



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Wednesday, November 15, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

ARSENAL RESOURCES LLC
6031 WALLACE ROAD EXTENSION SUITE 300

WEXFORD, PA 15090

Re: Permit approval for PRITT SOUTH 207
47-033-05911-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: PRITT SOUTH 207
Farm Name: IRA & LAURA PRITT
U.S. WELL NUMBER: 47-033-05911-00-00
Horizontal 6A / New Drill
Date Issued: 11/15/2017

Promoting a healthy environment.

11/17/2017

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

WW-6B
(04/15)

API NO. 47-033 -
OPERATOR WELL NO. Pritt South 207
Well Pad Name: Pritt South

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

- 1) Well Operator: Arsenal Resources

<u>494519412</u>	<u>Harrison</u>	<u>Simpson</u>	<u>Brownnton</u>
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Operator ID County District Quadrangle
- 2) Operator's Well Number: Pritt South 207 Well Pad Name: Pritt South
- 3) Farm Name/Surface Owner: Ira and Laura Pritt Public Road Access: County Route 17
- 4) Elevation, current ground: 1,341.70' Elevation, proposed post-construction: 1,345.90'
- 5) Well Type (a) Gas Oil Underground Storage
Other _____
(b) If Gas Shallow Deep
Horizontal
- 6) Existing Pad: Yes or No No
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale, 7799.0ft (TVD Heel) - 7799.0ft (TVD Toe), 100ft, 0.5 psi/ft Base of Marcellus Shale, 7899.0ft (TVD Heel) - 7899.0ft (TVD Toe)
- 8) Proposed Total Vertical Depth: 7,874 ft
- 9) Formation at Total Vertical Depth: Marcellus shale
- 10) Proposed Total Measured Depth: 14,027 ft
- 11) Proposed Horizontal Leg Length: 5,158.41 ft
- 12) Approximate Fresh Water Strata Depths: 400 ft
- 13) Method to Determine Fresh Water Depths: Offsetting wells reported water depths (033-00960, 033-00950, 033-00960, 033-00978, 033-00960, 033-03282)
- 14) Approximate Saltwater Depths: 1400'
- 15) Approximate Coal Seam Depths: Bakarstown 483', Brush Creek 682', Upper Freeport 643', Lower Freeport 703', Upper Kittanning 775', Middle Kittanning 835', Lower Kittanning 851'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No
- (a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

WW-6B
(04/15)

API NO. 47- 033 -
OPERATOR WELL NO. Pritt South 207
Well Pad Name: Pritt South

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24"	New	H-40	94#	80'	80'	CTS
Fresh Water	13.375"	New	J-55	54.5#	450'	450'	CTS
Coal							
Intermediate	9.625"	New	J-55	40#	1500'	1500'	CTS
Production	5.5"	New	P-110	20#	14,027'	14,027'	TOC @ 1,350'MD
Tubing							
Liners							

B.O.H.
9-14-17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	36"			0	Type 1, 3% Calcium	1.20
Fresh Water	13.375"	17.5"	0.38"	2730	900 psi	Class A, 3% CaCl2	1.20
Coal					0		
Intermediate	9.625"	12.25"	0.395"	3950psi	1500 psi	Class A, 2% CaCl2	1.29
Production	5.5"	8.5-8.75	0.361"	12,640psi	9500	Type 1	1.64/1.32
Tubing					5000		
Liners					N/A		

PACKERS

Kind:				
Sizes:				
Depths Set:				

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SEP 29 2017
WV Department of
Environmental Protection

WW-6B
(10/14)

API NO. 47- 033 - _____
OPERATOR WELL NO. Pritt South 207
Well Pad Name: Pritt South

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

The well will be started with a conductor rig drilling a 36" hole to Conductor programmed depth then running 24" casing and grout cement back to surface. The conductor rig will move out and the drilling rig will move in and rig up. The drilling rig will then spud a 17 1/2" hole and drill to fresh water casing (Surface) to the programmed depth, Run 13- 3/8" casing and cement to surface. The rig will continue drilling a 12- 1/4" intermediate hole to the programmed depth, run 9- 5/8" casing and cement to surface. The rig will then continue to drill a 8- 3/4" hole to a designed Pilot Hole Depth, log the well, and then set a cement kick-off plug from Pilot hole TD to designed kick-off point. Once the plug has cured, the plan is to then start drilling the curve and lateral section to the programmed total measured depth, run 5 1/2" casing and cement according to the program.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The well will be completed using a plug and perforation method and stimulated with a slickwater and sand slurry. The anticipated maximum rate will be 90 bpm and the maximum pressure will be 9,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 29.78

22) Area to be disturbed for well pad only, less access road (acres): 9.15

23) Describe centralizer placement 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 1,400'; there will be no centralizers from 1,400' to surface.

24) Describe all cement additives associated with each cement type:

24" will be grouted from surface. The 13-3/8" casing will be cemented to surface with Class A cement and no greater than 3% CaCl (calcium chloride). The 9-5/8" casing will be cemented to surface with Type 1 cement, & no greater than 3% calcium chloride. The 5-1/2" production string will be cemented back to 1,150' (+/- 200' above the casing shoe for the 9-5/8") with Type 1 or Class A cement retarder (to extend pumpability) cellophane flaked for fluid loss, Bentonite gel as an extender (increased pumpability and fluid loss), a defoaming agent to decrease cement foaming during mixing to insure the cement is of proper weight to placement and possibly a gypsum gas blocking additive to aid in blocking/gas migration (in combination with other additive mentioned here, helps cement achieve a "right-angle" set) during the plastic phase of the cement set-up.

25) Proposed borehole conditioning procedures:

Top holes will be drilled with fresh water to KOP. At KOP, the wellbore will be loaded with synthetic oil based mud, barite-weighted mud system with such properties as to build a filter-cake on the face to the bore-hole. This will provide lubricity as well as stabilizing the well bore. We will begin rotating the drill string and mud will be circulated upon reaching TD until no further cuttings are observed coming across the shaker screens. Once clean mud is circulated back to surface, we will pull three stands of drill pipe, load the hole, pull three stands and load the hole. The weight indicator on the rig will be monitored for any occurrences of drag and if any are notices, we will re-run the previous stand of pipe pulled across and circulate 2X bottoms up while watching the shakers for signs of cuttings. Once at the base of the curve, the string will be continuously rotated while pumping 2X bottoms up. We will pull three stands and fill the hole until we reach the vertical section of the well.

*Note: Attach additional sheets as needed.



Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near Arsenal Resources hydraulic fracturing in Harrison County, WV prior to hydraulic fracturing at the following Arsenal Resources wells on the Pritt South 207 Pad.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,900' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Marcellus Shale formation (approximately 8,000' TVD).

The plan is being implemented as an additional safety measure to be utilized in conjunction with best management practices and emergency action plans for this site. These additional measures include pre-notification of conventional well operators of the timing and location of the hydraulic fracturing, establishment of measures conventional well operators should implement, and assurance that the Division of Oil and Gas is notified of the timeline, as well as any issues that may arise during fracturing.

1. Communications with Conventional Operators.

Arsenal Resources, using available data (WV Geological Survey, WVDEP Website, and IHS data service), has identified all known conventional wells and well operators within 500 feet of this pad and the lateral sections. A map showing these wells along with a list of the wells and operators is included in Attachment A.

Upon approval of this plan, Arsenal Resources will notify these operators, via letter, of the hydraulic fracturing schedule for these wells. A copy of this letter is included in Attachment B.

The letter provides recommendations to these conventional operators to 1) increase their monitoring of their wells during that time period, 2) ensure that their well head equipment is sound, and 3) provide immediate notification to Arsenal Resources and the OOG in the event of any changes in their well conditions.

Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and Arsenal Resources if any changes in water, gas production, pressure or other anomalies are identified.

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2. Reporting

Arsenal Resources will provide information relating to the hydraulic fracturing schedule, communication with conventional operators, and ongoing monitoring of the work upon request of OOG or immediately after any event of any noted abnormalities.

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SEP 29 2017
WV Department of
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Click or tap to enter a date.

Alliance Petroleum Corporation

Address

State

RE: Click or tap here to enter text.

Dear Sir/Madam,

Arsenal Resources has developed a Marcellus pad Pritt South 201 Pad, located in Harrison County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,900' TVD) and existing conventional natural gas wells included in the attached well list for which you are believed to be the operator.

ARSENAL RESOURCES anticipates conducting hydraulic fracturing at the Pritt South 201 Pad during the Quarter of 2017. We have identified conventional natural gas wells operated by your company within 500' (lateral distance) of our newly planned wells. Plats for each well on this pad are attached.

We recommend that conventional well operators conduct the following activities before, during and after fracturing operations:

1. Inspect surface equipment, prior to fracturing, to establish integrity and establish well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and ARSENAL RESOURCES if any changes in water, gas production, pressure or other anomalies are identified.

Please feel free to contact me at 724-940-1218 with any questions or comments. You may also contact the WV Office of Oil and Gas at 304-926-0499.

Sincerely,

Kelly Davis
Permitting Specialist

WW-9
(4/16)

API Number 47 - 033 - _____
Operator's Well No. Pritt South 207

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS**

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Arsenal Resources OP Code 494519412

Watershed (HUC 10) Beards Run & Pigtail Run Quadrangle Brownton

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: Produced Water

Will a synthetic liner be used in the pit? Yes No If so, what ml.? 60 ml

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number Various)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: Yes. The closed loop system will contain all of the drilling medium and drill cuttings on location to than be taken to a landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Vertical: Freshwater Horizontal: Synthetic oil based mud.

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Bentonite, Soap and Polymer sticks, Soda Ash, Sodium Bicarbonate, Defoamer, Base Oil, Emulsifiers, Lime, & Barite

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Advanced Disposal Services, Chestnut Valley Landfill

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *William Veigel*

Company Official (Typed Name) William Veigel

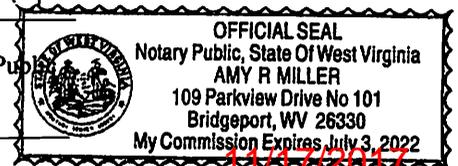
Company Official Title Designated Agent

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Subscribed and sworn before me this 27 day of September, 2017

Amy R Miller Notary Public

My commission expires July 3, 2022



Arsenal Resources

Proposed Revegetation Treatment: Acres Disturbed 29.78 Prevegetation pH 6.8 average

Lime 4 Tons/acre or to correct to pH 6.0-7.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Rye	40	Swisher Meadow Mix	100
Field Bromegrass	40		
Winter Rye	168		
Winter Wheat	180		

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Byron Ham

Comments: Pre-seed / mulch all disturbed areas as soon as reasonably possible per regulation. Upgrade E&S where needed per WV DEP E&S manual, if necessary.

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Office of Oil and Gas

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WV Department of
Environmental Protection

Title: Oil & Gas Inspector

Date: 9-14-17

Field Reviewed? () Yes (X) No



SITE SAFETY PLAN

Pritt South #207 WELL PAD

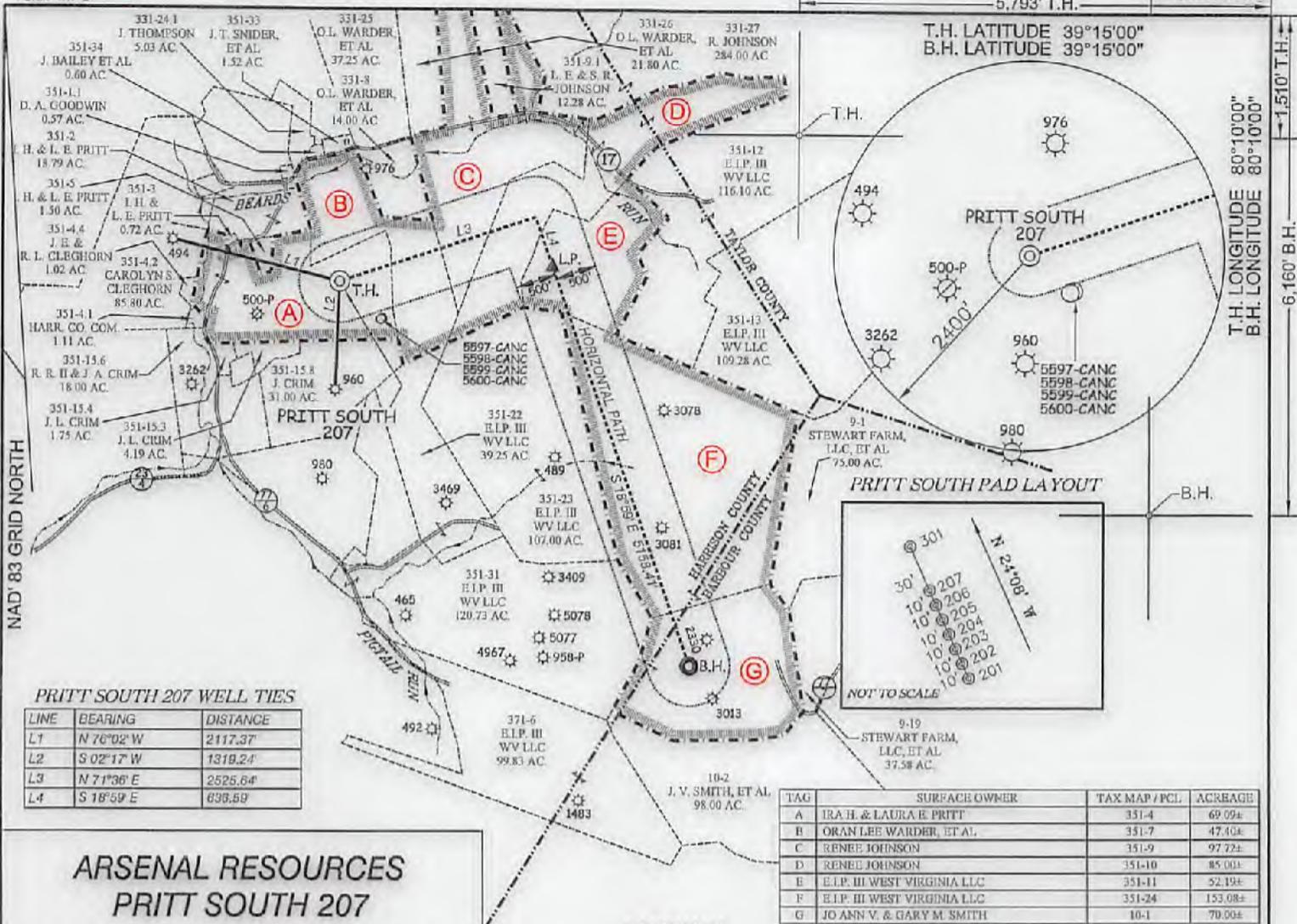
911 Address:

3460 Green Valley Road

Bridgeport, WV 26330

Bryan Harris
9-14-17

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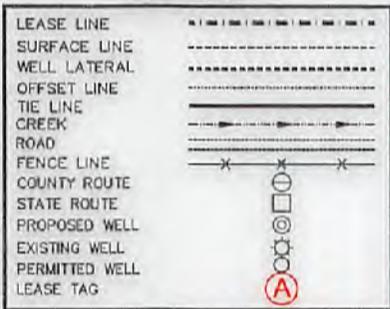
ARSENAL RESOURCES PRITT SOUTH 207

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 272,405.8 E. 1,773,902.5
 NAD'83 GEO. LAT-(N) 39.245857 LONG-(W) 80.187121
 NAD'83 UTM (M) N. 4,344,375.0 E. 570,144.9

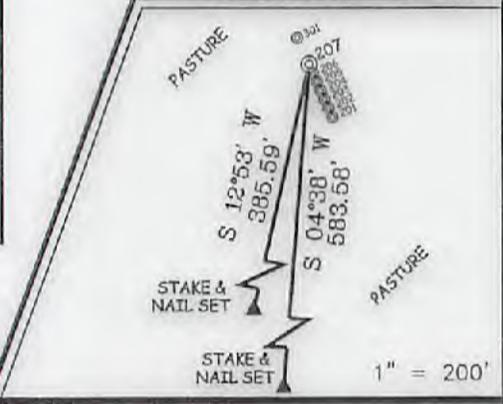
LANDING POINT
 NAD'83 S.P.C.(FT) N. 272,601.0 E. 1,776,506.0
 NAD'83 GEO. LAT-(N) 39.246447 LONG-(W) 80.177933
 NAD'83 UTM (M) N. 4,344,447.6 E. 570,937.1

BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 267,722.9 E. 1,778,183.3
 NAD'83 GEO. LAT-(N) 39.233089 LONG-(W) 80.171819
 NAD'83 UTM (M) N. 4,342,969.9 E. 571,472.6

LEGEND



REFERENCES



NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 825' OF THE CENTER OF PROPOSED WELL PAD.

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 www.slsurveys.com

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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. 677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE SEPTEMBER 26, 20 17
 REVISED _____
 OPERATORS WELL NO. PRITT SOUTH 207
 API WELL NO. 47 - 033 - 05911
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8383P207.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: 1,341.70' / PROPOSED: 1,346.90' WATERSHED BEARDS RUN & PIGTAIL RUN
 DISTRICT SIMPSON COUNTY HARRISON QUADRANGLE BROWNTON 7.5'
 SURFACE OWNER IRA & LAURA PRITT ACREAGE 69.096±
 ROYALTY OWNER IRA & LAURA PRITT ET AL ACREAGE 69.096± LEASE NO. 11/17/2017
 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 14,027' TMD / 7,874' TVD

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT WILLIAM VEIGEL
 ADDRESS 6031 WALLACE RD. EXT. SUITE 300 ADDRESS 65 PROFESSIONAL PLACE
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

COUNTY NAME
 PERMIT

WW-6A1
(5/13)

Operator's Well No. Pritt South 207

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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* See Attached

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Arsenal Resources
 By: William Veigel
 Its: Designated Agent

Attachment to WW-6A1, Pritt South 207						
Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage	
A [Lease 00006622 (WV03143.000)]	Ira Pritt and Laura E. Pritt, Husband and Wife	Carrizo (Marcellus) LLC	15.00%	1448 / 804 1579/26	92.06	
	Carrizo (Marcellus) LLC	ACP II Marcellus LLC and Carrizo (Marcellus) LLC		1460/1083		
	Carrizo (Marcellus) LLC and ACP II Marcellus LLC	PDC Mountaineer, LLC		1518/395		
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263		
B [Lease 00004364 (WV00561.000)]	O. Carl Morris and Rachel L. Morris, his wife; William T. Morris and Willa R. Morris, his wife; Mary Morris Warder and Willis E. Warder, her husband	Petroleum Development Corporation	12.50%	1018/107	122	
	Petroleum Development Corporation	PDC Mountaineer, LLC		1474/612		
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263		
C [Lease 00007872]	Walter D. Goodwin and Dorothy Goodwin, his wife	Petro-Lewis Corporation	12.50%	1062/391	103	
	Petro-Lewis Corporation	Partnership Properties Company		1072/213		
	Partnership Properties Company	Eastern American Energy Corporation		1124/449		
	Eastern American Energy Corporation	Energy Corporation of America		59/879 1441/1003		
	Energy Corporation of America	Mar Key, LLC		1596/1233		
D [Lease 00006674]	Debra A. Mulneix	Mar Key, LLC	15.00%	1561/464	85	
D [Lease 00006675]	Phyllis G. Steele	Mar Key, LLC	15.00%	1561/454	85	
D [Lease 00006676]	Alice L. Donley	Mar Key, LLC	15.00%	1561/451	85	
D [Lease 00006677]	Rebecca Collins Biser, acting in her capacity as Attorney in Fact for James R. Collins, Jr.	Mar Key, LLC	15.00%	1561/490	85	
D [Lease 00006697]	Gale M. Steele, widow	Mar Key, LLC	15.00%	1568/76	85	

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D [Lease 00007736]	Marlene B. Steele, widow, by David E. Bowen and Cheryl L. Bowen, as Attorney-in-Fact	Mar Key, LLC	15.00%	1585/239	85
D [Lease 00007761]	George F. Jack, Jr., single	Mar Key, LLC	15.00%	1598/842	85.1375
D [Lease 00007766]	Charles H. Roberts, widower	Mar Key, LLC	15.00%	1596/493	85.1375
D [Lease 00007864]	Mike Ross Inc. & Waco Oil and Gas Inc.	Mar Key, LLC	15.00%	1599/315	85.1375
E [Lease 00004556 (WV L00700.000)]	Mark V. Schumacher, unmarried	PDC Mountaineer, LLC	12.50%	1453/1290 1561/501	52.19
	PDC Mountaineer, LLC	River Ridge Energy, LLC		17/228	
F [Lease 00003555 (WV L00103.000)]	Lydia Drainer, widow	Union Carbide Corporation	12.50%	853/91	380
	Union Carbide Corporation	Creslenn Oil Company		897/286	
	Creslenn Oil Company	Delta Producing Corporation		925/629	
	Delta Producing Corporation	Petroleum Corporation of America		967/575 977/168	
	Petroleum Corporation of America	Petroleum Development Corporation		977/153	
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
G [Lease 00003907 (WV L00332.000)]	Michal Stein, Trustee for Linda Waldman and Robert S. Stein	Petroleum Development Corporation	12.50%	110/258	70
	Petroleum Development Corporation	PDC Mountaineer, LLC		150/444	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		17/228	

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Agreement to Drill, Complete and Operate Oil & Gas Wells

This Agreement to Drill, Complete and Operate Oil & Gas Wells (this "Agreement"), by and among Mountaineer Keystone LLC, a West Virginia limited liability company ("Mountaineer Keystone"), PDC Mountaineer, LLC, a Delaware limited liability company ("PDC"), and PDC Mountaineer Holdings, LLC, a Delaware limited liability company ("PDC Holdings"), is effective as of October 15, 2014. (the "Effective Date") and sets forth the terms pursuant to which Mountaineer Keystone will drill, complete and operate the Wells (as defined below) on behalf of PDC and PDC Holdings. Mountaineer Keystone, PDC, and PDC Holdings are each a "Party" and are collectively the "Parties". In consideration of the foregoing and the respective agreements hereinafter set forth and the mutual benefits to be derived therefrom, the Parties, intending to be legally bound, hereby agree as follows:

1. **Term:** This Agreement is effective from the Effective Date until terminated by Mountaineer Keystone on the one hand or PDC and PDC Holdings on the other hand with 30 days' written notice to the other Party or Parties, as applicable (the "Term").
2. **Authorization to Operate:** PDC and PDC Holdings authorize Mountaineer Keystone to undertake and perform, on PDC and PDC Holdings behalf, all operations, including without limitation permit applications, well pad preparation, drilling and completing wells, and marketing gas, oil and other hydrocarbons therefrom with respect to all oil and gas wells to be drilled on oil and gas leasehold acreage held by PDC or PDC Holdings. PDC, PDC Holdings and Mountaineer Keystone are affiliates with a common parent. Mountaineer Keystone was formed to operate oil and gas leasehold acreage held by PDC, PDC Holdings and certain other affiliates. Mountaineer Keystone agrees that it shall, in a good and workmanlike manner and in accordance with industry standards as they prevail in the area, drill, complete and operate oil and gas wells on leasehold acreage owned by PDC or PDC Holdings from time to time as directed by PDC or PDC Holdings (collectively, the "Wells").
3. **No Third Party Beneficiary:** This Agreement is for the benefit of the Parties and is not for the benefit of any third party.
4. **Counterparts:** This Agreement may be simultaneously executed in several counterparts and via facsimile or similar electronic transmittal, each of which shall be deemed to be an original and taken together shall constitute one and the same instrument.

[Signature Page Follows]

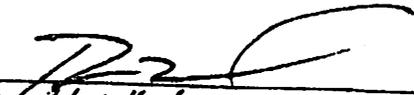
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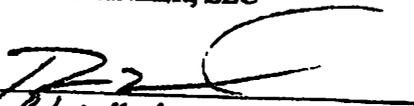
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IN WITNESS WHEREOF, Mountaineer Keystone, PDC, and PDC Holdings have caused their duly authorized representatives to execute this Agreement as of the Effective Date.

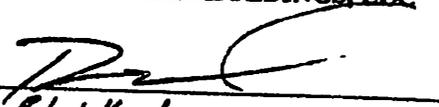
MOUNTAINEER KEYSTONE LLC

By: 
Name: *Robert Kessel*
Title: *CEO*

PDC MOUNTAINEER, LLC

By: 
Name: *Robert Kessel*
Title: *CEO*

PDC MOUNTAINEER HOLDINGS, LLC

By: 
Name: *Robert Kessel*
Title: *CEO*

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Agreement to Drill, Complete and Operate Oil & Gas Wells

This Agreement to Drill, Complete and Operate Oil & Gas Wells (this "Agreement"), by and among Arsenal Resources LLC, a West Virginia limited liability company ("Arsenal"), River Ridge Energy, LLC, a Delaware limited liability company ("River Ridge"), and River Ridge Energy, Holdings, LLC, a Delaware limited liability company ("River Ridge Holdings"), is effective as of March 1, 2017. (the "Effective Date") and sets forth the terms pursuant to which Arsenal will drill, complete and operate the Wells (as defined below) on behalf of River Ridge and River Ridge Holdings. Arsenal, River Ridge, and River Ridge Holdings are each a "Party" and are collectively the "Parties". In consideration of the foregoing and the respective agreements hereinafter set forth and the mutual benefits to be derived therefrom, the Parties, intending to be legally bound, hereby agree as follows:

1. **Term:** This Agreement is effective from the Effective Date until terminated by Arsenal on the one hand or River Ridge and River Ridge Holdings on the other hand with 30 days' written notice to the other Party or Parties, as applicable (the "Term").
2. **Authorization to Operate:** River Ridge and River Holdings authorize Arsenal to undertake and perform, on River Ridge and River Ridge Holdings behalf, all operations, including without limitation permit applications, well pad preparation, drilling and completing wells, and marketing gas, oil and other hydrocarbons therefrom with respect to all oil and gas wells to be drilled on oil and gas leasehold acreage held by River Ridge or River Ridge Holdings. River Ridge, River Ridge Holdings and Arsenal are affiliates with a common parent. Arsenal was formed to operate oil and gas leasehold acreage held by River Ridge, River Ridge Holdings and certain other affiliates. Arsenal agrees that it shall, in a good and workmanlike manner and in accordance with industry standards as they prevail in the area, drill, complete and operate oil and gas wells on leasehold acreage owned by River Ridge or River Ridge Holdings from time to time as directed by River Ridge or River Ridge Holdings (collectively, the "Wells").
3. **No Third Party Beneficiary:** This Agreement is for the benefit of the Parties and is not for the benefit of any third party.
4. **Counterparts:** This Agreement may be simultaneously executed in several counterparts and via facsimile or similar electronic transmittal, each of which shall be deemed to be an original and taken together shall constitute one and the same instrument.

[Signature Page Follows]

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IN WITNESS WHEREOF, Arsenal, River Ridge, and River Ridge Holdings have caused their duly authorized representatives to execute this Agreement as of the Effective Date.

ARSENAL RESOURCES LLC

By: Joel E. Symonds
Name: Joel E. Symonds
Title: Vice President - Land

RIVER RIDGE ENERGY, LLC

By: Joel E. Symonds
Name: Joel E. Symonds
Title: Vice President - Land

RIVER RIDGE HOLDINGS, LLC

By: Joel E. Symonds
Name: Joel E. Symonds
Title: Vice President - Land

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West Virginia Secretary of State — Online Data Services

Business and Licensing

Online Data Services Help

Business Organization Detail

NOTICE: The West Virginia Secretary of State's Office makes every reasonable effort to ensure the accuracy of information. However, we make no representation or warranty as to the correctness or completeness of the information. If information is missing from this page, it is not in the The West Virginia Secretary of State's database.

MAR KEY LLC

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
LLC Limited Liability Company	7/11/2011		7/11/2011	Domestic	Profit			

Organization Information			
Business Purpose	2111 - Mining, Quarrying, Oil & Gas Extraction - Oil and Gas Extraction - Crude Oil and Natural Gas Extraction		Capital Stock
Charter County		Control Number	99Q1F
Charter State	WV	Excess Acres	
At Will Term	A	Member Managed	MBR
At Will Term Years		Par Value	

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11/17/2017

Authorized Shares

Addresses	
Type	Address
Designated Office Address	65 PROFESSIONAL PLACE SUITE 200 BRIDGEPORT, WV, 26330
Mailing Address	6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090 USA
Notice of Process Address	CORPORATION SERVICE COMPANY 209 WEST WASHINGTON STREET CHARLESTON, WV, 25302
Principal Office Address	6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090 USA
Type	Address

Officers	
Type	Name/Address
Member	MOUNTAINEER KEYSTONE ENERGY LLC 6031 WALLACE ROAD EXTENSION SUITE 300 WEXFORD, PA, 15090
Organizer	PAUL M HERZING 560 EPSILON DR. PITTSBURGH, PA, 15238 USA
Type	Name/Address

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SEP 29 2017

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Annual Reports	
Date filed	

11/17/2017

6/20/2016
6/30/2015
4/28/2014
6/28/2013
5/8/2012
Date filed

For more information, please contact the Secretary of State's Office at 304-558-8000.

Thursday, February 23, 2017 — 9:08 AM

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People Powered. Asset Strong.

September 28, 2017

Mr. James Martin, Chief of Oil and Gas
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

RE: Ownership of Roadways; Pritt South Pad; 201HM – 207HM

Mr. Martin:

In preparation of filing a permit application for the above referenced well, the Title Department of Arsenal Resources has conducted a thorough title examination in order to determine the ownership of the oil and gas underlying all roadways crossed by the proposed well[s]. The findings of the title examination show that the roadways crossed by the proposed well[s] are right of ways, with the oil and gas being owned and covered by the leaseholds provided in the application materials.

If you have any questions, concerns or need further information, please do not hesitate to contact me at the address listed below.

Sincerely,

A handwritten signature in blue ink that reads 'Coty Brandon'.

Coty Brandon
Senior Title Attorney

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6031 Wallace Road Ext, Suite 300
Wexford, PA 15090
P: 724-940-1100
F: 800-428-0981
www.arsenalresources.com

11/17/2017

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 9-27-17

API No. 47- 033 - _____
Operator's Well No. Pritt South 207
Well Pad Name: Pritt South

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>570,144.9</u>
County:	<u>Harrison</u>		Northing:	<u>4,344,375.0</u>
District:	<u>Simpson</u>	Public Road Access:	<u>County Route 17</u>	
Quadrangle:	<u>Brownton</u>	Generally used farm name:	<u>Ira Pritt</u>	
Watershed:	<u>Beards Run & Pigtail Run</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service the return receipt card or other postal receipt for certified mailing.

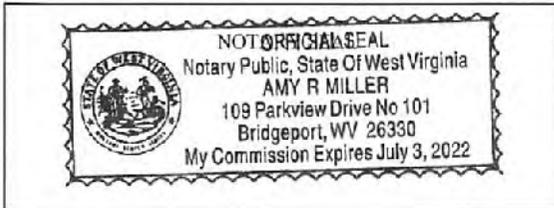
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Certification of Notice is hereby given:

THEREFORE, I William Veigel, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Arsenal Resources</u>	Address:	<u>6031 Wallace Road Extension, Suite 300</u>
By:	<u>William Veigel</u>		<u>Wexford, PA 15090</u>
Its:	<u>Designated Agent</u>	Facsimile:	<u>304-848-9134</u>
Telephone:	<u>724-940-1218</u>	Email:	<u>kdavis@arsenalresources.com</u>



Subscribed and sworn before me this 27 day of September 2017
Amy R Miller Notary Public
 My Commission Expires July 3, 2022

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.

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WW-6A
(9-13)

API NO. 47- 033 -
OPERATOR WELL NO. Pritt South 207
Well Pad Name: Pritt South

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 9-27-17 **Date Permit Application Filed:** 9-28-17

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: Ira H. Pritt & Laura E. Pritt
Address: 3444 Green Valley Road
Bridgeport, WV 26330

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: See Attached List
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: Oran Lee Warder
Address: 2381 Silverado Drive
Weatherford, TX 76087

COAL OWNER OR LESSEE
Name: See Attached List
Address: _____

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: See Attached List
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

Oil and Gas
SEP 29 2017
Department of Environmental Protection

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

11/17/2017

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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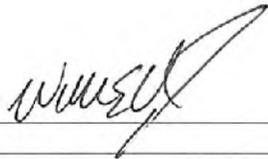
11/17/2017

WW-6A
(8-13)

047-033-05911
API NO. 47- 033 -
OPERATOR WELL NO. Pritt South 207
Well Pad Name: Pritt South

Notice is hereby given by:

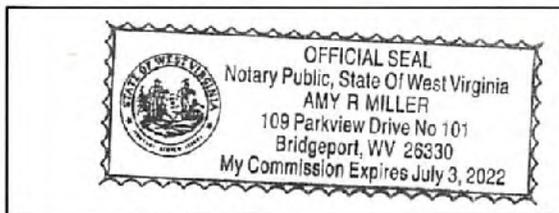
Well Operator: Arsenal Resources
Telephone: 724-940-1218
Email: kdavis@arsenalresources.com



Address: 6031 Wallace Road Extension, Suite 300
Wexford, PA 15090
Facsimile: 304-848-9134

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 27 day of September 2017
Amy R Miller Notary Public
My Commission Expires July 3, 2022

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**Arsenal Resources
Pritt South Well Pad
WW-6A Notice of Application (Attachment)**

Surface Owner(s) by (Road and/or Other Disturbance):

Ira H. Pritt & Laura E. Pritt (Drill Site & Access Road) ✓
3444 Green Valley Road
Bridgeport, WV 26330

Della R. Riffle (Access Road) ✓
11 Crim Lane
Bridgeport, WV 26330

Julia Crim (Access Road) ✓
75 Crim Lane
Bridgeport, WV 26330

Sandy Crim (Access Road) ✓
75 Crim Lane
Bridgeport, WV 26330

Coal Owner, Operator or Lessee:

Heirs of Virginia A. Tetrick Estate ✓
d/b/a, Tetrick Mineral Properties, J.V. ✓
92 16th Street
Wheeling, WV 26003

I.L. Morris ✓
P.O. Box 397 ✓
Glennville, WV 26351

Edith Gans Burns ✓
264 South Lake Road
Columbia, SC 29223

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Coal Owner, Operator or Lessee, continued:

Rebecca Turner, William & Robert Snyder ✓
5 Narrow Road
Hanover, PA 17331

Mike Ross, Inc. ✓
P.O. Box 219
Coalton, WV 26257

Spartan Exploration Company ✓
1883 Blue Isle Ct.
Holland, MI 49424

Ryan C. Radtka ✓
205 Mystic Drive
Morgantown, WV 26508

Helen M. Burton ✓
P.O. Box 8179
Nutter Fort, WV 26301

CoalQuest Development, LLC ✓
100 Tygart Drive
Grafton, WV 26354

Water Purveyors:

Kevin McNemar ✓
3658 Green Valley Road
Bridgeport, WV 26330

Lucas Johnson etal C/O Thomas Johnson ✓
3828 W. Veterans Memorial Hwy
Bridgeport, WV 26330

Ira & Laura Pritt ✓
3444 Green Valley Road
Bridgeport, WV 26330

Water Purveyors, continued:

Oran Warder etal ✓
2381 Silverado Drive
Weatherford, TX 76087

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OCT 02 2017

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Water Purveyors, continued:

Oran Warder etal ✓
2381 Silverado Drive ✓
Weatherford, TX 76087

Renee Johnson ✓
511 Beards Run Road ✓
Bridgeport, WV 26330

Ronald & Jody Crim ✓
2825 Green Valley Road ✓
Bridgeport, WV 26330

Julia Crim ✓
75 Crim Lane ✓
Bridgeport, WV 26330

Sandy Crim ✓
75 Crim Lane ✓
Bridgeport, WV 26330

Della R. Riffle ✓
11 Crim Lane ✓
Bridgeport, WV 26330

Ecosystem Investment ✓
Partners III, LLC ✓
2002 Clipper Park Road, Suite 201
Baltimore, MD 21211

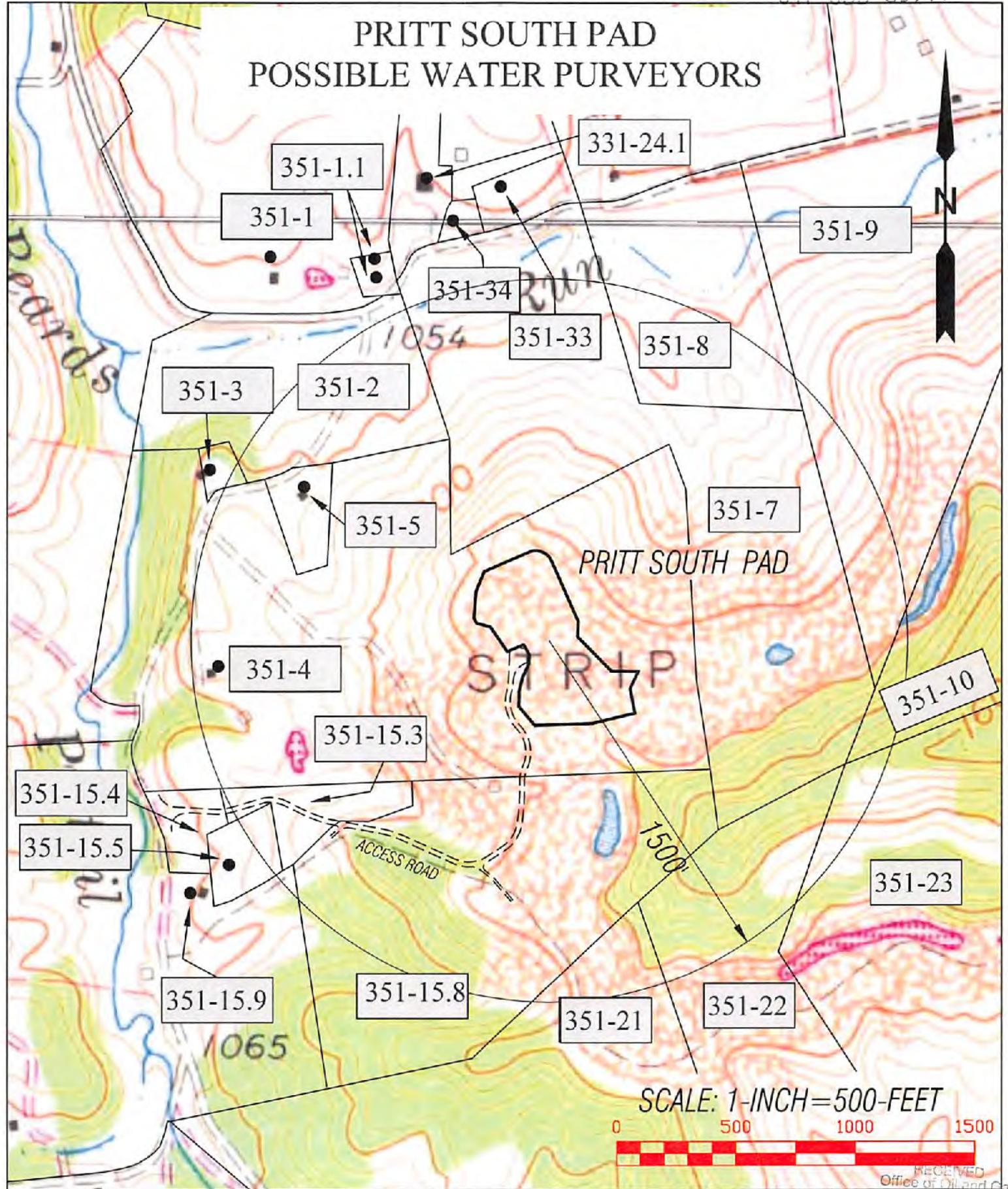
John & Cynthia Snider ✓
95 Beards Run Road ✓
Bridgeport, WV 26330

Joyce Bailey etal ✓
PO Box 4 ✓
Rosemont, WV 26424

Joshua Thompson ✓
143 Beards Run Road ✓
Bridgeport, WV 26330

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PRITT SOUTH PAD POSSIBLE WATER PURVEYORS



SCALE: 1-INCH=500-FEET



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Land & Energy Development
Solutions from the ground up.

TOPO SECTIONS OF:
ROSEMONT & BROWNTON WV 7.5' QUADS

DRAWN BY C.P.M.	FILE NO. B383	DATE 08-24-17	CADD FILE: B383-170824-17-0824.DWG
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COUNTY HARRISON	DISTRICT SIMPSON
--------------------	---------------------

OPERATOR:
ARSENAL RESOURCES
65 PROFESSIONAL PLACE,
BRIDGEPORT, WV 26330

11/17/2017



Possible Water Purveyors within 1500' of Pritt South Pad

351-1

Kevin McNemar
3658 Green Valley Road
Bridgeport, WV 26330-6884

351-1.1

Lucas Johnson etal C/O Debra Ann Goodwin
104 Rose Ave.
Clarksburg, WV 26301

351-2

Ira & Laura Pritt
3444 Green Valley Road
Bridgeport, WV 26330

351-3

Ira & Laura Pritt
3444 Green Valley Road
Bridgeport, WV 26330

351-4

Ira & Laura Pritt
3444 Green Valley Road
Bridgeport, WV 26330

351-5

Ira & Laura Pritt
3444 Green Valley Road
Bridgeport, WV 26330

351-7

Oran Warder etal
2381 Silverado Drive
Weatherford, TX 76087

351-8

Oran Warder etal
2381 Silverado Drive
Weatherford, TX 76087

351-9

Renee Johnson
511 Beards Run Road
Bridgeport, WV 26330

351-10

Renee Johnson
511 Beards Run Road
Bridgeport, WV 26330

351-15

Ronald & Jody Crim
2825 Green Valley Rd.
Bridgeport, WV 26330



**351-15.3**

Julia Crim
75 Crim Lane
Bridgeport, WV 26330

351-15.4

Julia Crim
75 Crim Lane
Bridgeport, WV 26330

351-15.5

Sandy Crim
75 Crim Lane
Bridgeport, WV 26330

351-15.8

Julia Crim
75 Crim Lane
Bridgeport, WV 26330

351-15.9

Della R. Riffle
11 Crim Lane
Bridgeport, WV 26330

351-21

Ecosystem Investment
Partners III, LLC
2002 Clipper Park Road, Suite 201
Baltimore, MD 21211

351-22

Ecosystem Investment
Partners III, LLC
2002 Clipper Park Road, Suite 201
Baltimore, MD 21211

351-23

Ecosystem Investment
Partners III, LLC
2002 Clipper Park Road, Suite 201
Baltimore, MD 21211

351-33

John & Cynthia Snider
95 Beards Run Road
Bridgeport, WV 26330

351-34

Wilma Suter C/O Joyce E. Bailey etal
P.O. Box 4
Rosemont, WV 26424





331-24.1
Joshua Thompson
143 Beards Run Road
Bridgeport, WV 26330

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application.

Date of Notice: 9-27-17 **Date Permit Application Filed:** 9-28-17

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Ira H. Pritt & Laura E. Pritt
Address: 3444 Green Valley Road
Bridgeport, WV 26330

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>570,144.9</u>
County:	<u>Harrison</u>		Northing:	<u>4,344,375.0</u>
District:	<u>Simpson</u>	Public Road Access:	<u>County Route 17</u>	
Quadrangle:	<u>Brownton</u>	Generally used farm name:	<u>Ira Pritt</u>	
Watershed:	<u>Bearde Run & Pigtail Run</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Arsenal Resources
Address: 6031 Wallace Road Extension, Suite 300
Wexford, PA 15090
Telephone: 724-940-1218
Email: kdavis@arsenalresources.com
Facsimile: 304-848-9134

Authorized Representative: William Veigel
Address: 65 Professional Place, Suite 200
Bridgeport, WV 26330
Telephone: 724-940-1218
Email: kdavis@arsenalresources.com
Facsimile: 304-848-9134

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

SEP 29 2017

WV Department of
Environmental Protection
11/17/2017



047-033-05911

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Jim Justice
Governor

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

September 21, 2017

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Ira Pritt Well Pad, Harrison County
Pritt South 207

47-033-05911

Dear Mr. Martin,

This well site will be accessed from a Permit #04-2015-0617 transferred to Arsenal Resources for access to the State Road for a well site located off of Harrison County Route 77/6 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer

Cc: Kelly Davis
ARSENAL Resources
CH, OM, D-4
File

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Pritt South # 207			
FRACTURING ADDITIVES			
	PURPOSE	TRADE NAME	CAS #
Additive #1:	Friction Reducer	WFRA-405	Proprietary
Additive #2:	Scale Inhibitor	SI-1000	7440-21-3
Additive #3:	Biocide	BIOCLEAR 2000	25314-61-8
Additive #4:	Gelling Agent	LGC-15	9000-30-0
Additive #5:	Corrosion Inhibitor	AI-300	111-76-2
Additive #6:	Gel Breaker	AP-One	7727-54-0
Additive #7:	Acid	HCl - 7.5%	7647-01-0

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Environmental Protection

PRITT SOUTH SITE PLAN ARSENAL RESOURCES

(PROPOSED WELLS NO. 201, 202, 203, 204, 205, 206,
301, 211, 212, 213, 214, 215, 216, & 311)

SITUATE ON THE WATERS OF BEARDS RUN AND PICTAL RUN
IN SIMPSON DISTRICT, HARRISON COUNTY, WEST VIRGINIA

PROJECT INFORMATION

PROJECT NAME: PRITT SOUTH
TAX PARCEL:
SIMPSON DISTRICT
MAP 351 PARCELS 4, 7, 15, 15.3, 15.5
SURFACE OWNER:

IRA PRITT
TM 351 PAR 4
TOTAL PROPERTY AREA: 69.06 AC
TOTAL DISTURBED AREA: 14.57 AC

ORAN WARDER
TM 351 PAR 7
TOTAL PROPERTY AREA: 47.40 AC
TOTAL DISTURBED AREA: 3.49 AC

JULIA CRIM
TM 351 PAR 15.8
TOTAL PROPERTY AREA: 31 AC
TOTAL DISTURBED AREA: 6.90 AC

JULIA CRIM
TM 351 PAR 15.3
TOTAL PROPERTY AREA: 4.19 AC
TOTAL DISTURBED AREA: 2.77 AC

SANDY CRIM
TM 351 PAR 15.5
TOTAL PROPERTY AREA: 2.05 AC
TOTAL DISTURBED AREA: 0.05 AC

OPERATOR

ARSENAL RESOURCES
65 PROFESSIONAL PLACE
SUITE 200
BRIDGEPORT, WV 26330
PHONE: (304) 842-3597

ENGINEER

LARSON DESIGN GROUP
2502 CRANBERRY SQUARE
MORGANTOWN, WV 26508
PHONE: (304) 777-2940

SURVEYOR

SMITH LAND SURVEYING, INC.
12 VANHORN DRIVE
GLENNVILLE, WV 26351
PHONE: (304) 462-5634



SCALE: 1" = 2000'
BROWN QUADRANGLE
WEST VIRGINIA

MISS URBY of West Virginia
1-800-245-4848
West Virginia State Law
(Section XV, Chapter 24-C)
Requires that you call two
business days before you dig in
the state of West Virginia.
IT'S THE LAW!

APPROVED
WVDEP OOG
6/2/2017



SHEET INDEX

- 1 COVER SHEET
- 2-3 GENERAL NOTES
- 4 OVERALL PLAN SHEET INDEX
- 5-8 SITE LAYOUT
- 9 ACCESS ROAD PROFILE
- 10-14 ACCESS ROAD CROSS SECTIONS
- 15-18 WELL PAD CROSS SECTIONS
- 19-20 WASTE WATER PIT CROSS SECTIONS
- 21-24 RECLAMATION PLAN
- 25-37 DETAILS

RESTRICTIONS NOTES:

1. THERE ARE NO WETLANDS WITHIN 100 FEET OF THE WELL PAD LOD.
2. THERE ARE NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
3. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
4. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
5. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
6. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
7. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.

LOCATION COORDINATES

ACCESS ROAD ENTRANCE
LATITUDE: 39.241841 LONGITUDE: -80.192380 (NAD 83)
CENTER OF PRITT SOUTH WELL PAD
LATITUDE: 39.245319 LONGITUDE: -80.186800 (NAD 83)
CENTER OF ABOVEGROUND STORAGE TANK
LATITUDE: 39.244714 LONGITUDE: -80.185139 (NAD 83)
CENTER OF ASSOCIATED WASTE WATER PIT
LATITUDE: 39.245265 LONGITUDE: -80.183541 (NAD 83)

GENERAL DESCRIPTION
THE WELL PAD, ASSOCIATED PIT, AND ABOVEGROUND STORAGE TANK ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

SITE DISTURBANCE COMPUTATIONS

PRITT SOUTH WELL PAD = 9.15 AC
ASSOCIATED WASTE WATER PIT = 3.33 AC
ACCESS ROAD TO WELL PADS = 4.98 AC
ACCESS ROAD TO ASI / PIT = 1.65 AC
TOTAL SITE DISTURBANCE = 29.78 AC
TIMBER CLEARING AREA = 16.30 AC

ENCUMBRANCE PERMIT

ARSENAL RESOURCES WILL OBTAIN AN ENCUMBRANCE PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

MISS UTILITY STATEMENT

MISS UTILITY OF WEST VIRGINIA WAS NOTED FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET #1509919394. IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO START OF THE PROJECT.

FLOODPLAIN NOTE

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT IS NOT LOCATED WITHIN THE EXISTING FEMA 100-YEAR FLOODPLAIN. NO FEMA MAP EXISTS FOR THIS LOCATION IN HARRISON COUNTY.

ENVIRONMENTAL NOTES

WETLAND DELINEATIONS WERE PERFORMED ON MARCH 3, 2015, MARCH 11, 2015, APRIL 8, 2015, MAY 8, 2015 AND MARCH 17, 2017 BY ALLSTAR ECOLOGY TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE SOUTH) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION SHOWN ON THIS EXHIBIT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTE

A GEOTECHNICAL INVESTIGATION OF THE PROPOSED SITE WAS CONDUCTED BY G.A. COVEY ENGINEERING ON JULY 17 THROUGH JULY 20, 2012. THE REPORT PREPARED BY G.A. COVEY ENGINEERING, DATED JULY 20, 2012, REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS REPORT WAS USED IN THE PREPARATION OF THESE PLANS. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT BY G.A. COVEY FOR ADDITIONAL INFORMATION.



NO.	DATE	ISSUE / REVISIONS
11	9/19/17	FINAL DESIGN
10	5/23/17	FINAL DESIGN
9	3/7/17	FINAL DESIGN
8	3/7/17	FINAL DESIGN
7	3/7/17	FINAL DESIGN
6	3/7/17	FINAL DESIGN
5	3/7/17	FINAL DESIGN
4	3/7/17	FINAL DESIGN
3	3/7/17	FINAL DESIGN
2	3/7/17	FINAL DESIGN
1	3/7/17	FINAL DESIGN

Larson Design Group • Architects Engineers Surveyors
HARRISON COUNTY WEST VIRGINIA
2502 Cranberry Square
Morgantown, WV 26508
PHONE: 304.777.2940 TOLL FREE: 877.223.6603
FAX: 304.462.9634
www.larsondesigngroup.com



SHEET NO: 1 OF 37
PROJECT NO: 10795-005



NO.	DATE	REVISIONS
10	7/17/15	FINAL DESIGN
11	5/23/17	FINAL DESIGN
12	5/23/17	FINAL DESIGN
13	5/23/17	FINAL DESIGN
14	5/23/17	FINAL DESIGN
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48	5/23/17	FINAL DESIGN
49	5/23/17	FINAL DESIGN
50	5/23/17	FINAL DESIGN

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PRITT SOUTH SITE PLAN
 HARRISON COUNTY, WEST VIRGINIA

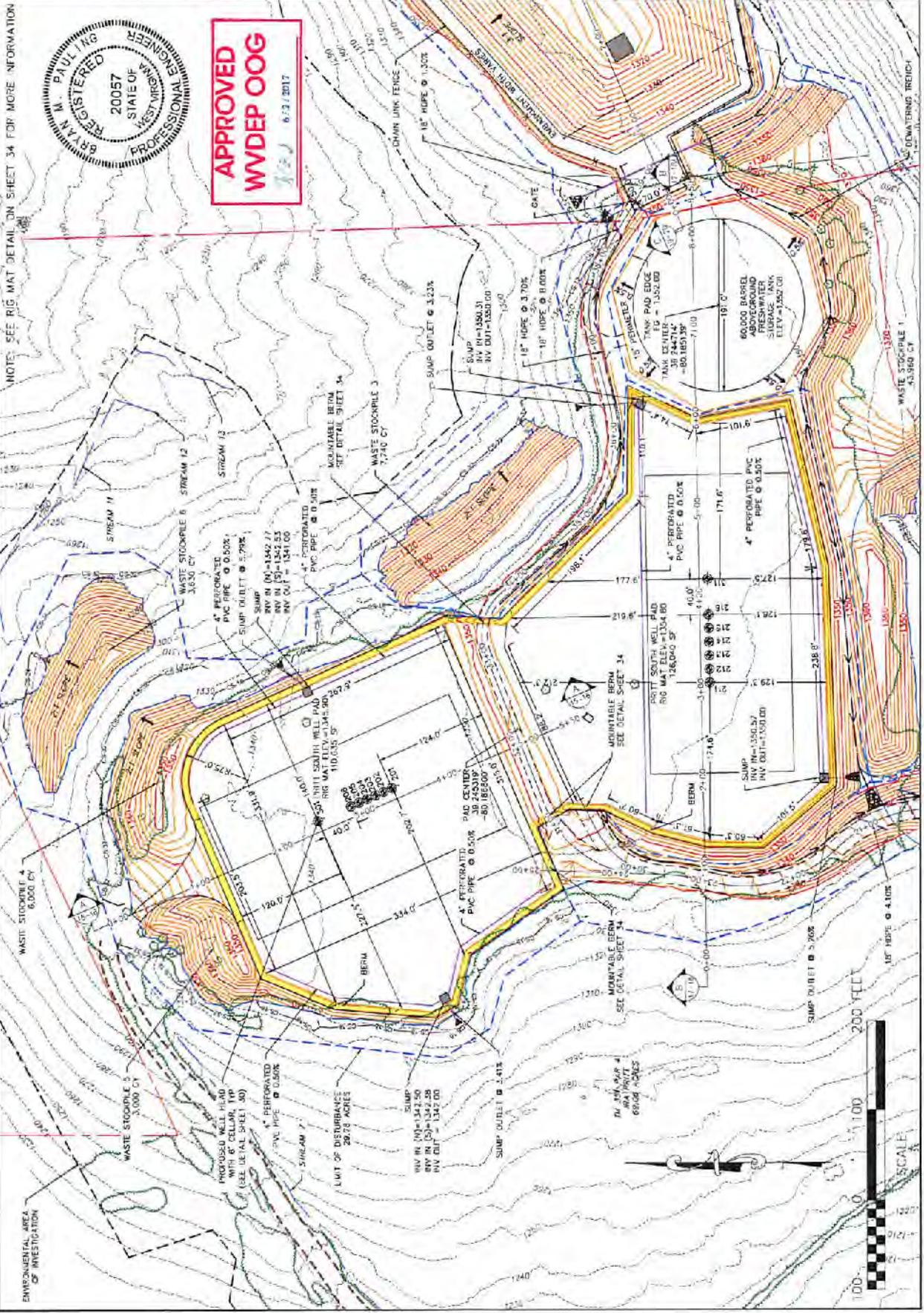
EROSION AND SEDIMENT CONTROL PLAN

SHEET NO. **7 OF 37**
 PROJECT NO. 10791-1-005

NOTE: SEE BIG MAT DETAIL ON SHEET 34 FOR MORE INFORMATION



APPROVED
WVDEP OOG
 6/23/2017



11/17/2017



Office of Oil and Gas

047-033-05911

West Virginia Department of
Environmental Protection
Office of Oil & Gas
601 57th Street SE
Charleston, WV 25304-2345

DEP Office Use only	
Date Received by Oil & Gas:	8-29-17
Assigned Impoundment ID #:	033WPA00094

Permit Associated Impoundment / Pit Registration

Instruction: This form is to be used to register impoundments or waste pits, greater than 5,000 bbls, that are associated with a WVDEP, Office of Oil and Gas, well drilling permit. An **associated impoundment or pit** means it has been designed and included in the well drilling permit application, will follow the reclamation time frame of well work permit, and will be approved in conjunction with the well work permit. An impoundment ID number will be assigned by WVDEP, Office of Oil and Gas, to all impoundments and pits. This impoundment ID number will be sent to the applicant following receipt of this form by WVDEP. Please reference this impoundment ID number with all future correspondence and reference to this impoundment. Conditions as described in W.Va. State Rule §35-4-21 will be followed as it relates to impoundments and pits.

Section 1 – Operator Information

Operator Name:	Arsenal Resources		
Operator ID:	494519412		
Address: Street	65 Professional Place Suite 200		
City:	Bridgeport	State:	WV Zip: 26330
Contact Name:	Larry "Eddie" Carder	Contact Title:	Regulatory Affairs Manager
Contact Phone:	304-629-6309	Contact Email:	ecarder@arsenalresources.com

Section 2 – Engineering / Design Contractor Information

Design will be contracted <input checked="" type="checkbox"/> Designed in-house <input type="checkbox"/>			
Company Name:	Smith Land Surveying, Inc. & Larson Design Group		
Address: Street	12 Vanhorn Dr.		
City:	Glenville	State:	WV Zip: 26351
Contact Name:	Chris Moyers	Contact Title:	Sr. Design Coordinator
Contact Phone:	304-462-5634	Contact Email:	cmoyers@slssurveys.com
Certifying Professional Engineer:	Bryan Pauling		
Professional Engineer Registration Number:	20057		

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WV Department of
Environmental Protection**Section 3 - Impoundment / Pit Information**Type of Structure. Check one of two choices below: Freshwater Impoundment Waste PitNote: Any waste in a pit will make it a waste pit.Name of Structure (Company Name :) Pritt South Associated PitCounty: HarrisonDistrict: SimpsonUSGS 7.5' Quad Map Name: BrownntonFarm Name: PrittPad Name: Pritt South PadSurface Owner Name: Oran Warder & Ira PrittPhysical Description of Location: The Pritt South Associated Pit is located the east side of Harrison County Route 77/6 near the ridge. With the access road entrance being 0.28 miles +/- north of the junction of County Routes 77/6 & 23/4.

(Note: Give general location, example: 2 miles south of Smalltown, WV on Rt. 22, left on Buffalo Creek)

Watershed (nearest perennial): Beards RunDistance (Drainage Distance) to nearest perennial stream: 1400'+/-

Location Coordinates (NAD83, Decimal Degrees (xx.xxxx, -xx.xxxx))

Latitude: 39.245265 Longitude (Use negative sign): -80.183541UTM Coordinates : 570454 E 4344312 N

Access Road Coordinates (junction of state highway access)

Latitude: 39.243282 Longitude (Use negative sign): -80.192459UTM Coordinates : 569687 E 4344085 N

Approximate Dimensions

Length: 612' +/- Width: 200' +/- Height: 32.9

Note: If irregularly shaped, give approximate dimensions of long axis.

Total Capacity – Provide all units of measure below:

Barrels: 387,574 Gallons: 16,278,095 Acre-Feet: 49.96

Capacity with 2' Freeboard – Provide all units of measure below:

Barrels: 340,964 Gallons: 14,320,480 Acre-Feet: 43.95

Incised volume:

Barrels: 39,572 Gallons: 1,662,011 Acre-Feet: 5.10

Net impounded volume: (Total volume less incised volume.)

Barrels: 348,002 Gallons: 14,616,084 Acre-Feet: 44.86Anticipated Construction Start Date (estimation, non-binding): June 2017Note: No construction may begin on **Associated** impoundment until WVDEP issues the drilling permit. At least 7 calendar days prior to confirmed construction start date, notify the Office of Oil & Gas, and the local Oil and Gas inspector of construction start date. Use form IMP-2, "Notification of Impoundment / Pit Construction."



Section 4 - Associated Well Numbers and API Numbers. List associated well numbers and API number. API numbers may not be assigned at time of registering this impoundment, if so list as pending.

Well Number(s):	API Number(s) – If issued:
See Attached	

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Section 5 - Required Information Checklist To Register Permit Associated Impoundments or Pits. Include the following information and plans with application.

- Engineered Construction Plans, certified by WV Registered P.E.
- Erosion and Sediment Control Plan, certified by WV Registered P.E.
- Reclamation Plan, certified by WV Registered P.E.

Section 6 – Dam Standard Qualifying Evaluation

- The design of this structure has been evaluated by the applicant to determine it does NOT qualify to be defined as a dam, under W.Va Rule §47-34. If the design of this structure qualifies it to be defined as a dam, all permits regulating dams will be required prior to registering the structure with the Office of Oil and Gas. The dam standard, from the WVDEP, Div. Of Water and Waste, is available for review at: <http://www.dep.wv.gov/WWE/ee/ds/Pages/default.aspx>

Section 7 –Comments – Provide any additional comments concerning this project



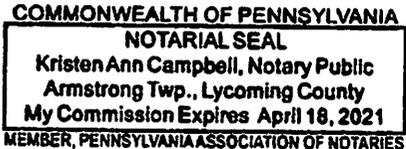
Section 8 - Application Certification

I hereby certify that the information listed above is true and accurate. I understand that this pit/impoundment is to be constructed only in a location appropriate for the storage of water, including wastewater, and will be constructed in accordance with plans designed and certified by a West Virginia registered professional engineer. I further recognize that all required plans have been submitted to the Office of Oil and Gas. I understand that after construction, and prior to any fluid being placed in the pit/impoundment, it shall be inspected by a West Virginia registered professional engineer to ensure compliance with the certified design and construction plan, and that the professional engineer shall certify that this structure was constructed in accordance with design and construction plans. I understand that such certification shall be in writing to the Chief and that no fluids may be placed in the pit/impoundment until the certification has been filed with the chief. I agree that this pit/impoundment shall be constructed, maintained, operated and closed in accordance with all applicable laws and rules, including the requirements of W. Va. Code R § 35-4-2 .

Name: Bryan Pading
Title: Director
Signature: [Handwritten Signature]

Taken, subscribed and sworn to before me this, 10th Day of May 20 17
Notary Public: Kristen A. Campbell
My commission expires: 4/18/21

Notary Seal:



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Section 9. Submittal Instructions

Submit original paper copy of application to:
West Virginia Department of Environmental Protection
Office of Oil and Gas
Impoundment Registration
601 57th Street, SE
Charleston WV 25304
Email PDF file format of this application and all related engineering Plans to :
Depimpoundments@wv.gov

IMP 1A – Section 4 – Associated Well Numbers and API Numbers

Well Numbers

Pritt 201

Pritt 202

Pritt 203

Pritt 204

Pritt 205

Pritt 206

Pritt 207

Pritt 301

Pritt 211

Pritt 212

Pritt 213

Pritt 214

Pritt 215

Pritt 216

Pritt 217

Pritt 311

API Numbers

Not Yet Assigned by the WV DEP

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