

WR-35
Rev (5-01)

DATE: 6/27/13
API #: 47-011-0993

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

Well Operator's Report of Well Work

Farm name: Middleton And Angelica Hunt Operator Well No.: HR 439

LOCATION: Elevation: 898' Quadrangle: Milton WV 7.5'

District: Union County: Cabell
Latitude: 5138' Feet South of 38 Deg. 30 Min. 00 Sec.
Longitude 11600' 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: <u>1244 Martins Branch Road</u> <u>Charleston WV, 25312</u>				
Agent: <u>Marc Scholl</u>	<u>13 3/8"</u>	<u>30'</u>	<u>30'</u>	<u>N/A</u>
Inspector: <u>Jeremy James</u>	<u>9 5/8"</u>	<u>630'</u>	<u>630'</u>	<u>300ft3 CTS</u>
Date Permit Issued: <u>4-26-12</u>	<u>7"</u>	<u>2488'</u>	<u>2488'</u>	<u>550ft3 CTS</u>
Date Well Work Commenced: <u>3/13/13</u>	<u>4.5"</u>	<u>7620'</u>	<u>7620'</u>	<u>130 ft3</u>
Date Well Work Completed: <u>6/20/13</u>				
Verbal Plugging:	<u>Gamma Log from (2980' MD, 3436'TVD) KOP-2832'</u>			
Date Permission granted on:	<u>Gamma Log from (1140' - 2580' TVD)</u>			
Rotary x Cable Rlg	<u>Ran Gyro Log from (2529' - Surface)</u>			
Total Depth (feet): <u>7742'TMD, 3521'TVD</u>				
Fresh Water Depth (ft.): <u>None observed</u>				
Salt Water Depth (ft.): <u>950', 1575'</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) 3416'MD- 7742'MD
3331'TVD - 3521' TVD

Gas: Initial open flow 157 MCF/d Oil: Initial open flow Bbl/d
Final open flow 1.7 MMCF/d Final open flow Bbl/d
Time of open flow between initial and final tests 24 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: James J. [Signature]
By: President
Date: 6/28/2013

10/11/2013

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
Soil/Sand/Shale	0	1500
Salt Sand	1500	1660
Lime	1660	1820
Shale	1820	1870
Injun/Squaw	1870	2180
Shale	2180	2380
Coffee Shale	2380	2405
Berea	2405	2415
Devonian Shale	2415	3521
Huron Section	3360	3521

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All depths shown As TVD

03/25/13 Run casing with 17 stg Packers Plus open hole packer/sleeve system. Run casing to depth of 7620'. Ran total of 169 jts of R-3 4.5" 11.6ppf N-80 equivalent casing. Land casing hanger and 5' pup jt in wellhead. Pump 3 bbls water, drop two 1.25" balls for shoe and follow with 5 bbls water. Start pumping N2 at 7000 scf/min and land balls. Continue pumping N2 and set packers (gas rate shut off). Pressure up to approx. 3000-3100 psi with 121.2k scf N2 and hold 20 min for packer operation. RU to annulus and dump squeeze with 100sx type 1 3% mixed at 15ppg (pump 5 bbl cmt and SD; pump 10 bbl cmt and SD; pump 8 bbl cmt then 3 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	7620.00	P/O Shoe	N/A	7472.53
2	7337.59	1.250	1.375	7241.02
3	7105.78	1.375	1.500	6965.01
4	6829.97	1.500	1.625	6733.40
5	6598.36	1.625	1.750	6457.79
6	6322.65	1.750	1.875	6181.88
7	6046.54	1.875	2.000	5950.17
8	5815.13	2.000	2.125	5678.06
9	5543.02	2.125	2.250	5446.45
10	5311.31	2.250	2.375	5170.64
11	5035.60	2.375	2.500	4939.13
12	4803.99	2.500	2.625	4663.22
13	4528.18	2.625	2.750	4431.51
14	4296.27	2.750	2.875	5199.80
15	4064.66	2.875	3.000	3923.79
16	3788.55	3.000	3.250	3648.08
17	3513.04	3.250	3.500	3416.47
Anchor				2791.90

06/19/13

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MIRU Nabors frac crew. SICP 750 psi. Pressure test lines. Open well and pump shoe off for Stg 1. Shoe released at 4857 psi. N2 frac first stage using 1,000,000 scf N2 @ 103,000 scf/min. Install 1.375" ball into frac head. Drop ball did not see the sleeve open. N2 frac Stg 2 using 1,001,600 of N2 @ 100,000 scf/min. Install 1.5" ball into frac head. Drop ball open sleeve did not see sleeve open. N2 frac Stg 3 using 1,002,100 scf N2 @ 102,000 scf/min. Install 1.625" ball into frac head. Drop ball open sleeve @ 3939 psi. N2 frac Stg 4 using 1,001,800 scf N2 @ 103,000 scf/min. Install 1.750" ball into frac head. Drop ball open sleeve @ 3357 psi. N2 frac Stg 5 using 1,000,000 scf N2. This stage showed a big break while pumping. Average rate 98,000 scf/min. Install 1.875" ball into frac head. Drop ball open sleeve @ 3216 psi. N2 frac Stg 6 using 1,000,000 scf N2 @ 98,000 scf/min. Wait on N2 for 1 hr. Install 2.0" ball into frac head. Drop ball open sleeve @ 3249 psi. N2 frac Stg 7 using 900,000 scf N2 @ 91,000 scf/min. Install 2.125" ball into frac head. Drop ball open sleeve @ 3376 psi. N2 frac Stg 8 using 1,004,000 scf N2 @ 102,000 scf/min

06/20/13 SICP 1033 psi. Install 2.25" ball into frac head. Pressure test Nabor surface lines. Drop ball and open sleeve @ 2964 psi. N2 frac Stg 9 using 1,005,000 scf N2 @ 105,000 scf/min. Install 2.375" ball into frac head. Drop ball open sleeve @ 3084 psi. Frac Stg 10 using 1,004,000 @ 105,000 scf/min. Install 2.5" ball into frac head. Drop ball and open sleeve @ 2867 psi. Frac Stg 11 using 1,004,000 scf N2 @ 100,000 scf/min. Install 2.625" ball into frac head. Drop ball and open sleeve @ 2869 psi. Frac Stg 12 using 1,002,000 Scf N2 @ 100,000 scf/min. Install 2.75" ball into frac head. Drop ball open sleeve @ 2925 psi. Shut down wait for product. ISIP 1329 psi. N2 frac Stg 13 using 963,000 scf N2 @ 104,000 scf/min. Install 2.875" ball into frac head. Drop ball open sleeve @ 3151 psi. N2 frac Stg 14 using 1,003,000 scf N2 @ 101,000 scf/min. Install 3" ball into frac head. Wait on product. Drop ball and open sleeve @ 2863 psi. N2 frac Stg 15 using 903,000 scf N2 107,000 scf/min. Install 3.25" ball into frac head. Drop ball and open sleeve @ 2883 psi. N2 frac Stg 16 using 904,000 scf N2 106,000 scf/min. Install 3.5" ball into frac head. Drop ball and open sleeve @ 2892 psi. N2 frac Stg 17 using 904,000 @ 106,000 scf/min. RD Nabors stimulation crew.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9
Max P	4857	4102	4207	4491	3818	3650	4048	3949	3593
Avg P	4195	3726	4064	4191	3682	3488	3988	3880	3547
Shut In	1722	1247	1334			1129 - 1hr			
	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Stage 15	Stage 16	Stage 17	
Max P	3643	3506	3540	3510	3230	3284	3367	3498	
Avg P	3316	3193	3254	3220	3120	3203	3250	3460	
Shut In								1431	

10/11/2013