



 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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Thursday, February 14, 2019
 WELL WORK PERMIT
 Horizontal 6A / New Drill

ARSENAL RESOURCES LLC
 6031 WALLACE ROAD EXTENSION
 SUITE 603
 WEXFORD, PA 15090

Re: Permit approval for DRAINER TFP 23 201
 47-091-01350-00-00

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: DRAINER TFP 23 201
 Farm Name: ROSS DUNN, J.B. DUNN, AND
 U.S. WELL NUMBER: 47-091-01350-00-00
 Horizontal 6A New Drill
 Date Issued: 2/14/2019



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

Austin Caperton, Cabinet Secretary
dep.wv.gov

**ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Arsenal Resources
6031 Wallace Road Extension Suite 603
Wexford, Pa 15090

DATE: February 5, 2019
ORDER NO.: 2019-W-3

INTRODUCTION

This Order (hereinafter “Order”) is issued by the Office of Oil and Gas (hereinafter “OOG”), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to Arsenal Resources (hereinafter “Arsenal” or “Operator”), collectively the “Parties.”

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. Arsenal is a “person” as defined by W. Va. Code §22-6-1(n), with a corporate address as 6031 Wallace Road Extension Suite 603, Wexford, PA 15090.
3. On October 10, 2018 Arsenal submitted a well work permit application identified as API# 47-091-01350. The proposed well is to be located on the Drainer TCP23 Pad in the Flemington District of Taylor County, West Virginia.
4. On October 10, 2018 Arsenal requested a waiver for Wetland H outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-091-01350.

CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “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 Office of Oil and Gas 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 Office of Oil and Gas 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.”

ORDER

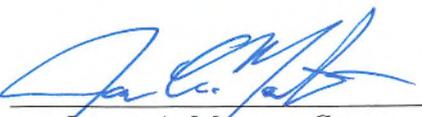
West Virginia Code §22-6A-12(b) requires, in part, that “no well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland. The Office of Oil and Gas grants the request for a waiver for Wetland H from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-091-01350. The Office of Oil and Gas hereby **ORDERS** that Arsenal shall meet the following site construction and operational requirements for the Drainer TCP23 Well Pad:

- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Wetland H shall be protected by diversion ditches and double twelve inch (12”) compost filter sock. This along rip-rap outlets, temporary and permanent vegetative cover will prevent sediment from reaching the wetlands;
- d. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- e. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- f. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- g. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- h. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- i. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½”) rain within any twenty-four (24) hour period;
- j. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- k. All records from inspections shall be maintained on site for the life of the project and be available upon request.

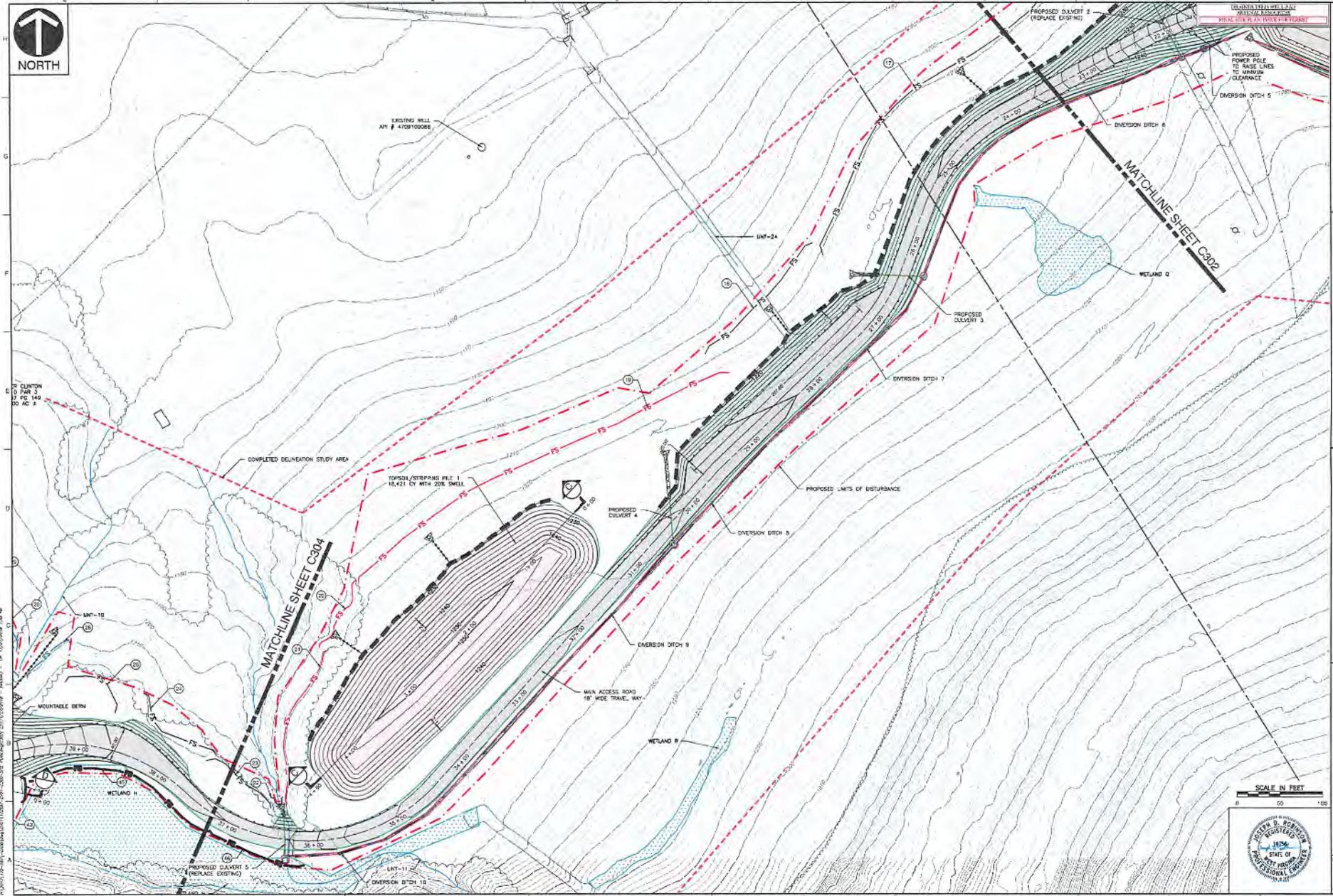
Thus ORDERED, the 5th day of February, 2019.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By: 

JAMES A. MARTIN, CHIEF



SCALE IN FEET
0 50 100



NO.	DATE	BY	REVISION

CHE
Civil & Environmental Consultants, Inc.
 600 Marketplace Ave. Suite 200, Bridgeport, WV 26330
 PH: 304.623.3119 • FAX: 304.633.3327
 www.cheinc.com

**ARSENAL RESOURCES
 DRAINER TFP23 WELL PAD
 FLEMINGTON DISTRICT
 TAYLOR CO., WEST VIRGINIA**

SITE PLAN	
DATE:	SEPTEMBER 2018
DESIGNER:	DAVID M. HARRIS
APPROVED BY:	DAVID M. HARRIS
DRAWING NO.:	C303
SHEET:	3 OF 25

SETBACK WAIVER REQUEST
DRAINER TFP23 WELL PAD PROJECT
TAYLOR COUNTY, WEST VIRGINIA

Submitted to:

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
601 57TH STREET
CHARLESTON, WEST VIRGINIA 25305

Prepared for:

ARSENAL RESOURCES
65 PROFESSIONAL PLACE, SUITE 200
BRIDGEPORT, WEST VIRGINIA 26330

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
600 MARKET PLACE, SUITE 200
BRIDGEPORT, WEST VIRGINIA 26330

CEC Project 172-597

November 2018



Civil & Environmental Consultants, Inc.



November 6, 2018

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

Dear Mr. Martin:

Subject: Setback Waiver Request
 Arsenal Resources
 Drainer TFP23 Well Pad Project
 Taylor County, West Virginia
 CEC Project 172-597

1.0 INTRODUCTION

On behalf of Arsenal Resources (Arsenal), Civil & Environmental Consultants, Inc., (CEC) is submitting a Setback Waiver Request pursuant to Chapter 22 Article 6A Section 12 of West Virginia Code. Arsenal is requesting a waiver for one wetland which lies within 100-feet from the limits of disturbance (LOD) of the proposed Drainer TFP23 Well Pad Project located in Taylor County, West Virginia.

Arsenal is proposing to construct a natural gas well pad with attendant facilities and associated access roads. The total LOD for the Drainer TFP23 Well Pad Project is 27.35 acres and will support up to 10 horizontal wells. The waiver request form is included as Attachment A and the following sections provide a detailed description as required by the waiver.

2.0 WETLAND WAIVER REQUEST

Question 1: Describe the proposed project location, including unique identifying names of all wetlands, and the names of perennial streams for which the waiver is sought.

The proposed Drainer TFP23 Well Pad Project is located in southwestern Taylor County, West Virginia near the town of Flemington, as shown on the attached portions of the Brownton and Philippi, West Virginia USGS quadrangle maps (Attachment B). The proposed well pad LOD is within 100-feet of one wetland. Wetland H lies partially within the proposed well pad LOD. Arsenal will be requesting authorization from the U.S Army Corps of Engineers, Pittsburgh District (USACE) for permanent impacts to portions of this feature. Wetland H is proposed for permanent impacts from grading activities from well pad access road construction and temporary impacts from placement of erosion and sediment control measures.

Question 2: Justify the proposed activity by describing alternatives to this project that were considered

a. Include a No-Action Alternative as to show "the future without the project".

The No-Action alternative does not represent "no alteration" of the existing environment, as future development could likely occur. However, under this alternative, the Drainer TFP23 Well

Mr. James Martin
Project 172-597
Page 2
November 6, 2018

Pad Project would not be constructed and would produce no immediate environmental impacts and, consequently would not require a waiver; however, this option would not fulfill the project's purpose and need.

b. Location alternatives must be shown.

Prior to the currently proposed design of the Drainer TFP23 Well Pad, Arsenal considered one alternate configuration for development of the project. The PC01 Preliminary Site Plan, Attachment D, represented Arsenal's initial design and most efficient facility layout prior to obtaining detailed information regarding the location and types of on-site aquatic resources. CEC biologists subsequently performed detailed wetland and stream delineations, and characterized all potentially jurisdictional areas on the site. The resulting aquatic resource data was then incorporated into the design of the facility to arrive at the proposed design. The wetland and stream delineation map is included as Attachment E.

The PC01 alternative had the proposed well pad in a similar location with soil stockpiles and proposed impoundments lying northwest of the proposed well pad and access connecting to Count Route 76. Aquatic features identified during wetland and stream delineations lead to changes to the design resulting in changes to site design represented in the PP01 Preliminary Site Plan. This design changes the access road to follow the existing strip bench and utilizes existing farm roads. The proposed stockpiles and impoundment were moved to the northeast of the project along the existing strip bench. This alternative lessened necessary impacts to aquatic resources and placed the majority of the project upon previously disturbed areas.

Once Arsenal finalized their site selection, the engineering team began extensive studies to determine the most practicable facility layout. The proposed Drainer TFP23 Well Pad went through various conceptual designs prior to the proposed design. Another Preliminary Site Plan, PP01 Preliminary Site Plan (Attachment D) represented Arsenal's design that incorporated a different impoundment site, soil stockpiles, and access road repositioned to avoid aquatic resources to the greatest extent possible. The PP01 design negates the need to impact three palustrine emergent (PEM) wetlands, one PEM/palustrine forested (PFO) wetland, one ephemeral stream, and two intermittent streams.

The final site plan is similar to the PP01 plan and represents a reduction in grading for the access road and a reduction of the footprint of the proposed impoundment resulting in a smaller footprint for the northern soil stockpile. The goal of these changes was to reduce the amount of earthwork and ground disturbance necessary for project construction. The final design does, however, include impacts to Wetland H where none were proposed in PP01. This decision was necessary due to the need for a widening of the access road near the entrance of the pad to reduce traffic entering and exiting the proposed well pad.

The proposed design represents the minimum degradation alternative and Arsenal's commitment to reducing aquatic impacts to the furthest extent practicable while still meeting the projects purpose and need; however, a waiver is now required for this feature. The proposed Site Plans are included as Attachment F.

Mr. James Martin
Project 172-597
Page 3
November 6, 2018

c. Must demonstrate why a one hundred foot buffer cannot be maintained.

Maintaining a 100-foot buffer from all on-site wetlands and streams was not feasible due to topographic restraints and location of the existing features. To maintain a 100-foot buffer from Wetland H, the pad would need to be shifted to the northwest, but this option would be similar to that presented in PC01 Preliminary Site Plans, and would require impacts to two additional intermittent streams and one PEM/PFO wetland. Shifting the layout would place the well pad on a narrower portion of the existing strip mine bench, which would require additional earthwork and would result in excess spoil that would require a larger LOD for an additional material stockpile. The only other alternative to meet the setback requirements would be a reduction in the project's footprint and the proposed design represents the minimum footprint required to meet the projects purpose and need. A reduction in the pad's limits would mean the project could not be developed.

d. Describe how the proposed project is the least environmentally damaging practicable alternative.

The proposed Drainer TFP23 design represents the alternative which reduces permanent impacts to the greatest degree. The conceptual designs would have reduced the need to obtain wetland waivers but instead would have resulted in additional impacts, large amounts of earthwork, potentially less stable graded slopes, and a larger project footprint due to the necessary soil stockpile.

Question 3: Identify sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect waters of the state. This description should include all additional erosion and sediment control measures and devices that will be used.

As part of their permitting process, Arsenal has prepared an Erosion and Sedimentation Control Plan (E&SCP) specific for this project which stipulates specific seed mix for post-construction soil stabilization. The E&SCP will be implemented to reduce soil erosion, compaction, and sedimentation of receiving streams and wetlands. Proper construction sequencing and implementation of the E&SCP will ensure water quality impacts are minimized throughout the project area. Arsenal will also ensure that any contaminants will be strictly controlled. Furthermore, appropriate stormwater management features and culverts will be installed along the access roads to prevent the damming and funneling of water that might otherwise reach wetland areas.

Question 4: Provide mapping, plans, specifications and design analysis for the preferred alternative to the project.

a. Specify in writing what additional controls, measures, devices, monitoring, etc. will be used to protect wetlands and/or perennial streams for which the waiver is sought.

Mr. James Martin
Project 172-597
Page 4
November 6, 2018

West Virginia Department of Environmental Protection approved erosion and sediment controls will be maintained continuously throughout the project. Specifically, Diversion Ditch 11 will be constructed around the southern and eastern limits of the pad and will dissipate into Wetland H, however a riprap apron will be constructed upslope of the wetland in order to slow the velocity of concentrated water flows to reduce erosion and minimize sedimentation. Additionally, Proposed Sump 1 will also drain into Wetland H, but will be equipped with a similar riprap apron to accomplish these same goals. Any additional flow added to Wetland H from these stormwater diversion structures will be drained from Wetland H by proposed Culvert 5.

The following attachments are included with this waiver request:

- Attachment A: Wetland Waiver Request Form
- Attachment B: Site Location Map
- Attachment C: Preliminary Site Plans
- Attachment D: Wetland and Stream Delineation Map
- Attachment E: Proposed Final Site Plans

3.0 CLOSING

A Nationwide Permit-39 has been prepared and submitted to the U.S. Army Corps of Engineers and the WVDEP, Division of Water and Waste Management will be notified. We appreciate your review of this Wetland Waiver Request. Please contact Eddie Carder at (304) 940-1204, or at ecarder@arsenalresources.com, if you have any questions or require additional information.

Respectfully submitted,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC


Anthony Ludovici
Project Scientist


Jacquelyn Kester
Senior Project Manager

Enclosures

cc: Mr. Eddie Carder, Arsenal Resources

ATTACHMENT A

WETLAND WAIVER REQUEST

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: Not yet assigned

Operator's Well Number: _____

Well Operator: Arsenal ResourcesWell Number: 201, 202, 203, 204, 205, 211, 212, 213, 214, 215Well Pad Name: Drainer TFP23County, District, Quadrangle of Well Location: Taylor County, Flemington District, Brownton & Philippi Quad

Answer the questions below to request a waiver from West Virginia Department of Environmental Protection for any wetlands or perennial streams which lie within one hundred feet of proposed project Limit of Disturbance (LOD), which includes any erosion and sediment control devices to be used.

This waiver shall be requested pursuant to Chapter 22 Article 6A Section 12 of West Virginia Code, which states:

§22-6A-12(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.

§22-6A-12(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.

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: Not yet assigned

Operator's Well Number: _____

Answer in the space provided, or use additional pages as necessary to fully answer the questions below:

- 1. Describe the proposed project location, including unique identifying names of all wetlands, and the names of perennial streams for which the waiver is sought.**

Please refer to Section 2.0, Question 1 of the letter.

- 2. Justify the proposed activity by describing alternatives to this project that were considered.**

- a. **Include a No-Action Alternative as to show "the future without the project"**
- b. **Location Alternatives must be shown**
- c. **Must demonstrate why a one hundred foot buffer cannot be maintained**
- d. **Describe how the proposed project is the least environmentally damaging practicable alternative**

Please refer to Section 2.0, Question 2 of the letter.

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: Not yet assigned

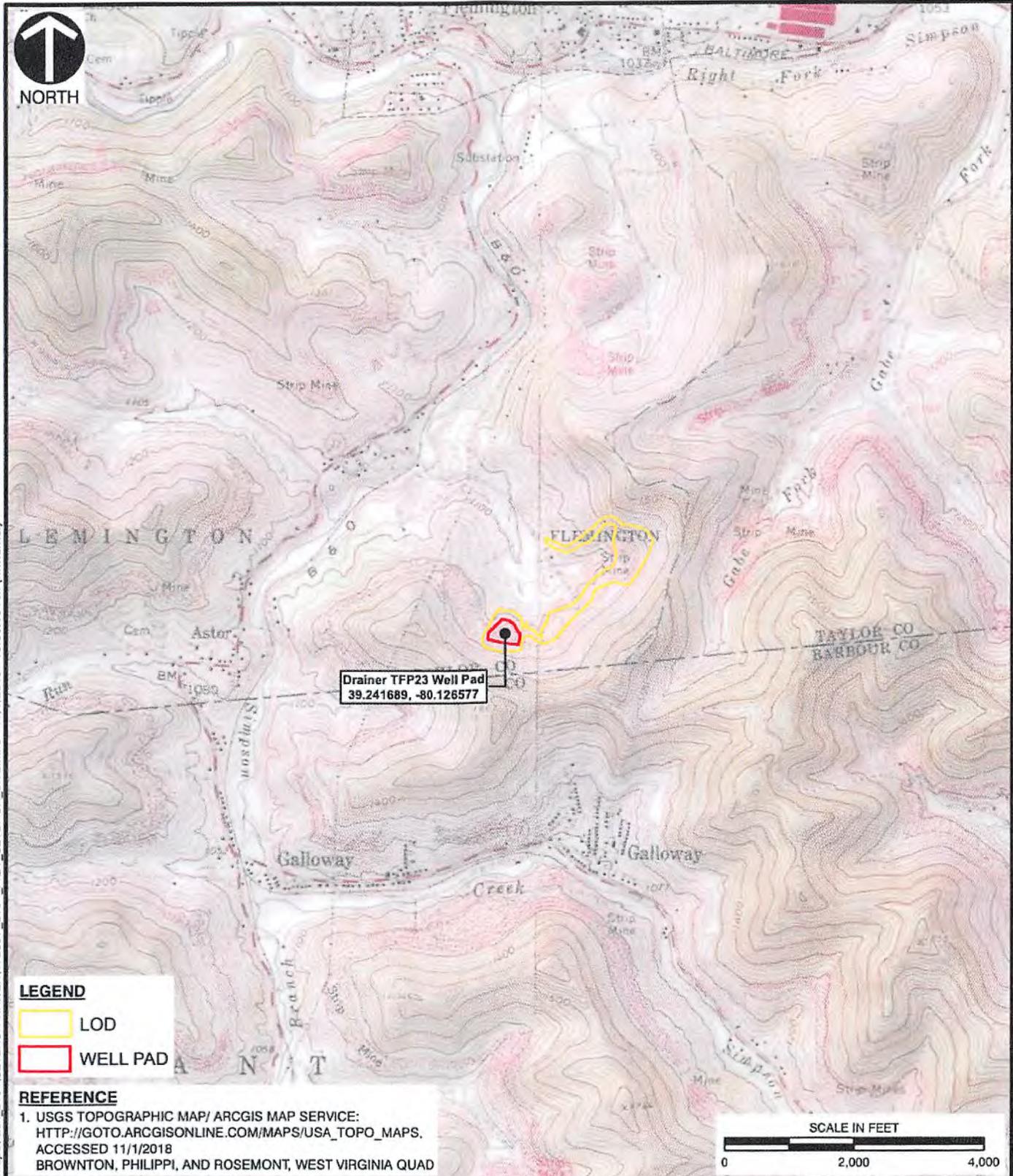
Operator's Well Number: _____

- 3. Identify sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. This description should include all additional erosion and sediment control measures and devices that will be used.**

Please refer to Section 2.0, Question 3 of the letter.

- 4. Provide mapping, plans, specifications and design analysis for the preferred alternative to the project.**
 - a. Specify in writing what additional controls, measures, devices, monitoring, etc. will be used to protect these wetlands and/or perennial streams for which the waiver is sought.

Please refer to Section 2.0, Question 4 of the letter.



Drainer TFP23 Well Pad
39.241689, -80.126577

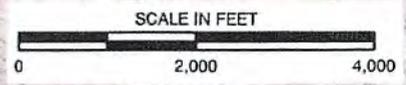
LEGEND

LOD

WELL PAD

REFERENCE

1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps).
 ACCESSED 11/1/2018
 BROWNTON, PHILIPPI, AND ROSEMONT, WEST VIRGINIA QUAD



I:\svr-bridgeport\P\2017\172-597-GIS\Maps\Task_2104\SETBACK WAIVER\172597_2104_FIG1_SETBACK SITE.mxd - 11/1/2018 - 10:30:15 AM (mwturner)

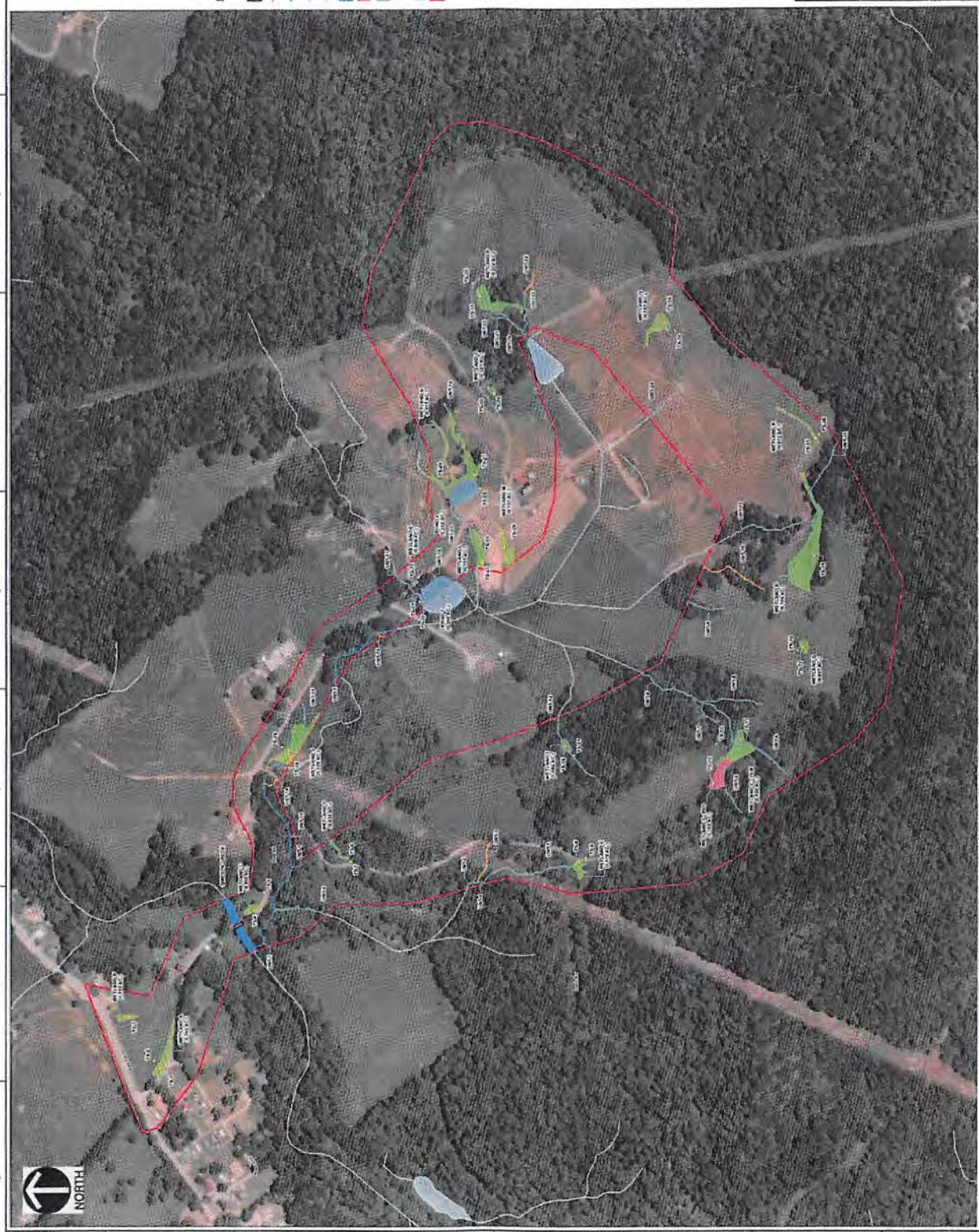


Civil & Environmental Consultants, Inc.
 600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121
 Ph: 304-933-3119 · Toll: 855-488-9539 · Fax: 304-933-3327
www.cecinc.com

ARSENAL RESOURCES
 DRAINER TFP23 WELL PAD
 TAYLOR COUNTY, WEST VIRGINIA

USGS SITE LOCATION MAP

DRAWN BY:	MWT	CHECKED BY:	AJL	APPROVED BY:	<i>JDK*</i> <small>* Hand signature on file</small>	FIGURE NO:	1
DATE:	11/01/2018	SCALE:	1" = 2,000'	PROJECT NO:	172-597.2104		



- LEGEND**
- TEST SITE
 - EXISTING BRIDGE
 - DEFINITE ELEVATION
 - PERMANENT STREAM
 - INTERMITTENT STREAM
 - SPERMATOPHYTES
 - WETLAND - PUB
 - WETLAND - P10
 - WETLAND - P2M
 - WY 5AM3 STREAM
 - WY 5AM3 WATER BODY
 - DELINEATION AREA

NOTES

1. THIS MAP WAS PREPARED FOR THE USE OF THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE CONSULTANT. THE CONSULTANT MAKES NO WARRANTY, REPRESENTATION, OR GUARANTEE, EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, OR SUITABILITY OF THE INFORMATION PROVIDED HEREON. THE CONSULTANT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS MAP OR FOR ANY DAMAGE TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS MAP. THE CONSULTANT SHALL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS MAP.

REFERENCES

1. EARTH DATA ACQUISITION SERVICE
 HTTP://GEOGRAPHICDATA.WORLDIMAGE.COM
 ACQUIRED: 12/08/2018 11:00:00 AM EST

2. U.S. GEOLOGICAL SURVEY
 TECHNICAL CENTER SERVICES
 DATA, OBTAINED BY WEST VIRGINIA TECHNICAL CENTER



Civil & Environmental Consultants, Inc.
 1000 W. MAIN STREET, SUITE 100
 CHARLOTTE, NORTH CAROLINA 28202
 TEL: 704.333.3333 FAX: 704.333.3334

ARSENAL RESOURCES, LLC.
DRAWER TFP23 WELL PAD
TAYLOR COUNTY, WEST VIRGINIA

DATE: 02/15/2019
 TIME: 11:00 AM
 DRAWN BY: JTB
 CHECKED BY: JTB
 SCALE: AS SHOWN

WETLAND AND STREAM DELINEATION MAP

4



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.

47 09 10 13 50

API NO. 47-091 - 02/15/2019

WW-6B
(04/15)

OPERATOR WELL NO. Drainer TFP 23 201

Well Pad Name: Drainer TFP 23

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

1) Well Operator: Arsenal Resources 494519412 Taylor Fleming Brownton
Operator ID County District Quadrangle

2) Operator's Well Number: Drainer TFP 23 201 Well Pad Name: Drainer TFP 23

3) Farm Name/Surface Owner: Ross Dunn, J.B. Dunn, & Clinton Drainer Public Road Access: CR 3/12

4) Elevation, current ground: 1,250.98' Elevation, proposed post-construction: 1,242.00'

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):
Target Formation- Marcellus Shale, Top- 7,699.0ft, Bottom- 7,788.0ft, Anticipated Thickness- 89ft, Associated Pressure- 0.5 psi/ft

8) Proposed Total Vertical Depth: 7,774 ft.

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16,877.5 ft.

11) Proposed Horizontal Leg Length: 8,289.4 ft.

12) Approximate Fresh Water Strata Depths: 4', 89', 122', 180', 200', 325', 332', 537', 765'

13) Method to Determine Fresh Water Depths: Offsetting wells reported water depths (001-02384, 091-00086, 091-00089, 091-00582, 091-00720)

14) Approximate Saltwater Depths: 1,165 ft.

15) Approximate Coal Seam Depths: Elk Lick - 306', Harlem - 380', Bakartown - 481', Brush Creek - 561', Upper Freeport - 615', Lower Freeport - 684', Upper Kittanning - 749', Middle Kittanning - 807', Lower Kittanning - 828', Clarion - 909'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Known

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No None Known

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	26	Used		102.7	80	80	CTS
Fresh Water	13.375	New	J-55	54.5	865	865	CTS
Coal							
Intermediate	9.625	New	J-55	40	1500	1500	CTS
Production	5.5	New	P-110	20	16,877	16,877	TOC @ 1350
Tubing							
Liners							

Thomas L. Reynolds
9-18-18

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	26	36			0	Class A, 3% CaCl2	1.2
Fresh Water	13.375	17.5	0.38	2730	900	Class A, 3% CaCl2	1.2
Coal							
Intermediate	9.625	12.25	0.395	3950	1500	Class A, 3% CaCl2	1.29
Production	5.5	8.5-8.75	0.361	12,640	9,500	Class A/50:50 Poz	1.29/1.34
Tubing					5000		
Liners					N/A		

PACKERS

Kind:				
Sizes:				
Depths Set:				

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

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 26" casing and circulate 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 an 8- 3/4" hole to a designed KOP. We will 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): 27.35

22) Area to be disturbed for well pad only, less access road (acres): 6.95

23) Describe centralizer placement for each casing string:

26"- 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 1,600'; there will be no centralizers from 1,600 to surface.

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

26" will be circulated to 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 Class A cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 1,350' (+/- 150' above the casing shoe for the 9 5/8") with Class A and 50/50 Poz cement retarded (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 for placement and possibly 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.

RECEIVED
Office of Oil and Gas
OCT 10 2018

25) Proposed borehole conditioning procedures:

WV Department of
Environmental Protection

Top holes will be drilled with fresh water 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 of 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 noticed, we will re-run the previous stand of pipe pulled across and circulate 2x bottoms up while watching shakers for signs of cuttings. Once at the base 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.

Well Name # Drainer TFP 23 201		
CEMENT ADDITIVES		
	Name	Purpose
Additive #1:	Bentonite	Helping fluid loss, reducing free water
Additive #2:	Calcium Chloride	Accelerator for low temp application
Additive #3:	Celloflake	Loss circulation additive
Additive #4:	Gypsum	Used for thixotropic properties
Additive #5:	Lignosulfonate	Low temp cement retarder
Additive #6:	Naphthalene Based Dispersant	Used to improve rheological properties of cement
Additive #7:	Cellulose	Help with fluid loss

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

910750
02/15/2019



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, Drainer TFP23, well 201, located in Taylor 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 7,800 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 Drainer TFP23 pad, well 201, during the Quarter of 2019. 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

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

91-01350

Latitude: 39°15'00" SURFACE HOLE 437'

02/15/2019

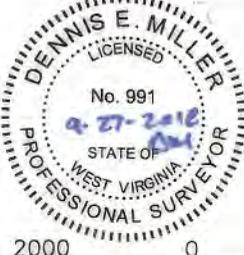
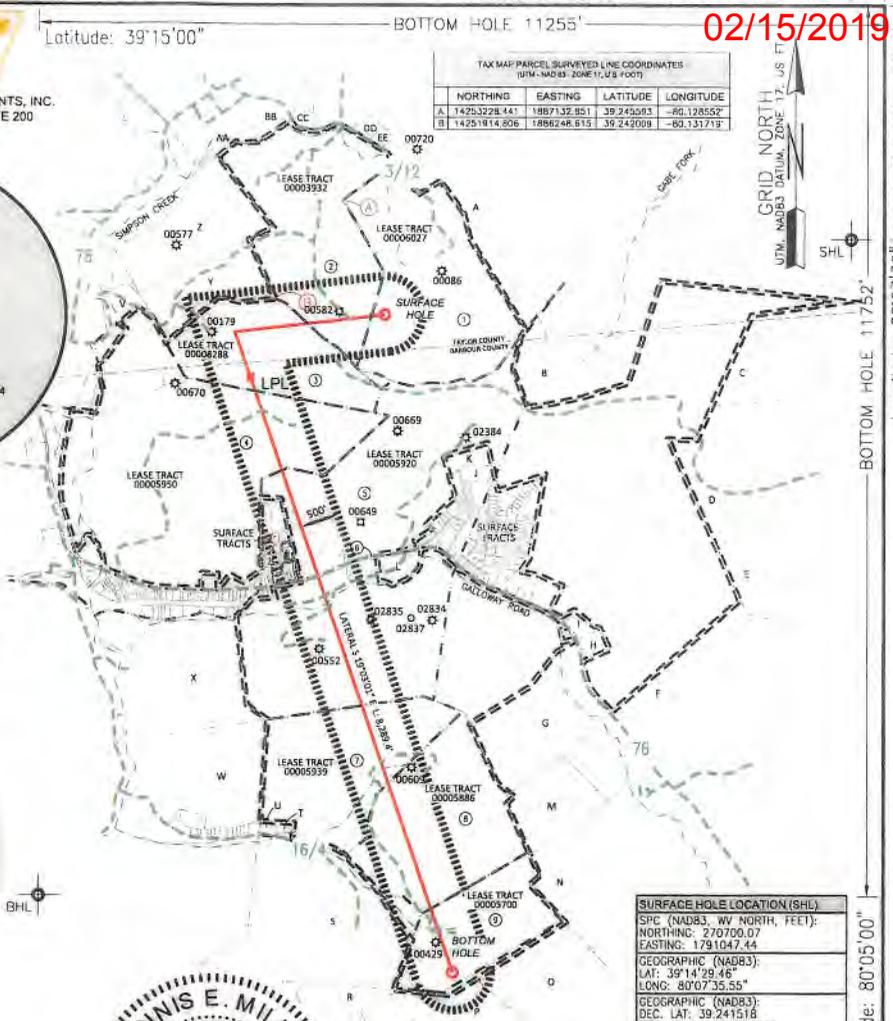
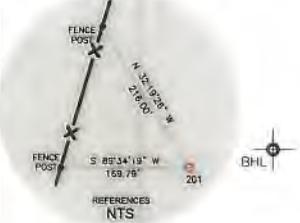
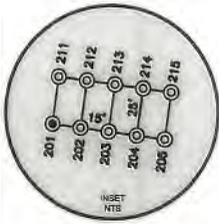
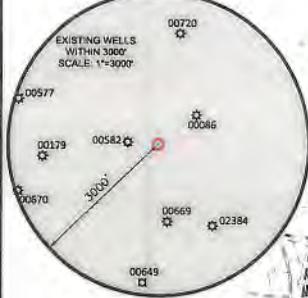


CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
600 MARKETPLACE AVENUE, SUITE 200
BRIDGEPORT, WV 26330
304-933-3119

Latitude: 39°15'00"

BOTTOM HOLE 11255'

TAX MAP PARCEL SURVEYED LINE COORDINATES (UTM - NAD 83 - ZONE 17, US FEET)			
NORTHING	EASTING	LATITUDE	LONGITUDE
A 14253228.441	1887132.851	39.245083	-80.128552
B 14251814.806	1886248.615	39.242089	-80.131719



SURFACE HOLE LOCATION (SHL)	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4343942.123 EASTING: 575377.047
LANDING POINT (LPL)	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4343678.797 EASTING: 574837.514
BOTTOM HOLE LOCATION (BHL)	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4341305.397 EASTING: 575701.591

SURFACE HOLE LOCATION (SHL)	
SPC (NAD83, WV NORTH, FEET):	NORTHING: 270700.07 EASTING: 1791047.44
GEOGRAPHIC (NAD83):	
LAT: 39°14'29.46"	LONG: 80°07'35.55"
GEOGRAPHIC (NAD83):	
DEC. LAT: 39.241518	DEC. LONG: -80.126542
LANDING POINT (LPL)	
SPC (NAD83, WV NORTH, FEET):	NORTHING: 269865.43 EASTING: 1789282.687
GEOGRAPHIC (NAD83):	
LAT: 39°14'21.09"	LONG: 80°07'58.16"
GEOGRAPHIC (NAD83):	
DEC. LAT: 39.239192	DEC. LONG: -80.132823
BOTTOM HOLE LOCATION (BHL)	
SPC (NAD83, WV NORTH, FEET):	NORTHING: 262030.36 EASTING: 1791968.61
GEOGRAPHIC (NAD83):	
LAT: 39°13'03.84"	LONG: 80°07'23.08"
GEOGRAPHIC (NAD83):	
DEC. LAT: 39.217733	DEC. LONG: -80.123077

- WELL RESTRICTIONS**
- NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 825 FEET OF CENTER OF PAD.
 - NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 825 FEET OF CENTER OF PAD.
 - WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 300 FEET OF PROPOSED WELL.
 - PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
 - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
 - NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.
- NOTES ON SURVEY**
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
 - THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 - ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

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

P.S. 991



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

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)

COMPANY: **ARSENAL RESOURCES**

DRAINER TFP 23

OPERATOR'S WELL #: 201

API WELL #: 47 091

STATE COUNTY PERMIT

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

WATERSHED: SIMPSON CREEK ELEVATION: 1,242.00'

DISTRICT: FLEMINGTON DISTRICT COUNTY: TAYLOR QUADRANGLE: BROWNTON

SURFACE OWNER: ROSS DUNN, J.B. DUNN, AND CLINTON DRAINER ACREAGE: 98.97±

OIL & GAS ROYALTY OWNER: WILLIAM B. ROSS ACREAGE: 98.97±

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 18,877.50 MD

WELL OPERATOR: ARSENAL RESOURCES DESIGNATED AGENT: WILLIAM VEIGEL

ADDRESS: 6031 WALLACE RD, EXT. SUITE 300 ADDRESS: 65 PROFESSIONAL PLACE, SUITE 200

CITY: WEXFORD STATE: PA ZIP CODE: 15090 CITY: BRIDGEPORT STATE: WV ZIP CODE: 26330

LEGEND:	REVISIONS:	DATE:
<ul style="list-style-type: none"> PROPOSED SURFACE HOLE / BOTTOM HOLE EXISTING / PRODUCING WELLHEAD LANDING POINT LOCATION EXISTING WATER WELL EXISTING SPRING 	<ul style="list-style-type: none"> SURVEYED BOUNDARY PROPOSED PATH PENETRATED PARCEL LEASE BOUNDARY MAIN ROAD ADJACENT PROPERTY WATER SURVEYED CORNER 	<ul style="list-style-type: none"> 09-24-2018
DRAWN BY: K.E.S.		
SCALE: 1" = 2000'		
DRAWING NO: 172-597		
WELL LOCATION PLAT		

AOR- Attachment "A"

91-01350

02/15/2019



CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
600 MARKETPLACE AVENUE, SUITE 200
BRIDGEPORT, WV 26330
304-933-3119

WELL BORE TABLE FOR SURFACE OWNERS		
TRACT	SURFACE OWNER	TAX PARCEL
1	WILLIAM B. ROSS AND J.B. DUNN AND CLINTON DRAINER	04-10-03
2	ANN ROSS DUNN AND JOHN B. AND ROSS A. DUNN	04-11-24
3	BECKWITH LUMBER COMPANY, INC.	04-11-25
4	DENVER S. JR. AND BRENDA S. WILFONG	09-09-17.2
5	BECKWITH LUMBER COMPANY, INC.	09-08-01
6	CO. RT. 76 (GALLOWAY ROAD)	
7	BECKWITH LUMBER COMPANY, INC.	09-12-59
8	BECKWITH LUMBER COMPANY, INC.	09-13-01
9	LORENA ANNE SLOGAR	09-13-03

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	CLINTON DRAINER	04-10-01
B	KAREN PROPST	05-20-02
C	WILLIAM R. AND ANNE V. HAMMARSTROM	09-08-06
D	WILLIAM R. AND ANNE V. HAMMARSTROM	09-08-05
E	WILLIAM HAMMARSTROM AND CAROLYN WROS	09-08-8.1
F	BECKWITH LUMBER COMPANY INC.	09-13-23
G	AGNES HONCE	09-13-02
H	STEVE A. HONCE ET UX	09-08-04
I	ANDREW C. AND MARY J. BUTLER	09-08-02
J	CALLOWAY COMPANY INC.	09-8A-02
K	RONALD DALE LAWSON AND SHELDON ROBERT LAWSON	09-8A-01
L	RONALD AND JUDY COLLINS	09-08-1.2
M	KATHRYN E. ZEBLEY AND SALINA ZEBLEY	09-13-2.1
N	BECKWITH LUMBER COMPANY INC.	09-13-23
O	BRIAN L. AND REBECCA WENTZ	09-13-08
P	BRIAN L. AND REBECCA WENTZ	09-13-04
Q	DELORES SUE MORGAN AND PATTY JEAN DUFFIELD	09-13-05
R	DRAPER AND ALBERTA MCCAULEY	09-12-09
S	ROBERT H. III AND TINA M. GOFF	09-12-08
T	JEANNETTE REBECCA SMINK	09-12-7.2
U	JEANNETTE REBECCA SMINK	09-12-7.1
V	FRANK D. ZACAVISH	09-12-07
W	FRANK D. ZACAVISH	09-12-05
X	CSX TRANSPORTATION INC.	04-11-28
Y	JERALD L. AND LINDA SUE RIFFLE	04-11-13
Z	JOHN E. SIMPSON	04-11-17.3
AA		04-11-9999.9
BB	PAMELA A. BROWN	04-11-21
CC	CLINTON TIMOTHY AND CANDICE DENISE DRAINER	04-11-27
DD	VIRGINIA SHAFFER AND ADA MAE ANGLIN AND ROBERT PYLE ET AL	04-10-2.1
EE	RANDALL AND CHRYSTAL KELLEY	04-10-2.2

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection
9-27-2018 QM

REVISIONS:	COMPANY:		
	OPERATOR'S	DRAINER TFP 23	DATE: 09-24-2018
	WELL #:	201	DRAWN BY: K.E.S.
	DISTRICT:	COUNTY:	STATE:
	FLEMINGTON DISTRICT	TAYLOR	WV
			SCALE: N/A
			DRAWING NO: 172-597
			WELL LOCATION PLAT 2

AOR Attachment "A"

91-01350
02/15/2019

Area of Review Report - **Drainer TFP 23** Pad, **201** Lateral, **Taylor** County, WV

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
AnnRoss Dunn 1	091-00582	Alliance Petroleum Corporation	Existing	39.241828	-80.128535	4750	Riley, Benson	NA
Cleavenger 1	001-00552	Alliance Petroleum Corporation	Existing	39.229171	-80.129592	4671	Benson	NA
281-CH	001-00609	Alliance Petroleum Corporation	Existing	39.224887	-80.125024	4707	Benson	NA
194-CH	001-00429	Alliance Petroleum Corporation	Existing	39.218889	-80.123643	4609	Fifth, Benson	NA
Coalquest 7	001-02835	ARP Mountaineer Production, LLC	Existing	39.230662	-80.12667	850	Upper and Lower Kittanning Coal	NA
Arlene Zuk 3	091-00179	Braxton Oil & Gas Corp.	Existing	39.240665	-80.13479	4668	Riley, Benson	NA

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

AOR - Attachment "A"

91-01350

02/15/2019



Arsenal Resources

Taylor County, West Virginia

Drainer TFP23 Pad

Drainer TFP23 #201

Wellbore #1

Plan: Design #1

QES Well Planning Report

07 August, 2018



WV Department of
Environmental Protection



Well Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Taylor County, West Virginia		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	Drainer TFP23 Pad				
Site Position:		Northing:	270,700.21 usft	Latitude:	39° 14' 29.466 N
From:	Map	Easting:	1,791,047.37 usft	Longitude:	80° 7' 35.552 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.40 °

Well	Drainer TFP23 #201					
Well Position	+N/-S	0.0 usft	Northing:	270,700.21 usft	Latitude:	39° 14' 29.466 N
	+E/-W	0.0 usft	Easting:	1,791,047.37 usft	Longitude:	80° 7' 35.552 W
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level:	1,242.0 usft

Wellbore	Wellbore #1				
-----------------	-------------	--	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/30/2018	-9.06	66.28	51,689.46635722

Design	Design #1				
---------------	-----------	--	--	--	--

Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	173.94	

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00		
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00		
3,431.2	28.62	263.33	3,372.4	-40.7	-347.8	2.00	2.00	0.00	263.33		
6,156.9	28.62	263.33	5,765.0	-192.3	-1,644.7	0.00	0.00	0.00	0.00		
7,588.1	0.00	360.00	7,137.4	-233.0	-1,992.4	2.00	-2.00	0.00	180.00	VP Drainer TFP23	
8,588.1	90.00	160.95	7,774.0	-834.8	-1,784.7	9.00	9.00	16.10	160.95		
16,877.5	90.00	160.95	7,774.0	-8,670.3	920.6	0.00	0.00	0.00	0.00	PBHL Drainer TFP2	

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection



Well Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Start Build 2.00										
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,100.0	2.00	263.33	2,100.0	-0.2	-1.7	0.0	2.00	2.00	0.00	0.00
2,200.0	4.00	263.33	2,199.8	-0.8	-6.9	0.1	2.00	2.00	0.00	0.00
2,300.0	6.00	263.33	2,299.5	-1.8	-15.6	0.2	2.00	2.00	0.00	0.00
2,400.0	8.00	263.33	2,398.7	-3.2	-27.7	0.3	2.00	2.00	0.00	0.00
2,500.0	10.00	263.33	2,497.5	-5.1	-43.2	0.5	2.00	2.00	0.00	0.00
2,600.0	12.00	263.33	2,595.6	-7.3	-62.2	0.7	2.00	2.00	0.00	0.00
2,700.0	14.00	263.33	2,693.1	-9.9	-84.5	0.9	2.00	2.00	0.00	0.00
2,800.0	16.00	263.33	2,789.6	-12.9	-110.2	1.2	2.00	2.00	0.00	0.00
2,900.0	18.00	263.33	2,885.3	-16.3	-139.3	1.5	2.00	2.00	0.00	0.00
3,000.0	20.00	263.33	2,979.8	-20.1	-171.6	1.8	2.00	2.00	0.00	0.00
3,100.0	22.00	263.33	3,073.2	-24.2	-207.2	2.2	2.00	2.00	0.00	0.00
3,200.0	24.00	263.33	3,165.2	-28.8	-246.0	2.6	2.00	2.00	0.00	0.00
3,300.0	26.00	263.33	3,255.8	-33.7	-288.0	3.1	2.00	2.00	0.00	0.00
3,400.0	28.00	263.33	3,344.9	-39.0	-333.1	3.6	2.00	2.00	0.00	0.00
Start 2725.7 hold at 3431.2 MD										
3,431.2	28.62	263.33	3,372.4	-40.7	-347.8	3.7	2.00	2.00	0.00	0.00
3,500.0	28.62	263.33	3,432.8	-44.5	-380.5	4.1	0.00	0.00	0.00	0.00
3,600.0	28.62	263.33	3,520.6	-50.1	-428.1	4.6	0.00	0.00	0.00	0.00
3,700.0	28.62	263.33	3,608.4	-55.6	-475.7	5.1	0.00	0.00	0.00	0.00
3,800.0	28.62	263.33	3,696.1	-61.2	-523.2	5.6	0.00	0.00	0.00	0.00
3,900.0	28.62	263.33	3,783.9	-66.8	-570.8	6.1	0.00	0.00	0.00	0.00
4,000.0	28.62	263.33	3,871.7	-72.3	-618.4	6.6	0.00	0.00	0.00	0.00
4,100.0	28.62	263.33	3,959.5	-77.9	-666.0	7.1	0.00	0.00	0.00	0.00
4,200.0	28.62	263.33	4,047.2	-83.5	-713.6	7.6	0.00	0.00	0.00	0.00
4,300.0	28.62	263.33	4,135.0	-89.0	-761.1	8.2	0.00	0.00	0.00	0.00
4,400.0	28.62	263.33	4,222.8	-94.6	-808.7	8.7	0.00	0.00	0.00	0.00
4,500.0	28.62	263.33	4,310.6	-100.1	-856.3	9.2	0.00	0.00	0.00	0.00
4,600.0	28.62	263.33	4,398.4	-105.7	-903.9	9.7	0.00	0.00	0.00	0.00
4,700.0	28.62	263.33	4,486.1	-111.3	-951.5	10.2	0.00	0.00	0.00	0.00
4,800.0	28.62	263.33	4,573.9	-116.8	-999.1	10.7	0.00	0.00	0.00	0.00
4,900.0	28.62	263.33	4,661.7	-122.4	-1,046.6	11.2	0.00	0.00	0.00	0.00
5,000.0	28.62	263.33	4,749.5	-128.0	-1,094.2	11.7	0.00	0.00	0.00	0.00

RECEIVED
Office of Oil and Gas
OCT 10 2018



Well Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	28.62	263.33	4,837.3	-133.5	-1,141.8	12.2	0.00	0.00	0.00
5,200.0	28.62	263.33	4,925.0	-139.1	-1,189.4	12.7	0.00	0.00	0.00
5,300.0	28.62	263.33	5,012.8	-144.7	-1,237.0	13.2	0.00	0.00	0.00
5,400.0	28.62	263.33	5,100.6	-150.2	-1,284.5	13.8	0.00	0.00	0.00
5,500.0	28.62	263.33	5,188.4	-155.8	-1,332.1	14.3	0.00	0.00	0.00
5,600.0	28.62	263.33	5,276.1	-161.4	-1,379.7	14.8	0.00	0.00	0.00
5,700.0	28.62	263.33	5,363.9	-166.9	-1,427.3	15.3	0.00	0.00	0.00
5,800.0	28.62	263.33	5,451.7	-172.5	-1,474.9	15.8	0.00	0.00	0.00
5,900.0	28.62	263.33	5,539.5	-178.0	-1,522.4	16.3	0.00	0.00	0.00
6,000.0	28.62	263.33	5,627.3	-183.6	-1,570.0	16.8	0.00	0.00	0.00
6,100.0	28.62	263.33	5,715.0	-189.2	-1,617.6	17.3	0.00	0.00	0.00
Start Drop -2.00									
6,156.9	28.62	263.33	5,765.0	-192.3	-1,644.7	17.6	0.00	0.00	0.00
6,200.0	27.76	263.33	5,803.0	-194.7	-1,664.9	17.8	2.00	-2.00	0.00
6,300.0	25.76	263.33	5,892.3	-199.9	-1,709.6	18.3	2.00	-2.00	0.00
6,400.0	23.76	263.33	5,983.1	-204.8	-1,751.2	18.8	2.00	-2.00	0.00
6,500.0	21.76	263.33	6,075.3	-209.3	-1,789.7	19.2	2.00	-2.00	0.00
6,600.0	19.76	263.33	6,168.8	-213.4	-1,824.9	19.5	2.00	-2.00	0.00
6,700.0	17.76	263.33	6,263.4	-217.2	-1,856.8	19.9	2.00	-2.00	0.00
6,800.0	15.76	263.33	6,359.2	-220.5	-1,885.5	20.2	2.00	-2.00	0.00
6,900.0	13.76	263.33	6,455.9	-223.5	-1,910.8	20.5	2.00	-2.00	0.00
7,000.0	11.76	263.33	6,553.4	-226.0	-1,932.7	20.7	2.00	-2.00	0.00
7,100.0	9.76	263.33	6,651.6	-228.2	-1,951.2	20.9	2.00	-2.00	0.00
7,200.0	7.76	263.33	6,750.5	-230.0	-1,966.4	21.1	2.00	-2.00	0.00
7,300.0	5.76	263.33	6,849.8	-231.3	-1,978.1	21.2	2.00	-2.00	0.00
7,400.0	3.76	263.33	6,949.4	-232.3	-1,986.3	21.3	2.00	-2.00	0.00
7,500.0	1.76	263.33	7,049.3	-232.9	-1,991.1	21.3	2.00	-2.00	0.00
Start DLS 9.00 TFO 160.95									
7,588.1	0.00	360.00	7,137.4	-233.0	-1,992.4	21.3	2.00	-2.00	0.00
7,600.0	1.07	160.95	7,149.3	-233.1	-1,992.4	21.4	9.00	9.00	0.00
7,650.0	5.57	160.95	7,199.2	-235.9	-1,991.5	24.3	9.00	9.00	0.00
7,700.0	10.07	160.95	7,248.7	-242.3	-1,989.2	30.9	9.00	9.00	0.00
7,750.0	14.57	160.95	7,297.5	-252.4	-1,985.8	41.3	9.00	9.00	0.00
7,800.0	19.07	160.95	7,345.4	-266.0	-1,981.0	55.4	9.00	9.00	0.00
7,850.0	23.57	160.95	7,392.0	-283.2	-1,975.1	73.1	9.00	9.00	0.00
7,900.0	28.07	160.95	7,437.0	-303.8	-1,968.0	94.3	9.00	9.00	0.00
7,950.0	32.57	160.95	7,480.1	-327.6	-1,959.8	118.9	9.00	9.00	0.00
8,000.0	37.07	160.95	7,521.1	-354.6	-1,950.5	146.7	9.00	9.00	0.00
8,050.0	41.57	160.95	7,559.8	-384.6	-1,940.1	177.6	9.00	9.00	0.00
8,100.0	46.07	160.95	7,595.9	-417.3	-1,928.8	211.3	9.00	9.00	0.00
8,150.0	50.57	160.95	7,629.1	-452.6	-1,916.6	247.7	9.00	9.00	0.00
8,200.0	55.07	160.95	7,659.3	-490.2	-1,903.6	286.5	9.00	9.00	0.00
8,250.0	59.57	160.95	7,686.3	-530.0	-1,889.9	327.5	9.00	9.00	0.00
8,300.0	64.07	160.95	7,709.9	-571.6	-1,875.5	370.4	9.00	9.00	0.00
8,350.0	68.57	160.95	7,730.0	-614.9	-1,860.6	415.0	9.00	9.00	0.00
8,400.0	73.07	160.95	7,746.4	-659.5	-1,845.2	461.0	9.00	9.00	0.00
8,450.0	77.57	160.95	7,759.1	-705.2	-1,829.4	508.1	9.00	9.00	0.00
8,500.0	82.07	160.95	7,767.9	-751.8	-1,813.3	556.1	9.00	9.00	0.00
8,550.0	86.57	160.95	7,772.9	-798.8	-1,797.1	604.6	9.00	9.00	0.00
Start 8289.4 hold at 8588.1 MD									
8,588.1	90.00	160.95	7,774.0	-834.8	-1,784.7	641.7	9.00	9.00	0.00
8,600.0	90.00	160.95	7,774.0	-846.0	-1,780.8	653.3	0.00	0.00	0.00
8,700.0	90.00	160.95	7,774.0	-940.5	-1,748.2	750.7	0.00	0.00	0.00

RECEIVED
Office of Oil and Gas
OCT 10 2018



Well Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,800.0	90.00	160.95	7,774.0	-1,035.1	-1,715.5	848.1	0.00	0.00	0.00	
8,900.0	90.00	160.95	7,774.0	-1,129.6	-1,682.9	945.6	0.00	0.00	0.00	
9,000.0	90.00	160.95	7,774.0	-1,224.1	-1,650.3	1,043.0	0.00	0.00	0.00	
9,100.0	90.00	160.95	7,774.0	-1,318.6	-1,617.6	1,140.5	0.00	0.00	0.00	
9,200.0	90.00	160.95	7,774.0	-1,413.2	-1,585.0	1,237.9	0.00	0.00	0.00	
9,300.0	90.00	160.95	7,774.0	-1,507.7	-1,552.4	1,335.4	0.00	0.00	0.00	
9,400.0	90.00	160.95	7,774.0	-1,602.2	-1,519.7	1,432.8	0.00	0.00	0.00	
9,500.0	90.00	160.95	7,774.0	-1,696.7	-1,487.1	1,530.2	0.00	0.00	0.00	
9,600.0	90.00	160.95	7,774.0	-1,791.3	-1,454.4	1,627.7	0.00	0.00	0.00	
9,700.0	90.00	160.95	7,774.0	-1,885.8	-1,421.8	1,725.1	0.00	0.00	0.00	
9,800.0	90.00	160.95	7,774.0	-1,980.3	-1,389.2	1,822.6	0.00	0.00	0.00	
9,900.0	90.00	160.95	7,774.0	-2,074.8	-1,356.5	1,920.0	0.00	0.00	0.00	
10,000.0	90.00	160.95	7,774.0	-2,169.4	-1,323.9	2,017.4	0.00	0.00	0.00	
10,100.0	90.00	160.95	7,774.0	-2,263.9	-1,291.3	2,114.9	0.00	0.00	0.00	
10,200.0	90.00	160.95	7,774.0	-2,358.4	-1,258.6	2,212.3	0.00	0.00	0.00	
10,300.0	90.00	160.95	7,774.0	-2,452.9	-1,226.0	2,309.8	0.00	0.00	0.00	
10,400.0	90.00	160.95	7,774.0	-2,547.5	-1,193.4	2,407.2	0.00	0.00	0.00	
10,500.0	90.00	160.95	7,774.0	-2,642.0	-1,160.7	2,504.7	0.00	0.00	0.00	
10,600.0	90.00	160.95	7,774.0	-2,736.5	-1,128.1	2,602.1	0.00	0.00	0.00	
10,700.0	90.00	160.95	7,774.0	-2,831.0	-1,095.5	2,699.5	0.00	0.00	0.00	
10,800.0	90.00	160.95	7,774.0	-2,925.6	-1,062.8	2,797.0	0.00	0.00	0.00	
10,900.0	90.00	160.95	7,774.0	-3,020.1	-1,030.2	2,894.4	0.00	0.00	0.00	
11,000.0	90.00	160.95	7,774.0	-3,114.6	-997.6	2,991.9	0.00	0.00	0.00	
11,100.0	90.00	160.95	7,774.0	-3,209.1	-964.9	3,089.3	0.00	0.00	0.00	
11,200.0	90.00	160.95	7,774.0	-3,303.7	-932.3	3,186.8	0.00	0.00	0.00	
11,300.0	90.00	160.95	7,774.0	-3,398.2	-899.6	3,284.2	0.00	0.00	0.00	
11,400.0	90.00	160.95	7,774.0	-3,492.7	-867.0	3,381.6	0.00	0.00	0.00	
11,500.0	90.00	160.95	7,774.0	-3,587.2	-834.4	3,479.1	0.00	0.00	0.00	
11,600.0	90.00	160.95	7,774.0	-3,681.8	-801.7	3,576.5	0.00	0.00	0.00	
11,700.0	90.00	160.95	7,774.0	-3,776.3	-769.1	3,674.0	0.00	0.00	0.00	
11,800.0	90.00	160.95	7,774.0	-3,870.8	-736.5	3,771.4	0.00	0.00	0.00	
11,900.0	90.00	160.95	7,774.0	-3,965.3	-703.8	3,868.8	0.00	0.00	0.00	
12,000.0	90.00	160.95	7,774.0	-4,059.9	-671.2	3,966.3	0.00	0.00	0.00	
12,100.0	90.00	160.95	7,774.0	-4,154.4	-638.6	4,063.7	0.00	0.00	0.00	
12,200.0	90.00	160.95	7,774.0	-4,248.9	-605.9	4,161.2	0.00	0.00	0.00	
12,300.0	90.00	160.95	7,774.0	-4,343.4	-573.3	4,258.6	0.00	0.00	0.00	
12,400.0	90.00	160.95	7,774.0	-4,437.9	-540.7	4,356.1	0.00	0.00	0.00	
12,500.0	90.00	160.95	7,774.0	-4,532.5	-508.0	4,453.5	0.00	0.00	0.00	
12,600.0	90.00	160.95	7,774.0	-4,627.0	-475.4	4,550.9	0.00	0.00	0.00	
12,700.0	90.00	160.95	7,774.0	-4,721.5	-442.7	4,648.4	0.00	0.00	0.00	
12,800.0	90.00	160.95	7,774.0	-4,816.0	-410.1	4,745.8	0.00	0.00	0.00	
12,900.0	90.00	160.95	7,774.0	-4,910.6	-377.5	4,843.3	0.00	0.00	0.00	
13,000.0	90.00	160.95	7,774.0	-5,005.1	-344.8	4,940.7	0.00	0.00	0.00	
13,100.0	90.00	160.95	7,774.0	-5,099.6	-312.2	5,038.2	0.00	0.00	0.00	
13,200.0	90.00	160.95	7,774.0	-5,194.1	-279.6	5,135.6	0.00	0.00	0.00	
13,300.0	90.00	160.95	7,774.0	-5,288.7	-246.9	5,233.0	0.00	0.00	0.00	
13,400.0	90.00	160.95	7,774.0	-5,383.2	-214.3	5,330.5	0.00	0.00	0.00	
13,500.0	90.00	160.95	7,774.0	-5,477.7	-181.7	5,427.9	0.00	0.00	0.00	
13,600.0	90.00	160.95	7,774.0	-5,572.2	-149.0	5,525.4	0.00	0.00	0.00	
13,700.0	90.00	160.95	7,774.0	-5,666.8	-116.4	5,622.8	0.00	0.00	0.00	
13,800.0	90.00	160.95	7,774.0	-5,761.3	-83.8	5,720.2	0.00	0.00	0.00	
13,900.0	90.00	160.95	7,774.0	-5,855.8	-51.1	5,817.7	0.00	0.00	0.00	
14,000.0	90.00	160.95	7,774.0	-5,950.3	-18.5	5,915.1	0.00	0.00	0.00	
14,100.0	90.00	160.95	7,774.0	-6,044.9	14.2	6,012.6	0.00	0.00	0.00	

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of Environmental Protection



Well Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,200.0	90.00	160.95	7,774.0	-6,139.4	46.8	6,110.0	0.00	0.00	0.00
14,300.0	90.00	160.95	7,774.0	-6,233.9	79.4	6,207.5	0.00	0.00	0.00
14,400.0	90.00	160.95	7,774.0	-6,328.4	112.1	6,304.9	0.00	0.00	0.00
14,500.0	90.00	160.95	7,774.0	-6,423.0	144.7	6,402.3	0.00	0.00	0.00
14,600.0	90.00	160.95	7,774.0	-6,517.5	177.3	6,499.8	0.00	0.00	0.00
14,700.0	90.00	160.95	7,774.0	-6,612.0	210.0	6,597.2	0.00	0.00	0.00
14,800.0	90.00	160.95	7,774.0	-6,706.5	242.6	6,694.7	0.00	0.00	0.00
14,900.0	90.00	160.95	7,774.0	-6,801.1	275.2	6,792.1	0.00	0.00	0.00
15,000.0	90.00	160.95	7,774.0	-6,895.6	307.9	6,889.6	0.00	0.00	0.00
15,100.0	90.00	160.95	7,774.0	-6,990.1	340.5	6,987.0	0.00	0.00	0.00
15,200.0	90.00	160.95	7,774.0	-7,084.6	373.1	7,084.4	0.00	0.00	0.00
15,300.0	90.00	160.95	7,774.0	-7,179.2	405.8	7,181.9	0.00	0.00	0.00
15,400.0	90.00	160.95	7,774.0	-7,273.7	438.4	7,279.3	0.00	0.00	0.00
15,500.0	90.00	160.95	7,774.0	-7,368.2	471.1	7,376.8	0.00	0.00	0.00
15,600.0	90.00	160.95	7,774.0	-7,462.7	503.7	7,474.2	0.00	0.00	0.00
15,700.0	90.00	160.95	7,774.0	-7,557.3	536.3	7,571.6	0.00	0.00	0.00
15,800.0	90.00	160.95	7,774.0	-7,651.8	569.0	7,669.1	0.00	0.00	0.00
15,900.0	90.00	160.95	7,774.0	-7,746.3	601.6	7,766.5	0.00	0.00	0.00
16,000.0	90.00	160.95	7,774.0	-7,840.8	634.2	7,864.0	0.00	0.00	0.00
16,100.0	90.00	160.95	7,774.0	-7,935.4	666.9	7,961.4	0.00	0.00	0.00
16,200.0	90.00	160.95	7,774.0	-8,029.9	699.5	8,058.9	0.00	0.00	0.00
16,300.0	90.00	160.95	7,774.0	-8,124.4	732.1	8,156.3	0.00	0.00	0.00
16,400.0	90.00	160.95	7,774.0	-8,218.9	764.8	8,253.7	0.00	0.00	0.00
16,500.0	90.00	160.95	7,774.0	-8,313.5	797.4	8,351.2	0.00	0.00	0.00
16,600.0	90.00	160.95	7,774.0	-8,408.0	830.0	8,448.6	0.00	0.00	0.00
16,700.0	90.00	160.95	7,774.0	-8,502.5	862.7	8,546.1	0.00	0.00	0.00
16,800.0	90.00	160.95	7,774.0	-8,597.0	895.3	8,643.5	0.00	0.00	0.00
TD at 16877.5									
16,877.5	90.00	160.95	7,774.0	-8,670.3	920.6	8,719.0	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
VP Drainer TFP23 #201 - hit/miss target - Shape - Point	0.00	0.00	7,137.4	-233.0	-1,992.4	270,467.19	1,789,054.92	39° 14' 27.025 N	80° 8' 0.856 W
PBHL Drainer TFP23 - plan hits target center - Point	0.00	0.00	7,774.0	-8,670.3	920.6	262,029.94	1,791,967.97	39° 13' 3.835 N	80° 7' 23.087 W

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection



Well Planning Report

91-01350
02/15/2019
QES

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Drainer TFP23 #201
Company:	Arsenal Resources	TVD Reference:	WELL @ 1269.0usft
Project:	Taylor County, West Virginia	MD Reference:	WELL @ 1269.0usft
Site:	Drainer TFP23 Pad	North Reference:	Grid
Well:	Drainer TFP23 #201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.0	2,000.0	0.0	0.0	Start Build 2.00
3,431.2	3,372.4	-40.7	-347.8	Start 2725.7 hold at 3431.2 MD
6,156.9	5,765.0	-192.3	-1,644.7	Start Drop -2.00
7,588.1	7,137.4	-233.0	-1,992.4	Start DLS 9.00 TFO 160.95
8,588.1	7,774.0	-834.8	-1,784.7	Start 8289.4 hold at 8588.1 MD
16,877.5	7,774.0	-8,670.3	920.6	TD at 16877.5

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

WW-9
(4/16)

4709101350 02/15/2019

API Number 47 - 091 -
Operator's Well No. Drainer TFP 23 201

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) Simpson Creek Quadrangle Brownnton

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 and then be taken to a landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Vertical, Freshwater, Horizontal, Oil Based Mud

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

Additives to be used in drilling medium? Bentonite, Soap & 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? Meadowfill Landfill/Wastemanagement, Westmoreland Sanitary Landfill, Apex 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

RECEIVED
Office of Oil and Gas

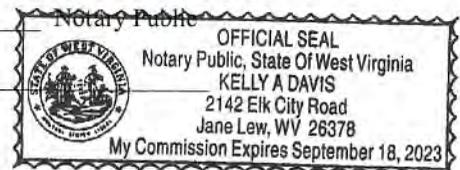
OCT 10 2018

Subscribed and sworn before me this 18th day of September, 20 18

Kelly A. Davis

My commission expires September 18, 2023

WV Department of
Environmental Protection



Arsenal Resources

Proposed Revegetation Treatment: Acres Disturbed 27.35 Prevegetation pH 6.8 Average

Lime 2.67 Tons/acre or to correct to pH 6.4

Fertilizer type 10-20-20

Fertilizer amount 1000 lbs/acre

Mulch 3-4 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	129	Orchard Grass	129
Rye	93	Rye	93
Clover	24	Clover	24
Timothy	45	Timothy	45

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: [Signature]

Comments: Re-seed and mulch all disturbed areas as soon as reasonably possible per regulation. Upgrade erosion and sediment control measures where needed per the West Virginia Erosion and Sediment Control Field Manual.

Title: OIL & GAS INSPECTOR

Date: 9-18-18

Field Reviewed? Yes No

RECEIVED
Office of Oil and Gas
OCT 10 2018



ARSENAL

R E S O U R C E S

SITE SAFETY PLAN

Drainer TFP 23 #201

911 Address:

635 Ross Rd

Flemington, WV 26347

Samuel L. Reynolds

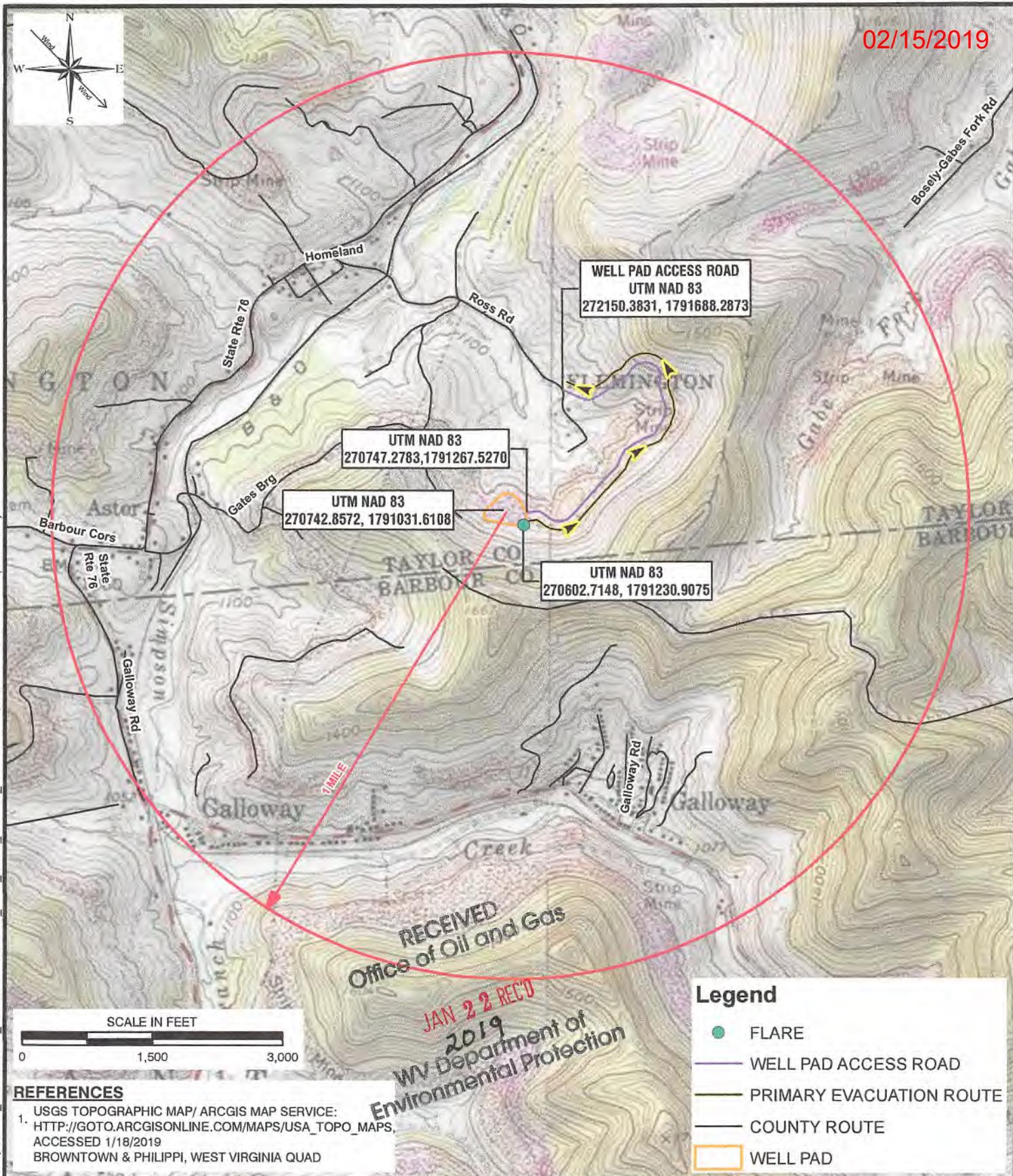
9-18-18

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

02/15/2019



Legend

- FLARE
- WELL PAD ACCESS ROAD
- PRIMARY EVACUATION ROUTE
- COUNTY ROUTE
- WELL PAD

REFERENCES

1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps),
 ACCESSED 1/18/2019
 BROWNTOWN & PHILIPPI, WEST VIRGINIA QUAD

I:\svr-bridgeport\P:120171172-5971-GIS\Maps\Task_2104\WATER_PURVEYOR\172597_2104_WELL_SAFETY_PLAN.mxd - 1/18/2019 - 10:14:48 AM (mwturner)



Civil & Environmental Consultants, Inc.
 600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121
 Ph: 304-933-3119 • Toll: 855-488-9539 • Fax: 304-933-3327
www.cecinc.com

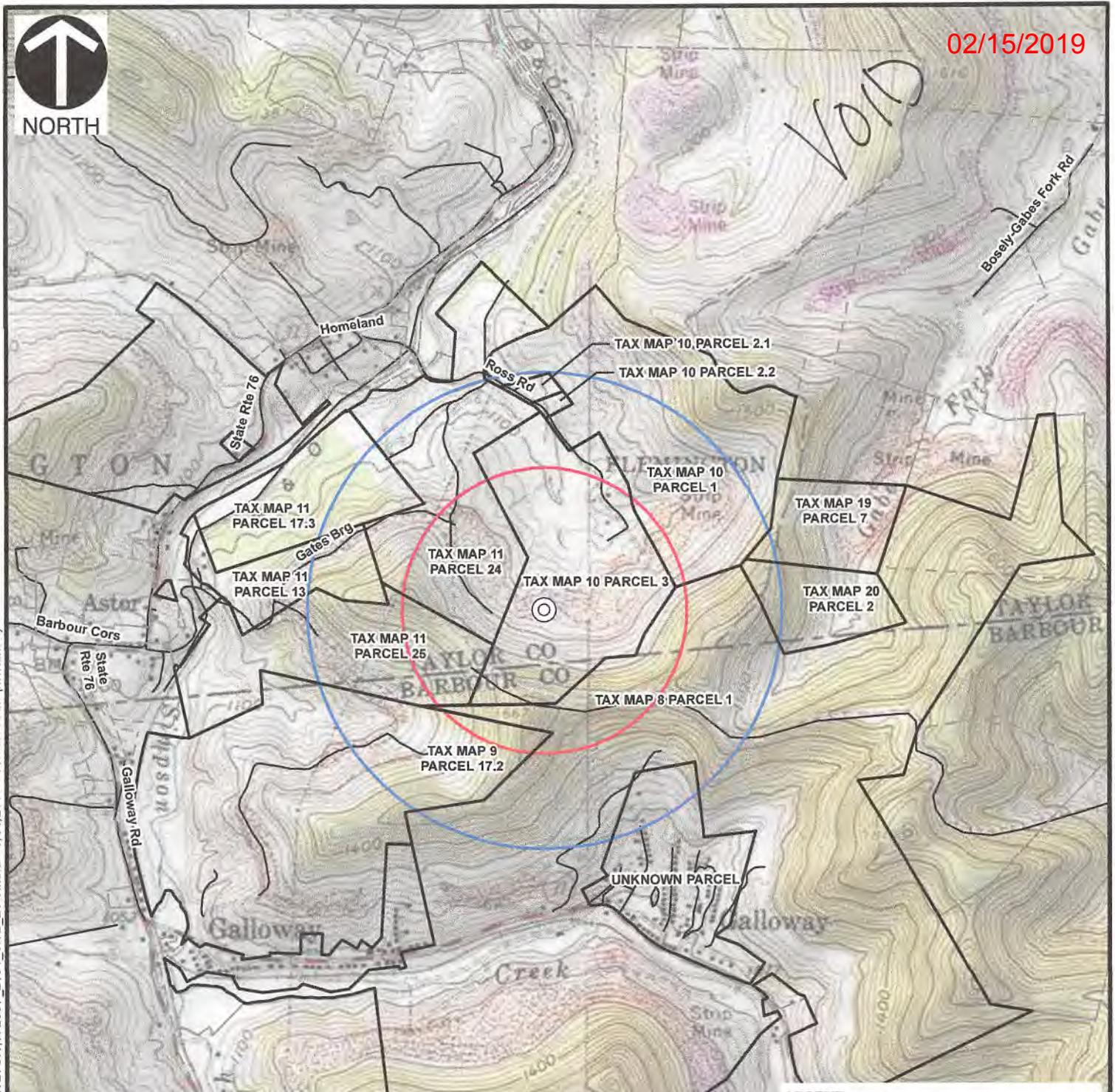
ARSENAL RESOURCES
 DRAINER TFP23 WELL PAD
 TAYLOR COUNTY, WEST VIRGINIA

WELL SAFETY PLAN MAP

DRAWN BY:	MWT	CHECKED BY:	DRAFT	APPROVED BY:	DRAFT*	FIGURE NO:	1
DATE:	01/18/2019	SCALE:	1" = 1,500'	PROJECT NO:	172-597.2104		



VOID



LEGEND

- CENTER WELL
- 1,500' BUFFER
- 2,500' BUFFER
- PARCELS IN BUFFER
- PARCELS OUT OF BUFFER

REFERENCES

1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps),
 ACCESSED 1/14/2019
 BROWNTOWN & PHILIPPI, WEST VIRGINIA QUAD



Civil & Environmental Consultants, Inc.
 600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121
 Ph: 304-933-3119 • Toll: 855-488-9539 • Fax: 304-933-3327
www.cecinc.com

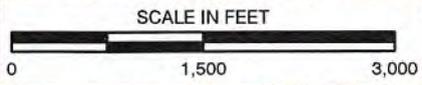
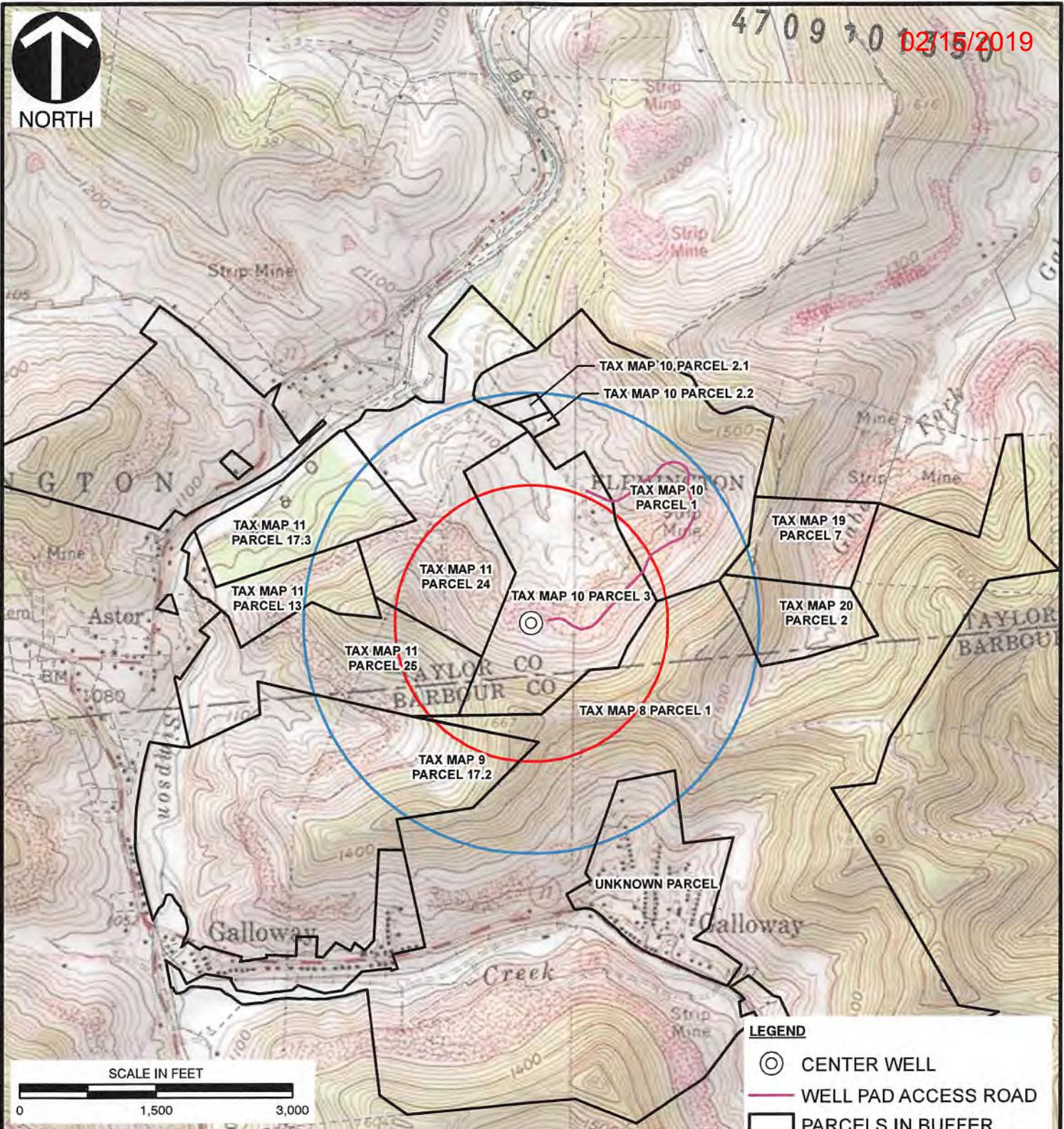
ARSENAL RESOURCES
 DRAINER TFP23 WELL PAD
 TAYLOR COUNTY, WEST VIRGINIA

USGS SITE LOCATION MAP

DRAWN BY: MWT	CHECKED BY: JTS	APPROVED BY: DRAFT*	FIGURE NO: WP-1
DATE: 5/22/2018	SCALE: 1" = 1,500'	PROJECT NO: 172-597.2104	

\\svr-bridgeport\p:\2017\172-597-GIS\Maps\Task_2104\WATER_PURVEYOR\172597_2104_SITE_LOC.mxd - 1/14/2019 - 11:38:00 AM (mvturmer)

470930 02/15/2019



REFERENCES
1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS),
ACCESSED 9/11/2018
BROWNTOWN & PHILIPPI, WEST VIRGINIA QUAD

- LEGEND**
- CENTER WELL
 - WELL PAD ACCESS ROAD
 - PARCELS IN BUFFER
 - PARCELS OUT OF BUFFER
 - 2,500' BUFFER
 - 1,500' BUFFER



Civil & Environmental Consultants, Inc.
600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121
Ph: 304-933-3119 • Toll: 855-488-9539 • Fax: 304-933-3327
www.cecinc.com

ARSENAL RESOURCES
DRAINER TFP23 WELL PAD
TAYLOR COUNTY, WEST VIRGINIA
RECEIVED
Office of Oil and Gas
10 2018
WV Department of
Environmental Protection

USGS SITE LOCATION MAP

DRAWN BY:	MWT	CHECKED BY:	DRAFT	APPROVED BY:	DRAFT*	FIGURE NO:	1
DATE:	09/11/2018	SCALE:	1" = 1,500'	PROJECT NO:	172-597.2104		

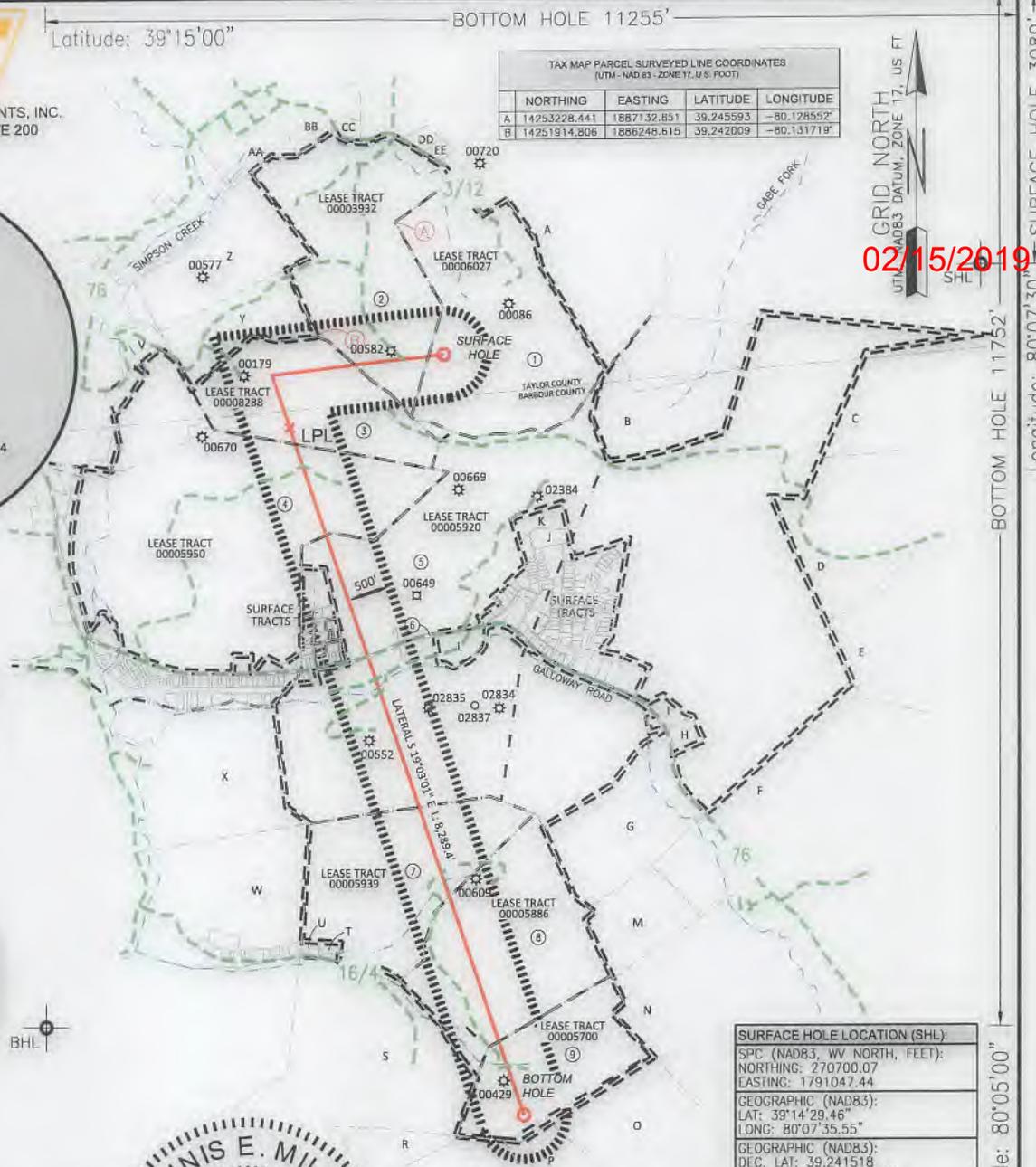
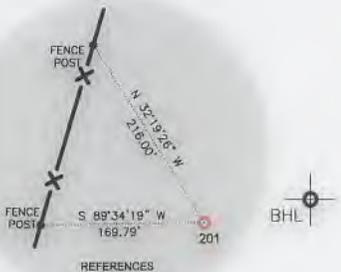
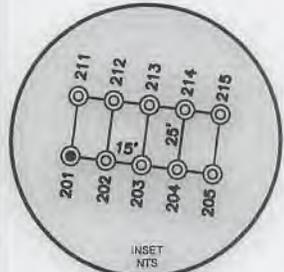
\\svr-bridgeport\p\2017\172-597-GIS\Maps\Task_2104\WATER_PURVEYOR\Well_Safety_Plan\172597_2104_SITE_LOC.mxd - 9/11/2018 - 1:28:18 PM (mwturner)

02/15/2019



CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
600 MARKETPLACE AVENUE, SUITE 200
BRIDGEPORT, WV 26330
304-933-3119

TAX MAP PARCEL SURVEYED LINE COORDINATES (UTM - NAD 83 - ZONE 17, U.S. FOOT)			
NORTHING	EASTING	LATITUDE	LONGITUDE
A 14253228.441	1887132.851	39.245593	-80.128552
B 14251914.806	1886248.615	39.242009	-80.131719



WELL RESTRICTIONS

1. NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
2. NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
3. WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 989 FEET OF PROPOSED WELL.
4. PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
5. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
6. NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

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

P.S. 991



2000 0 2000

GRAPHIC SCALE IN FEET

SURFACE HOLE LOCATION (SHL): SPC (NAD83, WV NORTH, FEET): NORTHING: 270700.07 EASTING: 1791047.44 GEOGRAPHIC (NAD83): LAT: 39°14'29.46" LONG: 80°07'35.55" GEOGRAPHIC (NAD83): DEC. LAT: 39.241518 DEC. LONG: -80.128542
LANDING POINT (LPL): SPC (NAD83, WV NORTH, FEET): NORTHING: 269865.43 EASTING: 1789262.687 GEOGRAPHIC (NAD83): LAT: 39°14'21.09" LONG: 80°07'58.16" GEOGRAPHIC (NAD83): DEC. LAT: 39.239192 DEC. LONG: -80.132823
BOTTOM HOLE LOCATION (BHL): SPC (NAD83, WV NORTH, FEET): NORTHING: 262030.36 EASTING: 1791968.61 GEOGRAPHIC (NAD83): LAT: 39°13'03.84" LONG: 80°07'23.08" GEOGRAPHIC (NAD83): DEC. LAT: 39.217733 DEC. LONG: -80.123077

COMPANY:



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)

OPERATOR'S WELL #: DRAINER TFP 23
201
API WELL #: 47 091 01350
STATE COUNTY PERMIT

H6A

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

WATERSHED: SIMPSON CREEK ELEVATION: 1,242.00'

DISTRICT: FLEMINGTON DISTRICT COUNTY: TAYLOR QUADRANGLE: BROWNTON

SURFACE OWNER: ROSS DUNN, J.B. DUNN, AND CLINTON DRAINER ACREAGE: 98.97±

OIL & GAS ROYALTY OWNER: WILLIAM B. ROSS ACREAGE: 98.97±

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,774.0 TVD 16,877.5 TMD

WELL OPERATOR: ARSENAL RESOURCES DESIGNATED AGENT: WILLIAM VEIGEL
ADDRESS: 6031 WALLACE RD, EXT. SUITE 300 ADDRESS: 65 PROFESSIONAL PLACE, SUITE 200
CITY: WEXFORD STATE: PA ZIP CODE: 15090 CITY: BRIDGEPORT STATE: WV ZIP CODE: 26330

LEGEND: PROPOSED SURFACE HOLE / BOTTOM HOLE EXISTING / PRODUCING WELLHEAD LPL EXISTING WATER WELL EXISTING SPRING SURVEYED BOUNDARY PROPOSED PATH PENETRATED PARCEL LEASE BOUNDARY MAIN ROAD ADJOINER PROPERTY WATER SURVEYED CORNER	REVISIONS:	DATE: 09-24-2018
		DRAWN BY: K.E.S.
		SCALE: 1" = 2000'
		DRAWING NO: 172-597
		WELL LOCATION PLAT



CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
 600 MARKETPLACE AVENUE, SUITE 200
 BRIDGEPORT, WV 26330
 304-933-3119

02/15/2019

WELL BORE TABLE FOR SURFACE OWNERS		
TRACT	SURFACE OWNER	TAX PARCEL
1	WILLIAM B. ROSS AND J.B. DUNN AND CLINTON DRAINER	04-10-03
2	ANN ROSS DUNN AND JOHN B. AND ROSS A. DUNN	04-11-24
3	BECKWITH LUMBER COMPANY, INC.	04-11-25
4	DENVER S. JR. AND BRENDA S. WILFONG	09-09-17.2
5	BECKWITH LUMBER COMPANY, INC.	09-08-01
6	CO. RT. 76 (GALLOWAY ROAD)	
7	BECKWITH LUMBER COMPANY, INC.	09-12-59
8	BECKWITH LUMBER COMPANY, INC.	09-13-01
9	LORENA ANNE SLOGAR	09-13-03

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	CLINTON DRAINER	04-10-01
B	KAREN PROPST	05-20-02
C	WILLIAM R. AND ANNE V. HAMMARSTROM	09-08-06
D	WILLIAM R. AND ANNE V. HAMMARSTROM	09-08-05
E	WILLIAM HAMMERSTROM AND CAROLYN WROS	09-08-8.1
F	BECKWITH LUMBER COMPANY INC.	09-13-23
G	AGNES HONCE	09-13-02
H	STEVE A. HONCE ET UX	09-08-04
I	ANDREW C. AND MARY J. BUTLER	09-08-02
J	CALLOWAY COMPANY INC.	09-8A-02
K	RONALD DALE LAWSON AND SHELDON ROBERT LAWSON	09-8A-01
L	RONALD AND JUDY COLLINS	09-08-1.2
M	KATHRYN E. ZEBLEY AND SALINA ZEBLEY	09-13-2.1
N	BECKWITH LUMBER COMPANY INC.	09-13-23
O	BRIAN L. AND REBECCA WENTZ	09-13-08
P	BRIAN L. AND REBECCA WENTZ	09-13-04
Q	DELORES SUE MORGAN AND PATTY JEAN DUFFIELD	09-13-05
R	DRAPER AND ALBERTA MCCAULEY	09-12-09
S	ROBERT H. III AND TINA M. GOFF	09-12-08
T	JEANNETTE REBECCA SMINK	09-12-7.2
U	JEANNETTE REBECCA SMINK	09-12-7.1
V	FRANK D. ZACAVISH	09-12-07
W	FRANK D. ZACAVISH	09-12-05
X	CSX TRANSPORTATION INC.	04-11-28
Y	JERALD L. AND LINDA SUE RIFFLE	04-11-13
Z	JOHN E. SIMPSON	04-11-17.3
AA		04-11-9999.9
BB	PAMELA A. BROWN	04-11-21
CC	CLINTON TIMOTHY AND CANDICE DENISE DRAINER	04-11-27
DD	VIRGINIA SHAFFER AND ADA MAE ANGLIN AND ROBERT PYLE ET AL	04-10-2.1
EE	RANDALL AND CHRYSTAL KELLEY	04-10-2.2

47-091-01350

9-27-2018 QM HGA

REVISIONS:	COMPANY:			DATE: 09-24-2018		
	OPERATOR'S			DRAINER TFP 23	DRAWN BY: K.E.S.	
	WELL #:	201	SCALE: N/A			
	DISTRICT:	FLEMINGTON DISTRICT	COUNTY:	TAYLOR	STATE:	WV
						WELL LOCATION PLAT 2

WW-6A1
(5/13)

Operator's Well No. Drainer TFP 23 201

**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
----------------------	-----------------------	-----------------------	---------	-----------

See Attached

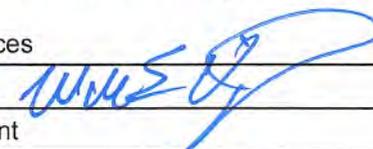
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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, Drainer TFP 23 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
1 ✓ (00006027)	Claget H. Ross and Jean W. Ross, his wife	Cumberland and Allegheny Gas Company	12.50%	23/427	100
	Cumberland and Allegheny Gas Company	Union Drilling, Inc. and Allerton Miller		46/347	
	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	<u>Seneca-Upshur Petroleum, Inc</u>	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
2 ✓ (00003932)	Ann Ross Dunn and John Dunn	Union Drilling, Inc.	12.50%	30/522	95
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
	Ethyl A. Tombllyn, single and Bessie T. Knight, widow	Petro-Lewis Corporation	12.50%	32/252	62

RECEIVED
 Office of Oil and Gas
 OCT 10 2018
 WV Department of Environmental Protection
 (00008288)

91-01350

Attachment to WW-6A1, Drainer TFP 23 201

	Petro-Lewis Corporation	Partnership Properties Company		77/226	
	Partnership Properties Company	Eastern American Energy Corporation		95/112	
	Eastern American Energy Corporation	Energy Corporation of America		438/429	
	Energy Corporation of America	Greylock Production, LLC		178/401	
	Greylock Production, LLC	Mar Key, LLC		179/96	
4 ✓ (00005950)	Lillian Wilson Post	Cumberland and Allegheny Gas Company	12.50%	40/242	400
	Cumberland and Allegheny Gas Company	Union Drilling, Inc. and Allerton Miller		46/347	
	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
5 ✓ (00005920)	Ada M. Cleavenger and Gerald Cleavenger, her husband	Cumberland and Allegheny Gas Company		45/443	
	Cumberland and Allegheny Gas Company	Union Drilling, Inc. and Allerton Miller		46/347	
	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	

RECEIVED
 Office of Oil and Gas
 OCT 10 2018
 MN Department of
 Environmental Protection

4709101350

91-01350

Attachment to WW-6A1, Drainer TFP 23 201

	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
7 (00005938) ✓	Charles F. Hoffman and Lina Hoffman, his wife	Union Drilling Inc and Allerton Miller	12.50%	47/110	76
	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
7 (00005939) ✓	Dow J. Lewis and Dilla Elsie Lewis, his wife, S.W. Lewis and Erma G. Lewis, his wife, Jessie L. Van Hoose, widow, Lewis Eugene Van Hoose and Marjorie Van Hoose, his wife and Classie L. Trint, widow	Union Drilling Inc and Allerton Miller	12.50%	65/228	76
	Allerton Miller	Union Drilling, Inc.		98/11	

Attachment to WW-6A1, Drainer TFP 23 201

	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
8 (00005886) ✓	Charles F. Hoffman and Lina Hoffman, his wife	Union Drilling Inc and Allerton Miller	12.50%	47/107	81
	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	
9 (00005700) ✓	Bessie Morrow, widow; Coy Morrow and Ruth Morrow, his wife; Addie Lake, widow; Lola Morrow, widow; Edna McWilliams, widow	Cumberland and Allegheny Gas Company	12.50%	40/297	52
	Cumberland and Allegheny Gas Company	Union Drilling, Inc. and Allerton Miller		46/347	

RECEIVED
 Office of Oil and Gas
 OCT 10 2018
 WV Department of Environmental Protection

91-01350

Attachment to WW-6A1, Drainer TFP 23 201

	Allerton Miller	Union Drilling, Inc.		98/11	
	Union Drilling, Inc.	Equitable Resources Exploration, Inc		325/219	
	Equitable Resources Exploration, Inc.	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production and Development Company		116/81	
	Fuel Resources Production and Development Company	The Houston Exploration Company		383/187 (also 136/162)	
	The Houston Exploration Company	Seneca-Upshur Petroleum, Inc		404/381 (also 139/48)	
	Seneca-Upshur Petroleum, Inc	Seneca-Upshur Petroleum, LLC		16/637 (also 447/129)	

RECEIVED
 Office of Oil and Gas
 OCT 10 2018
 WV Department of
 Environmental Protection

91-01350

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]

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

91-01350

02/15/2019

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

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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]

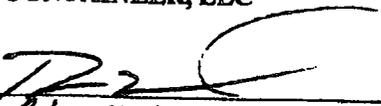
RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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

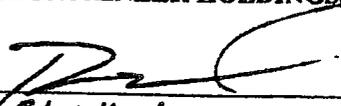
MOUNTAINEER KEYSTONE LLC

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

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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	

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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

Annual Reports	
Date filed	

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

© 2017 State of West Virginia

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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.

SENECA-UPSHUR PETROLEUM, LLC ✓

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
LLC Limited Liability Company	2/12/1973		2/12/1973	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	0
Charter State	WV	Excess Acres	0
At Will Term	A	Member Managed	MBR
At Will Term Years		Par Value	
Authorized Shares			

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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	RIVER RIDGE ENERGY, LLC 6031 WALLACE ROAD EXTENSION, SUITE 300 WEXFORD, PA, 15090
Organizer	TAMMY J OWEN 300 SUMMERS STREET, STE 1500 PO BOX 2107 CHARLESTON, WV, 25328 USA
Type	Name/Address

DBA			
DBA Name	Description	Effective Date	Termination Date
KEYSPAN PRODUCTION & DEVELOPMENT COMPANY	TRADENAME	6/11/2004	
NATIONAL GRID	TRADENAME	8/17/2007	
NATIONAL GRID PRODUCTION AND DEVELOPMENT	TRADENAME	12/5/2008	5/9/2012
DBA Name	Description	Effective Date	Termination Date

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection**Name Changes**

Date	Old Name
3/28/2011	SENECA-UPSHUR PETROLEUM, INC.
Date	Old Name

Date	Amendment
6/15/2016	AMENDMENT FILED CHANGING FROM A MANAGER-MANAGED CO. TO A MEMBER-MANAGED CO. >> REMOVED ROBERT KOZEL & STEPHEN A. BISHOP AS MANAGERS & ADDED SOLE MEMBER (C IMAGE).
3/28/2011	CONVERSION: FROM SENECA-UPSHUR PETROLEUM, INC. TO SENECA-UPSHUR PETROLEUM, LLC
7/25/1997	MERGER; MERGING LITTLE SWISS DRILLING COMPANY, A QUAL WV CORP AND PALACE VALLEY PETROLEUM COMPANY, A QUAL WV CORP WITH AND INTO SENECA-UPSHUR PETROLEUM, INC., A QUAL WV CORP, THE SURVIVOR.
Date	Amendment

Annual Reports	
Filed For	
2018	
2017	
2016	
2015	
2014	
2013	
2012	
2011	
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	
2000	

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

1999
1998
Date filed

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

Wednesday, July 18, 2018 — 1:13 PM

© 2018 State of West Virginia

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection



People Powered. Asset Strong.

September 24, 2018

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; Drainer TFP 23 Well(s)

Dear 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 some of the roadways crossed by the proposed well(s) may be owned in fee by the West Virginia Department of Transportation, Division of Highways and that some are only right of ways. If owned in fee by the West Virginia Department of Transportation, Division of Highways, a lease covering its interest in the roadway or roadways has been properly obtained and provided in the application materials. If a right of way only, the oil and gas underlying such roadway or roadways is owned by the adjoining landowners and is also 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
Title Manager

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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

Date of Notice Certification: 9-26-18

API No. 47- 091 -
Operator's Well No. Drainer TFP 23 201
Well Pad Name: Drainer TFP 23

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>575,377.047</u>
County: <u>Taylor</u>		Northing: <u>4,343,942.123</u>
District: <u>Flemington</u>	Public Road Access: <u>CR 3/12</u>	
Quadrangle: <u>Brownston</u>	Generally used farm name: <u>Drainer</u>	
Watershed: <u>Simpson Creek</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.

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:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- 4. NOTICE OF PLANNED OPERATION
- 5. PUBLIC NOTICE
- 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

RECEIVED
Office of Oil and Gas

OCT 10 2018

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.

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: Arsenal Resources
By: William Veigel
Its: Designated Agent
Telephone: 724-940-1218

Address: 6031 Wallace Road Extension, Suite 300
Wexford, PA 15090
Facsimile: 304-848-9134
Email: kdavis@arsenalresources.com



Subscribed and sworn before me this 26th day of September 2018

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 depprivacyofficer@wv.gov.

**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: 9-26-18 **Date Permit Application Filed:** 9-28-18

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: See Attached
Address: _____

Name: _____
Address: _____

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

Name: Clinton Drainer
Address: 307 Ross Road
Flemington, WV 26347
Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: Clinton Drainer
Address: 307 Ross Road
Flemington, WV 26347

COAL OWNER OR LESSEE

Name: See Attached
Address: _____

COAL OPERATOR

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: See Attached
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

RECEIVED
Office of Oil and Gas

*Please attach additional forms if necessary

OCT 10 2018

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/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 one 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

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV 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

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.**

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.

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

WW-6A
(8-13)

4709101350
API NO. 47-091 - 02/15/2019
OPERATOR WELL NO. Drainer TFP 23 201
Well Pad Name: Drainer TFP 23

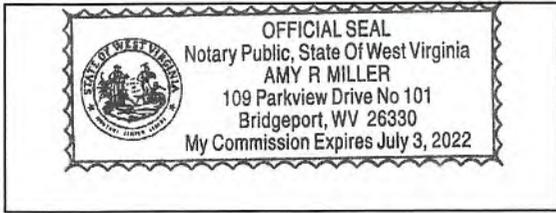
Notice is hereby given by:

Well Operator: Arsenal Resources *WWS*
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 26 day of September, 2018
Amy R Miller Notary Public
My Commission Expires July 3, 2022

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

**Arsenal Resources
Drainer TFP 23 201**

WW-6A Notice of Application, Attachment (Page 1 of 2)

Surface Owners:

Ross Dunn
2540 Shade Park Drive /
Akron, OH 44333

J.B. Dunn /
6281 Cheryl Place
Painesville, OH 44077

Clinton Drainer /
307 Ross Road
Flemington, WV 26347

Coal Owner or Lessee:

Pittsburgh-Ligonier, Inc. /
1409 Green Street
Marietta, OH 45750

Philippi Development, Inc. /
Anker West Virginia Mining Company
City Place One, Suite 300
St. Louis, MO 63141

Tygart East Company /
1900 Grant Building
Pittsburgh, PA 15219

James J. LaRosa /
136 Carriage Lane
Bridgeport, WV 26330

Water Purveyors:

Beckwith Lumber Company Inc. /
P.O. Box 39
Slatyfork, WV 26291

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

**Arsenal Resources
Drainer TFP 23**

WW-6A Notice of Application, Attachment (Page 1 of 2)

Water Purveyors (Continued):

Drainer Clinton
308 Ross Road
Flemington, WV 26347

John B. and Ross A. Dunn
2540 Shade Park Drive
Akron, OH 44333

Randall and Chrystal Kelley
PO Box 134
Flemington, WV 26347

Jerald and Linda Sue Riffle
251 South Fork RD
Flemington, WV 26347

Robert Pyle, Virginia Shaffer, and Ada Mae Anglin ET AL
C/O Ada Mae Anglin
9897 Struthers Road
New Middletown, OH 44442

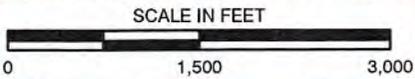
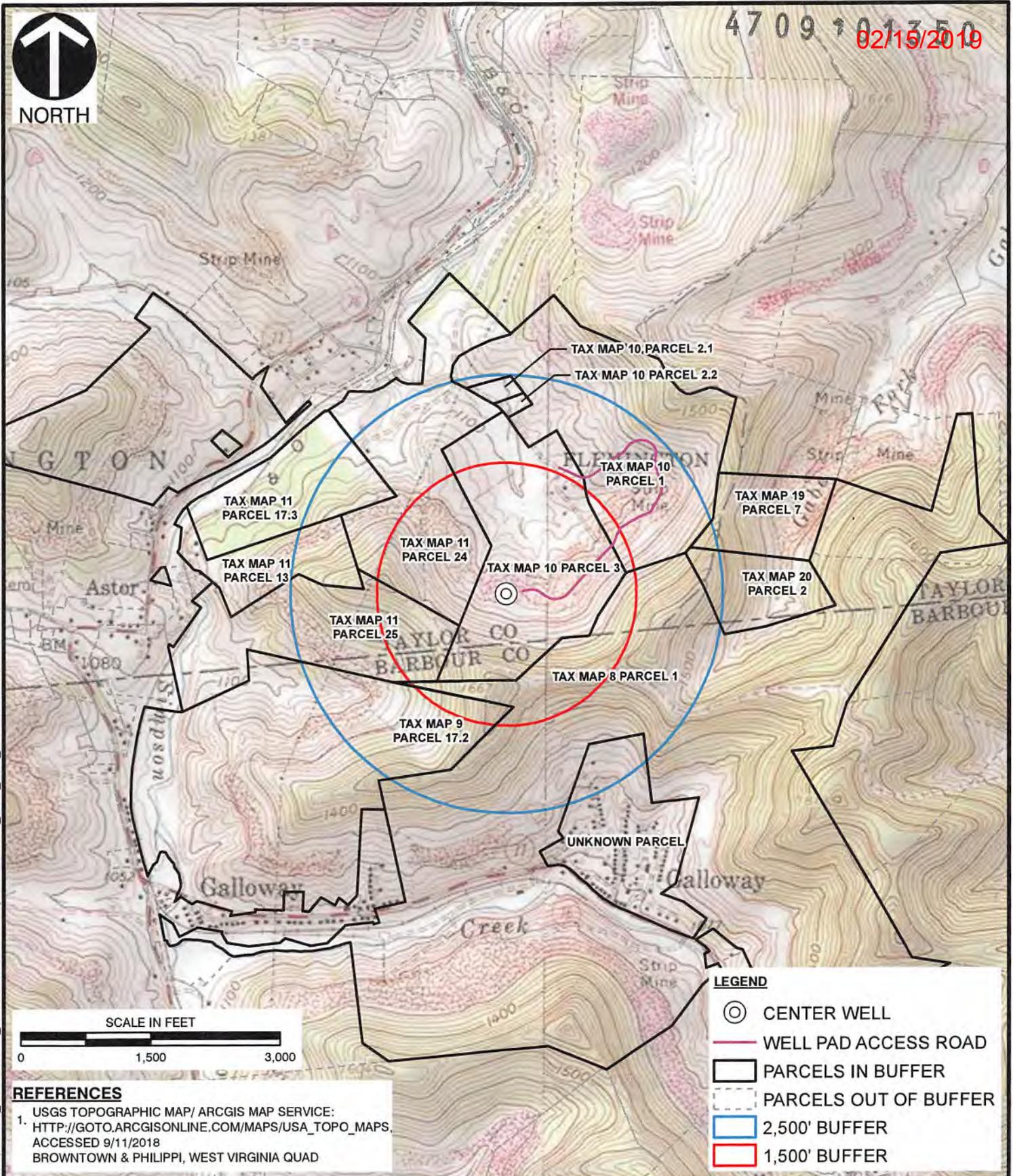
John E. Simpson
PO Box 14
Flemington, WV 26347

AJ Smith Heirs
6108 Ambassador Drive
Orlando, FL 32808

Denver S. Jr. & Brenda S. Wilfong
5890 Galloway Road
Flemington, WV 26347



4709 101350
02/15/2019



REFERENCES

- 1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps),
 ACCESSED 9/11/2018
 BROWNTOWN & PHILIPPI, WEST VIRGINIA QUAD

LEGEND

- CENTER WELL
- WELL PAD ACCESS ROAD
- PARCELS IN BUFFER
- PARCELS OUT OF BUFFER
- 2,500' BUFFER
- 1,500' BUFFER



Civil & Environmental Consultants, Inc.

600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121
 Ph: 304-933-3119 · Toll: 855-488-9539 · Fax: 304-933-3327
www.cecinc.com

ARSENAL RESOURCES RECEIVED
 DRAINER TFP23 WELL PAD Office of Oil and Gas
 TAYLOR COUNTY, WEST VIRGINIA
 10/1/2018

USGS SITE LOCATION MAP
 WV Department of Environmental Protection

DRAWN BY:	MWT	CHECKED BY:	DRAFT	APPROVED BY:	DRAFT*	FIGURE NO:	1
DATE:	09/11/2018	SCALE:	1" = 1,500'	PROJECT NO:	172-597.2104		

\\usr-bridgeport\p:\2017\172-597\GIS\Maps\Task_2104\WATER_PURVEYOR\Well_Safety_Plan\172597_2104_SITE_LOC.mxd - 9/11/2018 - 1:28:18 PM (mwtturner)

91-01350
02/15/2019

DRAINER TFP23
ARSENAL RESOURCES LLC
WATER PURVEYOR MAILING LIST

TAX MAP	PARCEL	COUNTY	DISTRICT	Owner Name	Care Of	Address	ADDRESS 1	ADDRESS 2
8	1	BARBOUR	PLEASANT	BECKWITH LUMBER CO INC		PO BOX 39 SLATY FORK, WV 26931	PO BOX 39	SLATY FORK, WV 26931
11	23	TAYLOR	FLEMINGTON	BECKWITH LUMBER COMPANY		PO BOX 39 SLATY FORK, WV 26931	PO BOX 39	SLATY FORK, WV 26931
10	1	TAYLOR	FLEMINGTON	DRAINER CLINTON		308 ROSS RD FLEMINGTON, WV 26947	308 ROSS RD	FLEMINGTON, WV 26947
10	3	TAYLOR	FLEMINGTON	DRAINER CLINTON		308 ROSS RD FLEMINGTON, WV 26947	308 ROSS RD	FLEMINGTON, WV 26947
11	24	TAYLOR	FLEMINGTON	DUNN JOHN B & ROSS A	C/O ROSS DUNN	2540 SHADE PARK DR AGRON, OH 44333	2540 SHADE PARK DR	FLEMINGTON, WV 26947
10	22	TAYLOR	FLEMINGTON	KELLEY RANDALL & CHRISTAL & SURV		PO BOX 151 FLEMINGTON, WV 26947	PO BOX 151	FLEMINGTON, WV 26947
16	31	TAYLOR	FLEMINGTON	RIFLEZ BRADLEY & LINDA SUE & SURV		251 SOUTH FORK RD FLEMINGTON, WV 26947	251 SOUTH FORK RD	FLEMINGTON, WV 26947
10	21	TAYLOR	FLEMINGTON	SHAFER VIRGINIA & ADA MARE ANGLIN & ROBERT PYLE & ET AL	C/O ADAMAE ANGLIN	9897 3TH STS RD NEW MIDDLETON, OH 44442	9897 3TH STS RD	NEW MIDDLETON, OH 44442
15	173	TAYLOR	FLEMINGTON	SMITH A J HERS		PO BOX 4 FLEMINGTON, WV 26947	PO BOX 4	FLEMINGTON, WV 26947
20	2	TAYLOR	COURT HOUSE	SHIMSON JOHN E		6108 AMBASSADOR DR ORLANDO, FL 32808	6108 AMBASSADOR DR	ORLANDO, FL 32808
29	7	TAYLOR	COURT HOUSE	SMITH A J HERS		6108 AMBASSADOR DR ORLANDO, FL 32808	6108 AMBASSADOR DR	ORLANDO, FL 32808
9	172	BARBOUR	PLEASANT	UNKNOWN PARCEL		5890 GALLOWAY RD FLEMINGTON, WV 26947	5890 GALLOWAY RD	FLEMINGTON, WV 26947
				WILFONG DENVER S JR & BRENDA S				

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

47 09 10 13 50 02/15/2019

**Arsenal Resources
Drainer TFP 23 201
WW-6A4 Notice of Intent to Drill, Attachment**

Surface Owners: ✓

Ross Dunn
2540 Shade Park Drive
Akron, OH 44333

J.B. Dunn ✓
6281 Cheryl Place
Painesville, OH 44077

Clinton Drainer ✓
307 Ross Road
Flemington, WV 26347

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

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

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

Date of Notice: 9-26-18 **Date Permit Application Filed:** 9-28-18

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

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: <u>See Attached</u>	Name: _____
Address: _____	Address: _____
_____	_____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on 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>575,377.047</u>
County: <u>Taylor</u>		Northing: <u>4,343,942.123</u>
District: <u>Flemington</u>	Public Road Access: <u>CR 3/12</u>	
Quadrangle: <u>Brownton</u>	Generally used farm name: <u>Drainer</u>	
Watershed: <u>Simpson Creek</u>		

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. 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 Operator: <u>Arsenal Resources</u>	Address: <u>6031 Wallace Road Extension, Suite 300</u>
Telephone: <u>724-940-1218</u>	<u>Wexford, PA 15090</u>
Email: <u>kdavis@arsenalresources.com</u>	Facsimile: <u>304-848-9134</u>

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.

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

**Arsenal Resources
Drainer TFP 23 201
WW-6A5 Notice of Planned Operation, Attachment**

Surface Owners:

Ross Dunn
2540 Shade Park Drive
Akron, OH 44333

J.B. Dunn
6281 Cheryl Place
Painesville, OH 44077

Clinton Drainer
307 Ross Road
Flemington, WV 26347

RECEIVED
Office of Oil and Gas
OCT 10 2018
WV Department of
Environmental Protection

91-01350

02/15/2019



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

October 24, 2018 ✓

Jill M. Newman
Deputy Commissioner

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 Drainer TFP 23 Pad, Taylor County ✓

Drainer TRP 23 201 Well Site ✓

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permits #04-2018-1102 for the subject site to ARSENAL Resources for access to the State Road for the well site located off of Taylor County 3/14 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT for DOH District 4 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

Gary K. Clayton
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

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

4709 * 02/15/2019
01350

Well Name # Drainer TFP 23 201			
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

RECEIVED
Office of Oil and Gas

OCT 10 2018

WV Department of
Environmental Protection

APPROVED
WVDEP OOG
2/6/2019

DRAINER TFP23 WELL PAD WELL PAD SITE PLAN ARSENAL RESOURCES

LAT./LONG: N 39.242947° W -80.122851°
(APPROXIMATE CENTER OF PROJECT)

LOCAL EMERGENCY SERVICES		
AMBULANCE	NAME	TELEPHONE NO.
HOSPITAL EMERGENCY ROOM	UNITED HOSPITAL CENTER	(801) 242-1000
FIRE DEPARTMENT		911
POLICE DEPARTMENT		911
POISON CONTROL CENTER	WEST VIRGINIA POISON CENTER	(800) 225-1292

FLOOD PLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR	NO
FLOODPLAIN STUDY COMMITTEE	N/A
FLOODPLAIN SHOWN ON DRAWINGS	N/A
FIRM MAP NUMBER(S) FOR SITE	84081022000
ACREAGE OF CONSTRUCTION IN FLOODPLAIN	0.000 AC

PROJECT OWNER/APPLICANT
ARSENAL RESOURCES
55 PROFESSIONAL PLACE, SUITE 200
BRIDGEPORT, WV 26330
PH: (206) 840-1024
CONTACT: EDDIE CANDER

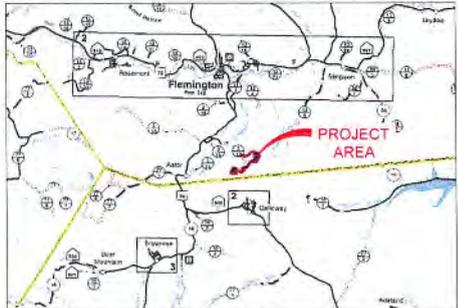
CIVIL ENGINEER
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
830 MARKETPLACE AVENUE SUITE 200
BRIDGEPORT, WV 26330
PH: (206) 933-3119
CONTACT: JOSEPH O. ROBINSON, P.E.

WVDEP
DISTRICT FOUR
PH: (204) 842-1590
CONTACT: DISTRICT ENGINEER DON WILK, WILLIAMS, P.E.

SPILL HOTLINE
WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP)
PH: (202) 642-3074
NATIONAL RESPONSE CENTER
PH: (800) 424-9002



LOCATION MAP
BROWNTON & PHILLIPPI USGS 7.5' QUAD
SCALE IN FEET
0 1000 2000
1 INCH = 1000 FEET



VICINITY MAP
TAYLOR COUNTY ROAD MAP
SCALE IN FEET
0 1 MILE 2 MILES
1 INCH = 1 MILE

WELL RESTRICTIONS CHECKLIST (HORIZONTAL 6A WELL)	
AT LEAST 100 FEET FROM PAD AND LOG INCLUDING ANY EAS CONTROL FEATURE TO ANY PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND	YES
AT LEAST 100 FEET FROM PAD AND LOG INCLUDING ANY EAS CONTROL FEATURE TO ANY NATURALLY PRODUCING TROUT STREAM	YES
AT LEAST 1500 FEET FROM PAD AND LOG INCLUDING ANY EAS CONTROL FEATURE TO ANY GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY	YES
AT LEAST 250 FEET FROM AN EXISTING WATER WELL OR DEVELOPED SPRING TO WELL BENS DOWNS	YES
AT LEAST 525 FEET FROM AN OCCUPIED DWELLING STRUCTURE TO CENTER OF PAD	YES
AT LEAST 400 FEET FROM AGRICULTURAL BUILDINGS LARGER THAN 2640 SQUARE FEET TO THE CENTER OF THE PAD	YES

SHEET INDEX

1. COVER SHEET	11. PROFILES AND SECTIONS	21. DETAILS
2. GENERAL NOTES	12. PROFILES AND SECTIONS	22. DETAILS
3. MASTER LEGEND	13. PROFILES AND SECTIONS	23. DETAILS
4. MATERIAL QUANTITIES	14. PROFILES AND SECTIONS	24. DETAILS
5. EXISTING CONDITIONS	15. PROFILES AND SECTIONS	25. RECLAMATION PLAN
6. SITE PLAN	16. PROFILES AND SECTIONS	26. RECLAMATION PLAN
7. SITE PLAN	17. PROFILES AND SECTIONS	27. RECLAMATION PLAN
8. SITE PLAN	18. DETAILS	28. RECLAMATION PLAN
9. SITE PLAN	19. DETAILS	29. RECLAMATION PLAN
10. SITE PLAN	20. DETAILS	

LOCATION COORDINATES

SITE LOCATIONS	WGS-84 (NORTH ZONE)		UTM 18S 17	
	LATITUDE	LONGITUDE	EASTING	NORTHING
MAIN ACCESS ROAD ENTRANCE	39.245512	-80.124315	575564.949	4344387.234
CENTROID OF WELL PAD	39.241689	-80.126577	575373.843	4343961.082
CENTER OF ASSOCIATED PIT	39.244903	-80.119644	575968.662	4344323.520

GRADING VOLUMES

DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
MAIN ACCESS ROAD	14.374	38.888	-22.292
WELL PAD	48.487	45.762	2.207
MANIFOLD PAD	1.145	8.024	-6.885
ASSOCIATED PIT	47.858	11.670	36.185
SPOIL-1	0	9.711	-9.711
TOTAL	109.864	109.864	0
TOPSOIL / STRIPPING (18,421 C.Y.)	15,353 C.Y.		
TOTAL EXCAVATION	125.215	125.215	0

WETLAND IMPACTS (SF/AC)

WETLAND IMPACT AND CAUSE	AREA (SF/AC)	CONSTRUCTION DISTURBANCE DESCRIPTION	
WETLAND G	2026	0.047	DRAINER TFP23 WELL PAD
WETLAND D	422	0.014	ACCESS ROAD
WETLAND H	3378	0.032	ACCESS ROAD
TOTAL:	4026	0.093	

STREAM IMPACT (LINEAR FEET)

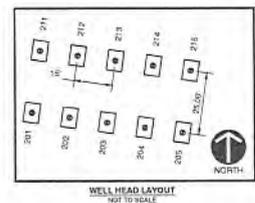
STREAM AND IMPACT CAUSE	TYPE OF STREAM	CULVERT	INLET/OUTLETS STRUCTURES (LF)	CONSTRUCTION DISTURBANCE TO LOO (LF)	TOTAL IMPACT (FT)
UNT-31	INTERMITTENT	YES	0	79	79
TOTAL					79

LIMITS OF DISTURBANCE PARCEL BREAK UPS - DRAINER TFP23 WELL PAD

TAYLOR COUNTY, WEST VIRGINIA					
OWNER	TM-PARCEL	DEED-PAGE	TOTAL ACRES	TYPE OF DISTURBANCE	ACERAGE
DRAINER, CLINTON	10-3	257-149	300.00	MAIN ACCESS ROAD	4.45
				WELL PAD	5.05
				TOPSOIL STRIPPING PILE 1	2.70
				PARCEL TOTAL	12.20
DRAINER, CLINTON	10-1	237-149	123.44	MAIN ACCESS ROAD	4.91
				ASSOCIATED PIT	3.84
				MANIFOLD PAD	2.84
				SPOIL PILE 1	1.78
				PARCEL TOTAL	13.44
DUNN, JOHN B & ROSA L	11-24	278-177	93.81	WELL PAD	1.95
				PARCEL TOTAL	1.95
TOTAL					27.35

L.O.D. AREAS

DESCRIPTION	ACRES
MAIN ACCESS ROAD	9.24
WELL PAD	6.95
ASSOCIATED PIT	3.84
MANIFOLD PAD	2.84
SPOIL PILE 1	1.78
TOPSOIL STRIPPING PILE 1	2.70
TOTAL	27.35
WOODED	2.61



REVISION RECORD

NO.	DATE	DESCRIPTION
1		ISSUE FOR PERMITTING
2		ISSUE FOR PERMITTING
3		ISSUE FOR PERMITTING
4		ISSUE FOR PERMITTING
5		ISSUE FOR PERMITTING
6		ISSUE FOR PERMITTING
7		ISSUE FOR PERMITTING
8		ISSUE FOR PERMITTING
9		ISSUE FOR PERMITTING
10		ISSUE FOR PERMITTING
11		ISSUE FOR PERMITTING
12		ISSUE FOR PERMITTING
13		ISSUE FOR PERMITTING
14		ISSUE FOR PERMITTING
15		ISSUE FOR PERMITTING
16		ISSUE FOR PERMITTING
17		ISSUE FOR PERMITTING
18		ISSUE FOR PERMITTING
19		ISSUE FOR PERMITTING
20		ISSUE FOR PERMITTING
21		ISSUE FOR PERMITTING
22		ISSUE FOR PERMITTING
23		ISSUE FOR PERMITTING
24		ISSUE FOR PERMITTING
25		ISSUE FOR PERMITTING
26		ISSUE FOR PERMITTING
27		ISSUE FOR PERMITTING
28		ISSUE FOR PERMITTING
29		ISSUE FOR PERMITTING
30		ISSUE FOR PERMITTING

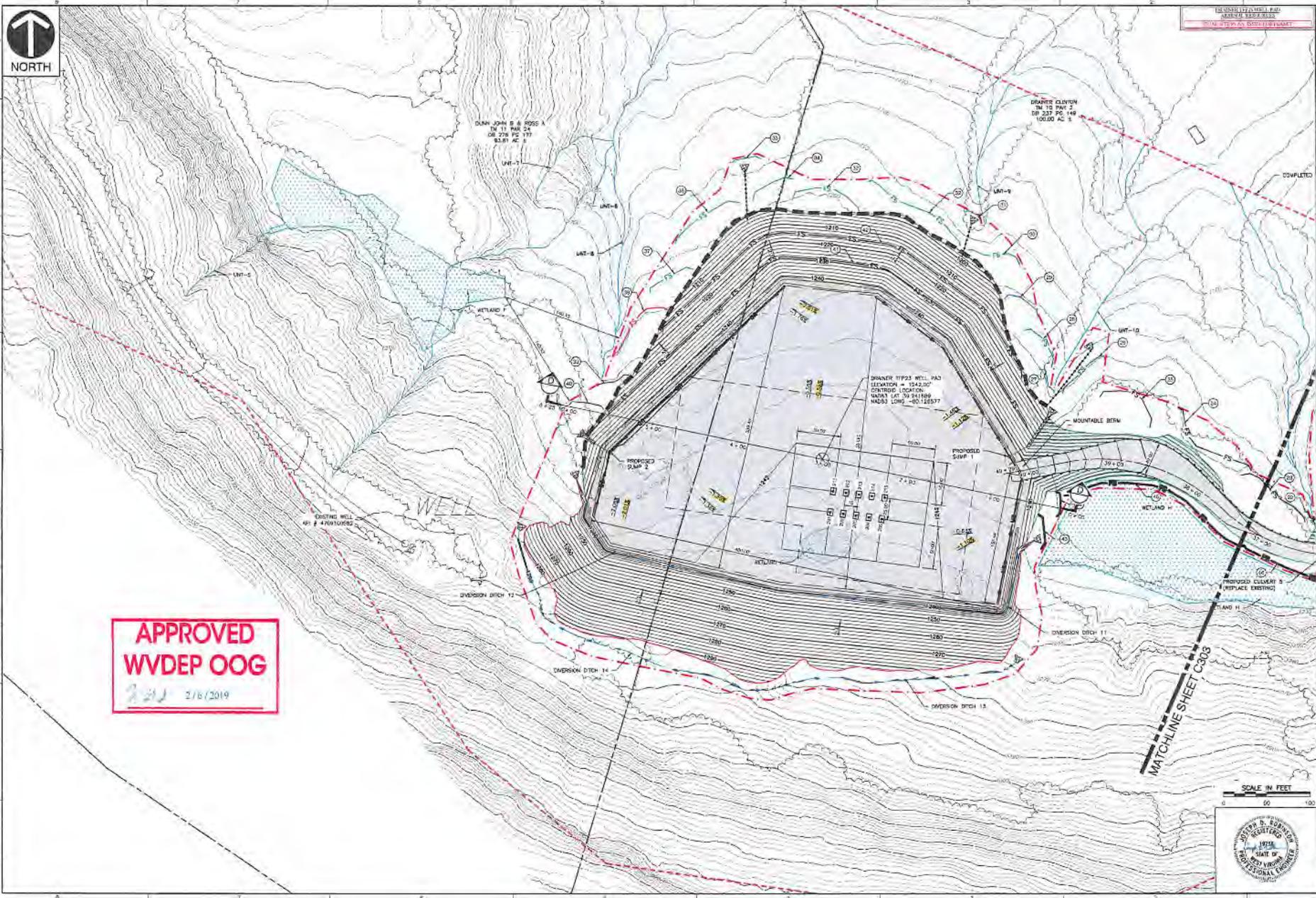
Civil & Environmental Consultants, Inc.
600 Marketplace Ave - Suite 200 - Bridgeport, WV 26330
Ph: 304.933.3119 - 888.488.0899 Fax: 304.933.3327
www.civil-c.com

**ARSENAL RESOURCES
DRAINER TFP23 WELL PAD
FLEMINGTON DISTRICT
TAYLOR CO, WEST VIRGINIA**

COVER SHEET

DATE: SEPTEMBER 2018 (REVISED BY: AS SHOWN)
DRAWN BY: [Name]
CHECKED BY: [Name]
PROJECT NO: [Number]
APPROVED BY: [Signature]

DRAWING NO: **C000**
SHEET 1 OF 29



APPROVED
WVDEP OOG
2/6/2019

DATE PLOTTED: 12/14/2018 10:54 AM
SCALE: 1" = 40.00'

NO.	DATE	DESCRIPTION
1	12/14/2018	ISSUED FOR PERMIT
2		
3		
4		
5		
6		
7		
8		
9		
10		

NO.	DATE	DESCRIPTION
1	12/14/2018	ISSUED FOR PERMIT
2		
3		
4		
5		
6		
7		
8		
9		
10		

CRC
Civil & Environmental Consultants, Inc.
 800 Marketplace Ave - Suite 200 - Bridgport, VA 26330
 Ph: 304.933.3119 - 888.486.3639 - Fax: 304.933.3327
 www.crcinc.com

ARSENAL RESOURCES
DRAINER TFP23 WELL PAD
FLEMINGTON DISTRICT
TAYLOR CO, WEST VIRGINIA

SITE PLAN
 DATE: SEPTEMBER 2018 DRAWN BY: NBS
 CHECKED BY: AS SHOWN
 PROJECT NO: 1704007
 APPROVED BY: JDB

SCALE IN FEET
0 50 100



DRAWING NO: **C304**
SHEET 16 OF 28

DRAINER TFP23 WELL PAD WELL PAD SITE PLAN ARSENAL RESOURCES

LAT./LONG: N 39.242947° W -80.122851°
(APPROXIMATE CENTER OF PROJECT)

DRAINER TFP23 WELL PAD
ARSENAL RESOURCES
TOTAL SHEET PLANS: 114 TOTAL PAGES: 100

SHEET INDEX

1. COVER SHEET	11. PROFILES AND SECTIONS	21. DETAILS
2. GENERAL NOTES	12. PROFILES AND SECTIONS	22. DETAILS
3. MASTER LEGEND	13. PROFILES AND SECTIONS	23. DETAILS
4. MATERIAL QUANTITIES	14. PROFILES AND SECTIONS	24. DETAILS
5. EXISTING CONDITIONS	15. PROFILES AND SECTIONS	25. RECLAMATION PLAN
6. SITE PLAN	16. PROFILES AND SECTIONS	26. RECLAMATION PLAN
7. SITE PLAN	17. PROFILES AND SECTIONS	27. RECLAMATION PLAN
8. SITE PLAN	18. DETAILS	28. RECLAMATION PLAN
9. SITE PLAN	19. DETAILS	29. RECLAMATION PLAN
10. SITE PLAN	20. DETAILS	

LOCAL EMERGENCY SERVICES

AMBULANCE	NAME	TELEPHONE NO.
		911
HOSPITAL EMERGENCY ROOM	UNITED HOSPITAL CENTER	(801) 342-1000
FIRE DEPARTMENT		911
POLICE DEPARTMENT		911
POISON CONTROL CENTER	WEST VIRGINIA POISON CENTER	(800) 222-1229

FLOOD PLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54916102026D
ADJUSTMENT OF CONSTRUCTION IN FLOODPLAIN:	0.00 AC

PROJECT OWNER/APPLICANT
ARSENAL RESOURCES
 65 PROFESSIONAL PLACE, SUITE 200
 BRIDGEPORT, WV 26330
 PH: (724) 880-1296
 CONTACT: EDDIE CARDER

CIVIL ENGINEER
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
 600 MARKETPLACE AVENUE SUITE 200
 BRIDGEPORT, WV 26330
 PH: (204) 833-3119
 CONTACT: JOSEPH D. ROBINSON, P.E.

WDOH
 DISTRICT FOUR
 PH: (304) 842-1550
 CONTACT: DISTRICT ENGINEER DONALD L. WILLIAMS, P.E.

SPILL HOTLINE
 WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WDOEP)
 PH: (800) 842-3074

NATIONAL RESPONSE CENTER
 PH: (800) 424-8802



LOCATION COORDINATES

SITE LOCATIONS	WB83-NF (NORTH ZONE)		UTM83-17	
	LATITUDE	LONGITUDE	EASTING	NORTHING
MAIN ACCESS ROAD ENTRANCE	39.245512	-80.124315	575564.949	4344387.234
CENTROID OF WELL PAD	39.241689	-80.126577	575373.843	4343951.087
CENTER OF ASSOCIATED PIT	39.244903	-80.119644	575968.662	4344323.520

GRADING VOLUMES

DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
MAIN ACCESS ROAD	14.374	36.668	-22.292
WELL PAD	46.487	43.700	2.787
MANHOLE PAD	1.145	6.034	-4.889
ASSOCIATED PIT	47.856	11.613	36.243
SPOIL-1	0	9.711	-9.711
TOTAL	109.864	106.884	2.980
TOPSOIL/STRIPPING (18,421 C Y)		15,351 C Y	
TOTAL EXCAVATION	125.215	125.215	0

WETLAND IMPACTS (SF/AC)

WETLAND IMPACT AND CAUSE	AREA (SF/AC)	CONSTRUCTION DISTURBANCE DESCRIPTION
WETLAND G	2026	0.047 DRAINER TFP23 WELL PAD
WETLAND O	622	0.014 ACCESS ROAD
WETLAND H	1379	0.032 ACCESS ROAD
TOTAL:	4027	0.093

STREAM IMPACT (LINEAR FEET)

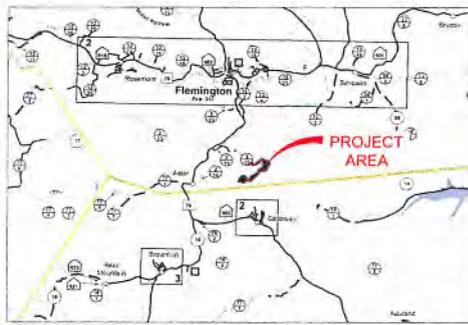
STREAM AND IMPACT CAUSE	TYPE OF STREAM	CULVERT	INLET/OUTLETS STRUCTURES (LF)	CONSTRUCTION DISTURBANCE TO LOD (LF)	TOTAL IMPACT (FT)
UNT-11	INTERMITTENT	YES	0	79	79
TOTAL					79

LIMITS OF DISTURBANCE PARCEL BREAK UPS - DRAINER TFP23 WELL PAD

OWNER	TM-PARCEL	DEED-PAGE	TOTAL ACRES	TYPE OF DISTURBANCE	ACERAGE
DRAINER, CLINTON	10-3	237-149	100.00	MAIN ACCESS ROAD	4.26
				WELL PAD	5.05
				TOPSOIL/STRIPPING PILE 1	2.70
PARCEL TOTAL					12.01
DRAINER, CLINTON	10-1	237-149	129.44	MAIN ACCESS ROAD	4.96
				ASSOCIATED PIT	3.84
				MANHOLE PAD	2.84
				SPOIL PILE 1	1.78
PARCEL TOTAL					13.44
DUNN, JOHN R. & ROSS A.	31-24	276-377	93.81	WELL PAD	1.90
				TOPSOIL/STRIPPING PILE 1	1.90
				WOODED	2.81
PARCEL TOTAL					1.90
TOTAL					27.35

PLAN REPRODUCTION WARNING
 THE PLANS HAVE BEEN CREATED ON ANSI D (22" X 34") SHEETS. FOR REPRODUCTION, REFER TO GRAPHIC SCALE.
 THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.
 WARNINGS INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

WEST VIRGINIA CALL BEFORE YOU DIG!
 WEST VIRGINIA STATE LAW REQUIRES THAT YOU CALL TWO BUSINESS DAYS BEFORE YOU DIG IN THE STATE OF WEST VIRGINIA IT'S THE LAW.

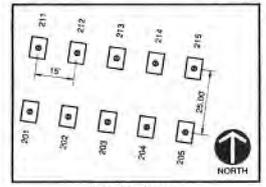


WELL RESTRICTIONS CHECKLIST (HORIZONTAL 6A WELL)

AT LEAST 100 FEET FROM PAD AND LOD (INCLUDING ANY EAS CONTROL FEATURE) TO ANY PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND.	YES
AT LEAST 300 FEET FROM PAD AND LOD (INCLUDING ANY EAS CONTROL FEATURE) TO ANY NATURALLY PRODUCING TIGHT STREAM.	YES
AT LEAST 1000 FEET FROM PAD AND LOD (INCLUDING ANY EAS CONTROL FEATURE) TO ANY GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY.	YES
AT LEAST 250 FEET FROM AN EXISTING WATER WELL OR DEVELOPED SPRING TO WELL BEING DRILLED.	YES
AT LEAST 625 FEET FROM AN OCCUPIED DWELLING STRUCTURE TO CENTER OF PAD.	YES
AT LEAST 625 FEET FROM AGRICULTURAL BUILDINGS LARGER THAN 2000 SQUARE FEET TO THE CENTER OF THE PAD.	YES

L.O.D. AREAS

DESCRIPTION	ACRES
MAIN ACCESS ROAD	9.24
WELL PAD	6.95
ASSOCIATED PIT	3.84
MANHOLE PAD	1.78
SPOIL PILE 1	2.70
TOPSOIL/STRIPPING PILE 1	2.70
TOTAL	27.35
WOODED	2.81



REVISION RECORD

NO.	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
 100 Marketplace Ave. Suite 200 - Bridgeport, WV 26330
 PH: 304-833-3119 - 855-488-8538 - Fax: 304-933-3327
 www.civilec.com

**ARSENAL RESOURCES
DRAINER TFP23 WELL PAD
FLEMINGTON DISTRICT
TAYLOR CO., WEST VIRGINIA**

COVER SHEET

DRAWING NO. **0900**

SHEET 1 OF 29

DATE: 9-18-18
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 PROJECT NO.: [Blank]
 APPROVED BY: [Signature]

RECEIVED
 Office of Oil and Gas
 OCT 10 2018
 WV Department of Environmental Protection

01350