WR-35
Rev (5-01)

DATE: 3/5/13
API # : 47-087-04726

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

Well Operator's Report of Well Work

Farm name:_____John Ellison_ Operator Well No.:_____HR 476_____

LOCATION: Elevation: _____686'_____ Quadrangle: _____Reedy WV 7.5'_____

District: _____Reedy_____ County: _____Roane_____
Latitude: 6647'__Feet South of_38___Deg. __55_____Min._00____Sec.
Longitude_10921'__Feet West of__81___Deg.__25__Min._00_____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"	15'	15'	N/A
Agent: Marc Scholl	13 3/8"	78'	78'	CTS
Inspector: Ed Gainer	9 5/8"	612'	612'	312ft3 CTS
Date Permit Issued: 12/18/12	7"	2343'	2343'	528ft3 CTS
Date Well Work Commenced: 1/18/13	4.5"	7054'	7054'	130 ft3
Date Well Work Completed: 2/8/13				
Verbal Plugging:	Gamma Log from (3530'MD(kop) – 4690'MD , 4242'TVD			
Date Permission granted on:	Ran Gyro Log from (3500' – Surface)			
Rotary x Cable Rig				
Total Depth (feet): 7144'TMD, 4274'TVD				
Fresh Water Depth (ft.): 40',260'				
Salt Water Depth (ft.): 1269',1830'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.):_____N/A_____				

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Office of Oil & Gas
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WV Department of
Environmental Protection

OPEN FLOW DATA

Producing formation___Lower Huron_Shale__Pay zone depth (ft) 4127'MD- 7144'MD
4055'TVD – 4274' TVD
Gas: Initial open flow_ 1000 MCF/d Oil: Initial open flow_____Bbl/d
Final open flow____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: 3/6/2013

06/14/2013

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Formation:	Top:	Bottom:
Soil/Sand/Shale	0	1648
Salt Sand	1648	1830
Injun/Squaw	1830	1868
Shale	1868	2261
Coffee Shale	2261	2276
Berea	2276	2278
Devonian Shale	2278	4274 td
Lower Huron Section	4084	4274 td

All depths shown As TVD

1/28/13 Run 156 jts 4.5" M-80 R-3 11.6ppf casing to depth of 7054' KB. Run Peake Completions 13 stg open hole hydraulic set packer system with casing anchor packer inside casing. MIRU Nabors packer set crew. Start pumping 1" ball to shoe and pressure up to 2130 psi. Held pressure for Packer operation. Packers shut off gas rate on 7". RD N2 and RU to perform annular squeeze on 4.5" casing. Pump 100sx type 1 3% CaCl cmt on top packer

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

Stage	Sleeve	Sleeve ID	Ball Size	Packer
1	7054.00	P/O Shoe	N/A	6913.74
2	6777.64	1.15	1.250	6681.62
3	6545.62	1.28	1.375	6449.55
4	6313.55	1.40	1.500	6217.53
5	6081.43	1.53	1.758	5985.31
6	5849.36	1.78	2.000	5753.29
7	5617.29	2.03	2.250	5521.07
8	5385.07	2.28	2.500	5289.05
9	5153.00	2.53	2.750	5056.93
10	4920.83	2.78	3.000	4824.81
11	4688.71	3.03	3.250	4592.54
12	4456.39	3.28	3.500	4360.17
13	4223.92	3.53	3.750	4127.80
Anchor				2259.10

02/07/13 -02/8/13 . Start pumping N2 at 15k scf/min, take pressure to 3500 psi, and hold pressure for approx. 5 min for Stg 1. Start pumping at 15k scf/min and open shoe up at 5108 psi. Slowly work rate up to 75k scf/min. pumped total of 1.3MM scf N2. Shut down. Drop 1.25" ball for Stg 2. Land at 121k scf at 18k scf/min. Up rate and open sleeve at 4014 psi. Up rate and pump total of 1MM scf N2. Shut down and load 1.375" ball for Stg 3. Start pumping ball down at 18k scf/min. Land ball approx. 115k scf. Up rate and open sleeve at 4058 psi. Up rate and pump total of 1MM scf N2. Shut down and load and drop 1.5" ball for Stg 4. Load product. Start pumping at 5:30pm at 18k scf/min. Land ball at 47k scf. Up rate and open sleeve at 3790 psi. Up rate and pump total of 1MM scf N2. Shut down. Drop 1.75" ball for Stg 5. Repeat Process For Stgs 5 – 13

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Max P	5789	5649	5013	4597	4454	4341	4133
Avg P	5213	5513	4858	4433	4122	4247	3985
Max R	95.3	96.0	106.0	107.0	110.0	109.0	108.0
Avg R	88.9	93.0	104.0	105.0	104.3	107.0	104.0
Shut In	2822-0min	2868-0min	1794-5min	1835-5min	N/A	1927-5min	N/A

	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13
Max P	4271	4830	4132	3948	4182	3792
Avg P	4179	4777	3981	3916	4019	3635
Max R	107.0	108.0	115.0	104.0	105.0	102.0
Avg R	105.0	107.0	105.0	102.0	101.0	101.0
Shut In	N/A	2083-5min	N/A	1805-5min	N/A	1825-5min

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