

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

Well Operator's Report of Well Work

Farm name: Virginia & Delmar Eagle Operator Well No.: HR 411

LOCATION: Elevation: 957' Quadrangle: Liverpool, WV 7.5'

District: Reedy County: Roane
Latitude: 9823 Feet South of 38 Deg. 55 Min. 00 Sec.
Longitude 2311 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"	33'	33'	N/A
Inspector: Ed Gainer	9 5/8"	898'	898'	420 CuFt
Date Permit Issued: 11/3/10	7"	2390'	2390'	567 CuFt
Date Well Work Commenced: 8/6/11	4.5"	7327'	7327'	130 CuFt
Date Well Work Completed: 8/19/11				
Verbal Plugging:	Ran Gamma Log from KOP(3835' - 4891'MD)			
Date Permission granted on:				
Rotary x Cable Rig				
Total Depth (feet): 7401'TMD, 4473'TVD				
Fresh Water Depth (ft.): 700'				
Salt Water Depth (ft.): 1995'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): <u>N/A</u>				

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4514'MD- 7401'MD
4395'TVD - 4473' TVD

Gas: Initial open flow 420 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 84 Hours

Static rock Pressure 1150 psig (surface pressure) after 72 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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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:

By: President

Date: 9/15/11

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
<u>Soil/Sand/Shale</u>	0	700
<u>Sand</u>	700	(water700')780
<u>Shale/sand</u>	780	830
<u>Sand</u>	830	900
<u>Shale/sand</u>	900	1920
<u>Salt Sand</u>	1920	(water1995')2035
<u>Big Lime</u>	2035	2095
<u>Injun Sand/Squaw</u>	2115	2200
<u>Shale</u>	2200	2540
<u>Coffee Shale</u>	2540	2560
<u>Devonian Shale</u>	2560	4473
<u>Lower Huron Section</u>	<u>4390</u>	<u>(gas show)4473</u>

08/15/11 Run Packers Plus 13Stg Open Hole completion system with Anchor packer in vertical part of hole. Run total of 171 jts of R-3 4.5" N-80 casing to depth of 7327'.

08/18/11 Drop 1 1/4" ball Follow ball with water and N2 to seat ball at 7k scf/min. Seat ball and pressure up to set packers. Hold 3000psi for 30min. Continue to pressure up to approx 4800-4900psi to open pump out shoe. Pressure fell off - bleed 4.5" casing down approx 500psi and SWI. RD N2 pump and RU to perform annular squeeze at 11:30am. Pump total of 23 bbls cmt at 15ppg followed with 4bbl fresh water.

	Sleeves	Sleeve Size	Packers
Stage 1	7327.00	N/A toe sub	7226.20
Stage 2	7140.20	2.000	7003.80
Stage 3	6917.80	2.125	6781.40
Stage 4	6695.40	2.250	6558.95
Stage 5	6431.25	2.375	6336.55
Stage 6	6250.55	2.500	6114.15
Stage 7	6028.15	2.625	5891.75
Stage 8	5805.75	2.750	5669.30
Stage 9	5583.25	2.875	5446.75
Stage 10	5360.70	3.000	5224.20
Stage 11	5138.15	3.125	5001.65
Stage 12	4915.60	3.250	4779.10
Stage 13	4651.30	3.375	4514.75
			2710.20

08/19/11 Start pumping at half rate and bring trucks in slow. Pump total of 1MMscf N2 on Stg 1. SD, drop 2.125" ball for Stg 2, and wait 10 min. Start pumping at 15k scf/min and land ball, up rate, and open sleeve at 3940 psi. Continue to increase rate to design rate of 100,000 scf/min and pump total of 1MMscf N2. SD and drop 2.25" ball for Stg 3. Wait for product, resume pumping at 12:25pm. Pump ball down with N2 Rate of 15k scf/min and land ball. Up rate and open sleeve at 4145psi. Continue to increase rate to design rate and pump total of 1MMscf N2. Repeat process for stages 4-13.

	Stg 1	Stg 2	Stg 3	Stg 4	Stg 5	Stg 6	Stg 7	Stg 8	Stg 9	Stg 10	Stg 11	Stg 12	Stg 13
Max P	6006	5991	6006	6040	6077	6098	5982	5675	5814	5923	5760	5670	5376
Avg P	5717	5854	5904	5931	5918	5920	5924	5294	5571	5682	5575	5532	5245
Max R	96.4	95.1	98.5	99.6	87.7	81.7	81.9	56.3	95.9	103.9	107.0	106.4	103.7
Avg R	90.8	90.9	95.9	87.2	80.2	78.8	79.6	41.4	86.6	100.0	103.4	105.0	101.3
5 min	1873	2092	2043	2025	N/A	2342	2389	N/A	N/A	2170	2179	N/A	N/A