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: 11-25-2013
API #: 47-069-00138

Farm name: George Gantzer OHI 201H Operator Well No.: 835865

LOCATION: Elevation: 1,244' Quadrangle: Valley Grove

District: Tridelphia County: Ohio
Latitude: 4,780' Feet South of 40 Deg. 05 Min. 00 Sec.
Longitude 13,920' 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"	118'	118'	359 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	616'	616'	735 Cu. Ft.
Inspector: Gayne Knitowski/Bill Hendershot	9 5/8"	2,064'	2,064'	875 Cu. Ft.
Date Permit Issued: 4-8-2013	5 1/2"	13,097'	13,097'	3,160 Cu. Ft.
Date Well Work Commenced: 5-27-2013				
Date Well Work Completed: 10-15-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6,348'				
Total Measured Depth (ft): 13,100'				
Fresh Water Depth (ft.): 174'				
Salt Water Depth (ft.): 750'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 580'				
Void(s) encountered (N/Y) Depth(s) Y 580'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6,945-12,942
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 1,446* MCF/d Final open flow 88 Bbl/d
Time of open flow between initial and final tests 96 Hours
Static rock Pressure 4,126* 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.

Marlene Williams
Signature

11-25-2013
Date

01/03/2014

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_____
LWD GR from 6060-13100' 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 attachment

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

Formations Encountered: Top Depth / Bottom Depth
Surface:

See attachment

PERFORATION RECORD ATTACHMENT

Well Number and Name: 835865 George Gantzer OHI 201H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					*Fluid*		*Propping Agent*		Average
Date	From	To	Date	Interval Treated		Type	Amount	Type	Amount	Injection
9/8/2013	12,738	12,942	9/9/2013	12,738	12,942	Slickwater	8,954	Sand	501,140	77
9/9/2013	12,486	12,690	9/9/2013	12,486	12,690	Slickwater	9,318	Sand	500,060	80
9/9/2013	12,234	12,438	9/10/2013	12,234	12,438	Slickwater	9,425	Sand	499,360	80
9/9/2013	11,983	12,188	9/10/2013	11,983	12,188	Slickwater	9,023	Sand	498,940	76
9/10/2013	11,731	11,934	9/11/2013	11,731	11,934	Slickwater	9,051	Sand	498,060	77
9/11/2013	11,485	11,682	9/11/2013	11,485	11,682	Slickwater	9,021	Sand	501,670	77
9/11/2013	11,227	11,427	9/11/2013	11,227	11,427	Slickwater	9,192	Sand	500,840	80
9/11/2013	10,975	11,178	9/11/2013	10,975	11,178	Slickwater	9,136	Sand	498,780	80
9/11/2013	10,723	10,927	9/11/2013	10,723	10,927	Slickwater	9,963	Sand	500,500	79
9/12/2013	10,466	10,675	9/12/2013	10,466	10,675	Slickwater	9,058	Sand	502,740	80
9/12/2013	10,215	10,423	9/12/2013	10,215	10,423	Slickwater	13,531	Sand	499,840	78
9/12/2013	9,968	10,166	9/12/2013	9,968	10,166	Slickwater	9,120	Sand	501,120	80
9/12/2013	9,716	9,919	9/13/2013	9,716	9,919	Slickwater	9,193	Sand	499,160	80
9/13/2013	9,464	9,667	9/13/2013	9,464	9,667	Slickwater	9,078	Sand	500,660	80
9/13/2013	9,212	9,415	9/13/2013	9,212	9,415	Slickwater	8,655	Sand	446,888	81
9/13/2013	8,960	9,163	9/13/2013	8,960	9,163	Slickwater	8,871	Sand	501,360	79
9/13/2013	8,708	8,912	9/14/2013	8,708	8,912	Slickwater	8,892	Sand	500,240	80
9/14/2013	8,456	8,660	9/14/2013	8,456	8,660	Slickwater	7,492	Sand	343,140	75
9/14/2013	8,204	8,408	9/14/2013	8,204	8,408	Slickwater	8,870	Sand	498,600	80
9/14/2013	7,948	8,156	9/14/2013	7,948	8,156	Slickwater	8,958	Sand	500,820	77
9/14/2013	7,702	7,904	9/14/2013	7,702	7,904	Slickwater	8,778	Sand	499,540	80
9/14/2013	7,451	7,648	9/14/2013	7,451	7,648	Slickwater	8,833	Sand	502,000	81
9/14/2013	7,197	7,396	9/15/2013	7,197	7,396	Slickwater	8,923	Sand	499,760	80
9/15/2013	6,945	7,142	9/15/2013	6,945	7,142	Slickwater	8,922	Sand	499,860	80

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

Maximum TVD of wellbore: 6296 ft TVD @ 7111 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
LS/SS	0	0	575	575
PITTSBURG COAL	575	575	585	585
LS/SHALE	585	585	700	700
SS	700	700	1200	1200
SHALE	1200	1200	1290	1290
SS	1290	1290	1750	1750
BIG LIME (LS)	1750	1750	1800	1800
BIG INJUN (SS)	1800	1800	2011	2011
SHALE	2011	2011	6575	6195
GENESEO (SH)	6575	6195	6604	6214
TULLY (LS)	6604	6214	6665	6254
HAMILTON (SH)	6665	6254	6863	6354
MARCELLUS (SH)	6863	6354		
TD OF LATERAL			13100	6348

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	9/9/2013
State:	WEST VIRGINIA
County:	OHIO
API Number:	4706900138
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	GEORGE GANTZER OHI 201H
Longitude:	-80.600461
Latitude:	40.045139
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,925
Total Water Volume (gal)*:	9,829,638

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%	81.89383%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	5.47587%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00126%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01509%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00251%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
Northern White Sand, 100 Mesh Sand, Hydrochloric Acid, J580, J609, J218, L058, A264, J610, J475	SCHLUMBERGER	Proppant - Natural, Acid, Gelling Agent, Friction Reducer, Breaker, Iron Control Agent, Corrosion Inhibitor, Cross Linker, Breaker	Crystalline silica	14808-60-7	97.92663%	12.38503%	
			Hydrogen chloride	7647-01-0	1.37190%	0.13819%	
			Guar gum	9000-30-0	0.41673%	0.04198%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.09366%	0.00943%	
			Ammonium sulfate	7783-20-2	0.08852%	0.00892%	
			Sodium sulfate	7757-82-6	0.03826%	0.00385%	
			Diammonium peroxidisulphate	7727-54-0	0.02191%	0.00221%	

			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.01004%	0.00101%	
			Urea	57-13-6	0.00617%	0.00062%	
			Sodium erythorbate	6381-77-7	0.00603%	0.00061%	
			Methanol	67-56-1	0.00440%	0.00044%	
			Fatty acids, tall-oil	61790-12-3	0.00323%	0.00033%	
			Potassium borate	1332-77-0	0.00292%	0.00029%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00266%	0.00027%	
			Non-crystalline silica	7631-86-9	0.00203%	0.00020%	
			Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00124%	0.00012%	
			Potassium hydroxide	1310-58-3	0.00108%	0.00011%	
			Glycerol	56-81-5	0.00095%	0.00010%	
			Prop-2-yn-1-ol	107-19-7	0.00083%	0.00008%	
			Alkenes, C>10 a-	64743-02-8	0.00055%	0.00006%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00022%	0.00002%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00019%	0.00002%	
			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%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00001%	< 0.00001%	
			Decamethyl cyclopentasiloxane	541-02-6	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		0.00617%	
			Proprietary Acrylate Polymer	TRADE SECRET		0.00617%	
			Proprietary Quaternary Ammonium Salt	TRADE SECRET		0.00617%	
			Water	007732-18-5		0.02454%	

* 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.