HW

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 5/16/13
API #: 47-103-02738

Farm name: John Rush Operator Well No.: 404-5H

LOCATION: Elevation: 1450' Quadrangle: PINE GROVE 7.5'

District: CENTER County: WETZEL
Latitude: 4919 Feet South of 39 Deg. 37 Min. 30 Sec.
Longitude 3624 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: HG ENERGY, LLC

Address: 5260 DuPONT ROAD	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
PARKERSBURG, WV 26101	20" CASING	40'	40'	N/A
Agent: MIKE KIRSCH	94#, H-40			DRILLED IN
Inspector: DEREK HAUGHT				
Date Permit Issued: 02/06/2012	13 3/8" CASING	1429'	1429'	CEMENT TO SURFACE
Date Well Work Commenced: 05/01/2012	54.5#, J-55			1150 sks
Date Well Work Completed: 01/28/2013				
Verbal Plugging:	9 5/8" CASING	3503'	3503'	CEMENT TO SURFACE
Date Permission granted on:	40#, J-55			1371 sks
Rotary ☒ Cable ☐ Rig ☒				
Total Vertical Depth (ft): 7527.16'	5 1/2" CASING	12,663'	12,663'	CEMENT TO SURFACE
Total Measured Depth (ft): 12,700'	20#, P-110			2076 sks
Fresh Water Depth (ft.): 190', 490'				
Salt Water Depth (ft.): 1,990'	2 3/8" TUBING	N/A	7660.57	N/A
Is coal being mined in area (N/Y)? N	4.7#, L-80			
Coal Depths (ft.): 985', 1080', 1219'				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 7,520' TVD
Gas: Initial open flow 11.3 MMCF/d Oil: Initial open flow 50 Bbl/d
Final open flow 10.0 MMCF/d Final open flow 50 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 2,600 psig (surface pressure) after 24 Hours

Second producing formation N/A 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

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

DCW for Josh Hinton
Signature

7-12-13
Date

08/16/2013

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Were core samples taken? Yes_____ No X Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list REAL TIME GAMMA RAY LOGS WHILE DRILLING VIA THE MWD TOOLS. ALSO, MUD LOGS

NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

.. -SEE ATTACHED SUMMARY SHEET. ..

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered: Surface:	Top Depth		Bottom Depth
BIG LIME	2432'	—	2503'
BIG INJUN	2503'	—	2724
GORDON STRAY	3288'	—	3319
GORDON	3319'	—	3340'
TULLY	7491'	—	7525'
HAMILTON	7525'	—	7695'
MARCELLUS	7695'	—	

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4045 SH
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FRAC SUMMARY

Stage	# of Perfs	Total Acid (gal)	Total Water (bbl)	Total Sand (lbs)	Total Slurry (bbl)	Pad Vol (bbl)	100 Mesh (lbs)	40/70 Mesh (lbs)	30/50 Mesh (lbs)	BDP (psi)	ISIP (psi)	1 Min SIP (psi)	2 Min SIP (psi)	5 Min SIP (psi)	ATP (psi)	Avg Rate (bbl/min)	PUMP DOWN (bbl)
1	N/A	1,000	8,858	299,900	9,408	1,233	72,000	201,600	26,900	N/A	4,268	3,739	3,540	3,287	7,039	74	-
2	50	1,000	9,476	382,100	10,115	1,259	72,000	201,600	108,500	5,899	4,282	3,826	3,666	3,455	7,844	75	319
3	50	1,000	6,962	144,000	6,581	1,267	72,000	72,000	-	5,877	3,933	3,600	3,484	3,344	7,722	74	248
4	50	4,000	10,681	98,000	11,050	3,087	10,000	58,000	30,000	5,580	5,389	4,576	4,103	3,550	7,295	65	229
5	50	10	9,335	378,600	9,946	1,282	-	102,700	270,900	5,228	3,677	3,554	3,503	3,427	6,253	72	220
6	50	1,000	8,974	394,600	9,601	1,283	-	102,700	291,900	5,274	4,059	3,788	3,644	3,463	6,631	71	195
7	50	1,000	9,990	386,800	9,622	1,304	-	102,700	283,900	5,767	4,140	3,872	3,788	3,635	7,108	71	175
8	50	1,000	4,452	45,000	4,645	1,907	-	45,000	-	7,326	N/A	N/A	N/A	N/A	7,326	54	163
9	50	1,000	9,235	394,600	9,876	1,535	-	102,700	291,900	N/A	3,836	3,531	3,427	3,310	7,000	73	189
10	50	1,000	9,360	375,600	10,051	1,328	-	102,700	272,900	5,544	4,016	3,606	3,490	3,362	6,710	68	180
11	50	1,000	8,981	288,600	9,582	1,298	-	102,700	185,900	5,748	3,632	3,502	3,395	3,075	6,950	75	169
12	50	1,000	11,153	433,700	11,946	1,807	21,000	100,900	311,800	N/A	3,847	3,527	3,429	3,327	6,711	74	82
13	50	1,000	8,752	301,900	9,328	1,292	21,000	100,900	180,000	N/A	N/A	N/A	N/A	N/A	6,488	74	66
14	50	1,000	9,376	329,900	9,975	1,312	21,000	112,400	196,500	N/A	4,474	3,964	3,751	3,515	6,838	71	54
15	50	1,000	11,004	445,600	11,789	1,295	20,800	119,500	305,900	5,850	3,436	3,385	3,349	3,290	5,992	75	70
TOTAL / AVG	700	17,010	134,629	4,693,100	143,215	21,334	309,800	1,628,100	2,755,200	5,609	4,078	3,713	3,567	3,386	6,923	71	2,300

Perforating Detail

Stage 1

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
N/A	12563	N/A	N/A	N/A	N/A	N/A

Stage 2

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12480	12430-31	12370-71	12310-11	12250-51	12190-91	PD

Stage 3

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12140	12080-81	12020-21	11960-61	11900-01	11840-41	PD

Stage 4

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11790	11730-31	11670-71	11610-11	11550-51	11490-91	PD

Stage 5

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11440	11380-81	11320-21	11260-61	11200-01	11140-41	PD

Stage 6

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11090	11030-31	10970-71	10910-11	10850-51	10790-91	PD

Stage 7

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10744	10680-81	10620-21	10560-61	10500-01	10440-41	PD

Stage 8

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10390	10330-31	10274-75	10210-11	10150-51	10090-91	PD

Stage 9

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10044	9980-81	MF	9860-61	9804-05	9740-41	PD

Stage 10

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9690	9630-31	9570-71	9510-11	9450-51	9390-91	PD

Stage 11

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9340	9280-81	9220-21	9160-61	9100-01	9040-41	PD

Stage 12

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
8990	8930-31	8870-71	8810-11	8750-51	8690-91	PD

Stage 13

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
8630	8580-81	8520-21	8460-61	8400-01	8340-41	PD

Stage 14

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
8288	8230-31	8170-71	8110-11	8050-51	7990-91	PD

Stage 15

Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
7949	7880-81	7820-21	7760-61	7700-01	7640-41	PD