

WR-35  
Rev (5-01)

DATE: 7/23/13  
API #: 47-087-04725

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

Well Operator's Report of Well Work

Farm name: Richard And Ann Kent Operator Well No.: HR 485

LOCATION: Elevation: 1004' Quadrangle: Peniel WV 7.5'

District: Reedy County: Roane  
Latitude: 5638' Feet South of 38 Deg. 52 Min. 30 Sec.  
Longitude 3876' 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.
<b>Address: 1244 Martins Branch Road</b>				
<b>Charleston WV, 25312</b>				
Agent: Marc Scholl	13 3/8"	31 .5'	31.5'	N/A
Inspector: Ed Gainer	9 5/8"	882'	882'	426 ft3 CTS
Date Permit Issued: 9/14/12	7"	2658'	2658'	579ft3 CTS
Date Well Work Commenced: 3/28/13	4.5"	7680'	7680'	130 ft3
Date Well Work Completed: 7/19/13				
Verbal Plugging:	Gamma Log from (3920' - 5000' MD) KOP- 3952'			
Date Permission granted on:	Gamma Log from (960' - 2760')			
Rotary x Cable Rig	Ran Gyro Log from (3900' - Surface)			
Total Depth (feet): 7736'TMD, 4610'TVD				
Fresh Water Depth (ft.): None				
Salt Water Depth (ft.): 1963', 2121'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): <u>N/A</u>				

**RECEIVED**  
Office of Oil & Gas

SEP 24 2013

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4424' MD - 7136' MD  
4395'TVD - 4610' TVD

Gas: Initial open flow Trace MCF/d Oil: Initial open flow        Bbl/d  
Final open flow 1.4 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: James J. Taylor  
By: President  
Date: 7/24/2013

10/11/2013

87.04725

<b>Formation:</b>	<b>Top:</b>	<b>Bottom:</b>
Soil/Sand/Shale	0	1880
Salt Sand	1880	2130
Big Lime	2130	2180
Big Injun	2180	2220
Dev. Shale	2220	2600
Coffee Shale	2600	2625
Devonian Shale	2625	4610
Lower Huron Section	4425	4610

**All depths shown As TVD**

04/11/13 Finish running 176 jts of R-3 4.5" 11.6ppf casing to depth of 7680' (had to push casing on last jt). Land casing and ND BOP. NU frac valve. Finish NU frac valve at 10:30am. MIRU Nabors Packer set crew. RU and drop balls for toe sub. Pump N2 on casing and pressure up to 3059 psi to set packers. Hold pressure for 20 min. Bleed pressure back off to 800 psi. RU and perform annular squeeze with 100sx type 1 2% CaCl

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	Packer
1	7680.00	7492.24
2	4356.16	7237.11
3	7106.43	7010.28
4	6871.20	6784.25
5	6648.77	6554.02
6	6422.29	6330.29
7	6205.51	6071.26
8	5937.73	5852.43
9	5716.45	5627.50
10	5491.27	5395.22
11	5259.79	5163.54
12	5027.61	4931.46
13	4795.58	4655.53
14	4520.60	4424.60
Anchor		2968.00

07/18/13 - 7/19/13

MIRU Nabors frac crew. Pressure test lines. Casing pressure at 315 psi. Start pumping N2 at approx 20-30k scf/min and open shoe at 4203 psi. Start pumping N2 on Stg 1. Work rate to 100k scf/min and pressure rose to max, back rate down to 60k scf/min. Continue pumping for total of approx. 1 MM scf N2. Drop 1.25" ball for Stg 2. Start pumping at 20-25k scf/min and land ball at 166k scf. Open sleeve at 4200 psi. Up rate and pump total of 1 MM scf N2. Shut down and load product. Drop 1.375" ball for Stg 3. Wait for product. Start pumping at 22k scf/min and land ball, up rate, and open sleeve at 3960 psi. Increase rate and pump total of 1 MM scf N2. Shut down and load 1.5" ball for Stg 4. Repeat process for Stgs 4 - 14.

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	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Max P	5949	5732	5613	5126	4917	4424	4839
Avg P	5602	5599	5518	5013	778	4255	4781
Max R	101.0	98.0	107.0	104.0	103.0	91.0	104.0
Avg R	64.0	95.0	105.0	102.0	103.0	85.0	102.0
Shut In	N/A	2128-5min	N/A	N/A	2386-5min	2238-5min	N/A
	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14
Max P	4738	4532	4399	4465	4004	3704	3545
Avg P	4670	4454	4373	4443	3991	3599	3515
Max R	106.0	104.0	105.0	105.0	107.0	104.0	102.0
Avg R	103.0	103.0	104.0	103.0	104.0	102.0	100.0
Shut In	N/A	2080-5min	N/A	N/A	1700-5min	N/A	1757-5min