

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

DATE: January 23, 2013
API #: 47-103-2644

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Farm name: LS Hoyt Operator Well No.: 402 4H

LOCATION: Elevation: 1,428' Quadrangle: Pine Grove 7.5'

JUL 26 2013

District: Grant County: Wetzel
Latitude: _____ Feet South of _____ Deg. _____ Min. _____ Sec.
Longitude _____ Feet West of _____ Deg. _____ Min. _____ Sec.

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Company: HG Energy, LLC

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>5260 Dupont Road</u> <u>Parkersburg, WV 26101</u>	<u>20" Casing</u>	<u>40'</u>	<u>40'</u>	<u>N/A -</u>
Agent: <u>Mike Kirsch</u>	<u>94#, H-40</u>			<u>Drilled In</u>
Inspector: <u>Derek Haught</u>				
Date Permit Issued: <u>5/26/2011</u>	<u>13 3/8" Casing</u>	<u>1,382'</u>	<u>1,382'</u>	<u>Cement to Surface</u>
Date Well Work Commenced: <u>9/02/2011</u>	<u>54.5#, J-55</u>			<u>1,172 sacks</u>
Date Well Work Completed: <u>12/03/2012</u>				
Verbal Plugging:	<u>9 5/8" Casing</u>	<u>3,340'</u>	<u>3,340'</u>	<u>Cement to Surface</u>
Date Permission granted on:	<u>40#, J-55</u>			<u>1,045 sacks</u>
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input checked="" type="checkbox"/>				
Total Vertical Depth (ft): <u>7,449' ? 7,484'</u>	<u>5 1/2" Casing</u>	<u>14,177'</u>	<u>14,177'</u>	<u>Cement to Surface</u>
Total Measured Depth (ft): <u>14,203'</u>	<u>20#, P-110</u>			<u>2,252 sacks</u>
Fresh Water Depth (ft.): <u>160', 440'</u>				
Salt Water Depth (ft.): <u>1,940'</u>	<u>2 3/8" Tubing</u>	<u>N/A</u>	<u>7,613'</u>	<u>N/A</u>
Is coal being mined in area (N/Y)? <u>N</u>	<u>4.7#, L-80</u>			
Coal Depths (ft.): <u>936' 1,033' 1,172'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N, N/A</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7,449' ?
Gas: Initial open flow 7,300' MCF/d Oil: Initial open flow 48 Bbl/d
Final open flow 5,600 MCF/d Final open flow 48 Bbl/d
Time of open flow between initial and final tests 16 Hours
Static rock Pressure 3,570 psig (surface pressure) after 16 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.

Diane White
Signature

2-27-13
Date

09/27/2013

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 WD tool. 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 ---

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

Formations Encountered: _____ Top Depth / _____ Bottom Depth
Surface: _____

TVD Tops:	Bottom :	
Big Lime - 2420	2490	
Big Injun - 2490	2712	
Gordon Stray - 3276	3307	
Gordon - 3307	3320	
Tully - 7410	7334 7434	
Hamilton - 7434	7405 7505	
Marcellus - 7505	7457 7557	?

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LS Hoop 402 44H Free Summary

Stage	# of Perfs	Total Acid (gal)	Total Water (bbl)	Total Sand (lbs)	Total Shurry (bbl)	Prod Vol (bbl)	100 Mesh (bbl)	40/70 Mesh (bbl)	40/70 RC Mesh (bbl)	BDP (psi)	ISIP (psi)	5 Min SIP (psi)	10 Min SIP (psi)	15 Min SIP (psi)	ATP (psi)	Avg Rate (bbl/min)	PUMP DOWN (bbl)
1	RDV	1,000	7,461	377,200	7,577	870	70,000	297,200	10,000	-	4,209	3,454	3,321	3,254	6,676	69	N/A
2	60	1,000	7,570	387,200	7,686	1,163	70,000	297,200	20,000	5,336	4,544	3,662	3,445	3,360	6,411	62	577
3	60	1,000	7,679	387,200	7,795	1,163	70,000	297,200	20,000	5,488	4,597	3,702	3,500	3,402	6,812	68	598
4	60	1,500	7,668	387,200	8,161	1,163	70,000	297,200	20,000	4,569	4,569	3,785	3,547	3,456	7,043	63	489
5	60	1,000	7,690	315,000	8,077	1,198	70,000	245,000	-	5,327	5,427	4,093	3,857	3,603	6,997	70	338
6	60	1,000	7,435	315,000	7,467	1,200	70,000	245,000	-	5,856	4,951	3,401	3,273	3,201	7,013	70	455
7	60	1,000	7,459	387,200	7,645	1,174	70,000	297,200	20,000	5,535	4,432	3,643	3,474	3,332	6,987	70	456
8	60	1,000	8,282	390,600	8,718	1,574	79,400	297,200	20,000	5,517	4,157	3,479	3,245	3,123	6,899	70	443
9	60	1,000	7,785	390,600	8,225	1,565	79,400	297,200	20,000	5,315	4,741	3,521	3,487	3,509	6,728	76	344
10	60	1,000	7,745	390,600	8,296	1,018	79,400	297,200	20,000	5,999	4,831	3,521	3,336	3,253	6,723	70	301
11	60	1,000	7,795	390,600	8,183	968	79,400	297,200	20,000	5,494	4,596	3,926	3,684	3,454	6,787	77	267
12	60	1,000	7,795	390,600	8,183	968	79,400	297,200	20,000	5,883	4,665	4,214	3,939	3,518	6,987	78	196
13	60	1,000	8,052	390,600	8,456	991	79,400	297,200	20,000	4,984	4,563	4,029	3,785	3,437	6,567	67	172
14	60	1,000	7,975	390,600	8,085	991	79,400	297,200	20,000	4,405	4,405	3,968	3,754	3,415	6,567	66	176
15	60	1,000	7,104	390,900	7,569	811	79,700	297,200	20,000	5,290	4,192	3,866	3,696	3,406	6,713	73	135
16	60	1,000	7,253	390,900	7,705	815	79,700	297,200	20,000	4,424	4,770	4,232	3,936	3,406	6,713	73	135
17	60	1,000	7,113	388,600	7,163	828	79,700	275,100	10,000	5,307	4,310	3,745	3,520	3,255	6,725	81	105
18	60	1,000	7,113	388,600	7,163	828	79,700	275,100	10,000	5,307	4,310	3,745	3,520	3,255	6,725	81	105
19	60	1,000	7,205	410,000	7,551	815	72,000	317,600	20,200	5,278	4,332	3,954	3,747	3,488	6,526	81	74
20	60	1,000	6,486	346,700	6,874	817	72,000	274,500	-	5,104	4,332	3,954	3,747	3,488	6,526	81	74
21	60	1,000	8,675	393,600	9,131	2,016	73,700	299,700	20,200	5,176	4,132	3,730	3,550	3,339	6,412	80	80
22	60	1,000	1,260	22,500	1,260	24,381	1,589,900	6,413,900	340,400	5,385	4,453	3,794	3,579	3,377	6,783	73	5,795

Perforating Details

Stage	Perforating Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
Stage 1	N/A	14086	N/A	N/A	N/A	N/A	RDV
Stage 2	14011	13960-62	13910-12	13860-62	13810-12	13770-72	PD
Stage 3	13730	13670-72	13620-22	13570-72	13520-22	13480-82	PD
Stage 4	13431	13330-32	13280-82	13230-32	13180-82	13130-32	PD
Stage 5	13141	13040-42	12990-92	12940-42	12890-92	12840-42	PD
Stage 6	12851	12802-04	12750-52	12700-02	12650-52	12600-02	PD
Stage 7	12561	12510-12	12460-62	12410-12	12360-62	12310-12	PD
Stage 8	12271	12220-22	12170-72	12120-22	12070-72	12030-32	PD
Stage 9	11981	11930-32	11882-84	11830-32	11780-82	11740-42	PD
Stage 10	11691	11640-42	11590-92	11538-40	11490-92	11450-52	PD
Stage 11	11396	11350-52	11300-02	11256-58	11200-02	11160-62	PD
Stage 12	11111	11060-62	11010-12	10970-72	10910-12	10870-72	PD
Stage 13	10821	10770-72	10720-22	10666-68	10620-22	10580-82	PD
Stage 14	10531	10480-82	10430-32	10378-80	10330-32	10290-92	PD
Stage 15	10241	10190-92	10140-42	10086-98	10040-42	10000-02	PD

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Well	Big Lime Top	Big Lime Base	Big Injun	Big Injun Base	Gordon Stray	Gordon Stray Base	Gordon	Gordon	Gordon Base	Tully Top	Tully Base	Hamilton	Hamilton	Hamilton	Marcellus Top	Marcellus Top	Marcellus Base
Hoyt #402-1H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7310	7334	7334	7405	7405	7405	7405	7457
Hoyt #402-2H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7307	7331	7331	7402	7402	7402	7402	7454
Hoyt #402-3H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7312	7336	7336	7407	7407	7407	7407	7459
Hoyt #402-4H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7410	7434	7434	7505	7505	7505	7505	7557 ←
Hoyt #402-5H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7417	7441	7441	7512	7512	7512	7512	7564
Hoyt #402-6H	2420	2490	2490	2712	3276	3307	3307	3307	3328	7427	7451	7451	7522	7522	7522	7522	7574

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