

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

DATE: 2-26-2015
API #: 47-069-00168

Farm name: Clarence Farmer OHI 8H Operator Well No.: 835811

LOCATION: Elevation: 1,330' Quadrangle: Bethany

District: Liberty County: Ohio
Latitude: 9,540' Feet South of 40 Deg. 10 Min. 00 Sec.
Longitude 7,150' Feet West of 80 Deg. 32 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	20"	122'	122'	365 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	677'	677'	752 Cu. Ft.
Inspector: Gayne J. Knitowski	9 5/8"	2,149'	2,149'	921 Cu. Ft.
Date Permit Issued: <u>5-14-2013</u>	5 1/2"	15,512'	15,512'	3,755 Cu. Ft.
Date Well Work Commenced: <u>6-1-2013</u>				
Date Well Work Completed: <u>3-11-2014</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6,496'</u>				
Total Measured Depth (ft): <u>15,517'</u>				
Fresh Water Depth (ft.): <u>425'</u>				
Salt Water Depth (ft.): <u>750'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>727'</u>				
Void(s) encountered (N/Y) Depth(s) <u>Y 727'</u>				

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

Producing formation Marcellus Pay zone depth (ft) ^(7,070-15,331)

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow 3,351* MCF/d Final open flow 277 Bbl/d

Time of open flow between initial and final tests 96 Hours

Static rock Pressure 4,222* psig (surface pressure) after 96 Hours ^(Calculated)

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.

Marcus Williams
Signature

2/26/15
Date

REJECTED
A.H. 5/19/15 ✓

Were core samples taken? Yes _____ No N

Were cuttings caught during drilling? Yes Y No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GRMWD from 5619-15283'

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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PERFORATION RECORD ATTACHMENT

Well Name and Number: CLARENCE FARMER OHI 8H

API No. 4706900168

Stage	PERFORATION RECORD				STIMULATION RECORD							
	Date	Interval Perforated		Total Number Of Shots				Fluid		Propping Agent		Average Injection Rate
		From	To		Date	Interval Treated	Type	Amount	Type	Amount		
1	1/30/2014	15133	15330.5	40	1/30/2014	15133	15330.5	SLK Wtr	5303	Sand	325560	97.8
2	2/1/2014	14881	15085	40	2/1/2014	14881	15085	SLK Wtr	5615	Sand	325640	90
3	2/1/2014	14629	14833	40	2/1/2014	14629	14833	SLK Wtr	5494	Sand	325440	98
4	2/2/2014	14377	14581	40	2/2/2014	14377	14581	SLK Wtr	5363	Sand	325300	98
5	2/2/2014	14125	14329	40	2/2/2014	14125	14329	SLK Wtr	5238	Sand	325520	100.2
6	2/2/2014	13873	14077	40	2/2/2014	13873	14077	SLK Wtr	5321	Sand	324040	100
7	2/2/2014	13621	13825	40	2/2/2014	13621	13825	SLK Wtr	5250	Sand	324800	99.3
8	2/3/2014	13369	13573	40	2/3/2014	13369	13573	SLK Wtr	5235	Sand	324160	100
9	2/3/2014	13117	13321	40	2/3/2014	13117	13321	SLK Wtr	5267	Sand	323360	100.1
10	2/3/2014	12865	13069	40	2/3/2014	12865	13069	SLK Wtr	5153	Sand	321622	99.6
11	2/4/2014	12613	12817	40	2/4/2014	12613	12817	SLK Wtr	5238	Sand	324205	99
12	2/4/2014	12361	12562	40	2/4/2014	12361	12562	SLK Wtr	5210	Sand	323595	94.7
13	2/4/2014	12109	12313	40	2/4/2014	12109	12313	SLK Wtr	5193	Sand	323922	100.2
14	2/4/2014	11857	12061	40	2/4/2014	11857	12061	SLK Wtr	5276	Sand	323684	99.9
15	2/4/2014	11605	11809	40	2/4/2014	11605	11809	SLK Wtr	5222	Sand	324491	100
16	2/5/2014	11353	11557	40	2/5/2014	11353	11557	SLK Wtr	5368	Sand	324315	99
17	2/5/2014	11102	11305	40	2/5/2014	11102	11305	SLK Wtr	5287	Sand	324064	96
18	2/5/2014	10850	11054	40	2/5/2014	10850	11054	SLK Wtr	5121	Sand	324931	99.4
19	2/6/2014	10598	10802	40	2/6/2014	10598	10802	SLK Wtr	1877	Sand	326464	89
20	2/6/2014	10346	10550	40	2/6/2014	10346	10550	SLK Wtr	5111	Sand	326349	99
21	2/7/2014	10094	10298	40	2/7/2014	10094	10298	SLK Wtr	5145	Sand	308590	99
22	2/7/2014	9842	10046	40	2/7/2014	9842	10046	SLK Wtr	5219	Sand	325510	100
23	2/7/2014	9590	9794	40	2/7/2014	9590	9794	SLK Wtr	5129	Sand	325389	99
24	2/7/2014	9338	9542	40	2/7/2014	9338	9542	SLK Wtr	5178	Sand	326594	96.5
25	2/7/2014	9086	9290	40	2/7/2014	9086	9290	SLK Wtr	5090	Sand	324336	97.5
26	2/7/2014	8834	9038	40	2/7/2014	8834	9038	SLK Wtr	5172	Sand	327267	97
27	2/7/2014	8582	8786	40	2/7/2014	8582	8786	SLK Wtr	5092	Sand	323499	100
28	2/8/2014	8330	8534	40	2/8/2014	8330	8534	SLK Wtr	5126	Sand	324200	98.3
29	2/8/2014	8078	8282	40	2/8/2014	8078	8282	SLK Wtr	5690	Sand	325300	99

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LATERAL WELLBORE (no vertical pilot hole associated with this well)**Maximum TVD of wellbore: 6496 ft TVD @ 15283 ft MD**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SILTSTONE W/ SS	0	0	420	420
LS W/ SS	420	420	633	633
PITTSBURG COAL	633	633	643	643
SS W/ SILTSTONE	643	643	980	980
SHALE W/ SILTSTONE	980	980	1140	1140
SS W/ SILTSTONE	1140	1140	1650	1650
BIG LIME	1650	1650	1761	1761
BIG INJUN (SS)	1761	1761	1972	1972
SHALE W/ MINOR SS	1972	1972	6232	6170
GENESEO (SH)	6232	6170	6254	6185
TULLY (LS)	6254	6185	6332	6232
HAMILTON (SH)	6332	6232	6813	6340
MARCELLUS (SH)	6813	6340		
TD OF LATERAL			15283	6496

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Company: Chesapeake Operating, Inc Lease / Well: Clarence Farms OHI #8H County/Parish: Ohio County State: WV Date: 6/2/2013 API#: 47-6900168 Dir. Company: WEATHERFORD	Operator: Justin Blocker Job Number: SVPA-130230 Gyro Serial #: IS-167 Proposed Direction: 150.13 Mag. Declination: 8.11 Rig/RKB: Nomac #337 Tie-in Company: NA
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W-G NORTH

22' ft.

FIELD USE ONLY, DEFINITIVE SURVEY WILL COME FROM MS SURVEY OFFICES

TIE-IN Survey					
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S)	Coordinates (+E/-W)
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report									
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates		Dog-Leg / 100 ft.	Closure Distance	Closure Direction
					(+N/-S)	(+E/-W)			
100.00	0.24	48.42	100.00	-0.04	0.14	0.16	0.24	0.21	48.42
200.00	0.02	208.70	200.00	-0.08	0.26	0.30	0.26	0.40	49.26
300.00	0.12	271.21	300.00	-0.12	0.25	0.19	0.11	0.31	37.55
400.00	0.16	235.54	400.00	-0.16	0.17	-0.03	0.09	0.18	350.81
500.00	0.45	228.62	500.00	-0.07	-0.17	-0.44	0.29	0.47	249.25
600.00	0.57	234.10	599.99	0.06	-0.72	-1.14	0.13	1.34	237.72

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SURVEY REPORT

Report Date: 6/17/2013
 Customer: Chesapeake
 Job Name: 4029553
 Well Name: Clarence Farmer 8H

Field: Marcellus Shale
 Rig: Nomac 337
 Rig Loc: Ohio County

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	150.11 deg	53255 nT	68.14 deg	-8.80 deg	-0.69 deg	-8.11 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	600.00 ft	0.57 deg	234.10 deg	599.99 ft	-0.72 ft	-1.14 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
765.00	0.60	119.73	764.99	-1.63	-1.05	0.89	0.60
828.00	1.68	58.42	827.97	-1.31	0.02	1.14	2.36
923.00	4.61	41.85	922.82	2.26	3.75	-0.09	3.20
1018.00	5.71	32.93	1017.44	9.08	8.87	-3.45	1.43
1112.00	7.87	25.75	1110.77	18.80	14.21	-9.22	2.46
1206.00	8.11	21.47	1203.86	30.76	19.43	-16.99	0.68
1301.00	8.49	25.00	1297.87	43.36	24.85	-25.21	0.67
1395.00	8.54	28.34	1390.83	55.79	31.09	-32.87	0.53
1490.00	7.96	25.03	1484.85	67.96	37.22	-40.37	0.79
1585.00	7.63	23.86	1578.97	79.69	42.56	-47.88	0.39
1679.00	7.21	22.85	1672.18	90.83	47.37	-55.14	0.47
1774.00	6.32	33.96	1766.53	100.66	52.61	-61.05	1.66
1868.00	4.43	49.55	1860.11	107.31	58.26	-64.00	2.52
1960.00	1.86	47.56	1951.97	110.62	62.07	-64.97	2.80
2055.00	1.51	36.79	2046.93	112.66	63.96	-65.80	0.50
2081.00	1.61	43.03	2072.92	113.20	64.41	-66.05	0.76
2243.00	0.40	308.49	2234.89	115.22	65.52	-67.24	1.04
2306.00	0.70	293.88	2297.89	115.51	65.00	-67.75	0.52
2400.00	0.85	275.48	2391.88	115.81	63.78	-68.62	0.31
2494.00	0.83	276.86	2485.87	115.96	62.11	-69.43	0.03
2589.00	0.98	279.36	2580.86	116.17	60.92	-70.85	0.16
2683.00	1.03	293.27	2674.85	116.64	59.35	-71.54	0.26
2778.00	0.96	293.86	2769.83	117.30	57.84	-72.87	0.07
2873.00	0.93	291.01	2864.82	117.90	56.40	-74.11	0.06
2968.00	0.98	278.56	2959.81	118.29	54.87	-75.21	0.22
3062.00	0.93	281.51	3053.79	118.57	53.33	-76.22	0.07
3157.00	0.81	294.32	3148.78	119.00	51.96	-77.27	0.24
3252.00	0.81	292.89	3243.77	119.53	50.73	-78.35	0.02
3346.00	0.81	300.50	3337.76	120.13	49.55	-79.46	0.11
3442.00	0.96	297.12	3433.75	120.84	48.25	-80.72	0.17
3535.00	0.91	284.58	3526.74	121.38	46.84	-81.89	0.23
3629.00	0.82	283.80	3620.73	121.73	45.46	-82.88	0.10
3724.00	0.81	279.53	3715.72	122.00	44.14	-83.78	0.06
3819.00	0.81	292.14	3810.71	122.37	42.86	-84.73	0.19
3914.00	0.65	303.48	3905.70	122.92	41.78	-85.74	0.23

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
4007.00	0.59	327.93	3998.70	123.61	41.09	-86.69	0.29
4104.00	0.63	303.22	4095.69	124.33	40.38	-87.67	0.27
4199.00	0.90	306.71	4190.68	125.06	39.34	-88.82	0.29
4294.00	0.68	330.82	4285.67	126.00	38.47	-90.07	0.41
4389.00	0.49	340.26	4380.67	126.87	38.06	-91.03	0.22
4482.00	0.70	313.96	4473.66	127.64	37.52	-91.97	0.36
4576.00	0.85	322.55	4567.65	128.60	36.68	-93.21	0.20
4671.00	0.23	30.79	4662.65	129.32	36.35	-94.00	0.84
4765.00	0.34	42.20	4756.65	129.69	36.63	-94.18	0.13
4860.00	0.35	338.75	4851.65	130.17	36.72	-94.56	0.38
4955.00	0.49	319.88	4946.64	130.75	36.35	-95.24	0.21
5050.00	0.46	303.11	5041.64	131.27	35.77	-95.98	0.15
5144.00	0.50	297.35	5135.64	131.66	35.09	-96.66	0.07
5239.00	0.65	283.03	5230.63	131.97	34.19	-97.38	0.22
5334.00	0.81	291.09	5325.63	132.34	33.04	-98.27	0.20
5428.00	0.71	300.29	5419.62	132.87	31.92	-99.29	0.17
5472.00	0.47	285.69	5463.61	133.05	31.51	-99.65	0.64
5567.00	0.36	298.00	5558.61	133.30	30.87	-100.18	0.15
5661.00	0.66	303.14	5652.61	133.73	30.16	-100.92	0.32
5693.00	0.73	300.69	5684.61	133.94	29.83	-101.26	0.24
5724.00	0.49	181.26	5715.61	133.91	29.66	-101.32	3.42
5756.00	3.14	161.11	5747.59	132.94	29.94	-100.34	8.39
5787.00	6.58	162.61	5778.47	130.44	30.74	-97.77	11.10
5818.00	10.00	161.05	5809.14	126.20	32.15	-93.39	11.06
5850.00	12.58	157.84	5840.52	120.34	34.37	-87.21	8.30
5882.00	14.56	156.12	5871.63	113.44	37.31	-79.76	6.31
5913.00	16.90	156.23	5901.46	105.75	40.70	-71.40	7.55
5945.00	19.54	158.01	5931.86	96.53	44.58	-61.47	8.43
5988.00	23.30	159.50	5971.88	81.89	50.25	-45.95	8.83
6020.00	26.21	159.86	6000.93	69.33	54.90	-32.74	9.11
6051.00	29.03	159.75	6028.40	55.84	59.87	-18.58	9.10
6083.00	32.48	159.73	6055.89	40.49	65.53	-2.45	10.78
6114.00	35.83	158.66	6081.54	24.23	71.72	14.74	10.98
6146.00	38.87	157.25	6106.98	6.24	79.01	33.97	9.87
6177.00	41.41	157.47	6130.68	-12.21	86.70	53.79	8.21
6209.00	43.88	157.61	6154.21	-32.24	94.98	75.28	7.72
6240.00	47.50	157.39	6175.86	-52.73	103.47	97.28	11.69
6272.00	51.17	157.24	6196.71	-75.12	112.83	121.36	11.47
6303.00	54.83	156.74	6215.37	-97.90	122.51	145.93	11.88
6335.00	57.10	156.27	6233.28	-122.22	133.08	172.28	7.20
6366.00	60.24	156.01	6249.39	-146.43	143.80	198.61	10.15
6398.00	62.82	155.93	6264.65	-172.12	155.25	226.59	8.07
6429.00	65.69	156.54	6278.11	-197.68	166.50	254.35	9.43
6461.00	68.92	157.41	6290.45	-224.84	178.04	282.16	10.40
6493.00	72.24	157.71	6301.09	-252.73	189.56	310.00	10.41
6524.00	74.20	157.94	6310.04	-280.22	200.76	337.89	6.36
6556.00	75.81	157.86	6318.32	-308.86	212.39	365.78	5.04
6587.00	78.44	158.25	6325.23	-336.88	223.68	393.64	8.57
6618.00	81.51	158.88	6330.62	-365.30	234.84	421.47	10.10
6650.00	85.16	158.70	6334.34	-394.92	246.33	449.30	11.42

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313.48
342.99
373.67
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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
6681.00	88.18	157.97	6336.14	-423.68	257.76	495.77	10.02
6713.00	89.25	157.46	6336.86	-453.28	269.89	527.48	3.70
6806.00	87.44	155.43	6339.54	-538.49	307.04	619.87	2.92
6900.00	88.07	154.92	6343.22	-623.74	346.47	713.43	0.86
6995.00	88.48	154.85	6346.08	-709.72	386.77	808.06	0.44
7089.00	87.14	153.53	6349.68	-794.27	427.67	901.74	2.00
7182.00	86.30	151.87	6355.00	-876.78	470.25	994.49	2.00
7275.00	86.09	151.87	6361.17	-958.61	514.00	1087.24	0.23
7369.00	86.55	149.92	6367.20	-1040.57	559.63	1181.04	2.13
7464.00	88.51	149.69	6371.30	-1122.60	607.36	1275.94	2.08
7558.00	88.11	150.19	6374.07	-1203.92	654.42	1369.90	0.68
7653.00	90.40	148.85	6375.30	-1285.78	702.60	1464.88	2.79
7748.00	90.49	148.10	6374.57	-1366.75	752.27	1559.84	0.80
7842.00	89.68	150.44	6374.43	-1447.55	800.30	1653.82	2.63
7937.00	89.79	151.08	6374.87	-1530.44	846.71	1748.81	0.68
8032.00	89.84	150.48	6375.17	-1613.35	893.08	1843.80	0.63
8126.00	89.79	149.56	6375.48	-1694.77	940.05	1937.80	0.98
8221.00	89.14	149.98	6376.36	-1776.85	987.88	2032.80	0.81
8316.00	88.93	149.47	6377.96	-1858.88	1035.77	2127.78	0.58
8410.00	89.16	149.97	6379.53	-1940.04	1083.16	2221.76	0.59
8505.00	88.93	150.86	6381.11	-2022.65	1130.06	2316.75	0.97
8600.00	89.33	151.96	6382.56	-2106.05	1175.51	2411.71	1.23
8692.00	89.19	150.42	6383.74	-2186.66	1219.84	2503.69	1.68
8787.00	89.49	150.01	6384.84	-2269.10	1267.03	2598.68	0.53
8882.00	89.74	150.30	6385.48	-2351.50	1314.30	2693.68	0.40
8976.00	89.46	150.46	6386.13	-2433.21	1360.76	2787.67	0.34
9071.00	88.97	150.66	6387.43	-2515.94	1407.45	2882.66	0.56
9164.00	88.98	150.62	6389.10	-2596.98	1453.04	2975.64	0.04
9259.00	89.16	150.38	6390.64	-2679.65	1499.82	3070.63	0.32
9353.00	89.39	149.89	6391.83	-2761.16	1546.62	3164.62	0.58
9446.00	88.98	150.48	6393.15	-2841.84	1592.85	3257.61	0.77
9539.00	90.28	149.69	6393.75	-2922.45	1639.23	3350.60	1.64
9631.00	90.33	149.95	6393.26	-3001.98	1685.48	3442.60	0.29
9723.00	89.74	147.99	6393.21	-3080.81	1732.90	3534.58	2.22
9816.00	90.18	150.46	6393.27	-3160.70	1780.49	3627.56	2.70
9907.00	90.25	150.19	6392.93	-3239.77	1825.54	3720.54	0.31
9999.00	90.67	150.41	6392.19	-3319.68	1871.12	3810.53	0.52
10090.00	90.65	150.16	6391.14	-3398.71	1916.22	3901.55	0.28
10183.00	91.07	149.94	6389.75	-3479.28	1962.65	3994.54	0.51
10275.00	88.20	149.79	6390.33	-3558.84	2008.83	4086.53	3.12
10367.00	88.49	148.28	6392.99	-3637.69	2056.14	4178.47	1.67
10462.00	88.65	148.02	6395.36	-3718.36	2106.26	4273.38	0.32
10555.00	88.95	148.23	6397.31	-3797.32	2155.36	4366.31	0.39
10650.00	88.90	147.81	6399.09	-3877.89	2205.66	4461.23	0.45
10745.00	88.41	148.67	6401.32	-3958.64	2255.65	4556.15	1.04
10840.00	87.95	150.36	6404.34	-4040.46	2303.82	4651.09	1.84
10935.00	88.02	150.39	6407.68	-4122.99	2350.75	4746.03	0.08
11030.00	88.04	150.35	6410.95	-4205.52	2397.69	4840.97	0.05
11125.00	89.23	151.17	6413.21	-4288.39	2444.08	4935.94	1.52
11219.00	89.44	151.24	6414.30	-4370.76	2489.36	5029.92	0.24

69.00168

Depth (ft)	Inc (deg)	Azimuth (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11313.00	89.79	151.92	6414.93	-4453.43	2534.09	5123.88	0.81
11408.00	90.26	152.32	6414.89	-4537.40	2578.52	5218.82	0.65
11502.00	89.89	151.81	6414.77	-4620.45	2622.55	5312.77	0.67
11597.00	90.26	149.95	6414.64	-4703.44	2668.78	5407.75	2.00
11690.00	87.60	148.73	6416.38	-4783.41	2716.19	5500.72	3.15
11784.00	87.60	148.40	6420.32	-4863.55	2765.17	5594.60	0.35
11879.00	88.58	149.98	6423.48	-4945.09	2813.80	5689.53	1.96
11973.00	89.44	150.19	6425.11	-5026.55	2860.67	5783.52	0.94
12066.00	87.88	151.29	6427.28	-5107.66	2906.12	5876.48	2.05
12161.00	88.30	152.07	6430.45	-5191.24	2951.16	5971.39	0.93
12255.00	89.00	150.35	6432.66	-5273.60	2996.41	6065.35	1.98
12350.00	89.07	151.26	6434.26	-5356.52	3042.75	6160.33	0.96
12445.00	88.95	152.23	6435.90	-5440.18	3087.71	6255.27	1.03
12539.00	88.18	150.37	6438.26	-5522.61	3132.84	6349.22	2.14
12634.00	88.37	150.16	6441.12	-5605.06	3179.93	6444.17	0.30
12727.00	88.77	149.92	6443.44	-5685.61	3226.36	6537.14	0.50
12821.00	88.90	149.95	6445.35	-5766.94	3273.45	6631.12	0.14
12916.00	89.37	150.03	6446.78	-5849.20	3320.95	6726.11	0.50
13009.00	87.51	149.37	6449.31	-5929.46	3367.86	6819.07	2.12
13104.00	87.78	149.27	6453.22	-6011.09	3416.29	6913.98	0.30
13199.00	88.04	149.69	6456.68	-6092.88	3464.50	7008.91	0.52
13293.00	88.53	149.82	6459.50	-6174.05	3511.83	7102.87	0.54
13388.00	88.90	149.89	6461.63	-6256.18	3559.52	7197.84	0.40
13483.00	89.49	150.38	6462.96	-6338.55	3606.82	7292.83	0.81
13578.00	89.67	150.66	6463.66	-6421.25	3653.57	7387.83	0.35
13672.00	89.98	150.52	6463.95	-6503.14	3699.73	7481.82	0.36
13767.00	90.02	150.88	6463.95	-6585.98	3746.22	7576.82	0.38
13860.00	90.49	150.36	6463.53	-6667.02	3791.85	7669.81	0.75
13955.00	89.47	149.71	6463.56	-6749.32	3839.30	7764.81	1.27
14051.00	87.92	147.87	6465.75	-6831.40	3889.03	7860.75	2.51
14145.00	87.88	147.03	6469.20	-6910.58	3939.57	7954.59	0.89
14240.00	88.69	149.56	6472.04	-6991.36	3989.47	8049.49	2.80
14334.00	89.07	149.36	6473.88	-7072.30	4037.22	8144.48	0.46
14430.00	89.49	149.21	6475.08	-7154.83	4086.25	8239.48	0.46
14524.00	89.07	150.58	6476.26	-7236.14	4133.20	8333.44	1.52
14618.00	87.79	150.64	6478.84	-7318.01	4179.51	8427.40	1.36
14714.00	88.41	150.80	6482.02	-7401.70	4226.43	8523.34	0.67
14808.00	89.00	150.22	6484.15	-7483.50	4272.69	8617.31	0.88
14903.00	87.72	151.26	6486.87	-7566.34	4319.11	8712.26	1.74
14998.00	88.21	151.17	6490.24	-7649.55	4364.82	8807.19	0.52
15092.00	88.83	151.27	6492.67	-7731.91	4410.06	8901.14	0.67
15188.00	89.12	151.45	6494.38	-7816.15	4456.07	8997.10	0.36
15283.00	90.09	150.12	6495.04	-7899.06	4502.44	9092.99	1.73
15379.00	90.93	150.29	6494.18	-7982.37	4550.14	9188.08	0.89
15458.00	91.59	150.19	6492.45	-8050.93	4598.04	9283.06	0.84

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
Projected to Total Depth:							
15517.00	91.59	150.19	6490.81	-8102.10	4618.66	9326.04	0.00

Vertical Section is 9326.04 ft along the target direction of 150.19 deg at a measured depth of 15517.00 ft.
Horizontal Displacement is 9326.10 ft along the well bore azimuth of 150.31 deg.
The total correction is -8.11 deg relative to Grid North.

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Hydraulic Fracturing Fluid Product Component Information Disclosure

69-00168	Fracture Date:	1/30/2014
	State:	WEST VIRGINIA
	County:	OHIO
	API Number:	4706900168
	Operator Name:	CHESAPEAKE APPALACHIA LLC
	Well Name and Number:	CLARENCE FARMER OHI 8H
	Longitude:	-80.5757744
	Latitude:	40.14705732
	Long/Lat Projection:	NAD27
	Production Type:	GAS
True Vertical Depth (TVD):	6,496	
Total Water Volume (gal)*:	10,294,872	

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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	100.00%	81.84806%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	6.07729%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00107%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01281%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00213%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NA		0.00000%	
A264, J218, J580, J609, L058, Acid, Hydrochloric 15pct, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Breaker, Corrosion Inhibitor, Friction Reducer, Gelling Agent, Iron Control Agent, Acid, Proppant - Natural	Crystalline silica	14808-60-7	97.44857%	12.29991%	
			Hydrogen chloride	7647-01-0	1.69863%	0.21440%	
			Calcium chloride	10043-52-4	0.30691%	0.03874%	
			Guar gum	9000-30-0	0.23931%	0.03021%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.09703%	0.01225%	
			Ammonium sulfate	7783-20-2	0.09171%	0.01158%	

69-00168

Sodium sulfate	7757-82-6	0.03964%	0.00500%
Potassium chloride	7447-40-7	0.01810%	0.00228%
Diammonium peroxodisulphate	7727-54-0	0.01597%	0.00202%
Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01040%	0.00131%
Urea	57-13-6	0.00639%	0.00081%
Sodium chloride	7647-14-5	0.00551%	0.00070%
Sodium erythorbate	6381-77-7	0.00549%	0.00069%
Methanol	67-56-1	0.00457%	0.00058%
Fatty acids, tall-oil	61790-12-3	0.00335%	0.00042%
Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00276%	0.00035%
Non-crystalline silica	7631-86-9	0.00158%	0.00020%
Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00128%	0.00016%
Prop-2-yn-1-ol	107-19-7	0.00086%	0.00011%
Alkenes, C>10 a-	64743-02-8	0.00057%	0.00007%
Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00020%	0.00003%
Dimethyl siloxanes and silicones	63148-62-9	0.00009%	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%

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Additional Ingredients Not Listed on MSDS

EC6110A, EC6629A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	0.00550%
			Proprietary Acrylate Polymer	TRADE SECRET	0.00550%
			Proprietary Quaternary Ammonium Salt	TRADE SECRET	0.00550%
			Water	007732-18-5	0.02083%

* 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.