

Farm name: Edward Nichols 3H Operator Well No.: 832921

LOCATION: Elevation: 1310' Quadrangle: Wheeling WV

District: Richland County: Ohio
Latitude: 1450' 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"	590'	590'	117 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	2059'	2059'	926 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	13154'	13154'	3329 Cu. Ft.
Date Permit Issued: 12-8-2010				
Date Well Work Commenced: 7-2-2011				
Date Well Work Completed: 5-21-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6137'				
Total Measured Depth (ft): 13154'				
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'-552'				

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

Producing formation Marcellus Pay zone depth (ft) 6,474-13,016
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 1,915* MCF/d Final open flow 185 Bbl/d
Time of open flow between initial and final tests 144 Hours *Calculated
Static rock Pressure 3,989* psig (surface pressure) after 144 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

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, that the information is true, accurate, and complete.

Marlene Williams
Signature

2-26-15
Date

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Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes _____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list LWD GR from 5511'-13102' MD

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:

See attached

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			

See attached

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LATERAL SIDETRACK

WELLBORE (no vertical pilot hole associated with this well)

Maximum TVD of wellbore: 6,137 ft TVD @ 13,157 ft MD

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	552	552
LS/SHALE	552	552	650	650
SS	650	650	1910	1910
SHALE	1910	1910	6032	6014
GENESEO (SH)	6032	6014	6064	6033
TULLY (LS)	6064	6033	6140	6091
SHALE	6140	6091	6320	6161
MARCELLUS (SH)	6320	6161		
TD OF LATERAL			13157	6137

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Final Well Report

**Edward Nichols Pad 3H
Ohio County, WV**

Archer

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ARCHER Survey Report

69-00068

Company: CHESAPEAKE ENERGY CORPORATION	Date: 10/03/2011	Time: 09:43:59	Page: 1
Field: Ohio County, WV	Co-ordinate(NE) Reference: Well: 3H, Grid North		
Site: Edward Nichols Pad	Vertical (TVD) Reference: Est.1310'GL+16'KB 1326.0		
Well: 3H	Section (VS) Reference: Well (0.00N,0.00E,340.00Azi)		
Wellpath: Lateral	Survey Calculation Method: Minimum Curvature	Db: Adapti	

Field: Ohio County, WV	
Map System: US State Plane Coordinate System 1927	Map Zone: West Virginia, Northern Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Edward Nichols Pad			
Centered on well 8H			
Site Position:	Northing: 585113.20 ft	Latitude: 40 6 3.494 N	
From: Map	Easting: 1683758.50 ft	Longitude: 80 37 49.699 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 1310.00 ft		Grid Convergence: -0.72 deg	

Well: 3H	Slot Name: 3H
Well Position: +N/-S -1.22 ft	Northing: 585111.98 ft
+E/-W 19.96 ft	Latitude: 40 6 3.484 N
Position Uncertainty: 0.00 ft	Easting: 1683778.46 ft
	Longitude: 80 37 49.442 W

Wellpath: Lateral	Drilled From: Pilot Hole
Current Datum: Est.1310'GL+16'KB	Tie-on Depth: 5511.00 ft
Magnetic Data: 09/23/2011	Above System Datum: Mean Sea Level
Field Strength: 53028 nT	Declination: -8.67 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 67.68 deg
ft	+N/-S
ft	+E/-W
ft	Direction
ft	deg
0.00	0.00
0.00	0.00
0.00	340.00

Survey Program for Definitive Wellpath				
Date: 10/03/2011	Validated: No	Version: 0		
Actual From	To	Survey	Toolcode	Tool Name
ft	ft			
100.00	5511.00	Survey #1 (100.00-5511.00) (0)	Gyroscope	Gyroscope
5597.00	13102.00	Survey #1 (5597.00-13102.00)	MWD	Std MWD
13153.00	13153.00	Survey #2 (13153.00-13153.00)	Project	Projection

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
8.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
108.00	0.08	326.60	108.00	0.06	-0.04	0.07	0.08	0.08	0.00	Gyroscope
208.00	0.10	125.08	208.00	0.07	-0.01	0.06	0.18	0.02	158.48	Gyroscope
308.00	0.20	201.41	308.00	-0.15	0.00	-0.14	0.20	-0.10	76.33	Gyroscope
408.00	0.16	239.31	408.00	-0.38	-0.18	-0.29	0.12	-0.04	37.90	Gyroscope
508.00	0.20	284.73	508.00	-0.41	-0.47	-0.22	0.14	0.04	45.42	Gyroscope
608.00	0.18	190.10	608.00	-0.52	-0.67	-0.26	0.28	-0.02	-94.63	Gyroscope
708.00	0.26	28.67	708.00	-0.47	-0.59	-0.24	0.43	0.08	-161.43	Gyroscope
808.00	0.14	189.00	808.00	-0.39	-0.50	-0.20	0.39	-0.12	160.33	Gyroscope
908.00	0.18	163.08	908.00	-0.67	-0.47	-0.46	0.08	0.04	-25.92	Gyroscope
1008.00	0.15	312.78	1008.00	-0.73	-0.52	-0.51	0.32	-0.03	149.70	Gyroscope
1108.00	0.17	263.45	1108.00	-0.65	-0.76	-0.35	0.13	0.02	-49.33	Gyroscope
1208.00	0.34	295.30	1208.00	-0.54	-1.18	-0.11	0.22	0.17	31.85	Gyroscope
1308.00	0.23	289.85	1307.99	-0.35	-1.64	0.23	0.11	-0.11	-5.45	Gyroscope
1408.00	0.29	278.27	1407.99	-0.25	-2.07	0.48	0.08	0.06	-11.58	Gyroscope
1508.00	0.14	300.15	1507.99	-0.15	-2.43	0.69	0.17	-0.15	21.88	Gyroscope
1608.00	0.20	285.68	1607.99	-0.04	-2.70	0.89	0.07	0.06	-14.47	Gyroscope
1708.00	0.18	299.08	1707.99	0.08	-3.01	1.11	0.05	-0.02	13.40	Gyroscope
1808.00	0.35	291.22	1807.99	0.27	-3.43	1.43	0.17	0.17	-7.86	Gyroscope
1908.00	0.19	286.03	1907.99	0.43	-3.88	1.73	0.16	-0.16	-5.19	Gyroscope
2008.00	0.37	302.20	2007.99	0.65	-4.31	2.08	0.19	0.18	16.17	Gyroscope

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Well: 3H	Section (VS) Reference:	Well (0.00N,0.00E,340.00Azi)	
Wellpath: Lateral	Survey Calculation Method:	Minimum Curvature	Db: Adapti

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2108.00	0.55	292.96	2107.99	1.00	-5.02	2.66	0.19	0.18	-9.24	Gyroscope
2208.00	0.68	280.83	2207.98	1.30	-6.05	3.29	0.18	0.13	-12.13	Gyroscope
2308.00	1.01	305.47	2307.97	1.93	-7.35	4.32	0.48	0.33	24.64	Gyroscope
2408.00	0.77	310.26	2407.96	2.87	-8.58	5.63	0.25	-0.24	4.79	Gyroscope
2508.00	0.97	297.35	2507.95	3.70	-9.84	6.84	0.28	0.20	-12.91	Gyroscope
2608.00	1.12	312.50	2607.93	4.74	-11.32	8.33	0.31	0.15	15.15	Gyroscope
2708.00	0.97	318.22	2707.91	6.04	-12.60	9.98	0.18	-0.15	5.72	Gyroscope
2808.00	1.24	307.79	2807.89	7.33	-14.02	11.68	0.34	0.27	-10.43	Gyroscope
2908.00	1.32	314.58	2907.87	8.80	-15.70	13.64	0.17	0.08	6.79	Gyroscope
3008.00	1.03	313.11	3007.85	10.22	-17.17	15.48	0.29	-0.29	-1.47	Gyroscope
3108.00	1.02	315.17	3107.83	11.47	-18.46	17.09	0.04	-0.01	2.06	Gyroscope
3208.00	1.10	309.74	3207.81	12.71	-19.82	18.73	0.13	0.08	-5.43	Gyroscope
3308.00	1.07	308.91	3307.80	13.91	-21.29	20.36	0.03	-0.03	-0.83	Gyroscope
3408.00	1.16	307.86	3407.78	15.12	-22.81	22.01	0.09	0.09	-1.05	Gyroscope
3508.00	1.01	308.98	3507.76	16.30	-24.30	23.63	0.15	-0.15	1.12	Gyroscope
3608.00	0.90	314.02	3607.75	17.40	-25.55	25.09	0.14	-0.11	5.04	Gyroscope
3708.00	1.15	306.18	3707.73	18.54	-26.92	26.63	0.29	0.25	-7.84	Gyroscope
3808.00	1.00	313.16	3807.71	19.73	-28.37	28.24	0.20	-0.15	6.98	Gyroscope
3908.00	1.05	326.03	3907.70	21.08	-29.52	29.91	0.24	0.05	12.87	Gyroscope
4008.00	1.06	331.31	4007.68	22.65	-30.47	31.71	0.10	0.01	5.28	Gyroscope
4108.00	1.22	334.38	4107.66	24.43	-31.38	33.68	0.17	0.16	3.07	Gyroscope
4208.00	1.31	337.69	4207.64	26.44	-32.27	35.89	0.12	0.09	3.31	Gyroscope
4308.00	1.28	336.65	4307.61	28.53	-33.15	38.14	0.04	-0.03	-1.04	Gyroscope
4408.00	1.38	342.89	4407.58	30.70	-33.94	40.46	0.18	0.10	6.24	Gyroscope
4508.00	1.51	352.71	4507.55	33.16	-34.47	42.95	0.28	0.13	9.82	Gyroscope
4608.00	1.57	357.33	4607.51	35.84	-34.70	45.54	0.14	0.06	4.62	Gyroscope
4708.00	1.53	10.40	4707.48	38.52	-34.52	48.00	0.36	-0.04	13.07	Gyroscope
4808.00	1.39	358.64	4807.45	41.04	-34.31	50.30	0.33	-0.14	-11.76	Gyroscope
4908.00	1.46	359.78	4907.42	43.53	-34.34	52.65	0.08	0.07	1.14	Gyroscope
5008.00	1.48	4.90	5007.38	46.09	-34.24	55.02	0.13	0.02	5.12	Gyroscope
5108.00	1.67	347.03	5107.35	48.80	-34.45	57.64	0.52	0.19	-17.87	Gyroscope
5208.00	1.75	3.33	5207.30	51.74	-34.69	60.48	0.49	0.08	16.30	Gyroscope
5308.00	1.72	353.57	5307.26	54.76	-34.77	63.35	0.30	-0.03	-9.76	Gyroscope
5408.00	1.68	338.30	5407.21	57.61	-35.48	66.27	0.45	-0.04	-15.27	Gyroscope
5597.00	1.30	350.50	5596.15	62.30	-36.86	71.15	0.26	-0.20	6.46	MWD
5640.00	2.20	328.90	5639.13	63.49	-37.36	72.44	2.56	2.09	-50.23	MWD
5684.00	4.50	317.40	5683.05	65.48	-38.97	74.86	5.42	5.23	-26.14	MWD
5727.00	6.50	321.90	5725.85	68.64	-41.61	78.73	4.75	4.65	10.47	MWD
5770.00	8.10	324.30	5768.50	73.01	-44.88	83.96	3.79	3.72	5.58	MWD
5814.00	9.90	323.80	5811.96	78.58	-48.93	90.58	4.09	4.09	-1.14	MWD
5857.00	12.30	326.30	5854.15	85.38	-53.65	98.58	5.69	5.58	5.8	MWD
5900.00	14.90	331.40	5895.94	94.04	-58.84	108.50	6.65	6.05	11.86	MWD
5944.00	21.00	330.20	5937.78	105.86	-65.47	121.87	13.89	13.86	-2.73	MWD
5987.00	27.60	333.30	5976.95	121.47	-73.79	139.38	15.63	15.35	7.21	MWD
6030.00	33.80	337.50	6013.91	141.44	-82.85	161.24	15.25	14.42	9.77	MWD
6074.00	40.30	340.20	6049.01	166.16	-92.36	187.73	15.23	14.77	6.14	MWD
6117.00	47.20	339.80	6080.05	194.08	-102.53	217.45	16.06	16.05	-0.93	MWD
6160.00	54.90	340.40	6107.07	225.51	-113.90	250.86	17.94	17.91	1.40	MWD
6204.00	63.00	342.70	6129.74	261.24	-125.79	288.51	18.94	18.41	5.23	MWD
6225.55	67.05	344.40	6138.84	279.97	-131.31	308.00	20.12	18.80	7.90	MWD
6247.00	71.10	346.00	6146.50	299.34	-136.42	327.95	20.12	18.88	7.44	MWD
6290.00	79.30	345.40	6157.48	339.59	-146.69	369.28	19.12	19.07	-1.40	MWD
6334.00	85.80	344.30	6163.18	381.68	-158.09	412.73	14.98	14.77	-2.50	MWD
6377.00	87.60	346.00	6165.65	423.17	-169.09	455.48	5.75	4.19	3.95	MWD

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Site: Edward Nichols Pad	Section (VS) Reference: Well (0.00N,0.00E,340.00Azi)	Survey Calculation Method: Minimum Curvature	
Well: 3H			Db: Adapti
Wellpath: Lateral			

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6420.00	90.00	344.20	6166.55	464.71	-180.14	498.30	6.98	5.58	-4.19	MWD
6463.00	89.80	343.80	6166.63	506.04	-191.99	541.19	1.04	-0.47	-0.93	MWD
6507.00	90.50	343.90	6166.51	548.31	-204.23	585.09	1.61	1.59	0.23	MWD
6550.00	91.60	343.00	6165.73	589.52	-216.48	628.00	3.31	2.56	-2.09	MWD
6594.00	91.50	341.30	6164.54	631.38	-229.96	671.96	3.87	-0.23	-3.86	MWD
6637.00	90.00	340.50	6163.97	672.01	-244.03	714.95	3.95	-3.49	-1.86	MWD
6680.00	88.50	340.10	6164.54	712.49	-258.52	757.94	3.61	-3.49	-0.93	MWD
6724.00	87.20	339.10	6166.19	753.70	-273.85	801.91	3.73	-2.95	-2.27	MWD
6810.00	88.00	339.20	6169.79	834.00	-304.43	887.82	0.94	0.93	0.12	MWD
6897.00	89.20	339.00	6171.91	915.25	-335.46	974.78	1.40	1.38	-0.23	MWD
6984.00	91.60	339.40	6171.31	996.57	-366.35	1061.77	2.80	2.76	0.46	MWD
7071.00	93.10	339.20	6167.74	1077.88	-397.07	1148.68	1.74	1.72	-0.23	MWD
7157.00	89.70	337.50	6165.64	1157.77	-428.79	1234.61	4.42	-3.95	-1.98	MWD
7244.00	89.80	337.50	6166.02	1238.15	-462.08	1321.52	0.11	0.11	0.00	MWD
7331.00	90.80	338.30	6165.56	1318.76	-494.81	1408.46	1.47	1.15	0.92	MWD
7418.00	92.10	337.70	6163.36	1399.39	-527.39	1495.38	1.65	1.49	-0.69	MWD
7505.00	90.90	337.90	6161.08	1479.91	-560.25	1582.28	1.40	-1.38	0.23	MWD
7592.00	88.70	337.40	6161.39	1560.37	-593.33	1669.20	2.59	-2.53	-0.57	MWD
7678.00	90.90	341.80	6161.69	1640.95	-623.30	1755.17	5.72	2.56	5.12	MWD
7765.00	91.10	343.30	6160.17	1723.94	-649.38	1842.07	1.74	0.23	1.72	MWD
7852.00	90.20	344.50	6159.18	1807.52	-673.51	1928.86	1.72	-1.03	1.38	MWD
7939.00	91.00	343.70	6158.27	1891.18	-697.34	2015.63	1.30	0.92	-0.92	MWD
7982.00	90.30	342.40	6157.78	1932.31	-709.88	2058.57	3.43	-1.63	-3.02	MWD
8025.00	91.70	344.20	6157.03	1973.49	-722.23	2101.49	5.30	3.26	4.19	MWD
8112.00	90.40	342.20	6155.44	2056.75	-747.37	2188.33	2.74	-1.49	-2.30	MWD
8199.00	88.80	340.90	6156.04	2139.28	-774.90	2275.29	2.37	-1.84	-1.49	MWD
8286.00	91.70	342.40	6155.67	2221.84	-802.29	2362.24	3.75	3.33	1.72	MWD
8373.00	91.80	341.20	6153.01	2304.45	-829.45	2449.16	1.38	0.11	-1.38	MWD
8460.00	88.80	340.50	6152.55	2386.62	-857.98	2536.14	3.54	-3.45	-0.80	MWD
8546.00	87.00	339.00	6155.70	2467.25	-887.73	2622.07	2.72	-2.09	-1.74	MWD
8633.00	87.90	338.30	6159.57	2548.19	-919.37	2708.96	1.31	1.03	-0.80	MWD
8720.00	89.20	338.30	6161.78	2629.00	-951.52	2795.89	1.49	1.49	0.00	MWD
8807.00	90.40	339.30	6162.08	2710.11	-982.98	2882.87	1.80	1.38	1.15	MWD
8894.00	91.40	338.40	6160.71	2791.24	-1014.37	2969.84	1.55	1.15	-1.03	MWD
8981.00	89.90	339.00	6159.73	2872.29	-1045.97	3056.81	1.86	-1.72	0.69	MWD
9067.00	90.50	338.10	6159.43	2952.33	-1077.42	3142.78	1.26	0.70	-1.05	MWD
9154.00	91.50	339.60	6157.91	3033.45	-1108.80	3229.75	2.07	1.15	1.72	MWD
9241.00	90.20	339.00	6156.62	3114.83	-1139.55	3316.73	1.65	-1.49	-0.69	MWD
9328.00	91.40	339.70	6155.40	3196.23	-1170.23	3403.71	1.60	1.38	0.80	MWD
9414.00	89.60	340.40	6154.65	3277.06	-1199.57	3489.70	2.25	-2.09	0.81	MWD
9501.00	91.30	339.20	6153.97	3358.70	-1229.61	3576.70	2.39	1.95	-1.38	MWD
9588.00	89.60	340.40	6153.29	3440.34	-1259.65	3663.69	2.39	-1.95	1.38	MWD
9675.00	90.00	340.70	6153.59	3522.38	-1288.62	3750.68	0.57	0.46	0.34	MWD
9762.00	90.70	339.10	6153.06	3604.07	-1318.51	3837.68	2.01	0.80	-1.84	MWD
9849.00	90.90	338.30	6151.84	3685.12	-1350.11	3924.65	0.95	0.23	-0.92	MWD
9935.00	91.10	339.10	6150.34	3765.23	-1381.35	4010.61	0.96	0.23	0.93	MWD
10022.00	88.40	339.10	6150.72	3846.50	-1412.38	4097.59	3.10	-3.10	0.00	MWD
10109.00	88.70	338.40	6152.92	3927.56	-1443.90	4184.54	0.88	0.34	-0.80	MWD
10196.00	88.80	338.60	6154.82	4008.49	-1475.78	4271.49	0.26	0.11	0.23	MWD
10283.00	89.70	339.60	6155.96	4089.75	-1506.81	4358.47	1.55	1.03	1.15	MWD
10370.00	91.40	339.50	6155.12	4171.26	-1537.21	4445.46	1.96	1.95	-0.11	MWD
10457.00	92.20	338.80	6152.39	4252.53	-1568.16	4532.41	1.22	0.92	-0.80	MWD
10543.00	93.00	338.00	6148.49	4332.40	-1599.78	4618.28	1.31	0.93	-0.93	MWD

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ARCHER Survey Report

69-00068

Company: CHESAPEAKE ENERGY CORPORATION	Date: 10/03/2011	Time: 09:43:59	Page: 4
Field: Ohio County, WV	Co-ordinate(NE) Reference:	Well: 3H, Grid North	
Site: Edward Nichols Pad	Vertical (TVD) Reference:	Est. 1310°GL+16°KB 1326.0	
Well: 3H	Section (VS) Reference:	Well (0.00N,0.00E,340.00Azi)	
Wellpath: Lateral	Survey Calculation Method:	Minimum Curvature	Db: Adapti

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
10630.00	91.90	337.60	6144.77	4412.88	-1632.62	4705.14	1.35	-1.26	-0.46	MWD
10717.00	91.50	340.50	6142.19	4494.08	-1663.71	4792.08	3.36	-0.46	3.33	MWD
10804.00	89.90	341.30	6141.13	4576.28	-1692.18	4879.06	2.06	-1.84	0.92	MWD
10890.00	91.70	342.30	6139.93	4657.97	-1719.03	4965.00	2.39	2.09	1.16	MWD
10977.00	90.40	342.30	6138.33	4740.84	-1745.48	5051.92	1.49	-1.49	0.00	MWD
11064.00	91.30	342.50	6137.04	4823.75	-1771.78	5138.83	1.06	1.03	-0.23	MWD
11151.00	89.70	343.90	6136.28	4907.03	-1796.93	5225.69	2.44	-1.84	1.61	MWD
11237.00	90.20	341.30	6136.36	4989.09	-1822.64	5311.59	3.08	0.58	-3.02	MWD
11324.00	90.90	339.00	6135.52	5070.91	-1852.18	5398.58	2.76	0.80	-2.64	MWD
11411.00	91.60	339.20	6133.62	5152.17	-1883.21	5485.55	0.84	0.80	0.23	MWD
11498.00	92.40	339.30	6130.59	5233.47	-1914.01	5572.49	0.93	0.92	0.11	MWD
11584.00	91.40	341.20	6127.74	5314.36	-1943.05	5658.43	2.50	-1.16	2.21	MWD
11671.00	89.90	341.30	6126.75	5396.74	-1971.02	5745.40	1.73	-1.72	0.11	MWD
11758.00	91.30	344.10	6125.84	5479.79	-1996.88	5832.29	3.60	1.61	3.22	MWD
11844.00	89.40	341.20	6125.31	5561.86	-2022.53	5918.19	4.03	-2.21	-3.37	MWD
11931.00	89.90	342.50	6125.84	5644.53	-2049.63	6005.14	1.60	0.57	1.49	MWD
12018.00	91.40	344.00	6124.86	5727.83	-2074.70	6091.99	2.44	1.72	1.72	MWD
12105.00	92.70	341.90	6121.75	5810.94	-2100.19	6178.81	2.84	1.49	-2.41	MWD
12192.00	93.70	341.20	6116.89	5893.34	-2127.68	6265.64	1.40	1.15	-0.80	MWD
12278.00	92.00	340.80	6112.61	5974.55	-2155.64	6351.52	2.03	-1.98	-0.47	MWD
12365.00	90.10	339.70	6111.02	6056.42	-2185.03	6438.50	2.52	-2.18	-1.26	MWD
12452.00	91.80	344.90	6109.58	6139.26	-2211.47	6525.38	6.29	1.95	5.98	MWD
12539.00	89.00	344.50	6108.97	6223.16	-2234.42	6612.08	3.25	-3.22	-0.46	MWD
12625.00	86.80	340.80	6112.12	6305.17	-2260.04	6697.91	5.00	-2.56	-4.30	MWD
12712.00	84.90	339.00	6118.42	6386.66	-2289.86	6784.67	3.00	-2.18	-2.07	MWD
12799.00	86.40	338.00	6125.02	6467.36	-2321.65	6871.39	2.07	1.72	-1.15	MWD
12886.00	87.10	337.70	6129.95	6547.81	-2354.40	6958.19	0.88	0.80	-0.34	MWD
12972.00	87.60	339.00	6133.92	6627.66	-2386.10	7044.06	1.62	0.58	1.51	MWD
13059.00	88.50	337.00	6136.88	6708.27	-2418.67	7130.95	2.52	1.03	-2.30	MWD
13102.00	88.90	338.10	6137.86	6748.00	-2435.08	7173.90	2.72	0.93	2.56	MWD
13153.00	88.90	338.10	6138.84	6795.31	-2454.10	7224.86	0.00	0.00	0.00	PROJECTED to TD

Targets													
Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude --->			<--- Longitude --->		
								Deg	Min	Sec	Deg	Min	Sec
3H SL			0.00	0.00	0.00	585111.98	1683778.46	40	6	3.484 N	80	37	49.442 W
3H BHL			6138.84	6795.31	-2454.10	591907.29	1681324.36	40	7	10.327 N	80	38	22.129 W

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Hydraulic Fracturing Fluid Product Component Information Disclosure

69-00068	Fracture Date:	4/15/2013
	State:	WEST VIRGINIA
	County:	OHIO
	API Number:	4706900068
	Operator Name:	CHESAPEAKE APPALACHIA LLC
	Well Name and Number:	EDWARD NICHOLS 3H
	Longitude:	-80.6304
	Latitude:	40.100968
	Long/Lat Projection:	NAD27
	Production Type:	GAS
True Vertical Depth (TVD):	6,172	
Total Water Volume (gal)*:	6,819,120	

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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
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00000%	74.72137%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00000%	11.16737%	
EC6734A	NALCO	Anti-Bacterial Agent	Acetic acid	000064-19-7	60.00000%	0.01606%	
			Hydrogen Peroxide	007722-84-1	30.00000%	0.00803%	
			Peracetic Acid	000079-21-0	30.00000%	0.00803%	
EC6486A	NALCO	Scale Inhibitor	Ethylene Glycol	000107-21-1	30.00000%	0.00223%	
Acid, Hydrochloric 15pct, A264, D047, J218, J475, J580, J609, J610, L058, 100 Mesh Sand, Northern White Sand	SCHLUMBERGER	Acid, Breaker, Corrosion Inhibitor, Cross Linker, Defoaming Agent, Friction Reducer, Gelling Agent, Iron Control Agent, Proppant - Natural	Crystalline silica	14808-60-7	98.52301%	13.77132%	
			Hydrogen chloride	7647-01-0	0.93431%	0.13060%	
			Water	007732-18-5	0.94366%	0.13349%	
			Guar gum	9000-30-0	0.18929%	0.02646%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.12443%	0.01739%	
			Ammonium sulfate	7783-20-2	0.11760%	0.01644%	
			Sodium sulfate	7757-82-6	0.05083%	0.00710%	

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Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01333%	0.00186%	
Diammonium peroxodisulphate	7727-54-0	0.01237%	0.00173%	
Urea	57-13-6	0.00819%	0.00115%	
Potassium borate	1332-77-0	0.00785%	0.00110%	
Sodium erythorbate	6381-77-7	0.00422%	0.00049%	
Methanol	67-56-1	0.00307%	0.00043%	
Glycerol	56-81-5	0.00256%	0.00036%	
Potassium hydroxide	1310-58-3	0.00256%	0.00036%	
Fatty acids, tall-oil	61790-12-3	0.00225%	0.00031%	
Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00185%	0.00026%	
Non-crystalline silica	7631-86-9	0.00170%	0.00024%	
Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00086%	0.00012%	
Prop-2-yn-1-ol	107-19-7	0.00057%	0.00008%	
Polypropylene glycol	25322-69-4	0.00047%	0.00007%	
Alkenes, C>10 a-	64743-02-8	0.00038%	0.00005%	
Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00026%	0.00004%	
Dimethyl siloxanes and silicones	63148-62-9	0.00012%	0.00002%	
Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00010%	0.00001%	
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	0.00002%	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%	
Magnesium silicate hydrate (talc)	14807-96-6	0.00001%	0.00001%	
Dodecamethylcyclohexasiloxane	540-97-6	0.00001%	0.00001%	

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Additional Ingredients Not Listed on MSDS

EC6486A, EC6734A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Diethylene Glycol	000111-46-6	0.00009%	
			Proprietary Inorganic Phosphate	TRADE SECRET	0.00085%	
			Proprietary Organic Acid Derivatives	TRADE SECRET	0.00256%	
			Proprietary Phosphonic Acid Ester	TRADE SECRET	0.00031%	
			Water	007732-18-5	0.02361%	

* 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%

"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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