WR-35
Rev (5-01)

DATE: 4/17/14
API # : 47-035-02359 FF/F

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

Well Operator's Report of Well Work

Farm name:_____Micheal Roberts_____ Operator Well No.:_____CS 340_____

LOCATION: Elevation: _____938'_____ Quadrangle: _____Liverpool WV 7.5'_____

District: _____Grant_____ County: _____Jackson_____
Latitude: 6603'__Feet South of_39__Deg.__00____Min._____Sec.
Longitude_8404'__Feet West of__81___Deg.__35__Min._____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				
Inspector: Jamie Stevens	9 5/8"	610'	610'	In place
Date Permit Issued: 6/28/13	7"	2228'	2228'	In place
Date Well Work Commenced: [redacted] 12/30/13	4.5"	7200'	7200'	130ft3
Date Well Work Completed: [redacted] 3/24/14				
Verbal Plugging:				
Date Permission granted on:	Gamma Log from (3610' – 7246' MD)			
Rotary x Cable Rig	Ran Gyro Log from (2500' – Surface)			
Total Depth (feet): 7296'TMD, 4250'TVD				
Fresh Water Depth (ft.):				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.):_____N/A_____				

OPEN FLOW DATA

Producing formation___Lower Huron_Shale__Pay zone depth (ft) 4257'MD- 7296'MD
4156'TVD – 4250' TVD
Gas: Initial open flow_ Odor MCF/d Oil: Initial open flow_____Bbl/d
Final open flow__<1.5__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 _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: _____
By: President
Date: 04/29/2014

RECEIVED
Office of Oil & Gas
APR 30 2014

WV Department of Environmental Protection
05/23/2014

PLUGGING DETAIL

12/30/13 RU Nabors Wireline and RIH with solid bridge plug and set plug at 5017' GL. Finish with plug at approx. 12:30pm

12/31/13 Separate casing and Start laying down 4.5" casing – first couple joints had drag. Recovered 76 jts of 4.5" casing (3071' tallied).

01/01/14 Start TIH with tubing TIH with tubing (tubing at 3110') Pumped 80sx cmt . Displace fluid with 2.5 bbls water. Pull 30 jts tubing out of hole and shut in for night.

01/02/14 TIH with tubing to depth of 2615'. Sat down on cmt plug. Tooh with tubing. SWI. Wait on Drilling rig.

Formation:	**Top:**	**Bottom:**
Devonian Shale	3610	4250
Lower Huron Section	4155	4250

All depths shown As TVD

02/07/14 Run 161 jts of R-3 4.5" 11.6ppf N80 casing with 12 stage Packers Plus system to depth of 7199' GL and 7206' KB. Pump 5 bbls water and ball for toe sub, follow with 3 bbls water and nitrogen. Pump total of 130k scf N2 at 7000 scf/min. Pressure up to 3000 psi and hold for 30 min. . RD N2 and RU to perform dump squeeze. Pump 10 bbls cmt type 1 2% CaCl – allow 7" to vent. Pump additional 11 bbls cmt (100sx total) mixed at 15 - 15.2ppg. Follow cmt with 1-2 bbls 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	7098.29	HP	N/A	6996.64
2	6862.90	1.750	1.875	6761.15
3	6627.31	1.875	2.000	6525.56
4	6391.72	2.000	2.125	6289.87
5	6155.98	2.125	2.250	6010.38
6	5876.39	2.375	2.500	5774.49
7	5640.60	2.500	2.625	5494.85
8	5361.01	2.750	2.875	5259.16
9	5125.42	2.875	3.000	5023.67
10	4891.83	3.125	3.250	4750.18
11	4622.34	3.250	3.375	4524.59
12	4396.75	3.500	3.625	4257.10
Anchor				2605.15

03/24/14 Pressure test well at 11:00am. Load ball droppers. Start pumping on **Stg 1** at 40k scf/min and pressure string up to 4832 psi. Continue pumping and up rate as pressure allows. Pump total of 1MM scf N2. Back rate down and drop 1.875"ball for **Stg 2.** Pump ball to seat with N2 at 17k scf/min rate. Land ball at 93k scf. Up rate to 30k scf/min and open sleeve at 4367 psi. Continue to up rate and pump total of 1MM scf N2. Back rate down and drop 2" ball for **Stg 3**. Pump ball to sleeve with N2 at 18k scf/min. Land ball with 103k scf. Up rate and open sleeve at approx. 4355 psi. Up rate as pressure allows and pump total of 1MM scf N2. REPEAT STIMULATION PROCESS FOR STAGES 4-12.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Max P	5946	5927	5865	5403	5477	5447
Avg P	5024	5508	5355	5060	4903	4903
Max R	97.6	86.3	87.9	100.9	105.5	105.5
Avg R	66.1	80.1	82.0	98.7	85.8	85.7
Shut In	N/A	N/A	N/A	1901-5min	N/A	N/A
	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12
Max P	5695	5847	5667	5239	4784	4313
Avg P	5378	5501	5444	5115	4482	4299
Max R	102.3	106.3	109.8	108.6	109.9	104.8
Avg R	99.1	104.1	108.3	104.9	107.9	104.5
Shut In	2098	N/A	N/A	N/A	N/A	1780-5min

JOB LOG

UNIVERSAL WELL SERVICES, INC.

A PATTERSON-UTI ENERGY COMPANY

INVOICE NO. ____

PRESSURES IN P.S.I.

BREAKDOWN ____ MAXIMUM ____

AVERAGE ____ DISPLACEMENT ____

SHUT-IN: INSTANT ____ 5-MIN. ____ 10-MIN. ____

HYDRAULIC HORSEPOWER

USED ____

VOLUMES IN GAL.

LOAD & BKDN ____ PAD ____

TREATMENT ____ DISPL ____

TOTAL VOLUME ____

AVERAGE RATES IN B.P.M.

TREATING ____ DISPL. ____ OVERALL ____

DESCRIPTION OF JOB ____

TIME	RATE (BPM)	VOLUME (GAL)	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF STAGE OR EVENT
1800					On Location
1900					Bringing Trucks up Hill
[illegible]					Rig In
[illegible]					Press. Test
2045					[illegible] Press
[illegible]					Pumping Fluid [illegible]
[illegible]					Start H2O
2100	120	21,809	500		Pumping H2O
2105	120	51,000	1100		Pumping H2O
[illegible]	120	71,500	1500		Pumping H2O
[illegible]	120	96,100	2000		Pumping H2O
2111	120	115,100	2500		Pumping H2O
2113	65.00	123,997	3000		Pumping H2O 2441 [illegible]
2115					Shut Down Hold Press For 2 min.
[illegible]					[illegible] Press
[illegible]					[illegible]
[illegible]					[illegible]
					[illegible]

05/23/2014

API Permit #:

Customer: Hard Rock

Lease and Well Name: HR 340

A.F.E #:

UNIVERSAL WELL SERVICES, INC.

Job Type: 4 1/2 Grout

Cement Operator: Shannon Bailey

Date Cemented: 2/7/2014

Drilling Contractor: Gas Co.

Cement Slurry Information

No. of Sacks	Cement Blend Composition	Yield (ft^3/sk)	Mix Water (gal/sk)	Density (lb/gal)	(bbl) Mix Water	(ft^3) of Slurry	(bbl) of Slurry
100	Type 1 2%	1.18	5.20	15.6	12.4	118.0	21.0
				Totals	12.4	118.0	21.0

Wellbore Information

	New/Used	Diameter (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Collapse/Burst Pressures (psi)
Casing	New	4.500	11.6	0	7,199	
Previous Casing						
Tubing or Drill pipe						
Open Hole		6.375		7,199	7,296	
Open Hole						

Requested TOC (ft)	
TVD (ft)	4,350
Displacement Depth (ft)	n/a
Displacement (bbl)	n/a

Pumping Returns	
Spacer or Gel Sweep Return Seen at Surface	No
Cement Returns Seen at Surface	No
Amount of Cement Returns (bbl)	

Cement Slurry Temperature Record (°F)				
Cement	Reading 1	Reading 2	Reading 3	Average
Blend 1				
Blend 2				
Blend 3				

Fluid Information	
Mix Water Temp (°F)	35
Displacement Fluid Type	
Displacement Fluid Temp (°F)	35
Displacement Fluid Density (lb/gal)	8.3

Time	Rate (bpm)	Volume (bbl)	Pressure (psi)	Event or Stage Description
18:00				Arrive on loc. / saftey meeting / spot trucks
18:15				wait for rig to finish running casing
21:23				Hook up
21:47				wait for packers to be set with nitrogen
22:16				release press
22:36	2-3	21	0	grout backside
22:46				wash up
22:56				rack up
23:15				leave loc.

Comments:

Thank you for your business.

UWS Cement Operator Signature:

Customer Representative Signature:

05/23/2014