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west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Wednesday, May 4, 2022  
WELL WORK PERMIT  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET  
DENVER, CO 80202

Re: Permit approval for CEDAR UNIT 5V  
47-103-03498-00-00

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: CEDAR UNIT 5V  
Farm Name: DALLISON LUMBER CO  
U.S. WELL NUMBER: 47-103-03498-00-00  
Horizontal 6A New Drill  
Date Issued: 5/4/2022

Promoting a healthy environment.

05/06/2022

# 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

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

# PERMIT CONDITIONS

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



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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
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Fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
dep.wv.gov

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

TO: Antero Resources Corporation  
1615 Wynkoop Street  
Denver, CO 80202

DATE: April 25, 2022  
ORDER NO.: 2022-W-6

**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.*, and Antero Resources Corporation (hereinafter "Antero" 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. Antero is a "person" as defined by W. Va. Code §22-6-1(n), with a corporate address as 1615 Wynkoop Street, Denver, CO 80202.
3. On March 30, 2022, Antero submitted a well work permit application identified as API# 47-103-03498. The well is located on the Cedar Pad in the Green District of Wetzel County, West Virginia.
4. On March 30, 2022, Antero requested a waiver for Wetlands B, R, S and T as 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# 47-103-03498.

05/06/2022



**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**

4710303498

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 Wetlands B, R, S and T from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-103-03498. The Office of Oil and Gas hereby **ORDERS** that Antero shall meet the following site construction and operational requirements for the Cedar 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. Wetlands B, R, S and T shall be protected by two rows of forty-two inch (42”) SMARTFence. This along with 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.

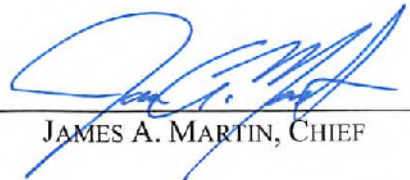
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Thus ORDERED, the 25th day of April 2022.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

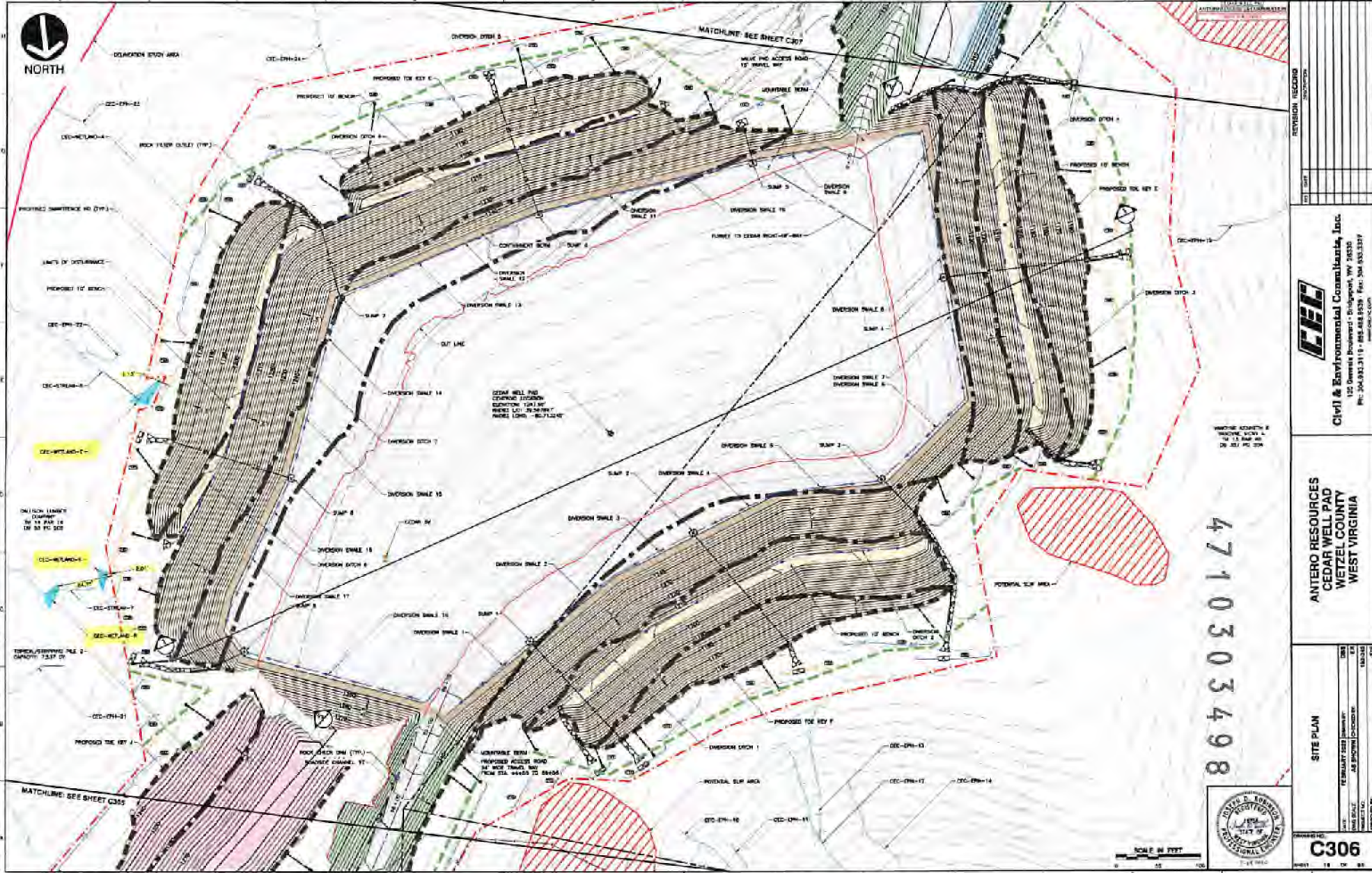
OFFICE OF OIL AND GAS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
STATE OF WEST VIRGINIA

By:



JAMES A. MARTIN, CHIEF





REVISION RECORD	
NO.	DESCRIPTION

**CEE**  
**Civil & Environmental Consultants, Inc.**  
 132 Dennis Boulevard • Bridgeport, WV 26330  
 PH: 304.933.3119 • FAX: 304.933.3379  
 www.ceeinc.com

**ANTERO RESOURCES**  
**CEDAR WELL PAD**  
**WETZEL COUNTY**  
**WEST VIRGINIA**

4710303498

SITE PLAN	
DATE	BY



**C306**









February 11, 2022

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: Well Location Restriction Waiver  
 Antero Resources Corporation  
 Cedar Well Site  
 Wetzel County, West Virginia  
 CEC Number 192-345

## 1.0 INTRODUCTION

On behalf of Antero Resources Corporation (Antero), Civil & Environmental Consultants, Inc., (CEC) has prepared this Well Location Restriction Waiver for wetlands, pursuant to Chapter 22 Article 6A Section 12 of West Virginia Code. Antero is requesting a waiver for four wetlands, which lie within 100-feet from the limits of disturbance (LOD) associated with the proposed Cedar Well Site located in Wetzel County, West Virginia. Antero is proposing to construct a well site, access road, and attendant features in order to develop their Marcellus Shale assets within a 72.9-acre LOD. The waiver request form is included as Attachment A and the following sections provide a detailed description of those items contained on the waiver form.

## 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 Cedar Well Site is located in Wetzel County, West Virginia east of the town of Reader. The proposed LOD, associated with the well pad, is within 100-feet of four wetlands; Table 1 provides a summary of those wetlands and their associated distance for which this waiver request has been prepared.

**Table 1**  
**Wetlands within 100-feet of the LOD**

Feature ID	Distance from LOD of Well Pad	Location	Sheet
CEC-Wetland-B	60.93-feet	South of the well pads southwestern corner	C307
CEC-Wetland-T	1.13-feet	Southeast of the well pads eastern extent	C306

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Feature ID	Distance from LOD of Well Pad	Location	Sheet
CEC-Wetland-S	2.01-feet	East of the well pads northeastern corner	C306
CEC-Wetland-R	64.75-feet	East of the well pads northeastern corner	C306

No perennial streams and no other wetlands are located within this 100-foot offset of the proposed well pad's LOD. However, there are three wetlands located within the project's LOD and one is associated with construction of the well pad. These wetlands are entirely located within the LOD. As such, there is no unimpacted portion of these wetlands that should require a waiver. The impacts proposed for the overall project are summarized below.

**Table 2**  
**Project Impacts**

Feature ID	Impact Amount	Location	Sheet
CEC-Wetland-A	0.005-acre	Southeast toe of fill slope of well pad	C306
CEC-Wetland-I	0.014-acre	Central portion of access road along	C304
CEC-Wetland-J	0.020-acre	western slope	C304

Antero has requested cover under a Nationwide Permit-39 through the U.S. Army Corps of Engineers (USACE), Pittsburgh District for impacts to these features. A Pre-construction Notification was submitted to the USACE on December 17, 2021; Antero is awaiting receipt of the verification.

*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 Cedar Well Site 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.*

Once Antero finalized their site selection, the engineering team began extensive studies to determine the most practicable facility layout. The proposed Cedar Well Site went through various on-site alternative conceptual designs prior to the proposed design.

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Antero assessed multiple options for accessing the project, including coming off County Route 20 as well as various options off of County Route 52. Antero's initial design further considered two pad options within the overall project; however, this was condensed to one pad location. The CP09 Conceptual Plan, Attachment B, represented one of Antero's preferred facility layouts, prior to obtaining detailed information regarding subsurface conditions, and the location and types of on-site aquatic resources. CEC engineers subsequently performed a geohazard assessment and biologists performed detailed wetland and stream delineations. The resulting data was then incorporated into the design of the facility. The wetland and stream delineation map is included as Attachment C and the slip prone areas identified during the geohazard assessment are shown on the proposed site plans contained the H6A permit application.

The conceptual plan would have resulted in less waivers being sought for fewer wetlands but would have resulted in additional direct impacts, including CEC-Wetland-B and five streams. In an effort to further minimize impacts to on-site aquatic features the conceptual design was amended to avoid these impacts, while taking into account information obtained from a geotechnical subsurface investigation. The geotechnical subsurface investigation was completed to assess subsurface soil, bedrock, and groundwater conditions, which were used to develop opinions and provide geotechnical recommendations for earthwork, foundations, slope stability, and construction phase services. These geotechnical criteria were incorporated in the design to arrive at the proposed design, which represents the minimum degradation alternative.

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

Though Antero sited their project on a ridgeline to avoid aquatic resources, maintaining a 100-foot buffer from all on-site wetlands was not feasible due to topographic restraints, geology of the area, and location of the existing features. To maintain a 100-foot buffer from the four wetlands for which the waiver is being sought would require shifting the pad further north into the slip prone areas. These areas were initially identified from published landslide mapping; however, Antero subsequently performed 48 test borings at the project site to investigate subsurface soil, bedrock, and groundwater conditions.

The findings from the geotechnical assessment were the basis for determining recommended treatments and measures for long-term stability of the project. The recommended treatments include colluvial soil over-excavation, fill foundation keys, select fill placement, intermediate keys, reinforced slopes, slope benching, and subsurface drains. Colluvial soils are anticipated to be encountered during excavations, fill foundation key construction, and proposed fill embankment construction. Colluvial soils are unconsolidated soils deposited by slope movement and landsliding and often exhibit low shear strengths. Colluvial soil deposits up to approximately 5.5 feet thick were

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encountered in the borings at the site. Areas with possible past earth movement or colluvial soils were also noted during an on-site reconnaissance. As such, CEC concluded that fill slopes for the well pad that are configured steeper than 2H:1V must be designed as reinforced soil slopes by utilizing geogrids at a maximum spacing of 3 feet. During installation of the fill foundation key, it is anticipated that landslide susceptible and unsuitable soils will need excavated to reach the recommended foundation material.

Fill foundation keys up to 24 feet deep will likely be required. Drained intermediate fill keys with a minimum 10-foot width should also be benched into the existing ground surface during fill slope embankment construction. Drains should be installed at the rear/base of intermediate and foundation key excavations and should outlet below and beyond the limits of new fill while maintaining positive drainage.

The only option to meet the setback requirements would be a reduction in the project's footprint. As described above, the slopes are already being reinforced due to their steepness and the 10-foot benches cannot be removed while still maintaining stability of the site and overall safety. Further, the LOD cannot be pulled in closer to the toe of the fill slopes due to the potential for encountering soft and/or loose material that may require excavations be extended approximately 10 feet below the toe of the proposed slope to remove possible old landslide material. The proposed design represents the minimum footprint required to meet the projects purpose and need, while maintaining slope stability and resulting in the least amount of aquatic resource impacts.

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

The proposed Cedar Well Site design represents the alternative which reduces impacts to the greatest degree. Antero designed the site in a manner that would be stable and would minimize stream and wetland impacts by positioning the LOD primarily in upland locations. As a result, only three wetlands are proposed for impact; no streams were impacted by project development. As previously discussed, alternative designs and approaches were analyzed to avoid or minimize effects to aquatic resources but were determined to not be feasible based on terrain, geology, and adjacent aquatic resource locations.

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The conceptual design would have reduced the need to obtain wetland waivers but instead would have resulted in greater direct impacts to on-site features. Antero's final design depicts how the LOD has been minimized to reduce impacts to potentially jurisdictional waters identified during CEC's field reconnaissance for the Cedar Well Site. This field reconnaissance was the basis for adjusting the LOD to avoid and minimize impacts to aquatic resources, while designing a project with stable fill slopes.



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The proposed impacts are the minimum necessary for the purpose of constructing the well pad and access road. Specifically, the LOD was reduced to avoid impacts to CEC-EPH-4, CEC-EPH-5, CEC-EPH-7, CEC-EPH-13, CEC-EPH-24, CEC-Wetland-B, CEC-Wetland-K, CEC-Wetland-S, and CEC-Wetland-T.

*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.*

In addition to the previously discussed geotechnical treatments that will be employed to maintain stability, the well pad will be constructed by placing a layer of geotextile separation/stabilization fabric on top of the prepared stone subgrade, and then installing clean aggregate to the finish grade. A diversion swale and mountable containment berm will be constructed along the perimeter of the well pad. The swale will be constructed with a 1 percent grade to convey stormwater to an underdrain system that will outlet to a sump and the sumps discharge will be screened and managed. The gate valve will be located approximately 18-24 inches below ground level and the anticipated frost line. The valve will remain closed during drilling and completion operations.

As part of their permitting process, Antero has prepared an Erosion and Sedimentation Control Plan (E&SCP) specific for this project which stipulates measures that will be implemented to minimize indirect impacts to adjacent aquatic features as a result of soil erosion. SMARTfence® HD will generally be installed around the perimeter of the LOD, while SMARTfence® SD will be installed as a second layer of control in those critical areas where there are adjacent aquatic resources. 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 adjacent aquatic resources. Ditches containing rock check dams will be constructed along access roads and culvert outlets will maintain rip-rap aprons. These measures will be implemented to reduce concentrated stormwater flows. The E&SCP also specifies 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.

*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.*

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West Virginia Department of Environmental Protection approved erosion and sediment controls will be maintained continuously throughout the project. SMARTfence® HD will generally be installed around the perimeter of the LOD, while SMARTfence® SD will be installed as a second layer of control in those critical areas where there are adjacent aquatic resources. As part of Antero's standard operating practices, the LOD will be staked, a pre-construction re-flagging of all on-site aquatic resources will occur within a 25-foot off-set of the proposed LOD, and a pre-construction meeting will take place with representatives of Antero, CEC, and the contractor(s). These measures are intended to ensure that no work occurs outside of the permitted LOD and that no unauthorized impacts will occur.

Further a Construction Quality Assurance (CQA) Inspector will be onsite during construction activities. The CQA Inspector will be familiar with the project construction drawings, specifications, and relevant permits for the project. The inspector will coordinate construction activities with the contractor(s), verifying that work being performed is according to plans and specifications.

### 3.0 CLOSING

This Well Location Restriction Waiver has been prepared for four wetlands located within 100-feet of the LOD, which cannot be avoided due to topographic restraints, geology, and the location of on-site aquatic resources. The following attachments are included with this waiver request:

- Attachment A: Wetland Waiver Request Form
- Attachment B: Conceptual Site Plans
- Attachment C: Wetland and Stream Delineation Map

We appreciate your review of this waiver request, please contact Josh Minnich at (740) 760-1036, or at [jminnich@anteroresources.com](mailto:jminnich@anteroresources.com), if you have any questions or require additional information.

Respectfully submitted,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

  
Jacquelyn Kester  
Principal

  
Eddie Carder  
Senior Project Manager

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**ATTACHMENT A**  
**WETLAND WAIVER REQUEST**

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Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

Operator's Well Number: \_\_\_\_\_

Well Operator: Antero Resources Corporation

Well Number: \_\_\_\_\_ Well Pad Name: Cedar Well Site

County, District, Quadrangle of Well Location: Wetzel County, Green District, Pine Grove Quadrangle

**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.

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Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

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.**

The proposed limit of disturbance (LOD) is within 100-feet of four wetlands: CEC-Wetland-B, CEC-Wetland-T, CEC-Wetland-S, and CEC-Wetland-R. No perennial streams and no other wetlands are located within this 100-foot offset of the proposed well pad's LOD. However, there are three wetlands located within the project's LOD and one is associated with the well. These wetlands are entirely located within the LOD. As such, there is no unimpacted portion of these wetlands that should require a waiver.

Please refer Section 2.0, Question 1 of the letter for additional information.

- 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

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

The proposed Cedar Well Site went through various on-site alternative conceptual designs prior to the proposed design. The CP09 Conceptual Plan, Attachment B, represented one of Antero's preferred facility layouts, prior to obtaining detailed information regarding subsurface conditions, and the location and types of on-site aquatic resources. CEC engineers subsequently performed a geohazard assessment and biologists performed detailed wetland and stream delineations. The resulting data was then incorporated into the design of the facility to arrive at the proposed design. The conceptual plan would have resulted in less waivers being sought for fewer wetlands but would have resulted in additional direct impacts.

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Please refer to Section 2.0, Question 2 of the letter for more detailed information. WV Department of Environmental Protection

05/06/2022

11/3/14

Wetland and Perennial Stream Waiver Request

API Number: \_\_\_\_\_

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.**

A diversion swale and mountable containment berm will be constructed along the perimeter of the well pad. The swale will be constructed with a 1 percent grade to convey stormwater to an underdrain system that will outlet to a sump and the sumps discharge will be screened and managed. The gate valve will be located approximately 18-24 inches below ground level and the anticipated frost line. The valve will remain closed during drilling and completion operations.

As part of their permitting process, Antero has prepared an Erosion and Sedimentation Control Plan (E&SCP) specific for this project which stipulates measures that will be implemented to minimize indirect impacts to adjacent aquatic features as a result of soil erosion.

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

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.

West Virginia Department of Environmental Protection approved erosion and sediment controls will be maintained continuously throughout the project. As part of Antero's standard operating practices, the LOD will be staked, a pre-construction re-flagging of all on-site aquatic resources will occur within a 25-foot off-set of the proposed LOD, and a pre-construction meeting will take place with representatives of Antero, CEC, and the contractor(s). These measures are intended to ensure that no work occurs outside of the permitted LOD and that no unauthorized impacts will occur.

Further a Construction Quality Assurance (CQA) Inspector will be onsite during construction activities. The CQA Inspector will be familiar with the project construction drawings, specifications, and relevant permits for the project. The inspector will coordinate construction activities with the contractor(s), verifying that work being performed is according to plans and specifications.

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

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**ATTACHMENT B**  
**CONCEPTUAL SITE PLANS**

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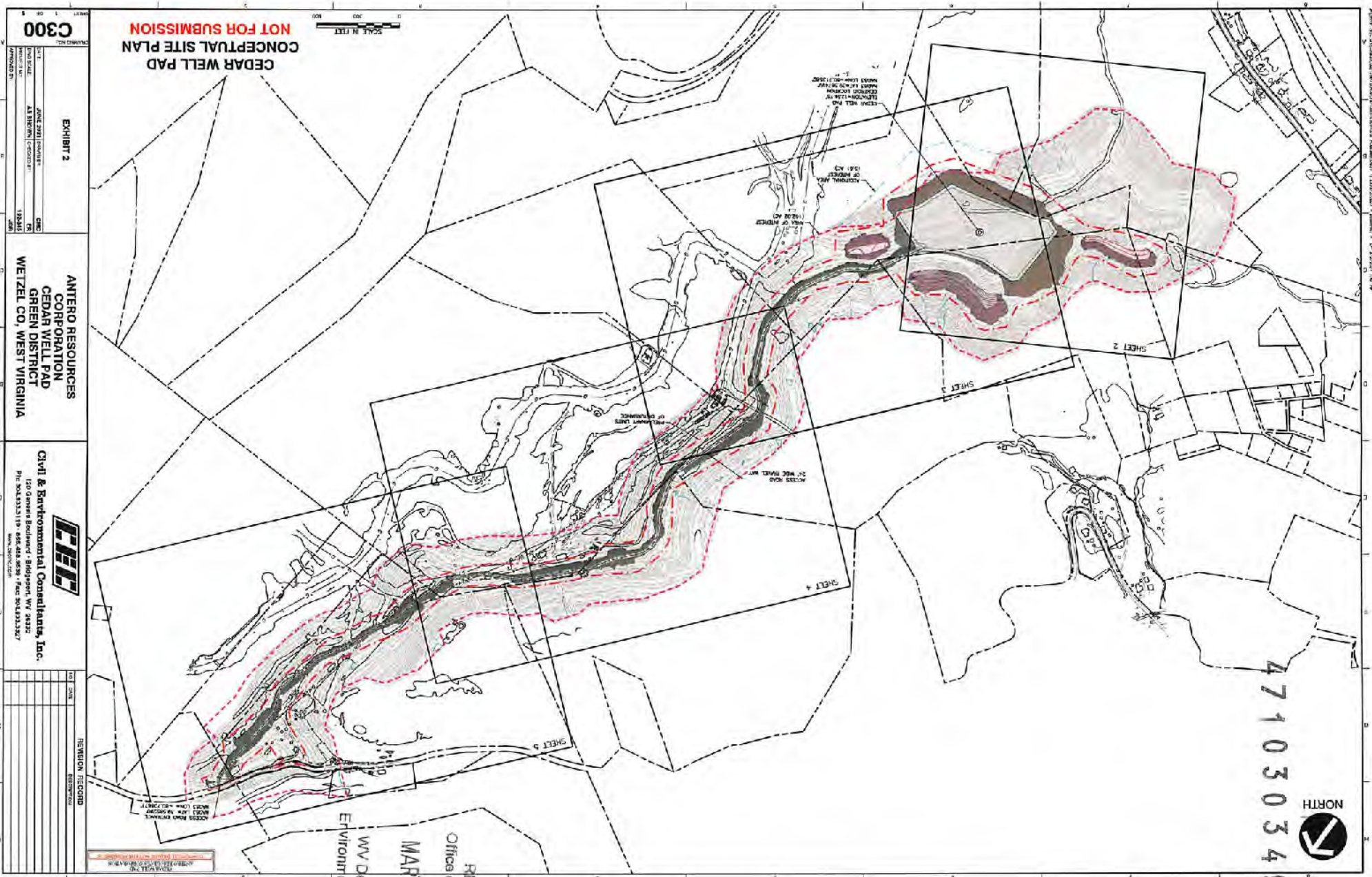
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Environmental Protection

05/06/2022



4710303499



**CEAR WELL PAD  
CONCEPTUAL SITE PLAN  
NOT FOR SUBMISSION**



**C300**

DATE	JUNE 2011
PROJECT	AMTERRA
CLIENT	AMTERRA
PROJECT NO.	13344
DATE	06/01/11

**EXHIBIT 2**

**AMTERRA RESOURCES CORPORATION  
CEAR WELL PAD  
GREEN DISTRICT  
WETZEL CO, WEST VIRGINIA**

**CRC**

**Civil & Environmental Consultants, Inc.**  
150 Green's Boulevard - Bridgeport, WV 26305  
Ph: 304.333.1199 Fax: 304.333.2827  
www.crcenv.com

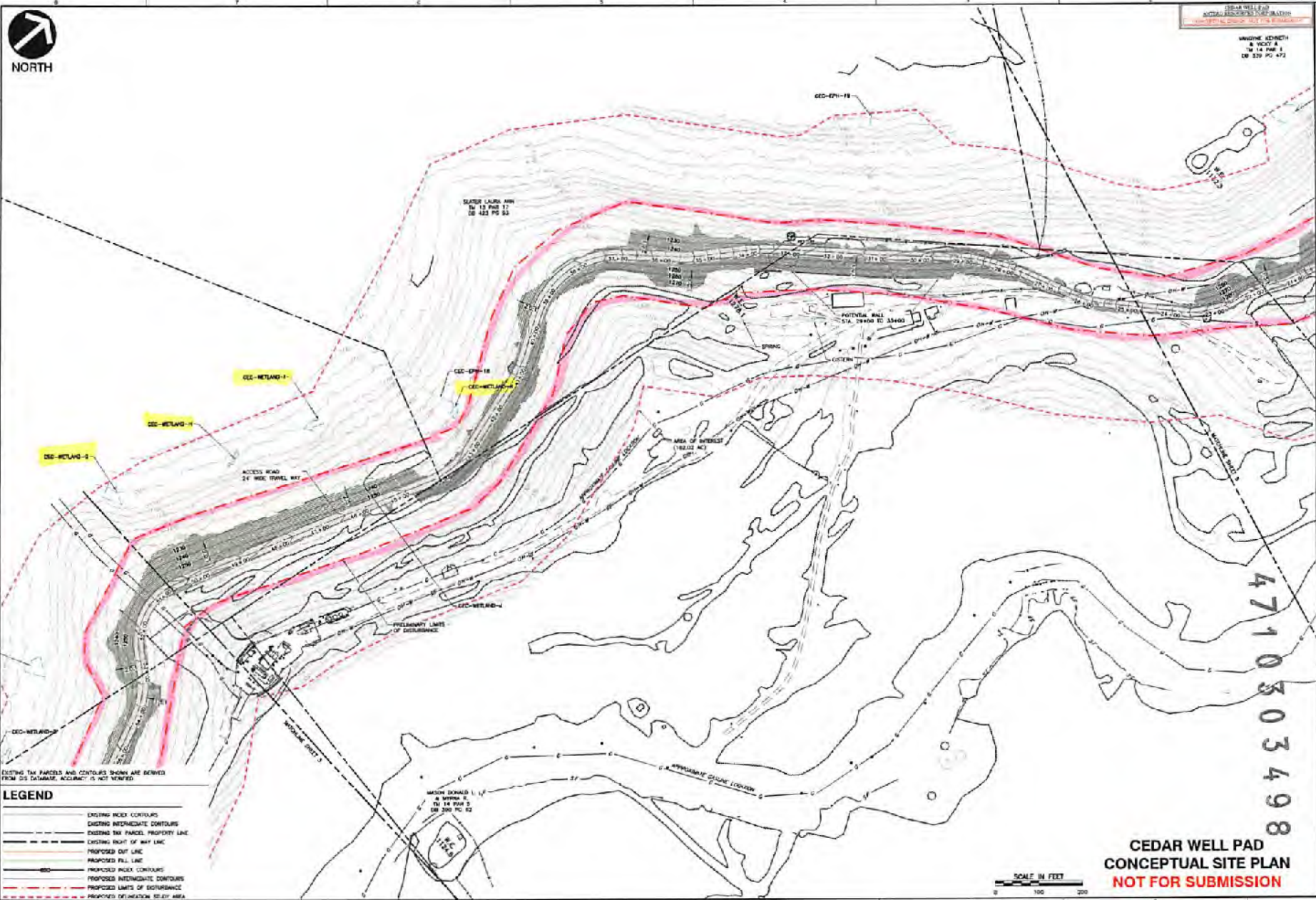
NO.	DATE	REVISION	REVISION

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**MAR 30 2012**  
WV Department of  
Environmental Protection





ISSUE WILL BE AD  
 ANTHER RESOURCES CORPORATION  
 100 TOWN SQUARE, SUITE 100  
 WESTCHESTER, NY 10804  
 PHONE: 914.921.1111  
 FAX: 914.921.1112



- LEGEND**
- EXISTING INDEX CONTOURS
  - EXISTING INTERMEDIATE CONTOURS
  - EXISTING TAX PARCEL PROPERTY LINE
  - EXISTING RIGHT OF WAY LINE
  - PROPOSED DUTY LINE
  - PROPOSED FILL LINE
  - PROPOSED INDEX CONTOURS
  - PROPOSED INTERMEDIATE CONTOURS
  - PROPOSED LIMITS OF DISTURBANCE
  - PROPOSED DETERMINATION STUDY AREA

SCALE IN FEET  
 0 100 200

**CEDAR WELL PAD  
 CONCEPTUAL SITE PLAN  
 NOT FOR SUBMISSION**

4710303498

NO.	DATE	REVISION	RECORD

**REC**  
 Civil & Environmental Consultants, Inc.  
 100 Geneva Boulevard - Bridgeport, NY 14026  
 PH: 315.432.3111 • FAX: 315.432.3327  
 WWW.CIVIL-REC.COM

**ANTERO RESOURCES CORPORATION  
 CEDAR WELL PAD  
 GREEN DISTRICT  
 WETZEL CO., WEST VIRGINIA**

DATE:	JUNE 2011	DESIGNED BY:	
PREPARED BY:		CHECKED BY:	
PROJECT NO.:		DATE:	

EXHIBIT 2

PROJECT NO. **C303**











LIMITS OF DISTURBANCE PARCEL BREAK UPS - CEDAR WELL PAD					
WETZEL COUNTY, WEST VIRGINIA					
OWNER	TAX PARCEL	DEED PAGE	TOTAL ACRES	TYPE OF DISTURBANCE	ACEPAGE
COUNTY ROUTE RIGHT OF WAY	0	0	0.00	PARCEL INFORMATION	0.00
				STAGING AREA	0.05
				PARCEL TOTAL	0.05
MASON KAREN S	9-44	953-216	0	PARCEL INFORMATION	0.21
				ACCESS ROAD	0.21
				STAGING AREA	0.32
				PARCEL TOTAL	0.55
VANDYNE KENNETH E & VICKY A	18-1	329-472	0	PARCEL INFORMATION	5.50
				ACCESS ROAD	5.50
				STAGING AREA	0.30
				PARCEL TOTAL	5.86
MASON DONALD L & MYRNA R	18-9	397-82	0	PARCEL INFORMATION	4.31
				ACCESS ROAD	4.31
				PARCEL TOTAL	4.53
SLATER LAURA ANN	23-17	413-93	0	PARCEL INFORMATION	4.53
				ACCESS ROAD	4.53
				PARCEL TOTAL	4.53
PITMAN JOHN MICHAEL & STANLEY DALE	23-26.7	458-817	0	PARCEL INFORMATION	4.58
				ACCESS ROAD	4.58
				PARCEL TOTAL	4.58
COEN JAMES E & SHAWN	24-16	454-45	0	PARCEL INFORMATION	2.32
				ACCESS ROAD	2.32
				PARCEL TOTAL	2.42
GALLISON LUMBER COMPANY	24-29	53-205	0	PARCEL INFORMATION	3.24
				ACCESS ROAD	3.24
				WELL PAD	13.44
				SPOIL 1	0.14
				SPOIL 2	2.02
				PARCEL TOTAL	17.84
MILLER EMMA VIRGINIA & RALPH DONALD WAYNE	19-81	118-455	0	PARCEL INFORMATION	1.33
				WELL PAD	1.33
				PARCEL TOTAL	1.33
HIGLEY LORANE	13-54	81-258	0	PARCEL INFORMATION	1.09
				SPOIL 1	1.09
				PARCEL TOTAL	1.09
VANDYNE KENNETH E & VANDYNE VICKY E	13-40	317-204	0	PARCEL INFORMATION	6.89
				ACCESS ROAD	6.89
				WELL PAD	7.23
				SPOIL 1	2.33
				TOPSOIL/STRIPPING PILE	4.82
				PARCEL TOTAL	14.59
MASON DONALD L	16-20	292-844	0	PARCEL INFORMATION	1.00
				WELL PAD	1.00
				PARCEL TOTAL	1.00
				TOTAL	82.56

GRADING VOLUMES			
DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
ACCESS ROAD	46,466	89,463	963
WELL PAD	371,515	369,896	-2,619
STAGING AREA	1,409	264	-1,145
SPOIL 1	0	12,394	-12,394
SPOIL 2	0	7,964	-7,964
TOTAL	419,390	479,981	60
TOPSOIL/STRIPPING WITH 20% SWELL	(36,874 C.Y.)		30,213 C.Y.
TOTAL EXCAVATION	443,824	443,824	0

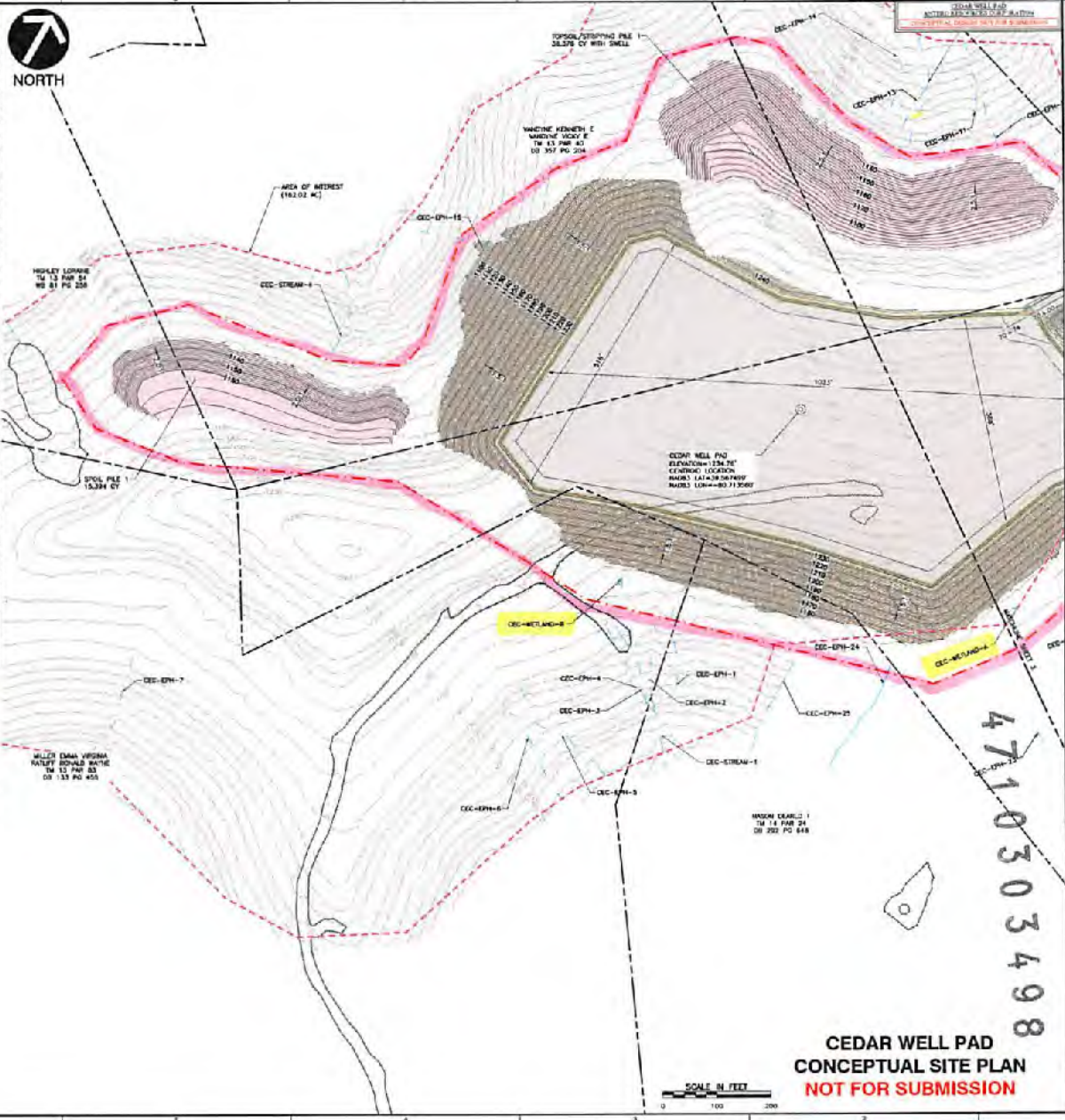
L.O.D. AREAS	
DESCRIPTION	ACRES
ACCESS ROAD	29.46
STAGING AREA	6.47
WELL PAD	23.83
SPOIL 1	3.46
SPOIL 2	2.06
TOPSOIL/STRIPPING PILE	4.82
TOTAL	68.06
WOODED	82.71

NOTE: TOPSOIL/STRIPPING THICKNESS FOR REMOVAL AND REPLACEMENT WAS CALCULATED WITH AN ESTIMATED DEPTH OF 6"

EXISTING TAX PARCELS AND CONTOURS SHOWN ARE DERIVED FROM AIR PHOTOGRAPHY. ACCURACY IS NOT WARRANTED.

**LEGEND**

- EXISTING INDEX CONTOURS
- EXISTING INTERMEDIATE CONTOURS
- EXISTING TAX PARCEL PROPERTY LINE
- EXISTING RIGHT OF WAY LINE
- PROPOSED CUT LINE
- PROPOSED FILL LINE
- EXISTING INDEX CONTOURS
- PROPOSED INTERMEDIATE CONTOURS
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED DELINEATION STUDY AREA



**CEDAR WELL PAD  
CONCEPTUAL SITE PLAN  
NOT FOR SUBMISSION**

REVISION RECORD

NO.	DATE	DESCRIPTION

**ANTERO RESOURCES CORPORATION**  
Civil & Environmental Consultants, Inc.  
120 Greene Boulevard - Bridgeport, WV 26305  
P.O. BOX 533119 - Bridgeport, WV 26305-0319  
www.artero.com

**ANTERO RESOURCES CORPORATION**  
GREEN DISTRICT  
WETZEL CO, WEST VIRGINIA

EXHIBIT 2

DATE	BY	DESCRIPTION

DRAWING NO: **C301**

1 OF 2

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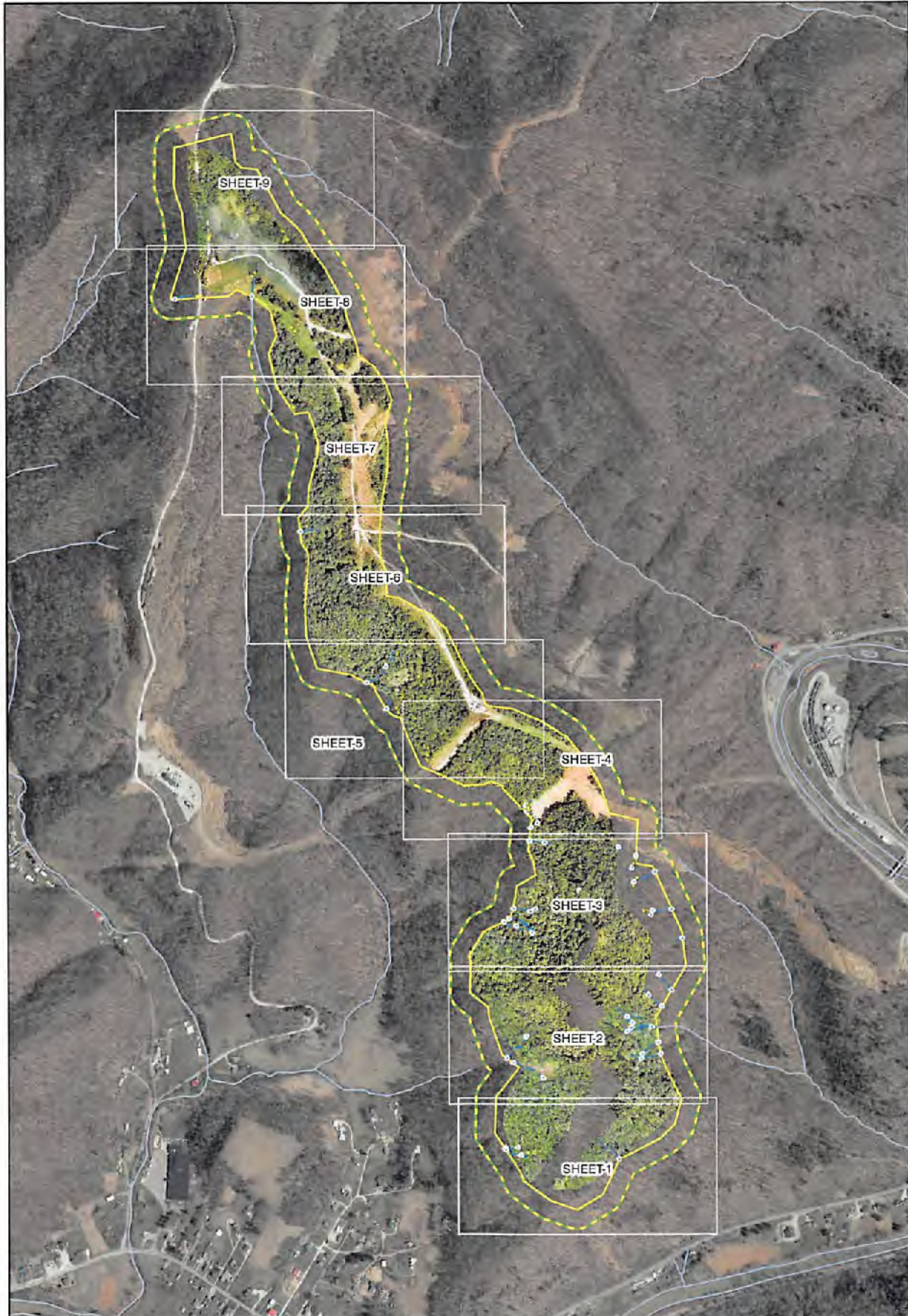
**ATTACHMENT C**

**WETLAND AND STREAM DELINEATION MAP**

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05/06/2022





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**Civil & Environmental Consultants, Inc.**  
 120 Genesis Blvd. • Bridgeport, WV 26330-9121  
 Ph: 304-933-3119 Toll: 855-488-9639 Fax: 304-933-3327  
 www.cecinc.com



0 400 800  
 ft

**LEGEND**

- SAMPLE POINT
- EXISTING CULVERT
- EPHEMERAL CHANNEL
- INTERMITTENT STREAM
- INTERSTITIAL FLOW
- WV S&MB STREAM
- WETLAND - PEM
- ACl
- DESKTOP ACl

**ANTERO RESOURCES CORPORATION**

**FIGURE 2**  
**POTENTIALLY JURISDICTIONAL WATERS**  
**CEDAR WELL SITE DESIGN**  
**WETZEL COUNTY,**  
**WEST VIRGINIA**

Date: 12/16/2021

INDEX MAP

05/06/2022



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**LEGEND**

- SAMPLE POINT
- EXISTING CULVERT
- EPHEMERAL CHANNEL
- INTERMITTENT STREAM
- INTERSTITIAL FLOW
- WV S&B STREAM
- WETLAND - PEM
- AOI
- DESKTOP AOI

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FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021

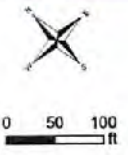
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 www.cecinc.com



LEGEND	
	SAMPLE POINT
	EXISTING CULVERT
	EPHEMERAL CHANNEL
	INTERMITTENT STREAM
	INTERSTITIAL FLOW
	WV SAMB STREAM
	WETLAND - PEM
	AOI
	DESKTOP AOI

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FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021      SHEET-2





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- LEGEND**
- SAMPLE POINT
  - EXISTING CULVERT
  - EPHEMERAL CHANNEL
  - INTERMITTENT STREAM
  - INTERSTITIAL FLOW
  - WV SAMB STREAM
  - WETLAND - PEM
  - AOI
  - DESKTOP ACl

ANTERO RESOURCES CORPORATION

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021      SHEET-3



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0 50 100  
ft

**LEGEND**

SAMPLE POINT	WW SAMB STREAM
EXISTING CULVERT	WETLAND - PEM
EPHEMERAL CHANNEL	AOI
INTERMITTENT STREAM	DESKTOP AOI
INTERSTITIAL FLOW	

ANTERO RESOURCES CORPORATION

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021      SHEET-4





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**LEGEND**

SAMPLE POINT	WV SAMB STREAM
EXISTING CULVERT	WETLAND - PEM
EPHEMERAL CHANNEL	AOI
INTERMITTENT STREAM	DESKTOP AOI
INTERSTITIAL FLOW	

**ANTERO RESOURCES CORPORATION**

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021	SHEET-5
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- LEGEND**
- SAMPLE POINT
  - EXISTING CULVERT
  - EPHEMERAL CHANNEL
  - INTERMITTENT STREAM
  - INTERSTITIAL FLOW
  - WV S&MB STREAM
  - WETLAND - PEM
  - AOI
  - DESKTOP AOI

**ANTERO RESOURCES CORPORATION**

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021      SHEET-6



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- LEGEND**
- SAMPLE POINT
  - EXISTING CULVERT
  - EPHEMERAL CHANNEL
  - INTERMITTENT STREAM
  - INTERSTITIAL FLOW
  - WW Samba STREAM
  - WETLAND - PEM
  - AOI
  - DESKTOP AOI

ANTERO RESOURCES CORPORATION

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021

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**LEGEND**

- SAMPLE POINT
- EXISTING CULVERT
- EPHEMERAL CHANNEL
- INTERMITTENT STREAM
- INTERSTITIAL FLOW
- WV SANG STREAM
- WETLAND - PEM
- AOI
- DESKTOP AOI

ANTERO RESOURCES CORPORATION

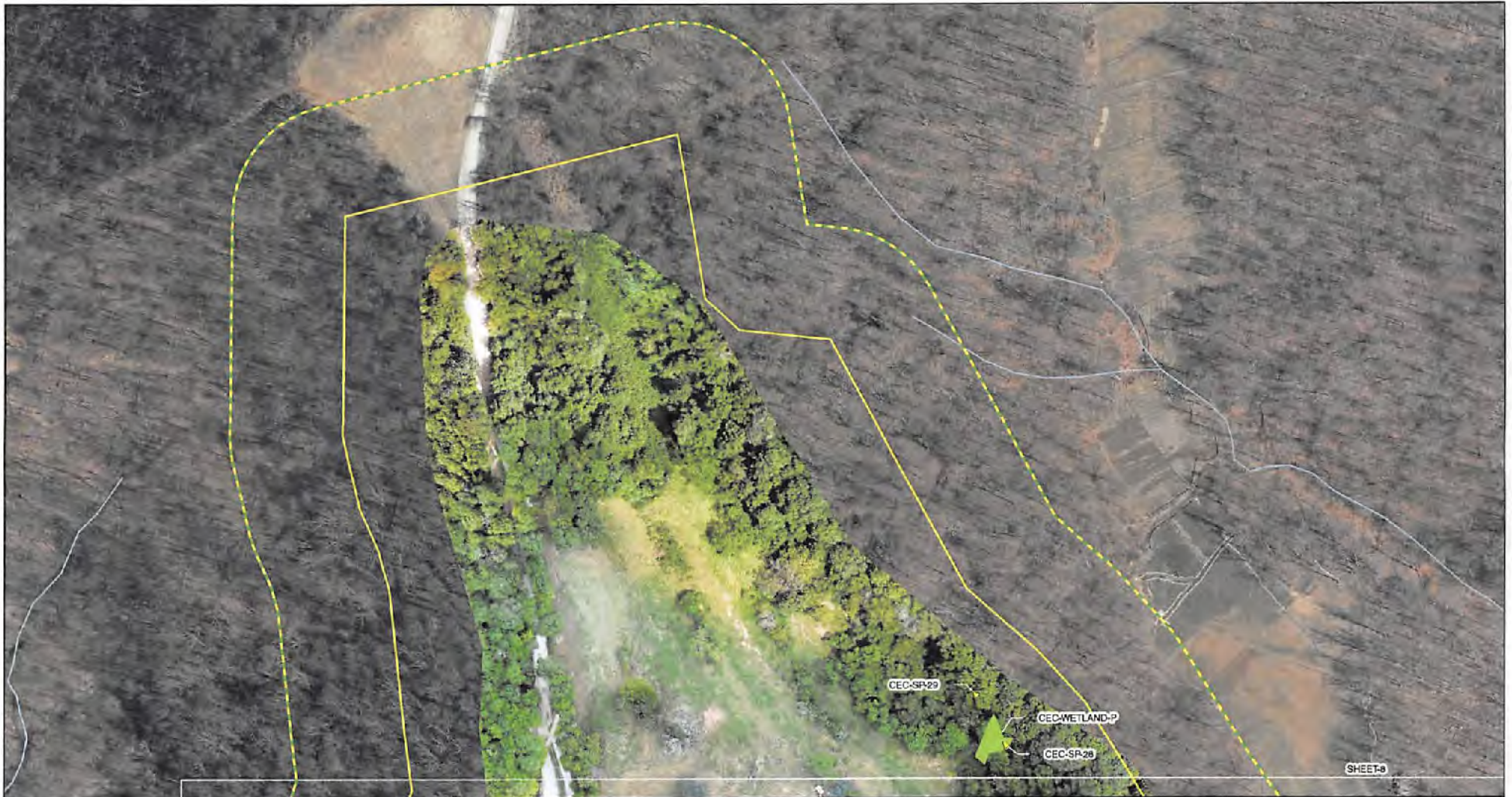
FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021

SHEET-8



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SHEET-8

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**LEGEND**

- SAMPLE POINT
- EXISTING CULVERT
- EPHEMERAL CHANNEL
- INTERMITTENT STREAM
- INTERSTITIAL FLOW
- WV SAMB STREAM
- WETLAND - PEM
- AOI
- DESKTOP AOI

ANTERO RESOURCES CORPORATION

FIGURE 2  
 POTENTIALLY JURISDICTIONAL WATERS  
 CEDAR WELL SITE DESIGN  
 WETZEL COUNTY,  
 WEST VIRGINIA

DATE: 12/16/2021

SHEET-9



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

1) Well Operator: Antero Resources Corporation 494507062 103-Wetzel Green Pine Grove 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Cedar Unit 5V Well Pad Name: Cedar Pad

3) Farm Name/Surface Owner: Dallison Lumber Co Public Road Access: McKimmie Ridge Rd

4) Elevation, current ground: 1276' Elevation, proposed post-construction: ~1248'

5) Well Type (a) Gas  Oil  Underground Storage

Other \_\_\_\_\_

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7500' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7500' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 7500'

11) Proposed Horizontal Leg Length: 0' \*Open to modification at a later date

12) Approximate Fresh Water Strata Depths: 612'

13) Method to Determine Fresh Water Depths: 47103308970000 Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 2193'

15) Approximate Coal Seam Depths: 1010'

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

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_

Depth: \_\_\_\_\_

Seam: \_\_\_\_\_

Owner: \_\_\_\_\_

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WV Department of  
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WW-6B  
(04/15)

4710303498  
API NO. 47-103  
OPERATOR WELL NO. Cedar Unit 5V  
Well Pad Name: Cedar Pad

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	20"	New	H-40	79#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J/K-55	54.5#	662'	662'	CTS, 690 Cu. Ft.
Coal	9-5/8"	New	J-/K55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110CY	20#	7500'	7500'	CTS, 972 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

*Ernest L. Reynolds 4-28-22*

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	20"	24"	0.375"	2250	50	Class A	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	14,360	2500	Class G/H	~1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

**PACKERS**

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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MAY 2 2022

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

Drill a new horizontal shallow well into the Marcellus Shale.

\*Antero will be air drilling the fresh water string which makes it difficult to determine when fresh water is encountered. Therefore, we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

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

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Environmental Protection

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 71.85 acres

22) Area to be disturbed for well pad only, less access road (acres): 20.67 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

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

Conductor: no additives, Class A cement.

Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

\*Note: Attach additional sheets as needed.



4710303498

✧  
47103307240000



Antero Resources Corporation

Cedar Unit 5V - AOR



✧ WELL SYMBOLS  
Plugged Gas Well

February 23, 2022

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4710303498

UWI (API Num)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Produccible Formation(s) not perf'd
4710307240000	FC HEADLEY 2	5312	PITTSBURGH&W VA GAS	PITTSBURGH&W VA GAS	3,994		Big Lime, Big Injun, Gordon	Weiir, Baraa, Bauson, Alexander

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WW-9  
(4/16)

API Number 47 - 103 -  
Operator's Well No. Cedar Unit 5V

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) Fishing Creek Quadrangle Pine Grove 7.5'

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: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be soaked and hauled off site.)

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC Permit # will be provided on Form WR-34 )
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34 )
- Off Site Disposal (Supply form WW-9 for disposal location Meadowfill Landfill Permit #SWF-1032-98/ Northwestern Landfill Permit #SWF-1025/ WV0109410 )
- Other (Explain Wetzel Co Landfill Permit #SWF-1021 )

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.  
Surface - Air/Freshwater, Intermediate -  
Dust/Stiff Foam, Production - Water Based Mud

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

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings stored in tanks, removed offsite and taken to 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 (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410) Wetzel Co Landfill (Permit #SWF-1021)

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 Gretchen Kohler

Company Official (Typed Name) Gretchen Kohler

Company Official Title Director of Environmental & Regulatory Compliance

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MAY 2 2022

WV Department of  
Environmental Protection

Subscribed and sworn before me this 29 day of March, 2022

Diane Blair

Notary Public

My commission expires 27 Apr 2024



05/06/2022



Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 71.85 acres Prevegetation pH

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Access Road (30.35 acres) + Valve Pad Access Road (0.65 acres) + Well Pad (20.67 acres) + Valve Pad (1.45 acres) + Spoil 1 (1.24 acres) + Spoil 2 (4.59 acres) + Spoil 3 (3.28 acres) + Topsoil/Stripping Pile 1 (1.37 acres) + Topsoil/Stripping Pile 2 (2.04 acres) + Topsoil/Stripping Pile 3 (6.21 acres) = 71.85 Acres

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue / Perennial Ryegrass	30 / 20
See attached Table IV-3 for additional seed type (Cedar Pad Design)		See attached Table IV-4A for additional seed type (Cedar Pad Design)	
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

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:

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WV Department of Environmental Protection

Title: OIL & GAS INSPECTION Date: 4-28-22

Field Reviewed? (V) Yes ( ) No

***Form WW-9 Additives Attachment*****SURFACE INTERVAL**

1. Fresh Water
2. Soap –Foamer AC
3. Air

**INTERMEDIATE INTERVAL*****STIFF FOAM RECIPE:***

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 ( 11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard ( 9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

**PRODUCTION INTERVAL**

1. Alpha 1655  
Salt Inhibitor
2. Mil-Carb  
Calcium Carbonate
3. Cottonseed Hulls  
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal  
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol  
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex  
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)  
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill  
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda  
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime  
Calcium Hydroxide – Lime
11. LD-9  
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica  
Hydro-Biotite Mica – LCM

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13. Escaid 110  
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco  
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep  
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K  
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous  
Inorganic Salt
18. D-D  
Drilling Detergent – Surfactant
19. Terra-Rate  
Organic Surfactant Blend
20. W.O. Defoam  
Alcohol-Based Defoamer
21. Perma-Lose HT  
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D  
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells  
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite  
Natural Graphite – LCM
25. Mil Bar  
Barite – Weighting Agent
26. X-Cide 102  
Biocide
27. Soda Ash  
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol  
Amine Acid complex – Shale Stabilizer
29. Sulfatrol  
Sulfonated Asphalt – Shale Control Additive
30. Xanvis  
Viscosifier For Water-Based Muds
31. Milstarch  
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube  
Drilling Fluid Lubricant

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4710303498



**911 Address**  
**1934 McKimmie Ridge Rd.**  
**Reader, WV 26167**

## **Well Site Safety Plan**

### **Antero Resources**

**Well Name: CEDAR UNIT 5V**

**Pad Location: CEDAR PAD**  
Wetzel County/Green District

#### **GPS Coordinates:**

**Entrance** - Lat 39.585290/Long -80.706670 (NAD83)  
**Pad Center** - Lat 39.567867/Long -80.713245 (NAD83)

#### **Driving Directions:**

From the town of Reader: Head northwest on Border Ln toward Old Mexico Rd for 16 feet, turn right onto Co Rd 40/2 for 0.1 miles, turn right onto WV-20S for 0.3 miles, turn left onto McKimmie Ridge Rd for 1.1 miles, Access road will be on your right.

#### **Alternate Route:**

From the town of Pine Grove: Head southwest toward Alley Addition St for 23 feet, sharp left onto Alley Addition St for 82 feet, turn right onto Lumberjack Ln/School St for 0.2 miles, turn right onto WV-20 N/Galmish Rd/State Hwy for 3.8 miles, turn right onto McKimmie Ridge Rd for 1.1 miles, Access road will be on your right.

**EMERGENCY (24 HOUR) CONTACT 1-800-878-1373**

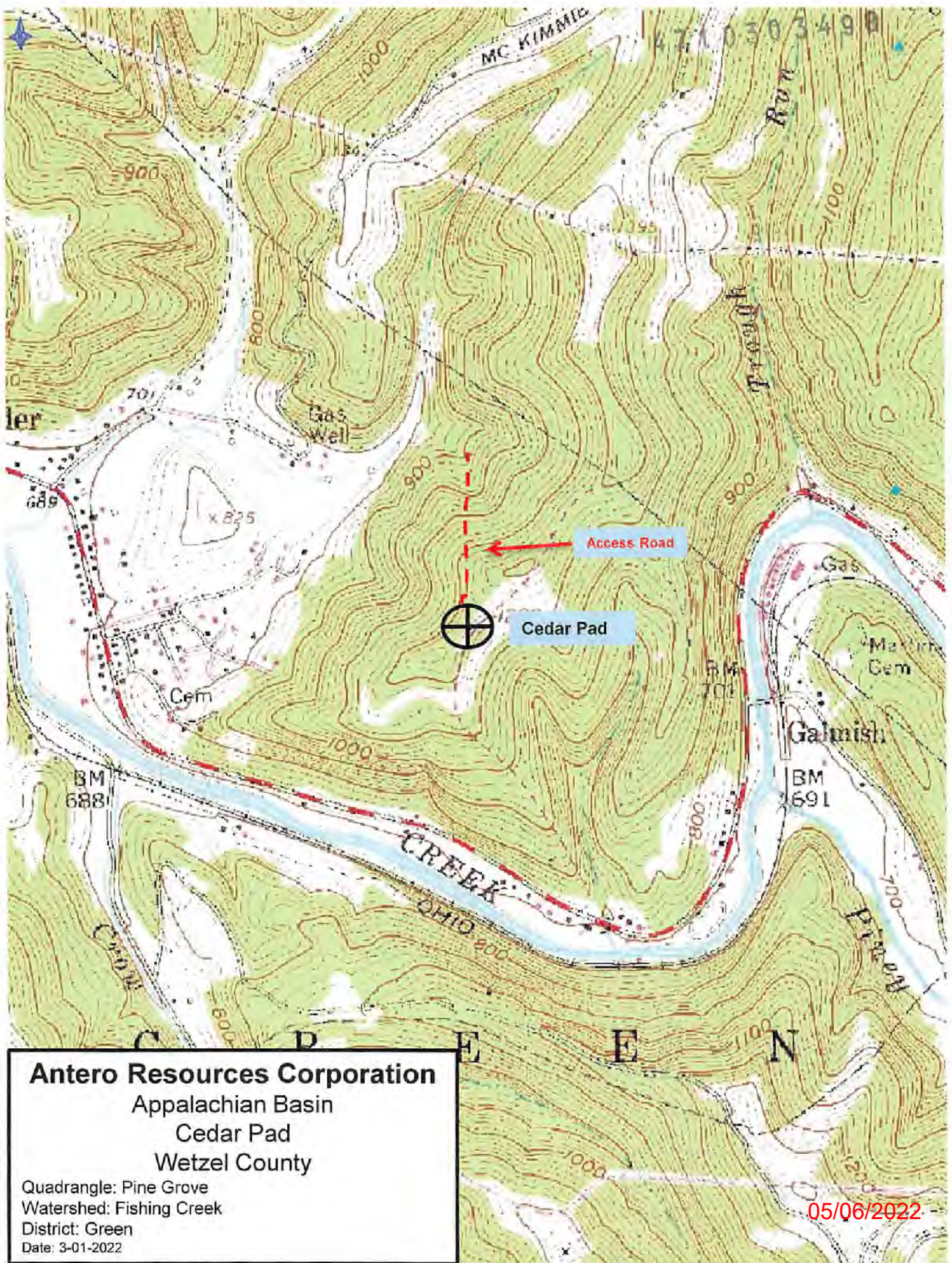
*Hamilton L. Reynolds*  
4-28-22

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**Antero Resources Corporation**  
Appalachian Basin  
Cedar Pad  
Wetzel County

Quadrangle: Pine Grove  
Watershed: Fishing Creek  
District: Green  
Date: 3-01-2022

05/06/2022



1,156' to Top Hole

LATITUDE 39 - 35 - 00

LONGITUDE 80 - 42 - 30

5,540' to Top Hole

Antero Resources  
Well No. Cedar 5V

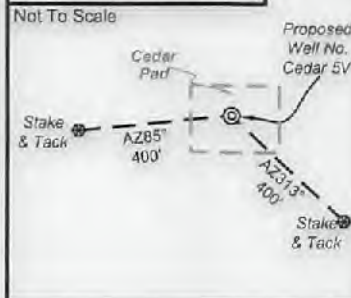
Antero Resources Corporation



Legend

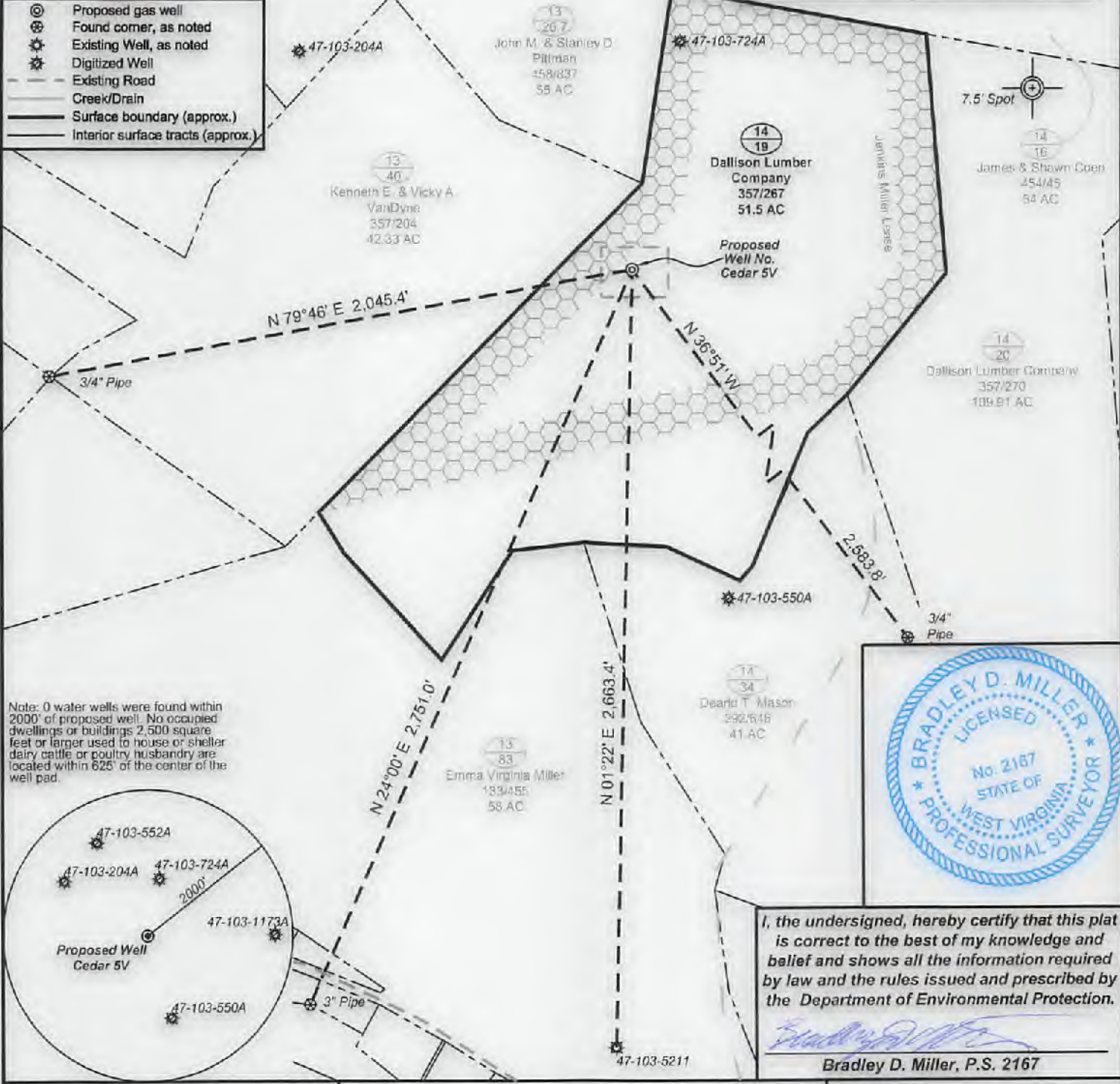
- ⊙ Proposed gas well
- ⊗ Found corner, as noted
- ⊛ Existing Well, as noted
- ⊙ Digitized Well
- - - Existing Road
- - - Creek/Drain
- - - Surface boundary (approx.)
- - - Interior surface tracts (approx.)

Well Location References

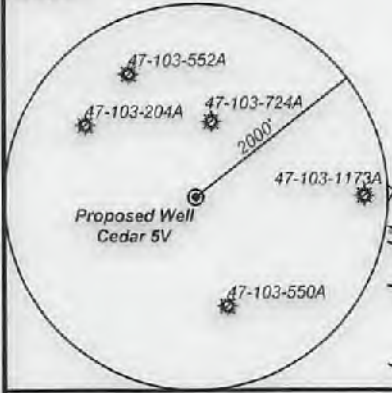


Notes:

West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Cedar 5V coordinates are  
 N: 391,339.71' Latitude: 39°34'05.25"  
 E: 1,658,212.39' Longitude: 80°42'44.76"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates  
 N: 4,379,873.416m  
 E: 524,716.017m  
 UTM Zone 17, NAD 1927  
 Top Hole Coordinates  
 N: 14,368,919.02'  
 E: 1,721,457.24'  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.



Note: 0 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

*Bradley D. Miller*  
 Bradley D. Miller, P.S. 2167

FILE NO: 126-34-G-18  
 DRAWING NO: Cedar 5V Well Plat  
 SCALE: 1" = 500'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: May 3 2022  
 OPERATOR'S WELL NO. Cedar 5V  
 API WELL NO  
 47 - 103 - 03498  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Proposed 1,248' Existing 1,276' WATERSHED: Fishing Creek QUADRANGLE: Pine Grove  
 DISTRICT: Green COUNTY: Wetzel 05/06/2022  
 SURFACE OWNER: Dallison Lumber Company ACREAGE: 51.5  
 ROYALTY OWNER: Jenkins Miller LEASE NO: ACREAGE: 200  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,500' TVD 7,500' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
 Denver, CO 80202 Charleston, WV 25313



1,156' to Top Hole

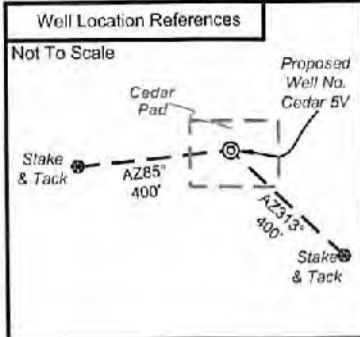
LATITUDE 39 - 35 - 00

LONGITUDE 80 - 42 - 30

5,540' to Top Hole

Antero Resources  
Well No. Cedar 5V

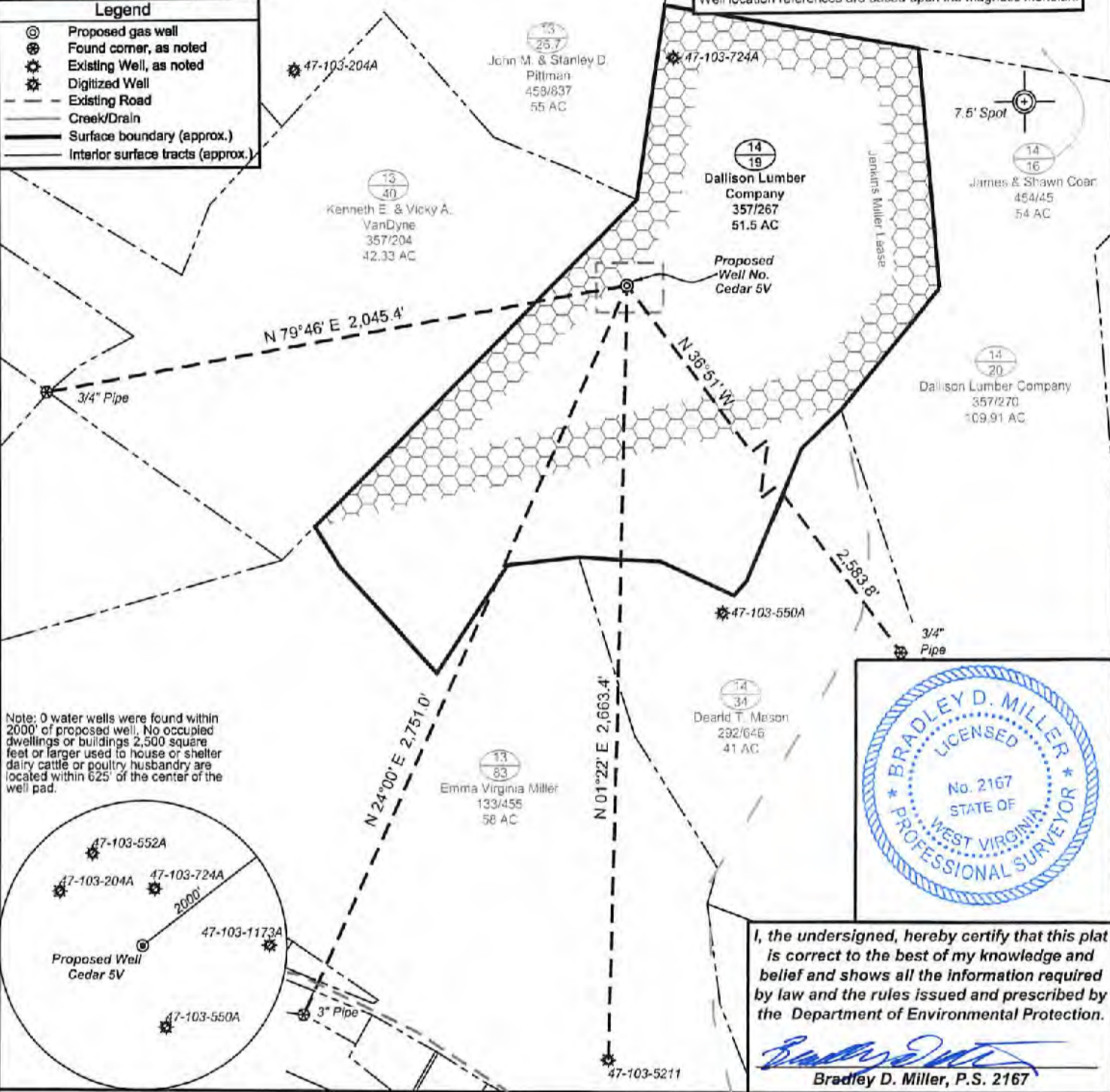
Antero Resources Corporation



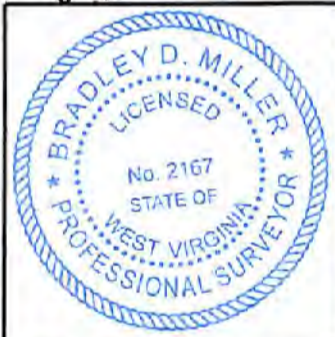
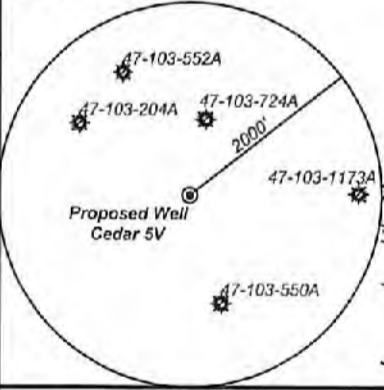
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 Well location references are based upon the magnetic meridian.

**Legend**

- ⊙ Proposed gas well
- ⊕ Found corner, as noted
- ⊛ Existing Well, as noted
- ⊛ Digitized Well
- - - Existing Road
- Creek/Drain
- Surface boundary (approx.)
- Interior surface tracts (approx.)



Note: 0 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



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*Bradley D. Miller*  
Bradley D. Miller, P.S. 2167

FILE NO: 126-34-G-18  
 DRAWING NO: Cedar 5V Well Plat  
 SCALE: 1" = 500'  
 MINIMUM DEGREE OF ACCURACY:  
 Submeter  
 PROVEN SOURCE OF ELEVATION:  
 WVDOT, Harrisville, WV

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

DATE: May 3 2022  
 OPERATOR'S WELL NO. Cedar 5V  
 API WELL NO  
 47 - 103 - 03498  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Proposed 1,248' Existing 1,276' WATERSHED: Fishing Creek QUADRANGLE: Pine Grove  
 DISTRICT: Green COUNTY: Wetzel  
 SURFACE OWNER: Dallison Lumber Company ACREAGE: 51.5  
 ROYALTY OWNER: Jenkins Miller LEASE NO: ACREAGE: 200  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,500' TVD 7,500' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
 Denver, CO 80202 Charleston, WV 25313

05/06/2022

**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
<u>Jenkins Miller Lease</u>	Jenkins Miller	Hope Natural Gas Company	1/8	0107/0056
	Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	0233/0387
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	066A/0069
	Consolidated Gas Transmission Corporation	Eastern States Oil & Gas Inc	Assignment	076A/0232
	Eastern States Oil & Gas Inc	Blazer Energy Corp	Merger	0012/0253
	Blazer Energy Corp	Eastern States Oil & Gas Inc	Name Change	0012/0259
	Eastern States Oil & Gas Inc	Equitable Production-Eastern States Inc	Name Change	WVSOS
	Equitable Production-Eastern States Inc	Appalachian Natural Gas Trust	Assignment	079A/0244
	Appalachian Natural Gas Trust	EQT Production Company	Merger	0096/0505
	EQT Production Company	Antero Resources Corporation	Assignment	230A/0801

\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

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

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

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

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

Well Operator: Antero Resources Corporation  
 By: Tim Rady  
 Its: VP of Land



WW-6A1

Operator's Well Number Cedar Unit 5V

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)

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b>Jenkins Miller Lease</b>			
Jenkins Miller	Hope Natural Company	1/8	0107/0056
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	0233/0387
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	066A/0069
Consolidated Gas Transmission Corporation	Eastern States Oil & Gas Inc.	Assignment	076A/0232
Eastern States Oil & Gas Inc.	Blazer Energy Corp	Merger	0012/0253
Blazer Energy Corp	Eastern States Oil & Gas Inc.	Name Change	0012/0259
Eastern States Oil & Gas Inc.	Equitable Production – Eastern States Inc	Name Change	WVSOS
Equitable Production – Eastern States Inc	Appalachian Natural Gas Trust	Assignment	079A/0244
Appalachian Natural Gas Trust	EQT Production Company	Merger	0096/0505
EQT Production Company	Antero Resources Corporation	Assignment	230A/0801

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\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

05/06/2022



Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

March 28, 2022

West Virginia Department of Environmental Protection  
Chief, Office of Oil and Gas  
Attn: Mr. James Martin  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

RE: Cedar Unit 5V  
Quadrangle: Pine Grove 7.5'  
Wetzel County/Green District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Cedar Unit 5V horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Cedar Unit 5V horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink that reads "Kelsey Silipo". The signature is written in a cursive, flowing style.

Kelsey Silipo  
Senior Landman

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WW-PN  
(11-18-2015)

**Horizontal Natural Gas Well Work Permit  
Application Notice By Publication**

**Notice is hereby given:**

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

**Paper:** Wetzel Chronicle

**Public Notice Date:** 03/16/2022 and 03/23/2022

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

**Applicant:** Antero Resources Corporation **Well Number:** Cedar Unit 5V ✓

**Address:** 1615 Wynkoop St. Denver, CO 80202

**Business Conducted:** Natural gas production.

**Location –**

State: <u>West Virginia</u> District: <u>Green ✓</u> UTM Coordinate NAD83 Northing: <u>4379873m ✓</u> UTM coordinate NAD83 Easting: <u>524716m ✓</u> Watershed: <u>Fishing Creek ✓</u>	County: <u>Wetzel ✓</u> Quadrangle: <u>Pine Grove 7.5' ✓</u>	RECEIVED Office of Oil and Gas  <b>MAR 30 2022</b>  WV Department of Environmental Protection
--	---	---

**Coordinate Conversion:**

To convert the coordinates above into longitude and latitude, visit: [http://tagis.dep.wv.gov/convert/llutm\\_conus.php](http://tagis.dep.wv.gov/convert/llutm_conus.php)

**Electronic notification:**

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

**Reviewing Applications:**

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to [DEP.comments@wv.gov](mailto:DEP.comments@wv.gov).

**Submitting Comments:**

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57<sup>th</sup> Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)

05/06/2022

**WETZEL CHRONICLE**  
**AFFIDAVIT OF PUBLICATION**

4710303498

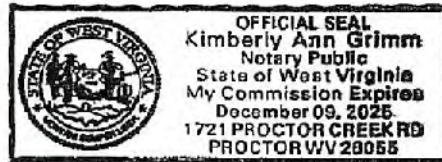
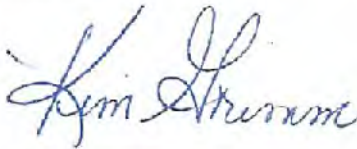
See Proof on Next Page

New Martinsville, WV March 23, 2022  
State of West Virginia, County of: Wetzel  
Personally appeared before the undersigned, a  
Notary Public, Eric Anderson who, being duly  
sworn, states that he is the Publisher of Wetzel  
Chronicle, a weekly newspaper of general  
circulation, published New Martinsville, County of  
Wetzel, State of West Virginia, and that a copy of  
the notice attached hereto was published:  
16 Mar 2022  
23 Mar 2022



Eric Anderson, Publisher

Subscribed and sworn to before me, a Notary  
Public of said County, on this 23rd day of  
March, 2022.



Notary Public

RECEIVED  
Office of Oil and Gas

MAR 30 2022

WV Department of  
Environmental Protection



**PUBLIC NOTICE OF APPLICATION FOR NATURAL GAS  
HORIZONTAL WELL DRILLING PERMIT,  
pursuant to West Virginia Code Section 22-5A-10(e).**

Antero Resources Corporation, 1815 Wynkoop Street, Denver, CO 80202, is applying for a permit for a natural gas horizontal well, **Cedar Unit 5V**, located at approximately UTM NAD 83 Easting 524718m, UTM NAD 83 Northing 4379873.4m, in Fishing Creek Watershed, Pine Grove 7.5' Quadrangle, Green District, Wetzel County, WV which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

To convert the coordinates above into longitude and latitude, visit: [http://tagis.dep.wv.gov/convert/utm\\_conus.php](http://tagis.dep.wv.gov/convert/utm_conus.php).  
To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

Any interested person may submit written comments or request a copy of the proposed permit application. Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Emailed or written comments must reference the county, well number, and operator and be received within 30 days of the date of the last publication. Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57 th Street, SE, Charleston, WV 25304 (304-926-0450).

Full copies or scans of the proposed permit application will cost \$15.00, whether mailed or obtained at DEP headquarters.

For information related to horizontal drilling, and all horizontal well applications filed in this state, visit [www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx)

Antero Resources Corporation  
WC 3/16 3/23

WC 3/16, 3/23 #####

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MAR 30 2022

WV Department of  
Environmental Protection

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

Date of Notice Certification: 03/28/2022

API No. 47- 103 - \_\_\_\_\_  
Operator's Well No. Cedar Unit 5V  
Well Pad Name: Cedar Pad

**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>524716m</u>
County: <u>Wetzel</u>		Northing: <u>4379873m</u>
District: <u>Green</u>	Public Road Access: <u>McKimmie Ridge Rd</u>	
Quadrangle: <u>Pina Grove 7.5'</u>	Generally used farm name: <u>Dallison Lumber</u>	
Watershed: <u>Fishing 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		<b>OOG OFFICE USE ONLY</b>
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or  <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION	RECEIVED Office of Oil and Gas	<input checked="" type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE	MAR 30 2022	<input checked="" type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION	WV Department of Environmental Protection	<input checked="" type="checkbox"/> RECEIVED

**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.

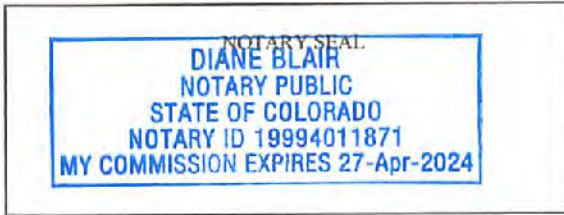


**Certification of Notice is hereby given:**

THEREFORE, I Diana Hoff, 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: Antero Resources Corporation  
By: Diana Hoff *Diana O. Hoff*  
Its: Senior VP of Operations  
Telephone: 303-357-7310

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315  
Email: mstanton@anteroresources.com



Subscribed and sworn before me this 29 day of March 2022  
Diane Blair Notary Public  
My Commission Expires 27 Apr 2024

**Oil and Gas Privacy Notice:**

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

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WV Department of  
Environmental Protection

05/06/2022

**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:** 03/29/2022    **Date Permit Application Filed:** 03/29/2022

**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: Dallison Lumber Company

Address: PO Box 159  
Jacksonburg, WV 26377-0159

Name: Kenneth E. & Vicky A. VanDyne

Address: PO Box 311  
Reader, WV 26167-0311

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: NO DECLARATIONS ON RECORD WITH COUNTY

Address: \_\_\_\_\_

COAL OPERATOR

Name: NO DECLARATIONS ON RECORD WITH COUNTY

Address: \_\_\_\_\_

WATER PURVEYOR(s)/OWNER(s) OR WATER WELL SPRING OR OTHER WATER SUPPLY SOURCE

Name: NO WELLS WITHIN 1500'

Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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\*Please attach additional forms if necessary

MAR 30 2022



**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 and Gas Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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

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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.

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**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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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Environmental Protection

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.**

05/06/2022



**Time Limits and Methods for Filing Comments.**

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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WV Department of  
Environmental Protection

WW-6A  
(8-13)

API NO. 47- 103 -  
OPERATOR WELL NO. Cedar Unit 5V  
Well Pad Name: Cedar Pad

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**Notice is hereby given by:**

Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310 *Diana O. Hoff*  
Email: mstanton@anteroresources.com

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 29 day of Mar 2022.

*Diane Blair* Notary Public

My Commission Expires 27 Apr 2024

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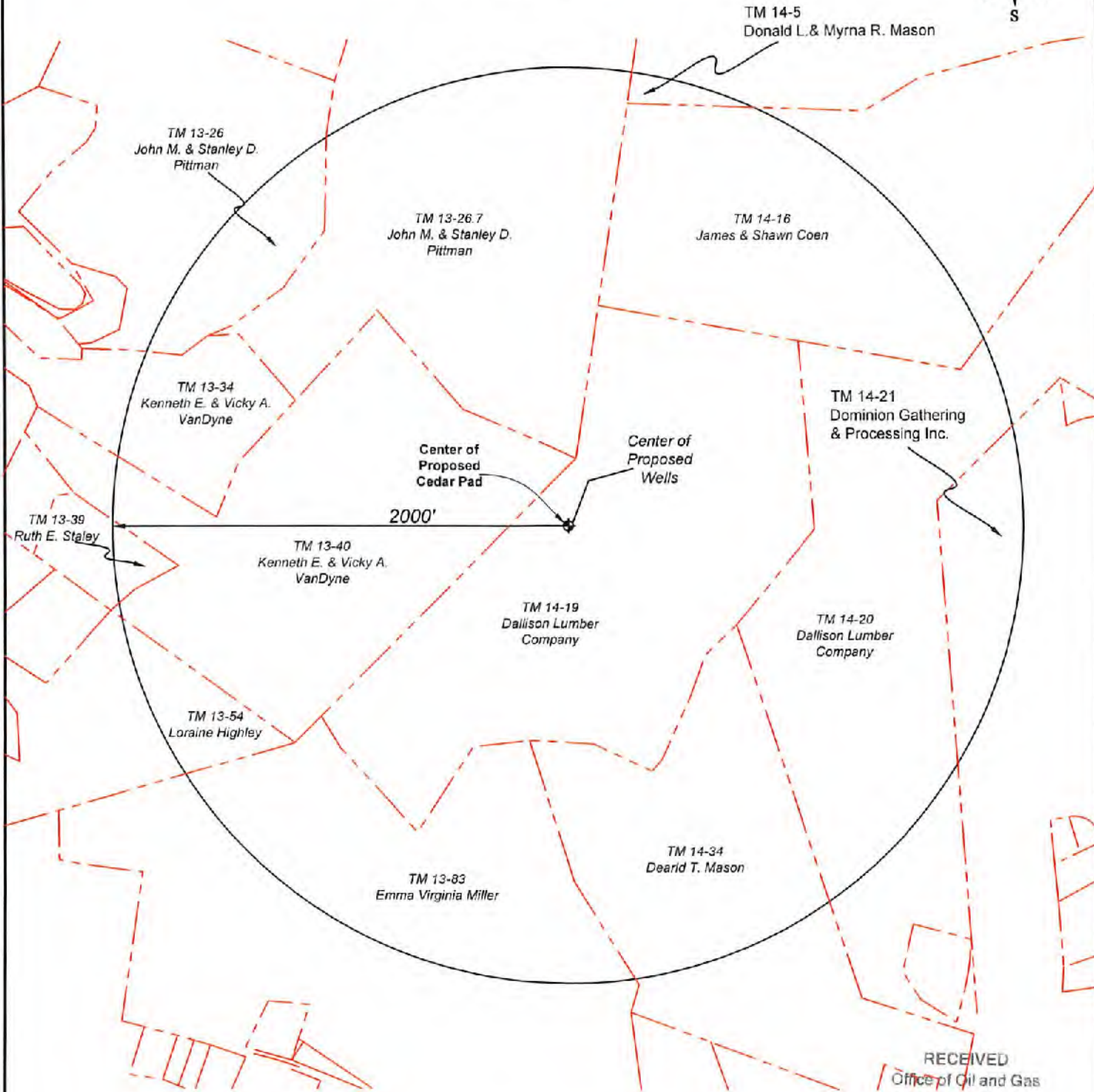
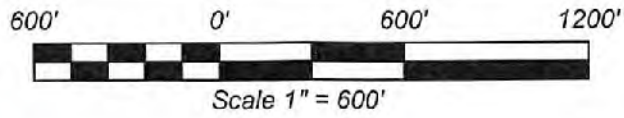
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# Cedar Drill Pad Water Well Map



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Note  
No Water wells or springs found within 2,000' of pad

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

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

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

**Date of Notice:** 03/11/2022 **Date Permit Application Filed:** 03/29/2022

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

HAND DELIVERY  CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

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

Name: Dallison Lumber Company  
Address: PO Box 159  
Jacksonburg, WV 26377-0159

Name: Kenneth E. & Vicky A. VanDyne  
Address: PO Box 311  
Reader, WV 26167-0311

**Notice is hereby given:**

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

State: West Virginia UTM NAD 83 Easting: 524716m  
County: Wetzel Northing: 4379873m  
District: Green Public Road Access: McKimmie Ridge Rd  
Quadrangle: Pine Grove 7.5' Generally used farm name: Dallison Lumber  
Watershed: Fishing Creek

**This Notice Shall Include:**

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

**Notice is hereby given by:**

Well Operator: Antero Resources Corporation  
Address: 1615 Wynkoop St.  
Denver, CO 80202  
Telephone: 303-357-7323  
Email: mstanton@anteroresources.com  
Facsimile: 303-357-7315

Authorized Representative: Mallory Stanton  
Address: 1615 Wynkoop St.  
Denver, CO 80202  
Telephone: 303-357-7223  
Email: mstanton@anteroresources.com  
Facsimile: 303-357-7315

RECEIVED  
Office of Oil and Gas  
MAR 30 2022  
WV Department of  
Environmental Protection

**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 of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

05/06/2022



4710303498

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:** 03/29/2022 **Date Permit Application Filed:** 03/29/2022

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

- CERTIFIED MAIL  
RETURN RECEIPT REQUESTED
- HAND  
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: Dallison Lumber Company  
Address: PO Box 159  
Jacksonburg, WV 26377-0159

Name: Kenneth E. & Vicky A. VanDyne  
Address: PO Box 311  
Reader, WV 26167-0311

**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:	West Virginia	UTM NAD 83	Easting:	524716m
County:	Wetzel		Northing:	4379873m
District:	Green	Public Road Access:	McKimmie Ridge Rd	
Quadrangle:	Pine Grove 7.5'	Generally used farm name:	Dallison Lumber	
Watershed:	Fishing Creek			

**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310  
Email: mslanton@anteroresources.com

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**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](mailto:depprivacyofficer@wv.gov).

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Office of Oil and Gas

MAR 30 2022

WV Department of  
Environmental Protection  
05/06/2022



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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

D. Alan Reed, P.E.  
State Highway Engineer

Jimmy Wriston, P. E.  
Secretary of Transportation  
Commissioner of Highways

March 24, 2022

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

Subject: DOH Permit for the Cedar Pad, Wetzel County  
Cedar Unit 5V Well Site

Dear Mr. Martin,

This well site will be accessed from DOH permits #06-2021-0526 which has been issued to Antero Resources for access to the State Road for a well site located off Wetzel County Route 52 SLS MP 1.93.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

Gary K. Clayton, P.E.  
Regional Maintenance Engineer  
Central Office O&G Coordinator

Cc: Diane Blair  
Antero Resources  
CH, OM, D-6  
File

RECEIVED  
Office of Oil and Gas

MAR 30 2022

WV Department of  
Environmental Protection

05/06/2022



**Subdivision 3.3.e A listing of the anticipated additives that may be used in the water used for fracturing or stimulating the well. (A listing of the additives that were actually used in the fracturing or stimulating of the well shall be submitted as part of the completion report required by W. Va. Code 22-6-22.)**

**FRACTURING/STIMULATING INTERVAL**

<b>Additive</b>	<b>Chemical Abstract Service Number (CAS #)</b>
1. Fresh Water	7732-18-5
2. 2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
3. Ammonium Persulfate	7727-54-0
4. Anionic copolymer	Proprietary
5. Anionic polymer	Proprietary
6. BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
7. Cellulase enzyme	(Proprietary)
8. Demulsifier Base	(Proprietary)
9. Ethoxylated alcohol blend	Mixture
10. Ethoxylated Nonylphenol	68412-54-4
11. Ethoxylated oleylamine	26635-93-8
12. Ethylene Glycol	107-21-1
13. Glycol Ethers	111-76-2
14. Guar gum	9000-30-0
15. Hydrogen Chloride	7647-01-0
16. Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
17. Isopropyl alcohol	67-63-0
18. Liquid, 2,2-dibromo-3- nitrilopropionamide	10222-01-2
19. Microparticle	Proprietary
20. Petroleum Distillates (BTEX Below Detect)	64742-47-8
21. Polyacrylamide	57-55-6
22. Propargyl Alcohol	107-19-7
23. Propylene Glycol	57-55-6
24. Quartz	14808-60-7
25. Sillica crystalline quartz	7631-86-9
26. Sodium Chloride	7647-14-5
27. Sodium Hydroxide	1310-73-2
28. Sugar	57-50-1
29. Surfactant	68439-51-0
30. Suspending agent (solid)	14808-60-7
31. Tar bases, quinolone derivs, benzyl chloride-quarternized	72480-70-7
32. Solvent Naptha, petroleum, heavy aliph	64742-96-7
33. Soybean Oil, Me ester	67784-80-9
34. Copolymer of Maleic and Acrylic Acid	52255-49-9
35. DETA Phosphonate	15827-60-8
36. Hexamethylene Triamine Penta	34690-00-1
37. Phosphino Carboxylic acid polymer	71050-62-9
38. Hexamethylene diamine penta	23605-74-5
39. 2-Propenoic acid, polymer with 2 propenamide	9003-06-9
40. Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
41. Diethylene Glycol	111-46-6
42. Methenamine	100-97-0
43. Polyethylene polyamine	68603-67-8
44. Coco amine	61791-14-8
45. 2-Propyn-1-olcompound with methyloxirane	38172-91-7

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## Planned Disposal Method-UIC

API	Operator	Well Name	State	Coordinates Lat/Long NAD 83
3400923821	Central Environmental Services, LLC	K&H Partners LLC #1 (SWIW #8)	OH	39.226075, - 81.761403
3400923823	Central Environmental Services, LLC	K&H Partners LLC #2 (SWIW #10)	OH	39.234815, - 81.757166
3400923824	Central Environmental Services, LLC	K&H Partners LLC #3 (SWIW #11)	OH	39.235082, - 81.748312
3416729731	Redbird Development, LLC	Redbird #2 (SWIW #18)	OH	39.337326, - 81.674314
3410523651	GreenHunter Water, LLC	Murphy Hunter #3 (SWIW #23)	OH	38.964640, - 81.785835
3410523637	GreenHunter Water, LLC	Mills Hunter #3 (SWIW #22)	OH	38.969738, - 81.786124
3410523652	GreenHunter Water, LLC	Mills Hunter #2 (SWIW #21)	OH	38.932919, - 81.788641
3410523619	GreenHunter Water, LLC	Mills Hunter #1 (SWIW #19)	OH	38.940522, - 81.787707
3412123995	GreenHunter Water, LLC	Warren Drilling Co. (SWIW #6)	OH	39.653808, - 81.475312
3412124086	GreenHunter Water, LLC	Travis Unit (SWIW #7)	OH	39.656785, - 81.480809
3405923986	Clearwater Solutions, LLC	Clearwater III #1 (SWIW #15)	OH	40.027300, - 81.511168
3405924473	Clearwater Solutions, LLC	Bo #1 (SWIW #20)	OH	40.027878, - 81.509974
3405924445	Clearwater Solutions, LLC	Effie #1 (SWIW#17)	OH	40.027364, - 81.449869
4708510142	GreenHunter Water, LLC	Ritchie Hunter #2 (2W-1652) (UIC2D08510142)	WV	39.256623, - 81.097484

05/06/2022



**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**VOLUNTARY STATEMENT OF NO OBJECTION**

**Instructions to Persons Named on Page WW-6A**

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

**Comment and Waiver Provisions**

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

**VOLUNTARY STATEMENT OF NO OBJECTION**

I, \_\_\_\_\_, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through \_\_\_\_\_, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>524716m</u>
County:	<u>Wetzel</u>		Northing:	<u>4378873m</u>
District:	<u>Green</u>	Public Road Access:	<u>McKimble Ridge Rd</u>	
Quadrangle:	<u>Pine Grove 7.5'</u>	Generally used farm name:	<u>Dallison Lumber</u>	
Watershed:	<u>Fishing Creek</u>			

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

<p>*Please check the box that applies</p> <p><input type="checkbox"/> SURFACE OWNER</p> <p><input type="checkbox"/> SURFACE OWNER (Road and/or Other Disturbance)</p> <p><input type="checkbox"/> SURFACE OWNER (Impoundments/Pits)</p> <p><input type="checkbox"/> COAL OWNER OR LESSEE</p> <p><input type="checkbox"/> COAL OPERATOR</p> <p><input type="checkbox"/> WATER PURVEYOR</p> <p><input type="checkbox"/> OPERATOR OF ANY NATURAL GAS STORAGE FIELD</p>	<p style="text-align: center;"><b>FOR EXECUTION BY A NATURAL PERSON</b></p> <p>Signature: _____</p> <p>Print Name: _____</p> <p>Date: _____</p> <p style="text-align: center;"><b>FOR EXECUTION BY A CORPORATION, ETC.</b></p> <p>Company: _____</p> <p>By: _____</p> <p>Its: _____</p> <p style="text-align: center;">MAR 30 2022</p> <p>Signature: _____</p> <p>Date: _____</p> <p style="text-align: center;">WV Department of Environmental Protection</p>
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**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](mailto:depprivacyofficer@wv.gov).

05/06/2022



**LOCATION COORDINATES**

SITE LOCATIONS	WAVELENGTH NORTH (ZONE)		UTM83-17	
	LATITUDE	LONGITUDE	NORTHING	EASTING
MAIN ACCESS ROAD ENTRANCE	35.582290	-80.306670	4381771.8370	525189.3671
CENTER OF WELL PAD	35.567867	-80.313345	4379615.6905	524650.9270
VALVE PAD	35.568308	-80.314992	4379648.2372	524611.8518
CEDAR SV WELL	35.564204	-80.312254	4379778.4152	524916.0172

# CEDAR WELL PAD ANTERO RESOURCES CORPORATION PERMIT PLANS

WETZEL COUNTY, WEST VIRGINIA  
LITTLE MUSKINGUM - MIDDLE ISLAND CREEK WATERSHED

**GENERAL DESCRIPTION**  
THE ACCESS ROAD, WELL PAD AND PILING CONSTRUCTED TO AND IN THE DEVELOPMENT OF INDIVIDUAL WELLS SHALL BE WELLS.

**LOCATION MAP NOTES**  
THE PROPOSED SITE LOCATION IS NOT WITHIN ANY CERTIFIED FLOOD ZONES PER FEMA MAP NUMBER 58060Z02C.

**WELL UTILITY STATEMENT**  
ANTERO RESOURCES CORPORATION WILL NOTIFY THE UTILITY OF WEST VIRGINIA FOR THE LOCATION OF UTILITIES PRIOR TO THE PROJECT BEGINS. POWER AND UTILITIES IN ADDITION, WELLS UTILITIES WILL BE CONDUCTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION ON THIS PROJECT.

**ENTRANCE PERMIT**  
ANTERO RESOURCES CORPORATION WILL OBTAIN AN ENCROACHMENT PERMIT FORM MA-109 FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

**ENVIRONMENTAL NOTES**  
BENCH AND WETLAND DELINEATIONS WERE PERFORMED ON AUGUST 24, 2022 AND AUGUST 27, 2022 BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) TO DETERMINE THE PRESENCE OF WETLANDS AND WETLANDS THAT ARE NEARBY. LAYOUT WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS APPLICABLE AND ON THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE STREAM AND WETLAND DELINEATION MAP WAS PREPARED BY CEC AND SUMMARIZES THE RESULTS OF THIS FIELD DELINEATION. THE MAP DOES NOT IN ANY WAY REPRESENT A GUARANTEED DETERMINATION OF THE LEGISLATIVE BASIS OF WATERSHED AND WETLANDS WHICH WILL BE REGULATED BY THE U.S. ARMY CORPS OF ENGINEERS. ANTERO RESOURCES CORPORATION SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERSHEDS OF THE U.S., INCLUDING WETLANDS AND RIVERS AND STREAM CROSSINGS.

**CONSTRUCTION NOTES**  
THE PROPOSED 8:1 SLOPES AND 8:1:1 SLOPES SHALL BE FIELD MONITORED BY A CERTIFIED GEOTECHNICAL ENGINEER TO ENSURE THE PROPOSED SLOPES ARE ADEQUATE PRIOR TO DEVELOPMENT. ACCESS ROAD CONSTRUCTION SHALL BE MONITORED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OR PROJECT DESIGN ENGINEER DURING CONSTRUCTION.

**PROJECT CONTACTS**

<b>OWNER</b> ANTERO RESOURCES CORPORATION C/O WATTS DAMEN REALTY SHERBOURNE, WY 26049 PHONE: (304) 862-4000 FAX: (304) 862-4100	<b>SUPERVISOR</b> CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 120 BENDER'S BLVD. BROOKPORT, WV 26030 PHONE: (304) 923-3119
<b>ENVIRONMENTAL</b> CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 120 BENDER'S BLVD. BROOKPORT, WV 26030 PHONE: (304) 923-3119	<b>CIVIL</b> CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 120 BENDER'S BLVD. BROOKPORT, WV 26030 PHONE: (304) 923-3119

**SCOTT WATKINS - UTILITY SUPERVISOR**  
OFFICE: (304) 643-4411 CELL: (304) 876-8889

**LORIANNAH - SUP OPERATIONS**  
OFFICE: (304) 867-8864



**LOCATION MAP**  
PINE GROVE QUADRANGLE 7.5 QUAD  
SCALE: 1 INCH = 200 FEET



**VICINITY MAP**  
WETZEL COUNTY ROAD MAP  
SCALE: 1 INCH = 1 MILE

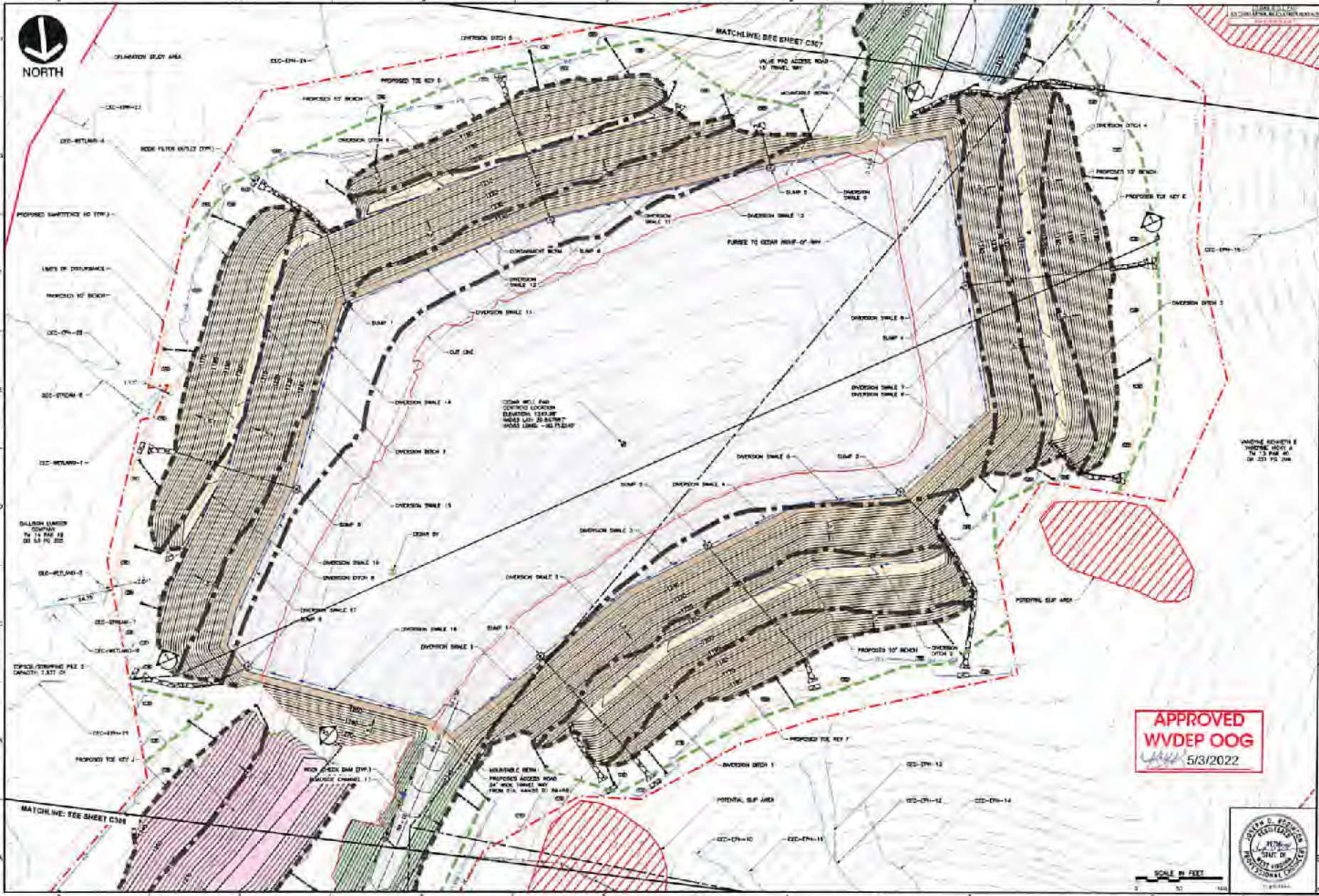
**L.O.B./MS/AI**

DESCRIPTION	ACRES
Access Road	50.35
Valve Pad Access Road	0.85
Well Pad	20.57
Well Pad	2.45
Spool 1	2.24
Spool 2	4.59
Spool 3	3.38
Topsoil/Stripping 1	2.37
Topsoil/Stripping 2	2.04
Topsoil/Stripping 3	6.21
<b>TOTAL</b>	<b>78.85</b>
WOODDED	68.42

**SHFIT INDEX**

C000 - COVER SHEET	D010 - PROFILES AND SECTIONS	G110 - GEOTECHNICAL SECTIONS
C001 - GENERAL NOTES	D015 - PROFILES AND SECTIONS	G120 - GEOTECHNICAL DETAILS
C002 - MATERIAL QUANTITIES	D020 - PROFILES AND SECTIONS	G130 - GEOTECHNICAL DETAILS
C003 - MATERIAL LEGEND	D025 - PROFILES AND SECTIONS	G140 - LATHWORK SPECIFICATIONS
C004 - EXISTING CONDITIONS	D030 - PROFILES AND SECTIONS	G150 - BORING LOGS
C005 - EXISTING CONDITIONS	D035 - PROFILES AND SECTIONS	G160 - BORING LOGS
C006 - EXISTING CONDITIONS	D040 - PROFILES AND SECTIONS	G170 - BORING LOGS
C007 - EXISTING CONDITIONS	D045 - PROFILES AND SECTIONS	G180 - BORING LOGS
C008 - OVERALL SITE PLAN	D050 - PROFILES AND SECTIONS	G190 - BORING LOGS
C009 - SITE PLAN	D055 - PROFILES AND SECTIONS	G200 - BORING LOGS
C010 - SITE PLAN	D060 - PROFILES AND SECTIONS	G210 - BORING LOGS
C011 - SITE PLAN	D065 - PROFILES AND SECTIONS	G220 - BORING LOGS
C012 - SITE PLAN	D070 - PROFILES AND SECTIONS	G230 - BORING LOGS
C013 - SITE PLAN	D075 - PROFILES AND SECTIONS	G240 - BORING LOGS
C014 - SITE PLAN	D080 - PROFILES AND SECTIONS	G250 - BORING LOGS
C015 - SITE PLAN	D085 - PROFILES AND SECTIONS	G260 - BORING LOGS
C016 - SITE PLAN	D090 - PROFILES AND SECTIONS	G270 - BORING LOGS
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C018 - SITE PLAN	D100 - PROFILES AND SECTIONS	G290 - BORING LOGS
C019 - SITE PLAN	D105 - PROFILES AND SECTIONS	G300 - BORING LOGS
C020 - SITE PLAN	D110 - PROFILES AND SECTIONS	G310 - BORING LOGS
C021 - SITE PLAN	D115 - PROFILES AND SECTIONS	G320 - BORING LOGS
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C049 - SITE PLAN	D255 - PROFILES AND SECTIONS	G600 - BORING LOGS
C050 - SITE PLAN	D260 - PROFILES AND SECTIONS	G610 - BORING LOGS
C051 - SITE PLAN	D265 - PROFILES AND SECTIONS	G620 - BORING LOGS
C052 - SITE PLAN	D270 - PROFILES AND SECTIONS	G630 - BORING LOGS
C053 - SITE PLAN	D275 - PROFILES AND SECTIONS	G640 - BORING LOGS
C054 - SITE PLAN	D280 - PROFILES AND SECTIONS	G650 - BORING LOGS
C055 - SITE PLAN	D285 - PROFILES AND SECTIONS	G660 - BORING LOGS
C056 - SITE PLAN	D290 - PROFILES AND SECTIONS	G670 - BORING LOGS
C057 - SITE PLAN	D295 - PROFILES AND SECTIONS	G680 - BORING LOGS
C058 - SITE PLAN	D300 - PROFILES AND SECTIONS	G690 - BORING LOGS
C059 - SITE PLAN	D305 - PROFILES AND SECTIONS	G700 - BORING LOGS
C060 - SITE PLAN	D310 - PROFILES AND SECTIONS	G710 - BORING LOGS
C061 - SITE PLAN	D315 - PROFILES AND SECTIONS	G720 - BORING LOGS
C062 - SITE PLAN	D320 - PROFILES AND SECTIONS	G730 - BORING LOGS
C063 - SITE PLAN	D325 - PROFILES AND SECTIONS	G740 - BORING LOGS
C064 - SITE PLAN	D330 - PROFILES AND SECTIONS	G750 - BORING LOGS
C065 - SITE PLAN	D335 - PROFILES AND SECTIONS	G760 - BORING LOGS
C066 - SITE PLAN	D340 - PROFILES AND SECTIONS	G770 - BORING LOGS
C067 - SITE PLAN	D345 - PROFILES AND SECTIONS	G780 - BORING LOGS
C068 - SITE PLAN	D350 - PROFILES AND SECTIONS	G790 - BORING LOGS
C069 - SITE PLAN	D355 - PROFILES AND SECTIONS	G800 - BORING LOGS
C070 - SITE PLAN	D360 - PROFILES AND SECTIONS	G810 - BORING LOGS
C071 - SITE PLAN	D365 - PROFILES AND SECTIONS	G820 - BORING LOGS
C072 - SITE PLAN	D370 - PROFILES AND SECTIONS	G830 - BORING LOGS
C073 - SITE PLAN	D375 - PROFILES AND SECTIONS	G840 - BORING LOGS
C074 - SITE PLAN	D380 - PROFILES AND SECTIONS	G850 - BORING LOGS
C075 - SITE PLAN	D385 - PROFILES AND SECTIONS	G860 - BORING LOGS
C076 - SITE PLAN	D390 - PROFILES AND SECTIONS	G870 - BORING LOGS
C077 - SITE PLAN	D395 - PROFILES AND SECTIONS	G880 - BORING LOGS
C078 - SITE PLAN	D400 - PROFILES AND SECTIONS	G890 - BORING LOGS
C079 - SITE PLAN	D405 - PROFILES AND SECTIONS	G900 - BORING LOGS
C080 - SITE PLAN	D410 - PROFILES AND SECTIONS	G910 - BORING LOGS
C081 - SITE PLAN	D415 - PROFILES AND SECTIONS	G920 - BORING LOGS
C082 - SITE PLAN	D420 - PROFILES AND SECTIONS	G930 - BORING LOGS
C083 - SITE PLAN	D425 - PROFILES AND SECTIONS	G940 - BORING LOGS
C084 - SITE PLAN	D430 - PROFILES AND SECTIONS	G950 - BORING LOGS
C085 - SITE PLAN	D435 - PROFILES AND SECTIONS	G960 - BORING LOGS
C086 - SITE PLAN	D440 - PROFILES AND SECTIONS	G970 - BORING LOGS
C087 - SITE PLAN	D445 - PROFILES AND SECTIONS	G980 - BORING LOGS
C088 - SITE PLAN	D450 - PROFILES AND SECTIONS	G990 - BORING LOGS
C089 - SITE PLAN	D455 - PROFILES AND SECTIONS	G1000 - BORING LOGS
C090 - SITE PLAN	D460 - PROFILES AND SECTIONS	G1010 - BORING LOGS
C091 - SITE PLAN	D465 - PROFILES AND SECTIONS	G1020 - BORING LOGS
C092 - SITE PLAN	D470 - PROFILES AND SECTIONS	G1030 - BORING LOGS
C093 - SITE PLAN	D475 - PROFILES AND SECTIONS	G1040 - BORING LOGS
C094 - SITE PLAN	D480 - PROFILES AND SECTIONS	G1050 - BORING LOGS
C095 - SITE PLAN	D485 - PROFILES AND SECTIONS	G1060 - BORING LOGS
C096 - SITE PLAN	D490 - PROFILES AND SECTIONS	G1070 - BORING LOGS
C097 - SITE PLAN	D495 - PROFILES AND SECTIONS	G1080 - BORING LOGS
C098 - SITE PLAN	D500 - PROFILES AND SECTIONS	G1090 - BORING LOGS
C099 - SITE PLAN	D505 - PROFILES AND SECTIONS	G1100 - BORING LOGS
C100 - SITE PLAN	D510 - PROFILES AND SECTIONS	G1110 - BORING LOGS
C101 - SITE PLAN	D515 - PROFILES AND SECTIONS	G1120 - BORING LOGS
C102 - SITE PLAN	D520 - PROFILES AND SECTIONS	G1130 - BORING LOGS
C103 - SITE PLAN	D525 - PROFILES AND SECTIONS	G1140 - BORING LOGS
C104 - SITE PLAN	D530 - PROFILES AND SECTIONS	G1150 - BORING LOGS
C105 - SITE PLAN	D535 - PROFILES AND SECTIONS	G1160 - BORING LOGS
C106 - SITE PLAN	D540 - PROFILES AND SECTIONS	G1170 - BORING LOGS
C107 - SITE PLAN	D545 - PROFILES AND SECTIONS	G1180 - BORING LOGS
C108 - SITE PLAN	D550 - PROFILES AND SECTIONS	G1190 - BORING LOGS
C109 - SITE PLAN	D555 - PROFILES AND SECTIONS	G1200 - BORING LOGS
C110 - SITE PLAN	D560 - PROFILES AND SECTIONS	G1210 - BORING LOGS
C111 - SITE PLAN	D565 - PROFILES AND SECTIONS	G1220 - BORING LOGS
C112 - SITE PLAN	D570 - PROFILES AND SECTIONS	G1230 - BORING LOGS
C113 - SITE PLAN	D575 - PROFILES AND SECTIONS	G1240 - BORING LOGS
C114 - SITE PLAN	D580 - PROFILES AND SECTIONS	G1250 - BORING LOGS
C115 - SITE PLAN	D585 - PROFILES AND SECTIONS	G1260 - BORING LOGS
C116 - SITE PLAN	D590 - PROFILES AND SECTIONS	G1270 - BORING LOGS
C117 - SITE PLAN	D595 - PROFILES AND SECTIONS	G1280 - BORING LOGS
C118 - SITE PLAN	D600 - PROFILES AND SECTIONS	G1290 - BORING LOGS
C119 - SITE PLAN	D605 - PROFILES AND SECTIONS	G1300 - BORING LOGS
C120 - SITE PLAN	D610 - PROFILES AND SECTIONS	G1310 - BORING LOGS
C121 - SITE PLAN	D615 - PROFILES AND SECTIONS	G1320 - BORING LOGS
C122 - SITE PLAN	D620 - PROFILES AND SECTIONS	G1330 - BORING LOGS
C123 - SITE PLAN	D625 - PROFILES AND SECTIONS	G1340 - BORING LOGS
C124 - SITE PLAN	D630 - PROFILES AND SECTIONS	G1350 - BORING LOGS
C125 - SITE PLAN	D635 - PROFILES AND SECTIONS	G1360 - BORING LOGS
C126 - SITE PLAN	D640 - PROFILES AND SECTIONS	G1370 - BORING LOGS
C127 - SITE PLAN	D645 - PROFILES AND SECTIONS	G1380 - BORING LOGS
C128 - SITE PLAN	D650 - PROFILES AND SECTIONS	G1390 - BORING LOGS
C129 - SITE PLAN	D655 - PROFILES AND SECTIONS	G1400 - BORING LOGS
C130 - SITE PLAN	D660 - PROFILES AND SECTIONS	G1410 - BORING LOGS
C131 - SITE PLAN	D665 - PROFILES AND SECTIONS	G1420 - BORING LOGS
C132 - SITE PLAN	D670 - PROFILES AND SECTIONS	G1430 - BORING LOGS
C133 - SITE PLAN	D675 - PROFILES AND SECTIONS	G1440 - BORING LOGS
C134 - SITE PLAN	D680 - PROFILES AND SECTIONS	G1450 - BORING LOGS
C135 - SITE PLAN	D685 - PROFILES AND SECTIONS	G1460 - BORING LOGS
C136 - SITE PLAN	D690 - PROFILES AND SECTIONS	G1470 - BORING LOGS
C137 - SITE PLAN	D695 - PROFILES AND SECTIONS	G1480 - BORING LOGS
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C139 - SITE PLAN	D705 - PROFILES AND SECTIONS	G1500 - BORING LOGS
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C141 - SITE PLAN	D715 - PROFILES AND SECTIONS	G1520 - BORING LOGS
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C147 - SITE PLAN	D745 - PROFILES AND SECTIONS	G1580 - BORING LOGS
C148 - SITE PLAN	D750 - PROFILES AND SECTIONS	G1590 - BORING LOGS
C149 - SITE PLAN	D755 - PROFILES AND SECTIONS	G1600 - BORING LOGS
C150 - SITE PLAN	D760 - PROFILES AND SECTIONS	G1610 - BORING LOGS
C151 - SITE PLAN	D765 - PROFILES AND SECTIONS	G1620 - BORING LOGS
C152 - SITE PLAN	D770 - PROFILES AND SECTIONS	G1630 - BORING LOGS
C153 - SITE PLAN	D775 - PROFILES AND SECTIONS	G1640 - BORING LOGS
C154 - SITE PLAN	D780 - PROFILES AND SECTIONS	G1650 - BORING LOGS
C155 - SITE PLAN	D785 - PROFILES AND SECTIONS	G1660 - BORING LOGS
C156 - SITE PLAN	D790 - PROFILES AND SECTIONS	G1670 - BORING LOGS
C157 - SITE PLAN	D795 - PROFILES AND SECTIONS	G1680 - BORING LOGS
C158 - SITE PLAN	D800 - PROFILES AND SECTIONS	G1690 - BORING LOGS
C159 - SITE PLAN	D805 - PROFILES AND SECTIONS	G1700 - BORING LOGS
C160 - SITE PLAN	D810 - PROFILES AND SECTIONS	G1710 - BORING LOGS
C161 - SITE PLAN	D815 - PROFILES AND SECTIONS	G1720 - BORING LOGS
C162 - SITE PLAN	D820 - PROFILES AND SECTIONS	G1730 - BORING LOGS
C163 - SITE PLAN	D825 - PROFILES AND SECTIONS	G1740 - BORING LOGS
C164 - SITE PLAN	D830 - PROFILES AND SECTIONS	G1750 - BORING LOGS
C165 - SITE PLAN	D835 - PROFILES AND SECTIONS	G1760 - BORING LOGS
C166 - SITE PLAN	D840 - PROFILES AND SECTIONS	G1770 - BORING LOGS
C167 - SITE PLAN	D845 - PROFILES AND SECTIONS	G1780 - BORING LOGS
C168 - SITE PLAN	D850 - PROFILES AND SECTIONS	G1790 - BORING LOGS
C169 - SITE PLAN	D855 - PROFILES AND SECTIONS	G1800 - BORING LOGS
C170 - SITE PLAN	D860 - PROFILES AND SECTIONS	G1810 - BORING LOGS
C171 - SITE PLAN	D865 - PROFILES AND SECTIONS	G1820 - BORING LOGS
C172 - SITE PLAN	D870 - PROFILES AND SECTIONS	G1830 - BORING LOGS
C173 - SITE PLAN	D875 - PROFILES AND SECTIONS	G1840 - BORING LOGS
C174 - SITE PLAN	D880 - PROFILES AND SECTIONS	G1850 - BORING LOGS
C175 - SITE PLAN	D885 - PROFILES AND SECTIONS	G1860 - BORING LOGS
C176 - SITE PLAN	D890 - PROFILES AND SECTIONS	G1870 - BORING LOGS
C177 - SITE PLAN	D895 - PROFILES AND SECTIONS	G1880 - BORING LOGS
C178 - SITE PLAN	D900 - PROFILES AND SECTIONS	G1890 - BORING LOGS
C179 - SITE PLAN	D905 - PROFILES AND SECTIONS	G1900 - BORING LOGS
C180 - SITE PLAN	D910 - PROFILES AND SECTIONS	G1910 - BORING LOGS
C181 - SITE PLAN	D915 - PROFILES AND SECTIONS	G1920 - BORING LOGS
C182 - SITE PLAN	D920 - PROFILES AND SECTIONS	G1930 - BORING LOGS
C183 - SITE PLAN	D925 - PROFILES AND SECTIONS	G1940 - BORING LOGS
C184 - SITE PLAN	D930 - PROFILES AND SECTIONS	G1950 - BORING LOGS
C185 - SITE PLAN	D935 - PROFILES AND SECTIONS	G1960 - BORING LOGS
C186 - SITE PLAN	D940 - PROFILES AND SECTIONS	G1970 - BORING LOGS
C187 - SITE PLAN	D945 - PROFILES AND SECTIONS	G1980 - BORING LOGS
C188 - SITE PLAN	D950 - PROFILES AND SECTIONS	G1990 - BORING LOGS
C189 - SITE PLAN	D955 - PROFILES AND SECTIONS	G2000 - BORING LOGS
C190 - SITE PLAN	D960 - PROFILES AND SECTIONS	G2010 - BORING LOGS
C191 - SITE PLAN	D965 - PROFILES AND SECTIONS	G2020 - BORING LOGS
C192 - SITE PLAN	D970 - PROFILES AND SECTIONS	G2030 - BORING LOGS
C193 - SITE PLAN	D975 - PROFILES AND SECTIONS	G2040 - BORING LOGS
C194 - SITE PLAN	D980 - PROFILES AND SECTIONS	G2050 - BORING LOGS
C195 - SITE PLAN	D985 - PROFILES AND SECTIONS	G2060 - BORING LOGS
C196 - SITE PLAN	D990 - PROFILES AND SECTIONS	G2070 - BORING LOGS
C197 - SITE PLAN	D995 - PROFILES AND SECTIONS	G2080 - BORING LOGS
C198 - SITE PLAN	D1000 - PROFILES AND SECTIONS	G2090 - BORING LOGS
C199 - SITE PLAN	D1005 - PROFILES AND SECTIONS	G2100 - BORING LOGS





**APPROVED**  
**WVDEP OOG**  
*[Signature]*  
5/3/2022

SCALE IN FEET  
1" = 50'



NO.	DATE	REVISION

**C&E**  
**Civil & Environmental Consultants, Inc.**  
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PH: 204.932.3111 • 855.988.9439 • FAX: 204.932.3127  
www.candec.com

**ANTERO RESOURCES**  
**CEDAR WELL PAD**  
**WETZEL COUNTY**  
**WEST VIRGINIA**

SITE PLAN	
DATE	
DESIGNER	
CHECKER	
APPROVED BY	

**C306**