

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

Well Operator's Report of Well Work

Farm name: John Edward Huffman Operator Well No.: HR 451

LOCATION: Elevation: 728' Quadrangle: Peniel WV 7.5'

District: Reedy County: Roane
Latitude: 6304' Feet South of 38 Deg. 52 Min. 30 Sec.
Longitude 1365' Feet West of 81 Deg. 27 Min. 30 Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 1244 Martins Branch Road Charleston WV, 25312	20"	21'	21'	N/A
Agent: Marc Scholl	13 3/8"	83'	83'	84cuft
Inspector: Ed Garner	9 5/8"	672'	672'	336 ft3 CTS
Date Permit Issued: 9/1/2011	7"	2399'	2399'	519 ft3 CTS
Date Well Work Commenced: 9/26/12	4.5"	7344'	7344'	140 ft3
Date Well Work Completed: 10/18/12				
Verbal Plugging:	Ran Gamma Log from (3675'MD(kop) - 4841'MD (Land))			
Date Permission granted on:	Ran Gyro Log from (3600' - Surface)			
Rotary x Cable Rig				
Total Depth (feet): 7403'TMD, 4381'TVD				
Fresh Water Depth (ft.): 40', 481'				
Salt Water Depth (ft.): 1237', 1836'				
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) 4227'MD- 7403 'MD
4154'TVD - 4381' TVD

Gas: Initial open flow 100 MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow >1.5 MMCF/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: _____
By: President
Date: 2/20/2013

87-04706

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
Soil/Sand/Shale	0	1580
Salt Sand	1580	1850
Big Lime	1850	1915
Injun/Squaw	1915	2080
Shale	2080	2337
Coffee Shale	2337	2350
Devonian Shale	2350	4370
Lower Huron Section	4170	4370

All depths shown As TVD

10/05/12 Run total of 162 jts of R-3 4.5" 11.6ppf N-80 to depth of 7344' KB. With 14stg openhole packer system. MIRU Nabors Packer set crew. Drop ball for pump out shoe and pressure up casing with N2 to set packers. Continue to pressure up to 4091 psi and open pump out shoe. Gas rate on 7" shut off (approx. 6 tenths 2") Dump squeeze on anchor packer with 100 sx type 1 cmt mixed at 15ppg.

NOTE: THERE ARE NO PERFORATED INTERVALS IN THIS STYLE OF COMPLETION. THE PACKERS WILL SERVE AS STAGE ISOLATION AND THE BALL ACTIVATED MECHANICAL SLEEVE SERVES AS THE MEANS OF COMMUNICATION FROM WELLBORE TO FORMATION. ALL DEPTHS ARE INDICATED BELOW.

Stage	Sleeve	Packer
1	7344	7165
2	7025	6932
3	6792	6699
4	6604	6511
5	6371	6278
6	6138	6045
7	5905	5812
8	5672	5579
9	5439	5347
10	5207	5114
11	5018	4881
12	4785	4692
13	4552	4460
14	4319	4227
Anchor		2668

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10/18/12 MIRU Nabors Stimulation Crew. Wellhead pressure 1104psi. Pressure test and start pumping on Stg 1. Pump total of 1MM scf N2. Shut down. Load and drop 1.25" ball for Stg 2 off the gate. Start pumping ball down at 20k scf/min. Open sleeve Bring rate up to design of 100 kscf/min and pump total of 1MM scf N2. Shut down and drop 1.375" ball for Stg 3. Repeat process for Stgs 3 – Stg 14.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Max P	4766	4890	4992	5016	4829	4535	4795
Avg P	4749	4802	4830	4912	4780	4499	4701
Max R	104.2	103.3	103.3	104.6	105.2	105.2	105.0
Avg R	101.2	102.5	102.2	103.3	104.7	104.2	104.0
Shut In	1660-5m	1714-2m	1701-2m	N/A	1512-5m	N/A	1501-5m

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	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14
Max P	4598	4265	4041	4084	4231	4205	3957
Avg P	4571	4245	4023	4059	4225	4161	3949
Max R	103.0	104.0	104.0	106.0	108.0	109.0	107.0
Avg R	102.5	103.5	103.2	102.6	107.2	10.6	105.7
Shut In	N/A	N/A	1490-5m	N/A	N/A	1486-5m	1811-5m

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