

Response to Comments
Draft Handling Permit for Coal Combustion Residuals (CCR)
Plant Bowen AP-1

In accordance with the Georgia Environmental Protection Division's (EPD) public participation policy, the draft Closure/Post-Closure Care Permit for Georgia Power's Plant Bowen Existing CCR Surface Impoundment AP-1 was posted on EPD's website on September 14, 2021. This initiated the comment period, which remained open until November 15, 2021 (60 days). EPD received a total of approximately 878 comments, which included 19 verbal comments in the virtual public meeting and 859 comments received via email. A summary of the comments is provided below along with EPD's responses.

1. Comments Concerning Coal Ash

- Coal ash is toxic and will affect health of current and future generations
- Coal ash contains toxins that cause liver & kidney damage and an array of cancers
- GP created the hazardous waste and should be responsible for proper disposal

EPD Response:

Coal Combustion Residuals or CCR is federally regulated under RCRA Subtitle D, which addresses non-hazardous solid waste; hazardous waste is regulated by Subtitle C of RCRA. CCR is defined in the US EPA and State of Georgia CCR regulations as a non-hazardous solid waste that includes fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from the burning of coal for the purposes of generating electricity by electric utilities and independent power producers. As such, CCR is defined by state and federal law as a solid waste and therefore not defined or managed as hazardous toxic waste. Under the Georgia CCR regulations, Georgia Power is responsible for the proper disposal of CCR and has submitted closure / post-closure plans that meet the regulatory requirements.

2. Comments Concerning Karst Geology and Location Restrictions

- AP-1 Violates State and Federal location restriction requirements because:
 - AP-1 is located in unstable karst terrain prone to sinkholes
 - Georgia Power failed to show that good engineering practices would ensure AP-1's integrity despite its location above an unstable, well-developed karst aquifer
 - AP-1 violates the aquifer location restriction because it fails to provide five feet of separation between the CCR waste and the aquifer
- Installing a liner is inadequate due to history of spills/sinkholes which will cause liner to fail and ash pit to collapse
- Require excavation/safe removal to lined landfills on stable ground away from waterways
- GP failed to assess the long-term viability of the site

EPD Response:

The federal and state CCR rules have several location-related restrictions, including two that address features such as karst geology and aquifer location.

The owner or operator of any existing CCR surface impoundments that do not meet location restrictions for unstable areas, including karst geology is required to cease placing CCR into that surface impoundment and initiate closure. [ref 40 CFR 257.64(d)(4), 40 CFR 257.101(b)(1), 40 CFR 257.102, Ga. Comp. R and Regs. 391-3-4-.10]

The owner or operator of any existing CCR surface impoundments that do not meet location restrictions for minimum separation to uppermost aquifer is required to cease placing CCR into that surface impoundment and initiate closure. [ref. 40 CFR 257.60(c)(4), 40 CFR 257.101(b)(1), 40 CFR 257.102, Ga. Comp. R and Regs. 391-3-4-.10]

While a CCR unit not meeting location restrictions must be closed, it may be closed by either method allowed by 40 CFR 257.102, specifically: 1) closure in place with an engineered final cover system, or 2) closure by removal of the CCR. The rule does not dictate which closure method is to be used for units failing any one or multiple location restrictions.

Due to the inability to meet location restrictions described above, Bowen AP-1 ceased receiving CCR and non-CCR waste streams on or before December 31, 2020, and Georgia Power selected to close the unit in place with an engineered final cover system by temporarily moving all CCR and a minimum 6-inches of additional soil, implementing a foundation improvement plan, and placing all of the ash in a consolidated area, which reduces the existing 254-acre ash pond into a 144-acre lined unit that ensures separation from groundwater.

40 CFR 257.64(a), incorporated in Georgia's rules by reference, allows an existing surface impoundment to be located in an unstable area if recognized and generally accepted engineering practices have been incorporated into the design of the CCR unit to ensure the integrity of the structural components of the unit will not be disturbed. Pursuant to the requirements of this rule, a foundation improvement plan was developed and will be implemented at Bowen AP-1 to ensure that the integrity of the foundation and composite liner system will be maintained throughout and beyond the post closure care period of the unit. This foundation improvement plan will help minimize the potential release of CCR and/or leachate to the ground and surface waters of the State, to the maximum extent feasible. A description of the specific procedures and requirements that will be followed to evaluate the foundation and implement the improvements are included in Appendix A of the Closure Plan.

3. Comments Concerning Groundwater and Contamination of Groundwater

- CCR units inevitably leak contaminants into groundwater and water supplies
- CCR units and releases cause cancer and many illnesses in humans

- CCR units and releases damage the environment and animal habitats
- There are unsafe levels of groundwater contamination at 10 of 12 CCR sites
- Concerns of contaminating private drinking water wells in the area

EPD Response:

Bowen AP-1 will be closed by consolidating the existing 254-acre ash pond into a 144-acre lined unit and constructing an engineered final cover system. The construction of a low permeability composite liner system below the CCR and above the groundwater table, consolidation of the CCR into the smaller lined unit, and construction of an engineered final cover system will minimize potential impact to groundwater at Bowen AP-1.

In addition to the liner and engineered final cover systems, Bowen AP-1's groundwater monitoring system meets federal and state regulatory requirements and has been designed to place groundwater monitoring wells throughout the property that will accurately describe the quality of groundwater passing the waste boundary of the CCR unit. Should contamination be detected at any location at or beyond the waste boundary above regulatory thresholds, corrective action will be initiated. Corrective action may include a variety of remedies to address that contamination, up to and including removal of the waste.

At Bowen AP-1, molybdenum and cobalt, both metals, are the only confirmed constituents to be present in groundwater at the property above levels set in applicable regulations. They have not been detected above those levels outside of the property boundary. Although neither federal nor state regulations make the issuance of a permit for a CCR surface impoundment contingent on the non-detection of regulated constituents above applicable levels, past and future groundwater monitoring data has been and will continue to be evaluated by EPD throughout the permitting and closure process. Any necessary remedies will be implemented in accordance with the applicable rules and closure/post closure care permit to return the affected area to compliance.

The groundwater results are available on the Georgia EPD Online System (GEOS), accessible to the public through the public inquiry portal, and on the Georgia Power CCR Compliance website.

4. Comments related to the Groundwater Monitoring Network

- The proposed monitoring wells can't reliably monitor a leak due to karst geology and AP-1's Groundwater Monitoring System Violates State and Federal Regulations because it does not account for the site-specific karst conditions at AP-1
- Georgia Power should be required to take additional groundwater monitoring steps due to the extreme karst conditions at Plant Bowen, such as sampling monthly.

EPD Response:

Bowen AP-1's site-specific groundwater monitoring system meets federal and state regulatory requirements and has been designed to place groundwater monitoring wells

throughout the property that will accurately describe the quality of groundwater passing the waste boundary of the CCR unit.

Semi-annual sampling is required by the Georgia Rules for Solid Waste Management at 391-3-4.10(6)(c). Because metals do not move rapidly through groundwater, increasing the frequency to monthly sampling is not necessary to provide an accurate picture of groundwater quality.

The most recent Hydrogeologic Assessment Report (HAR) from June 2021 describes the rationale for the organization and structure of the current certified monitoring network. The monitoring wells are positioned to target zones where the primary groundwater flow is most likely to occur, thus providing the greatest likelihood of early detection of any releases. Based on the information in the HAR, EPD also has determined that the aquifer is interconnected. The monitoring network meets the requirements of the federal and state rules.

EPD has determined that the geophysical subsurface investigations performed were adequate to determine proper placement of groundwater monitoring wells.

US EPA Region 4's Laboratory Services and Applied Science Division (LSASD), formerly Science and Ecosystem Support Division (SESD), guidance and procedures are the current federal guidance for groundwater monitoring at permitted solid waste facilities, and what EPD uses in Georgia. *See* Design and Installation of Monitoring Wells, as amended, available at: <https://www.epa.gov/quality/design-and-installation-monitoring-wells> and Groundwater Sampling Operating Procedure, as amended, available at: <https://www.epa.gov/quality/procedures-groundwater-sampling-laboratory-services-and-applied-science-division>. The groundwater monitoring system for Bowen AP-1 was certified by a qualified groundwater scientist in 2017 and subsequently approved by EPD to be in general accordance with the LSASD guidance and procedures stated above.

5. Comments Concerning Surface Water Contamination

- Dumping toxic coal ash near waterways including the Etowah and Oostanaula Rivers and drinking water sources is irresponsible, immoral, and will lead to contamination
- Toxic spills of arsenic have contaminated the water in the past and may again, residents are concerned it will increase cancer risks
- Contamination will impact our recreational areas, natural resources, animal habitats

EPD Response:

CCR is federally regulated under RCRA Subtitle D, which manages non-hazardous solid waste. As such, coal ash is not managed as hazardous waste or toxic waste. Georgia's CCR regulations are based upon the federal CCR regulations promulgated by the US EPA and incorporate those federal regulations by reference. EPD evaluates all permit applications for

consistency with state laws and regulations, including federal rules incorporated into state regulations.

The final configuration of Bowen AP-1 will be outside the 100-year flood plain of the Etowah River, the Oostanaula Rivers, and Euharlee Creek. The AP-1 facility will be constructed so that during post-closure the facility can mitigate a 100-year 24-hour storm event, will not reduce the temporary water storage capacity of the floodplain, and will not result in a washout of CCR or material posing a threat to human health and the environment.

CCR in the existing 254-acre Bowen AP-1 will be consolidated into a 144-acre lined unit. The lined unit will be closed in place with an engineered final cover system. The low permeability final cover system will minimize the potential for stormwater and/or surface water to come into contact with CCR. The proposed low permeability composite liner system and the final cover system for Bowen AP-1 have been determined to meet the requirements of federal and state CCR Rules. The low permeability composite liner and final cover system will minimize the potential for CCR to come into contact with ground and surface waters to the maximum extent feasible.

6. Comments Related to Closure

- AP-1 Violates State and Federal Performance Standards for Closure of CCR Units because Georgia Power failed to show that its closure plan will eliminate or minimize the release of CCR waste into the groundwater

EPD Response:

Bowen AP-1 ceased receiving Coal Combustion Residuals or CCR in 2020. Bowen AP-1 is considered an “Existing Surface Impoundment” as defined in the federal and state rules because it received CCR before and after October 19, 2015 and contained both CCR and liquids on or after October 19, 2015. Therefore, it is subject to the relevant standards for existing surface impoundments per the Georgia Rule. Even though the federal and state rules only require that new surface impoundments be designed and constructed with a composite liner system, the existing 254-acre Bowen AP-1 will be consolidated into a 144-acre unit with a composite bottom liner and final cover system. These bottom liner and final cover system closure requirements are included in the permit.

The Georgia Rules for Solid Waste Management at 391-3-4-.10 “Coal Combustion Residuals” were developed to meet or exceed the minimum criteria in the federal Rule promulgated by the US EPA. These rules allow the owner or operator to select from one of two methods of closure for CCR surface impoundments such as Bowen AP-1: 1) closure in place with an engineered final cover system, or 2) closure by removal of the CCR. Georgia Power chose to close the existing Bowen AP-1 by consolidating the existing 254-acre Bowen AP-1 into a 144-acre unit with a composite bottom liner and engineered final cover system. If, as here, the owner or operator of the existing surface impoundment elects to close the unit by leaving the CCR in place, the regulations require the owner or operator to ensure at a

minimum, that the final cover system is designed in a manner that will: 1) control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere, 2) preclude the probability of future impoundment of water, sediment, or slurry, 3) include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system, and 4) minimize the need for further maintenance of the CCR unit.

Prior to installing the final cover system, the regulations require the owner/operator to eliminate free liquids by removing liquid wastes and stabilizing the remaining wastes and waste residues to support the final cover system.

The proposed low permeability liner system and final cover system for Bowen AP-1 have been determined to meet the requirements of the CCR Rules described above.

7. **Comments Concerning Costs of Closure**

- It will cost less to relocate the CCR to a proper facility now rather than later when pollution has spread to water sources and caused greater damage
- EPD should require GP to place its CCR in a lined disposal facility before someone gets sick and proves that their illness is due to CCR resulting in lawsuits for criminal negligence with very expensive litigation

EPD Response:

The CCR Rules do not include cost as a factor for EPD to consider in determining compliance with closure criteria. Closure in place is one of the two regulatory options allowed under the federal and state CCR regulations.

8. **Comments Related to Post Closure Care**

- The post-closure monitoring period of 30 years is insufficient due to unsuitable location

EPD Response:

The post-closure period for existing surface impoundments such as Bowen AP-1 is a minimum of 30 years. The post-closure care period may be extended beyond 30 years if non-compliance of groundwater protection standards or other compliance issues are identified that would require an extension of the post closure care period. As the permittee, Georgia Power is the responsible party. EPD will provide regulatory oversight throughout the post closure period to ensure permit and rule compliance.

9. **Comments Concerning Regulations in Other States, Future Regulations, and Future Conditions**

- Duke Energy is excavating all of their coal ash, and GP should do the same
- In many countries, the toxic chemicals are separated out and put to use
- Alternate uses of coal ash are available such as concrete, grout, and gypsum panels

EPD Response:

Georgia’s CCR regulations are based upon the federal CCR regulations promulgated by the US EPA and incorporate the federal rules by reference. EPD evaluates permit applications for consistency with state regulations. As noted previously, closure in place is one of the two regulatory options allowed under the federal and state CCR regulations. The applicant has chosen to close Bowen AP-1 in place, in accordance with the applicable rules.

Sustainable materials management has been and continues to be a policy goal of the State of Georgia as stated in the Comprehensive Solid Waste Management Act of 1990, as amended. In addition, Georgia Power has beneficially used CCR in the past and has indicated their intent to continue beneficial use in the future.

10. Comments Concerning Corporate Profit vs. Public Health

- GP Directors and EPD should be accountable to the public and not to profit
- Cost for mitigation of improper CCR storage should not be passed onto rate payers
- Citizens of Georgia should not have health/environment at risk due to corporate greed
- EPD should not allow GP to do the cheap/easy thing - \$1.6 billion profit in 2020
- GP is more concerned about profits than people or the environment

EPD Response:

Comments regarding utility rate setting and costs borne by ratepayers are outside scope of EPD’s regulatory authority and should be directed to the Georgia Public Service Commission.

Georgia’s CCR regulations are based upon the federal CCR regulations promulgated by the US EPA and incorporate the federal rules by reference. EPD evaluates all permit applications for consistency with state laws and regulations, including federal rules incorporated into state regulations. The CCR Rules do not include cost as a factor for EPD to consider in determining compliance with closure criteria.

11. Comments Concerning Environmental Discrimination

- Granting this permit continues a legacy of environmental discrimination
- This permit puts poor and ethnic communities at risk

EPD Response:

EPD serves the public by implementing state laws, rules, and policies to protect human health and the environment, and applies the law in a consistent, fair, and timely manner. When Georgia’s CCR regulations were promulgated, they were based upon the federal CCR regulations and incorporated those rules by reference. EPD applies these rules in the same way across the state. EPD has included numerous provisions in the Permit derived from these rules and tailored to the Bowen AP-1 site to ensure protection of the environment and the health of offsite communities.