

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: 02/28/13  
API #: 47-103-02647  
*Beusch*

Farm name: Dorsey, Robert Operator Well No.: Charles Musgrave 1H (See note on page 2)

LOCATION: Elevation: 1,349' Quadrange: Littleton 7.5'

District: Center County: Wetzel  
Latitude: 10,892' Feet South of 39 Deg. 42 Min. 30.0 Sec.  
Longitude 3,999' Feet West of 80 Deg. 35 Min. 00.0 Sec.

Company: Grenadier Energy Partners, LLC

Address: <small>CT Corporation 707 Virginia Street East 15th Floor Charleston, WV 25301</small>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Agent: <u>Dianna Stamper</u>	24"	40'	40'	Grouted In
Inspector: <u>Derek Haught</u>	16"	420'	420'	495 cu.ft (CTS)
Date Permit Issued: <u>03/31/2011</u>	11-3/4"	1543'	1543'	1071 cu.ft (CTS)
Date Well Work Commenced: <u>07/26/2011</u>	8-5/8"	2746'	2746'	841 cu.ft (CTS)
Date Well Work Completed: <u>12/08/2011</u>	5-1/2"	10326'	10326'	1901 cu.ft (CTS)
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7584'</u> (See Note on Page 2)				
Total Measured Depth (ft): <u>10356'</u>				
Fresh Water Depth (ft.): <u>Est. 280'</u>				
Salt Water Depth (ft.): <u>N/A</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>N/A</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

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

Producing formation Marcellus Shale Pay zone depth (ft) 7546' - 10160' MD  
Gas: Initial open flow 6342 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 4125 psig (surface pressure) after 168 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

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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.

*Byron Hailer*  
Signature

2/28/13  
Date

05/31/2013

103.02647

Were core samples taken? Yes \_\_\_\_\_ No X

Were cuttings caught during drilling? Yes X No \_\_\_\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes  
Photo Density-Compensated Neutron-GR, Dual Laterolog-GR, Compensated Sonic-GR

**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:

Perforations: Total Perforated Interval (7546' - 10160' MD)

Fluid: 82,212 bbl Slickwater pumped in 7 Stages

Sand: 1,524,515 lbs 100 mesh sand, 1,560,285 lbs 40/70 sand

Plug Back Details Including Plug Type and Depth(s): Cement Kickoff Plug for Horizontal - 7584' to 6740' w/ 306 sx of cement

Formations Encountered: \_\_\_\_\_ Top Depth \_\_\_\_\_ / \_\_\_\_\_ Bottom Depth \_\_\_\_\_  
Surface: \_\_\_\_\_

See Attached Sheet

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Note: The Charles Musgrave 1H well had a pilot hole drilled prior to kicking off and going horizontal.

The TVD shown for this well is the deepest depth recorded by the logger for the pilot hole. This portion of the well was then plugged back from 7584' to 6740' w/ 306 sx of cement (see plugback details).

The Charles Musgrave 1H was then drilled by kicking off this plug and going horizontal.

The total measured depth (TMD) shown is for the horizontal wellbore.

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Charles Musgrave 1H - API# 47-103-02647  
Formations / Lithology

Formation/Lithology	Top Depth	Bottom Depth
Silt & Shale	0	1040
Red Rocks	1040	1095
Sand & Shale	1095	1931
Salt Sand	2354	2372
Strate	2000	2057
Big Lime	2390	2486
Big Injun	2480	2672
Silt & Shale	2356	2900
Gordon Stray Ss	3217	3225
Silt & Shale	2910	2938
Gordon Ss	3262	3308
Silt & Shale	2991	3030
Fourth Gordon Ss	3358	3360
Silt & Shale	3042	6444
Rhinestreet	6648	7078
Sonya Sh	7078	7246
Genesee Sh	7246	7316
Geneseo Sh	7316	7346
Trully Lm	7346	7350
Hamilton Sh	7350	7466
Marcellus Sh	7466	7510
Onondaga	7510	7545
Huntersville Chert	7545	7584*

\* This depth is the TD of the well. The bottom of the formation was not located.

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