

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

Well Operator's Report of Well Work

Farm name: Linda Sue Pepper Operator Well No.: HR 482

LOCATION: Elevation: 760' Quadrangle: Peniel WV 7.5'

District: Reedy County: Roane  
Latitude: 10017' Feet South of 38 Deg. 52 Min. 30 Sec.  
Longitude 2519' 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: 1244 Martins Branch Road Charleston WV, 25312				
Agent: Marc Scholl	13 3/8"	42'	42'	N/A
Inspector: Ed Gainer	9 5/8"	616'	616'	312ft3 CTS
Date Permit Issued: 7/30/2012	7"	2452'	2452'	580ft3 CTS
Date Well Work Commenced: 1/3/13	4.5"	7871'	7871'	130 ft3
Date Well Work Completed: 1/29/13				
Verbal Plugging:	Gamma Log from (3555'MD(kop) - 4760'MD, 4248'TVD			
Date Permission granted on:	Ran Gyro Log from (3501' - Surface)			
Rotary x Cable Rig				
Total Depth (feet): 7932'TMD, 4249'TVD				
Fresh Water Depth (ft.): 230'				
Salt Water Depth (ft.): 1133', 1522', 1990'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): N/A				

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OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4372'MD- 7932'MD  
4170'TVD - 4249' TVD

Gas: Initial open flow 50 MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow >2 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]  
President

Date: 3/6/2013

87-04720

<b>Formation:</b>	<b>Top:</b>	<b>Bottom:</b>
Soil/Sand/Shale	0	1597
Salt Sand	1597	2040
Big Lime	Didn't See	
Injun/Squaw	Didn't See	
Weir	2307	2317
Coffee Shale	2357	2369
Devonian Shale	2369	4249 td
Lower Huron Section	4192	4249 td

**All depths shown As TVD**

1/17/13 Run 16 stg Packers Plus Hydraulic set open hole packer system. Run casing to depth of 7865' set at 7871' KB. Run total of 174 jts of R-3 4.5" 11.6ppfM-80 casing .

1/18/13 RU to Casing and pump small volume water and drop balls for Toe Sub. Start pumping N2 and pressure up to 3200psi- Stop pumping and hold pressure for 20min for packer operation. Bleed pressure back to 600psi and Perform annular squeeze on 4.5" casing with 100sx at 15ppg – follow with 2bbl 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	7764.41	HP	N/A	7667.84
2	7576.95	1.250	1.500	7480.38
3	7346.19	1.500	1.750	7249.72
4	7114.73	1.750	1.875	7018.16
5	6883.07	1.875	2.000	6786.60
6	6695.61	2.000	2.125	6599.14
7	6464.05	2.125	2.250	6367.58
8	6232.49	2.250	2.375	6135.92
9	6000.83	2.375	2.500	5904.26
10	5813.37	2.500	2.625	5716.80
11	5581.71	2.625	2.750	5485.14
12	5349.95	2.750	2.875	5253.78
13	5118.59	2.875	3.000	5022.12
14	4867.46	3.000	3.125	4790.89
15	4656.3	3.250	3.500	4559.73
16	4468.84	3.500	3.750	4372.27
<b>Anchor</b>				<b>2688.60</b>

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01/28/13 -1/29/13 Start pumping on Stg 1 at 26k scf/min. pressure up to 4631 psi, and open hydroport sleeve. Continue pumping and increase rate to 100k scf/min. Pump total of 1MM scf N2. Shut down and drop 1.5" ball for Stg 2. Start pumping ball to seat at 17k scf/min. Land ball at 130k scf. Up rate and open sleeve at 4676 psi. Continue to increase rate and pump total of 1MM scf N2. Shut down and drop 1.75" ball for Stg 3. Start pumping ball down at 19k scf/min and land ball at 135k scf. Up rate and open sleeve at 4709 psi. Continue to increase rate and pump total of 1MM scf N2. Back rate down and drop 1.875" ball for Stg 4. Repeat fracturing process for Stgs 4 – 16.

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	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8
Max P	5539	5419	5222	4828	4827	4919	4919	4661
Avg P	4776	5301	5106	4746	4781	4858	4815	4613
Max R	103.0	94.0	106.0	102.0	104.0	103.0	101.0	98.0
Avg R	99.1	91.8	102.3	101.1	102.0	102.5	100.0	96.7
Shut In	N/A	2418-5min	N/A	2300-2min	2200-5min	2275-5min	N/A	N/A
	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Stage 15	Stage 16
Max P	4716	4777	4235	4260	4094	4459	4349	4270
Avg P	4625	4735	4192	4237	4074	4439	4313	4250
Max R	105.0	103.0	104.0	107.0	102.0	104.0	104.0	105.0
Avg R	103.0	102.8	102.0	105.0	101.0	102.0	102.5	104.0
Shut In	2040-5min	N/A	2062-5min	N/A	2194-2min	N/A	N/A	2108-5min

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