

State of West Virginia
 Division of Environmental Protection
 Section of Oil and Gas

Well Operator's Report of Well Work

Farm name: **Barringer, Paul B. II et al**

Operator Well No.: **PMOG 61**

LOCATION: Elevation: **1433.87**

Quadrangle: **Swandale**

District : **Buffalo**

County : **Clay**

Latitude : **9,290 Feet South of 38 Deg. 30 Min. 00 Sec.**

Longitude: **8,750 Feet West of 80 Deg. 52 Min. 30 Sec.**

Company: **Range Resources – Pine Mountain Inc**
P. O. Box 2136
Abingdon, VA 24212

Agent: **GEARY LEGG**

Inspector: **RICHARD CAMPBELL**

Permit Issued: **11/22/2003**

Well Work Commenced: **04/17/2004**

Well Work Completed: **08/11/2004**

Verbal Plugging

Permission Granted on:

Rotary **X** Cable Rig

Total Depth (feet): **6571 kb**

Fresh Water Depths (feet): **48 kb**

Salt Water Depths (feet): **1166 kb**

Is coal being mined in area? (Y/N) **N**

Coal Depths (feet): **NA**

Casing & Tubing	Used in Drilling	Left In Well	Cement Fill Up Cu.Ft.
16	24	24	
11-3/4	36	36	
9-5/8	231	231	248
7	2474	2474	169
4-1/2		3680	267

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OPEN FLOW DATA

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Production Formation **Devonian/Injun/Big Lime/Blue Monday Pay zone depth (ft)**
1911-3223 kb

Gas: Initial open flow **N/A** 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 **280** psig (surface pressure) after **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**

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 WELBORE.

For: **Range Resources – Pine Mountain, Inc.**

By: *Laura Munn*
 Date: **4/11/2013**

04/19/2013

Open Mine

Abandoned mine 210-213 kb - run 11-3/4 liner from 189-225 kb

Plug Back

6295 – 6571 Cement plug

4100 – 6295 6% gel

3690 – 4100 Cement plug

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Completion

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1st Stage: Perf 3310-3223 kb 17h, 3363-3367 kb 9h, 3386-3391 kb 11h, 3414-3420 kb 13h,
3530-3536 kb 13h – 63h total
Frac w/517 bbl 75Q N2 foam, BD @ 20 psi w/500 gal 15% HCl
Avg Rate – 35 bpm (dh), Avg Press – 1511 psi, Max Press – 1688 psi, Avg N2 – 14,600 scfm
Total N2 – 292,000 scf, Total 20/40 sand – 50,957#

2nd Stage: Perf 3267-3290 kb 47h
Frac w/393 bbl 75Q N2 foam, BD @ 1474 psi w/500 gal 15% HCl
Avg Rate – 30 bpm (dh), Avg Press – 1562 psi, Max Press – 1648 psi, Avg N2 – 11,500 scfm
Total N2 – 286,700 scf, Total 20/40 sand – 42,110#

3rd Stage: Perf 3222-3240 kb 37h
Frac w/492 bbl 75Q N2 foam, BD @ 2303 psi w/500 gal 15% HCl
Avg Rate – 30 bpm (dh), Avg Press – 1626 psi, Max Press – 2412 psi, Avg N2 – 12,900 scfm
Total N2 – 326,500 scf, Total 20/40 sand – 44,453#

4th Stage: Perf 2947-2952 kb 11h, 3076-3085 19h – 30h total
Frac w/289 bbl 75Q N2
Avg Rate – 16 bpm (dh), Avg Press – 1194 psi, Max Press – 1332 psi, Avg N2 – 5800 scfm
Total N2 – 131,300 scf, Total 20/40 sand – 26,433#

5th Stage: Perf 2157-2166 kb
Frac w/117 bbl 75Q N2 foam, BD @ 2756 psi w/672 gal 15% HCl
Avg Rate – 20 bpm (dh), Avg Press – 1246 psi, Max Press – 2756 psi,
Total N2 – 127.7 Mscf, Total 20/40 sand – 25,820#

6th Stage: Perf 2069-2119 kb
Frac w/112 bbl 75Q N2 foam, BD @ 3377 psi w/1470 gal 15% HCl
Avg Rate – 16.3 bpm (dh), Avg Press – 1889 psi, Max Press – 2181 psi,
Total N2 – 165.3 Mscf, Total 20/40 sand – 25,359#

7th Stage: Perf 1911-1928 kb
Frac w/112 bbl 75Q N2 foam, BD @ 710 psi
Avg Rate – 30.4 bpm (dh), Avg Press – 2167 psi, Max Press – 2592 psi,
Total N2 – 204.3 Mscf, Total 20/40 sand – 51,639#

04/19/2013

Well Log

Formation	Top (ft)*	Bottom (ft)*
Lower Maxon		1801
Little Lime	1854	1906
Blue Monday	1906	1929
Pencil Cave Shale	1929	1950
Big Lime	1950	2152
Big Injun	2152	2167
Weir	2167	2470
Devonian Sand	3214	
Lower Huron	4439	4500
Rhinestreet	5314	5410
Marcellus	6517	
TD		6544

* Depths 10 ft KB

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