

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

Well Operator's Report of Well Work

Farm name: Delmar & Virginia Eagle Operator Well No.: HR 379

LOCATION: Elevation: 1021' Quadrangle: Gay, WV 7.5'

District: Reedy County: Roane
Latitude: 3104 Feet South of 38 Deg. 52 Min. 30 Sec.
Longitude 2273 Feet West of 81 Deg. 30 Min. 00 Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 2034 Martins Branch Road Charleston WV, 25312				
Agent: Marc Scholl	13 3/8"	32'	32'	N/A
Inspector: Ed Gainer	9 5/8"	970'	970'	436 CuFt
Date Permit Issued: 9/9/2010	7"	2657'	2657'	564 CuFt
Date Well Work Commenced: 6/10/11	4.5"	6940'	6940'	120 CuFt
Date Well Work Completed: 6/27/11				
Verbal Plugging:				
Date Permission granted on:				
Rotary x Cable Rig				
Total Depth (feet): 6986' MD, 4462' TVD				
Fresh Water Depth (ft.): 900'				
Salt Water Depth (ft.): 2024', 2182'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): N/A				

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OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4309' - 6986' MD
4274' - 4462' TVD

Gas: Initial open flow 250 MCF/d Oil: Initial open flow Bbl/d
Final open flow 1800 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 WELLSBORE.

Signed: _____

By: President

Date: 9/9/2011

Formation:	Top:	Bottom:
Soil/Sand/Shale	0	730
Sand	730	820
Sand	820	900
Sand	900	940
Shale/sand	940	2021
Salt Sand	2021	2150
Big Lime	2150	2230
Injun Sand	2230	2270
Berea Sand	2610	2612
Devonian Shale	2612	4462
Huron Section	4300	4462(TVD)

06/22/11. Run total of 163 joints of R-3 11.6 ppf 4.5" casing to depth of 6940' set at 6945' KB. Run circ shoe with 12 inflatable packers and frac sleeves. Drop (4) 1" balls for circ shoe and start pumping N2 to set packers and open Hydroport frac sleeve. Open sleeve at 2740psi (surface pressure- approx 125kscf N2). SWI. MIRU cmt pump. Performed backside dump on anchor packer with 100 sacks of Type 1 2% CaCl and follow cmt with 4 bbs of water.

	Packers	Sleeves	Sleeve Size	Ball Size
Stage 1	6761.4	6853.45	HP	N/A
Stage 2	6542.35	6634.35	1.594	1.719
Stage 3	6323.30	6415.30	1.75	1.875
Stage 4	6104.20	6196.20	1.906	2.031
Stage 5	5885.05	5977.10	2.063	2.188
Stage 6	5665.90	5757.95	2.219	2.344
Stage 7	5446.75	5538.80	2.375	2.508
Stage 8	5227.60	5319.65	2.531	2.656
Stage 9	5008.45	5100.50	2.688	2.813
Stage 10	4789.30	4881.35	2.844	2.969
Stage 11	4570.15	4662.20	3.036	3.25
Stage 12	4309.20	4443.05	3.286	3.5
	3005.05			

06/27/11 Start pumping on Stg 1 at 11:37 am. Bring rate up slowly to 100k scf/min and pump total of 1 MMscf N2. Drop 1.7" ball for Stg 2 and wait 10min. Start pumping N2 at 15k scf/min and land ball after 48k scf N2. Up rate to 31k scf/min and open sleeve at 3677 psi. Continue to increase rate and pump total of 1 MMscf. Continue Stimulation on Stgs 3-8 at 1MM/stage and design rate of 100kscf/min Before shutting down for day.

6/28/11 Resume pumping at 11:00am. Start pumping on Stg9 at 15k scf/min and land ball at 20k scf. Up rate and open sleeve at 3933 psi. Continue to increase rate to 100kscf/min and pump total of 1MMscf N2. Continue stimulation on Stgs 10-12 at 1MM/stage at design rate of 100kscf/min.

	Stg 1	Stg 2	Stg 3	Stg 4	Stg 5	Stg 6	Stg 7	Stg 8	Stg 9	Stg 10	Stg 11	Stg 12
Max P	5881	5605	5905	5815	5849	5679	5783	5518	5787	5946	5609	
Avg P	5700	5600	5731	5681	5607	5491	5537	5338	5491	5801	5502	4500
Max R	105.2	102.4	104.9	101.4	105.2	100.4	107.6	105.1	111.2	104.2	106.3	
Avg R	100	100	102.7	99.1	102.1	97.7	101.8	102.6	104.4	102.4	103.7	100