

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

API 47-033-05915 County Harrison District Clark
Quad Clarksburg Pad Name D'Annunzio HCCP7 Field/Pool Name _____
Farm name A&B Management, LLC Well Number 206
Operator (as registered with the OOG) Arsenal Resources
Address 6031 Wallace Road Ext., Ste. 300 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 4345286.918 Easting 557272.001
Landing Point of Curve Northing 4345554.03 Easting 557693.52
Bottom Hole Northing 4343257.87 Easting 558506.59

Elevation (ft) 1117.60 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 Muds

Date permit issued 3/7/2018 Date drilling commenced 1/2/2019 Date drilling ceased 1/13/2019
Date completion activities began 2/5/2019 Date completion activities ceased 4/3/2019
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

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Freshwater depth(s) ft 190', 310', 445', 485' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2500' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NA Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Environmental Protection

Reviewed

Reviewed by: 24C

SDW
8/22/19

API 47-033 - 05915 Farm name A&B Management, LLC Well number 206

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"	24"	80'	New	41.0	NA	Y
Surface	17 1/2"	13 3/8"	552'GL	New	54.50	120'	Y
Coal	NA	NA	NA	NA	NA	NA	NA
Intermediate 1	12 1/4"	9 5/8"	2,548'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"	16,059'GL	New	20.00	NA	N
Tubing	NA	NA	NA	NA	NA	NA	NA
Packer type and depth set		NA					

Comment Details Cement to surface on Conductor, Surface, and Intermediate. Top of production cement at 1,150 (GL)ft.

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	Class A	450	15.60	1.20	540	Surface	8+
Surface	Class A	540	15.60	1.20	648	Surface	8+
Coal	NA	NA	NA	NA	NA	NA	NA
Intermediate 1	Class A	470/375	15.20/15.60	1.26/1.30	592.2/487.50	Surface	8+
Intermediate 2	NA	NA	NA	NA	NA	NA	NA
Intermediate 3	NA	NA	NA	NA	NA	NA	NA
Production	Class A	960/1780	13.80/15.00	1.35/1.29	1,296/2,296.2	1,150(GL)	8+
Tubing	NA	NA	NA	NA	NA	NA	NA

Drillers TD (ft) 16,059 (GL) Loggers TD (ft) NA

Deepest formation penetrated Marcellus Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) KOP of Curve at 6,886 (GL)ft, No Plug

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 24" - No centralizers 13 3/8" - one bow spring centralizer on every other joint 9 5/8" - one bow spring centralizer every third joint from TD to surface 5 1/2" - 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 2,650'; there will be no centralizers from 2,650 to surface.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS 40 Stages and 1,600 perforations RECEIVED Office of Oil and Gas

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS NA MAY 9 2019

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED NA WV Department of Environmental Protection

Perforation Record					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	No. of Perforations	Formations (s)
40	2/27/2019 2:00	8,014.00	8,176.00	40	Marcellus Shale
39	2/26/2019 18:00	8,214.00	8,376.00	40	Marcellus Shale
38	2/26/2019 10:30	8,414.00	8,576.00	40	Marcellus Shale
37	2/26/2019 3:30	8,614.00	8,776.00	40	Marcellus Shale
36	2/25/2019 19:00	8,814.00	8,976.00	40	Marcellus Shale
35	2/25/2019 11:00	9,014.00	9,176.00	40	Marcellus Shale
34	2/25/2019 4:30	9,214.00	9,376.00	40	Marcellus Shale
33	2/24/2019 21:30	9,414.00	9,576.00	40	Marcellus Shale
32	2/24/2019 14:30	9,614.00	9,776.00	40	Marcellus Shale
31	2/24/2019 6:00	9,814.00	9,976.00	40	Marcellus Shale
30	2/23/2019 21:45	10,014.00	10,176.00	40	Marcellus Shale
29	2/23/2019 14:00	10,214.00	10,376.00	40	Marcellus Shale
28	2/23/2019 6:00	10,414.00	10,576.00	40	Marcellus Shale
27	2/22/2019 23:30	10,614.00	10,776.00	40	Marcellus Shale
26	2/22/2019 18:00	10,814.00	10,976.00	40	Marcellus Shale
25	2/22/2019 10:15	11,014.00	11,176.00	40	Marcellus Shale
24	2/22/2019 4:30	11,214.00	11,376.00	40	Marcellus Shale
23	2/21/2019 4:30	11,414.00	11,576.00	40	Marcellus Shale
22	2/20/2019 22:30	11,614.00	11,776.00	40	Marcellus Shale
21	2/20/2019 13:30	11,814.00	11,976.00	40	Marcellus Shale
20	2/20/2019 4:00	12,014.00	12,176.00	40	Marcellus Shale
19	2/19/2019 21:00	12,214.00	12,376.00	40	Marcellus Shale
18	2/19/2019 15:00	12,414.00	12,576.00	40	Marcellus Shale
17	2/19/2019 8:45	12,614.00	12,776.00	40	Marcellus Shale
16	2/19/2019 2:45	12,814.00	12,976.00	40	Marcellus Shale
15	2/18/2019 21:00	13,014.00	13,176.00	40	Marcellus Shale
14	2/18/2019 12:30	13,214.00	13,376.00	40	Marcellus Shale
13	2/18/2019 4:30	13,414.00	13,576.00	40	Marcellus Shale
12	2/18/2019 0:00	13,614.00	13,776.00	40	Marcellus Shale
11	2/17/2019 9:00	13,814.00	13,976.00	40	Marcellus Shale
10	2/15/2019 21:15	14,014.00	14,176.00	40	Marcellus Shale
9	2/15/2019 12:45	14,214.00	14,376.00	40	Marcellus Shale
8	2/15/2019 1:45	14,414.00	14,576.00	40	Marcellus Shale
7	2/14/2019 20:00	14,614.00	14,776.00	40	Marcellus Shale
6	2/14/2019 7:30	14,814.00	14,976.00	40	Marcellus Shale
5	2/14/2019 0:30	15,014.00	15,176.00	40	Marcellus Shale
4	2/13/2019 19:00	15,214.00	15,376.00	40	Marcellus Shale
3	2/13/2019 12:30	15,414.00	15,576.00	40	Marcellus Shale
2	2/13/2019 4:30	15,614.00	15,776.00	40	Marcellus Shale
1	2/9/2019 2:00	15,814.00	15,976.00	40	Marcellus Shale

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STIMULATION INFORMATION PER STAGE							
Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg. Treatment Pressure	Max Breakdown Pressure (PSI)	ISIP(psi)	Amount Proppant (lbs)	Amount Water (bbls)
1	2/13/2019 0:53	47	8,672	8,549	4,384	178,260	9,468
2	2/13/2019 10:20	71	8,779	7,554	5,346	372,870	9,930
3	2/13/2019 16:09	76	8,774	6,616	5,004	418,530	9,759
4	2/13/2019 21:40	79	8,372	7,263	5,405	473,500	9,423
5	2/14/2019 3:04	79	8,329	6,616	5,457	500,560	9,431
6	2/14/2019 12:57	78	8,117	7,263	5,474	512,335	9,545
7	2/18/2019 21:46	80	8,373	7,485	4,967	503,720	9,536
8	2/15/2019 10:37	83	8,400	6,837	6,625	515,071	9,441
9	2/15/2019 16:45	83	8,370	7,264	5,758	496,700	9,121
10	2/16/2019 0:32	81	8,178	6,715	5,162	503,460	9,265
11	2/17/2019 17:12	83	8,043	7,400	5,375	499,840	9,550
12	2/18/2019 1:59	80	8,245	7,160	4,701	500,740	9,823
13	2/18/2019 10:07	80	8,044	5,169	5,169	533,392	9,664
14	2/18/2019 18:42	84	8,146	7,689	5,518	500,000	9,227
15	2/19/2019 0:34	83	8,150	7,147	4,610	500,480	9,104
16	2/19/2019 6:30	85	8,098	7,338	5,532	499,380	9,393
17	2/19/2019 12:30	85	8,239	7,480	4,176	500,020	9,346
18	2/19/2019 18:33	81	8,213	7,355	4,323	454,280	9,877
19	2/20/2019 2:03	84	8,102	7,561	4,889	500,300	8,908
20	2/20/2019 8:13	81	8,176	8,349	5,903	158,680	9,831
21	2/20/2019 20:17	84	8,055	7,248	5,930	500,760	8,986
22	2/21/2019 2:05	82	8,247	9,499	4,326	440,160	8,780
23	2/22/2019 1:55	84	8,237	7,902	4,425	500,040	9,815
24	2/22/2019 8:01	83	8,213	7,333	5,619	500,040	9,387
25	2/22/2019 16:02	84	7,970	7,827	4,976	501,600	9,223
26	2/22/2019 21:27	84	8,097	7,719	4,527	500,180	9,239
27	2/23/2019 3:43	84	8,210	7,127	6,628	500,660	9,005
28	2/23/2019 19:00	81	7,970	7,648	5,176	499,941	9,013
29	2/23/2019 19:32	84	7,812	7,124	4,898	500,900	9,015
30	2/24/2019 2:33	81	8,156	7,355	4,686	500,720	9,670
31	2/24/2019 12:32	86	7,726	7,139	5,269	500,700	9,024
32	2/24/2019 19:08	84	7,715	7,273	4,486	500,120	9,082
33	2/25/2019 2:01	85	7,817	7,479	4,989	400,260	7,191
34	2/25/2019 8:52	78	7,850	7,113	6,547	400,480	9,151
35	2/25/2019 16:32	80	7,867	7,350	5,759	400,980	7,401
36	2/26/2019 1:21	81	7,698	7,908	5,191	402,880	8,430
37	2/26/2019 8:33	85	7,175	7,654	6,894	399,900	7,294
38	2/26/2019 14:56	80	7,514	7,273	5,395	402,920	8,768
39	2/26/2019 23:54	81	7,692	6,887	5,483	400,760	8,951
40	2/27/2019 6:19	83	7,638	7,495	4,942	400,200	7,218

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API 47- 033 - 05915 Farm name A&B Management, LLC Well number 206

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus Shale	7,282'	TVD	16,069' 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 DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
Sand/Silt	0	1525	0	1534	Freshwater @ 190', 310', 445', 485'
Big Lime	1525	1730	1534	1744	Limestone - Saltwater @ 2500'
Balltown	3134	3185	3234	3293	Sandstone
Elk Siltstone	4864	4914	5170	5226	Siltstone
Burkett	6964	6985	7387	7413	Shale
Tully	6985	7042	7413	7487	Limestone
Mahantango	7042	7166	7487	7687	Shale
Marcellus	7166	7228	7687	7836	Shale
Purcell	7228	7230	7836	7842	Limestone
Lower Marcellus	7230	7262*	7842	16069	*
Onondaga	7262*				*Onondaga not penetrated - top estimated based on 4703305741 thickness

Please insert additional pages as applicable.

Drilling Contractor H&P
Address 1437 South Boulder Ave. City Tulsa State OK Zip 74119

Logging Company NA
Address _____ City _____ State _____ Zip _____

Cementing Company C&J Energy Services, Inc.
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company ProFrac
Address 333 Shops Boulevard City Willow Park State TX Zip 76087

Please insert additional pages as applicable.

Completed by Arsenal Resources Telephone 304-629-6309
Signature [Signature] Title PERMITTING MANAGER Date 5-6-19

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

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/14/2019
Job End Date:	2/27/2019
State:	West Virginia
County:	Harrison
API Number:	47-033-05915-00-00
Operator Name:	Arsenal Resources
Well Name and Number:	D'Annunzio HCCP-7 206
Latitude:	39.25503610
Longitude:	-80.33623889
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,268
Total Base Water Volume (gal):	15,451,398
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
Sand (40/70 White Proppant)	ProFrac	Proppant					
Water	Arsenal Resources	Carrier/Base Fluid	Silica Substrate	14808-60-7	100.00000	48.88465	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Water	7732-18-5	100.00000	24.20833	None
Sand (30/50 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	18.96521	None
Hydrochloric Acid (7.5%)	Cooper	Acidizing	Silica Substrate	14808-60-7	100.00000	7.76855	None
ProSlick 710	ProFrac	Friction Reducer	Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	36.00000	0.04888	None
	Office of Oil and Gas		copolymer of 2-propenamide	69418-26-4	30.00000	0.00725	None
	WV Department of Environmental Protection		Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.00483	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	8.00000	0.00193	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00048	None

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Hydrochloric Acid (15%)	Cooper	Acidizing	Water	7732-18-5	85.00000	0.00677	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	36.00000	0.00287	None
Plexicide G15	Chemplex Solvay Group	Glut/Quat Combo Biocide	Glutaraldehyde	111-30-8	12.40000	0.00049	None
			Didecyl dimethyl ammonium chloride	7173-51-5	2.00000	0.00008	None
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	88424-85-1	1.30000	0.00005	None
			Ethanol	64-17-5	1.00000	0.00004	None
ProFE 105	ProFrac	Iron Control	Citric Acid	77-92-9	100.00000	0.00053	None
ProChek 100	ProFrac	Scale Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00018	None
ProHib 100	ProFrac	Acid Inhibitor	2-Propyn-1-ol compound w/ methylloxirane	38172-91-7	15.00000	0.00007	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	85.00000	0.00677	
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.00483	
			Ammonium chloride ((NH4)Cl)	12125-02-9	8.00000	0.00193	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00048	
			Didecyl dimethyl ammonium chloride	7173-51-5	2.00000	0.00008	
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	88424-85-1	1.30000	0.00005	
			Ethanol	64-17-5	1.00000	0.00004	

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

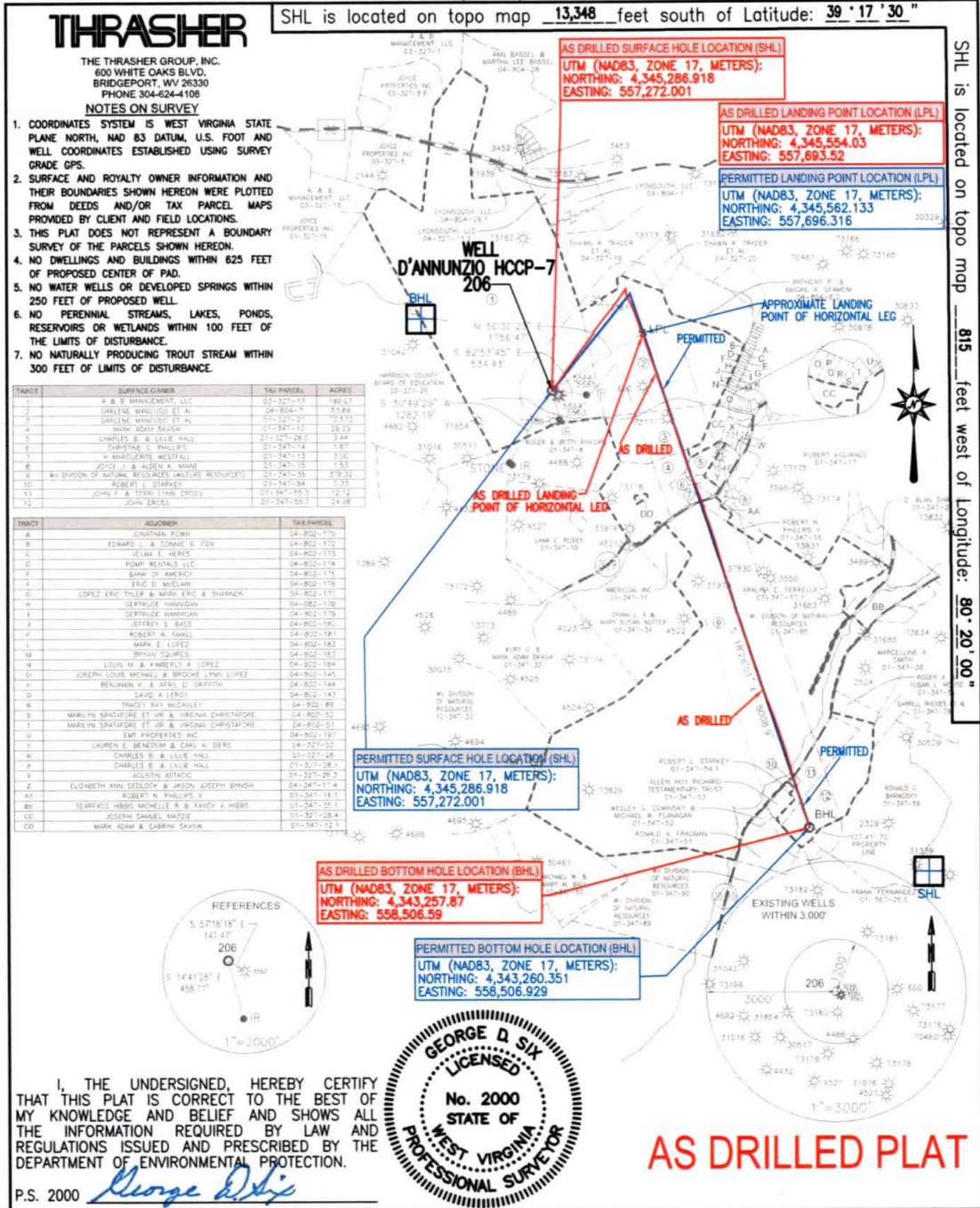
** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

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BHL is located on topo map 4,852 feet south of Latitude: 39° 15' 00"

SHL is located on topo map 13,348 feet south of Latitude: 39° 17' 30"



THRASHER
THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

- NOTES ON SURVEY**
- COORDINATES SYSTEM IS WEST VIRGINIA STATE PLANE NORTH, NAD 83 DATUM, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
 - SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
 - THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 - NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
 - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
 - NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
 - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

TRACT	SURFACE OWNER	TAX PARCEL	ACRES
1	A & B MANAGEMENT, LLC	03-327-11	189.63
2	DARLENE WANDUSS ET AL	04-804-Y	83.89
3	DARLENE WANDUSS ET AL	01-327-20	70.53
4	MARY ADOLF SKAZIN	01-347-12	23.29
5	CHARLES E & LILLIE HALL	01-327-28-2	3.44
6	CHRISTINE C. PHILLIPS	01-347-14	7.89
7	MARGUERITE WESTFALL	01-347-13	3.26
8	JONAS J. & ALLEN H. WARD	01-347-18	1.83
9	WY DIVISION OF NATURAL RESOURCES	01-347-30	378.30
10	ROBERT L. STARVEY	01-347-34	7.37
11	JOHN F. & TERRY TRAM CROSS	01-347-55-1	24.98
12	JOHN CROSS	01-347-55-1	24.98

TRACT	ADJOINER	TAX PARCEL
A	JOSEPH B. BURN	04-802-170
B	EDWARD L. & CONNIE S. FOX	04-802-172
C	WELM E. HENRY	04-802-173
D	PUMP WELLS, LLC	04-802-174
E	BANK OF AMERICA	04-802-175
F	ERIC D. McLEAN	04-802-176
G	LOPEZ ERIC TYLER & MARY ERIC & SHANON	04-802-177
H	DETRUDE HANSHAM	04-802-178
I	JEFFREY S. BARS	04-802-180
J	ROBERT A. SMALL	04-802-181
K	MARK E. LOPEZ	04-802-182
L	BRITAY SQUARES	04-802-183
M	LEON W. & MARGIE B. LOPEZ	04-802-184
N	JOSEPH LOUIS MICHAEL & BRODIE LYNN LOPEZ	04-802-185
O	BENJAMIN K. & APRIL D. GRIFFIN	04-802-186
P	DAVID A. LENDI	04-802-187
Q	TRACY BEY McCOY	04-802-188
R	MARLYN SPRADZURE ET VIR & VIRGINIA CHRISTOPHE	04-802-189
S	MARLYN SPRADZURE ET VIR & VIRGINIA CHRISTOPHE	04-802-190
T	EMF PROPERTIES INC	04-802-191
V	LAUREN E. BENEVIDI & CARL A. SERIO	04-802-192
W	CHARLES B. & LILLIE HALL	01-327-28
X	CHARLES E. & LILLIE HALL	01-327-28-2
Y	JUSTIN METZGER	01-327-28-3
Z	ELDMETH ANN SEEDOCK & JASON JOSEPH BRANSH	04-347-17-4
AA	ROBERT N. PHILLIPS II	01-347-18-1
BB	SEBRACE HIBBS McCELLE & RANDY A HIBBS	01-347-18-2
CC	JOSEPH SAMUEL MATZIE	01-347-18-4
DD	MARK KEAM & CARRIN SKAZIN	01-347-12-1

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2000 *George D. Six*



<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	<p>MINIMUM DEGREE OF ACCURACY: <u>1/200</u></p> <p>PROVEN SOURCE OF ELEVATION: <u>SURVEY GRADE GPS (NAVD 88, US FT)</u></p>	<p>D'ANNUNZIO HCCP-7</p> <p>OPERATOR'S WELL #: <u>206</u></p> <p>API WELL #: <u>47</u> <u>33</u> <u>05915</u></p> <p>STATE COUNTY PERMIT</p>
	<p>WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/></p> <p>WATERSHED: <u>WEST FORK</u> ELEVATION: <u>1117.8' (DESIGN)</u></p> <p>DISTRICT: <u>CLARK-CLARKSBURG CORP</u> COUNTY: <u>HARRISON</u> QUADRANGLE: <u>CLARKSBURG/MOUNT CLARE</u></p> <p>SURFACE OWNER: <u>A. & B. MANAGEMENT, LLC.</u> ACREAGE: <u>± 199.03</u></p> <p>OIL & GAS ROYALTY OWNER: <u>A. & B. MANAGEMENT, LLC.</u> ACREAGE: <u>± 199.03</u></p> <p>DRILL <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/></p> <p>CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) <u>AS-DRILLED PLAT</u></p> <p>TARGET FORMATION: <u>MARCELLUS</u> ESTIMATED DEPTH: <u>7,249 TVD 16,031 TMD</u></p>	
<p>WELL OPERATOR: <u>ARSENAL RESOURCES</u> DESIGNATED AGENT: <u>WILLIAM VEIGEL</u></p> <p>ADDRESS: <u>6031 WALLACE ROAD EXTENSION #300</u> ADDRESS: <u>65 PROFESSIONAL PLACE, SUITE 200</u></p> <p>CITY: <u>WEXFORD</u> STATE: <u>PA</u> ZIP CODE: <u>15090</u> CITY: <u>BRIDGEPORT</u> STATE: <u>WV</u> ZIP CODE: <u>26330</u></p>	<p>LEGEND:</p> <ul style="list-style-type: none"> ○ PROPOSED SURFACE HOLE ○ EXISTING / PRODUING WELLHEAD LPLx LANDING POINT LOCATION ⊗ EXISTING WATER WELL ⊙ EXISTING SPRING --- SURVEYED BOUNDARY --- DRILLING UNIT --- LEASE BOUNDARY --- PROPOSED PATH --- AS DRILLED PATH --- 500' BUFFER 	<p>REVISIONS:</p> <p>△ REVISED XXX MM-DD-YYYY</p> <p>DATE: <u>05-03-2019</u></p> <p>FILE NO: <u>XXXXX</u></p> <p>DRAWN BY: <u>R.DOERR</u></p> <p>SCALE: <u>1" = 2000'</u></p> <p>DRAWING NO: <u>030-3250</u></p> <p>WELL LOCATION PLAT 3</p>

BHL is located on topo map 8,613 feet west of Longitude: 80° 17' 30"

SHL is located on topo map 815 feet west of Longitude: 80° 20' 00"

WR-36
Rev. 5/08

Date: 4/22/19
Operators Well Number: D'Annunzio HCCP 7 206
API Well No: 47-033 - 05915

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 William Veigel
Address 65 Professional Place, Suite 200
Bridgeport, WV 26330

Geological Target Formation: Marcellus Depth 7687 feet
Perforation Interval 8014-15976 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 4/1/19	Time 08:00 AM	End of Test Date 4/2/19	Time 08:00 AM	Duration of Test 24 hrs
Tubing Pressure NA	Casing Pressure 1319	Separator Pressure 503	Separator Temperature 79	
Oil Production During Test 0	Gas Production During Test 10,610	Water Production During Test 896		
BBLs	MCF	BBLs	79,160	-Salinity
Oil Gravity NA	Producing Method (flowing, pumping, gas lift etc.) Flowing			
API				

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 42/64"
Differential Pressure range	Max. Static pressure range	Prover and Orifice diameter - inches 3.826" run with 2.75" orifice
Differential 85.5		Static
Gas Gravity (Air = 1.0) Measured .5734 Estimated	Flowing Temperature 79	Gas Temperature 60
24 Hour Coefficient	24 Hour coefficient pressure PSIA	

TEST RESULTS

Daily Oil 0	Daily Water 896 BBLs	Daily Gas 10,610 MCF	Gas-Oil Ratio NA
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Arsenal Resources LLC

Well Operator

BY _____

ITS: Designated Agent _____

BHL is located on topo map 4,852 feet south of Latitude: 39° 15' 00"

SHL is located on topo map 13,348 feet south of Latitude: 39° 17' 30"

THRASHER

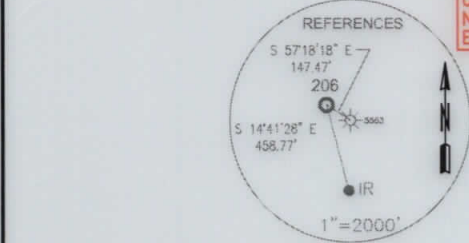
THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

NOTES ON SURVEY

- COORDINATES SYSTEM IS WEST VIRGINIA STATE PLANE NORTH, NAD 83 DATUM, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

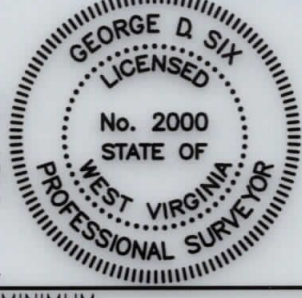
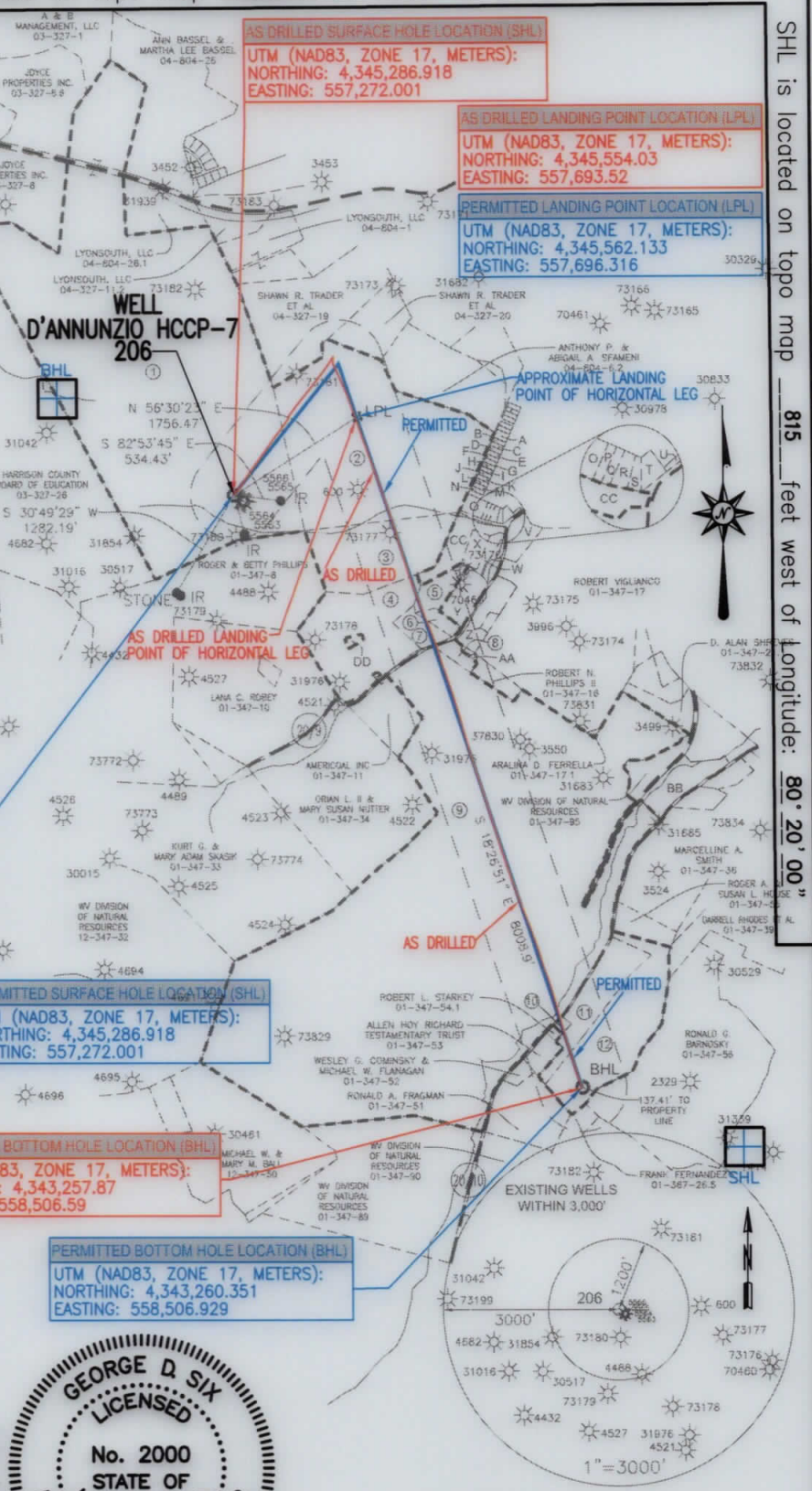
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
1	A & B MANAGEMENT, LLC	03-327-17	199.03
2	DARLENE MANGUSO ET AL	04-804-7	53.89
3	DARLENE MANGUSO ET AL	01-327-27	72.573
4	MARK ADAM SKASIS	01-347-12	29.25
5	CHARLES B. & LILLIE HALL	01-327-26.5	3.44
6	CHRISTINE C. PHILLIPS	01-347-14	1.67
7	H MARGUERITE WESTFALL	01-347-13	3.60
8	JOYCE & ALDEN F. MARINE	01-347-15	1.53
9	WV DIVISION OF NATURAL RESOURCES (WILDLIFE RESOURCES)	01-347-35	378.32
10	ROBERT L. STARKEY	01-347-54	0.33
11	JOHN F. & TERRI LYNN CROSS	01-347-55.3	12.12
12	JOHN CROSS	01-347-55.1	24.96

TRACT	ADJOINER	TAX PARCEL
A	JONATHAN ROWH	04-802-170
B	EDWARD L. & CONNIE S. COX	04-802-172
C	VELMA E. HERES	04-802-173
D	PUMP RENTALS LLC	04-802-174
E	BANK OF AMERICA	04-802-175
F	ERIC D. MCKLAIN	04-802-176
G	LOPEZ ERIC TYLER & MARK ERIC & SHANNON	04-802-177
H	GERTRUDE HANNIGAN	04-802-178
I	GERTRUDE HANNIGAN	04-802-179
J	JEFFREY S. BASS	04-802-180
K	ROBERT W. SMALL	04-802-181
L	MARK E. LOPEZ	04-802-182
M	BRYAN SQUIRES	04-802-183
N	LOUIS M. & KIMBERLY A. LOPEZ	04-802-184
O	JOSEPH LOUIS MICHAEL & BRODENE LYNN LOPEZ	04-802-145
P	BENJAMIN K. & APRIL D. GRIFFITH	04-802-144
Q	DAVID A. LEROY	04-802-143
R	TRACEY RAY McCAULEY	04-802-89
S	MARILYN SPATAFORE ET VIR & VIRGINIA CHRISTAFORE	04-802-52
T	MARILYN SPATAFORE ET VIR & VIRGINIA CHRISTAFORE	04-802-51
U	EMT PROPERTIES INC.	04-802-197
V	LAUREN E. BENEDUM & CARL A. SIERS	04-327-53
W	CHARLES B. & LILLIE HALL	01-327-28
X	CHARLES B. & LILLIE HALL	01-327-28.1
Y	AUGUSTIN ASTACIO	01-327-28.3
Z	ELIZABETH ANN SEDLOCK & JASON JOSEPH BANISH	04-347-17.4
AA	ROBERT N. PHILLIPS II	01-347-16.1
BB	SEARFASS HIBBS MICHELLE R. & RANDY A. HIBBS	01-347-35.1
CC	JOSEPH SAMUEL MAZZIE	01-327-28.4
DD	MARK ADAM & CARRINI SKASIS	01-347-12.1



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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2000 *George D. Six*



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