

WR-35
Rev (5-01)

DATE: 3/4/13
API # : 47-035-03000

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

Well Operator's Report of Well Work

Farm name: John Morgan Operator Well No.: HR 418
LOCATION: Elevation: 610' Quadrangle: Sandyville WV 7.5'
District: Ravenswood County: Jackson
Latitude: 4611' Feet South of 38 Deg. 57 Min. 30 Sec.
Longitude 360' Feet West of 81 Deg. 37 Min. 30 Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: <u>1244 Martins Branch Road</u>				
<u>Charleston WV, 25312</u>	<u>20"</u>	<u>32'</u>	<u>32'</u>	<u>N/A</u>
Agent: <u>Marc Scholl</u>	<u>13 3/8"</u>	<u>78'</u>	<u>78'</u>	<u>81ft3 CTS</u>
Inspector: <u>Jamie Stevens</u>	<u>9 5/8"</u>	<u>554'</u>	<u>554'</u>	<u>288 ft3 CTS</u>
Date Permit Issued: <u>10/27/11</u>	<u>7"</u>	<u>2365'</u>	<u>2365'</u>	<u>536 ft3 CTS</u>
Date Well Work Commenced: <u>12/3/12</u>	<u>4.5"</u>	<u>6868'</u>	<u>6868'</u>	<u>130 ft3</u>
Date Well Work Completed: <u>1/8/13</u>				
Verbal Plugging:	<u>Gamma Log from (3445'MD(kop) - 4000'MD, 3925'tvd</u>			
Date Permission granted on:	<u>Ran Gyro Log from (3150' - Surface)</u>			
Rotary x Cable Rig	<u>Run Open hole Log (2387' - Surface) G,D,C,N,Ind</u>			
Total Depth (feet): <u>7000'TMD, 4100'TVD</u>				
Fresh Water Depth (ft.): <u>34', 390'</u>				
Salt Water Depth (ft.): <u>1462', 1886' Water/Gas</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>N/A</u>				

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OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4024'MD- 7000'MD
3946'TVD - 4100' TVD

Gas: Initial open flow trace 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: [Signature]
By: President
Date: 3/5/2013

06/14/2013

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
Soil Sand Shale	0	1590
Salt Sand	1590	1680
Big Lime	1680	1798
Greenbrier Grp	1798	1848
Injun	1848	1965
Shale	1965	2290
Coffee Shale	2290	2313
Berea Sand	2313	2316
Devonian Shale	2316	4100
Lower Huron Section	3970	4100

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All depths shown As TVD

12-13-12 Run total of 163 jts 4.5" R-3 11.6ppf N80 casing to depth of 6862' set at 6868' KB. Run 13 Stg Team Hydraulic Set Openhole packer system. Run inflatable packer at 2600'. MIRU Nabors Packer set crew – pressure up to 3200 psi with 117k scf N2. Hold pressure for 10 min for packer operation. RU and perform annular squeeze with 21 bbls type 1 3% CaCl mixed at 15.2ppg. Follow cmt with 2 bbl water.

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	6820.35	HP	N/A	6734.45
2	6607.65	1.594	1.719	6521.75
3	6394.95	1.750	1.875	6309.05
4	6182.65	1.906	2.031	6055.45
5	5928.95	2.063	2.188	5843.05
6	5716.25	2.219	2.344	5630.35
7	5462.25	2.375	2.500	5375.35
8	5250.15	2.535	2.656	5164.25
9	5037.85	2.688	2.831	4951.95
10	4825.55	2.844	2.969	4699.05
11	4573.15	3.036	3.250	4488.05
12	4362.35	3.286	3.530	4235.75
13	4109.95	3.536	3.750	4024.75
Anchor				2600.90

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1/7/13 MIRU Nabors. RU and Pump N2 at 5k scf/min and start pressuring up on 4.5" casing to open hydroport sleeve. Up rate to 7k scf/min and pump total of 133k scf N2 to open sleeve at 3800 psi. Wait for Frac Crew

01/08/13 MIRU Nabors Frac Crew. Wellhead pressure at 1186 psi. Start pumping at 30k scf/min on Stg 1 and work rate up to 100k scf/min and pump total of 1MM scf N2. Shut down and load balls and product. Drop 1.719" ball for Stg 2. Pump at 15k scf/min and land ball at 1700 psi and 42k scf. Up rate and open sleeve at 3722psi. Up rate and pump total of 1MM scf N2. Back rate down to 6k scf/min and drop 1.875" ball for Stg 3. Pump ball down at 18k scf/min. Land ball at 2200 psi at 95k scf N2. Up rate and open sleeve at 3982 psi. Up rate and pump total of 1MM scf N2. Back rate down to 5k scf/min and drop 2.031" ball for Stg 4. Repeat Process For Stgs 4 – 13.

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	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Max P	4738	4557	4213	4553	4228	4280	4154
Avg P	4634	4543	4156	4414	4211	4238	4117
Max R	101.8	109.0	103.0	108.0	104.0	104.0	104.0
Avg R	100.1	106.6	102.5	106.7	103.4	102.8	103.5
Shut In	1700-2min	N/A	N/A	1746-2min	1660-5min	N/A	N/A
	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	
Max P	4201	4108	4092	3916	3740	3539	
Avg P	4182	4089	4081	3893	3722	3528	
Max R	103.0	103.0	104.0	106.0	104.0	103.0	
Avg R	102.6	102.6	103.5	105.0	103.5	102.2	
Shut In	1633-5min	N/A	1733-2min	N/A	N/A	1517-5min	

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