

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

Well Operator's Report of Well Work

Farm name: Natural Steam Energy Operator Well No.: HR 437

LOCATION: Elevation: 995' Quadrangle: Liverpool, WV 7.5'

District: Ravenswood County: Jackson  
Latitude: 13098 Feet South of 38 Deg. 55 Min. 00 Sec.  
Longitude 6079 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.
<b>Address: 2034 Martins Branch Road Charleston WV, 25312</b>				
<b>Agent: Marc Scholl</b>	13 3/8"	30'	30'	N/A
<b>Inspector: Jamie Stevens</b>	9 5/8"	968'	968'	455 CuFt
<b>Date Permit Issued: 11/3/10</b>	7"	2468'	2468'	523 CuFt
<b>Date Well Work Commenced: 7/17/11</b>	4.5"	7143'	7143'	120 CuFt
<b>Date Well Work Completed: 8/1/11</b>				
<b>Verbal Plugging:</b>	Ran Gamma Log from KOP(3835' - 4859'MD)			
<b>Date Permission granted on:</b>				
<b>Rotary x Cable Rig</b>				
<b>Total Depth (feet): 7208'TMD, 4446'TVD</b>				
<b>Fresh Water Depth (ft.): 830'</b>				
<b>Salt Water Depth (ft.): 1650', 2074'</b>				
<b>Is coal being mined in area (N/Y)? N</b>				
<b>Coal Depths (ft.): N/A</b>				

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4434'MD- 7208'MD  
4351'TVD - 4446' TVD

Gas: Initial open flow 50 MCF/d Oil: Initial open flow        Bbl/d  
Final open flow 1800 MCF/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

**RECEIVED**  
Office of Oil & Gas

SEP 15 2011

WV Department of  
Environmental Protection

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: 9/15/11

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
<u>Soil/Sand/Shale</u>	0	778
<u>Sand</u>	778	(water830')853
<u>Shale/sand</u>	853	908
<u>Sand</u>	908	948
<u>Shale/sand</u>	948	(water1650')1958
<u>Salt Sand</u>	1970	(water2074')2108
<u>Big Lime</u>	2108	2185
<u>Injun Sand/Squaw</u>	2210	2330
<u>Shale</u>	2330	2638
<u>Coffee Shale</u>	2638	2658
<u>Devonian Shale</u>	2658	4446
<b><u>Lower Huron Section</u></b>	<b><u>4350</u></b>	<b><u>(gas show)4446</u></b>

07/26/11 Run 168 jts of R-3 11.6ppf N-80 casing to depth of 7143' GL. Run 13 Team downhole inflatable packers with 12 frac sleeves. Finish running casing at 2:30am. ND BOP and RU frac valve--finish RU valve at 4:50am. .

07/27/11 Pressure test and drop balls for toe sub. Start pumping N2 at 6000 scf/min and pressure up to set packers and open 1<sup>st</sup> stg hydroport frac sleeve. SWI. RU and perform 100sx dump squeeze on top packer

	<b>Sleeves</b>	<b>Packers</b>
<b>Stage 1</b>	7053.80	6961.70
<b>Stage 2</b>	6834.70	6700.90
<b>Stage 3</b>	6574.00	6482.00
<b>Stage 4</b>	6354.90	6221.10
<b>Stage 5</b>	6094.10	6002.00
<b>Stage 6</b>	5874.90	5782.65
<b>Stage 7</b>	5655.65	5521.90
<b>Stage 8</b>	5394.90	5261.20
<b>Stage 9</b>	5134.10	5042.00
<b>Stage 10</b>	4914.90	4822.90
<b>Stage 11</b>	4695.85	4561.95
<b>Stage 12</b>	4434.95	4342.90
<b>Stage 13</b>		2755.20

08/01/11 Pressure test and start pumping N2 on Stg 1. Increase rate as pressure allows and pump total of 1MMscf N2 at design rate of 100kscf/min. Shut down and drop 1.719" ball for Stg 2. Land at 47k scf N2 – open sleeve at 3993psi. Up rate to 84k scf/min at 5900psi – saw 250psi pressure break after 500k gone. Up rate and pump total of 1MMscf N2. Shut down and drop 1.875" ball for Stg 3. Wait for ball to drop. Land ball at 63k scf N2 with 15k scf/min – open sleeve at 4148psi. Increase rate and pump total of 1MMscf N2. Drop 2.031" ball for Stg 4. Wait for ball to drop. Land ball at 50k scf at 15k scf/min. Up rate and open sleeve at 4135psi. Pump total of 1MMscf N2 at 100kscf/min. Load ball droppers. And repeat process for stgs 5 – 12.

	<b>Stg 1</b>	<b>Stg 2</b>	<b>Stg 3</b>	<b>Stg 4</b>	<b>Stg 5</b>	<b>Stg 6</b>	<b>Stg 7</b>	<b>Stg 8</b>	<b>Stg 9</b>	<b>Stg 10</b>	<b>Stg 11</b>	<b>Stg 12</b>
<b>Max P</b>	5987	5907	5947	5971	6009	5995	5998	5746	6046	5758	5847	4426
<b>Avg P</b>	5926	5787	5837	5828	5775	5915	5738	5576	5890	5687	5696	4347
<b>Max R</b>	103.9	98.0	100.8	97.8	103.7	98.7	110.2	107.2	104.4	107.0	112.1	105.8
<b>Avg R</b>	90.2	88.9	91.6	94.5	91.8	96.8	101.5	103.8	99.6	10.3	100.3	103.2
<b>5 min</b>	1943	2090	2105	N/A	2127	2160	2150	N/A	2338	2304	2320	1750