

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Roderic and Ronda Moore Operator Well No.: HR 448

LOCATION: Elevation: 777' Quadrangle: Reedy WV 7.5'

District: Reedy County: Roane
Latitude: 11877 Feet South of 38 Deg. 00 Min. 00 Sec.
Longitude 8628' Feet West of 82 Deg. 00 Min. 00 Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: <u>1244 Martins Branch Road</u> <u>Charleston WV, 25312</u>	<u>20"</u>	<u>19'</u>	<u>19'</u>	<u>NA</u>
Agent: <u>Marc Scholl</u>	<u>13 3/8"</u>	<u>83</u>	<u>83</u>	<u>60ft3 CTS</u>
Inspector: <u>Ed Gainer</u>	<u>9 5/8"</u>	<u>710</u>	<u>710</u>	<u>348 ft3 CTS</u>
Date Permit Issued: <u>11/16/11</u>	<u>7"</u>	<u>2410</u>	<u>2410</u>	<u>558 ft3 CTS</u>
Date Well Work Commenced: <u>2/7/12</u>	<u>4.5"</u>	<u>5653</u>	<u>5653</u>	<u>65 ft3</u>
Date Well Work Completed: <u>3/8/12</u>				
Verbal Plugging:	<u>Ran Gamma Log from KOP(3613' - 4680'TVD)</u>			
Date Permission granted on:				
Rotary x Cable Rig				
Total Depth (feet): <u>7139'TMD, 4255'TVD</u>				
Fresh Water Depth (ft.): <u>55', 290'</u>				
Salt Water Depth (ft.): <u>1200', 1925'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>N/A</u>				

RECEIVED
Office of Oil & Gas
JUN 06 2012

WV Department of Environmental Protection

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 3978'MD- 7139 'MD
3950'TVD - 4255' TVD
Gas: Initial open flow oder MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 500+ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure _____ 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 WELLBORE.

Signed: [Signature]
By: President
Date: 6/1/12

Formation:	Top:	Bottom:
Soil/Sand/Shale	0	1710
Salt Sand	1710	2040
Shale	2040	2360
Coffee Shale	2360	2380
Berea Sand	2380	2382
Devonian Shale	2382	4255
Lower Huron Section	4187	4255

All depths shown As TVD

02/18/12 Run 132 jts of 4.5" 11.6ppf N-80 casing with 13 stg Team completion inflatable packer system. Casing stacked out suddenly at 5653' at 12:00pm. Work string. RU with washdown sub and put air to hole and work string with no success. Decide to pull casing. Casing stuck. Cut pipe and land in head. Set slips with approx 80000 lbs tension. Cut pipe 2.5" above 7x4" flange face and dress up cut. Slide 4-0 bushing over cut joint of pipe and assemble DSA and 10k valve. RU Wellhead.

02/19/12 Pump balls down for shoe and pump total of 208k scf N2 (pressure built slowly to 3135psi before shutting down). Pressure dropped after shutdown but packers appear to be set. Dump squeeze on 4.5"x7" annulus with 50sx type 1 3% CaCl.

	Sleeve	Sleeve Size	Packers
Stage 1	5808	HP	5470
Stage 2	5562	1.430	5293
Stage 3	5385	1.594	5074
Stage 4	5166	1.750	4854
Stage 5	4947	1.906	4635
Stage 6	4508	2.063	4416
Stage 7	4289	2.219	4197
Stage 8	4070	2.375	3978
Stage 9	3851	2.531	3759
Stage 10	3672	2.688	3540
Stage 11	3413	2.844	3321
Stage 12	3194	3.036	3101
Stage 13	2974	2.286	2802
Anchor			1286

RECEIVED
Office of Oil & Gas

JUN 06 2012

WV Department of
Environmental Protection

03/08/12 Wellhead pressure at 1220psi. Start pumping N2 at 30k scf/min and open HP sleeve at 5050psi. Up rate and pump total of 2 MMscf N2. Shut down, drop 1.719" ball for Stg 2. Start pumping N2 at low rate and land ball. Up rate and open sleeve at 3983psi. Up rate and pump total of 1 MMscf N2. Shut down and drop ball for Stg 3. Repeat frac process for stgs 3 - 8. (8 stage completion due to early set down of completion string).

	Stg 1	Stg 2	Stg 3	Stg 4	Stg 5	Stg 6	Stg 7	Stg 8
Max P	5451	4586	4261	4281	4235	4398	4063	4153
Avg P	4546	4539	4221	4270	4209	4310	3997	3999
Max R	105.0	108.0	102.0	105.0	105.0	108.0	104.0	110.0
Avg R	80.4	105.0	101.0	104.0	104.0	105.0	102.0	105.0
5 min	1699	1713	1736	1750	1780	1778	1870	1853

10/26/2012