

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas  
Well Operator's Report of Well Work

Farm Name: Delmar Light 3H

Operator Well No.: 831091

LOCATION Elevation: 1745'  
District: Buckhan  
non  
Latitude: 4600ft South of 39° 00' 00"  
Longitude: 12650ft West of 80° 15' 00"

Quadrangle: Adrian  
County: Upshur

Company: Chesapeake Appalachia, L.L.C.  
P.O. Box 18496  
OKC, OK 73154-0496

Agent: Eric Gillespie  
Inspector: Bill Hatfield  
Date Permit Issued: 10/01/2009  
Date Well work commenced: 03/03/2010  
Date Well Work completed: 6/28/2010  
Verbal Plugging Permission  
Granted on / /

Rotary  Cable  Rig  
Total Depth (ft): 13200' TVD (ft): 7538'  
Fresh Water Depth (ft): 62' & 275'  
Salt Water Depth (ft): NA  
Is coal being mined in area (Yes  No )  
Coal Depths (ft): 270' & 275'  
Was this well logged and plugged back?  
Yes \_\_\_ No X if yes -  
depth cement plug set \_\_\_\_\_'

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill-Up Cu.Ft.
20"	40'	40'	Driven
13 3/8"	600'	600'	238 CF
9 5/8"	1860'	1860'	862 CF
5 1/2"	13200'	13200'	2049 CF
<b>RECEIVED</b>			
<b>Office of Oil &amp; Gas</b>			

APR 09 2013

WV Department of  
Environmental Protection

Open Flow Data

1<sup>st</sup> Producing Formation Pay Zone Depth 7,861 ft to 13,063 ft

Gas: Initial Open Flow	1,938 Mcf/day	Oil: Initial Open Flow	bb/day
Final Open Flow	Mcf/day	Final Open Flow	bb/day
Time of Open Flow between Initial and Final Tests	In	hours	
	Line		
Static Rock Pressure	3,396 psig after	hours	

2<sup>nd</sup> Producing Formation Pay Zone Depth ft to ft

Gas: Initial Open Flow	Mcf/day	Oil: Initial Open Flow	bb/day
Final Open Flow	Mcf/day	Final Open Flow	bb/day
Time of Open Flow between Initial and Final Tests	hours		
Static Rock Pressure	psig after	hours	

3<sup>rd</sup> Producing Formation Pay Zone Depth ft to ft

Gas: Initial Open Flow	Mcf/day	Oil: Initial Open Flow	bb/day
Final Open Flow	Mcf/day	Final Open Flow	bb/day
Time of Open Flow between Initial and Final Tests	hours		
Static Rock Pressure	psig after	hours	

NOTE: ON BACK OF THIS FORM 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 ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

**Chesapeake Energy**  
**Well No.: 831091**

**Perforated Intervals**

1 <sup>st</sup> Stage	Marcellus	10	Holes from	12,741 ft to 13,063
2 <sup>nd</sup> Stage	Marcellus	10	Holes from	12,341 ft to 12,663
3 <sup>rd</sup> Stage	Marcellus	10	Holes from	11,941 ft to 12,263
4 <sup>th</sup> Stage	Marcellus	10	Holes from	11,541 ft to 11,863
5 <sup>th</sup> Stage	Marcellus	10	Holes from	11,141 ft to 11,463
6 <sup>th</sup> Stage	Marcellus	10	Holes from	10,741 ft to 11,063
7 <sup>th</sup> Stage	Marcellus	10	Holes from	10,321 ft to 10,643
8 <sup>th</sup> Stage	Marcellus	10	Holes from	9,821 ft to 10,143
9 <sup>th</sup> Stage	Marcellus	10	Holes from	9,461 ft to 9,783
10 <sup>th</sup> Stage	Marcellus	10	Holes from	9,061 ft to 9,383
11 <sup>th</sup> Stage	Marcellus	10	Holes from	8,661 ft to 8,983
12 <sup>th</sup> Stage	Marcellus	10	Holes from	8,261 ft to 8,583
13 <sup>th</sup> Stage	Marcellus	10	Holes from	7,861 ft to 8,183

**Fracturing / Stimulation**

1 <sup>st</sup> Stage	Type of Treatment Slickwater			
	Total Acid 5,000 Gal of 15% HCl		Breakdown Pressure 6,333 psi	
	Average Rate 86.1 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,788 psi   MTP 8,743 psi	
	Total Fluid 8,922 bbl	Total Nitrogen 0 scf	Total Sand 124,570 lb of 100 mesh	
			Total Sand 283,980 lb of 40/70	
	ISIP 4,244 psi	5 min 3,703 psi		
2 <sup>nd</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 6,608 psi	
	Average Rate 78.6 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,560 psi   MTP 8,502 psi	
	Total Fluid 10,634 bbl	Total Nitrogen 0 scf	Total Sand 119,201 lb of 100 mesh	
			Total Sand 283,980 lb of 40/70	
	ISIP 4,456 psi	5 min 4,100 psi		
3 <sup>rd</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 7,241 psi	
	Average Rate 79 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 8,005 psi   MTP 8,991 psi	
	Total Fluid 9,061 bbl	Total Nitrogen 0 scf	Total Sand 124,643 lb of 100 mesh	
			Total Sand 286,032 lb of 40/70	
	ISIP 4,507 psi	5 min 3,826 psi		
4 <sup>th</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 7,102 psi	
	Average Rate 75 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,558 psi   MTP 8,968 psi	
	Total Fluid 9,030 bbl	Total Nitrogen 0 scf	Total Sand 119,545 lb of 100 mesh	
			Total Sand 275,880 lb of 40/70	
	ISIP 4,694 psi	5 min 4,041 psi		
5 <sup>th</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 5,802 psi	
	Average Rate 85 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,584 psi   MTP 8,225 psi	
	Total Fluid 9,318 bbl	Total Nitrogen 0 scf	Total Sand 125,248 lb of 100 mesh	
			Total Sand 278,910 lb of 40/70	
	ISIP 4,439 psi	5 min 3,972 psi		
6 <sup>th</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 6,497 psi	
	Average Rate 86 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,441 psi   MTP 8,162 psi	
	Total Fluid 9,064 bbl	Total Nitrogen 0 scf	Total Sand 119,439 lb of 100 mesh	
			Total Sand 285,143 lb of 40/70	
	ISIP 4,865 psi	5 min 4,171 psi		
7 <sup>th</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 6,278 psi	
	Average Rate 84 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 7,614 psi   MTP 8,228 psi	
	Total Fluid 17,294 bbl	Total Nitrogen 0 scf	Total Sand 122,854 lb of 100 mesh	
			Total Sand 290,603 lb of 40/70	
	ISIP 4,622 psi	5 min 4,145 psi		
8 <sup>th</sup> Stage	Type of Treatment Slickwater			
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 6,064 psi	

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	Average Rate 84 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 7,053 psi	MTP 7,571 psi
	Total Fluid 9,176 bbl	Total Nitrogen 0 scf	Total Sand 123,581 lb of 100 mesh
			Total Sand 283,981 lb of 40/70
9 <sup>th</sup> Stage	ISIP 4,565 psi	5 min 4,081 psi	
	Type of Treatment Slickwater		
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 6,208 psi
	Average Rate 90 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 7,468 psi	MTP 8,100 psi
	Total Fluid 10,369 bbl	Total Nitrogen 0 scf	Total Sand 119,767 lb of 100 mesh
			Total Sand 252,227 lb of 40/70
10 <sup>th</sup> Stage	ISIP 4,684 psi	5 min 3,964 psi	
	Type of Treatment Slickwater		
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 7,089 psi
	Average Rate 85 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 7,594 psi	MTP 8,113 psi
	Total Fluid 10,455 bbl	Total Nitrogen 0 scf	Total Sand 122,563 lb of 100 mesh
			Total Sand 282,124 lb of 40/70
11 <sup>th</sup> Stage	ISIP 4,653 psi	5 min 3,765 psi	
	Type of Treatment Slickwater		
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 7,872 psi
	Average Rate 88 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 7,253 psi	MTP 7,908 psi
	Total Fluid 10,099 bbl	Total Nitrogen 0 scf	Total Sand 118,997 lb of 100 mesh
			Total Sand 270,456 lb of 40/70
12 <sup>th</sup> Stage	ISIP 4,575 psi	5 min 3,839 psi	
	Type of Treatment Slickwater		
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 7,248 psi
	Average Rate 82 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 6,943 psi	MTP 7,677 psi
	Total Fluid 9,613 bbl	Total Nitrogen 0 scf	Total Sand 126,027 lb of 100 mesh
			Total Sand 245,874 lb of 40/70
13 <sup>th</sup> Stage	ISIP NA psi	5 min --- psi	
	Type of Treatment Slickwater		
	Total Acid 2,500 Gal of 15% HCl		Breakdown Pressure 5,983 psi
	Average Rate 83 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP 7,396 psi	MTP 8,252 psi
	Total Fluid 11,950 bbl	Total Nitrogen 0 scf	Total Sand 122,547 lb of 100 mesh
			Total Sand 279,213 lb of 40/70
	ISIP 5,094 psi	5 min 4,731 psi	

### Well Log

Formation Name	Top	Bottom	Comments
MAXTON	1367	1439	
LITTLE LIME	1613	1677	
BIG LIME	1677	1864	
BIG INJUN	1864	1887	
GANTZ	1931	1996	
GORDON	2013	2034	
4 <sup>th</sup> SAND	2369	2384	
5 <sup>th</sup> SAND	2419	2485	
BAYARD	2525	2533	
ELIZABETH	3667	2686	
WARREN	2782	2843	
BEDFORD	3562	3572	
SPEECHLEY	3124	3137	
BALLTOWN	3305	3370	
RILEY	3936	3945	
BENSON	4323	4366	
ELK	5781	5812	
SYCAMORE	6595	6609	
MIDDLESEX	6977	7296	
GENESEO	7296	7330	
TULLY	7330	7362	
HAMILTON	7362	7461	
UPPER MARCELLUS	7461	7513	
PURCELL	7513	7515	
LOWER MARCELLUS	7515	7574	
ONONDAGA	7574	7583	

05/10/2013

HUNTERSVILLE	7583	7672	

Signed:



CHESAPEAKE APPALACHIA, LLC

By: Tai Oden, Manager Regulatory, Eastern Division

Date: 11/15/2010

05/10/2013