SOUTHERN ENVIRONMENTAL LAW CENTER

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October 27, 2020

Via e-mail to: permitsmail@adem.alabama.gov

Russell A. Kelly, Chief
Permits and Services Division
ADEM
P.O. Box 301463
Montgomery, AL 36110-2400

Re: **Comments Re: Draft Coal Combustion Residuals (CCR) Permit; Alabama Power Company's James H. Miller, Jr. Electric Generating Plant, Permit No. 37-51**

Dear Mr. Kelly:

The Southern Environmental Law Center, Black Warrior Riverkeeper and Alabama Rivers Alliance ("Conservation Groups"), respectfully submit the following comments concerning the draft Coal Combustion Residual Facility Permit for Alabama Power Company's ("Alabama Power" or "Company") James H. Miller, Jr. Electric Generating Plant, Permit Number 37-51 ("Draft Permit"). These comments are in addition to and supplement summary comments made by Conservation Groups at ADEM's public hearing on this matter on October 20, 2020.[1] We appreciate the opportunity to submit these comments.

I. Introduction

ADEM has issued a Draft Permit for Alabama Power Company's Plant Miller Ash Pond based on the Company's Permit Application and supporting appendices, including its amended Closure Plan (referred to collectively below as "Closure Plans"). The Draft Permit and Closure Plans contain several deficiencies which must be addressed by ADEM before issuing the final permit for Plant Miller's Ash Pond. These deficiencies include, but may not be limited to:

1) The Draft Permit and Closure Plans, as written, do not require the Ash Pond facility to come into compliance with federal and state CCR rules;
2) The Draft Permit and Closure Plans allow the continued location of the Ash Pond in an area where it cannot be permitted by law;

[1] ADEM, Notice of a Proposed Coal Combustion Residuals Permit Under the Alabama Solid Wastes & Recyclable Materials Management Act and Request for Comments Public Hearing Notice – 422 (Sept. 11, 2020), http://ademmail2.state.al.us/newsEvents/notices/sep20/9apc.html (commenters were limited to seven minutes of testimony).

3) The Draft Permit and Closure Plans should require and include more information about the extent of contamination from the Ash Pond;
4) The Draft Permit and Closure Plans do not consider contamination that has migrated off-site, or the remediation of that contamination;
5) The Draft Permit and Closure Plans do not consider the long term maintenance of an artificial cap;
6) The Draft Permit and Closure Plans do not consider responsibility for this facility after the 30 year post closure care period;
7) The Draft Permit and Closure Plans lack key modeling information;
8) ADEM unnecessarily grants the Company a variance from including boron as an Appendix IV monitoring parameter;
9) Neither ADEM nor the Company provides any information about alternative closure methods; therefore, the public is limited in its knowledge about closure techniques that would be more protective of human health and the environment.

Due to these concerns, and possibly others, ADEM should not issue this Draft Permit as written. This Draft Permit would allow the Ash Pond to continue polluting surrounding ground and surface waters for decades, or even centuries, in violation of state and federal law. There is no possible way that ADEM would permit a facility in this location today, and the Company has not justified leaving the coal ash in place. The closure of the Plant Miller Ash Pond requires a permanent solution, and this solution is not it.

II. Legal Background

In 2015, the Environmental Protection Agency (EPA) published a rule to regulate CCR as a non-hazardous waste under the Resource Conservation and Recovery Act subtitle D.[2] The rulemaking established national minimum operating and monitoring requirements for the management and disposal of CCR ("2015 federal CCR Rules").[3] It was instituted to protect human health and the environment from CCR, which is known to leach into groundwater particularly at unlined or inadequately lined surface impoundments.[4] The rulemaking noted that "constituents of most environmental concern in CCR are metals, such as antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver and thallium," and many of those pollutants are highly toxic to humans and the environment.[5] EPA further noted that CCR from coal-fired electric power plants constitute "one of the largest industrial waste streams in the United States," at 110 million tons produced in 2012.[6]

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[2] EPA, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, 80 Fed. Reg. 21,302 (Apr. 17, 2015) (codified as 40 C.F.R. Part 257) [hereinafter "2015 Rule"].
[3] *Id.*
[4] *Id.* at 21,311.
[5] *Id.*
[6] *Id.* at 21,303.

In 2016, Congress passed the Water Infrastructure Improvements for the Nation Act ("WIIN Act"), amending RCRA to authorize EPA to approve state CCR permitting programs and to establish a federal CCR permitting program for states without approved permitting programs.[7] Accordingly, after the WIIN Act, states had the option to develop their own programs to permit CCR facilities, as long as the programs were "at least as protective" as federal criteria, but states were not required to develop and submit a CCR permit program to EPA.[8]

In 2018, ADEM adopted a state CCR permitting program pursuant to the WIIN Act and the 2015 federal CCR rules.[9] ADEM's CCR permitting program and regulations were considerably weaker than the federal regulations and included numerous "flexibilities" and variances from the requirements of the 2015 federal CCR rules.[10] These "flexibilities" were based on EPA guidance from 2017, but those "flexibilities" were never adopted in whole by EPA.[11] Against arguments by the Conservation Groups, the state Environmental Management Commission (EMC) approved the state CCR program in 2018.[12]

In addition, federal courts have also weighed in, finding that EPA acted arbitrarily and capriciously in enacting the 2015 federal CCR rules in that some provisions were not protective enough of human health and the environment under RCRA, based on EPA's scientific analyses underlying the 2015 Rule.[13] Furthermore, EPA has tried to rollback certain provisions of the 2015 CCR federal rules.[14]

The result of these various changes to the federal rules, and through legal challenges, is that ADEM has had to go back to the drawing board and amend the state CCR permitting program on numerous occasions. Mostly recently, ADEM revised the state CCR regulations in

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[7] Pub. L. No. 114-322, 130 Stat. 1628 (2016) (codified at 42 U.S.C. § 6945(d)).
[8] *Id.*
[9] ADEM, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, ADEM Administrative Code 335-13-15 (Apr. 24, 2018) (codified as Ala. Admin. Code r. § 335-13-15).
[10] SELC, Comment Letter, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, ADEM Administrative Code 335-13-15 (Mar. 21, 2018).
[11] EPA, Release of lnterim Final Guidance for State Coal Combustion Residuals Permit Programs; Comment Request, 82 Fed. Reg. 38,685 (Aug. 15, 2017).
[12] ADEM, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, ADEM Administrative Code 335-13-15 (Apr. 24, 2018) (codified as Ala. Admin. Code r. § 335-13-15).
[13] *Util. Solid Waste Activities Grp. v. EPA*, 901 F.3d 414 (D.C. Cir. 2018) (*USWAG*).
[14] *E.g.* "Phase One, Part One" of these rollbacks adopted alternative performance standards for CCR unit operators, revised groundwater protection standards for four constituents for which no Maximum Contaminant Level is established, and extended the deadline by which operators must stop adding waste to polluting units EPA, Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One), 83 Fed. Reg. 36435 (July 30, 2018) (codified as 40 C.F.R. Part 257).

March of 2020.[15] If ADEM simply drafted a state permitting program as least as protective of human health and the environment as the 2015 federal CCR Rules, with adequate protections based on recent court rulings, the multiple revisions of the state permitting program could possibly have been avoided. If ADEM required more protections than the 2015 federal CCR Rules, then these revisions would have been avoided. Yet, ADEM did not choose that route.

The bottom line is that no version of ADEM's state CCR permitting program has been approved by EPA, and ADEM's latest changes to the state CCR program have not yet been adopted by the state EMC. Therefore, the state is still operating under a CCR permitting program that has not been approved by EPA. Utilities in Alabama with these coal ash facilities slated for closure must currently comply with both the state permitting program and the 2015 federal CCR rules.

III. Plant Miller Coal Ash Pond

Plant Miller generates electricity from four coal-fired units and has a total nameplate generating capacity of 2,640 MW.[16] Plant Miller's first coal unit began commercial operation on October 12, 1978, with the other units added in 1985, 1989, and 1991.[17] It is the largest coal-fired facility in Alabama Power's fleet and produces a significant amount of coal ash each day. Since 2015, the facility has also been one of the highest emitters of carbon dioxide in the entire United States; it emitted almost 21 million metric tons in 2019 alone and 241,244,075 metric tons from 2009 through 2019.[18] Plant Miller also uses a maximum of 43.2 MGD (million gallons of water per day) of water and had an average intake volume of 26.8 MGD in 2015.[19]

The Plant Miller Ash Pond was originally constructed in the late 1970s by damming tributaries, at least two, next to the plant.[20] These tributaries naturally drained to the Locust Fork of the Black Warrior River.[21] *See*, Fig. 1 below. Numerous headwater streams in these tributaries were buried by the Ash Pond. Two dams were built in the watershed; the main cross-valley dam on the western side and the saddle dike on the eastern side of the Ash Pond. The

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[15] ADEM, Notice of Public Hearing for Proposed Revisions to the Solid Waste Program Division 335-13, ADEM Administrative Code (Mar. 22, 2020) (due to the COVID-19 pandemic, ADEM allowed an extension of comments to these revisions until Nov. 5, 2020).
[16] Alabama Power Company, How We Operate, https://www.alabamapower.com/our-company/how-we-operate/generating-plants.html (last visited on Oct. 23, 2020).
[17] Alabama Power Company, 316(b) Information NPDES Permit Application (Apr. 2017), at 27.
[18] Benjamin Storrow, *Meet America's 10 largest emitters*, EENews (May 11, 2020), https://www.eenews.net/stories/1063101975.
[19] Alabama Power Company, ADEM Form 187 (Apr. 2017), at 9.
[20] It is not clear whether permits were ever received to dam these streams.
[21] Alabama Power Company, History of Construction for Existing CCR Surface Impoundment Miller Steam Plant Ash Pond, at 1. Alabama Power refers to the drainage as the "Fish Trap Branch" watershed, although it is not clear from topographic maps if "Fish Trap Branch" is the correct watershed name. *Id.*

cross-valley dam is massive, approximately 170 ft. tall, at its highest point, and over 3,300 ft. long. It connects to a large earthen dike that flanks the southwest side of the ash pond. This dike holds back the ponded water along the entire western side of the ash pond and all of the 19.5 million tons of toxic ash deposited there since the 1970s, which looms over the remaining lower reaches of the UTs and the Locust Fork below. The saddle dike is 25 ft. tall and 1,000 ft. long.[22] Almost the entirety of the immediate watershed and stream valley have been covered by the Ash Pond; the Ash Pond is currently 353 acres, and the total facility boundary is approximately 598 acres.[23] Alabama Power estimates that the coal ash pond contains "approximately 19.5 million cubic yards of CCR material."[24] The Ash Pond has not been significantly altered since its original construction in the late 1970s. *See*, Fig. 2 below. According to the National Inventory of Dams ("NID") database, the Miller Ash Pond is rated a "significant hazard," which means that its failure would most probably not lead to loss of life but would result in significant environmental and economic damage. No local or state agency currently regulates the Miller Ash Pond Dam; no federal or state agency regularly inspects or evaluates the Miller Ash Pond Dam. In addition, the Ash Pond discharges millions of gallons each day to a tributary which then discharges to the Locust Fork.

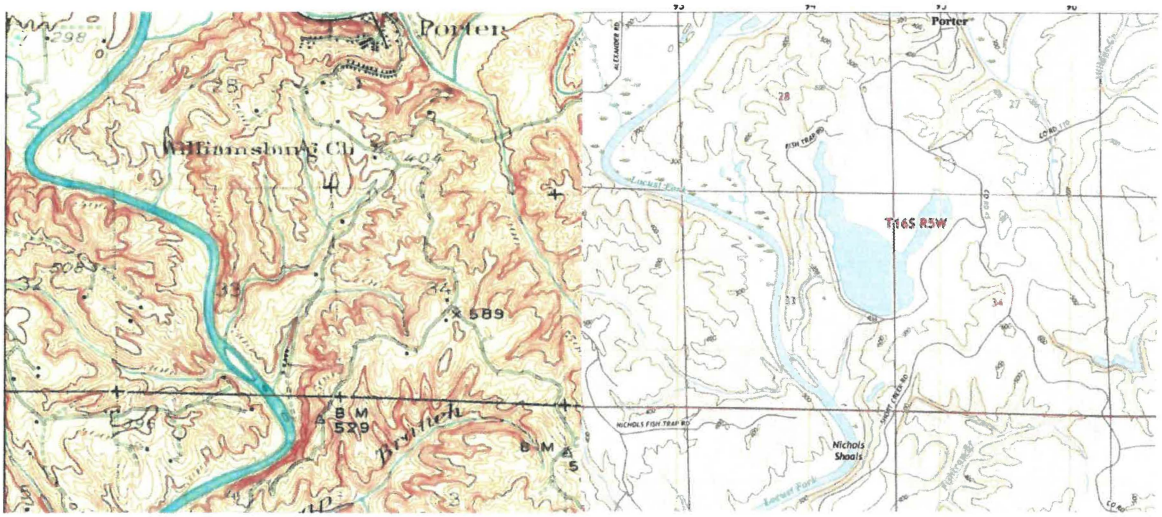

Fig. 1 - Plant Miller Coal Ash Pond; Unnamed Tributaries of the Locust Fork; 1938 and 2018 USGS Topographic Maps, respectively.

As ADEM has documented and Alabama Power has acknowledged, toxic pollutants from the Ash Pond are contaminating state waters. Plant Miller was the subject of an ADEM Administrative Order due to, primarily, MCL exceedances for arsenic.[25] Alabama Power's 2019

[22] *Id.* at 1-2.
[23] Draft Permit, at 2.
[24] Alabama Power Company, Amended Closure Plan for Ash Pond Plant Miller (rev. Apr. 2020) [hereinafter "Amended Closure Plan"], at 13.
[25] ADEM, In the Matter of Alabama Power Company James H. Miller Electric Generating Plant, at 1-3, 8.

groundwater monitoring report, required by the federal CCR regulations, shows that there were statistical exceedances of groundwater protection standards for lithium, arsenic and/or cobalt at 16 monitoring well locations and 6 delineation well locations.[26] Exceedances were even reported for a well approximately 2000 ft. away from the Ash Pond near the Locust Fork, and exceedances were reported to the full depth, 300 ft. below ground surface, at certain wells.[27] In addition, the full extent of groundwater contamination from the Miller Ash Pond has not yet been determined.

Fig. 2 Plant Miller's Toxic Coal Ash Pond is situated right next to the Locust Fork | Flights by SouthWings.org

It is not disputed that the Plant Miller Ash Pond is illegally discharging toxic contaminants to state waters, groundwater and surface water, currently and will continue to do so for the foreseeable future.

IV. Plant Miller Closure Plans and Draft Permit

a. Alabama Power's Closure Plans

Alabama Power proposes to close the Plant Miller Coal Ash Pond by leaving the ash in a dammed stream valley.[28] The Closure Plan contemplates "consolidation" of the existing footprint of the coal ash from approximately 353 acres to a "closure footprint" of 191 acres, or "to the extent practical," with sufficient grades and slopes.[29] The existing Ash Pond would be

[26] Alabama Power Company, 2019 Annual Groundwater Monitoring and Corrective Action Report Alabama Power Plant Miller Ash Pond (Jan. 31, 2020), at 19-20 [hereinafter "2019 Groundwater Monitoring Report"].
[27] *Id.*, at Table 1 (showing the depths of monitoring wells); *id.* at Table 5 (showing the locations of the monitoring wells).
[28] Amended Closure Plan, at 1.
[29] *Id.*

partially de-watered to remove some of the free liquids.[30] Alabama Power would also install a "final cover system" in order "to control, minimize or eliminate, to the maximum extent feasible, post closure infiltration of liquids into the waste and potential releases of CCR from the unit."[31] The final cover will consist of artificial turf cover system.[32] Other than partial dewatering, there do not appear to be any water management and control measures included in the Closure Plans, but perimeter groundwater monitoring is included in the post-closure care plan.[33] To address existing groundwater contamination, the Company chose cap-in-place coupled with Monitored Natural Attenuation (MNA) (monitoring, no remediation) as the preferred option for meeting the requirements of § 40 C.F.R 257.97 (selection of remedy) and ADEM Admin. Code r. 335-13-15.06(8)(b) (groundwater monitoring and corrective action).[34]

The closure schedule anticipated by Alabama Power envisions partial excavation, dewatering, final cover installation, and construction from the early- through mid-2020s, with end of construction predicted in May 2027.[35] Several attendant milestone expected dates are set accordingly.[36] Within 60 days of the end of 30 years of post-closure care, Alabama Power would prepare a notification verifying completion of the post closure care.[37]

Alabama Power plans to close all of its coal ash ponds subject to the federal CCR rules with some variation of this cap-in-place methodology.

b. Plant Miller Coal Ash Closure Plans and Draft Permit Deficiencies

i. The Closure Plans and Draft Permit illegally permit coal ash to be permanently saturated in groundwater.

As discussed above, Alabama Power proposes to leave the Ash Pond in its current location, in a buried stream valley on top of at least two former streams that once flowed into the Locus Fork. These streams continue to discharge to the Locust Fork. Keeping groundwater out of the coal ash in this location is not possible, and this siting problem is further exacerbated by the fact that Alabama Power's own plans show that the coal ash at Plant Miller is currently saturated with groundwater and buried below the groundwater table. For example, a potentiometric surface map in Alabama Power's monitoring reports shows that the elevation of the groundwater to be approximately 400 to 410 ft. above mean sea level (amsl).[38] A cross

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[30] *Id.*
[31] *Id.*
[32] *Id.* at 5.
[33] *Id.* at 18.
[34] *Id.* at 13.
[35] *Id.* at 14.
[36] *Id.* at 16-17.
[37] *Id.* at 18.
[38] Groundwater Monitoring Report, at Figure 7A.

section of the Ash Pond shows that coal ash will be left in place with an approximate bottom elevation 320 ft. amsl., or, in other words, 80-90 ft. of coal ash will be left below the current groundwater table in some portions of the impounded Ash Pond.[39] Capping the coal ash does not slow the natural flow of contaminated leachate from the ash into the groundwater and will not impede the flow of groundwater through and from the waste beneath the artificial cap, especially since the coal ash is capped in a stream valley. The Closure Plans and Draft Permit fail to predict the impact of capping the waste on the elevation of the water table within the impoundment, the thickness of the saturated waste, and the magnitude and extent of the released CCR contaminants downgradient of the impoundment. An undetermined thickness of saturated coal ash remaining in the groundwater will continue to contaminate groundwater and surface water far into the future. There will be constant and on-going leaching of toxic contaminants to the Locus Fork for decades, if not centuries.

Furthermore, the federal and state rules require that the Closure Plans describe "how the final cover system will achieve performance standards specified in… this section."[40] In particular, the Closure Plans must demonstrate that, if the coal ash is left in place, it will achieve the following performance standards, among others:

> 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;"[41]
> 2) "Preclude the probability of future impoundment of water, sediment, or slurry;"[42]
> 3) "Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues."[43]

Thus, Alabama Power's Closure Plans must demonstrate that groundwater will not continue to flow through the coal ash, in order to satisfy the requirement to "[c]ontrol, 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." If groundwater remains in the coal ash basin and Ash Pond, the basin would still be considered an impoundment that stores an accumulation of CCR liquids. The Closure Plans retain the current dams on site, and they will continue to impound water and impound coal ash sediments and slurry. Thus, the Closure Plans and Draft Permit will violate the performance standards found in 40 C.F.R § 257.102(d) and corresponding state law.

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[39] *See* Alabama Power Company, Cross-Section A-A' *Profiles and Sections 1 of 2*, Closure Design Drawing D-04, Plant Miller Ash Pond Closure Design Plans (Sept. 28, 2018) (PDF P. 117 of Draft Permit).
[40] 40 C.F.R. § 257.102(b)(1)(iii); Ala. Admin. Code r. § 335-13-15-.07(3)(b)1.(iii).
[41] 40 C.F.R. § 257.102(d)(1)(i); Ala. Admin. Code r. § 335-13-15-.07(3)(d)1.(i).
[42] 40 C.F.R. § 257.102(d)(1)(ii); Ala. Admin. Code r. § 335-13-15-.07(3)(d)1.(ii).
[43] 40 C.F.R. § 257.102(d)(2)(i); Ala. Admin. Code r. § 335-13-15-.07(3)(d)2.(i).

In addition, if groundwater and streams will continue to saturate coal ash within the proposed cap-in-place storage area, then the Closure Plans and Draft Permit cannot satisfy the requirement that "[f]ree liquids must be eliminated by removing wastes or solidifying the remaining wastes and waste residues."[44] "Free liquids" are defined under federal and Alabama CCR regulations as "liquids that readily separate from the solid portion of a waste under ambient temperature and pressure."[45] Groundwater and streams that saturate coal ash in an unlined impoundment and constitute free liquids that readily separate from the solid portion of the waste. Groundwater and streams readily separate from coal ash because they flow through the coal ash, as shown by the movement of pollutants out of the unlined Ash Pond; they do not remain in the coal ash indefinitely, but rather flow out of the ash and are replaced by new groundwater coming into the basin. A Closure Plan and Draft Permit that fails to stop the infiltration of groundwater into an unlined basin will accordingly violate the federal and state CCR rules.

In addition, the Draft Permit should require Alabama Power to disclose how much coal ash will remain saturated with groundwater under their Closure Plan. There does not appear to be any reported effort or requirement in the Closure Plans or Draft Permit to show how much coal ash will remain saturated. The public has a right to know this information, and ADEM should require it. Importantly, there is also no modeling in the Closure Plans of how long it may take for groundwater quality to meet applicable groundwater standards, and estimates by Alabama Power point to decades in the future.

Under this Draft Permit and Alabama Power's Closure Plans, the contaminated water will continue to pollute the underlying and surrounding groundwater for decades, and likely centuries. Therefore, the Draft Permit and Closure Plans do not and cannot meet state and federal CCR performance standards required under the cap-in-place closure method.

ii. The Capped Ash Pond facility, as proposed in the Draft Permit and Closure Plans, will not be five (5) ft. above the uppermost aquifer.

Federal and state regulations require that the bottom of the ash ponds be constructed "with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer."[46] Alabama Power's groundwater monitoring reports for the Ash Pond show that the Ash Pond is likely in contact with the uppermost aquifer and less than five ft. above the uppermost aquifer in some areas.[47]

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[44] *Id.*
[45] 40 C.F.R. § 257.53; Ala. Admin. Code r. § 335-13-1-.03(56) (the state definition uses "which" instead of "that").
[46] 40 C.F.R. § 257.60(a); Ala. Admin. Code r. § 335-13-15-.03(1)(a).
[47] 2019 Groundwater Monitoring Report, at Figure 7A; Alabama Power Company, Cross-Section A-A' *Profiles and Sections 1 of 2*, Closure Design Drawing D-04, Plant Miller Ash Pond Closure Design Plans (Sept. 28, 2018) (Appendix 6 of the Draft Permit, at 5).

As stated above, the Ash Pond filled tributaries of the Locust Fork watershed and corresponding stream valleys. Aquifers within the Pottsville Formation and Pratt Coal Group, and potentially aquifers within lower strata, would intersect the base of the Ash Pond.[48] Figure 4 of the 2019 Groundwater Monitoring Report shows that the strata that include the aquifer zones dip across the area; hence, these strata will outcrop or sub-crop in the Ash Pond basin.[49] These strata contain aquifers and are being used for water supplies in the region. Accordingly, there would not be five feet of separation between the CCR waste and these alluvial and bedrock aquifers.

Further, these tributaries were underlain by coarse-grained sand and gravel alluvium, which, where present, would be considered an aquifer themselves. Permeable soils will still be present underneath the consolidated, unlined Ash Pond, and are in direct hydrologic connection with the uppermost Pottsville aquifer. The Artesian groundwater conditions observed downgradient of the main dam are evidence that these surface aquifers are in direct contact with the lower Pottsville aquifer. Artesian groundwater conditions occur when the surface of the groundwater exceeds the elevation of the overlying ground surface. This, combined with the fact that the ash will remain in groundwater, means that Alabama Power's Closure Plans cannot meet this location restriction found in the federal and state rules.

iii. Nowhere in the Draft Permit or Closure Plans is there a determination of the true extent of the contamination currently at the site or the contamination discharging from the Ash Pond.

ADEM is preparing to issue a state CCR permit for the Plant Miller Ash Pond, but the true extent of the current contamination has not been determined by Alabama Power or ADEM. We now know, and Alabama Power's document submissions show, that coal ash contaminated groundwater is moving radially away from this site.[50] We also know that background wells must be drilled across the Locust Fork from the site and areas miles away, potentially demonstrating the Ash Pond has contaminated groundwater in the immediate area extensively. It may be indicative of the contamination at this site that Alabama Power is required to move two miles away from Plant Miller to construct a background well that has not been affected by the Ash Pond.[51]

Yet, we have no idea about the true extent of the contamination from the Plant Miller Ash Pond, or how pervasive it might be. We do not know how far the contaminated plumes have

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[48] 2019 Groundwater Monitoring Report, at Figure 3.
[49] *Id.* at Figure 4.
[50] *See, e.g.*, Alabama Power Company, Revised Groundwater Monitoring Plan Alabama Power – Plant Miller (Aug. 21, 2020), at 6.
[51] 2019 Groundwater Monitoring Report, at 7.

moved and are currently moving.[52] We do not know the extent of the lateral or vertical contamination. There is no information in the Draft Permit or Closure Plans showing that sampling has taken place, or is required, in wells, ponds, streams or other water bodies that might be affected by the Ash Pond. There is no reported estimate of how closure would impact concentrations of CCR contaminants that are known to be flowing away from the impoundment in all directions. Without such information, Alabama Power cannot claim that its Closure Plans can stop the current pollution from the Ash Pond and remediate this site, and ADEM should not allow Alabama Power to implement its current Closure Plans through this Draft Permit

iv. Alabama Power has no plan to remediate contamination that has already migrated off site, nor does the Draft Permit require it.

Alabama Power's Closure Plans do not envision any active groundwater remediation efforts. The Company relies on "Monitored Natural Attenuation" (doing nothing), which is "anticipated to provide the necessary remedy for this facility"—presumably, for groundwater pollution levels to subside.[53] Monitored Natural Attenuation will not ameliorate groundwater contamination levels on site for decades and perhaps centuries.[54] Furthermore, Alabama Power does not propose, nor does the Draft Permit require, the Company to address contamination that has already migrated off-site. Essentially, ADEM, through this Draft Permit, is giving the Company a pass on addressing the extensive contamination that has already left the site.

Off-site contamination, and a plan to address this contamination, should be addressed in in the current Draft Permit and Closure Plans.

v. Alabama Power plans a temporary cap on top of 19.5 million tons of stacked coal ash.

The artificial turf cap proposed for the coal ash by Alabama Power has a design life of 100+ years and is designed "to minimize maintenance after closure of the CCR unit,"[55] but the Company's Closure Plans call for the Ash Pond to be capped in place for eternity. The best case

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[52] ADEM Director Lance LeFleur: "They haven't completely delineated the plumes underneath these sites, as of yet . . . they're in the process of doing that, so we're still early in the cleanup process." Dennis Pillion, *Alabama seeks input on coal ash plans*, AL.com (Oct. 20, 2020), https://www.al.com/news/2020/10/alabama-seeks-input-on-coal-ash-plans.html.

[53] Amended Closure Plan, at 13.

[54] The "monitored natural attenuation" Alabama Power proposes through cap-in-place at Plant Miller cannot work for coal ash that sits in water and continually discharges into ground and surface waters. As ADEM has acknowledged in November 2019 correspondence with Alabama Power, this fact is especially true for dangerous inorganics like the arsenic, cobalt and lithium that contaminates the groundwater at Plant Miller as a result of coal ash. *See November 14, 2019 Letter from ADEM's Heather M. Jones to Alabama Power's Dustin Brooks*, at 7. Moreover, monitored natural attenuation requires that an aquifer have sufficient capacity for that attenuation to take place. *Id.* Here, Alabama Power has failed to demonstrate how monitored natural attenuation will work on the inorganics present, evaluated whether it is a feasible remedy based upon site specific conditions or even analyzed whether the aquifer has sufficient capacity for attenuation to take place.

[55] Amended Closure Plan, at 13.

scenario of this cap, according to literature from the maker of the cap, might be 100+ years,[56] but that is the best case scenario, and the cap will undoubtedly be subject to physical degradation in the near term, such as erosion, storm damage, and damage from burrowing animals and human activities. As the cap naturally degrades, infiltration and leaching from the coal ash will increase, along with the infiltration from the unlined surface below as the groundwater levels change. Nowhere in the Draft Permit or Closure Plans has there been any analysis or modeling of the infiltration through this artificial cap, lateral inflow below the cap or flow upward underneath the cap. Nor has there been any analysis of what this may mean for leachate and pollution rates once the cap is in place. In addition, there is no analysis about stormwater flow from the cap, and how this might affect the dammed valley drainage and the Locust Fork over time.

vi. The 30 year post closure care period does not match how long the coal ash will continue to contaminate groundwater.

The federal and state regulations require a 30 year post closure care period where the Company will be responsible for this site.[57] However, we know that this site presents immense challenges to handle this waste because of its location in natural stream valleys, and groundwater contamination will likely continue well past the post closure care period. Due to these issues, Alabama Power needs to identify who will be responsible, and set aside dedicated funding, for monitoring and maintenance of the facility, including cap replacement, at necessary intervals, in perpetuity. The Draft Permit should address and acknowledge this issue.

vii. Lack of modeling for water quality to reach state and federal standards.

There is no reported estimate or modeling of how long it might take to achieve desired water quality. ADEM approval of the Closure Plan for the Plant Miller Ash Pond must be based on the ability of the proposed closure to permanently isolate impounded ash and ash contaminants from human and environmental receptors in a reasonable period of time. In this case, no evaluation of the ability of, or time required for, the proposed closure to achieve water quality to meet applicable standards is provided. This should be required in the Closure Plans and Draft Permit.

viii. The Draft Permit should not include a boron variance from Appendix IV monitoring constituents.

The Draft Permit should not allow the boron variance from assessment monitoring. Boron is a very reliable indicator of impact to water quality from CCR waste.[58] Review of the

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[56] Golder Associates, Inc., Draft Construction Quality Assurance (CQA) Plan Plant Miller Ash Pond Closure Project (Nov. 2018), at v (identifying ClosureTurf); ClosureTurf, A Predictable Benchmark of Performance Brochure, at 4 (identifying the product's design life as "100+ years").

[57] 40 C.F.R. § 257.104(c)(i); Ala. Admin. Code r. § 335-13-15-.07(5)(c)1.

[58] Jennifer S. Harkin, et al., *Evidence for Coal Ash Ponds Leaking in the Southeastern United States*, Envt'l Sci. & Tech. (accepted May 27, 2016), https://sites.nicholas.duke.edu/avnervengosh/files/2011/08/EST-Coalash-pond-leaking.pdf, at 1-2.

groundwater monitoring data collected in 2019 indicates that boron concentrations were significantly elevated above anticipated background conditions and that boron concentrations exceeded anticipated concentrations (5 mg/L) in some of the monitoring wells.[59] The World Health Organization recommends reducing boron concentrations in drinking water to below 0.5 mg/L.[60] Including boron as an Appendix IV constituent is more protective of human health and the environment, especially at a site where there is known coal ash contamination.

Conservation Groups are also puzzled at ADEM's continued waffling on this issue. ADEM's original state CCR permitting program included boron as an Appendix IV contaminant that had to be included in monitoring, a change from the draft regulations that the Conservation Groups sought and supported.[61] Yet, as ADEM has not gone back to amend those rules, they have now proposed to drop boron from Appendix IV monitoring, and have provided this variance in the Draft Permit, allowing Alabama Power to "exclude boron as an Appendix IV assessment monitoring constituent."[62] If including boron is more protective as an Appendix IV constituent, it does not make sense to remove that requirement from this Draft Permit.

ix. Alabama Power has not provided any information comparing their predetermined cap-in-place plans vs. excavation and removal (sometimes called "clean closure").

The Company has presented one, and only one, predetermined plan to the public for controlling their extensive pollution from the Miller Coal Ash Pond—capping the pollution in place, in valleys and on top of streams. Alternatives to this Closure Plan should be provided to the public. The Closure Plan will not mitigate groundwater contamination now or in the future because contaminated water will continue to seep unabated, out of the CCR waste into the underlying aquifer and streams. Mitigating groundwater contamination is one of the primary reasons for the Ash Pond closure. Furthermore, the public should know how the cap-in-place plans compare to clean closure.

IV. Alabama Power's Closure Plans Compared to Other Utilities in the Region

a. Alabama Power's Closure Plans Are Less Protective of Human Health and the Environment Compared to Other, Comparable Utilities

Alabama Power is increasingly becoming an outlier in how the Company handles its coal ash waste. In the Southeast, utilities (other than Alabama Power) are now excavating some 255

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[59] 2019 Groundwater Monitoring Report, at Table 4.
[60] WHO, Boron in Drinking Water Background document for development of WHO Guidelines for Drinking-water Quality (2003), at 10, https://www.who.int/water_sanitation_health/dwq/boron.pdf.
[61] *See* ADEM, Reconciliation Statement for ADEM Administrative Code Division 335-13 Solid Waste Program Regulations (2018), at 7 ("The Department agrees that boron should be added to Appendix IV so that it is included in assessment monitoring, therefore, the final regulations have been modified to include boron in Appendix IV.")
[62] Draft Permit, at 11.

million tons of coal ash from unlined disposal sites. Utilities Utilities in North Carolina, South Carolina and Virginia are excavating and removing ("clean closure") all coal ash from sites with unlined impoundments. In Tennessee, TVA is excavating and removing at least two sites, and even Alabama Power's sister utility, Georgia Power, is excavating and removing at all of its coastal sites as well as others.

In North Carolina, after a catastrophic 39,000-ton coal ash spill in 2014 at the Dan River site, the state legislature passed the Coal Ash Management Act, which charged the operators of state coal ash impoundments with proposing safe coal ash disposal plans for the North Carolina Department of Environmental Quality (NCDEQ) to approve.[63] NCDEQ rejected a utility proposal to cap-in-place the remaining surface impoundments, ordering the utility to instead excavate the coal ash and put it in lined landfills.[64] In an announcement of NCDEQ's order, NCDEQ's Secretary stated: **"DEQ rigorously reviewed the proposals, and the science points us clearly to excavation as the only way to protect public health and the environment."**[65]

Virginia's government has also taken steps to protect its citizens and environment from coal ash pollution. In March 2019, the governor signed bipartisan Virginia legislation requiring the excavation of all 27 million cubic yards of coal ash housed in Virginia's unlined surface impoundments.[66] The new law required all the coal ash be recycled or placed into lined landfills.[67] The Governor stated: **"The potential risks to public health and water quality posed by unlined coal ash ponds in [Virginia] are far too great for us to continue with business as usual."**[68]

South Carolina stands out as even more of a regional leader on coal ash. In 2012, in response to pressure from local citizens, South Carolina's state-owned utility agreed to excavate and remove all of its coal ash, without legislation requiring it to do so.[69] South Carolina's leadership has yielded tangible benefits for its communities and environment. For example, as

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[63] Catherine Morehouse, *North Carolina coal ash battle comes to a head as Duke challenges cleanup order*, Utility Dive (May 2, 2019), https://www.utilitydive.com/news/north-carolina-coal-ash-battle-comes-to-a-head-as-duke-challenges-cleanup-o/553798/.
[64] John Downey, *New state order on Duke Energy's coal-ash cleanup could significantly increase costs*, Charlotte Business Journal (Apr. 1, 2019), https://www.bizjournals.com/charlotte/news/2019/04/01/new-state-order-on-duke-energys-coal-ash-cleanup.html.
[65] NCDEQ, *DEQ Orders Duke Energy to Excavate Coal Ash at Six Remaining Sites* (Apr. 1, 2019), https://deq.nc.gov/news/press-releases/2019/04/01/deq-orders-duke-energy-excavate-coal-ash-six-remaining-sites.
[66] Mel Leonor, *Northam signs legislation to excavate and clean up coal ash*, Richmond Times Dispatch (Mar. 20, 2019), https://richmond.com/news/local/government-politics/northam-signs-legislation-to-excavate-and-clean-up-coal-ash/article_a17ef9d1-f6a4-5b62-b553-2c00bea79966.html.
[67] *Id.*
[68] *Id.*
[69] Rhiannon Fionn, *North Carolina's "leadership" on coal ash pales compared to its neighbor*, Energy News Network (July 18, 2016), https://energynews.us/2016/07/18/southeast/north-carolinas-leadership-on-coal-ash-pales-compared-to-its-neighbor/.

was stated in the South Carolina *Post and Courier* **"[a]rsenic levels in groundwater at the Grainger site, once 110 times higher than federal standards, have declined by as much as 90 percent. Arsenic in Wateree's groundwater is down by as much as 80 percent."**[70]

The Tennessee Valley Authority reached a settlement with environmental groups to resolve a long legal battle over coal ash, agreeing to excavate and remove 12 million tons of coal ash at its Gallatin Plant.[71] And at the former Allen Fossil Plant, TVA is removing all 3.5 million cubic yards of coal ash after detecting high levels of arsenic and other coal ash toxins at groundwater monitoring wells in 2017.[72] TVA considered cap-in-place at Allen, but that option "was eliminated from consideration in the draft EIS [(Environmental Impact Statement)]."[73]

Finally, in Georgia, Alabama Power's sister company Georgia Power is completely excavating 19 of its coal ash ponds.[74] One of the surface impoundments slated for complete excavation is the Plant Bowen Ash Pond 1, which contains approximately 20,400,000 cubic yards of CCR.[75]

Alabama, therefore, stands in contrast to all of its neighbors. Utilities are taking common sense measures to protect groundwater and the environment from coal ash pollution by removing the coal ash to dry, lined landfills from sites where the coal ash will remain in groundwater and continue to pollute, such as the Miller Ash Pond.

b. Example Problems with Cap-in-Place

According to the Electric Power Research Institute, whose member electric utilities "represent approximately 90% of the electric utility revenue generated in the United States" and which conducts research and development on electricity sector issues on behalf of utilities:[76] **"Caps are not effective when CCP [coal combustion products, or CCR] is filled below the**

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[70] David Wren, *South Carolina Utilities Lead The Region In Efforts To Clean Up Coal Ash Pollution*, Post and Courier (July 15, 2017), https://www.postandcourier.com/business/south-carolina-utilities-lead-the-region-in-efforts-to-clean/article_bcfb1eec-670a-11e7-a2ea-e778e26af132.html.
[71] Catherine Morehouse, *TVA agrees to excavate 12M tons of coal ash after 5-year battle*, Utility Dive (June 14, 2019), https://www.utilitydive.com/news/tva-agrees-to-excavate-12m-tons-of-coal-ash-after-5-year-battle/556875/.
[72] Adrian Sainz, *TVA to remove coal ash from retired Tennessee plant*, Associated Press (Mar. 6, 2020), https://apnews.com/article/e61daa7f4ed99b8e44088833a7874554.
[73] TVA, *TVA Plans for Removal of Coal Ash at Former Allen Fossil Plant Site Press Release* (Mar. 6, 2020), https://www.tva.com/newsroom/press-releases/tva-plans-for-removal-of-coal-ash-at-former-allen-fossil-plant-site.
[74] Georgia Power, *Groundwater Monitoring & Information: Georgia Power's Ash Pond Closure Process*, https://www.georgiapower.com/company/environmental-compliance/ground-monitoring-dewatering.html (last visited on Oct. 25, 2020).
[75] Georgia Power, *Amended Written Closure Plan 40 C.F.R. Part 257.102 Plant Bowen Ash Pond 1 (AP-1)* (Sept. 27, 2018), https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/plant-bowen/20180927_clospln_bow_ap_amended_final.pdf, at 2.
[76] Electric Power Research Institute, *About EPRI*, https://www.epri.com/about (last visited on Oct. 25, 2020).

water table, because groundwater flowing through the CCP will generate leachate even in the absence of vertical infiltration through the CCP."[77] Experiences of several communities with coal ash ponds that have been capped-in-place confirm this statement. For example, Colstrip Steam Electric Station's Stage 1 Pond in Colstrip, Montana continues to pollute groundwater with toxic chemicals despite being capped in 1997.[78] In Wisconsin, a "large section of bluff" that included coal ash that had been impounded as ravine fill material collapsed suddenly into Lake Michigan, leaving behind a football field-sized track of debris.[79] In North Carolina, the Pine Hall Road Ash Landfill was closed with a synthetic cap in 2008, but exceedances for arsenic, boron, iron, manganese, nitrate, selenium, and sulfate led to its inclusion in an EPA Alleged and Established Damage Cases in 2010.[80] In Michigan, even after lowering water levels, capping with an impermeable final cover, and constructing a bentonite slurry wall around a coal ash lagoon, groundwater monitoring at B.C. Cobb in Michigan showed extremely high boron concentrations (10,400 µg/L) and lithium concentrations (215 µg/L) continuing to infiltrate groundwater.[81] And in Alabama, Alabama Power's Plant Gadsden Ash Pond stopped receiving CCR in 2015 and was capped in 2018. Groundwater sampling has shown continued statistically significant increases in Appendix III contaminants, such as boron, arsenic, lithium and sulfate, at thirteen monitoring wells.[82]

V. Conclusion

The Plant Miller Ash Pond is currently contaminating groundwater and surface water in the Locust Fork watershed. It has been for decades. If the 19.5 million tons of coal ash are left in the watershed under an artificial cap with no bottom liner, as proposed by Alabama Power's current Closure Plans and in the Draft Permit issued by ADEM, this pollution will continue.

The Draft Permit as issued allows pollution in place for decades or more. There are alternatives to Alabama Power's Closure Plans which are more protective of human health and the environment, yet Alabama Power is choosing the least cost option, and ADEM is permitting

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[77] Electric Power Research Institute, *Groundwater Remediation of Inorganic Constituents at Coal Combustion Product Management Sites: Overview of Technologies, Focusing on Permeable Reactive Barriers* (Oct. 29, 2006), available at https://www.epri.com/#/pages/product/1012584/?lang=en-US.

[78] Center for Public Integrity, *Coal ash: The Hidden Story* (updated Dec. 19, 2014), http://www.publicintegrity.org/2009/02/19/2942/coal-ash-hidden-story.

[79] Sarah Whitmire, *Coal Ash Spills into Lake Michigan After Bluff Collapse*, Center for Public Integrity (updated May 19, 2014), http://www.publicintegrity.org/2011/11/01/7240/coal-ash-spills-lake-michigan-after-bluff-collapse.

[80] N.C. Department of Environment and Nat. Resources, Division of Waste Management (DWM) Comments, Comments on Alleged and Established Damage Cases in EPA's Region 4, Based on Testimonies at the Proposed CCR Management Rule Public Hearings (Knoxville, TN; Arlington, VA; Charlotte, NC; and Louisville, KY), Aug-Oct. 2010, at 2.

[81] Consumers Energy, Transmittal of Groundwater Monitoring Results for BC Cobb 4&4A Solid Waste Disposal Area Remedial Action, April 2012 (June 5, 2012), at 1, 6.

[82] Alabama Power Company, 2019 Semi-Annual Groundwater Monitoring and Corrective Action Report Alabama Power Plant Gadsden Ash Pond (Feb. 1, 2020), at 15.

it through this Draft Permit. The Draft Permit and Closure Plans will not meet performance standards and location restrictions under state and federal law. Accordingly, ADEM's Draft Permit and the Company's Closure Plans violate the "open dumping" provisions of RCRA. Alabama Power cannot be allowed to operate an illegal open dump at the Miller Ash Pond in perpetuity.[83]

For the reasons discussed above, Conservation Groups request that ADEM revise the Draft Permit to meet all requirements of state and federal law.

If you have any questions or would like to discuss any of our recommendations, please contact Keith Johnston at 205-745-3060.

Respectfully submitted,

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[83] 40 C.F.R. § 257.1(a)(2) ("Practices failing to satisfy any of the criteria in. . .§§257.50 through 257.107 constitute open dumping, which is prohibited under section 4005 of the Act.")

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