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: 2-26-2015
API #: 47-009-00140

Farm name: Gerald Gourley BRK 8H Operator Well No.: 834435

LOCATION: Elevation: 1,160' Quadrangle: Steubenville East, WV

District: Cross Creek County: Brooke
Latitude: 5,110' Feet South of 40 Deg. 20 Min. 00 Sec.
Longitude 5,490' Feet West of 80 Deg. 32 Min. 30 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"	138'	138'	247 Cu. Ft.
Agent: Jessica Greathouse	13 3/8"	584'	584'	628 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1,527'	1,527'	690 Cu. Ft.
Date Permit Issued: 8-8-2012	5 1/2"	11,054'	11,054'	1,072 Cu. Ft.
Date Well Work Commenced: 11-6-2012				
Date Well Work Completed: 7-15-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6,351'				
Total Measured Depth (ft): 11,054'				
Fresh Water Depth (ft.): 478'				
Salt Water Depth (ft.): 1190'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 704'				
Void(s) encountered (N/Y) Depth(s) Y 704'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6,045-10,927
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 1,487* MCF/d Final open flow 258 Bbl/d
Time of open flow between initial and final tests 72 Hours *Calculated
Static rock Pressure 4,128* psig (surface pressure) after 72 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 I believe that the information is true, accurate, and complete.

Marlene Williams
Signature

2-26-15
Date

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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 0-1064' MD; LWD GR from 5063-11054' 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

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: 2-26-2015
API #: 47-009-00140

Farm name: Gerald Gourley BRK 8H Operator Well No.: 834435

LOCATION: Elevation: 1,160' Quadrangle: Steubenville East, WV

District: Cross Creek County: Brooke
Latitude: 5,110' Feet South of 40 Deg. 20 Min. 00 Sec.
Longitude 5,490' Feet West of 80 Deg. 32 Min. 30 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"	138'	138'	247 Cu. Ft.
Agent: Jessica Greathouse	13 3/8"	584'	584'	628 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1,527'	1,527'	690 Cu. Ft.
Date Permit Issued: 8-8-2012	5 1/2"	11,054'	11,054'	1,072 Cu. Ft.
Date Well Work Commenced: 11-6-2012				
Date Well Work Completed: 7-15-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6,351'				
Total Measured Depth (ft): 11,054'				
Fresh Water Depth (ft.): 478'				
Salt Water Depth (ft.): 1190'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 704'				
Void(s) encountered (N/Y) Depth(s) Y 704'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6,045-10,927
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 1,487* MCF/d Final open flow 258 Bbl/d
Time of open flow between initial and final tests 72 Hours *Calculated
Static rock Pressure 4,128* psig (surface pressure) after 72 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 I believe that the information is true, accurate, and complete.

Marlene Williams
Signature

2-26-15
Date

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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 0-1064' MD; LWD GR from 5063-11054' 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

PERFORATION RECORD ATTACHMENT

Well Name and Number: Gerald Gourley BRK 8H **API No. 47-009-00140**

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	6/12/2013	10669	10927	42	6/12/2013	10669	10927	SLK Wtr	8084	Sand	476120	78.7
2	6/13/2013	10314	10611	42	6/13/2013	10314	10611	SLK Wtr	9170	Sand	474080	77.3
3	6/13/2013	9954	10255	42	6/13/2013	9954	10255	SLK Wtr	8194	Sand	474840	79.3
4	6/13/2013	9602	9899	42	6/13/2013	9602	9899	SLK Wtr	8106	Sand	476360	79.8
5	6/13/2013	9246	9549	42	6/13/2013	9246	9549	SLK Wtr	7894	Sand	474760	79.9
6	6/13/2013	8897	9188	42	6/13/2013	8897	9188	SLK Wtr	7871	Sand	474980	77
7	6/13/2013	8535	8832	42	6/13/2013	8535	8832	SLK Wtr	8115	Sand	476500	79.2
8	6/14/2013	8179	8476	42	6/14/2013	8179	8476	SLK Wtr	3802	Sand	478150	80.1
9	6/14/2013	7820	8121	42	6/14/2013	7820	8121	SLK Wtr	8118	Sand	477900	80.1
10	6/14/2013	7468	7765	42	6/14/2013	7468	7765	SLK Wtr	7732	Sand	475360	79.9
11	6/14/2013	7112	7415	42	6/14/2013	7112	7415	SLK Wtr	8005	Sand	473020	78.4
12	6/14/2013	6749	7054	42	6/14/2013	6749	7054	SLK Wtr	8072	Sand	479580	79.8
13	6/15/2013	6401	6697	42	6/15/2013	6401	6697	SLK Wtr	8211	Sand	474600	80.2
14	6/15/2013	6045	6343	42	6/15/2013	6045	6343	SLK Wtr	8100	Sand	474060	80

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

Maximum TVD of wellbore: 6351 ft TVD @ 10615 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS	0	0	704	704
PITTSBURG COAL (VOID)	704	704	708	708
SS	708	708	758	758
COAL	758	758	766	766
SS	766	766	1110	1110
BIG LIME	1110	1110	1220	1220
BIG INJUN (SS)	1220	1220	1343	1343
SHALE	1343	1343	5565	5505
GENESEO (SH)	5565	5505	5593	5522
TULLY (LS)	5593	5522	5686	5574
HAMILTON (SH)	5686	5574	5884	5652
MARCELLUS (SH)	5884	5652		
TD OF LATERAL			11054	5758

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/12/2013
State:	WEST VIRGINIA
County:	BROOKE
API Number:	4700900140
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	GERALD GOURLEY BRK 8H
Longitude:	-80.55998
Latitude:	40.318264
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	5,759
Total Water Volume (gal)*:	5,020,554

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%	80.32034%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	5.50784%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00138%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01659%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00277%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
Northern White Sand, 100 Mesh Sand, Acid Hydrochloric, J580, J609, B315, L058, A264, J218	SCHLUMBERGER	Proppant - Natural, Acid, Gelling Agent, Friction Reducer, Iron Control Agent, Corrosion Inhibitor, Breaker	Crystalline silica	14808-60-7	98.55200%	13.90721%	
			Hydrogen chloride	7647-01-0	0.99654%	0.14063%	
			Acrylamide sodium acrylate copolymer	25085-02-3	0.18477%	0.02607%	
			Distillates (petroleum), hydrotreated light	64742-47-8	0.16052%	0.02265%	
			Guar gum	9000-30-0	0.03210%	0.00453%	

			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.01202%	0.00170%	
			Ammonium sulfate	7783-20-2	0.01136%	0.00160%	
			Alkylalcohol, ethoxylate >C10	68002-97-1	0.00983%	0.00139%	
			Sorbitan monooleate	1338-43-8	0.00786%	0.00111%	
			Sodium sulfate	7757-82-6	0.00491%	0.00069%	
			Thiocyanic acid, ammonium salt	1762-95-4	0.00485%	0.00068%	
			Poly(oxyethylene) sorbitol monostearate	9005-67-8	0.00459%	0.00065%	
			Sodium erythorbate	6381-77-7	0.00405%	0.00057%	
			Methanol	67-56-1	0.00312%	0.00044%	
			Fatty acids, tall-oil	61790-12-3	0.00229%	0.00032%	
			Diammonium peroxidisulphate	7727-54-0	0.00211%	0.00030%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00189%	0.00027%	
			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00129%	0.00018%	
			Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00088%	0.00012%	
			Urea	57-13-6	0.00079%	0.00011%	
			Prop-2-yn-1-ol	107-19-7	0.00058%	0.00008%	
			Alkenes, C>10 a-	64743-02-8	0.00039%	0.00006%	
			Non-crystalline silica	7631-86-9	0.00020%	0.00003%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00008%	0.00001%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00001%	< 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		0.00617%	
			Proprietary Acrylate Polymer	TRADE SECRET		0.00617%	
			Proprietary Quaternary Ammonium Salt	TRADE SECRET		0.00617%	
			Water	007732-18-5		0.02664%	

* 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.