

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: _____
API #: 47-009-00135

Farm name: Worthley BRK 3H Operator Well No.: 834870

LOCATION: Elevation: 1,160' Quadrangle: Bethany

District: Buffalo County: Brooke
Latitude: 3,780' Feet South of 40 Deg. 15 Min. 00 Sec.
Longitude 12,680' 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	26"	57'	57'	102 Cu. Ft.
Agent: Eric Gillespie	18 5/8"	234'	234'	662 Cu. Ft.
Inspector: Gayne J. Knitowski	13 3/8"	374'	374'	65 Cu. Ft.
Date Permit Issued: 6-6-2012	9 5/8"	1,750'	1,750'	821 Cu. Ft.
Date Well Work Commenced: 11-15-2012	5 1/2"	11,300'	11,300'	1,263 Cu. Ft.
Date Well Work Completed: 6/10/2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 5,999'				
Total Measured Depth (ft): 11,254'				
Fresh Water Depth (ft.): 183'				
Salt Water Depth (ft.): 800'				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): 316'				
Void(s) encountered (N/Y) Depth(s) <u>Y 316'</u>				

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

Producing formation Marcellus Pay zone depth (ft) ⁽⁶³⁰⁵⁻¹¹¹²⁶⁾ _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 2,769* MCF/d Final open flow 244 Bbl/d *Calculated
Time of open flow between initial and final tests 36 Hours
Static rock Pressure 3,899* psig (surface pressure) after 36 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

APPROVED
NAME: Eric Bled
DATE: 1-25-17

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.

[Signature]
Signature

6/14/2016
Date

02/03/2017

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, neutron, density, and resistivity
Open hole logs run from 0-1783' MD; LWD GR from 5200-11254' 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:

Scheduled for fracturing 5-16-2013

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

Formations Encountered:	Top Depth	/	Bottom Depth
<u>Surface:</u>			

See Attached

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

Maximum TVD of wellbore: 5999 ft TVD @ 7152 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SILT/COAL	0	0	100	100
LS/SS	100	100	316	316
PITTSBURG COAL	316	316	340	340
LS/SS/SILT	340	340	400	400
SILT/SHALE/SS	400	400	910	910
SS	910	910	1336	1336
BIG LIME	1336	1336	1375	1375
BIG INJUN (SS)	1375	1375	1600	1600
SHALE	1600	1600	5845	5803
GENESEO (SH)	5845	5803	5863	5816
TULLY (LS)	5863	5816	5949	5871
HAMILTON (SH)	5949	5871	6189	5972
MARCELLUS (SH)	6189	5972		
TD OF LATERAL			11254	5935

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/6/2013
State:	WEST VIRGINIA
County:	BROOKE
API Number:	4700900135
Operator Name:	CHESAPEAKE APPALACHIA LLC WORTHLEY BRK 3H
Longitude:	-80 55521
Latitude:	40 215209
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	5,999
Total Water Volume (gal)*:	8,987,580

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%	75.11441%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.000000%	10.930333%	
EC6486A	NALCO	Scale Inhibitor	Ethylene Glycol	000107-21-1	30.000000%	0.00188%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.000000%	0.00138%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.000000%	0.01651%	
			Quaternary Ammonium Compounds	NA	10.000000%	0.00275%	
Acid, Hydrochloric 15pct, A264, B315, J218, J580, L058, 100 Mesh Sand, Northern White Sand	SCHLUMBERGER	Acid, Breaker, Corrosion Inhibitor, Friction Reducer, Gelling Agent, Iron Control Agent, Proppant - Natural	Crystalline silica Hydrogen chloride Water Acrylamide sodium acrylate copolymer Distillates (petroleum), hydrotreated light Guar gum Alkylalcohol, ethoxylate >C10 Sorbitan monooleate Thiocyanic acid, ammonium salt Poly(oxyethylene) sorbitol monostearate	14808-60-7 7647-01-0 007732-18-5 25085-02-3 64742-47-8 9000-30-0 68002-97-1 1338-43-8 1762-95-4 9005-67-8	98.85789% 0.77855% 0.89067% 0.14229% 0.12362% 0.06183% 0.00757% 0.00606% 0.00373% 0.00353%	13.67296% 0.10768% 0.12433% 0.01968% 0.01710% 0.00855% 0.00105% 0.00084% 0.00052% 0.00049%	

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