

Farm name: Ray Baker 8H Operator Well No.: 831193

LOCATION: Elevation: 1310' Quadrangle: Glen Easton 7.5'

District: Liberty County: Marshall
Latitude: 7060' Feet South of 39 Deg. 47 Min. 30 Sec.
Longitude 14120' 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"	1224'	1224'	1168 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	2653'	2653'	1094 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	12140'	12140'	2421 Cu. Ft.
Date Permit Issued: 9-11-2009				
Date Well Work Commenced: 11-19-2010				
Date Well Work Completed: 4-29-2014				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7063'				
Total Measured Depth (ft): 12170'				
Fresh Water Depth (ft.): 395'				
Salt Water Depth (ft.): N/A				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 375'				
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) 7,202-12,000
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 6,227* MCF/d Final open flow 43 Bbl/d
Time of open flow between initial and final tests 120 Hours
Static rock Pressure 4,591* psig (surface pressure) after 120 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

2/26/15
Date

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

LATERAL SIDETRACK WELLBORE (no vertical pilot hole associated with this well)

Maximum TVD of wellbore: 7054 ft TVD @ 12170 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SILTSTONE/LS	0	0	375	375
PITTSBURG COAL	375	375	385	385
SHALE W/ MINOR SS	385	385	1500	1500
SHALE W/ LS	1500	1500	2210	2210
BIG LIME	2210	2210	2260	2260
BIG INJUN (SS)	2260	2260	2490	2490
SHALE W/ SS	2490	2490	6945	6928
GENESECO (SH)	6945	6928	6968	6947
TULLY (LS)	6968	6947	6992	6972
HAMILTON (SH)	6992	6972	7172	7063
MARCELLUS (SH)	7172	7063		
TD OF LATERAL			12170	7054

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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 GR MWD from 6540' - 12170'

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: Surface:	Top Depth	/	Bottom Depth
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See attached

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MORGANTOWN, WV

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	3/24/2014
State:	WEST VIRGINIA
County:	MARSHALL
API Number:	4705101295
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	RAY BAKER 8H
Longitude:	-80.650085
Latitude:	39.752942
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	7,093
Total Water Volume (gal)**:	6,105,582

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%	88.54285%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00119%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01427%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00238%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
A264, J218, J475, J580, J609, J610, L058, Acid, Hydrochloric 15pct, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Breaker, Corrosion Inhibitor, Cross Linker, Friction Reducer, Gelling Agent, Iron Control Agent, Acid, Proppant - Natural	Crystalline silica	14808-60-7	97.61211%	11.18356%	
			Hydrogen chloride	7647-01-0	1.43167%	0.16403%	
			Guar gum	9000-30-0	0.59840%	0.06856%	
			Acrylamide, 2-acrylamido-2-	38193-60-1	0.10151%	0.01163%	
			Ammonium sulfate	7783-20-2	0.09594%	0.01099%	
			Sodium sulfate	7757-82-6	0.04147%	0.00475%	
			Calcium chloride	10043-52-4	0.04122%	0.00472%	
			Diammonium peroxodisulphate	7727-54-0	0.02976%	0.00341%	
			Polymer of 2-acrylamido-2-	136793-29-8	0.01088%	0.00125%	
			Urea	57-13-6	0.00668%	0.00077%	
			Potassium borate	1332-77-0	0.00628%	0.00072%	

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			Sodium erythorbate	6381-77-7	0.00537%	0.00061%	
			Methanol	67-56-1	0.00451%	0.00052%	
			Fatty acids, tall-oil	61790-12-3	0.00331%	0.00038%	
			Thiourea, polymer with	68527-49-1	0.00272%	0.00031%	
			Non-crystalline silica	7631-86-9	0.00260%	0.00030%	
			Potassium hydroxide	1310-58-3	0.00232%	0.00027%	
			Glycerol	56-81-5	0.00205%	0.00023%	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.00127%	0.00015%	
			Potassium chloride (impurity)	7447-40-7	0.00115%	0.00013%	
			Prop-2-yn-1-ol	107-19-7	0.00085%	0.00010%	
			Sodium chloride (impurity)	7647-14-5	0.00062%	0.00007%	
			Alkenes, C>10 a-	64743-02-8	0.00056%	0.00006%	
			Tetrasodium	64-02-8	0.00021%	0.00002%	
			Vinylidene chloride/methylacrylate	25038-72-6	0.00015%	0.00002%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00010%	0.00001%	
			Siloxanes and Silicones, di-Me,	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%	
			Magnesium silicate hydrate (talc)	14807-96-6	< 0.00001%	< 0.00001%	
			Dodecamethylcyclohexasiloxane	540-97-6	< 0.00001%	< 0.00001%	
			poly(tetrafluoroethylene)	9002-84-0	< 0.00001%	< 0.00001%	

Additional Ingredients Not Listed on MSDS

EC6110A, EC6629A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Methanol (Methyl Alcohol)	000067-56-1		0.00590%	
			Proprietary Acrylate Polymer	TRADE SECRET		0.00590%	
			Proprietary Quaternary Ammonium Salt	TRADE SECRET		0.00590%	
			Water	007732-18-5		0.02299%	

* 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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