WR-35
Rev (9-11)

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

DATE: 12-16-2013
API #: 47-051-01586

Farm name: Gladys Briggs MSH 8H Operator Well No.: 835559

LOCATION: Elevation: 1,396' Quadrangle: Cameron

District: Liberty County: Marshall
Latitude: 9,304' Feet South of 39 Deg. 47 Min. 30 Sec.
Longitude 12,563' Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	20"	117'	117'	214 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	793'	793'	892 Cu. Ft.
Inspector: Derek Haught	9 5/8"	2,640'	2,640'	1,179' Cu. Ft.
Date Permit Issued: 12-10-2012	5 1/2"	12,668'	12,668'	2,874' Cu. Ft.
Date Well Work Commenced: 3-20-2013				
Date Well Work Completed: 9-21-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,146'				
Total Measured Depth (ft): 12,668'				
Fresh Water Depth (ft.): 732'				
Salt Water Depth (ft.): 1,248'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 1,140'				
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 Marcellus Pay zone depth (ft) 7,300-12,512
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 7,583* MCF/d Final open flow 12 Bbl/d
Time of open flow between initial and final tests 48 Hours
Static rock Pressure 4,645* psig (surface pressure) after 48 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

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.

Marlene Williams
Signature

12-17-2013
Date

03/07/2014

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 Yes. Resistivity and Porosity logs for freshwater analysis over surface hole, and resistivity, neutron density, and gamma ray logs were recorded over intermediate hole.

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 attachment

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

Formations Encountered: Top Depth / Bottom Depth
Surface:

See attachment

03/07/2014

PERFORATION RECORD ATTACHMENT

Well Number and Name: 835559 Gladys Briggs MSH 8H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					*Fluid*		*Propping Agent*		Average
Date	From	To	Date	Interval Treated		Type	Amount	Type	Amount	Injection
8/16/2013	12,269	12,512	8/17/2013	12,269	12,512	Slk wtr	10,977	Sand	554,700	78
8/17/2013	11,959	12,196	8/17/2013	11,959	12,196	Slk wtr	9,051	Sand	554,040	79
8/17/2013	11,648	11,890	8/17/2013	11,648	11,890	Slk wtr	8,901	Sand	555,260	79
8/17/2013	11,338	11,580	8/18/2013	11,338	11,580	Slk wtr	9,281	Sand	551,740	73
8/18/2013	11,027	11,265	8/18/2013	11,027	11,265	Slk wtr	9,483	Sand	554,340	78
8/18/2013	10,700	10,959	8/18/2013	10,700	10,959	Slk wtr	12,853	Sand	555,640	72
8/19/2013	10,406	10,648	8/19/2013	10,406	10,648	Slk wtr	9,115	Sand	555,120	76
8/19/2013	10,095	10,337	8/19/2013	10,095	10,337	Slk wtr	9,039	Sand	554,300	78
8/19/2013	9,782	10,029	8/19/2013	9,782	10,029	Slk wtr	9,598	Sand	553,660	79
8/19/2013	9,474	9,716	8/20/2013	9,474	9,716	Slk wtr	8,817	Sand	558,240	80
8/19/2013	9,164	9,406	8/20/2013	9,164	9,406	Slk wtr	8,894	Sand	554,860	80
8/19/2013	8,855	9,095	8/20/2013	8,855	9,095	Slk wtr	10,066	Sand	556,780	73
8/20/2013	8,542	8,785	8/20/2013	8,542	8,785	Slk wtr	8,698	Sand	554,340	80
8/21/2013	8,232	8,474	8/21/2013	8,232	8,474	Slk wtr	9,725	Sand	554,980	79
8/20/2013	7,921	8,163	8/21/2013	7,921	8,163	Slk wtr	8,760	Sand	554,040	79
8/21/2013	7,611	7,853	8/21/2013	7,611	7,853	Slk wtr	8,828	Sand	557,020	79
8/21/2013	7,300	7,539	8/22/2013	7,300	7,539	Slk wtr	8,888	Sand	555,500	78

HORIZONTAL WELL (No pilot hole associated with this pad)				
Maximum TVD of wellbore:	7146 ft TVD @ 12668 ft MD			
Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS and LS	0	0	760	760
SS and SH	760	760	1083	1083
Pittsburgh Coal	1083	1083	1100	1100
SILTSTN and SH	1100	1100	2178	2178
Big Lime	2178	2178	2224	2224
Big Injun	2224	2224	2490	2490
SH and SILTSTN	2490	2490	7009	6989
Geneseo	7009	6989	7030	7006
Tully	7030	7006	7062	7031
Hamilton	7062	7031	7208	7123
Marcellus	7208	7123	7224	7129
Purcell	7224	7129		
End of Well			12668	7146

03/07/2014

Chesapeake Appalachia, LLC

Marshall County, WV
Cameron
Gladys Briggs MSH 8H

Wellbore #1

Design: Surveys

Sperry Drilling Services

Combo Report

09 April, 2013

Well Coordinates: 463,419.98 N, 1,686,282.29 E (39° 46' 01.20" N, 080° 36' 57.77" W)
Ground Level: 1,396.00 ft

Local Coordinate Origin:	Centered on Well Gladys Briggs MSH 8H
Viewing Datum:	GL 1396' + KB 16' @ 1412.00ft (Nomac 25)
TVDs to System:	N
North Reference:	Grid
Unit System:	API-US Survey Feet

Version: 2003.16 Build: 43I

HALLIBURTON

Design Report for Gladys Briggs MSH 8H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)
0.00	0.00	0.00	-1,412.00	0.00	0.00 N	0.00 E	463,419.98	1,686,282.29	0.00	0.00
100.00	0.07	251.17	-1,312.00	100.00	0.02 S	0.06 W	463,419.96	1,686,282.23	0.07	-0.03
200.00	0.20	118.20	-1,212.00	200.00	0.12 S	0.04 E	463,419.86	1,686,282.33	0.25	0.11
300.00	0.26	121.93	-1,112.00	300.00	0.32 S	0.38 E	463,419.65	1,686,282.67	0.06	0.50
400.00	0.18	125.26	-1,012.00	400.00	0.54 S	0.71 E	463,419.44	1,686,282.99	0.08	0.88
500.00	0.05	183.28	-912.00	500.00	0.67 S	0.83 E	463,419.31	1,686,283.12	0.16	1.07
600.00	0.05	183.23	-812.00	600.00	0.76 S	0.83 E	463,419.22	1,686,283.12	0.00	1.12
700.00	0.13	217.79	-712.00	700.00	0.89 S	0.75 E	463,419.09	1,686,283.04	0.09	1.15
800.00	0.12	187.07	-612.00	800.00	1.08 S	0.67 E	463,418.89	1,686,282.96	0.07	1.21
900.00	0.23	166.40	-512.00	900.00	1.38 S	0.71 E	463,418.60	1,686,283.00	0.13	1.43
1,000.00	0.23	136.53	-412.00	1,000.00	1.72 S	0.89 E	463,418.25	1,686,283.18	0.12	1.79
1,100.00	0.27	138.65	-312.00	1,100.00	2.05 S	1.19 E	463,417.93	1,686,283.47	0.04	2.22
1,200.00	0.42	117.96	-212.01	1,199.99	2.39 S	1.66 E	463,417.58	1,686,283.95	0.19	2.81
1,300.00	0.39	132.47	-112.01	1,299.99	2.80 S	2.24 E	463,417.18	1,686,284.53	0.11	3.51
1,400.00	0.38	119.24	-12.01	1,399.99	3.19 S	2.78 E	463,416.79	1,686,285.07	0.09	4.17
1,500.00	0.42	130.71	87.99	1,499.99	3.59 S	3.35 E	463,416.39	1,686,285.64	0.09	4.87
1,600.00	0.52	144.97	187.98	1,599.98	4.20 S	3.89 E	463,415.78	1,686,286.17	0.15	5.67
1,700.00	0.53	157.83	287.98	1,699.98	5.00 S	4.32 E	463,414.98	1,686,286.61	0.12	6.52
1,800.00	0.48	167.42	387.98	1,799.98	5.84 S	4.59 E	463,414.14	1,686,286.88	0.10	7.26
1,900.00	0.61	175.58	487.97	1,899.97	6.78 S	4.72 E	463,413.20	1,686,287.01	0.15	7.96
2,000.00	0.71	177.29	587.96	1,999.96	7.93 S	4.79 E	463,412.05	1,686,287.08	0.10	8.75
2,100.00	0.82	176.32	687.96	2,099.96	9.26 S	4.86 E	463,410.72	1,686,287.15	0.11	9.65
2,200.00	0.85	177.29	787.94	2,199.94	10.71 S	4.94 E	463,409.26	1,686,287.23	0.03	10.65
2,300.00	0.90	178.40	887.93	2,299.93	12.24 S	5.00 E	463,407.74	1,686,287.29	0.05	11.66
2,400.00	0.86	175.04	987.92	2,399.92	13.77 S	5.09 E	463,406.21	1,686,287.38	0.07	12.71
2,500.00	0.93	176.99	1,087.91	2,499.91	15.33 S	5.20 E	463,404.65	1,686,287.49	0.08	13.79
2,600.00	0.79	174.29	1,187.90	2,599.90	16.83 S	5.31 E	463,403.15	1,686,287.60	0.15	14.83
2,700.00	0.72	162.77	1,287.89	2,699.89	18.11 S	5.56 E	463,401.87	1,686,287.85	0.17	15.85
2,800.00	0.56	151.36	1,387.88	2,799.88	19.14 S	5.98 E	463,400.84	1,686,288.27	0.20	16.83
2,900.00	0.61	150.67	1,487.88	2,899.88	20.03 S	6.48 E	463,399.94	1,686,288.77	0.05	17.78
3,000.00	0.63	146.13	1,587.87	2,999.87	20.96 S	7.04 E	463,399.02	1,686,289.33	0.05	18.80
3,100.00	0.69	148.02	1,687.86	3,099.86	21.92 S	7.67 E	463,398.06	1,686,289.96	0.06	19.90
3,200.00	0.82	140.65	1,787.86	3,199.86	22.99 S	8.44 E	463,396.99	1,686,290.73	0.16	21.17
3,300.00	0.84	135.48	1,887.85	3,299.85	24.06 S	9.41 E	463,395.92	1,686,291.70	0.08	22.61
3,400.00	0.75	138.84	1,987.84	3,399.84	25.08 S	10.35 E	463,394.90	1,686,292.64	0.10	23.98
3,500.00	0.81	134.63	2,087.83	3,499.83	26.07 S	11.29 E	463,393.91	1,686,293.58	0.08	25.33
3,600.00	0.93	135.60	2,187.82	3,599.82	27.14 S	12.36 E	463,392.83	1,686,294.65	0.12	26.84
3,700.00	0.94	139.76	2,287.80	3,699.80	28.35 S	13.46 E	463,391.63	1,686,295.75	0.07	28.46
3,800.00	0.79	142.75	2,387.79	3,799.79	29.52 S	14.40 E	463,390.45	1,686,296.69	0.16	29.94
3,900.00	0.75	144.16	2,487.78	3,899.78	30.60 S	15.20 E	463,389.37	1,686,297.49	0.04	31.24
4,000.00	0.80	146.25	2,587.77	3,999.77	31.71 S	15.98 E	463,388.26	1,686,298.26	0.06	32.55
4,100.00	0.79	149.71	2,687.76	4,099.76	32.89 S	16.71 E	463,387.09	1,686,299.00	0.05	33.86
4,200.00	0.80	146.94	2,787.75	4,199.75	34.07 S	17.44 E	463,385.91	1,686,299.73	0.04	35.18
4,300.00	0.99	135.36	2,887.74	4,299.74	35.27 S	18.43 E	463,384.71	1,686,300.72	0.26	36.70
4,400.00	1.00	133.23	2,987.73	4,399.73	36.48 S	19.67 E	463,383.49	1,686,301.96	0.04	38.43

03/07/2014

Design Report for Gladys Briggs MSH 8H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)
4,500.00	0.97	129.42	3,087.71	4,499.71	37.62 S	20.96 E	463,382.36	1,686,303.25	0.07	40.15
4,600.00	0.94	130.14	3,187.70	4,599.70	38.68 S	22.24 E	463,381.29	1,686,304.53	0.03	41.82
4,700.00	0.99	128.04	3,287.68	4,699.68	39.75 S	23.55 E	463,380.23	1,686,305.84	0.06	43.50
4,800.00	1.17	126.74	3,387.67	4,799.67	40.89 S	25.05 E	463,379.09	1,686,307.34	0.18	45.38
4,900.00	1.02	129.46	3,487.65	4,899.65	42.07 S	26.55 E	463,377.91	1,686,308.84	0.16	47.29
5,000.00	0.98	137.69	3,587.63	4,999.63	43.26 S	27.82 E	463,376.71	1,686,310.10	0.15	49.03
5,060.00	1.01	139.64	3,647.62	5,059.62	44.05 S	28.50 E	463,375.93	1,686,310.79	0.08	50.06
5,145.00	0.97	129.52	3,732.61	5,144.61	45.07 S	29.54 E	463,374.90	1,686,311.83	0.21	51.52
5,208.00	0.83	132.37	3,795.60	5,207.60	45.72 S	30.29 E	463,374.26	1,686,312.58	0.23	52.51
5,271.00	0.90	138.67	3,858.60	5,270.60	46.40 S	30.96 E	463,373.58	1,686,313.24	0.19	53.45
5,334.00	1.12	128.36	3,921.59	5,333.59	47.15 S	31.77 E	463,372.82	1,686,314.05	0.45	54.55
5,397.00	1.06	137.58	3,984.57	5,396.57	47.97 S	32.64 E	463,372.01	1,686,314.93	0.29	55.75
5,459.00	1.10	134.35	4,046.56	5,458.56	48.81 S	33.45 E	463,371.17	1,686,315.74	0.12	56.91
5,522.00	1.13	132.09	4,109.55	5,521.55	49.64 S	34.35 E	463,370.33	1,686,316.64	0.08	58.13
5,584.00	0.93	124.76	4,171.54	5,583.54	50.34 S	35.21 E	463,369.64	1,686,317.50	0.39	59.24
5,648.00	0.91	118.45	4,235.53	5,647.53	50.88 S	36.09 E	463,369.10	1,686,318.38	0.16	60.26
5,711.00	0.88	121.65	4,298.53	5,710.53	51.37 S	36.94 E	463,368.61	1,686,319.23	0.09	61.23
5,774.00	0.79	120.20	4,361.52	5,773.52	51.84 S	37.73 E	463,368.13	1,686,320.02	0.15	62.14
5,836.00	0.80	127.89	4,423.51	5,835.51	52.32 S	38.44 E	463,367.65	1,686,320.73	0.17	62.99
5,899.00	0.94	126.95	4,486.51	5,898.51	52.91 S	39.20 E	463,367.07	1,686,321.49	0.22	63.95
5,962.00	0.98	129.82	4,549.50	5,961.50	53.56 S	40.02 E	463,366.42	1,686,322.31	0.10	65.00
6,025.00	1.04	138.34	4,612.49	6,024.49	54.33 S	40.82 E	463,365.64	1,686,323.11	0.26	66.11
6,088.00	1.04	138.67	4,675.48	6,087.48	55.19 S	41.58 E	463,364.79	1,686,323.86	0.01	67.24
6,151.00	1.04	141.88	4,738.47	6,150.47	56.07 S	42.31 E	463,363.91	1,686,324.60	0.09	68.36
6,214.00	1.18	139.61	4,801.45	6,213.45	57.01 S	43.08 E	463,362.96	1,686,325.37	0.23	69.56
6,277.00	1.26	136.69	4,864.44	6,276.44	58.01 S	43.97 E	463,361.97	1,686,326.26	0.16	70.88
6,340.00	1.23	137.20	4,927.42	6,339.42	59.01 S	44.91 E	463,360.97	1,686,327.20	0.05	72.24
6,403.00	1.19	140.34	4,990.41	6,402.41	60.01 S	45.79 E	463,359.97	1,686,328.08	0.12	73.56
6,466.00	1.08	139.44	5,053.40	6,465.40	60.97 S	46.59 E	463,359.01	1,686,328.88	0.18	74.78
6,529.00	0.88	141.94	5,116.39	6,528.39	61.80 S	47.27 E	463,358.18	1,686,329.56	0.32	75.84
6,560.00	1.01	142.15	5,147.39	6,559.39	62.20 S	47.59 E	463,357.78	1,686,329.88	0.42	76.34
6,591.00	1.72	149.93	5,178.38	6,590.38	62.82 S	47.99 E	463,357.16	1,686,330.28	2.36	77.04
6,654.00	6.27	157.46	5,241.21	6,653.21	66.82 S	49.78 E	463,353.16	1,686,332.07	7.25	80.98
6,685.00	7.52	162.17	5,271.98	6,683.98	70.31 S	51.05 E	463,349.67	1,686,333.34	4.42	84.19
6,716.00	8.96	161.57	5,302.66	6,714.66	74.53 S	52.44 E	463,345.44	1,686,334.73	4.65	87.95
6,748.00	12.54	150.94	5,334.10	6,746.10	79.94 S	54.91 E	463,340.04	1,686,337.20	12.74	93.30
6,780.00	13.28	142.61	5,365.29	6,777.29	85.89 S	58.83 E	463,334.08	1,686,341.12	6.25	100.12
6,811.00	15.65	130.28	5,395.31	6,807.31	91.43 S	64.19 E	463,328.55	1,686,346.48	12.50	107.78
6,842.00	17.94	129.41	5,424.99	6,836.99	97.16 S	71.07 E	463,322.81	1,686,353.36	7.43	116.73
6,874.00	21.19	125.47	5,455.14	6,867.14	103.65 S	79.59 E	463,316.33	1,686,361.88	10.96	127.43
6,905.00	22.68	130.59	5,483.90	6,895.90	110.79 S	88.69 E	463,309.19	1,686,370.98	7.82	139.00
6,937.00	25.86	128.80	5,513.07	6,925.07	119.18 S	98.82 E	463,300.80	1,686,381.11	10.20	152.15
6,969.00	28.12	131.62	5,541.58	6,953.58	128.56 S	109.89 E	463,291.41	1,686,392.18	8.11	166.66
7,000.00	32.19	129.15	5,568.38	6,980.38	138.63 S	121.77 E	463,281.34	1,686,404.05	13.72	182.23
7,031.00	35.13	130.11	5,594.18	7,006.18	149.60 S	134.99 E	463,270.38	1,686,417.28	9.64	199.41

03/07/2014

Design Report for Gladys Briggs MSH 8H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)
7,062.00	38.62	128.93	5,618.97	7,030.97	161.42 S	149.34 E	463,258.55	1,686,431.63	11.49	218.01
7,094.00	43.63	128.62	5,643.07	7,055.07	174.60 S	165.75 E	463,245.38	1,686,448.04	15.67	239.05
7,126.00	49.18	127.78	5,665.13	7,077.13	188.92 S	183.96 E	463,231.06	1,686,466.25	17.45	262.20
7,157.00	54.51	128.46	5,684.27	7,096.27	203.96 S	203.13 E	463,216.01	1,686,485.42	17.28	286.56
7,188.00	60.25	130.41	5,700.98	7,112.98	220.55 S	223.27 E	463,199.42	1,686,505.56	19.26	312.66
7,220.00	66.16	130.54	5,715.40	7,127.40	239.09 S	244.99 E	463,180.89	1,686,527.28	18.47	341.21
7,251.00	72.11	132.15	5,726.43	7,138.43	258.22 S	266.72 E	463,161.76	1,686,549.01	19.80	370.15
7,283.00	78.02	133.23	5,734.68	7,146.68	279.18 S	289.44 E	463,140.80	1,686,571.73	18.75	401.01
7,314.00	84.28	133.59	5,739.45	7,151.45	300.22 S	311.68 E	463,119.76	1,686,593.97	20.23	431.56
7,346.00	90.00	132.41	5,741.04	7,153.04	322.00 S	335.04 E	463,097.97	1,686,617.33	18.25	463.45
7,408.00	92.02	131.81	5,739.95	7,151.95	363.57 S	381.03 E	463,056.41	1,686,663.32	3.40	525.38
7,472.00	91.68	129.95	5,737.88	7,149.88	405.43 S	429.39 E	463,014.55	1,686,711.68	2.95	589.33
7,533.00	90.98	128.77	5,736.47	7,148.47	444.11 S	476.54 E	462,975.87	1,686,758.83	2.25	650.32
7,597.00	90.97	127.35	5,735.38	7,147.38	483.55 S	526.92 E	462,936.42	1,686,809.21	2.22	714.28
7,660.00	91.18	127.24	5,734.20	7,146.20	521.72 S	577.03 E	462,898.26	1,686,859.32	0.38	777.21
7,723.00	91.14	126.68	5,732.92	7,144.92	559.59 S	627.36 E	462,860.39	1,686,909.65	0.89	840.13
7,786.00	91.51	126.78	5,731.46	7,143.46	597.26 S	677.84 E	462,822.72	1,686,960.13	0.61	903.03
7,849.00	90.07	127.05	5,730.59	7,142.59	635.09 S	728.20 E	462,784.88	1,687,010.49	2.33	965.95
7,911.00	89.73	126.82	5,730.70	7,142.70	672.35 S	777.76 E	462,747.63	1,687,060.05	0.66	1,027.88
7,974.00	90.37	127.33	5,730.65	7,142.65	710.33 S	828.02 E	462,709.65	1,687,110.31	1.30	1,090.81
8,037.00	90.00	126.69	5,730.44	7,142.44	748.25 S	878.33 E	462,671.73	1,687,160.62	1.17	1,153.74
8,100.00	90.10	126.66	5,730.39	7,142.39	785.88 S	928.86 E	462,634.10	1,687,211.15	0.17	1,216.66
8,162.00	90.03	126.98	5,730.32	7,142.32	823.04 S	978.49 E	462,596.94	1,687,260.78	0.53	1,278.58
8,225.00	90.54	127.11	5,730.01	7,142.01	860.99 S	1,028.78 E	462,558.99	1,687,311.06	0.84	1,341.51
8,288.00	91.01	126.80	5,729.15	7,141.15	898.86 S	1,079.11 E	462,521.12	1,687,361.40	0.89	1,404.43
8,319.00	91.81	126.00	5,728.39	7,140.39	917.25 S	1,104.06 E	462,502.73	1,687,386.35	3.65	1,435.37
8,349.00	92.35	126.59	5,727.30	7,139.30	935.00 S	1,128.22 E	462,484.98	1,687,410.51	2.67	1,465.30
8,381.00	93.70	126.98	5,725.61	7,137.61	954.13 S	1,153.81 E	462,465.84	1,687,436.10	4.39	1,497.21
8,412.00	93.86	127.23	5,723.57	7,135.57	972.79 S	1,178.48 E	462,447.18	1,687,460.77	0.96	1,528.12
8,444.00	94.14	127.30	5,721.34	7,133.34	992.12 S	1,203.89 E	462,427.86	1,687,486.18	0.90	1,560.01
8,476.00	93.09	127.70	5,719.32	7,131.32	1,011.56 S	1,229.22 E	462,408.41	1,687,511.51	3.51	1,591.92
8,507.00	93.02	127.93	5,717.67	7,129.67	1,030.54 S	1,253.68 E	462,389.43	1,687,535.97	0.77	1,622.86
8,539.00	93.26	127.90	5,715.91	7,127.91	1,050.18 S	1,278.89 E	462,369.80	1,687,561.18	0.76	1,654.80
8,570.00	93.40	127.91	5,714.11	7,126.11	1,069.19 S	1,303.31 E	462,350.79	1,687,585.59	0.45	1,685.73
8,601.00	92.52	128.61	5,712.51	7,124.51	1,088.36 S	1,327.61 E	462,331.62	1,687,609.90	3.63	1,716.68
8,633.00	92.28	129.13	5,711.17	7,123.17	1,108.42 S	1,352.51 E	462,311.55	1,687,634.80	1.79	1,748.65
8,663.00	92.59	129.33	5,709.90	7,121.90	1,127.38 S	1,375.72 E	462,292.60	1,687,658.01	1.23	1,778.62
8,695.00	91.31	130.20	5,708.81	7,120.81	1,147.84 S	1,400.31 E	462,272.14	1,687,682.60	4.84	1,810.60
8,727.00	91.48	130.24	5,708.03	7,120.03	1,168.49 S	1,424.73 E	462,251.48	1,687,707.02	0.55	1,842.59
8,758.00	89.56	130.48	5,707.75	7,119.75	1,188.57 S	1,448.35 E	462,231.41	1,687,730.64	6.24	1,873.58
8,790.00	89.49	130.71	5,708.01	7,120.01	1,209.39 S	1,472.65 E	462,210.59	1,687,754.94	0.75	1,905.58
8,821.00	89.60	129.94	5,708.26	7,120.26	1,229.45 S	1,496.28 E	462,190.53	1,687,778.57	2.51	1,936.58
8,852.00	89.66	130.67	5,708.46	7,120.46	1,249.50 S	1,519.92 E	462,170.48	1,687,802.21	2.36	1,967.57
8,915.00	89.70	130.95	5,708.81	7,120.81	1,290.67 S	1,567.61 E	462,129.30	1,687,849.90	0.45	2,030.56
8,978.00	89.63	131.06	5,709.18	7,121.18	1,332.01 S	1,615.15 E	462,087.97	1,687,897.44	0.21	2,093.54

03/07/2014

Design Report for Gladys Briggs MSH 8H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)
9,041.00	89.77	130.91	5,709.51	7,121.51	1,373.33 S	1,662.71 E	462,046.65	1,687,945.00	0.33	2,156.52
9,104.00	88.89	130.68	5,710.25	7,122.25	1,414.49 S	1,710.40 E	462,005.49	1,687,992.69	1.44	2,219.51
9,168.00	88.45	131.39	5,711.73	7,123.73	1,456.49 S	1,758.66 E	461,963.49	1,688,040.95	1.30	2,283.47
9,229.00	88.62	131.66	5,713.29	7,125.29	1,496.92 S	1,804.31 E	461,923.06	1,688,086.60	0.52	2,344.42
9,292.00	88.22	130.78	5,715.03	7,127.03	1,538.42 S	1,851.68 E	461,881.56	1,688,133.97	1.53	2,407.37
9,355.00	87.71	131.00	5,717.27	7,129.27	1,579.63 S	1,899.28 E	461,840.35	1,688,181.57	0.88	2,470.32
9,417.00	87.75	130.85	5,719.72	7,131.72	1,620.21 S	1,946.09 E	461,799.77	1,688,228.37	0.25	2,532.26
9,479.00	87.48	131.26	5,722.30	7,134.30	1,660.90 S	1,992.80 E	461,759.08	1,688,275.09	0.79	2,594.18
9,542.00	88.82	131.38	5,724.34	7,136.34	1,702.47 S	2,040.09 E	461,717.51	1,688,322.38	2.14	2,657.12
9,605.00	90.94	130.87	5,724.47	7,136.47	1,743.90 S	2,087.54 E	461,676.07	1,688,369.83	3.46	2,720.10
9,668.00	91.65	132.25	5,723.04	7,135.04	1,785.69 S	2,134.67 E	461,634.29	1,688,416.96	2.46	2,783.05
9,731.00	91.84	131.86	5,721.13	7,133.13	1,827.87 S	2,181.42 E	461,592.11	1,688,463.71	0.69	2,845.96
9,795.00	91.14	131.15	5,719.46	7,131.46	1,870.26 S	2,229.34 E	461,549.71	1,688,511.63	1.56	2,909.91
9,858.00	89.53	130.35	5,719.09	7,131.09	1,911.39 S	2,277.06 E	461,508.59	1,688,559.35	2.85	2,972.89
9,921.00	89.70	130.44	5,719.52	7,131.52	1,952.21 S	2,325.04 E	461,467.77	1,688,607.33	0.31	3,035.89
9,983.00	90.10	130.17	5,719.63	7,131.63	1,992.32 S	2,372.32 E	461,427.66	1,688,654.61	0.78	3,097.88
10,043.00	90.27	130.52	5,719.43	7,131.43	2,031.16 S	2,418.05 E	461,388.82	1,688,700.34	0.65	3,157.88
10,106.00	89.23	129.79	5,719.71	7,131.71	2,071.79 S	2,466.20 E	461,348.19	1,688,748.49	2.02	3,220.88
10,169.00	89.26	130.23	5,720.54	7,132.54	2,112.29 S	2,514.45 E	461,307.69	1,688,796.74	0.70	3,283.87
10,230.00	88.75	129.33	5,721.60	7,133.60	2,151.31 S	2,561.32 E	461,268.67	1,688,843.61	1.70	3,344.86
10,293.00	88.52	128.88	5,723.10	7,135.10	2,191.03 S	2,610.19 E	461,228.94	1,688,892.48	0.80	3,407.84
10,356.00	89.16	129.69	5,724.37	7,136.37	2,230.92 S	2,658.95 E	461,189.06	1,688,941.24	1.64	3,470.82
10,419.00	90.03	131.71	5,724.82	7,136.82	2,272.00 S	2,706.70 E	461,147.98	1,688,988.99	3.49	3,533.81
10,480.00	89.77	130.46	5,724.92	7,136.92	2,312.08 S	2,752.68 E	461,107.90	1,689,034.97	2.09	3,594.79
10,543.00	89.23	128.98	5,725.47	7,137.47	2,352.34 S	2,801.14 E	461,067.64	1,689,083.43	2.50	3,657.78
10,606.00	89.46	128.41	5,726.19	7,138.19	2,391.72 S	2,850.30 E	461,028.26	1,689,132.59	0.98	3,720.77
10,669.00	89.63	128.04	5,726.69	7,138.69	2,430.70 S	2,899.79 E	460,989.28	1,689,182.08	0.65	3,783.75
10,732.00	89.83	128.10	5,726.99	7,138.99	2,469.55 S	2,949.39 E	460,950.43	1,689,231.68	0.33	3,846.72
10,795.00	90.03	127.31	5,727.07	7,139.07	2,508.08 S	2,999.23 E	460,911.90	1,689,281.52	1.29	3,909.68
10,858.00	90.00	127.26	5,727.05	7,139.05	2,546.24 S	3,049.36 E	460,873.73	1,689,331.65	0.09	3,972.63
10,921.00	90.07	127.52	5,727.01	7,139.01	2,584.50 S	3,099.41 E	460,835.48	1,689,381.70	0.43	4,035.58
10,984.00	90.40	127.69	5,726.75	7,138.75	2,622.94 S	3,149.32 E	460,797.04	1,689,431.61	0.59	4,098.54
11,046.00	90.44	127.23	5,726.30	7,138.30	2,660.65 S	3,198.54 E	460,759.33	1,689,480.83	0.74	4,160.49
11,108.00	90.20	127.17	5,725.95	7,137.95	2,698.13 S	3,247.92 E	460,721.84	1,689,530.21	0.40	4,222.43
11,171.00	90.37	127.95	5,725.64	7,137.64	2,736.54 S	3,297.86 E	460,683.44	1,689,580.15	1.27	4,285.38
11,234.00	90.60	127.83	5,725.11	7,137.11	2,775.23 S	3,347.58 E	460,644.75	1,689,629.87	0.41	4,348.35
11,298.00	89.73	128.46	5,724.92	7,136.92	2,814.76 S	3,397.91 E	460,605.22	1,689,680.20	1.68	4,412.33
11,360.00	89.40	129.46	5,725.39	7,137.39	2,853.74 S	3,446.12 E	460,566.24	1,689,728.41	1.70	4,474.32
11,423.00	89.46	130.58	5,726.02	7,138.02	2,894.25 S	3,494.36 E	460,525.73	1,689,776.65	1.78	4,537.31
11,486.00	89.29	131.58	5,726.71	7,138.71	2,935.64 S	3,541.85 E	460,484.33	1,689,824.14	1.61	4,600.29
11,548.00	89.46	132.08	5,727.38	7,139.38	2,976.99 S	3,588.04 E	460,442.99	1,689,870.33	0.85	4,662.24
11,612.00	89.19	132.73	5,728.14	7,140.14	3,020.15 S	3,635.30 E	460,399.83	1,689,917.58	1.10	4,726.17
11,675.00	89.09	132.91	5,729.08	7,141.08	3,062.96 S	3,681.50 E	460,357.01	1,689,963.79	0.33	4,789.06
11,737.00	88.72	132.78	5,730.27	7,142.27	3,105.12 S	3,726.95 E	460,314.86	1,690,009.24	0.63	4,850.96
11,802.00	88.36	133.13	5,731.92	7,143.92	3,149.39 S	3,774.51 E	460,270.58	1,690,056.80	0.77	4,915.83

03/07/2014

Design Report for Gladys Briggs MSH 8H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)
11,865.00	88.89	132.43	5,733.44	7,145.44	3,192.17 S	3,820.73 E	460,227.81	1,690,103.02	1.39	4,978.72
11,927.00	88.82	131.98	5,734.68	7,146.68	3,233.81 S	3,866.65 E	460,186.17	1,690,148.94	0.73	5,040.65
11,990.00	88.92	131.82	5,735.92	7,147.92	3,275.88 S	3,913.53 E	460,144.10	1,690,195.82	0.30	5,103.59
12,052.00	88.86	130.69	5,737.12	7,149.12	3,316.75 S	3,960.13 E	460,103.22	1,690,242.42	1.82	5,165.55
12,116.00	89.23	130.47	5,738.19	7,150.19	3,358.38 S	4,008.73 E	460,061.60	1,690,291.02	0.67	5,229.53
12,178.00	90.03	129.65	5,738.59	7,150.59	3,398.28 S	4,056.19 E	460,021.70	1,690,338.47	1.85	5,291.53
12,241.00	90.03	129.69	5,738.55	7,150.55	3,438.50 S	4,104.68 E	459,981.48	1,690,386.97	0.06	5,354.53
12,303.00	90.54	129.47	5,738.24	7,150.24	3,478.00 S	4,152.46 E	459,941.98	1,690,434.75	0.90	5,416.53
12,366.00	90.40	129.61	5,737.73	7,149.73	3,518.11 S	4,201.05 E	459,901.87	1,690,483.34	0.31	5,479.53
12,428.00	90.30	129.66	5,737.35	7,149.35	3,557.65 S	4,248.79 E	459,862.32	1,690,531.08	0.18	5,541.53
12,492.00	90.44	128.89	5,736.94	7,148.94	3,598.17 S	4,298.34 E	459,821.81	1,690,580.62	1.22	5,605.52
12,554.00	90.81	129.68	5,736.26	7,148.26	3,637.42 S	4,346.32 E	459,782.55	1,690,628.61	1.41	5,667.52
12,617.00	90.87	129.95	5,735.34	7,147.34	3,677.76 S	4,394.71 E	459,742.22	1,690,677.00	0.44	5,730.51
12,622.00	90.87	129.83	5,735.26	7,147.26	3,680.96 S	4,398.54 E	459,739.01	1,690,680.83	2.40	5,735.51
Last MWD Survey at 12622' MD										
12,668.00	90.87	129.83	5,734.56	7,146.56	3,710.42 S	4,433.86 E	459,709.55	1,690,716.15	0.00	5,781.50
Projection to TD at 12668' MD										

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	129.68	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
100.00	5,060.00	MS Gyro	NSG-CT_csg+cent
5,145.00	12,668.00	Sperry MWD	MWD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Gladys Briggs MSH	0.00	0.00	7,143.27	-3,691.67	4,449.85	459,728.31	1,690,732.14	39° 45' 25.257 N	80° 36' 0.207 W

- actual wellpath misses target center by 24.86ft at 12668.00ft MD (7146.56 TVD, -3710.42 N, 4433.86 E)
- Point

03/07/2014

Chesapeake ENERGY

Regulatory Department

December 17, 2013

VIA UPS NEXT DAY AIR

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

Re: WR-35 – Gladys Briggs MSH 8H (API #51-01586)

Dear Mr. Smith:

Chesapeake Appalachia, L.L.C. submits the *Operator's Final Report of Well Work* in duplicate for the above captioned well(s) located in Marshall County.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person of persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete.

If you have any questions or require additional information please feel free to contact me at (405)935-4158 or marlene.williams@chk.com.

Sincerely,

Chesapeake Appalachia, L.L.C
Marlene Williams

Marlene Williams
Regulatory Analyst

Enclosure(s)
cc: West Virginia Geological and Economic Survey

Chesapeake Energy Corporation
P.O. Box 18496 • Oklahoma City, OK 73154-0496 • 6100 N. Western Avenue • Oklahoma City, OK 73118
405-848-8000 • fax 405-767-4592

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/17/2013
State:	WEST VIRGINIA
County:	MARSHALL
API Number:	4705101586
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	GLADYS BRIGGS MSH 8H
Longitude:	-80.616047
Latitude:	39.7669995
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	7,153
Total Water Volume (gal)*:	6,932,646

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%	81.00797%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	4.30867%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00137%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01643%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00274%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
Northern White Sand, 100 Mesh Sand, J580, Acid Hydrochloric, J609, J218, J610, L058, A264, J475	SCHLUMBERGER	Proppant - Natural, Gelling Agent, Acid, Friction Reducer, Breaker, Cross Linker, Iron Control Agent, Corrosion Inhibitor, Breaker	Crystalline silica	14808-60-7	98.19552%	14.45558%	
			Hydrogen chloride	7647-01-0	0.92012%	0.13545%	
			Guar gum	9000-30-0	0.68816%	0.10131%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.05244%	0.00772%	
			Ammonium sulfate	7783-20-2	0.04956%	0.00730%	
			Diammonium peroxidisulphate	7727-54-0	0.03332%	0.00490%	
			Sodium sulfate	7757-82-6	0.02142%	0.00315%	
			Potassium borate	1332-77-0	0.01222%	0.00180%	

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			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00562%	0.00083%	
			Potassium hydroxide	1310-58-3	0.00452%	0.00066%	
			Glycerol	56-81-5	0.00399%	0.00059%	
			Urea	57-13-6	0.00345%	0.00051%	
			Sodium erythorbate	6381-77-7	0.00328%	0.00048%	
			Methanol	67-56-1	0.00290%	0.00043%	
			Non-crystalline silica	7631-86-9	0.00238%	0.00035%	
			Fatty acids, tall-oil	61790-12-3	0.00213%	0.00031%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00175%	0.00026%	
			Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00081%	0.00012%	
			Prop-2-yn-1-ol	107-19-7	0.00054%	0.00008%	
			Alkenes, C>10 a-	64743-02-8	0.00036%	0.00005%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00011%	0.00002%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00005%	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

EC6110A, EC6629A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Methanol (Methyl Alcohol)	000067-56-1		0.00613%	
			Proprietary Acrylate Polymer	TRADE SECRET		0.00613%	
			Proprietary Quaternary Ammonium Salt	TRADE SECRET		0.00613%	
			Water	007732-18-5		0.02648%	

* 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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