

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

Well Operator's Report of Well Work

Farm name: Brian Sampson Operator Well No.: HR 445

LOCATION: Elevation: 683' Quadrangle: Reedy WV 7.5'

District: Reedy County: Roane
Latitude: 8602 Feet South of 38 Deg. 55 Min. 00 Sec.
Longitude 10842 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: <u>1244 Martins Branch Road</u>				
<u>Charleston WV, 25312</u>	20"	17'	17'	N/A
Agent: <u>Marc Scholl</u>	13 3/8"	84'	84'	N/A
Inspector: <u>Ed Gainer</u>	9 5/8"	626'	626'	324 ft3 CTS
Date Permit Issued: <u>9/8/11</u>	7"	2275'	2275'	501 ft3 CTS
Date Well Work Commenced: <u>9/28/11</u>	4.5"	7130'	7130'	130 CuFt
Date Well Work Completed: <u>10/24/11</u>				
Verbal Plugging:	Ran Gamma Log from KOP(3540' - 4478'MD)			
Date Permission granted on:	Ran Gyro log from surf. To 3540'			
Rotary x Cable Rig				
Total Depth (feet): <u>7183'TMD, 4167'TVD</u>				
Fresh Water Depth (ft.): <u>100'</u>				
Unconsolidated at <u>50'</u>				
Salt Water Depth (ft.): <u>1625', 1736'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>N/A</u>				

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FEB 06 2012
WV Department of Environmental Protection

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 3972'MD- 7183'MD
3944'TVD - 4167' TVD

Gas: Initial open flow 265 MCF/d Oil: Initial open flow Bbl/d
Final open flow 2000+ MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure 1200 psig (surface pressure) after 72 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: 1/2/2012

Formation:	Top:	Bottom:
<u>Soil/Sand/Shale</u>	0	1510
<u>Salt Sand</u>	1510	1760
<u>Sand/Shale</u>	1760	1850
<u>Injun Sand/Squaw</u>	1850	1920
<u>Shale</u>	1920	2250
<u>Berea Sand</u>	2250	2253
<u>Devonian Shale</u>	2253	4167
Upper Huron Section	3936	3990
<u>Lower Huron Section</u>	<u>4080</u>	<u>4167</u>

10/7/11 Run 167 jts of R-3 11.6ppf 4.5" casing to depth of 7130' set at 7137' KB. Run 14 stg Team down hole packer and sleeve completion. Start pumping N2 with circ sub balls. Pump approx. 146k scf N2 and to set packers and open Stg 1 at 3802psi. RD N2 equipment and RU to perform annular squeeze. Pump total of 100sx of type 1 3% CaCl at 15.6ppg. Follow with 4 bbl water.

	Sleeves	Sleeve Size	Packers	Ball Size
Stage 1	7039.6	HP	6947.6	N/A
Stage 2	6862.4	1.281	6728.7	1.406
Stage 3	6643.5	1.438	6509.8	1.563
Stage 4	6424.6	1.594	6290.5	1.719
Stage 5	6205.2	1.75	6071.3	1.875
Stage 6	5944.2	1.906	5810.3	2.031
Stage 7	5683.2	2.063	5591.1	2.188
Stage 8	5505.8	2.219	5371.9	2.344
Stage 9	5244.8	2.375	5152.7	2.500
Stage 10	5025.6	2.531	4891.7	2.656
Stage 11	4764.6	2.688	4672.5	2.813
Stage 12	4545.4	2.844	4453.2	2.969
Stage 13	4235.9	3.036	4233.7	3.250
Stage 14	4106.8	3.286	3972.9	3.500

2502.3

10/24/11 MIRU BJ Services. Wellhead shut in pressure at 1220psi. Pressure test and start pumping on Stg 1. Bring trucks to rate (three trucks out) and pump total of 1.11MMscf N2. Shut well in drop 1.406" ball for Stg 2 and wait 10min. Start pumping ball down at 18kscf/min and land ball on sleeve. Open sleeve at 4243 psi and pump total of 1MMscf N2. Shut well in and drop 1.56" ball for Stg 3. Wait 10 min and pump ball down with N2 at 16k scf/min and land at approx. 60-70kscf. Up rate and open sleeve at 4213psi and pump total of 1MMscf N2. Repeat process for Stages 4 – 14 with corresponding ball sizes.

	Stg 1	Stg 2	Stg 3	Stg 4	Stg 5	Stg 6	Stg 7
Max P	5511	5727	5965	5955	5831	5760	5828
Avg P	5216	5555	5773	5819	5725	5633	5700
Max R	86.5	93.5	101.6	100.8	101.4	100.0	102.9
Avg R	82.9	92.5	988.0	99.0	98.7	98.8	100.0
5 min	N/A	1947	N/A	2092	2133	2113	2150

	Stg 8	Stg 9	Stg 10	Stg 11	Stg 12	Stg 13	Stg 14
Max P	5652	5569	5446	5269	5300	4779	4072
Avg P	5512	5373	5348	5159	5179	4699	4006
Max R	101.6	100.5	103.7	102.1	100.9	104.0	103.0
Avg R	100.4	98.2	101.6	100.6	99.8	102.0	102.0
5 min	2152	N/A	2127	2122	N/A		1905