

Farm name: Edward Nichols 8H Operator Well No.: 637870

LOCATION: Elevation: 1310' Quadrangle: Wheeling WV

District: Richland County: Ohio
Latitude: 1480' Feet South of 40 Deg. 07 Min. 30 Sec.
Longitude 8730' Feet West of 80 Deg. 37 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	13 3/8"	608'	608'	117 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	2077'	2077'	932 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	12980'	12980'	3340 Cu. Ft.
Date Permit Issued: 5-2-2011				
Date Well Work Commenced: 6-20-2011				
Date Well Work Completed: 5-30-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6335'				
Total Measured Depth (ft): 12980'				
Fresh Water Depth (ft.): 229' & 350'				
Salt Water Depth (ft.): 973'-1179' & 1330'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 545'				
Void(s) encountered (N/Y) Depth(s) Y 545'				

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

Producing formation Marcellus Pay zone depth (ft) 6,200-12,842
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 2,124* MCF/d Final open flow 327 Bbl/d
Time of open flow between initial and final tests 48 Hours *Calculated
Static rock Pressure 4,118* psig (surface pressure) after 48 Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
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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.

Matthew Williams
Signature

2-26-15
Date

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MORGANTOWN, WV

VERTICAL PILOT HOLE

Formation/Lithology	Top Depth, TVD/MD (ft)	Bottom Depth, TVD/MD (ft)
LS/SS	0	390
LS/SHALE	390	545
PITTSBURGH COAL	545	552
LS/SHALE	552	650
SS	650	1910
SHALE	1980	6010
GENESECO (SH)	6010	6030
TULLY (LS)	6030	6076
HAMILTON (SH)	6076	6156
MARCELLUS (SH)	6156	6234
ONONDAGA (LS)	6234	
TD OF PILOT HOLE		6250

**LATERAL SIDETRACK
WELLBORE**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
LS/SS	0	0	390	390
LS/SHALE	390	390	545	545
PITTSBURGH COAL	545	545	555	555
LS/SHALE	555	555	750	750
SS/SHALE	750	750	1930	1930
SHALE	1930	1930	6032	6014
GENESECO (SH)	6032	6014	6064	6033
TULLY (LS)	6064	6033	6148	6088
SHALE	6148	6088	6430	6180
MARCELLUS (SH)	6430	6180		
TD OF LATERAL			12980	6335

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Mathew Williams
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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/27/2013
State:	WEST VIRGINIA
County:	OHIO
API Number:	4706900077
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	EDWARD NICHOLS 8H
Longitude:	-80.630472
Latitude:	40.100971
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,347
Total Water Volume (gal)**:	6,282,234

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	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.000000%	78.707833%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.000000%	7.83664%	
EC6734A	NALCO	Anti-Bacterial Agent	Acetic acid	000064-19-7	60.000000%	0.01554%	
			Hydrogen Peroxide	007722-84-1	30.000000%	0.007777%	
			Peracetic Acid	000079-21-0	30.000000%	0.007777%	
			Ethylene Glycol	000107-21-1	30.000000%	0.00147%	
			Crystalline silica	14808-60-7	98.35187%	13.75510%	
			Hydrogen chloride	7647-01-0	1.11305%	0.15567%	
			Guar gum	9000-30-0	0.22199%	0.03105%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.10313%	0.01442%	
			Ammonium sulfate	7783-20-2	0.09748%	0.01363%	
			Sodium sulfate	7757-82-6	0.04213%	0.00589%	
			Potassium borate	1332-77-0	0.01861%	0.00260%	
EC6486A	NALCO	Scale Inhibitor					
Acid, Hydrochloric 15pct, A264, J218, J475, J580, J609, J610, L058, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Acid, Breaker, Corrosion Inhibitor, Cross Linker, Friction Reducer, Gelling Agent, Iron Control Agent, Proppant - Natural					

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			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01105%	0.00155%	
			Diammonium peroxodisulphate	7727-54-0	0.01060%	0.00148%	
			Urea	57-13-6	0.00679%	0.00095%	
			Glycerol	56-81-5	0.00607%	0.00085%	
			Potassium hydroxide	1310-58-3	0.00607%	0.00085%	
			Sodium erythorbate	6381-77-7	0.00526%	0.00074%	
			Methanol	67-56-1	0.00340%	0.00047%	
			Fatty acids, tall-oil	61790-12-3	0.00249%	0.00035%	
			Thiourea, polymer with formaldehyde and 1-phenylethanol	68527-49-1	0.00205%	0.00029%	
			Non-crystalline silica	7631-86-9	0.00159%	0.00022%	
			Alcohols, C14-15, ethoxylated (TEO)	68951-67-7	0.00095%	0.00013%	
			Prop-2-yn-1-ol	107-19-7	0.00064%	0.00009%	
			Alkenes, C>10 a-	64743-02-8	0.00042%	0.00006%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00041%	0.00006%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00021%	0.00003%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00010%	0.00001%	
			Magnesium silicate hydrate (calc)	14807-96-6	0.00002%	0.00001%	
			Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	0.00001%	0.00001%	
			Octamethylcyclotetrasiloxane	556-67-2	0.00001%	0.00001%	
			Sodium hydroxide	1310-73-2	0.00001%	0.00001%	
			Decamethyl cyclopentasiloxane	541-02-6	0.00001%	0.00001%	
			Dodecamethylcyclohexasiloxane	540-97-6	0.00001%	0.00001%	

Additional Ingredients Not Listed on MSDS

EC6486A, EC6734A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Diethylene Glycol	000111-46-6		0.00006%	
			Proprietary Inorganic Phosphate	TRADE SECRET		0.00056%	
			Proprietary Organic Acid Derivatives	TRADE SECRET		0.00168%	
			Proprietary Phosphonic Acid Ester	TRADE SECRET		0.00030%	
			Water	007732-18-5		0.02110%	

* 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%

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"Additional Ingredients Not Listed on MSDS" component information were obtained directly from the supplier. As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of this information should be directed to the supplier who provided it.

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