

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

API 47 - 103 - 02890 County Wetzel District Grant
Quad Pine Grove 7.5' Pad Name Long Field/Pool Name Wileyville
Farm name Francis D. & Freeda M. Brown Well Number 408 S-4H
Operator (as registered with the OOG) Ascent Resources - Marcellus, LLC
Address PO Box 13678 City Oklahoma City State OK Zip 73116

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,381,584 Easting 527,788
Landing Point of Curve Northing 4380823.3 Easting 527474.2
Bottom Hole Northing 4,380,267 Easting 528,499

Elevation (ft) 1340' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Synthetic Oil Based Mud

Date permit issued 07/02/2013 Date drilling commenced 9/12/2013 Date drilling ceased 06/23/2014
Date completion activities began 08/11/2014 Date completion activities ceased 09/12/2014
Verbal plugging (Y/N) N/A Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 470' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2000' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1180' Cavern(s) encountered (Y/N) depths Received
Is coal being mined in area (Y/N) N Office of Oil & Gas

Reviewed by:
JUL 05 2016

APPROVED
NAME: Jackie Shonta
DATE: 6/7/16

07/08/2016

API 47-103 - 02890 Farm name Francis D. & Freeda M. Brown Well number 408 S-4H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt-ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	20"	20"	100'	New	H40/94	n/a	No cement - drilled in
Surface	17-1/2"	13-3/8"	1325'	New	J-55/54.5	n/a	Cement to Surface
Coal							
Intermediate 1	12-1/4"	9-5/8"	3465'	New	J-55/40	n/a	Cement to Surface
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	14296'	New	P110/20	n/a	Cement to Surface
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Drilled in						
Surface	Class A	238 lead/832 tail	14.6/15.6	1.37/1.18	995	Surface	12
Coal							
Intermediate 1	Type 1+	369 lead/694 tail	15.0	1.29/1.3	1373	Surface	12
Intermediate 2							
Intermediate 3							
Production	50/50 PNE1/ASC	1579 lead/1240 tail	14.3/14.7	1.23/1.5	3863	Surface	12
Tubing							

Drillers TD (ft) 14,321' Loggers TD (ft) 14,321'
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 3,500' MD

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____
Surface - Ran 18 (1 every 2 joints)
Intermediate - Ran 20 (1 every 4 joints)
Productions - Ran 100 (1 every 3 joints)

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft	Perforated to MD ft.	Number of Perforations	Formation(s)
		Please see	attached.		

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
			Please see	attached.				

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS		
Marcellus	7,334'	TVD	14,322'
			MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 924 mcfpd Oil 22.39 bpd NGL _____ bpd Water 2.36 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/FORMATION	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	NAME TVD	TVD	MD	MD	
Sand/Shale	0	2305'	0	2305'	
Big Lime	2305'	2392'	2305'	2392'	
Big Injun	2392'	2590'	2392'	2590'	
Shale	2590'	3160'	2590'	3160'	
Gordon Sand	3160'	3204'	3160'	3204'	
Dev Shale	3204'	7193'	3204'	8444'	
Tully Lime	7150'		7881'		
Marcellus Shale	7245'		8063'	14321'	

Please insert additional pages as applicable.

Drilling Contractor HAD Drilling Contractors
Address 9797 Benner Rd City Rittman State OH Zip 44270

Logging Company ALS Empirca Surface Logging
Address 6360 W. Sam Houston Pkwy N, Suite 100 City Houston State TX Zip 77401

Cementing Company Baker Hughes
Address PO Box 301057 City Dallas State TX Zip 75303-1057

Stimulating Company Producers Service Company
Address PO Box 2277 City Zanesville State OH Zip 43702-2277

Please insert additional pages as applicable.

Completed by Ariel Bravo Telephone 405-252-7642
Signature *Ariel Bravo* Title Regulatory Analyst Date 2/22/2016

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JUL 05 2016

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Well Name	API	Property Number	Well Status	State	County	Well Spud Date	RR Date	Comp Date
LONG 408 S-4H	4710302890000	1470004	PRODUCTION	WEST VIRGINIA	WETZEL	10/10/2013	6/27/2014	
Stage #	Start Date	Slurry Rate Avg (bbl/min)	P Treat Avg (psi)	P Breakdown (psi)	ISP (psi)	Prop Placed (lb)	Vol Slurry Total (bbl)	
1	8/11/2014	70	7,550	7,234	3,820	183,000	0.00	
2	8/12/2014	73	7,025	5,355	4,701	224,800	0.00	
3	8/13/2014	70	7,112	5,285	4,414	224,900	0.00	
4	8/13/2014	76	7,122	5,685	4,909	224,900	0.00	
5	8/14/2014	78	7,131	5,495	4,760	210,700	0.00	
6	8/14/2014	77	7,205	5,430	5,001	224,900	0.00	
7	8/15/2014	78	7,085	5,773	5,598	178,700	0.00	
8	8/18/2014	77	7,357	5,495	4,293	213,600	0.00	
9	8/18/2014	76	7,410	5,742	4,883	224,900	0.00	
10	8/19/2014	80	7,277	6,605	4,648	224,900	0.00	
11	8/19/2014	80	7,220	5,967	4,328	224,900	0.00	
12	8/20/2014	78	7,195	5,802	4,405	224,900	0.00	
13	8/20/2014	74	7,290	6,743	4,571	224,900	0.00	
14	8/21/2014	80	7,305	5,430	5,071	224,900	0.00	
15	8/21/2014	76	7,550	6,045	5,381	218,900	0.00	
16	8/22/2014	80	7,106	5,344	4,757	224,900	0.00	
17	8/22/2014	80	7,379	5,456	4,959	224,900	0.00	
18	8/23/2014	80	7,510	6,095	5,217	224,900	0.00	
19	8/23/2014	80	7,255	5,625	4,657	224,900	0.00	
20	8/25/2014	76	7,450	6,205	4,842	224,900	0.00	
21	8/25/2014	79	7,480	6,531	4,034	224,900	0.00	
22	8/26/2014	80	7,135	5,663	5,379	224,900	0.00	
23	8/26/2014	80	7,002	5,892	4,988	224,900	0.00	
24	8/27/2014	74	7,310	5,741	4,298	224,900	0.00	
25	8/27/2014	79	7,269	5,715	4,957	224,900	0.00	
26	8/28/2014	79	7,295	5,514	4,526	224,900	0.00	
27	8/29/2014	78	7,318	5,541	4,636	224,900	0.00	
28	9/1/2014	79	7,267	5,614	3,920	224,900	0.00	
29	9/2/2014	80	7,090	5,455	4,063	224,900	0.00	
30	9/3/2014	80	7,090	5,695	4,417	224,900	0.00	
31	9/4/2014	80	6,850	5,432	4,589	224,900	0.00	
32	9/5/2014	80	6,875	5,705	4,789	224,900	0.00	
33	9/8/2014	81	6,956	5,917	5,098	224,900	0.00	
34	9/9/2014	84	7,035	6,051	4,766	224,900	0.00	
35	9/9/2014	81	6,905	5,655	5,700	224,900	0.00	
36	9/11/2014	81	6,767	5,473	5,514	224,900	0.00	
37	9/12/2014	74	7,120	5,666	4,472	224,900	0.00	
38	9/12/2014	78	6,725	6,210	5,019	224,900	0.00	
39	9/12/2014	75	6,822	5,665	4,583	224,900	0.00	
40	9/12/2014	81	6,797	6,220	4,856	224,900	0.00	
41	9/12/2014	80	6,750	5,465	5,612	224,900	0.00	

Well Treatment Summary

Gas
07/08/2016

Perforations

Stage #	Date	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Entered Shot Total	Com
41	9/12/2014	8,259.0	8,261.0	5.0	10	Stg 41
41	9/12/2014	8,289.0	8,291.0	5.0	10	Stg 41
41	9/12/2014	8,319.0	8,321.0	5.0	10	Stg 41
41	9/12/2014	8,349.0	8,351.0	5.0	10	Stg 41
41	9/12/2014	8,379.0	8,381.0	5.0	10	Stg 41
40	9/12/2014	8,409.0	8,411.0	5.0	10	Stg 40
40	9/12/2014	8,439.0	8,441.0	5.0	10	Stg 40
40	9/12/2014	8,469.0	8,471.0	5.0	10	Stg 40
40	9/12/2014	8,499.0	8,501.0	5.0	10	Stg 40
40	9/12/2014	8,529.0	8,531.0	5.0	10	Stg 40
39	9/11/2014	8,559.0	8,561.0	5.0	10	Stg 39
39	9/11/2014	8,589.0	8,591.0	5.0	10	Stg 39
39	9/11/2014	8,619.0	8,621.0	5.0	10	Stg 39
39	9/11/2014	8,649.0	8,651.0	5.0	10	Stg 39
39	9/11/2014	8,679.0	8,681.0	5.0	10	Stg 39
38	9/11/2014	8,709.0	8,711.0	5.0	10	Stg 38
38	9/11/2014	8,739.0	8,741.0	5.0	10	Stg 38
38	9/11/2014	8,769.0	8,771.0	5.0	10	Stg 38
38	9/11/2014	8,799.0	8,801.0	5.0	10	Stg 38
38	9/11/2014	8,829.0	8,831.0	5.0	10	Stg 38
37	9/11/2014	8,859.0	8,861.0	5.0	10	Stg 37
37	9/11/2014	8,889.0	8,891.0	5.0	10	Stg 37
37	9/11/2014	8,919.0	8,921.0	5.0	10	Stg 37
37	9/11/2014	8,949.0	8,951.0	5.0	10	Stg 37
37	9/11/2014	8,979.0	8,981.0	5.0	10	Stg 37
36	9/10/2014	9,009.0	9,011.0	5.0	10	Stg 36
36	9/10/2014	9,039.0	9,041.0	5.0	10	Stg 36
36	9/10/2014	9,069.0	9,071.0	5.0	10	Stg 36
36	9/10/2014	9,099.0	9,101.0	5.0	10	Stg 36
36	9/10/2014	9,129.0	9,131.0	5.0	10	Stg 36
35	9/9/2014	9,159.0	9,161.0	5.0	10	Stg 35
35	9/9/2014	9,189.0	9,191.0	5.0	10	Stg 35
35	9/9/2014	9,219.0	9,221.0	5.0	10	Stg 35
35	9/9/2014	9,249.0	9,251.0	5.0	10	Stg 35
35	9/9/2014	9,279.0	9,281.0	5.0	10	Stg 35
34	9/8/2014	9,309.0	9,311.0	5.0	10	Stg 34
34	9/8/2014	9,339.0	9,341.0	5.0	10	Stg 34
34	9/8/2014	9,369.0	9,371.0	5.0	10	Stg 34
34	9/8/2014	9,399.0	9,401.0	5.0	10	Stg 34
34	9/8/2014	9,429.0	9,431.0	5.0	10	Stg 34
33	9/5/2014	9,459.0	9,461.0	5.0	10	Stg 33
33	9/5/2014	9,489.0	9,491.0	5.0	10	Stg 33
33	9/5/2014	9,519.0	9,521.0	5.0	10	Stg 33
33	9/5/2014	9,549.0	9,551.0	5.0	10	Stg 33
33	9/5/2014	9,579.0	9,581.0	5.0	10	Stg 33
32	9/4/2014	9,609.0	9,611.0	5.0	10	Stg 32
32	9/4/2014	9,639.0	9,641.0	5.0	10	Stg 32
32	9/4/2014	9,669.0	9,671.0	5.0	10	Stg 32
32	9/4/2014	9,699.0	9,701.0	5.0	10	Stg 32
32	9/4/2014	9,729.0	9,731.0	5.0	10	Stg 32
31	9/3/2014	9,759.0	9,761.0	5.0	10	Stg 31
31	9/3/2014	9,789.0	9,791.0	5.0	10	Stg 31
31	9/3/2014	9,819.0	9,821.0	5.0	10	Stg 31
31	9/3/2014	9,849.0	9,851.0	5.0	10	Stg 31
31	9/3/2014	9,879.0	9,881.0	5.0	10	Stg 31
30	9/2/2014	9,909.0	9,911.0	5.0	10	Stg 30
30	9/2/2014	9,939.0	9,941.0	5.0	10	Stg 30
30	9/2/2014	9,969.0	9,971.0	5.0	10	Stg 30
30	9/2/2014	9,999.0	10,001.0	5.0	10	Stg 30
30	9/2/2014	10,029.0	10,031.0	5.0	10	Stg 30
29	9/1/2014	10,059.0	10,061.0	5.0	10	Stg 29
29	9/1/2014	10,089.0	10,091.0	5.0	10	Stg 29
29	9/1/2014	10,119.0	10,121.0	5.0	10	Stg 29

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Perforations

Stage #	Date	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Entered Shot Total	Com
29	9/1/2014	10,149.0	10,151.0	5.0	10	Stg 29
29	9/1/2014	10,179.0	10,181.0	5.0	10	Stg 29
28	8/29/2014	10,209.0	10,211.0	5.0	10	Stg 28
28	8/29/2014	10,239.0	10,241.0	5.0	10	Stg 28
28	8/29/2014	10,269.0	10,271.0	5.0	10	Stg 28
28	8/29/2014	10,299.0	10,301.0	5.0	10	Stg 28
28	8/29/2014	10,329.0	10,331.0	5.0	10	Stg 28
27	8/28/2014	10,359.0	10,361.0	5.0	10	Stg 27
27	8/28/2014	10,389.0	10,391.0	5.0	10	Stg 27
27	8/28/2014	10,419.0	10,421.0	5.0	10	Stg 27
27	8/28/2014	10,449.0	10,451.0	5.0	10	Stg 27
27	8/28/2014	10,479.0	10,481.0	5.0	10	Stg 27
26	8/27/2014	10,509.0	10,511.0	5.0	10	Stg 26
26	8/27/2014	10,539.0	10,541.0	5.0	10	Stg 26
26	8/27/2014	10,569.0	10,571.0	5.0	10	Stg 26
26	8/27/2014	10,599.0	10,601.0	5.0	10	Stg 26
26	8/27/2014	10,629.0	10,631.0	5.0	10	Stg 26
25	8/27/2014	10,659.0	10,661.0	5.0	10	Stg 25
25	8/27/2014	10,689.0	10,691.0	5.0	10	Stg 25
25	8/27/2014	10,719.0	10,721.0	5.0	10	Stg 25
25	8/27/2014	10,749.0	10,751.0	5.0	10	Stg 25
25	8/27/2014	10,779.0	10,781.0	5.0	10	Stg 25
24	8/26/2014	10,809.0	10,811.0	5.0	10	Stg 24
24	8/26/2014	10,839.0	10,841.0	5.0	10	Stg 24
24	8/26/2014	10,869.0	10,871.0	5.0	10	Stg 24
24	8/26/2014	10,899.0	10,901.0	5.0	10	Stg 24
24	8/26/2014	10,929.0	10,931.0	5.0	10	Stg 24
23	8/26/2014	10,959.0	10,961.0	5.0	10	Stg 23
23	8/26/2014	10,989.0	10,991.0	5.0	10	Stg 23
23	8/26/2014	11,019.0	11,021.0	5.0	10	Stg 23
23	8/26/2014	11,049.0	11,051.0	5.0	10	Stg 23
23	8/26/2014	11,079.0	11,081.0	5.0	10	Stg 23
22	8/25/2014	11,109.0	11,111.0	5.0	10	Stg 22
22	8/25/2014	11,139.0	11,141.0	5.0	10	Stg 22
22	8/25/2014	11,169.0	11,171.0	5.0	10	Stg 22
22	8/25/2014	11,199.0	11,201.0	5.0	10	Stg 22
22	8/25/2014	11,229.0	11,231.0	5.0	10	Stg 22
21	8/25/2014	11,259.0	11,261.0	5.0	10	Stg 21
21	8/25/2014	11,289.0	11,291.0	5.0	10	Stg 21
21	8/25/2014	11,319.0	11,321.0	5.0	10	Stg 21
21	8/25/2014	11,349.0	11,351.0	5.0	10	Stg 21
21	8/25/2014	11,379.0	11,381.0	5.0	10	Stg 21
20	8/23/2014	11,409.0	11,411.0	5.0	10	Stg 20
20	8/23/2014	11,439.0	11,441.0	5.0	10	Stg 20
20	8/23/2014	11,469.0	11,471.0	5.0	10	Stg 20
20	8/23/2014	11,499.0	11,501.0	5.0	10	Stg 20
20	8/23/2014	11,529.0	11,531.0	5.0	10	Stg 20
19	8/23/2014	11,559.0	11,561.0	5.0	10	Stg 19
19	8/23/2014	11,589.0	11,591.0	5.0	10	Stg 19
19	8/23/2014	11,619.0	11,621.0	5.0	10	Stg 19
19	8/23/2014	11,649.0	11,651.0	5.0	10	Stg 19
19	8/23/2014	11,679.0	11,681.0	5.0	10	Stg 19
18	8/22/2014	11,709.0	11,711.0	5.0	10	Stg 18
18	8/22/2014	11,739.0	11,741.0	5.0	10	Stg 18
18	8/22/2014	11,769.0	11,771.0	5.0	10	Stg 18
18	8/22/2014	11,799.0	11,801.0	5.0	10	Stg 18
18	8/22/2014	11,829.0	11,831.0	5.0	10	Stg 18
17	8/22/2014	11,859.0	11,861.0	5.0	10	Stg 17
17	8/22/2014	11,889.0	11,891.0	5.0	10	Stg 17
17	8/22/2014	11,919.0	11,921.0	5.0	10	Stg 17
17	8/22/2014	11,949.0	11,951.0	5.0	10	Stg 17
17	8/22/2014	11,979.0	11,981.0	5.0	10	Stg 17
16	8/21/2014	12,009.0	12,011.0	5.0	10	Stg 16

Received
Office of Oil & Gas
05 2016

Perforations

Stage #	Date	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Entered Shot Total	Com
16	8/21/2014	12,039.0	12,041.0	5.0	10	Stg 16
16	8/21/2014	12,069.0	12,071.0	5.0	10	Stg 16
16	8/21/2014	12,099.0	12,101.0	5.0	10	Stg 16
16	8/21/2014	12,129.0	12,131.0	5.0	10	Stg 16
15	8/21/2014	12,159.0	12,161.0	5.0	10	Stg 15
15	8/21/2014	12,189.0	12,191.0	5.0	10	Stg 15
15	8/21/2014	12,219.0	12,221.0	5.0	10	Stg 15
15	8/21/2014	12,249.0	12,251.0	5.0	10	Stg 15
15	8/21/2014	12,279.0	12,281.0	5.0	10	Stg 15
14	8/20/2014	12,309.0	12,311.0	5.0	10	Stg 14
14	8/20/2014	12,339.0	12,341.0	5.0	10	Stg 14
14	8/20/2014	12,369.0	12,371.0	5.0	10	Stg 14
14	8/20/2014	12,399.0	12,401.0	5.0	10	Stg 14
14	8/20/2014	12,429.0	12,431.0	5.0	10	Stg 14
13	8/20/2014	12,459.0	12,461.0	5.0	10	Stg 13
13	8/20/2014	12,489.0	12,491.0	5.0	10	Stg 13
13	8/20/2014	12,519.0	12,521.0	5.0	10	Stg 13
13	8/20/2014	12,549.0	12,551.0	5.0	10	Stg 13
13	8/20/2014	12,579.0	12,581.0	5.0	10	Stg 13
12	8/19/2014	12,609.0	12,611.0	5.0	10	Stg 12
12	8/19/2014	12,639.0	12,641.0	5.0	10	Stg 12
12	8/19/2014	12,669.0	12,671.0	5.0	10	Stg 12
12	8/19/2014	12,699.0	12,701.0	5.0	10	Stg 12
12	8/19/2014	12,729.0	12,731.0	5.0	10	Stg 12
11	8/19/2014	12,759.0	12,761.0	5.0	10	Stg 11
11	8/19/2014	12,789.0	12,791.0	5.0	10	Stg 11
11	8/19/2014	12,819.0	12,821.0	5.0	10	Stg 11
11	8/19/2014	12,849.0	12,851.0	5.0	10	Stg 11
11	8/19/2014	12,879.0	12,881.0	5.0	10	Stg 11
10	8/18/2014	12,909.0	12,911.0	5.0	10	Stg 10
10	8/18/2014	12,939.0	12,941.0	5.0	10	Stg 10
10	8/18/2014	12,969.0	12,971.0	5.0	10	Stg 10
10	8/18/2014	12,999.0	13,001.0	5.0	10	Stg 10
10	8/18/2014	13,029.0	13,031.0	5.0	10	Stg 10
9	8/18/2014	13,059.0	13,061.0	5.0	10	Stg 9
9	8/18/2014	13,089.0	13,091.0	5.0	10	Stg 9
9	8/18/2014	13,119.0	13,121.0	5.0	10	Stg 9
9	8/18/2014	13,149.0	13,151.0	5.0	10	Stg 9
9	8/18/2014	13,179.0	13,181.0	5.0	10	Stg 9
8	8/15/2014	13,209.0	13,211.0	5.0	10	Stg 8
8	8/15/2014	13,239.0	13,241.0	5.0	10	Stg 8
8	8/15/2014	13,269.0	13,271.0	5.0	10	Stg 8
8	8/15/2014	13,299.0	13,301.0	5.0	10	Stg 8
8	8/15/2014	13,329.0	13,331.0	5.0	10	Stg 8
7	8/14/2014	13,359.0	13,361.0	5.0	10	Stg 7
7	8/14/2014	13,389.0	13,391.0	5.0	10	Stg 7
7	8/14/2014	13,419.0	13,421.0	5.0	10	Stg 7
7	8/14/2014	13,449.0	13,451.0	5.0	10	Stg 7
7	8/14/2014	13,479.0	13,481.0	5.0	10	Stg 7
6	8/14/2014	13,509.0	13,511.0	5.0	10	Stg 6
6	8/14/2014	13,539.0	13,541.0	5.0	10	Stg 6
6	8/14/2014	13,569.0	13,571.0	5.0	10	Stg 6
6	8/14/2014	13,599.0	13,601.0	5.0	10	Stg 6
6	8/14/2014	13,629.0	13,631.0	5.0	10	Stg 6
5	8/13/2014	13,659.0	13,661.0	5.0	10	Stg 5
5	8/13/2014	13,689.0	13,691.0	5.0	10	Stg 5
5	8/13/2014	13,719.0	13,721.0	5.0	10	Stg 5
5	8/13/2014	13,749.0	13,751.0	5.0	10	Stg 5
5	8/13/2014	13,779.0	13,781.0	5.0	10	Stg 5
4	8/13/2014	13,809.0	13,811.0	5.0	10	Stg 4
4	8/13/2014	13,839.0	13,841.0	5.0	10	Stg 4
4	8/13/2014	13,869.0	13,871.0	5.0	10	Stg 4
4	8/13/2014	13,899.0	13,901.0	5.0	10	Stg 4

Received
Office of Oil & Gas
8/15/2016

Perforations

Stage #	Date	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Entered Shot Total	Com
4	8/13/2014	13,929.0	13,931.0	5.0	10	Stg 4
3	8/12/2014	13,959.0	13,961.0	5.0	10	Stg 3
3	8/12/2014	13,989.0	13,991.0	5.0	10	Stg 3
3	8/12/2014	14,019.0	14,021.0	5.0	10	Stg 3
3	8/12/2014	14,049.0	14,051.0	5.0	10	Stg 3
3	8/12/2014	14,079.0	14,081.0	5.0	10	Stg 3
2	8/11/2014	14,109.0	14,111.0	5.0	10	Stg 2
2	8/11/2014	14,139.0	14,141.0	5.0	10	Stg 2
2	8/11/2014	14,169.0	14,171.0	5.0	10	Stg 2
2	8/11/2014	14,199.0	14,201.0	5.0	10	Stg 2
2	8/11/2014	14,229.0	14,231.0	5.0	10	Stg 2
1	8/11/2014	14,259.0	14,263.0	2.0		SLB Rupture Disc Valve

Received
Office of Oil & Gas
JUL 05 2016

07/08/2016

(BOTTOM HOLE: 80°39'36.7")

LON: -80°40'35.6"

2800'

LAT: 39°37'30"

LON: 80°40'00"

1 - Well Test and Latitude and Longitude were measured by GPS (Submeter Mapping Grade). Readings are referenced to UTM Grid North (Zone 17 North - NAD 1983).

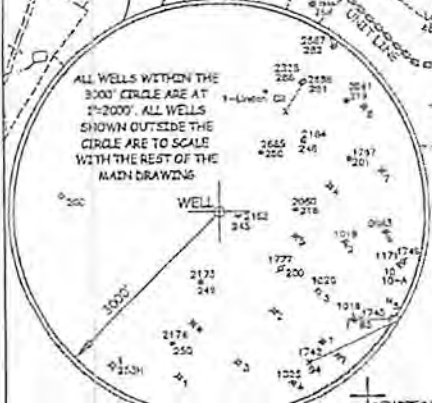
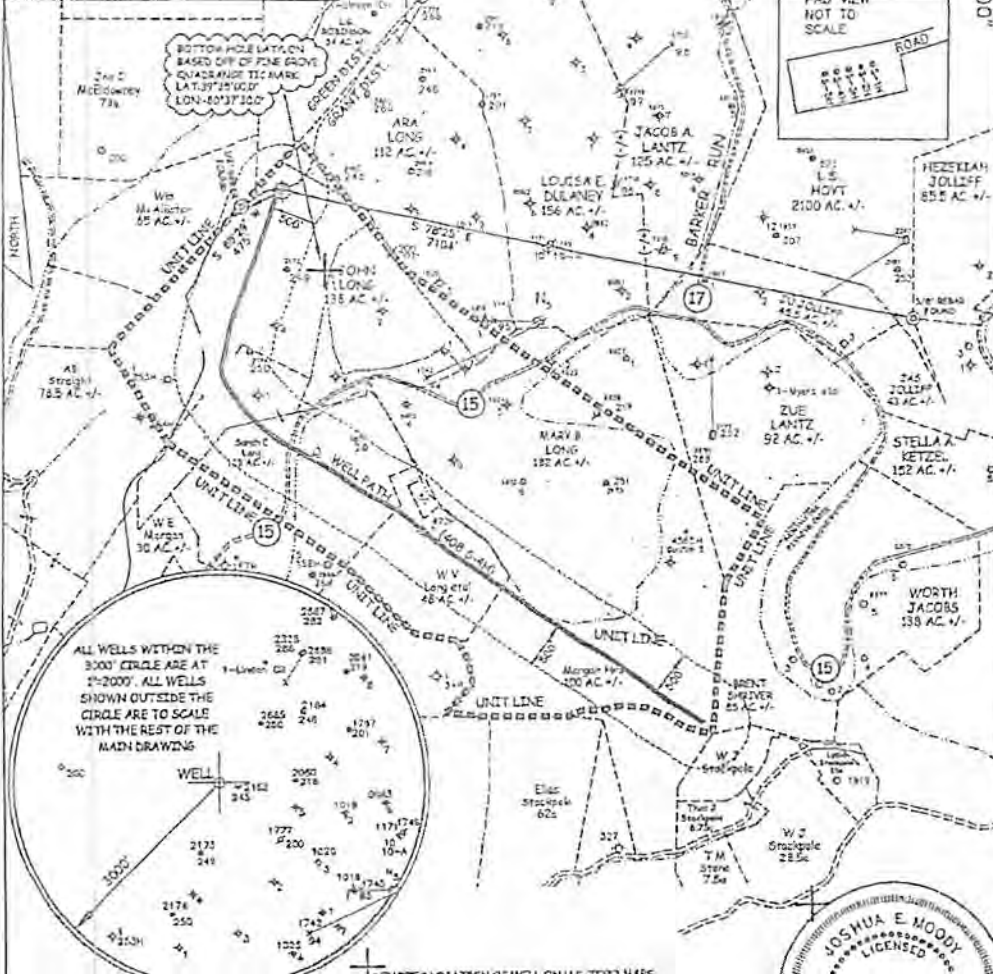
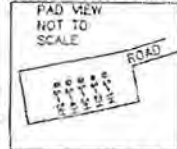
2 - Surface elevations and depths of formation obtained from the West Virginia Assessor's Tax records.

3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a future Title Opinion.

UTM Coordinates (Zone 17N/48N/1983)	
Surface	N=4,381,584m. E=527,788m.
Bottom Hole	N=4,379,803m. E=529,204m.

LOCATION REFERENCES
 NAD 1983
 N41°52' E 190'± STAKE
 S47°01' E 231'± STAKE

**MAP OF
 H.G. ENERGY, LLC
 -LONG 408 UNIT-**



JOB # 12-025
 DRAWING # 12HG49FOLDER
 SCALE 1" = 1500'
 MINIMUM DEGREE OF ACCURACY SUB-METER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 MOODY LAND SURVEYING, LLC
 ST. MARYS, WV 26170

JOSHUA E. MOODY, P.S. 2020
 DATE 12/08/14
 OPERATOR'S WELL # 408 S-4H

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL HORIZONTAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW API WELL #

LOCATION: ELEVATION 1340' WATERSHED NORTH FOR FISHING CREEK 47 - 103 -
 DISTRICT GRANT COUNTY WETZEL STATE COUNTY PERMIT

QUADRANGLE PINE GROVE 7.5' SURFACE OWNER FRANCIS D. & FREEDA M. BROWN (surface hole) ACREAGE 103 ACRES +/-
 OIL & GAS ROYALTY OWNER ROBERT B. MYERS ET AL LEASE ACREAGE 514.72 ACRES +/-
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR
 STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED LOCATION
 PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD= 7,325.69' MD= 14,322'
 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE
 ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
 PARKERSBURG, WV 26101 PARKERSBURG, WV 26101
 LEASE # 31950-50

FORM WW-5

received
 Office of Oil & Gas
 JUL 05 2016

07/08/2016

(BOTTOM HOLE: 80°39'36.7")

LON: -80°40'35.8"

2800'

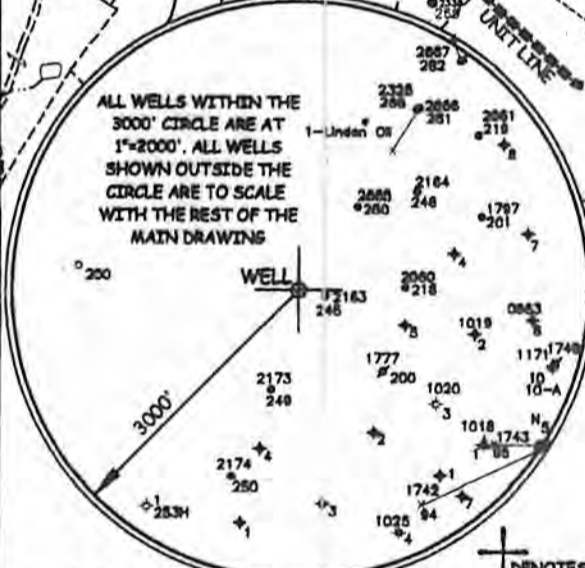
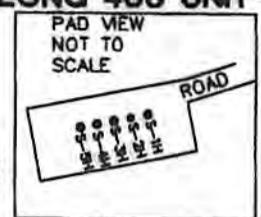
- 1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927)
- 2 - Surface owners and adjoiners information obtained from the Wetzel County Assessor's tax records.
- 3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title Opinion.

SURVEY NOTES	
Surface	N-4,381,584m. E-527,788m.
Bottom Hole	N-4,379,803m. E-529,204m.

LOCATION REFERENCES	
NAD 1983	
N 43°02' E 196' SPIKE	
S 81°08' E 131' SPIKE	

LAT: 39°37'30"

MAP OF H.G. ENERGY, LLC -LONG 408 UNIT-



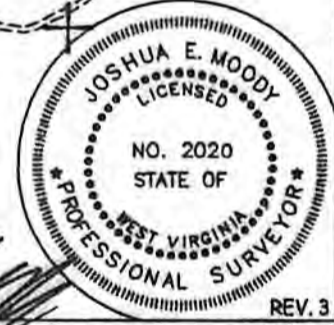
+ DENOTES LOCATION OF WELL ON U.S. TOPO MAPS.

JOB # 12-025
 DRAWING # 12HG409FOLDER
 SCALE 1" = 1500'
 MINIMUM DEGREE OF ACCURACY SUB-METER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 MOODY LAND SURVEYING, LLC
 ST. MARYS, WV 26170



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

REV. 3
 JOSHUA E. MOODY, P.S. 2020
 DATE 12/08/14
 OPERATOR'S WELL # 408 S-4H

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL HORIZONTAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1340' WATERSHED NORTH FOR, FISHING CREEK API WELL # 47 - 103 - 02890H6A
 DISTRICT GRANT COUNTY WETZEL STATE COUNTY PERMIT

SURFACE OWNER FRANCIS D. & FREEDA M. BROWN (surface hole) ACREAGE 103 ACRES +/-
 OIL & GAS ROYALTY OWNER ROBERT B. MYERS ET AL LEASE ACREAGE 514.72 ACRES +/-
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR
 STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED LOCATION
 PLUG & ABANDON CLEAN OUT & REPLUG
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 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE
 ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
 PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

07/08/2016

LAT: 39°35'00.4" (BOTTOM HOLE: 39°34'02.5")