439-51-0	3.00000	0.00012
AI-301	J.S. Well Services, LLC	Acid Corrosion Inhibitors					
				Diethylene Glycol	111-46-6	30.00000	0.00044
				Methanamine	100-97-0	20.00000	0.00035
				Hydrogen Chloride	7647-01-0	10.00000	0.00015
				Polyethylene polyamine	88603-67-8	10.00000	0.00013
				Coco amine	51791-14-8	5.00000	0.00006
CA-800	J.S. Well Services	Iron Control Additive					
				Erythorbic Acid	89-65-6	100.00000	0.00038
AP One	J.S. Well Services, LLC	Gel Breakers					
				Ammonium Persulfate	7727-54-0	100.00000	0.00006

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.

Material 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. Ingredients shown below are subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



06/12/2015

Well is located on topo map 13,964' feet south of Latitude: 39° 22' 30"

AS DRILLED PLAT

AS DRILLED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4354135.28
 E:498930.29
 NAD27_WV NORTH
 N:308295.03
 E:1572187.43
 LAT/LON DATUM-NAD83
 LAT:39.336642
 LON:-81.012413

PERMITTED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4354135.15
 E:498930.45
 NAD27_WV NORTH
 N:308294.61
 E:1572187.95
 LAT/LON DATUM-NAD83
 LAT:39.336641
 LON:-81.012411

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

EXISTING WELLS

- EXISTING WELLS
- PLUGGED WELLS

LEASE	LESSORS
1	TERRY KIESSLING ET AL
2	TERRY KIESSLING ET AL
3	MARY ELLEN ADKINS HERRING ET AL
4	STEVE HAMMOND ET AL
5	STEVE HAMMOND ET AL
6	MARY LEE LILLY ET AL
7	DONALD HOGUE ET AL
8	JOSEPH F. SCHMIDLE ET UX
9	JOSEPH F. SCHMIDLE ET UX
10	JOSEPH F. SCHMIDLE ET UX
11	DAVID B. OWINGS ET AL
12	CHARLOTTE L. MOSS ET AL
13	STEVEN VAUGHAN ET UX
14	DAVID L. MAPLE ET AL

- 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.

LINE	BEARING	DISTANCE
R1	N 60°31'34" W	189.75'
R2	N 67°38'46" E	217.05'
R3	S 04°04'17" E	174.17'
R4	N 59°19'37" W	1846.90'
R5	N 20°48'18" W	1831.47'
R6	N 14°32'47" E	1630.70'

PERMITTED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4354177.06
 E:499263.60
 NAD27_WV NORTH
 N:308413.85
 E:1573283.50
 LAT/LON DATUM-NAD83
 LAT:39.337019
 LON:-81.008545

AS DRILLED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4354162.12
 E:499276.60
 NAD27_WV NORTH
 N:308364.11
 E:1573325.36
 LAT/LON DATUM-NAD83
 LAT:39.336884
 LON:-81.008394

PERMITTED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4352103.38
 E:501061.58
 NAD27_WV NORTH
 N:301510.33
 E:1579070.06
 LAT/LON DATUM-NAD83
 LAT:39.318333
 LON:-80.987685

AS DRILLED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4352101.16
 E:501063.45
 NAD27_WV NORTH
 N:301502.95
 E:1579076.08
 LAT/LON DATUM-NAD83
 LAT:39.318313
 LON:-80.987663

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

FILE #: PEN 2 EHS-AS DRILLED
 DRAWING #: PEN 2 EHS-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

GEORGE D. SIX LICENSED PROFESSIONAL SURVEYOR
 No. 2000 STATE OF WEST VIRGINIA
 RECEIVED OFFICE OF ENVIRONMENTAL PROTECTION
 APPROVED SEAL HERE

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

DATE: FEBRUARY 11, 2015
 OPERATOR'S WELL #: PEN 2 EHS-AS DRILLED
 API WELL #: 47 85 10070
 STATE COUNTY PERMIT

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

WATERSHED: NORTH FORK HUGHES RIVER ELEVATION: 1084'±

COUNTY/DISTRICT: RITCHIE / CLAY QUADRANGLE: ELLENBORO, WV 7.5'

SURFACE OWNER: TERRY & HELEN KIESSLING ACREAGE: 79.242±

OIL & GAS ROYALTY OWNER: TERRY KIESSLING ET AL ACREAGE: 823.051±

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: 6,324'± TMD: 16,001'±

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

Well is located on topo map 3,519' feet west of Longitude: 81° 00' 00"

06/12/2015