

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

API 47 - 033 - 05922 County Harrison District Simpson
Quad Brownnton Pad Name Gamelli HSOG Field/Pool Name _____
Farm name James T. Gamelli et al Well Number 201
Operator (as registered with the OOG) Arsenal Resources
Address 6031 Wallace Rd Ext, Ste 3000 City Wexford State PA Zip 15090

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,346,080.3 Easting 568,645.9
Landing Point of Curve Northing 4,345,727.6 Easting 568,155.8
Bottom Hole Northing 4,341,653.1 Easting 569,636.0

Elevation (ft) 1141.00' 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

Date permit issued 06/19/2019 Date drilling commenced 03/18/2019 Date drilling ceased 07/11/2019
Date completion activities began 6/9/2021 Date completion activities ceased 6/26/2021
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 115', 380' 575', 650' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,400' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 97',155',254', 310',406',442',505',588',624',660' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed
SDW

Reviewed by: [Signature]

12/31/2021

API 47- 033 - 05922

Farm name James T. Gamelli et al

Well number 201

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	30"	26"	40'	New	102.75	NA	Y
Surface	17 1/2"	13 3/8"	736' GL	New	54.5	182'	Y
Coal	NA	NA	NA	NA	NA	NA	N
Intermediate 1	12 1/4"	9 5/8"	2475' GL	New	40.0	NA	Y
Intermediate 2	NA	NA	NA	NA	NA	NA	NA
Intermediate 3	NA	NA	NA	NA	NA	NA	NA
Production	8 1/2"	5 1/2"	22,438' GL	New	23.0	NA	N
Tubing	NA	NA	NA	NA	NA	NA	NA
Packer type and depth set		NA					

Comment Details Cement to surface on Conductor, Surface, Intermediate and Production.

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	A	82	15.60	1.20	98.40	Surface	8+
Surface	A	700	15.60	1.18	826	Surface	8+
Coal	NA	NA	NA	NA	NA	NA	NA
Intermediate 1	A	767	15.70	1.29	989.43	Surface	8+
Intermediate 2	NA	NA	NA	NA	NA	NA	NA
Intermediate 3	NA	NA	NA	NA	NA	NA	NA
Production	A	913/2909	13.80/15.00	1.40/1.28	1,278.2/3,723.52	Surface	8+
Tubing	NA	NA	NA	NA	NA	NA	NA

Drillers TD (ft) 22,453'(GL)

Loggers TD (ft) NA

Deepest formation penetrated Marcellus

Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 7,125'(GL)

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 26"- No centralizers, 13 3/8"- one bow spring centralizer on every other joint, 9 5/8"- one semi rigid centralizer on every joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 1,400'; there will be no centralizers from 1,400' to surface

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 _____

Perforations Date	Top (ftKB)	Btm (ftKB)	Entered Shot Total	Stage	
6/26/2021	8,246.00	8,246.00	8,408.00	40	69 Marcellus
6/26/2021	8,446.00	8,446.00	8,608.00	40	68 Marcellus
6/25/2021	8,646.00	8,646.00	8,808.00	40	67 Marcellus
6/25/2021	8,846.00	8,846.00	9,008.00	40	66 Marcellus
6/25/2021	9,046.00	9,046.00	9,205.00	40	65 Marcellus
6/25/2021	9,244.00	9,244.00	9,408.00	40	64 Marcellus
6/25/2021	9,446.00	9,446.00	9,608.00	40	63 Marcellus
6/24/2021	9,646.00	9,646.00	9,808.00	40	62 Marcellus
6/24/2021	9,846.00	9,846.00	10,008.00	40	61 Marcellus
6/24/2021	10,046.00	10,046.00	10,208.00	40	60 Marcellus
6/24/2021	10,246.00	10,246.00	10,408.00	40	59 Marcellus
6/24/2021	10,446.00	10,446.00	10,608.00	40	58 Marcellus
6/23/2021	10,646.00	10,646.00	10,808.00	40	57 Marcellus
6/23/2021	10,846.00	10,846.00	11,008.00	40	56 Marcellus
6/23/2021	11,046.00	11,046.00	11,208.00	40	55 Marcellus
6/23/2021	11,246.00	11,246.00	11,408.00	40	54 Marcellus
6/22/2021	11,446.00	11,446.00	11,608.00	40	53 Marcellus
6/22/2021	11,646.00	11,646.00	11,808.00	40	52 Marcellus
6/22/2021	11,846.00	11,846.00	12,008.00	40	51 Marcellus
6/21/2021	12,046.00	12,046.00	12,208.00	40	50 Marcellus
6/21/2021	12,246.00	12,246.00	12,408.00	40	49 Marcellus
6/21/2021	12,446.00	12,446.00	12,608.00	40	48 Marcellus
6/20/2021	12,646.00	12,646.00	12,808.00	40	47 Marcellus
6/20/2021	12,846.00	12,846.00	13,008.00	40	46 Marcellus
6/20/2021	13,046.00	13,046.00	13,208.00	40	45 Marcellus
6/20/2021	13,246.00	13,246.00	13,408.00	40	44 Marcellus
6/19/2021	13,446.00	13,446.00	13,608.00	40	43 Marcellus
6/19/2021	13,646.00	13,646.00	13,808.00	40	42 Marcellus
6/19/2021	13,846.00	13,846.00	14,008.00	40	41 Marcellus
6/19/2021	14,046.00	14,046.00	14,208.00	40	40 Marcellus
6/18/2021	14,246.00	14,246.00	14,408.00	40	39 Marcellus
6/18/2021	14,446.00	14,446.00	14,608.00	40	38 Marcellus
6/18/2021	14,646.00	14,646.00	14,808.00	40	37 Marcellus
6/18/2021	14,846.00	14,846.00	15,008.00	40	36 Marcellus
6/18/2021	15,046.00	15,046.00	15,208.00	40	35 Marcellus
6/17/2021	15,246.00	15,246.00	15,408.00	40	34 Marcellus
6/17/2021	15,446.00	15,446.00	15,608.00	40	33 Marcellus
6/17/2021	15,646.00	15,646.00	15,808.00	40	32 Marcellus
6/17/2021	15,846.00	15,846.00	16,008.00	40	31 Marcellus
6/17/2021	16,046.00	16,046.00	16,208.00	40	30 Marcellus
6/16/2021	16,246.00	16,246.00	16,408.00	40	29 Marcellus
6/16/2021	16,446.00	16,446.00	16,608.00	40	28 Marcellus
6/16/2021	16,646.00	16,646.00	16,808.00	40	27 Marcellus
6/16/2021	16,846.00	16,846.00	17,008.00	40	26 Marcellus
6/15/2021	17,046.00	17,046.00	17,208.00	40	25 Marcellus
6/15/2021	17,246.00	17,246.00	17,408.00	40	24 Marcellus
6/15/2021	17,446.00	17,446.00	17,608.00	40	23 Marcellus
6/15/2021	17,646.00	17,646.00	17,808.00	40	22 Marcellus
6/14/2021	17,846.00	17,846.00	18,008.00	40	21 Marcellus
6/14/2021	18,046.00	18,046.00	18,208.00	40	20 Marcellus
6/14/2021	18,246.00	18,246.00	18,408.00	40	19 Marcellus
6/14/2021	18,446.00	18,446.00	18,608.00	40	18 Marcellus
6/13/2021	18,646.00	18,646.00	18,808.00	40	17 Marcellus
6/13/2021	18,846.00	18,846.00	19,008.00	40	16 Marcellus
6/13/2021	19,046.00	19,046.00	19,208.00	40	15 Marcellus
6/13/2021	19,246.00	19,246.00	19,408.00	40	14 Marcellus
6/12/2021	19,446.00	19,446.00	19,608.00	40	13 Marcellus
6/12/2021	19,646.00	19,646.00	19,808.00	40	12 Marcellus
6/12/2021	19,846.00	19,846.00	20,008.00	40	11 Marcellus
6/12/2021	20,046.00	20,046.00	20,208.00	40	10 Marcellus
6/11/2021	20,246.00	20,246.00	20,408.00	40	9 Marcellus
6/11/2021	20,446.00	20,446.00	20,608.00	40	8 Marcellus
6/11/2021	20,646.00	20,646.00	20,808.00	40	7 Marcellus
6/11/2021	20,846.00	20,846.00	21,008.00	40	6 Marcellus
6/10/2021	21,046.00	21,046.00	21,208.00	40	5 Marcellus
6/10/2021	21,246.00	21,246.00	21,408.00	40	4 Marcellus
6/10/2021	21,446.00	21,446.00	21,608.00	40	3 Marcellus
6/10/2021	21,646.00	21,646.00	21,808.00	40	2 Marcellus
6/9/2021	21,846.00	21,846.00	21,979.00	40	1 Marcellus

Stimulations Summary
 Start Date: 6/9/2021
 Stimulation Intervals

Stage Number	Start Date	R Treat Avg (bbl/min):	P Treat Avg (psi):	Mass Prop Tot (lb): 43,192,055.0	Vol Clean Total (bbl): 618,457.00	Frac Grad Avg (psi/ft): 1.18	Slurry Rate Avg (bbl/min)	P Treat Avg (psi)	P Breakdown (psi)	ISIP (psi)	Proppant Total OR (lb)	Vol Clean Total (bbl)	Nitrogen
1	6/9/2021		78.60		6,317.00			10,334.00	6,317.00	4,593.00	500,995.00	9,733.00	NA
2	6/10/2021		79.90		5,642.00			10,154.00	5,642.00	4,482.00	496,570.00	9,205.00	NA
3	6/10/2021		80.60		5,660.00			10,175.00	5,106.00	4,828.00	499,880.00	9,444.00	NA
4	6/10/2021		80.70		9,930.00			9,930.00	7,249.00	4,828.00	500,250.00	9,349.00	NA
5	6/10/2021		80.90		6,190.00			9,171.00	6,190.00	5,199.00	502,330.00	9,258.00	NA
6	6/11/2021		81.20		9,268.00			9,268.00	6,168.00	4,660.00	501,050.00	9,288.00	NA
7	6/11/2021		80.00		6,353.00			9,030.00	6,353.00	4,671.00	499,880.00	9,188.00	NA
8	6/11/2021		79.60		9,260.00			9,260.00	6,156.00	5,569.00	451,260.00	10,012.00	NA
9	6/11/2021		80.90		9,099.00			9,099.00	5,593.00	5,870.00	497,460.00	9,380.00	NA
10	6/12/2021		80.40		9,125.00			8,542.00	6,124.00	5,512.00	436,390.00	8,612.00	NA
11	6/12/2021		80.90		8,798.00			8,798.00	5,840.00	5,027.00	499,120.00	9,304.00	NA
12	6/12/2021		83.70		8,798.00			8,798.00	5,709.00	5,079.00	502,150.00	9,077.00	NA
13	6/13/2021		85.30		8,974.00			8,974.00	6,182.00	6,198.00	500,120.00	9,040.00	NA
14	6/13/2021		85.40		8,927.00			8,927.00	6,449.00	5,170.00	500,460.00	9,129.00	NA
15	6/13/2021		85.20		8,757.00			8,757.00	5,312.00	5,346.00	500,500.00	9,055.00	NA
16	6/13/2021		85.20		8,952.00			8,952.00	6,046.00	4,939.00	500,090.00	9,018.00	NA
17	6/14/2021		85.80		8,927.00			8,927.00	6,207.00	6,231.00	499,610.00	9,009.00	NA
18	6/14/2021		84.90		8,885.00			8,885.00	5,979.00	5,726.00	500,110.00	9,126.00	NA
19	6/14/2021		84.60		9,010.00			9,010.00	6,106.00	6,691.00	500,180.00	9,068.00	NA
20	6/14/2021		84.80		9,321.00			9,321.00	6,627.00	6,103.00	493,410.00	9,080.00	NA
21	6/14/2021		84.90		9,569.00			9,569.00	6,818.00	6,810.00	500,150.00	9,099.00	NA
22	6/15/2021		85.40		9,768.00			9,768.00	5,445.00	5,512.00	499,750.00	9,006.00	NA
23	6/15/2021		84.50		9,638.00			9,638.00	6,213.00	5,480.00	500,080.00	9,073.00	NA
24	6/15/2021		85.80		9,871.00			9,871.00	6,457.00	6,071.00	499,950.00	9,073.00	NA
25	6/16/2021		84.80		9,558.00			9,558.00	7,050.00	5,319.00	503,940.00	9,046.00	NA
26	6/16/2021		84.70		9,299.00			9,299.00	7,086.00	5,308.00	500,360.00	9,203.00	NA
27	6/16/2021		86.10		9,848.00			9,848.00	6,596.00	6,631.00	500,450.00	9,237.00	NA
28	6/16/2021		84.60		9,658.00			9,658.00	5,920.00	7,250.00	500,620.00	9,156.00	NA
29	6/16/2021		85.50		9,214.00			9,214.00	5,585.00	5,950.00	500,550.00	9,034.00	NA
30	6/17/2021		85.30		8,827.00			8,827.00	6,431.00	6,400.00	499,910.00	9,044.00	NA
31	6/17/2021		87.50		8,896.00			8,896.00	6,422.00	5,763.00	500,280.00	9,025.00	NA
32	6/17/2021		87.00		8,944.00			8,944.00	5,656.00	6,047.00	500,520.00	9,035.00	NA
33	6/17/2021		86.20		8,704.00			8,704.00	5,307.00	6,130.00	500,210.00	9,060.00	NA
34	6/17/2021		85.90		8,484.00			8,484.00	5,645.00	6,225.00	501,210.00	9,140.00	NA
35	6/18/2021		85.70		8,497.00			8,497.00	8,875.00	6,013.00	500,780.00	9,103.00	NA
36	6/18/2021		88.20		8,693.00			8,693.00	6,242.00	5,260.00	500,480.00	8,919.00	NA
37	6/18/2021		89.20		8,830.00			8,830.00	5,914.00	6,050.00	499,960.00	8,929.00	NA
38	6/18/2021		84.90		8,862.00			8,862.00	5,250.00	5,740.00	501,160.00	8,896.00	NA
39	6/19/2021		85.50		8,610.00			8,610.00	5,242.00	6,050.00	500,930.00	9,059.00	NA
40	6/19/2021		88.50		8,878.00			8,878.00	5,951.00	5,190.00	499,790.00	8,865.00	NA
41	6/19/2021		89.50		9,056.00			9,056.00	6,413.00	6,173.00	500,020.00	8,805.00	NA
42	6/19/2021		85.90		8,683.00			8,683.00	6,651.00	6,075.00	500,960.00	8,932.00	NA
43	6/19/2021		85.90		8,560.00			8,560.00	6,150.00	6,150.00	500,450.00	8,882.00	NA
44	6/20/2021		88.50		8,977.00			8,977.00	6,859.00	5,911.00	484,300.00	8,645.00	NA
45	6/20/2021		88.30		8,881.00			8,881.00	6,593.00	6,058.00	499,960.00	8,888.00	NA
46	6/20/2021		85.70		8,478.00			8,478.00	6,464.00	6,525.00	501,100.00	8,922.00	NA
47	6/21/2021		85.40		8,430.00			8,430.00	6,622.00	6,140.00	499,580.00	8,903.00	NA
48	6/21/2021		88.60		8,870.00			8,870.00	5,658.00	5,677.00	499,520.00	8,787.00	NA
49	6/21/2021		88.00		8,888.00			8,888.00	6,899.00	5,819.00	499,080.00	8,767.00	NA
50	6/22/2021		84.90		8,722.00			8,722.00	6,420.00	5,074.00	500,570.00	8,766.00	NA
51	6/22/2021		88.30		8,611.00			8,611.00	7,145.00	5,908.00	500,060.00	8,944.00	NA
52	6/22/2021		85.40		8,142.00			8,142.00	6,023.00	5,800.00	500,110.00	8,688.00	NA
53	6/23/2021		85.70		8,076.00			8,076.00	6,901.00	5,950.00	499,980.00	8,719.00	NA
54	6/23/2021		85.90		8,123.00			8,123.00	5,746.00	6,014.00	500,210.00	8,779.00	NA
55	6/23/2021		86.00		8,302.00			8,302.00	6,363.00	6,200.00	500,610.00	8,720.00	NA
56	6/23/2021		85.80		8,286.00			8,286.00	6,737.00	6,150.00	500,740.00	8,636.00	NA
57	6/24/2021		86.20		8,016.00			8,016.00	6,583.00	5,250.00	501,080.00	8,620.00	NA
58	6/24/2021		83.80		7,826.00			7,826.00	5,206.00	5,887.00	502,480.00	8,645.00	NA
59	6/24/2021		86.10		8,210.00			8,210.00	6,776.00	5,914.00	501,780.00	8,700.00	NA
60	6/24/2021		86.20		8,019.00			8,019.00	5,877.00	5,664.00	501,760.00	8,692.00	NA
61	6/24/2021		86.30		7,778.00			7,778.00	6,499.00	6,000.00	499,420.00	8,661.00	NA
62	6/25/2021		85.80		7,567.00			7,567.00	5,364.00	5,820.00	500,370.00	8,643.00	NA
63	6/25/2021		86.40		7,830.00			7,830.00	6,481.00	6,020.00	501,870.00	8,555.00	NA
64	6/25/2021		85.10		7,809.00			7,809.00	6,599.00	6,128.00	500,210.00	8,586.00	NA
65	6/25/2021		85.40		7,688.00			7,688.00	6,696.00	5,903.00	501,450.00	8,657.00	NA
66	6/25/2021		85.80		7,622.00			7,622.00	6,117.00	6,150.00	500,710.00	8,599.00	NA
67	6/25/2021		85.90		8,028.00			8,028.00	7,826.00	5,920.00	499,900.00	8,610.00	NA
68	6/26/2021		85.90		7,287.00			7,287.00	7,287.00	5,900.00	499,740.00	8,569.00	NA
69	6/26/2021		84.70		7,733.00			7,733.00	7,654.00	5,455.00	516,970.00	8,792.00	NA

API 47- 033 - 05922 Farm name James T. Gamelli et al Well number 201

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus Shale	7,503'	TVD	22,480' 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 _____ hrs

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

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
Sand/Silt/Coal	0	254	0	254	Freshwater @ 115', 380', 575', 650', Elk Lick Coal @ 106' TVD, Harlem Coal @ 155' TVD
Sand/Silt/Coal	254	406	254	406	Bakerstown Coal @ 254' TVD, Brush Creek Coal @ 310' TVD
Sand/Silt/Coal	406	505	406	505	Upper Freeport @ 406' TVD, Lower Freeport @ 442' TVD
Sand/Silt/Coal	505	1260	505	1260	Upper Kittanning @ 505' TVD, Middle Kittanning @ 588' TVD, Lower Kittanning @ 624' TVD, Clarion @ 660' TVD
Big Lime	1260	1430	1260	1430	Limestone, Saltwater @ 1,400'
Balltown	2860	2906	2860	2906	Sandstone
Elk Siltstone	4590	4638	4595	4644	Siltstone
Burkett	7006	7023	7580	7606	Shale
Tully	7023	7072	7606	7682	Limestone
Mahantango	7072	7236	7682	8035	Shale
Marcellus	7236	7289	8035	8243	Shale
Purcell	7289	7291	8243	8251	Limestone
Lower Marcellus	7291	7329	8251	22480	Shale - Gas shows through lateral
Onondaga	7329*				*Onondaga not penetrated - top estimated based on 4703305933 thickness

Please insert additional pages as applicable.

Drilling Contractor Helmerich & Payne
Address 1437 South Boulder Ave. City Tulsa State OK Zip 74119

Logging Company NA
Address _____ City _____ State _____ Zip _____

Cementing Company Universal Pressure Pumping
Address 6 Desta Drive, Suite 4400 City Midland State TX Zip 79705

Stimulating Company Stingray - Mammoth Energy Services INC
Address 14201 Caliber Drive Suite 300 City Oklahoma City State OK Zip 73134

Please insert additional pages as applicable.

Completed by Arsenal Resources Telephone 724-584-1192
Signature  Title Sr. Director of Drilling Date 9/11/2021

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

12/31/2021

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

**Well Operator's Report of
Initial Gas-Oil Ratio**

Well Operator Arsenal Resources LLC
Address 6031 Wallace Road Ext. Suite 300
Wexford, PA 15090

Designated Agent Gary Short
Address 633 West Main St
Bridgeport WV, 26330

Geological Target Formation: Marcellus Depth 7300 feet
Perforation Interval 8246-21972 feet

Guidelines for testing:

1. A minimum of gas vented or flared.
2. A 24 hour pre-flow into pipelines or tanks.
3. Uniform producing rate during the 24 hour test per test period.
4. Measurement standards as for Form WR-39, "Report of Annual Production" (see 35CSR4-15)
5. Separate Form WR-36 for each producing formation in a multiple completion.

TEST DATA

Start of Test Date 8/17/21		Time 7:00 AM		End of Test Date 8/18/21		Time 7:00 AM		Duration of Test 24 hr	
Tubing Pressure NA		Casing Pressure 1614		Separator Pressure 924		Separator Temperature 79			
Oil Production During Test BBLs			Gas Production During Test MCF			Water Production During Test BBls -Salinity			
Oil Gravity API		Producing Method (flowing, pumping, gas lift etc.) Flowing							

GAS PRODUCTION

Measurement Method Flange Tap <input checked="" type="checkbox"/> Pipe Tap <input type="checkbox"/> L-10 <input type="checkbox"/>			Positive Choke <input type="checkbox"/>		
			Positive flow prover <input checked="" type="checkbox"/>		
Orifice diameter		Pipe Diameter (inside)		Nominal Choke Size inches 48/64	
Differential Pressure range		Max. Static pressure range		Prover and Orifice diameter - inches 3.826" run with 2" orifice	
Differential			Static		
Gas Gravity (Air = 1.0) Measured Estimated		Flowing Temperature 79		Gas Temperature 60	
24 Hour Coefficient		24 Hour coefficient pressure PSIA			

TEST RESULTS

Daily Oil 0		Daily Water 883		Daily Gas 14,230		Gas-Oil Ratio NA	
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Arsenal Resources LLC
Well Operator
BY R. Schweitzer
ITS: Responsible Person - Sr. Director of Drilling

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/9/2021
Job End Date:	6/26/2021
State:	West Virginia
County:	Harrison
API Number:	47-033-05922-00-00
Operator Name:	Arsenal Resources
Well Name and Number:	Gamelli 201
Latitude:	39.26135000
Longitude:	-80.20432000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,448
Total Base Water Volume (gal):	26,901,084
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Arsenal Resources	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.50230	None
Sand (40/70 Proppant)	US Silica	Proppant	Silica Substrate	14808-60-7	100.00000	10.32896	None
Sand (100 Mesh Proppant)	US Silica	Proppant	Silica Substrate	14808-60-7	100.00000	2.92933	None
Hydrochloric Acid (28%)	Dover	Acidizing	Water	7732-18-5	64.00000	0.08346	None
			Hydrochloric Acid (Hydrogen Chloride)	7732-18-5	36.00000	0.04695	None
Chemstream 9750 Cationic	Chemstream	Friction Reducer	Distillates (petroleum), hydrotreated light	64742-47-8	25.00000	0.01951	None
			Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	5.00000	0.00390	None
Stimstream SC 398	Chemstream	Scale Inhibitor	Non-hazardous substances	Proprietary	90.00000	0.01587	None

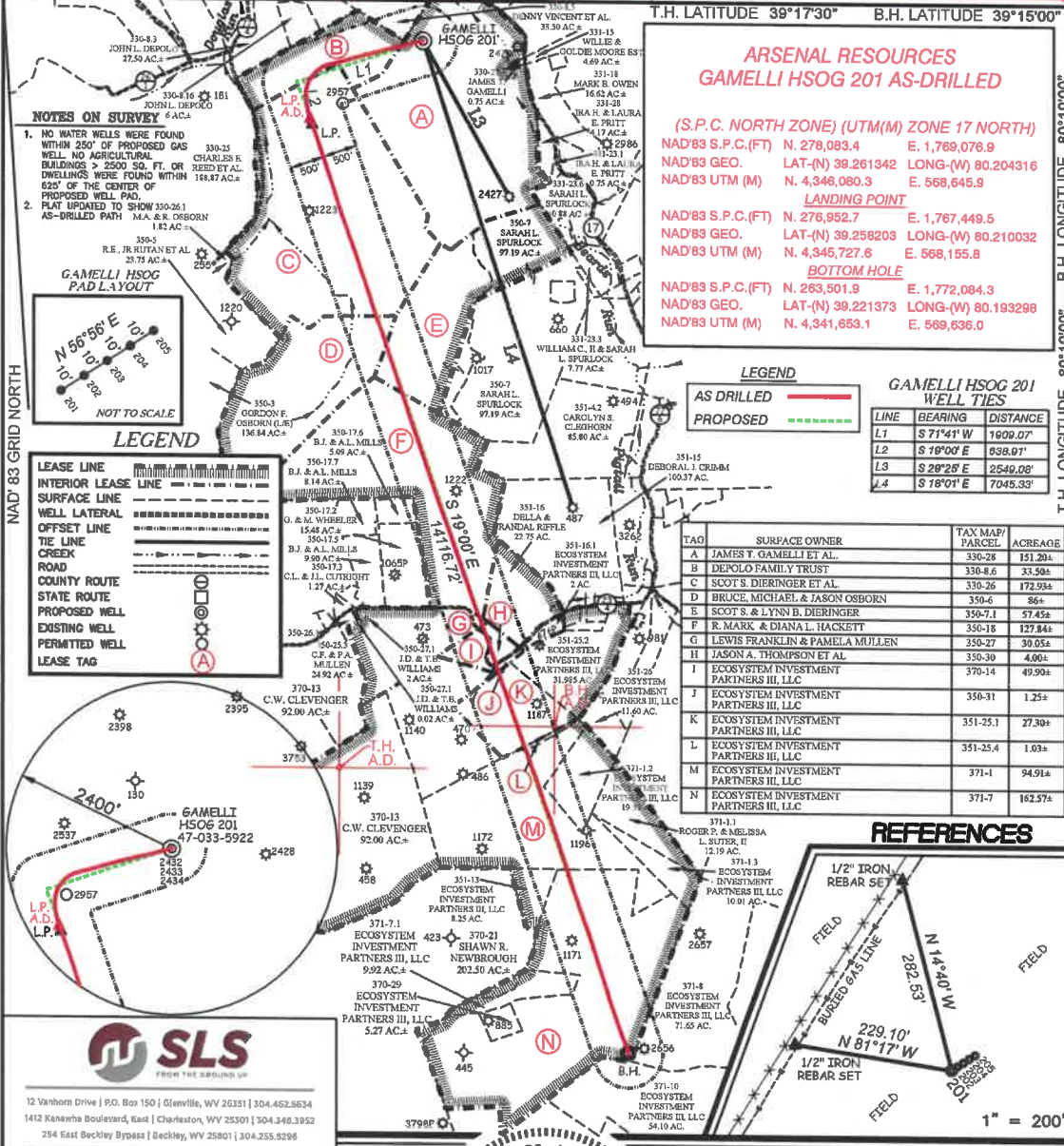
			Bis(HexaMethylene Triamine Penta(Methylene Phosphonic Acid) (BHMT)	34690-00-1	10.00000	0.00176	None
Clearall 268	Chemstream	Biocide					
			Non-hazardous substances	Proprietary	90.00000	0.01148	None
			Glutaraldehyde	111-30-8	20.00000	0.00255	None
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00038	None
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00038	None
NEFE-180	Dover	Corrosion Inhibitor/Iron Control					
			Acetic acid	64-19-7	89.00000	0.00051	None
			Methanol	67-56-1	40.00000	0.00023	None
			2-Ethylhexanol	104-76-7	10.00000	0.00006	None
			Fatty acids, tall oil	61790-12-3	5.00000	0.00003	None
			Alcohols, C14-15, ethoxylated	68951-67-7	5.00000	0.00003	None
			2-Propyn-1-ol	107-19-7	5.00000	0.00003	None
			Coconut oil acid diethanolamine	68603-42-9	5.00000	0.00003	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	64.00000	0.08346	
			Non-hazardous substances	Proprietary	90.00000	0.01587	
			Non-hazardous substances	Proprietary	90.00000	0.01148	
			Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	5.00000	0.00390	
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00038	
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00038	
			Methanol	67-56-1	40.00000	0.00023	
			2-Ethylhexanol	104-76-7	10.00000	0.00006	
			Alcohols, C14-15, ethoxylated	68951-67-7	5.00000	0.00003	
			2-Propyn-1-ol	107-19-7	5.00000	0.00003	
			Coconut oil acid diethanolamine	68603-42-9	5.00000	0.00003	
			Fatty acids, tall oil	61790-12-3	5.00000	0.00003	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

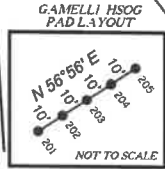
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- PLAT UPDATED TO SHOW 330-26.1 M.A. & R. OSBORN 1.82 AC.



LEGEND

LEASE LINE	---
INTERIOR LEASE LINE	---
SURFACE LINE	---
WELL LATERAL	---
OFFSET LINE	---
THE LINE	---
CREEK	---
ROAD	---
COUNTY ROUTE	---
STATE ROUTE	---
PROPOSED WELL	○
EXISTING WELL	○
PERMITTED WELL	○
LEASE TAG	○



**ARSENAL RESOURCES
GAMELLI HSO6 201 AS-DRILLED**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 278,083.4	E. 1,769,076.9
NAD'83 GEO.	LAT-(N) 39.251342	LONG-(W) 80.204316
NAD'83 UTM (M)	N. 4,346,080.3	E. 568,645.9

LANDING POINT

NAD'83 S.P.C.(FT)	N. 276,952.7	E. 1,767,449.5
NAD'83 GEO.	LAT-(N) 39.256203	LONG-(W) 80.210032
NAD'83 UTM (M)	N. 4,345,727.6	E. 568,155.8

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 263,501.9	E. 1,772,084.3
NAD'83 GEO.	LAT-(N) 39.221373	LONG-(W) 80.193298
NAD'83 UTM (M)	N. 4,341,653.1	E. 569,636.0

LEGEND

AS DRILLED	---
PROPOSED	---

GAMELLI HSO6 201 WELL TIES

LINE	BEARING	DISTANCE
L1	S 71°41' W	1909.07'
L2	S 19°00' E	638.01'
L3	S 20°28' E	2549.08'
L4	S 18°01' E	7045.33'

TAG	SURFACE OWNER	TAX MAP/PARCEL	ACREAGE
A	JAMES T. GAMELLI ET AL.	330-28	151.20±
B	DEPOLO FAMILY TRUST	330-8	33.50±
C	SCOT S. DIERINGER ET AL.	330-26	172.93±
D	BRUCE, MICHAEL & JASON OSBORN	350-6	86±
E	SCOT S. & LYNN B. DIERINGER	350-7	57.45±
F	R. MARK & DIANA L. HACKETT	350-18	127.84±
G	LEWIS FRANKLIN & PAMELA MULLEN	350-7	30.05±
H	JASON A. THOMPSON ET AL.	350-30	4.00±
I	ECOSYSTEM INVESTMENT PARTNERS III, LLC	370-14	49.90±
J	ECOSYSTEM INVESTMENT PARTNERS III, LLC	350-31	1.25±
K	ECOSYSTEM INVESTMENT PARTNERS III, LLC	351-25.1	27.30±
L	ECOSYSTEM INVESTMENT PARTNERS III, LLC	351-25.4	1.03±
M	ECOSYSTEM INVESTMENT PARTNERS III, LLC	371-1	94.91±
N	ECOSYSTEM INVESTMENT PARTNERS III, LLC	371-7	162.57±

REFERENCES



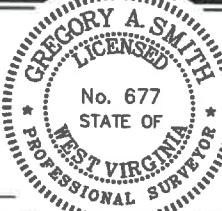
SLS
FROM THE GROUND UP

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.6634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.348.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296

sls.com

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 PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S.
849 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE SEPTEMBER 17, 20 21

REVISED _____
OPERATORS WELL NO. GAMELLI HSO6 201
API WELL NO. 47 - 033 - 5922
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8597P201AD.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION EXISTING: 1,132.00' / PROPOSED: 1,140.50' WATERSHED BEARDS RUN
DISTRICT SIMPSON COUNTY HARRISON QUADRANGLE ROSEMONT 7.5'

SURFACE OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±
ROYALTY OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH 22,198.1' TMD / 7,317' TVD

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT GARY SHORT
ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 633 WEST MAIN ST.
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

T.H. LONGITUDE 80°10'00" B.H. LONGITUDE 80°10'00" 10,427' B.H. A.D. 11,045' T.H. A.D.

**ARSENAL RESOURCES
GAMELLI HSOG 201 AS-DRILLED**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD83 S.P.C.(FT)	N. 278,083.4	E. 1,769,076.9
NAD83 GEO	LAT-(N) 39.261342	LONG-(W) 80.204316
NAD83 UTM (M)	N. 4,346,080.3	E. 568,645.9

LANDING POINT

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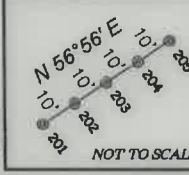
BOTTOM HOLE

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NOTES ON SURVEY

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- PLAT UPDATED TO SHOW 330-26.1 AS-DRILLED PATH M.A. & R. OSBORN 182 AC.±

GAMELLI HSOG PAD LAYOUT



LEGEND

- LEASE LINE
- INTERIOR LEASE LINE
- SURFACE LEASE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- STATE ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- LEASE TAG

LEGEND

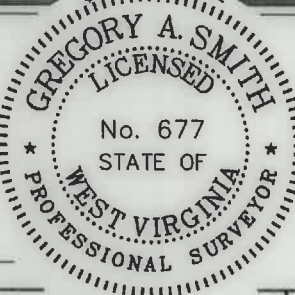
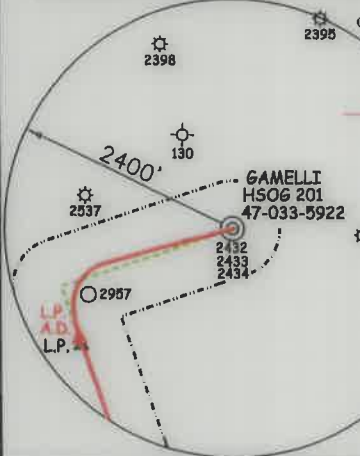
- AS DRILLED
- PROPOSED

GAMELLI HSOG 201 WELL TIES

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P.S. 849 *Gregory A. Smith*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE SEPTEMBER 17, 20 21
 REVISED _____
 OPERATORS WELL NO. GAMELLI HSOG 201
 API WELL NO. 47 - 033 - 5922
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8597P201AD.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION X STORAGE DEEP SHALLOW X

LOCATION: ELEVATION EXISTING: 1,132.00' / PROPOSED: 1,140.50' WATERSHED BEARDS RUN
 DISTRICT SIMPSON COUNTY HARRISON QUADRANGLE ROSEMONT 7.5'
 SURFACE OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±
 ROYALTY OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±
 PROPOSED WORK: LEASE NO. 12/31/2021
 DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
 PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 22,198.1' TMD / 7,317' TVD

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT GARY SHORT
 ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 633 WEST MAIN ST.
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

B.H. LONGITUDE 80°10'00" COUNTY NAME PERMIT

ARSENAL RESOURCES GAMELLI HSOG 201 AS-DRILLED

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

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 NAD'83 UTM (M) N. 4,346,080.3 E. 568,645.9

LANDING POINT

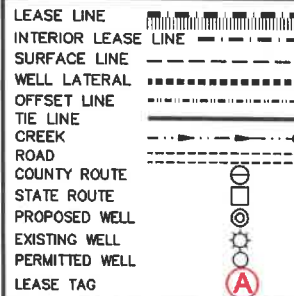
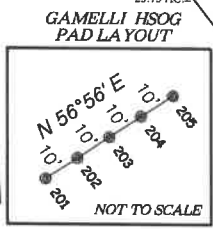
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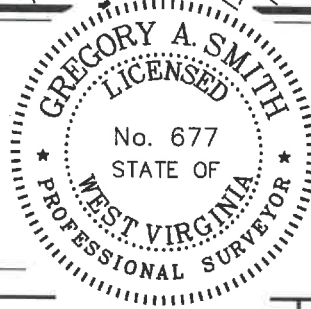
SLS
FROM THE GROUND UP

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296

sllwv.com

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P.S. 849 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE SEPTEMBER 17 20 21

REVISED _____

OPERATORS WELL NO. GAMELLI HSOG 201

API WELL NO. 47 — 033 — 5922

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8597P201AD.dwg

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ___ GAS X INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION: ELEVATION EXISTING: 1,132.00' / PROPOSED: 1,140.50' WATERSHED BEARDS RUN

DISTRICT SIMPSON COUNTY HARRISON QUADRANGLE ROSEMONT 7.5'

SURFACE OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±

ROYALTY OWNER JAMES T. GAMELLI ET AL. ACREAGE 151.20±

PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 22,198.1' TMD / 7,317' TVD

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT GARY SHORT

ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 633 WEST MAIN ST.
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

COUNTY NAME PERMIT