

*JA*

Farm Name: Kiley, Joseph & Jacqueline Operator Well No: OXFD-1B-HS

LOCATION: Oxford 1 Elevation: 1,112.77 Quadrangle: Oxford

District: West Union County: DODDRIDGE  
Latitude: \_\_\_\_\_ Feet South of \_\_\_\_\_ Deg. Min. Sec. 39.24254700  
Longitude: \_\_\_\_\_ Feet South of \_\_\_\_\_ Deg. Min. Sec. -80.82557800

Company: CNX Gas Company LLC	Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. Ft.
Address: 200 Evergreene Drive Waynesburg, PA 15370	20	60	60	Cemented In
Agent: Steven Green	13 3/8	664	664	575 sxs (122bbls) – 45 bbls return
Inspector: Bill Hendershot	9 5/8	2580	2580	916 sxs (232bbls) – 94 bbls return
Date Permit Issued: 4/22/2011	5 1/2	13605.6	13605.6	2213 sxs 576 bbls
Date Well Work Commenced: 6/26/2013				
Date Well Work Completed: 3/14/2014				
Verbal Plugging:				
Date Permission granted on: 6/26/2013				
Rotary Cable Rig X				
Total Vertical Depth (ft): Original Hole - 6,600.2				
Total Measured Depth (ft): 13,619.0				
Fresh Water Depth (ft): 30' & 580'				
Salt Water Depth (ft): None				
Is coal being mined in the area (N/Y)? No				
Coal Depths (ft.): None Present				
Void(s) encountered (N/Y) Depth(s): N				

**OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)**

Producing formation \_\_\_\_\_ Pay zone depth (ft) 7090  
Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_  
Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

*[Signature]*  
Signature \_\_\_\_\_ Date 5/3/14  
*[Signature]*  
Signature \_\_\_\_\_ Date 5-16-14

06/13/2014

17-06001

Were core samples taken? Yes\_\_ No\_x\_

Were cuttings caught during drilling? Yes\_x\_ No\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list: Bond Log, Gamma Ray Log

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing or Stimulating: Please See Attached

Plug Back Details including Plug Type and Depth(s): Please See Attached

Surface:

Formations Encountered: Please See Attached

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06/13/2014

OXF 1B  
47-017-06001

Stimulation Summary

Date	Stage #	Formation	Frac Type	Bottom		# of Perfs	BD Press		Avg Rate		Frac		Water (gals)	
				Top	Perf		(psi)	ATP (psi)	(bpm)	ISIP (psi)	Gradient	Sand (lbs)		Acid (gals)
12/15/2013	1	Marcellus	Slickwater	13,275	13,416	48	5,087	8,394	85.0	4,838	1.17	371,786	3,000	663,412
1/27/2014	2	Marcellus	Slickwater	13,025	13,227	40	5,150	8,184	87.9	4,119	1.06	416,435	3,000	363,864
1/28/2014	3	Marcellus	Slickwater	12,775	12,977	40	4,828	8,227	67.7	4,297	1.08	365,607	6,000	682,022
1/28/2014	4	Marcellus	Slickwater	12,473	12,727	40	5,494	8,012	89.2	2,731	0.85	505,866	3,000	413,093
1/29/2014	5	Marcellus	Slickwater	12,173	12,427	40	5,781	7,984	88.3	3,271	0.93	463,641	3,000	388,924
1/29/2014	6	Marcellus	Slickwater	11,873	12,127	40	5,244	7,457	88.9	2,916	0.88	506,057	3,000	394,520
1/30/2014	7	Marcellus	Slickwater	11,573	11,827	40	5,467	7,742	58.1	4,924	1.18	233,009	9,000	595,493
1/30/2014	7B	Marcellus	Slickwater	11,560	11,670	24	5,547	8,279	84.6	4,663	1.14	275,351	3,000	426,714
1/31/2014	8	Marcellus	Slickwater	11,273	11,527	40	6,006	7,845	86.1	3,643	0.99	467,858	3,000	526,864
1/31/2014	9	Marcellus	Slickwater	10,973	11,227	40	6,002	7,315	82.9	3,100	0.90	468,930	3,000	387,975
2/1/2014	10	Marcellus	Slickwater	10,673	10,927	40	5,870	7,602	89.8	4,020	1.04	499,906	3,000	384,858
2/2/2014	11	Marcellus	Slickwater	10,373	10,627	40	6,020	7,721	89.4	3,043	0.90	511,781	3,000	406,724
2/2/2014	12	Marcellus	Slickwater	10,073	10,327	40	5,591	7,752	80.3	3,336	0.94	502,820	3,000	404,176
2/2/2014	13	Marcellus	Slickwater	9,773	10,027	40	7,040	7,853	81.2	5,919	1.33	326,869	13,500	513,626
2/9/2014	13.01	Marcellus	Slickwater	9,750	9,810	40	0	8,754	2.2	9,179	1.83	0	4,500	37,281
2/11/2014	13C	Marcellus	Slickwater	9,473	9,727	40	8,349	8,301	56.2	4,110	1.06	499,392	9,000	889,004
2/12/2014	14	Marcellus	Slickwater	9,173	9,425	40	5,252	8,111	88.9	5,063	1.06	496,817	3,000	502,435
2/12/2014	15	Marcellus	Slickwater	8,873	9,127	40	5,680	7,813	83.4	4,795	1.16	498,974	3,000	432,488
2/14/2014	16	Marcellus	Slickwater	8,625	8,827	40	5,653	8,191	78.0	5,072	1.20	412,194	3,000	549,021
2/17/2014	17	Marcellus	Slickwater	8,375	8,577	40	5,684	7,192	84.1	3,817	1.01	413,611	3,000	345,322
2/17/2014	18	Marcellus	Slickwater	8,073	8,327	40	6,445	7,859	84.0	3,439	0.96	454,733	3,000	459,991
2/20/2014	19	Marcellus	Slickwater	7,773	8,027	40	6,280	7,497	84.4	4,660	1.14	401,517	3,000	429,520
2/21/2014	20	Marcellus	Slickwater	7,473	7,727	40	6,111	7,604	87.0	4,985	1.19	503,997	3,000	404,786
2/21/2014	21	Marcellus	Slickwater	7,173	7,427	40	6,148	6,852	88.2	3,152	0.91	532,862	3,000	392,939

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17-06001

17-06001

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47-017-06001

Stage #	Plug Type	Plug Depth
1	NA	No Plug
2	Composite Frac Plug	13,250.00
3	Composite Frac Plug	13,000.00
4	Composite Frac Plug	12,750.00
5	Composite Frac Plug	12,450.00
6	Composite Frac Plug	12,150.00
7A & 7B	Composite Frac Plug	11,850.00
8	Composite Frac Plug	11,550.00
9	Composite Frac Plug	11,250.00
10	Composite Frac Plug	10,950.00
11	Composite Frac Plug	10,650.00
12	Composite Frac Plug	10,350.00
13, 13.01 & 13C	Composite Frac Plug	10,050.00
14	Composite Frac Plug	9,450.00
15	Composite Frac Plug	9,150.00
16	Composite Frac Plug	8,850.00
17	Composite Frac Plug	8,600.00
18	Composite Frac Plug	8,350.00
19	Composite Frac Plug	8,050.00
20	Composite Frac Plug	7,750.00
21	Composite Frac Plug	7,450.00

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06/13/2014

17-06001

OXF 1B  
47-017-06001

Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Sandstone and Shale, Undif.	0	1937	0	1937	
Maxton	1937	1967	1937	1980	
Greenbrier Group	1980	2040	1980	2040	
Big Injun (Grnbr)	2040	2120	2040	2277	
Weir	2277	2308	2277	2516	
Berea Ss	2515	2520	2516	2691	
Fourth	2690	2714	2691	2945	
Bayard	2944	2985	2945	3341	
Speechley	3340	3398	3341	3905	
Balltown A	3904	3930	3905	4113	
Balltown B	4112	4185	4113	4423	
Riley	4422	4443	4423	4953	
Benson	4952	5000	4953	5197	
Alexander	5196	5280	5197	6533	
Cashaqua Sh	6278	6399	6533	6713	
Middlesex Sh	6399	6448	6713	6803	
West River	6448	6524	6803	6975	
Geneseo Sh	6524	6554	6975	7072	
Tully Ls	6554	6573	7072	7156	
Hamilton	6573	6581	7156	7208	
Marcellus	6581	6636	7208	7362	Gas
Cherry Valley	6618	6620	7362	not encountered	
Onondaga	6636	6647	not encountered	not encountered	
Huntersville	6647	not encountered	not encountered	not encountered	

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06/13/2014

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/15/2013
Job End Date:	2/21/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06001-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	OXF1 B
Longitude:	-80.82558000
Latitude:	39.24255000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,600
Total Base Water Volume (gal):	10,895,516
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	92.35771	Density = 8.340
40/70 Mesh Proppant	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	5.10833	
100 Mesh Proppant	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	1.49929	
HYDROCHLORIC ACID 5-10%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	10.00000	0.08444	
FR-66	Halliburton	Friction Reducer					
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02483	
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	30.00000	0.00834	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive					
			Acetic anhydride	108-24-7	100.00000	0.00465	
			Acetic acid	64-19-7	80.00000	0.00279	
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
			Guar gum	9000-30-0	100.00000	0.00487	

17-06001



BE-9W	Halliburton	Biocide				
			Tributyl tetradecyl phosphonium chloride	51741-28-8	10.00000	0.00404
LP-65MC	Halliburton	Scale Inhibitor				
			Ammonium chloride	12125-02-9	10.00000	0.00251
CALCIUM CHLORIDE	Halliburton	Brine				
			Calcium Chloride	10043-52-4	100.00000	0.06209
LoSurf-300D	Halliburton	Non-ionic Surfactant				
			Ethanol	64-17-5	60.00000	0.00094
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00047
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.00008
			Naphthalene	91-20-3	5.00000	0.00008
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00002
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor				
			Methanol	67-58-1	60.00000	0.00046
			Propargyl alcohol	107-19-7	10.00000	0.00008
SP BREAKER	Halliburton	Breaker				
			Sodium persulfate	7775-27-1	100.00000	0.00024
Ingredients shown above are subject to 29 CFR 1910.1200(l) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.						
		Other Ingredient(s)				
			Water	7732-18-5		0.97735
		Other Ingredient(s)				
			Polyacrylamide copolymer	Confidential		0.02483
		Other Ingredient(s)				
			Organic phosphonate	Confidential		0.01505
		Other Ingredient(s)				
			Fatty acid tall oil amide	Confidential		0.00414
		Other Ingredient(s)				
			Ammonium chloride	12125-02-9		0.00414
		Other Ingredient(s)				
			Alcohols, C12-16, ethoxylated	68551-12-2		0.00414
		Other Ingredient(s)				
			Sodium chloride	7647-14-5		0.00414
		Other Ingredient(s)				
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8		0.00083
		Other Ingredient(s)				
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6		0.00083
		Other Ingredient(s)				
			Oxyalkylated phenolic resin	Confidential		0.00047
		Other Ingredient(s)				
			Formaldehyde	50-00-0		0.00025
		Other Ingredient(s)				

10090-L1

		Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		0.00024
	Other Ingredient(s)				
		Fatty acids, tall oil	Confidential		0.00023
	Other Ingredient(s)				
		Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1		0.00023
	Other Ingredient(s)				
		Alcohols, C14-C15, ethoxylated	68951-67-7		0.00023
	Other Ingredient(s)				
		Oxyalkylated phenolic resin	Confidential		0.00016
	Other Ingredient(s)				
		Silica gel	112926-00-8		0.00005
	Other Ingredient(s)				
		Surfactant mixture	Confidential		0.00005
	Other Ingredient(s)				
		Surfactant mixture	Confidential		0.00005
	Other Ingredient(s)				
		Olefins	Confidential		0.00004
	Other Ingredient(s)				
		Olefins	Confidential		0.00004
	Other Ingredient(s)				
		Olefins	Confidential		0.00001
	Other Ingredient(s)				
		Olefins	Confidential		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)

17-06001