

WR-35
Rev (5-01)

DATE: 3/4/13
API #: 47-035-03001

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

Well Operator's Report of Well Work

Farm name: Warren And Janet Myers Operator Well No.: HR 455

LOCATION: Elevation: 975' Quadrangle: Liverpool WV 7.5'

District: Ravenswood County: Jackson
Latitude: 5406' Feet South of 38 Deg. 57 Min. 30 Sec.
Longitude 5099' Feet West of 81 Deg. 35 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				
Agent: Marc Scholl	13 3/8"	31'	31'	N/A
Inspector: Jamie Stevens	9 5/8"	934'	934'	456 r3 CTS
Date Permit Issued: 11-16-2011	7"	2715'	2715'	602 r3 CTS
Date Well Work Commenced: 10/25/12	4.5"	7684'	7684'	130 r3
Date Well Work Completed: 11/13/12				
Verbal Plugging:	Gamma Log from (3755'MD(kop) - 4700'MD (Land curve)			
Date Permission granted on:	Ran Gyro Log from (3650' - Surface)			
Rotary x Cable Rig				
Total Depth (feet): 7747'TMD, 4417'TVD				
Fresh Water Depth (ft.): 893'				
Salt Water Depth (ft.): 1589', 1980', 2048'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): N/A				

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OPEN FLOW DATA

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Producing formation Lower Huron Shale Pay zone depth (ft) 4505'MD- 7747'MD
4374'TVD - 4417' TVD

Gas: Initial open flow 50 MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow >1 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: James J. [Signature]
Date: 3/5/2013

06/14/2013

Formation:	Top:	Bottom:
Soil Sand Shale	0	1980
Salt Sand	1980	2230
Big Lime	2230	2270
Injun	2270	2315
Shale	2315	2650
Coffee Shale	2650	2670
Berea Sand	2670	2672
Devonian Shale	2672	TD
Lower Huron Section	4320	4417

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All depths shown As TVD

11/6/12 Run 4.5" 11.6ppf N-80 casing to depth of 7678' set at 7684' KB With 14 stg Team Completion Hydraulic set openhole packer system. MIRU Nabors packer set crew. Pressure casing up to approx. 2000 psi and gas rate shut off. Continue pumping N2 for total of 160k scf and open hydroport frac sleeve at 3910 psi. Shut well in. RU and perform annular squeeze on 4.5" with 100sx cmt 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 SLEEVES SERVE AS THE MEANS OF COMMUNICATION FROM WELLBORE TO FORMATION. ALL DEPTHS ARE INDICATED BELOW.

Stage	Sleeve	Sleeve ID	Ball Size	Packer
1	7592.00	HP	N/A	7501.10
2	7368.20	1.438	1.563	7277.10
3	7142.50	1.594	1.719	7051.90
4	6917.30	1.750	1.875	6826.20
5	6699.80	1.906	2.031	6608.75
6	6476.85	2.063	2.188	6351.95
7	6214.45	2.219	2.344	6127.10
8	5999.50	2.375	2.500	5909.40
9	5780.70	2.531	2.656	5655.00
10	5520.40	2.688	2.813	5429.30
11	5299.20	2.844	2.969	5166.80
12	5035.80	3.036	3.250	4944.70
13	4813.50	3.286	3.500	4722.40
14	4587.80	3.536	3.750	4505.30
Anchor				2918.00

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11/12/12 MIRU Nabors Stim crew. Casing pressure at 1217 psi. Start pumping at half rate (50k scf/min) on Stg 1 and slowly increase rate to design. Pump total of 1MM scf N2. Shut down and drop 1.563" ball for Stg 2. Start pumping ball down at 17k scf/min. Land ball at 100k scf. Up rate and open sleeve at 4043 psi. Increase rate to 100k scf/min. Pump total of 1MM scf N2. Shut down and bleed lines. Load and drop 1.719" ball for Stg 3. Start pumping ball to sleeve at 21k scf/min. Land ball at 100k scf. Up rate and open sleeve at 4033 psi. Increase rate and pump total of 1MM scf N2. Back rate off and drop 1.875" ball for Stg 4. Repeat process for Stgs 4 - 14.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Max P	4964	4650	4377	4817	4175	4103	4018
Avg P	4765	4536	4299	4276	4136	4061	3999
Max R	105.6	106.0	101.6	106.0	102.0	104.0	102.0
Avg R	103.1	103.6	100.7	103.9	101.7	102.8	101.1
Shut In	1700-5m	1770-5m	N/A	1805-5m	1804-5m	N/A	N/A

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	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14
Max P	4001	4156	3919	4092	3850	3889	3920
Avg P	3976	4105	3777	4052	3841	3865	3895
Max R	102.0	105.0	103.0	106.0	104.0	107.0	108.0
Avg R	101.9	103.0	101.8	104.9	103.8	106.4	106.3
Shut In	1778-5m	N/A	N/A	1871	N/A	N/A	1850-5m

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