UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments,	)	**Docket ID No. EPA-HQ-OLEM-2020-0107** *Submitted via regulations.gov*
Advance Notice of Proposed Rulemaking,	)	
85 Fed. Reg. 65,015 (Oct. 14, 2020)	)	

COMMENTS OF EARTHJUSTICE, CLEAN WATER ACTION, ENVIRONMENTAL INTEGRITY PROJECT, ENVIRONMENTAL LAW & POLICY CENTER, NATURAL RESOURCES DEFENSE COUNCIL, SIERRA CLUB, SOUTHERN ENVIRONMENTAL LAW CENTER, WATERKEEPER ALLIANCE, AND WESTERN ORGANIZATION OF RESOURCE COUNCILS

February 12, 2021

INTRODUCTION

Commenters appreciate this opportunity to provide EPA with data relevant to the significant risks posed to American communities by coal ash legacy impoundments. The data presented by Commenters, largely from the utility industry's own monitoring reports, clearly reveal the danger of the ongoing toxic releases from legacy impoundments, their vulnerability to catastrophic spills, and the harm they cause to public health, local economies, and aquatic ecosystems across the United States.

We also appreciate, in advance, EPA's consideration of the views expressed by Commenters regarding the legally required content and timing of a legacy impoundment rule. Commenters urge swift action, as years have been wasted by the previous administration.

We understand that this administration has expressed sincere interest in environmental justice and has already taken concrete steps to staff its agencies with experts who have proven track records in addressing the disproportionate harms of industrial pollution. Based on the Biden administration's swift action over the past few weeks, including the issuance of an Executive Order calling for agency review of the Trump EPA's rules weakening the 2015 CCR Rule, we have confidence that the Biden EPA will understand the gravity and urgency of the legacy pond rule, as well as other necessary changes to the CCR Rule to protect human health and the environment, particularly in this nation's most vulnerable communities.

Solutions are within reach. States like North and South Carolina have demonstrated that coal ash remediation, including cleanup of legacy ponds, can be accomplished with great success and achieve permanent protection of public health and the environment. The undersigned groups and their thousands of members look forward to providing additional comments and information as EPA moves toward a final rule that addresses the widespread damage posed by toxic coal ash.

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GLOSSARY

ANPRM	Advance Notice of Proposed Rulemaking
CCR	coal combustion residuals *or* coal ash
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
E.O.	Executive Order
EIA	Energy Information Administration
EIP	Environmental Integrity Project
EPA	United States Environmental Protection Agency
EPRI	Electric Power Research Institute
FEMA	Federal Emergency Management Agency
ICR	Information Collection Request
OMB	White House Office of Management and Budget
RCRA	Resource Conservation and Recovery Act
RIA	Regulatory Impact Analysis
USWAG	Utility Solid Waste Activities Group
USWAG	*Utility Solid Waste Activities Group v. EPA*, 901 F.3d 414 (D.C. Cir. 2018)
WIIN Act	Water Infrastructure Improvements for the Nation Act

I. EXECUTIVE SUMMARY

Legacy ponds are the walking dead of the coal ash universe – toxic waste sites that live long after coal plants have closed, slipping through regulatory cracks as they continue to poison communities. After years of delay and in clear violation of a court order, the Environmental Protection Agency ("EPA") still has not addressed this urgent issue.

In August 2018, the D.C. Court of Appeals ordered EPA to address this looming threat,[1] but the Trump administration kicked the can down the road, focusing instead on rollback after rollback that gut the essential protections of the 2015 Coal Combustion Residuals ("CCR" or "coal ash") Rule.[2] EPA is in clear violation of the court's landmark order designed to tackle the cleanup and containment of millions of tons of coal ash around the United States.

The court directed EPA to establish stringent safeguards requiring the safe closure and cleanup of more than 100 "legacy" ash ponds located at retired power plants. These rules would apply specifically to plants that closed before the effective date of the federal CCR Rule in October 2015. But five years after the CCR Rule was signed, and two and a half years after the court demanded action, EPA has essentially done nothing to address this threat to human health and the environment.

EPA published a grossly inadequate and illegal response to the D.C. Circuit Court of Appeals' 2018 order requiring EPA to address the threat from legacy coal ash ponds. EPA's response is simply an Advance Notice of Proposed Rulemaking ("Legacy Pond ANPRM" or "ANPRM"),[3] which is a far cry from the rule required by the court's order. The ANPRM simply solicits information on the universe of legacy ponds and opinions regarding possible safeguards. Despite the clear ruling of the D.C. Circuit, EPA is taking the extraordinary measure of questioning its own legal authority to regulate legacy ponds and solicits opinions on whether such regulation should go forward. This decision buys time for industry, even as these sites continue to poison drinking water and scenic rivers.

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[1] *Utility Solid Waste Activities Grp. v. EPA*, 901 F.3d 414 (D.C. Cir. 2018) ("*USWAG* decision" or "*USWAG*").

[2] Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 80 Fed. Reg. 21,302 (Apr. 17, 2015) ("2015 CCR Rule" or "CCR Rule"); *see* Earthjustice, CCR Rulemaking Index, Trump Administration Wages Multifront Assault on Coal Ash Protections (last updated Dec. 7, 2020) ("Earthjustice CCR Rulemaking Index"), https://earthjustice.org/sites/default/files/files/rulemaking_index_multifront_assault_on_coal_ash_protections_12-07-2020_0.pdf (attached). In fact, an early version of this action was included in the draft Part B proposal submitted to the Office of Management and Budget ("OMB") for Executive Order 12866 review. That proposal was originally titled "Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure; Legacy Units," but was cleared on February 13, 2020 without any reference to advancing the legacy unit rulemaking. *See* Draft Part B Proposal (Redline), Docket ID No. EPA-HQ-OLEM-2019-0173-0018 (posted Mar. 3, 2020).

[3] Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments, 85 Fed. Reg. 65,015 (Oct. 14, 2020).

While the Trump EPA's decision to not regulate legacy ponds was dangerous and contrary to law, EPA now has the opportunity to step up and address this issue effectively and expeditiously.

The reality is that these decades-old ash ponds have escaped maintenance and inspections for many years, while the pits continue to deteriorate and leak toxic chemicals. The massive 2014 spill at Duke Energy's Dan River Station, which fouled seventy miles of river in two states, was caused by a coal ash pond no longer in use. The Trump administration's EPA, in direct violation of the court order, gave the utility industry a free pass to abandon leaking pits containing millions of tons of toxic waste – with zero accountability.

Here is a sampling of the ongoing damage from legacy ash ponds:

- *Harm to a treasured river, recreation, and the local economy*: In Oakwood, Illinois, 70-year old unstable pits at the retired Dynegy Vermilion Power Station are leaking toxic chemicals into Illinois' only National Scenic River. The pits hold more than three million tons of toxic waste and run along the river for a half-mile where kayaking and other recreation is revitalizing a struggling area.

- *Damage to drinking water and redevelopment*: In Lawrenceburg, Indiana, leaking ash pits at American Electric Power's (AEP) retired Tanners Creek Plant are contaminating groundwater with high levels of boron within 500 feet of public drinking water wells and the Ohio River. The failure to clean up the ponds threatens the community's health as well as prospects for redevelopment of the blighted site.

- *Damage to drinking water and a threat to millions*: In Richmond, Ohio, six 68-year old pits containing ten billion pounds of toxic coal ash from the retired Duke Energy Beckjord power plant cover nearly 170 acres and threaten the Ohio River, a source of drinking water for more than five million people. The ponds have already contaminated drinking water in Clermont County, causing the shutdown of wells serving thousands of residents. Worse still, the site has a history of spills from the dams, rated by EPA to be in "poor" condition in 2010.

- *Eighteen years "closed," but still contaminating groundwater*: Georgia Power has not generated power at its defunct Plant Arkwright for nearly twenty years, but its unlined abandoned ash ponds are continuing to leak toxic chemicals, such as boron, above health standards into the groundwater and nearby Ocmulgee River, according to a peer-reviewed study.[4]

Commenters urge EPA to move swiftly to a proposed rule and to end the ongoing environmental damage and injustice. To meet the environmental protection standards set by the

[4] Harkness, J.S., Sulkin, B., Vengosh, A., Evidence for Coal Ash Ponds Leaking in the Southeastern United States. Environmental Science & Technology, 50(12): 6583-6592 (2016), https://sites.nicholas.duke.edu/avnervengosh/files/2011/08/EST-Evidence-of-coalash-leaking.pdf (attached).

Resource Conservation and Recovery Act ("RCRA"), EPA's new rule must impose protections at least as stringent as the requirements currently in place for active and inactive surface impoundments regulated under the CCR Rule. In addition, in light of the unique and heightened threat posed by abandoned and unmaintained leaking pits, EPA must:

1) Regulate *all* legacy impoundments that threaten health and the environment, including impoundments that no longer contain visible liquids, because ash in such impoundments may be in contact with groundwater and still leaching toxic contaminants and/or the legacy impoundment may be sited in a floodplain or other dangerous location that could cause the release of hazardous substances.

2) Require owners of legacy impoundments to identify potentially impacted residents, test drinking water sources and provide safe drinking water if contamination is found.

3) Require owners of legacy impoundments to identify impacted surface waters and test those water bodies for contamination.

4) Require owner or operators to conduct more frequent structural stability analyses to prevent catastrophic failure.

5) Prohibit closure-in-place for legacy impoundments that cannot meet the location restrictions of the CCR rule.

6) Require immediate diversion of surface water around legacy impoundments to reduce risk of catastrophic failure.

7) Require minimization and monitoring of coal ash fugitive dust at the impoundment and along routes of transport during excavation of coal ash.

8) Require accelerated closure of legacy CCR surface impoundments to address their unique risks.

9) Require financial assurance to ensure funds are available for safe closure and cleanup.

10) Establish a groundwater protection standard for manganese and require groundwater cleanup if exceedances are found.

Taking action to stop toxic coal ash contamination is an essential component of President Biden's commitment to address environmental justice. Given the continuing damage occurring at scores of legacy ponds throughout the U.S., Commenters ask that EPA make establishing these protections for legacy ponds among its highest priorities in 2021.

II. LEGAL AND FACTUAL BACKGROUND

Comments previously submitted to EPA by Earthjustice and many others[5] have provided extensive legal and factual background related to coal ash regulation and legacy units. These comments described how the regulation of CCR under the Resource Conservation and Recovery Act in 2015 was long overdue, and discuss in detail the legal challenges to the 2015 CCR Rule, the Water Infrastructure Improvements for the Nation Act ("WIIN Act"), EPA's 2018 "Phase One, Part One" regulation intended to roll back the 2015 CCR Rule, the D.C. Circuit Court of Appeals' decision striking down key provisions of the 2015 CCR Rule, the inconsistency of portions of the 2018 rollback regulation with the *USWAG* decision, and the illegalities of EPA rulemakings subsequent to the *USWAG* decision. As described in Section IV and in previous comments, the ANPRM fails to respond to the court's decision vacating and remanding the CCR Rule's legacy pond exemption. EPA prioritized other rulemakings over timely compliance with the D.C. Circuit's order related to legacy ponds.[6] The above-referenced comments, including the legal background,[7] are attached and incorporated in full as if referenced herein.

In addition, as discussed in the comments previously submitted to EPA and incorporated in full as if referenced herein,[8] the facts are clear: CCR is one of the largest toxic industrial wastestreams in the United States, and mismanagement of CCR has created a vast universe of dangerous disposal sites; legacy sites pose a significant threat to human health and the environment; and these sites pose a disproportionate threat to low-income communities and communities of color.

[5] Comments of Earthjustice et al., Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure, Docket ID No. EPA-HQ-OLEM-2019-0172-0165 (Jan 31, 2020) ("Part A Comments") (attached); Comments of Earthjustice et al., Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure Part B: Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure, Docket ID No. EPA-HQ-OLEM-2019-0173-0192 (Apr. 17, 2020) ("Part B Comments") (attached); Comments of Earthjustice et al., Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One); Proposed Rule, Docket ID No. EPA-HQ-OLEM-2017-0286-2136 (Apr. 30, 2018) ("Phase One Comments") (attached); Comments of Earthjustice et al., Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Enhancing Public Access to Information; Reconsideration of Beneficial Use Criteria and Piles, Docket ID No. EPA-HQ-OLEM-2018-0524-0214 (Oct. 15, 2019) ("Phase Two Comments") (attached) ; Comments of Earthjustice et al., Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Federal CCR Permit Program, Docket ID No. EPA-HQ-OLEM-2019-0361-0321 (July 17, 2020) ("Permitting Rule Comments") (attached).

[6] Part A Comments at 81-82; Part B Comments at 83-85.

[7] *E.g.*, Permitting Rule Comments at 2-15.

[8] *E.g., id.* at 15-21.

III. EXTENSIVE EVIDENCE BEFORE EPA SHOWS THAT LEGACY PONDS MUST BE REGULATED WITHOUT FURTHER DELAY AND THAT CCR RULE PROVISIONS MUST BE STRENGTHENED FOR LEGACY PONDS.

The 2015 CCR Rule applied to "inactive CCR surface impoundments at *active* electric utilities,"[9] but not to impoundments at power plants that have ceased generating electricity.[10] As environmental groups successfully argued to the D.C. Circuit Court of Appeals, EPA provided no rational basis for why regulation of coal ash disposal should hinge on whether the power plant is generating electricity,[11] and could not point to any evidence supporting a conclusion that inactive impoundments at inactive plants posed less risk than inactive impoundments at active facilities. EPA's exclusion of this large universe of inactive impoundments from regulation was vacated and remanded by the *USWAG* decision, as discussed in Section IV.

Both the record evidence as well as new evidence clearly demonstrate that *all* inactive impoundments pose a significant risk of adverse effects and support the long overdue regulation of inactive CCR surface impoundments at inactive power plants. In fact, the current state of known and potential legacy ponds highlights the need to strengthen certain CCR Rule provisions for legacy ponds to ensure no reasonable probability of adverse effects on health or the environment.

A. EPA Has Already Acknowledged That If Not Properly Regulated and Closed, Legacy Ponds Will Significantly Threaten Human Health and the Environment Through Leaking and Catastrophic Failure for Many Years to Come.

EPA exempted inactive impoundments at inactive facilities from the 2015 CCR Rule without any finding that they pose any less risk than the impoundments that are regulated. Nothing in the record suggests that the risk of leaking has anything to do with whether or when the power plant associated with the impoundment has ceased generating electricity.[12] In fact, the record is replete with evidence of a reasonable probability of harm from *all* inactive impoundments. EPA found:

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[9] 40 C.F.R. § 257.50(c) (emphasis added). "Active electric utilities" are defined as facilities generating electricity distributed on the grid as of October 19, 2015. *Id.* § 257.53.
[10] *Id.* § 257.50(e).
[11] EPA, Response to Comments, Vol. 3, Docket ID No. EPA-HQ-RCRA-2009-0640-12126, at 26-27 (Dec. 2014).
[12] A recent CCR Rule Compliance posting by Greenidge Power Generating Station – a plant that was initially exempt from the 2015 CCR Rule that has now come under the Rule as a result of starting up a natural gas unit – makes clear that the distinction was arbitrary from a risk perspective. Greenidge Generation LLC, Coal Combustion Residuals Rule Notifications, (Nov. 30, 2020), https://greenidgeccr.com/wp-content/uploads/2020/11/Greenidge-CCR-Rule-Initial-Notification.pdf ("C-Pond was not initially subject to the CCR Rule because the CCR Rule does not apply to electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015 (40 CFR 257.50(e)). However, in March 2017, Greenidge began producing electricity with natural gas and the CCR Rule does apply to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.").

> There is little difference between the potential risks of an active and inactive surface impoundment; both can leak into groundwater, and both are subject to structural failures that release the wastes into the environment, including catastrophic failures leading to massive releases that threaten both human health and the environment.[13]

EPA's record clearly demonstrated that inactive impoundments that have not been properly closed pose risks that warrant regulation.[14] EPA agreed that "if CCR is left disposed in closed units that are unlined and uncapped, and therefore exposed to groundwater and infiltrating rain (surface water), that groundwater contamination can continue for many years."[15] EPA found that approximately a quarter or more of the 158 coal ash damage case waste units where EPA found harm to health or the environment were inactive disposal sites:

> As of mid-2011, close to half of the combined (proven and potential) damage case CCR waste units were still active; about a quarter were inactive due to either closure of the individual disposal unit, a fuel switch (e.g., from coal to gas) by the generating facility, or the decommissioning of the facility. Another quarter or so represented power generating facilities where CCR waste units (primarily impoundments) that failed to comply with state requirements had been closed and replaced by other, new disposal units, and/or the generating facilities switched from wet- to dry disposal. Since mid-2011, the percentage of inactive CCR units associated with groundwater damage cases has further increased . . . .[16]

In its Compendium of Damage Cases, EPA identified at least fifteen proven and potential cases of contamination caused by coal ash toxins leaking through the bottom of inactive impoundments to poison groundwater and nearby surface water with toxic metals including arsenic, aluminum, and lead.[17] In addition, the record made clear the need to urgently address

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[13] 80 Fed. Reg. at 21,343; *see also id*. at 21,342-43 ("[T]he substantial risks associated with currently operating CCR surface impoundments, i.e., the potential for leachate and other releases to contaminate groundwater and the potential for catastrophic releases from structural failures, were not measurably different than the risks associated with 'inactive' CCR surface impoundments . . . .").

[14] *See, e.g.*, EPA, Response to Comments, Vol. 3, Docket ID No. EPA-HQ-RCRA-2009-0640-12126, at 36 (Dec. 2014) ("EPA agrees with the commenter that inactive CCR surface impoundments should be covered by the regulation, and as discussed in previous responses, and in more detail in Section VI. B. 2 of the preamble to the final rule, the final rule does apply to inactive CCR surface impoundments at active power plants.").

[15] EPA, Response to Comments, Vol. 9, Docket ID No. EPA-HQ-RCRA-2009-0640-12132, at 57 (Dec. 2014).

[16] 80 Fed. Reg. at 21,458.

[17] *See* Compendium of Damage Cases, Vol. I, Docket ID No. EPA-HQ-RCRA-2009-0640-12118, at 43-49, 51-63, 79-82, 129-32, 154-57, 177-80 (Dec. 18, 2014) ("Compendium of Damage Cases, Vol. I"); Compendium of Damage Cases, Vol. IIa, Docket ID No. EPA-HQ-RCRA-2009-0640-12119, at 100-05,

inactive impoundments at sites no longer generating electricity. For example, two of the proven cases of coal ash contamination occurred at such impoundments: EPA found that inactive impoundments at the Canadys and Glen Lyn power stations contaminated groundwater and/or surface waters after the generating units had closed.[18]

In addition, leaking surface impoundments at closed Illinois plants – such as Ameren's retired Meredosia Power Station and Prairie Power's retired Pearl Station – were cited by EPA as examples of why EPA must address contamination at inactive sites.[19] According to EPA, the risks posed by these inactive impoundments "are the risks the disposal rule specifically seeks to address, and there is no logical basis for distinguishing between units that present the same risks."[20]

In addition to the groundwater contamination risk, inactive impoundments also present a risk of structural failure and resulting catastrophic damage. Nothing in the record suggests that this risk of structural failure from impoundments is lower at inactive sites, as was made clear by the 2014 Dan River disaster involving the rupture of an inactive impoundment in North Carolina.[21] Duke Energy had retired its coal-burning power plant in 2012 but failed to "close," or empty, the unlined impoundment of its millions of tons of toxic sludge and wastewater. A discharge pipe collapsed, which in turn led to the collapse of part of the dam holding back the coal ash.[22] Roughly 39,000 tons of ash and twenty-seven million gallons of contaminated wastewater spilled into the Dan River as a result.[23]

The Dan River spill illustrates one of the dangers posed by inactive coal ash impoundments: the catastrophic structural failure of the dike holding back the toxic sludge and wastewater. EPA states that inactive impoundments are "as susceptible to structural failure as units currently receiving CCR, given that they still contained CCR and *maintained an ability to impound liquid* (i.e., the unit had not been breached)."[24] Inactive impoundments can contaminate the environment and endanger human health in both sudden and more gradual ways.

158-61 (Dec. 18, 2014) ("Compendium of Damage Cases, Vol. IIa"); Compendium of Damage Cases, Vol. IIb, Part I, Docket ID No. EPA-HQ-RCRA-2009-0640-12120, at 57-62 (Dec. 18, 2014) ("Compendium of Damage Cases, Vol. IIb, Part I"); Compendium of Damage Cases, Volume IIb, Part II, Docket ID No. EPA-HQ-RCRA-2009-0640-12121, at 9-15, 20-39, 45-50, 97-103 (Dec. 18, 2014) ("Compendium of Damage Cases, Vol. IIb, Part II").

[18] Compendium of Damage Cases, Vol. I at 129-32, 177-81.

[19] 80 Fed. Reg. at 21,343; *see also* CCR Damage Cases Database, Docket ID No. EPA-HQ-RCRA-2009-0640-12123, "Potential Damage Cases 12_2014" tab, rows 22, 36 & column P.

[20] 80 Fed. Reg. at 21,343.

[21] *See, e.g.*, 80 Fed. Reg. at 21,327, 21,342-43; Compendium of Damage Cases, Vol. I at 79-81.

[22] 80 Fed. Reg. at 21,394.

[23] *See* Compendium of Damage Cases, Vol. I at 79.

[24] 80 Fed. Reg. at 21,313 (emphasis added).

B. There Are More Than 100 Potential Inactive Surface Impoundments at Inactive Facilities That May Be Considered Legacy Ponds and Precise Identification of All Units to be Regulated Is Not a Bar to Initiating Regulation.

EPA is seeking additional information related to inactive surface impoundments at inactive facilities "to better inform a future rulemaking," including "information on how many of these units might exist, their current status (e.g., capped, dry, closed according to state requirements, still holding water), and names and locations of former power plants that may have these units and when they closed."[25] The reality is that EPA already has enough information to move ahead with initiating regulation, has not made any effort to collect this additional information over the last few years, and is not now making a meaningful and systematic effort to collect the best information possible with this ANPRM. The ANPRM's section titled "Size of Universe" makes clear that EPA is ignoring known information that would currently support robust regulations and is not making a genuine effort to supplement that information. The need to precisely identify all units to be regulated is no excuse to further delay a rulemaking, and EPA can collect information that would benefit implementation of the rule at the same time as it proceeds with issuance of a proposed rule.

1. *EPA has a wealth of information on inactive surface impoundments at inactive facilities that may be considered legacy ponds.*

As the ANPRM recognizes, "[t]he USWAG decision referenced a database that identifies legacy ponds and their owners that was included in the Regulatory Impact Analysis supporting EPA's Proposed RCRA Regulation of Coal Combustion Residues."[26] EPA included a copy of the Information Collection Request ("ICR") Responses from electric utilities (attributed to 2010) in the docket to this action.[27] However, instead of leveraging this resource to begin the process of regulating legacy ponds, the ANPRM simply notes that "[u]pon further examination, it appears that these data include all the units that the Agency could identify at the time, not just inactive surface impoundments at inactive facilities."[28] This statement highlights how EPA has not put in any work to identify helpful information and is further delaying an already long overdue rulemaking.

a. Information in the 2015 CCR Rule docket.

In its draft ANPRM, EPA acknowledged the extensive information at its disposal. The agency initially noted that in addition to the comments and information it would receive in response to the notice, EPA would "carefully review" "previously collected and assembled information."[29] This information includes the "recent EPA data" referenced in the 2015 CCR

[25] 85 Fed. Reg. at 65,017.
[26] *Id.* at 65,018.
[27] *Id.* at 65,018 n.4; Information Request Responses from Electric Utilities, Docket ID No. EPA-HQ-OLEM-2020-0107-0003 (Apr. 30, 2010).
[28] *Id.*
[29] Draft ANPRM (Redline), Docket ID No. EPA-HQ-OLEM-2020-0107-0005, at 19 (cleared Sept. 18, 2019).

Rule, such as (1) impoundment data from the Office of Solid Waste and Emergency Response's 2009 to 2011 impoundment dam integrity site inspections,[30] (2) impoundment data from the Office of Resource Conservation and Recovery's 2009 ICR addressing power plants with impoundments, and (3) landfill and impoundment data from the Office of Water's 2010 ICR addressing power plants to be affected by the Steam Electric Power Generating Effluent Guidelines.[31] The Risk Assessment for the 2015 CCR Rule also relied on this information, referencing it as follows:

> The 2010 Risk Assessment relied on a 1997 Electric Power Research Institute (EPRI) survey to characterize the type, size, design and location of CCR surface impoundments and landfills. However, two more-recent EPA surveys of on-site [Waste Management Units] have since been completed: 2009 Information Request Responses [obtained under Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act] together with Impoundment Assessment Reports, . . . ; and 2010 Questionnaire for the Steam Electric Power Generating Effluent Guidelines . . . .[32]

The data from these EPA surveys and efforts are collectively referred to as the "2014 CCR database" in these comments.[33] The 2014 Risk Assessment summarized that there were 218 known surface impoundments discovered to be outside the scope of the 2015 CCR Rule for one

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[30] "In March and April 2009 EPA issued Information Request Letters to electric utility plants that had 'surface impoundments or similar diked or bermed management units designated as landfills' that receive, store or dispose liquid-borne coal combustion wastes. . . . As part of this assessment, in 2009 EPA began visiting utility plants to evaluate the structural integrity of CCR impoundments identified in the information request survey. . . . These site evaluations continued into 2013 and covered over 650 CCR impoundments nationwide." EPA, Regulatory Impact Analysis (RIA) for EPA's 2015 Coal Combustion Residuals (CCR) Final Rule, Docket ID No. EPA-HQ-RCRA-2009-0640-12034, at 1-5 to 1-6 (Dec. 2015) ("RIA").

[31] 80 Fed. Reg. at 21,458 & n.225.

[32] EPA, Human and Ecological Risk Assessment of Coal Combustion Residuals, Docket ID No. EPA-HQ-RCRA-2009-0640-11993, at 2-6 to 2-8 (Dec. 2014) ("2014 Risk Assessment") (footnotes omitted).

[33] EPA, Information Request Responses from Electric Utilities, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-3.html ("Database Results (Excel) 04-12-12" links to a 2012 spreadsheet of units) (this is the same spreadsheet available in the ANPRM docket dated April 30, 2010, *see* Docket ID No. EPA-HQ-OLEM-2020-0107-0003); EPA, Summary Table for Impoundment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html ("Summary Table for Impoundment Reports (.xls) – July 31, 2014" links to a 2014 spreadsheet of units); *see generally* EPA, Steam Electric Power Generating Effluent Guidelines Questionnaire, https://www.epa.gov/eg/steam-electricpower-generating-effluent-guidelines-questionnaire (includes response database). The fields and entries in the database were extracted and made available online in PDF and Microsoft Excel spreadsheets. The Web archive includes additional information, including extensive expert reports based on visual assessments of sites, interviews with site personnel, and, when available, reviews of geotechnical reports, studies related to the design, construction and operation of those impoundments, and past state and federal inspections of the impoundments.

of the following reasons: (1) The facility was no longer a coal-fired electric utility according to the 2012 Energy Information Administration ("EIA") database; (2) The landfill or surface impoundment was found to be inactive or retired; or (3) The surface impoundment was not designed to accumulate CCRs (e.g., cooling water ponds).[34] The 2014 Risk Assessment does include data collected on the number of coal ash surface impoundments and landfills present at each relevant facility, among other things.[35] Although the Assessment does not appear to include why each individual unit was originally excluded, EPA has this information and should use it, or other readily available information, to regulate coal ash legacy ponds, as required by the *USWAG* decision.

As explained in *USWAG*, EPA's "asserted difficulty in locating the owners or operators responsible for legacy ponds does not hold water."[36] In other words, "EPA knows where existing legacy ponds are and, with that and other information, the EPA already is aware of or can feasibly identify the responsible parties."[37] Although these comments do not aim to memorialize the full or confirmed universe of legacy ponds, they present preliminary research to demonstrate that information regarding potential legacy units is readily available and has been known for over a decade. In addition, this information provides a robust and wholly sufficient basis to propose the strong regulation needed to ensure no reasonable probability of adverse effects on health or the environment from legacy ponds.

To identify facilities that may have legacy waste that should be regulated, Earthjustice compared facility level information in the 2014 Risk Assessment with the facilities now regulated by the 2015 CCR Rule.[38] In fact, this is precisely the type of exercise EPA has done before to create an initial open dump inventory[39] and to contemplate the potential facilities with legacy ponds in the ANPRM.[40] Based on publicly available information, there are potentially

[34] 2014 Risk Assessment at 4-16.
[35] *Id.* at attach. A-1.
[36] *USWAG*, 901 F.3d at 433 (citing 2014 CCR database, in part).
[37] *Id.*
[38] EPA, List of Publicly Accessible Internet Sites Hosting Compliance Data and Information Required by the Disposal of Coal Combustion Residuals Rule, https://www.epa.gov/coalash/list-publiclyaccessible-internet-sites-hosting-compliance-data-and-information-required.
[39] "To develop [the open dump] list, EPA started with the list of facilities that was used in the Regulatory Impact Analysis (RIA) for the CCR Rule and facilities that were identified in the structural stability assessments. Then, EPA conducted a review of information available on the Web for these facilities and shared this information with the states." EPA, Compliance Data and Information Websites Required by the Disposal of Coal Combustion Residuals (CCR) Rule, Finalized Initial Open Dump Inventory (last updated on Feb. 20, 2019), https://www.epa.gov/coalash/compliance-data-and-information-websites-required-disposal-coal-combustion-residuals-ccr.
[40] 85 Fed. Reg. at 65,018 ("[A]pproximately 110 coal units were listed as retired or otherwise not burning coal but are located at facilities that have posted a publicly accessible website containing CCR compliance data and information. Given the existence of those websites, any potential surface impoundments at facilities with closed units would already be regulated as inactive impoundments at active facilities and would not be considered legacy CCR surface impoundments.").

legacy ponds and landfills at over seventy sites.[41] Looking at legacy ponds specifically, a list of sites attached to these comments includes sixty-four sites with 170 potential legacy ponds.[42]

Commenters compared this information with the publicly available spreadsheets related to the 2014 CCR database and other EPA and public materials. A few initial findings reveal the wealth of information EPA already has on many of these potential legacy units:

- Thirty-eight sites are listed in a 2012 EPA spreadsheet, including information such as impoundment hazard potential classification, year commissioned, surface area, size, capacity, historical releases, and more;[43]

- Thirty-seven sites (six different than the thirty-eight listed above) are listed in a 2014 EPA spreadsheet including information such as impoundment names, contractor-determined hazard potential classification, EPA condition assessment, and additional notes and comments;[44]

- Thirty-seven sites underwent a detailed Assessment Report, as discussed below; the maps from available reports are attached in a two-part appendix to these comments titled "Example Legacy Impoundments – Sample maps from Coal Combustion Residuals Impoundment Assessment Reports," and demonstrate the range of impoundment sizes, caps and vegetation styles, etc., at the time of the reports;[45]

- Sixteen sites are in EPA's Damage Cases Database;[46]

- Fifteen sites are related to data on Ashtracker, a website based largely on groundwater monitoring data collected by utilities and submitted to state agencies dating back to 2010;[47]

These sites and links to related resources are available in the attached "Potential CCR Legacy Units (2021)" spreadsheet.[48] On average, the plants listed in the spreadsheet started

[41] "Potential CCR Legacy Units (2021).xslx" (attached).
[42] *Id.*
[43] *See* EPA, Information Request Responses from Electric Utilities, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-3.html ("Database Results (Excel) 04-12-12" links to a 2012 spreadsheet of units) (this is the same spreadsheet available in the ANPRM docket dated April 30, 2010, *see* Docket ID No. EPA-HQ-OLEM-2020-0107-0003).
[44] EPA, Summary Table for Impoundment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html ("Summary Table for Impoundment Reports (.xls) – July 31, 2014" links to a 2014 spreadsheet of units);
[45] Earthjustice, Example Legacy Impoundments – Sample maps from Coal Combustion Residuals Impoundment Assessment Reports (attached).
[46] EPA, CCR Damage Cases Database, Docket ID No. EPA-HQ-RCRA-2009-0640-12123; *see also* EPA, Compendium of Damage Cases, Docket ID Nos. EPA-HQ-RCRA-2009-0640-12118, -12119, -12120, -12121.
[47] https://ashtracker.org/.
[48] *See* "POTENTIAL SITES" summary tab.

operating coal units around 1955 (sixty-five years ago) and stopped producing electricity around 2013.[49] The 2012 and 2014 EPA spreadsheets confirm that EPA had detailed information about units, including the names and mailing addresses of the last known owners or operators, for most potential sites identified. In addition, information is readily available to help identify related owners and operators in resources such as the U.S. Energy Information Administration's Monthly Electric Generator Inventory ("EIA 860M").

b. Information received and assessed after the *USWAG* decision.

In addition to EPA's "previously collected and assembled information," the ANPRM references some new data points. First, EPA notes that "[a]pproximately 10 states have reported to EPA that they have estimated a total of 37 possible legacy CCR surface impoundments within their states."[50] In addition, "USWAG, after surveying their members, indicated they know of 45 units that could possibly be legacy CCR surface impoundments."[51] These vague blanket statements are unhelpful to the public and highlight the unacceptable delay EPA has built into a court-ordered regulatory process.

Commenters received an e-mail chain between EPA and the Utility Solid Waste Activities Group ("USWAG") dated September 6, 2018 in response to a Freedom of Information Act request that included the same numbers.[52] In the emails available to commenters, EPA does not appear to have made any effort to receive the survey results or a list of the legacy units, even though USWAG may have had this information at its fingertips as early as fall 2018. The agency has known about these *confirmed* legacy units for more than two years and has no excuse for not having obtained the information and, at the very least, included it in the record of the ANPRM. In addition, a subsequent USWAG e-mail to update the forty-five legacy impoundment figure referenced "*at least* 49 units" based on "information collected from USWAG members."[53] EPA fails to capture this information in the ANPRM in any meaningful way despite having had years to pursue it and present it.

Second, according to the ANPRM, "[d]ata showing approximately 140 facilities that have been reported to have one or more CCR units (boilers) retired or gone out of service between January of 1993 and October of 2015 were provided to EPA by the Department of Energy

[49] For a few units, it is unclear whether non-coal units are still be operating at the site or not. If the site is producing electricity and currently has a legacy pond, it may qualify as a CCR Open Dump. *See* EPA, Compliance Data and Information Websites Required by the Disposal of Coal Combustion Residuals (CCR) Rule, Finalized Initial Open Dump Inventory (last updated on Feb. 20, 2019), https://www.epa.gov/coalash/compliance-data-and-information-websites-required-disposal-coal-combustion-residuals-ccr.
[50] 85 Fed. Reg. at 62,018.
[51] *Id.*
[52] E-mail from James Roewer, USWAG, to Richard Huggins, EPA, RE: Information Regarding CCR Impoundments vis-a-vis DC Circuit Decision, at ED_002911D_00038819-00001 (Sept. 6, 2018) (attached).
[53] E-mail from James Roewer, USWAG, to Steven Cook et al., EPA, RE: Regulation of Inactive Impoundments, at ED_002911D_00107426-00001 (Sept. 20, 2018) (attached).

(DOE)."[54] The ANPRM claims that these data are in the docket,[55] but the only spreadsheet available in the docket notes that it "includes retirements between 2009 and 2025." It is unclear why the spreadsheet does not feature a single date between 1993 and 2009, and EPA's use of the word "CCR Units" and "boilers" is unclear. In addition, EPA has failed to show its work to determine the count it vaguely presents – there is no listing of the 140 facilities "assumed to be closed because they do not have publicly accessible websites posted as required by the 2015 CCR [R]ule" and the 110 coal units "listed as retired or otherwise not burning coal but . . . located at facilities that have posted a publicly accessible website containing CCR compliance data and information."[56] The spreadsheet lists 259 unique facility names, and multiple coal units at many facilities. For 147 facilities, there is at least one retired unit listed. All it would take for a facility with coal ash to be considered "active" and regulated under the CCR Rule would be one active generating unit (coal or non-coal), so EPA's presentation of the information in the ANPRM does not seem particularly helpful upon an initial review. EPA has entirely failed to "show its work" and the spreadsheet as presented in the docket is wholly inadequate to properly fulfill its duties in light of the *USWAG* order and provide the public with a real understanding of which facilities could be part of the universe.

2. *EPA is hindering meaningful public comment and participation by failing to provide, or even commit to reviewing, extensive information related to this rulemaking.*

As described above, the ANPRM's short "Size of Universe" section leaves much to be desired and is more confusing than helpful to members of the public. As indicated above, EPA's draft ANPRM indicated that EPA "intends to carefully review . . . additional data and information that becomes available through other avenues, as well as previously collected and assembled information." Not only did the agency largely fail to provide information to make sure this ANPRM could be as helpful as possible, the commitment to "carefully review" and consider previously collected and assembled information was removed from the ANPRM. The implications of this omission are unacceptable – EPA *must* consider the extensive record already before it to regulate legacy ponds. In addition, if information relevant to enacting protective regulations becomes available "through other avenues," EPA also has a duty to consider it as part of a reasoned rulemaking (and include it in the docket).

3. *EPA did not require, or even request, information about ownership history and landowners for legacy ponds despite raising questions about ownership generally.*

Although the many questions and requests in EPA's ANPRM may appear to be an innocent and thorough list of items to cover all of its bases in advance of implementing regulations, the draft ANPRM reveals that items that would have resulted in relevant information were removed from EPA's final notice. Namely, the ANPRM, as initially drafted, accurately

[54] 85 Fed. Reg. at 62,018.
[55] *Id.* at 62,018 n.5.
[56] *Id.*

identified the "current owner" as valuable information to collect and consider.[57] The final ANPRM instead asks general questions related to ownership. For example, EPA requests comment on how the current owner of the legacy CCR surface impoundment should be defined.[58]

A decade ago, EPA's ICR asked utilities to identify "all current legal owner(s) and operator(s)" of facilities.[59] The ask made the cut as part of a simple list of ten questions,[60] and EPA should have solicited the information through the ANPRM as originally planned. Ownership and landowner information will be valuable to enforce any final regulations as some legacy ponds have changed hands. For example, in 2017, Commercial Development Company Inc. purchased the Chamois Power Plant from Associated Electric Cooperative.[61] Chamois is a plant that retired in 2013 and may have potential legacy ponds – according to a Missouri Department of Natural Resources permit authorizing stormwater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System:

> The northeast portion of the facility contains undisturbed ash placed there from Unit 1, prior to the construction of Unit 2. This area is contoured to form a retention basin for stormwater from a portion of the site and is covered in grass. The west ash ponds have not been closed but are partially vegetated. Stormwater still contacts the ash in the west pond (#5) and therefore discharges from this ash pond are considered legacy wastewater. Some of the ash from ponds #1 through #3 was removed and used for beneficial fill in the Swiss Clay Pit to re-establish the natural contours of the area.[62]

As part of the transaction, the Commercial Development Company assumed the environmental liabilities and decommissioning obligations associated with the site and its former operators.

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[57] Draft ANPRM (Redline), Docket ID No. EPA-HQ-OLEM-2020-0107-0005, at 19 (cleared Sept. 18, 2019).
[58] 85 Fed. Reg. at 65,018.
[59] EPA, Frequent Questions on Coal Ash Impoundment Assessments (last updated Apr. 19, 2016), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/coalash-faqs.html.
[60] 2009 ICR Survey questions, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/survey.pdf.
[61] CDC Purchases Chamois Power Plant, Assumes Environmental Liabilities, Decommissioning, https://www.cdcco.com/power-plant/aeci-chamois-power-plant/#:~:text=The%20%E2%80%9CChamois%20Power%20Plant%E2%80%9D%20delivered,associated%20with%20future%20environmental%20regulations.
[62] Missouri State Operating Permit, MO-0004766 (effective Dec. 1, 2017), https://dnr.mo.gov/env/wpp/permits/issued/docs/0004766.pdf.

4. *EPA failed to conduct an Information Collection Request or even attempt to explain why it has not conducted one to date, and should now issue a new one in parallel to developing a proposed rule.*

Although EPA has long had sufficient information to determine *how* to regulate legacy ponds – and known the location, status, and owners of scores of such sites – the Agency absolutely should collect additional information from regulated entities regarding all legacy sites those entities are aware of. While this additional information is not necessary in order for EPA to develop and promulgate regulations for legacy ponds, it is necessary to ensure those regulations are fully implemented across all legacy sites. In this respect, the ANPRM signifies agency delay because it voluntarily seeks the submission of some of this information when EPA should have mandated its submission long ago.[63] In the two years following the *USWAG* decision, EPA has failed to conduct an ICR or even explain why it has not conducted one to date. Because the process to propose, notice, approve, and issue an ICR takes time, EPA should commence that process with all haste. By instead issuing the ANPRM – which acknowledges that EPA's next step may be to submit an ICR[64] – EPA only delays its receipt of information.

For the 2009 ICR referenced above and included in the ANPRM docket, EPA obtained its list of facilities to send the requests to from a 2005 DOE database:

> Specifically, we used the 2005 Department of Energy's Energy Information Agency F767 database, which provides information on the disposition of coal ash from coal burning electricity producers. The database included "steam-electric plants with a generator nameplate rating of 10 or more megawatts." . . . EPA sent the letters to corporate offices to make sure that all of their facilities were accounted for *due to limitations in the DOE survey*.[65]

Although not necessarily part of the limitations referenced above, one important limitation of EPA's 2009 questionnaire was that it was focused on impoundments that "still contain free liquids,"[66] even though old inactive impoundments often still contain coal ash that could release to water bodies, be in flood plains and subject to flooding, and present other groundwater contamination risks described throughout these comments. In addition, it is unclear how far back the database EPA used went and how complete the ash information was.[67] EPA must ensure that its parallel ICR process is broad in scope and relies on the best available information.

[63] 85 Fed. Reg. at 65,018 ("EPA is requesting information on any known inactive surface impoundments at inactive power plants as of . . . October 19, 2015.").
[64] 85 Fed. Reg. at 65,019.
[65] EPA, Frequent Questions on Coal Ash Impoundment Assessments (last updated Apr. 19, 2016), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/coalash-faqs.html.
[66] *Id.*
[67] https://www.eia.gov/electricity/data/eia767/.

C. Record Evidence Before EPA Demonstrates That Legacy Ponds Pose the Same or Greater Risk of Adverse Impacts as Regulated Ponds.

1. *Impact of lack of maintenance and monitoring at legacy impoundments*

As the ANPRM notes, the D.C. Circuit recognized the unique issues legacy impoundments present:

> The court stated that legacy ponds pose the same threats to human health and the environment as the *riskiest* coal residuals disposal methods, *compounded by diminished preventative and remediation oversight due to the absence of an onsite owner and daily monitoring*. *See* 80 FR at 21343 through 21344 (finding that the greatest disposal risks are "primarily driven by the older existing units, which are generally unlined").[68]

For the protection of health and the environment, it is essential that all units be monitored. In fact, it is arguably more important for older units to be monitored because older units are more likely to be constructed without any form of adequate liners, leachate collection systems, and other mechanisms now considered best practice. As discussed throughout the 2015 Rule docket and these comments, legacy ponds have already caused documented harm to health and the environment, and the "diminished preventative and remediation oversight" at legacy sites, as well as the general lack of information and transparency around the status of ash at legacy ponds, is unacceptable. Engagement from utilities, the state, and the public varies drastically from legacy site to legacy site, and groundwater monitoring and other forms of monitoring at legacy ponds are woefully inconsistent and largely absent.

At some sites, some limited information is available. For example, from the mid-1950s until the plant retired in 2011, the Vermilion Power Station in Vermilion, Illinois, burned coal and generated millions of tons of coal ash.[69] Dynegy and its predecessors mixed the coal ash generated at the plant with water and sluiced it into three unlined coal ash pits. Although the coal ash pits are out of service, all three continue to store coal ash – including coal ash as deep as forty-four feet in some locations.[70] The three unlined pits contain an approximate total of 3.33 million cubic yards of coal ash.[71] Groundwater contamination is well documented at the site thanks to various monitoring efforts. For example, in May 2016 and September 2017, Prairie Rivers Network sampled five discrete groundwater seeps discharging into the river from the legacy ponds.[72] Independent laboratory testing revealed concentrations of arsenic, barium, boron, chromium, manganese, molybdenum, and sulfate in those seeps that exceed background levels and, for multiple pollutants, exceed health-based standards set by EPA and Illinois EPA.[73] There

[68] 85 Fed. Reg. at 65,017 (emphasis added).
[69] *See, e.g.*, Complaint, *Prairie Rivers Network v. Dynegy Midwest Generation, LLC*, No. 2:18-cv-02148 (C.D. Ill. May 30, 2018).
[70] *Id.*
[71] *Id.*
[72] *Id.*
[73] *Id.* at ¶ 55.

is no regular inspection of the pits for structural stability, as far as Commenters know,[74] despite the threats they pose to Illinois' only National Scenic River.[75]

EPA must immediately address the damage from decades-old legacy ash ponds that have escaped maintenance, monitoring and inspections, while the pits deteriorate and leak toxic chemicals. The massive 2014 spill at Duke Energy's Dan River Station, which fouled seventy miles of river in two states, was caused by a coal ash pond no longer in use. It is well past time to ensure that another catastrophic spill does not occur. Communities downstream of coal ash ponds are disproportionately poor and non-white. The Biden EPA cannot allow this environmental injustice to persist.

However, at other legacy sites, the public and other entities may be completely in the dark about exposure to toxic chemical constituents contained in CCR that may be leaching into the ground and groundwater at certain locations or other coal ash risks. As the 2014 RIA notes, the CCR Rule addressed "Inadequate or Asymmetric Information" as an example of compelling public need for federal regulation.[76] The "diminished preventative and remediation oversight due to the absence of an onsite owner and daily monitoring"[77] at legacy ponds means that remedying lack of information about legacy ponds – and the necessary maintenance and monitoring at legacy impoundments – through strong and uniform regulation is particularly essential to reduce the negative impacts of legacy ponds.

2. *Age and condition of impoundment creates high risk of significant releases to groundwater and surface water*

Again, as identified in the ANPRM's background, EPA has already found that **"**that the greatest disposal risks are 'primarily driven by the older existing units, which are generally unlined.'"[78] For example, the 2015 CCR Rule explained:

> The age of the units also has implications for their structural stability and the potential for catastrophic releases. . . . Surface impoundments are generally designed to last the typical operating life of coal-fired boilers, on the order of 40 years. However, many impoundments are aging; based on the subset of units for which age data were available, approximately 195 active surface impoundments exceed 40 years of age; 56 units are older than 50 years, and 340 are between 26 and 40 years old. In recent years, *problems have continued to arise from these units, which appear to be related to the aging infrastructure, and the fact that many units*

[74] There have been some ad hoc reviews by different agencies based on concerns over erosion and bank stability.
[75] *See, e.g.*, Section VII.B.5 – Requirements (highlighting risks presented by erosion and underground mine openings at Vermilion).
[76] Regulatory Impact Analysis: EPA's 2015 RCRA Final Rule Regulating Coal Combustion Residual (CCR) Landfills and Surface Impoundments at Coal-Fired Electric Utility Power Plants, Docket ID No. EPA-HQ-RCRA-2009-0640-12034, at 1-17 (Dec. 2014) ("2014 RIA").
[77] 85 Fed. Reg. at 65,017.
[78] *Id.* (quoting 80 Fed. Reg. at 21,343-44).

> *may be nearing the end of their useful lives*. For example, as a result of the administrative consent order issued after the December 2008 spill, TVA conducted testing which showed that another dike at TVA's Kingston, Tennessee plant had significant safety deficiencies. Collectively, *these facts indicate a high likelihood that in the absence of any regulatory action, such units will leak in the near future, or are currently leaking, undetected, since groundwater monitoring is not installed at many of these older units.*[79]

In fact, the record revealed *elevated* risks of releases at inactive impoundments due to their advanced age, large size, absent safeguards, and questionable construction. For example, in 2015, environmental groups presented detailed information to the D.C. Circuit about the serious risks associated with "early closure" ponds.[80] In these ANPRM comments, a coal ash impoundment "that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015" is referenced as an "early closure" pond.[81] The age, condition, and risks of these early closure ponds, which were at *active* sites as of 2015, offer a helpful comparison to the universe of inactive ponds at *inactive* sites. The 2015 CCR Rule record had information for fifty-three to sixty-eight of these regulated ponds. In briefing, environmental groups noted that the average age of the inactive impoundments considered was forty-two years, which is two years older than EPA's estimated operating lifespan for coal ash impoundments.[82] In fact, as of 2015, most of the currently operating surface impoundments were newer, and generally between twenty and forty years old.[83] Inactive impoundments had an average capacity of approximately 1.6 million tons of coal ash and wastewater.[84] Fifty-eight percent of inactive impoundments were high or significant hazard impoundments, which means that loss of life or significant economic or environmental harm will occur if the impoundment fails.[85] Fifty-nine percent of inactive impoundments were not built under the supervision of a professional engineer.[86] Since 2015, industry documents posted under the CCR Rule have further demonstrated the substantial risks these "early closure" units present, which Commenters expect are met, or more likely exceeded, by the risks inactive units present at large. In fact, the vast majority of ponds were found to be noncompliant with at least one provision of the rule, including failing to comply with the CCR Rule's location restrictions (typically failing to meet

[79] 80 Fed. Reg. at 21,327 (emphasis added).
[80] Brief for Environmental Intervenor Respondents at 6-8, *USWAG v. EPA*, Case No. 15-1219 (D.C. Cir. Sept. 6, 2016) ("Brief for Environmental Intervenor Respondents").
[81] 40 C.F.R. § 257.53.
[82] Brief for Environmental Intervenor Respondents at 6-7 (citing Responses From Electric Utilities to EPA's 2009 Information Collection Request Letter, Docket ID No. EPA-HQ-RCRA-2009-0640-3915; 2014 RIA at 2-29) (information relating to age was available for sixty-eight inactive impoundments).
[83] 80 Fed. Reg. at 21,327.
[84] Brief for Environmental Intervenor Respondents at 7 (information relating to capacity was available for sixty-four inactive impoundments).
[85] *Id.* (information relating to hazard ranking was available for sixty-six inactive impoundments); 80 Fed. Reg. at 21,318.
[86] Brief for Environmental Intervenor Respondents (information relating to construction was available for sixty-eight inactive impoundments).

the minimum requirements for placement above the uppermost aquifer) or identifying appendix III or IV constituents contaminating groundwater. In addition, more than ninety-five percent of early closures ponds are unlined.

Separately, looking at the 664 units with commissioning years in EPA's database of 2009 ICR Responses, the average commissioning year for the 101 units at potential legacy ponds was 1969 versus 1978 for the rest of the universe, confirming that legacy ponds are older than other impoundments.[87] In other words, based on available information, potential legacy ponds average fifty two years old, or approximately *a decade* older than other ponds and EPA's estimated operating lifespan for surface impoundments.[88] In addition, almost half of potential legacy ponds were not built under the supervision of a professional engineer, which is a higher percentage than other ponds (forty-six percent of potential legacy ponds versus thirty-six percent for the rest of the universe).[89] The same is true for potential legacy ponds not designed by a professional engineer (forty-one percent versus twenty-six percent for the rest of the universe).[90]

According to the information available on potential legacy ponds in EPA's Summary Table for Impoundment Reports, sixty-eight percent had an EPA Condition Assessment of poor or fair. This figure is more than ten percent higher than the percent of poor and fair ranked impoundments in the rest of the universe (fifty-seven percent).[91] A "poor" ranking means a management unit safety deficiency was recognized for a required loading condition (static, hydrologic, seismic) in accordance with the applicable dam safety regulatory criteria and that remedial action was necessary. Alternatively, a "poor" ranking applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies. A "fair" ranking signified that acceptable performance was expected under all required loading conditions, but that minor deficiencies may exist that require remedial action and/or secondary studies or investigations.[92]

3. *Risk of structural failure at legacy impoundments*

The attached expert report of Gordon J. Johnson, M.Sc., P.Eng. of Burgess Environmental highlights the risk of structural failure at legacy impoundments.[93] This report

[87] *See* "Potential CCR Legacy Units (2021).xslx" (attached) (estimated from "2 Year Commissioned" information under "EPA 2012 xlsx" tab).
[88] Responses From Electric Utilities to EPA's 2009 Information Collection Request Letter, Docket ID No. EPA-HQ-RCRA-2009-0640-3915; RIA at 2-29.
[89] *See* "Potential CCR Legacy Units (2021).xslx" (attached) ("4 PE Constructed" information under "EPA 2012 xlsx" tab).
[90] *See id.* ("4 PE Design" information under "EPA 2012 xlsx" tab).
[91] *See id.* (*compare* totals from "EPA 2014 xlsx annotated" tab, *with* full universe at EPA, 2014 Summary Table for Impoundment Assessment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html).
[92] EPA, Frequent Questions on Coal Ash Impoundment Assessments (last updated Apr. 19, 2016), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/coalash-faqs.html (citing New Jersey Department of Environmental Protection Dam Safety Guidelines for the Inspection of Existing Dams (Jan. 2008)).
[93] Burgess Environmental, Gordon J. Johnson, M.Sc., P.Eng., Legacy CCR Surface Impoundments (Feb. 2021) ("Burgess Envtl. Report") (attached).

adds to a wealth of evidence about the threats these units pose. In March 2009, EPA initiated a CCR Assessment Program and its findings provided technical and factual support for some of the final requirements for structural stability in the CCR Rule.[94] A decade later, these assessments, in addition to the extensive evidence in damage cases as well as additional evidence in the record, make clear that legacy sites present serious risks.

The TVA Kingston coal ash disaster[95] was "at least partly attributable to slip-plane failure of saturated CCR that made up the subgrade and foundation beneath the unit."[96] A Root Cause Analysis of the impoundment breach was conducted by AECOM, a geotechnical engineering firm, for TVA.[97] As EPA noted, "AECOM determined the unit may have failed because of a combination of four factors: 1) the presence of an unusually weak slimes foundation, 2) the fill geometry and setbacks, 3) increased loads due to higher fill, and 4) hydraulically placed loose wet ash."[98]

Many legacy impoundments are likely to have embankments or other crucial sections constructed at least partially of fly ash, or be built on fly ash, and therefore be prone to failures similar to the one that took place at Kingston.[99] For example, EPA assessments reports[100] for potential legacy impoundments at the following plants demonstrate structural stability risks:

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[94] 80 Fed. Reg. at 21,313-19.

[95] EPA is aware of the serious costs of these types of impoundment failures. *See, e.g.*, 80 Fed. Reg. at 21,457 ("As demonstrated in the aftermath of the 2008 coal ash spill in TVA Kingston, Tennessee, large impoundment dike breach incidents result in impacts to soil and river sediments. In a study conducted few months after the spill, Emory River's downstream sediments showed high mercury concentrations similar to those detected in the coal ash (115-130 µg/kg)." (citing Ruhl et al., Survey of the Potential Environmental and Health Impacts in the Immediate Aftermath of the Coal Ash Spill in Kingston, Tennessee, Environ. Sci. Technol. Vol. 43 (16), 6326-33 (May 4, 2009)).

[96] *E.g.*, 80 Fed. Reg. at 21,373.

[97] EPA, Frequent Questions on Coal Ash Impoundment Assessments (last updated Apr. 19, 2016), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/coalash-faqs.html.

[98] AECOM, Root Cause Analysis of TVA Kingston Dredge Pond Failure on December 22, 2008 (June 25, 2009), https://www.tdecorder.org/kingston/GeoDocs/KIF146%20-%20Root%20Cause%20Analysis%20Summary%20Report%20-%20Jun%202009.pdf.

[99] *See, e.g.*, ICF Resources, Incorporated, Coal Combustion Waste Management Study, prepared for U.S. Department of Energy, Docket ID No. EPA-HQ-RCRA-2006-0796-0014 (Feb. 1993).

[100] The assessment reports were completed by contractors and based on a visual assessment of the site, interviews with site personnel, and the review of geotechnical reports and studies related to the design, construction and operation of those impoundments, if available. EPA, Coal Combustion Residuals Impoundment Assessment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html. The engineering firms also reviewed past state and federal inspections of the impoundments. EPA contractors were not authorized to conduct any physical drilling, coring or sampling while on site; however, they did review studies which may have included such information. *Id.* In other words, fuller assessments would likely reveal additional risks. It is important to note that units in the reports, including many of the ones referenced throughout this subsection, are rated "poor," indicating that safety deficiencies were recognized, and remedial action was necessary. *Id.*

- AEP's Glen Lyn Power Station: "The auxiliary Fly Ash Pond is understood to have an earthen embankment consisting of a compacted fly ash core and a 3 ft thick clay blanket along the inside slope of the embankment."[101]

- Hoosier Energy's Frank E. Ratts Power Station: "The ponds northern, eastern, and southern dikes are contained within two perimeter dikes. The inner, larger, dike is constructed of fly ash . . . ."[102]

- UGI Development Company's Hunlock Power Station: "According to the original design drawings the embankments were to be constructed of on-site ash and material excavated during construction of the basins amounting to approximately 40,600 CY of material."[103]

- Ameren's Hutsonville Power Station: "The impoundment embankments were constructed with 2.5H:1V upstream and 3H:1V downstream slopes consisting of a compacted mixture of sand and fly ash."[104]

- AEP's Muskingum River Power Plant: "The crest of the Emergency Spillway Dam . . . is constructed of boiler ash material. . . . Small erosion rills were observed in the crest surface adjacent to the upstream slope."[105]

- AEP's Philip Sporn Power Plant: "Sections of modified embankments are constructed over, and/or composed of, fly ash material strata which may be susceptible to liquefaction under certain conditions."[106]

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[101] Assessment Report at 16, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep-glen-lyn-final.pdf. "Assessment Report" designations in citations throughout these comments do not refer to a single overarching report, but instead to the relevant assessment report for the site referenced in the related text and linked in the citation. Final assessments reports for each plant are also available at their respective links on the EPA website. *See* EPA, Coal Combustion Residuals Impoundment Assessment Reports, EPA Database, Docket ID No. EPA-HQ-RCRA-2009-0640-3916 (posted Oct. 5, 2010) (also available at https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html).

[102] Assessment Report at 19, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/hoosier-ratts-final.pdf.

[103] Assessment Report at 16, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ugi_hunlock_final.pdf.

[104] Assessment Report at 12, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ameren_hutson_final.pdf.

[105] Assessment Report at 35, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep_musk_final.pdf.

[106] Assessment Report at 18, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep-sporn-final.pdf.

- AEP's Tanners Creek Generating Station: "The embankment of the Upper Pond was constructed on previously deposited fly ash in the original impoundment using bottom ash as the core construction material."[107]

In addition, according to EPA, the collapse, translation, or malfunction of hydraulic structures are serious risks for old coal ash units:

> Hydraulic structures, particularly corrugated metal pipe, are subject to deterioration and corrosion over time and, as deterioration proceeds, the hydraulic structure becomes more susceptible to collapse, translation, or malfunction. Issues with hydraulic structures within the dike may exacerbate structural or operational issues with the CCR surface impoundment due to the significant internal deterioration of the dike via the hydraulic structure. As an example, on February 2, 2014, Duke Energy's Dan River Fossil Plant experienced a structural collapse of a corrugated metal storm water discharge pipe which passed underneath the interior of a CCR surface impoundment. The subsequent collapse of the base of the CCR surface impoundment led to a massive release of CCR to the environment. Additionally, the adjacent dike of the CCR surface impoundment was severely damaged due to the erosion of the upstream slope.[108]

Assessment Reports confirm that corrugated metal pipes may be present at many legacy impoundments, and potentially underlying them, meaning these may be presenting serious risks at legacy impoundment sites. Examples of pipes at inactive power plants with potential legacy impoundments include, but are not limited to:

- AEP's Glen Lyn Power Plant: "The outlet structure consists of a skimmer barrier connected to an overflow drainage shaft and 24 inch diameter corrugated metal pipe to Adair Run."[109]

- East Kentucky Power's Dale Power Station: "The inlet of the primary outlet structure for Ash Pond 4 consists of a concrete structure connected to a 12-inch diameter corrugated metal discharge pipe."[110]

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[107] Assessment Report at 8, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/tan-crk-fly-final.pdf.
[108] 80 Fed. Reg. at 21,394.
[109] Assessment Report at 17, 33, 336, 347, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep-glen-lyn-final.pdf.
[110] Assessment Report at 15, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ekypc_dale_final.pdf; *see also id.* at 24 ("Beginning at the southeast corner of Ash Pond 3 and proceeding approximately 360 feet along the Ash Pond 3 eastern toe of slope, the trapezoidal ditch is proposed to be directly adjacent to the downstream toe of the western embankment of Ash Pond 2. This channel is proposed to collect runoff

- Kentucky Utilities' Green River Power Station: "The primary outlet for the Coal Pile Runoff Pond is located at the northeast end of the pond (photo CR-4). The outlet consists of a metal and boom perimeter skimmer and a corrugated metal pipe (photo CR-7)."[111]

- Ameren's Meredosia Power Station: "The Bottom Ash Pond has an emergency spillway consisting of a 12" corrugated metal pipe extending through the crest of the embankment on the north side of the impoundment."[112]

- AEP's Muskingum River Power Plant: "The outlet spillway for the Lower Fly Ash Reservoir is comprised of a rectangular concrete riser with a skimmer. It is connected to a corrugated metal culvert that conveys water through the embankment and west of the wastewater basin to a tributary of the Muskingum River."[113]

- Kentucky Utilities' Tyrone Power Station: "The primary outlet for the Tyrone Ash Pond is a concrete structure connected to a 18-inch diameter corrugated metal discharge pipe."[114]

- Duke Energy's WC Beckjord Station: "Reportedly an investigation was performed by Fuller, Mossbarger, Scott & May, Inc (FMSM) in 2002 and in July 2003 FMSM prepared plans to address the entire eastern embankment between the northeast corner and the Pond Run concrete training wall. The FMSM design included an embankment buttress consisting of bottom ash with a clay fill cover and grass that had a slope of 3H:1V. The design also included a corrugated metal pipe culvert to carry the Ash Pond B drainage to Pond Run. It has been reported that some improvements were made in 2004; however the middle portion of the east embankment outboard slope (roughly 1200 feet) has not been improved."[115]

- WI Power & Light's Rock River Generating Station: "GZA observed the condition of the 24-inch diameter CMP inlet pipe that transmits water from the

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from the majority of the ash stack and is shown to be graded to drain to Ash Pond 2 through an existing 15-inch corrugated metal pipe (CMP) located at the northwestern corner of Ash Pond 2.").

[111] Assessment Report at 19, 23, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ku-gr-final.pdf.

[112] Assessment Report at 9, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ameren_meredosia_final.pdf.

[113] Assessment Report at 15, 38, 170, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep_musk_final.pdf.

[114] Assessment Report at 12, 18, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ku-tyrone-final.pdf.

[115] Assessment Report at 153, 173, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/duke_beckjord_final.pdf.

> WPDES Pond 1 to the Slag Pond. The bottom half of the inlet pipe had corroded and was not present."[116]

Given the current lack of consistent maintenance and monitoring standards, there is no guarantee that pipes like the ones described are not causing problems at sites today or could present problems in the future.

Last, but not least, seeps are an additional source of well-documented risks. EPA referred to "seepage-induced failure"[117] in the CCR Rule and stated: "Frequently, CCR surface impoundments are subject to cracking and excessive seepage and piping in the groins where the abutment and embankment meet. These adverse conditions may lead to further structural deficiencies which threaten the safety of the CCR surface impoundment."[118] The assessment reports confirm that seeps are frequent at legacy sites. For example, seeps were described in assessment reports for:

- East Kentucky Power's Dale Power Station: "The pressure testing performed and rock cores obtained from the different borings suggest that soft shale seams, fractures and voids within the limestone bedrock underlying the east side of the dike provide seepage paths for water and fly ash to leak out of the pond. Although a seep has been noted surfacing along a small drain located east of the pond, it is possible there are other locations where leaks surface."[119]

- Kentucky Utilities' Green River Power Station: "AMEC recommends the seep identified at boring B-1.75T be monitored frequently until the time of, and, following repairs."[120]

- Ameren's Meredosia Power Station: "[S]eepage at various locations along the downstream embankment of the Fly Ash pond has been witnessed by Ameren

[116] Assessment Report at 12-13, 18-19, 44, 68 ("GZA observed the condition of the 24-inch diameter CMP inlet pipe that transmits water from the WPDES Pond 2 to the Slag Pond. The pipe was corroded similar to the pipe for WPDES Pond 1."), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/alliant_rockriver_final.pdf.
[117] 80 Fed. Reg. at 21,368.
[118] *Id.* at 21,381.
[119] Assessment Report at 15-16 ("It is Stantec's understanding that on August 22, 2008, a whirlpool was observed by EKPC personnel approximately 60 feet from the crest of the dike along the eastern side. EKPC then observed leakage surfacing along a natural drain located approximately 300 feet east of the dike. . . . Reportedly, EKPC plans to have all ash excavations completed by fall 2010, perform maintenance activities and have the pond back to an active ash storage facility by summer 2011."), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ekypc_dale_final.pdf.
[120] Assessment Report at 63, 70 ("A recent surface slope repair was reported on the south embankment and inspection reports note a seep at Boring B-1.75T located to the east of the coal Pile Runoff Pond."), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ku-gr-final.pdf.

Energy and Hanson Professional Services at various times including 1991, 2008, 2009 and other intervening years."[121]

- AEP's Muskingum River Power Plant: "Clear seepage noted from hillside drain at right abutment contact (iron precipitate observed)," and "[s]eepage noted from rock toe near waste water pond elevation and from active drain near left abutment/rock toe buttress contact. There may or may not be an underdrain at this location."[122]

- Dayton Power & Light's O.H. Hutchings Station: "There is an approximate 300 linear foot area of seepage with visible small clear water flows on the south exterior face of the west ash pond. The seepage appears to have been present long enough for aquatic vegetation to establish on the bottom one-third of the exterior face. At the toe of the embankment is a stream that is bright green in appearance at this location and is clear just upstream of this location."[123]

- AEP's Tanners Creek Generating Station: "An isolated seep of clear water was observed on the north slope near the construction access road."[124]

- Kentucky Utilities' Tyrone Power Station: "ATC's report, entitled Ash Pond Seep Evaluation Report Tyrone Power Station dated September 11, 2009, discussed the water seeps and slope erosion of the earth slopes between the cooling water canal and the west embankment of the Tyrone Ash Pond. . . . ATC determined that the 'seepage areas noted in the cooling water canal most likely reflect seepage of groundwater rather than seepage from the Main Ash Pond and *at this time* do not *appear* to represent a significant threat to the integrity of the Main Ash Pond.' Referring to the seepage and bank erosion, the report recommends 'future site assessments include monitoring of these areas.'"[125]

- TVA's Watts Bar Fossil Plant: "There has been at least one incident of minor seepage along the toe of the embankment previously observed by the Tennessee Valley Authority."[126]

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[121] Assessment Report at 13, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ameren_meredosia_final.pdf.
[122] Assessment Report at 155, 166, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/aep_musk_final.pdf.
[123] Assessment Report at 24, 39, 45, 47, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/dayton-hutchings-final.pdf.
[124] Assessment Report at 44, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/tan-crk-fly-final.pdf.
[125] Assessment Report at 9, 11 (emphases added), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ku-tyrone-final.pdf
[126] Assessment Report at 14, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/tva_wattsbar_final.pdf.

Ultimately, in recognizing that "early detection of signs of structural weaknesses is an essential preventative measure which helps to impede structural failure,"[127] EPA noted:

> Appearances of structural weakness may include, but are not limited to: (1) Excessive, turbid, or sediment-laden seepage; (2) signs of piping and other internal erosion; (3) transverse, longitudinal, and desiccation cracking; (4) slides, bulges, boils, sloughs, scarps, sinkholes, or depressions; (5) Abnormally high or low pool levels; (6) animal burrows; (7) excessive or lacking vegetative cover; (8) slope erosion; and (9) debris.[128]

Examples of all these signs of structural weaknesses are described throughout the Assessment Reports and other documents related to legacy sites. Given that many legacy units were constructed decades ago, have not been used in years, and are generally not consistently and thoroughly maintained or assessed, evidence or signs of structural weakness have likely been ignored or dismissed at these units for far longer than at sites the CCR Rule regulates.

In addition, some of the potential legacy units referenced throughout this subsection, such as the impoundments at AEP's Muskingum River, AEP's Philip Sporn, and Duke Energy's WC Beckjord Stations, are rated as having "high" and "significant" hazard ratings, meaning that failure or mis-operation at those units is likely to result in loss of life or to cause economic loss, environmental damage, or disruption of lifeline facilities.[129] The risks related to seepage and piping, erosion of spillways, overstressing of the structural components of impoundments, and many other serious deficiencies, can no longer be ignored for all legacy sites.

4. *Risk of flooding at legacy impoundments*

EPA found that impoundments are often prone to serious risks from flooding:

> During its assessment effort, EPA [] found that, contrary to commenter's arguments CCR surface impoundments were often not designed to address floods in excess of a 24-hour, 25-year storm event. Rather many CCR surface impoundments were deficient in their hydrologic and hydraulic capacity requirements due to factors such as lack of operating freeboard, misunderstanding of the actual contributory area, lack of documentation, undersized decant structures, undersized spillways, and lack of spillway.[130]

[127] 80 Fed. Reg. at 21,394.
[128] *Id.*
[129] 80 Fed. Reg. at 21,318; *see* EPA, 2014 Summary Table for Impoundment Assessment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html ("Summary Table for Impoundment Reports (.xls) – July 31, 2014" links to a 2014 spreadsheet of units).
[130] 80 Fed. Reg. at 21,390.

As described in the attached reports of Steven K. Campbell, Ph.D., P.G.[131] and Gordon J. Johnson, M.Sc., P.Eng. of Burgess Environmental,[132] and throughout these comments, flooding presents significant risks at legacy impoundments given their old age, maintenance status, and so on.

Although flooding maps and/or coal ash maps were not available for all sites, at least twenty-nine sites – or almost half – of the sixty-four known legacy sites with potential surface impoundments[133] have coal ash units (or perhaps in a few instances, had them at one time) at least partially within flood zones per Federal Emergency Management Agency ("FEMA") designations. Many of these sites are within the 100-year floodplain. In addition, government flood maps most likely understate the risks of deluges in much of the country.[134]

Table 1. *Examples of Potential Legacy Ponds[135] in Flood Zones.*

Facility	State	Year Facility likely started operating coal unit(s)	# of Potential Ponds	# of Potential Landfills	Preliminary Flood Zone Analysis for CCR	Date Flood Zone Information Updated (FEMA)
Widows Creek	AL	1952	12	0	parts in 100 yr	12/16/2008
Arapahoe	CO	1950	6	0	parts in 100 yr	11/20/2013
Scholz	FL	1953	3	0	parts in 100 yr	12/17/2010
Mitchell	GA	1948	3	0	parts in 100 yr	9/25/2009
Fair Station	IA	1960	2	1	parts in 100 yr	7/18/2011
Sixth Street	IA	1921	4	0	parts in 100 yr	4/5/2010
Riverside	IA	1949	2	0	in 100 yr	2/18/2011
Hutsonville	IL	1953	4	0	parts in 100 yr	6/2/2011
Meredosia	IL	1948	2	0	in 100 yr	8/16/2018
Pearl Station	IL	1973	1	0	in 100 yr	6/2/2011
Vermilion	IL	1955	2	1	parts in 100 yr	6/2/2011
Frank E. Ratts	IN	1970	8	0	parts in 100	9/17/2014
Tanners Creek	IN	1951	5	1	parts in regulatory floodway	4/16/2014
Riverton	KS	1950	1	0	parts in 100 yr	11/19/2008
Green River	KY	1950	5	0	parts in 100 yr	10/16/2013
Kenneth C Coleman	KY	1969	3	0	parts in regulatory floodway	9/27/2013
Tyrone	KY	1947	2	0	parts in 100 yr	12/21/2017

[131] Steven K. Campbell, Ph.D., P.G., Professional Opinions Regarding Aspects of EPA's 2020 Advanced Notice of Proposed Rulemaking For Defining "Legacy" CCR Surface Impoundments (Feb. 2021) ("Campbell Expert Report") (attached).
[132] Burgess Envtl. Report.
[133] Under EPA's 2014 Risk Assessment's categorization of surface impoundments. *See* 2014 Risk Assessment, Attach. A-1.
[134] *See, e.g.*, Zack Colman, The Toxic Waste Threat That Climate Change is Making Worse, POLITICO (Aug. 26, 2019), https://www.politico.com/story/2019/08/26/toxic-waste-climate-change-worse-1672998.
[135] *See* "Potential CCR Legacy Units (2021).xslx" for full list (attached).

Dale Station	KY	1954	3	0	parts in 100 yr	12/21/2017
R. Paul Smith	MD	1947	2	1	parts in 100 yr	8/15/2017
Chamois	MO	1953	1	0	parts in 100 yr	9/19/2012
Cape Fear *(closing by excavation)*	NC	1923	5	0	in 100 yr	11/17/2017
Muskingum River	OH	1953	4	0	parts in 100 yr	4/16/2014
Picway	OH	1955	1	0	parts in regulatory floodway	6/17/2008
Walter C Beckjord	OH	1952	4	2	parts in 100 yr	3/16/2006
Hunlock	PA	1959	2	0	parts in 100 yr	11/2/2012
Shawville	PA	1954	4	2	parts in 100 yr	11/2/2011
Glen Lyn	VA	1944	3	1	parts in 100 yr	9/25/2009
Rock River	WI	1967	4	0	parts in 100 yr	9/16/2015
Albright	WV	1952	2	2	parts in 100 yr	6/5/2012

A review of assessment reports makes clear that flooding has materially affected many potential legacy sites in the past and will continue to present serious risks at the ponds with ash in the future. For example, according to information collected by EPA, Mississippi River flooding caused a historical release at Riverside Generating Station's South Ash Pond on April 14, 2002.[136] In addition, the assessment report for R. Paul Smith Power Station, a FirstEnergy coal plant closed in 2012, found that "[g]iven the relatively frequent number of flooding events between 1936 and the present at Williamsport, CHA recommends quantifying the risk to Ash Ponds #3 and #4 from high waters on the Potomac River."[137] The crest of one of its dikes had to be raised in 1980 following flooding related to Hurricane Agnes.[138] Similarly, according to FirstEnergy Corp. representatives, releases from impoundments at the now retired Albright Power Station in West Virginia "likely occurred in November 1985 when Cheat River flood waters were measured at El. 1228."[139] Last but not least, the June 2008 Midwest floods led Alliant Energy to shut down coal plants in Iowa due to flooding, including the 72 MW Sixth Street and 185 MW Prairie Creek stations.[140] The Sixth Street station was so damaged it stopped

[136] EPA, 2014 Summary Table for Impoundment Assessment Reports, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/html/index-4.html ("Summary Table for Impoundment Reports (.xls) - July 31, 2014" links to a 2014 spreadsheet of units).
[137] Assessment Report at 54, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/ae-paul-final.pdf.
[138] *Id.* at 8.
[139] Assessment Report at 29, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/albright_pwr_fnl_rpt.pdf. The impoundments assessed may have been wastewater treatment lagoons but demonstrate the risks emblematic of sites by rivers. *See* Mon Power Company Response, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/albright_pwr_action_pln.pdf.
[140] https://www.reuters.com/article/alliantenergy/update-1-alliant-energy-says-flooding-will-hurt-2008-earnings-idUSBNG17416120080715.

producing electricity and was eventually retired.[141] An assessment report of the ash units on site at the time[142] highlights the vulnerabilities many legacy impoundments still face:

> In June of 2008, the watershed of the Cedar River experienced a storm that caused flow through Cedar Rapids exceeding the 500-year return period event. During the flood the 6th street generating station recorded 6-feet of water on the floor of the station. At the same time the coal combustion waste ponds were fully inundated by the flood flow, Photograph 3. When the flood waters receded, the embankments of the coal combustion waste ponds were subjected to rapid drawdown of the phreatic water surface by sequential lowering of the water elevation on both sides of the embankments.[143]

Figure 1. *Sixth Street Station at Flood Peak, June 13, 2008.*[144]

Floods threaten smaller legacy ponds equally, if not more, because they may lack effective flood control technology designed to withstand a major storm event. In Chapel Hill, North Carolina, a 4.5-acre coal ash dump on town property contains 60,000 cubic yards of coal ash, a portion of which lies in the flood plain of Bolin Creek; this portion of the coal ash dump

[141] *See generally* Assessment Report at 110-11, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/alliant_sixth_final.pdf.
[142] Although Alliant Energy appears to have dredge most of the ash on site, what's left may "not be removed but rather covered over and capped," presenting other potential issues. Brian Morelli, *Alliant begins work in Cedar Rapids to cap old coal ash ponds*, The Gazette (May 4, 2017), https://www.thegazette.com/subject/news/government/alliant-begins-work-in-cedar-rapids-to-cap-old-coal-ash-ponds-20170504.
[143] Assessment Report at 200, https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/alliant_sixth_final.pdf.
[144] *Id.* at 207 (photo annotations in original).

flooded during Hurricane Florence.[145] The flood waters rushed along the base of an eroding 40-foot high coal ash cliff.[146] It is not known how much coal ash was released into Bolin Creek or other downstream waters. Such coal ash releases are obviously a significant concern, and so is the risk such storm events pose to the structural stability of the coal ash cliff on the edge of the floodplain.

Ultimately, most coal ash sites fail to take into account all the ways water can get into coal ash, and this is especially true for older legacy ponds that were designed, sited, and built without the necessary regard for health and environmental protection. Various sources, including EPA's damage cases, confirm that coal ash disposal is safest on high ground away from bodies of water.

5. *Risk of inadequate caps at legacy impoundments.*

At some legacy sites, utilities have "closed" ponds "in place," which generally means they have left dangerous waste repositories in or near water sources and built a cap over them. Although appropriately installed caps can play an important role,[147] coal ash capped in place is often capable of leaching contaminants into groundwater in the short and long-term regardless of whether the cap meets the CCR Rule's protectiveness standards. As summarized by professional geologist Mark Hutson:

> Capping CCR in place can indeed be appropriate in some locations *where the CCR disposal unit was successfully designed and constructed to permanently sequester disposed waste from water*. . . . Capping interrupts vertical percolation of water into the waste from the surface. It does nothing however to prevent shallow groundwater from migrating laterally through waste placed below the water table in an unlined landfill or impoundment.[148]

Capping a unit only reduces the amount of additional rainwater that falls directly into a legacy pond *at best*. In other words, it does nothing to eliminate the groundwater contained in the impoundment or to stop the continued flow of groundwater through the unlined bottom and sides of legacy ash. Coal ash ponds, and especially legacy ponds, have historically not been successfully designed and constructed to permanently sequester disposed ash.

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[145] Letter from Nicholas Torrey, Southern Environmental Law Center, to Amy Axon, N.C. Dept. of Envt. & Nat. Res. (May 9, 2017), https://www.townofchapelhill.org/home/showpublisheddocument?id=35649; Flooding from Hurricane Florence at Coal Ash Dump, video by Jane Thraikill (2018), http://ash.bolincreek.org/more-info (flooding at the base of the coal ash cliff). The coal ash dump does not qualify as a legacy pond but is comparable to legacy ponds in many ways.

[146] *Id.*

[147] "Installing caps on all 'dry' impoundments not remediated by other means (e.g., removal) will . . . reduce or eliminate airborne dispersal of CCRs." Campbell Expert Report at 10.

[148] PCB No. R. 20-19, Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 ILL. ADM. CODE 845, Pre-Filed Testimony of Mark Hutson, at 6-7 (Aug. 27, 2020) (emphasis added), https://pcb.illinois.gov/documents/dsweb/Get/Document-102854 ("Hutson IL Expert Report"); *see also* Campbell Expert Report; Section VII.A – Requirements.

In addition, any caps installed at legacy ponds are likely failing to "minimize" or "eliminate" post-closure infiltration of liquids through the cap to the "maximum extent feasible."[149] However, assuming that a legacy pond might have a cap that is currently adequate per the CCR Rule's protectiveness standards, that cap is unlikely to be protective long-term:

> Even the best caps will not last indefinitely. A cap can begin to leak through natural processes such as erosion, cap penetrations by vegetation and/or animals, or simply as the cap degrades with UV exposure and age. Damage to a cap can also happen through human activities . . . . Infiltration of significant water through the cap will generate leachate and resume environmental impacts.[150]

Numerous sites highlight the risks presented from inadequate caps and capping in place, such as legacy ponds reported by the Illinois EPA as "closed" and capped that are still known to be leaking.[151] For example, data for the unlined ash ponds at the Venice Station, a plant that has not burned coal since the mid-1970s, indicate that the ponds are still contaminating groundwater.[152] In addition, the coal ash ponds at Ameren's Hutsonville Power Station, a coal plant that closed in 2011, are capped in place.[153] Thus far, the caps have not stopped the contamination of groundwater at the site, which flows towards the Wabash River.[154]

D. Record Evidence and New Evidence Before EPA Demonstrates That the Majority of Coal Ash Units Are Leaking, Including at Legacy Sites, and Therefore Threaten Human Health and the Environment.

In March 2019, the Environmental Integrity Project ("EIP") and Earthjustice released a report that analyzed the baseline groundwater monitoring data available as of January 2019.[155] The database supporting this analysis included 443 groundwater monitoring reports from 265 regulated sites.

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[149] *See generally* 40 C.F.R. § 257.102. An "installed cap" is not typical at legacy impoundments. Campbell Expert Report at 5.
[150] Hutson IL Expert Report at 24.
[151] *See* PCB No. R.14-10, In the Matter of: Coal Combustion Waste (CCW), Surface Impoundments at Power Generating Facilities: Proposed New 35 ILL. ADM. CODE 841, Illinois EPA's Response to Questions Posed by the Board, at 5 (Mar. 6, 2017), https://pcb.illinois.gov/documents/dsweb/Get/Document-94651.
[152] Ashtracker, Venice Power Plant, https://ashtracker.org/facility/86/venice-power-plant ("Groundwater at this site contains unsafe levels of arsenic, manganese, boron, sulfate and nitrate.").
[153] *See* PCB No. R.14-10, Illinois EPA's Response to Questions Posed by the Board, at 5-6 (Mar. 6, 2017), https://pcb.illinois.gov/documents/dsweb/Get/Document-94651.
[154] *See* Environmental Integrity Project, Earthjustice, Prairie Rivers Network, and Sierra Club, Cap and Run: Toxic Coal Ash Left Behind by Big Polluters Threatens Illinois Water, at 31 (Nov. 2018), https://illinoiscoalash.files.wordpress.com/2018/11/capandrun-ilcoalash_web.pdf.
[155] Environmental Integrity Project and Earthjustice, Coal's Poisonous Legacy: Groundwater Contaminated by Coal Ash Across the U.S. (rev. July 11, 2019), https://environmentalintegrity.org/wp-content/uploads/2019/03/National-Coal-Ash-Report-Revised-7.11.19.pdf (attached).

The database for our 2019 report generally did not include data for ash ponds subject to an exemption from monitoring and reporting in the original 2015 CCR Rule ("early closure ponds").[156] EPA ultimately vacated the exemption for early closure ponds, but provided a roughly 18-month extension of the groundwater monitoring deadlines.[157] Commenters have now entered and analyzed the data for early closure ponds to the extent that they are available.

Commenters have also analyzed groundwater monitoring data that predate the CCR Rule. These data are available on EIP's "Ashtracker" website.[158] The Ashtracker data generally cover the 2010-2015 period, though the range of data coverage varies by site.[159] These units are largely unregulated by the CCR Rule (or they were as of 2015), and provide a useful snapshot of the coal ash contamination that EPA has so far failed to address.

The methods Commenters used to analyze the data are described in detail in their 2019 report. Our updated analysis of the early closure ponds and Ashtracker disposal units were analyzed the same way. In brief, to determine whether groundwater is unsafe, Commenters first identified all downgradient wells with "elevated" concentrations by comparing the average concentration of each pollutant in each downgradient well to the average concentrations in all corresponding upgradient wells. This approach eliminates downgradient readings that may be caused by something other than the disposal unit. Commenters then compared the elevated downgradient averages to health-based thresholds, which are generally identical to the groundwater protection standards in the CCR Rule. Any pollutant-well combination that exceeded both upgradient concentrations and health-based thresholds was retained as an "exceedance," or an indication that a disposal unit has caused unsafe levels of groundwater contamination.

The following table summarizes the coal ash disposal units covered by our updated analysis:

Table 2. *Summary of EIP groundwater monitoring database.*

Disposal Unit Subcategory	**Number of Units**
Ash ponds subject to original deadline	265[160]

[156] 40 C.F.R. § 257.100(b).
[157] 81 Fed. Reg. 51,802 (Aug. 5, 2016).
[158] *See* https://ashtracker.org. Not all Ashtracker data are included in this analysis. Commenters have not yet been able to tabulate disposal unit characteristics or assign wells to disposal units at all sites. That said, Commenters did not select sites with any risk-based bias, and we believe that our analysis is broadly representative of the larger database.
[159] For units that have never been regulated by the CCR Rule, the database may extend beyond 2015. For units that are now being regulated by the CCR Rule, the analysis of Ashtracker data is limited to data predating the CCR Rule.
[160] This number includes multi-unit monitoring networks that surround only ash ponds; each such network is counted here as a single ash pond. Commenters reported 273 ash ponds in Table 2 of the 2019 report. The total is lower here because we Commenters originally included several ash ponds that were eligible for the early closure exemption, but whose owners chose not to take advantage of it. For this analysis, these ponds have been moved to the "Early Closure" ash ponds' category. There were also a small number of landfills mislabeled as ponds in the original analysis, and these errors have been fixed.

Ash landfills subject to original deadline	199[161]
Mixed multi-unit networks subject to original deadline	12
"Early closure" ash ponds	61[162]
Ashtracker ash ponds	71[163]
Ashtracker landfills	56[164]
Ashtracker mixed multi-unit networks	6[165]

The following tables summarize our results. Table 3 shows the fraction of disposal units in each category that appears to be causing unsafe levels of several pollutants, or unsafe levels of any pollutant.

Table 3. *Unsafe levels of groundwater contamination attributable to disposal units, by subcategory. Percentages refer to the fraction of disposal units causing unsafe levels of each pollutant (or any pollutant). Numbers in parentheses show the denominator, or number of units measuring each pollutant.*

	Arsenic	Boron	Cobalt	Lithium	Moly-bdenum	Sulfate	One or more
CCR Landfills (199)**	29% (188)	25% (199)	35% (188)	46% (188)	28% (188)	36% (199)	**75%**
CCR Non-Early Closure Ponds (265)**	44% (258)	45% (265)	44% (258)	47% (258)	41% (258)	45% (265)	**92%**
Early Closure Ponds (61)*	37% (59)	28% (60)	38% (59)	47% (59)	42% (59)	54% (60)	**90%**
CCR Mixed Units (12)**	42% (12)	42% (12)	50% (12)	58% (12)	42% (12)	50% (12)	**100%**
Ashtracker Landfills (56)	44% (41)	56% (41)	52% (21)	60% (5)	64% (22)	60% (43)	**72%**
Ashtracker Ponds (88)	48% (71)	56% (61)	62% (21)	0% (0)	47% (30)	51% (69)	**75%**
Ashtracker Mixed Units (6)	50% (6)	60% (5)	67% (3)	100% (2)	67% (3)	40% (5)	**100%**

[161] This number is greater than the 196 landfills in the 2019 report because there were a few landfills in the 2019 report that were mislabeled as ponds.
[162] This number is less than the total number of ponds initially eligible for the early closure exemption for three reasons. First, each multi-unit network surrounding only ash ponds is counted here as a single unit (ash pond). Second, a number of sites have either failed to initiate groundwater monitoring or failed to post monitoring data. Third, some early closure ponds are part of multi-unit monitoring networks with non-early closure ponds and cannot be segregated.
[163] This total includes some units for which Commenters had groundwater monitoring data prior to the CCR Rule. For purposes of analysis, we counted these sites twice – pre-CCR Rule data were evaluated as part of the Ashtracker analysis, and CCR Rule data were evaluated as part of the original 2019 analysis.
[164] *See* preceding note.
[165] *See* preceding note.

** There are 60 early closure ponds, but the Monroe site in Michigan only measured for Appendix III contaminants. Therefore, the denominator for Arsenic, Cobalt, Lithium, and Molybdenum is 59.*
*** For landfills, the denominator for Appendix IV contaminants is 188 while the denominator for Appendix III contaminants is 199. For surface impoundments, the denominator for Appendix IV contaminants is 258 while the denominator for Appendix III contaminants is 265.*

Table 3 shows that groundwater contamination is widespread at all subcategories of disposal unit. For each subcategory, at least seventy-two percent of disposal units appear to be causing unsafe levels of contamination. It is important to note that the percentages for Ashtracker units likely underestimate the true prevalence of contamination, as many of these units do not measure all of the pollutants required by the CCR Rule. For example, none of the Ashtracker ash ponds, and only five of the fifty-six Ashtracker landfills, have lithium monitoring data.

The early closure ponds are particularly noteworthy, as they are the closest analogue to legacy ponds. Each early closure pond was, by definition, an "inactive CCR surface impoundment," meaning that it stopped receiving ash prior to October 2015, but still contained both CCR and liquids after that date. Groundwater monitoring at these ponds was generally conducted near the time of closure, either shortly before[166] or shortly after.[167] These ponds are therefore similar to legacy ponds that have recently contained CCR and liquids.

Table 4 below and the attached appendix[168] summarize the early closure ponds in more detail. Table 4 corresponds to Table 1 in our 2019 report. In that report, Commenters found that ninety-one percent of power plants had unsafe levels of groundwater contamination. Table 4 shows that contamination near early closure ash ponds is just as bad – ninety-two percent of power plants with early closure ponds show unsafe levels of groundwater contamination associated with those early closure ponds. The most prevalent pollutants of concern are similar as well, with arsenic, boron, cobalt, lithium, molybdenum, and sulfate all exceeding health-based thresholds at a high rate.

Table 4. *Prevalence of unsafe groundwater contamination caused by early closure ponds, by power plant.*

Constituent	Health-based threshold	Number of plants exceeding threshold*	% of plants with unsafe levels of this constituent
Antimony	6 µg/L	1/49	2%
Arsenic	10 µg/L	19/49	39%
Barium	2 mg/L	3/49	6%
Beryllium	4 µg/L	2/49	4%
Boron	3 mg/L	16/50	32%
Cadmium	5 µg/L	3/49	6%
Chromium	100 µg/L	0/49	0%
Cobalt	6 µg/L	19/49	39%
Fluoride	4 mg/L	4/50	8%
Lead	15 µg/L	4/49	8%

[166] For example, baseline groundwater monitoring at Plant Gadsden's inactive ash pond in Alabama was conducted from 2017 to 2019, and the unit was closed in April 2020.
[167] For example, the inactive ash ponds at the Pawnee Station in Colorado were closed by removal in early 2017, and baseline groundwater monitoring was conducted over the course of 2018.
[168] "Groundwater Monitoring Data_Appendix (2021).xlsx" (attached).

Lithium	40 µg/L	26/49	53%
Mercury	2 µg/L	3/49	6%
Molybdenum	40 µg/L	25/49	51%
Radium	5 pCi/L	6/49	12%
Selenium	50 µg/L	6/49	12%
Sulfate	500 mg/L	30/50	60%
Thallium	2 µg/L	7/49	14%
Any of the above		46/50	92%
Four or more of the above		19/50	38%

** There are 50 sites with early closure ponds, but the Monroe site in Michigan only measured for Appendix III contaminants.*

The Ashtracker disposal units are another interesting point of comparison, as they were all unregulated during the period covered by our analysis. Table 5 below provides a more detailed summary of these sites.

An important caveat with respect to the Ashtracker data is that the list of monitored pollutants is highly variable, making it much harder to compare sites to each other, or to make comparisons between the CCR Rule database and the Ashtracker database.

As noted above, very few sites measured lithium prior to the CCR Rule, and the same can be said about cobalt and molybdenum. Commenters now know that all three are widespread pollutants of concern at CCR disposal areas, so the Ashtracker data have a notable gap with respect to these pollutants. To the extent that the limited data shed any light, they confirm that all three pollutants are widespread at Ashtracker sites, with five of the seven sites that measure lithium showing unsafe levels of contamination, along with sixty percent of the sites that measure cobalt and sixty-six percent of the sites that measure molybdenum.

On the other hand, the Ashtracker data include some pollutants that the CCR Rule does *not* require. The most notable example is manganese – our analysis of the Ashtracker data suggests that eighty-four percent of power plants have unsafe levels of manganese contamination attributable to unregulated disposal units (the following section explores manganese data in more detail). This strongly suggests that EPA has missed an important constituent of concern and should require manganese monitoring. The data indicate that addition of manganese to both appendices Appendices III and IV is warranted.

Overall, the Ashtracker data paint a similar picture to what Commenters see at other sites – ninety-five percent of power plants in the Ashtracker database show unsafe levels of contamination attributable to the unregulated CCR units.

Table 5. *Prevalence of unsafe groundwater contamination caused by CCR disposal units in the Ashtracker database, by power plant.*

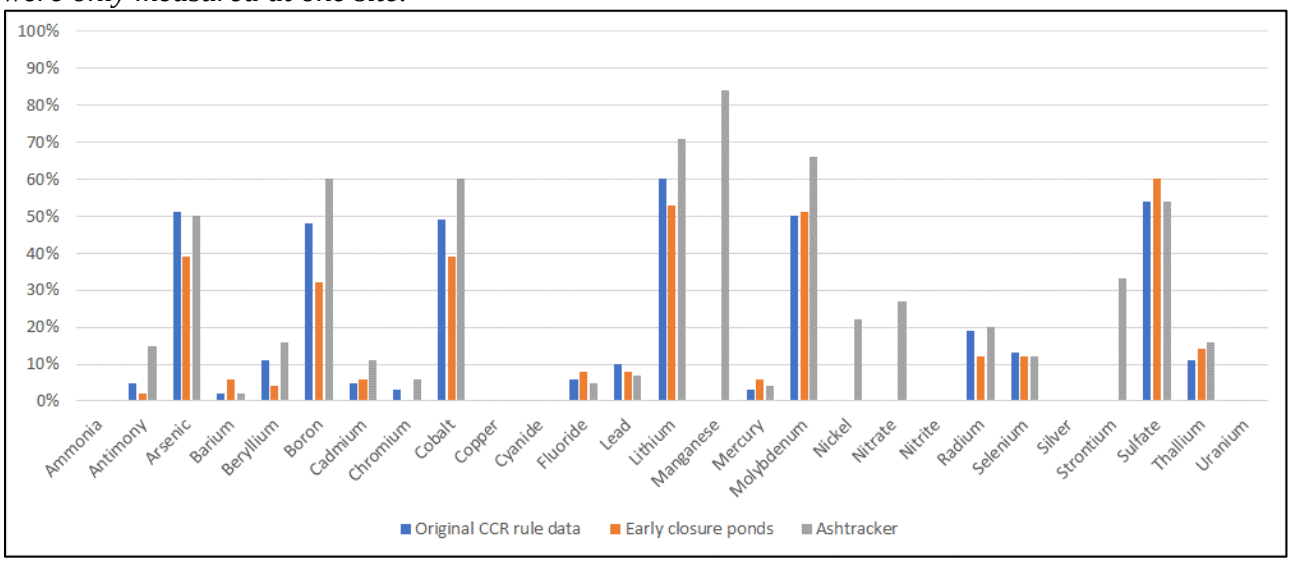
Constituent	Health-based threshold	Number of plants exceeding threshold	% of plants with unsafe levels of this constituent
Ammonia	30 mg/L	0/13	0%
Antimony	6 µg/L	8/53	15%

Arsenic	10 µg/L	47/94	50%
Barium	2 mg/L	2/85	2%
Beryllium	4 µg/L	7/44	16%
Boron	3 mg/L	48/80	60%
Cadmium	5 µg/L	9/80	11%
Chromium	100 µg/L	5/78	6%
Cobalt	6 µg/L	24/40	60%
Copper	1.3 mg/L	0/69	0%
Cyanide	0.2 mg/L	0/16	0%
Fluoride	4 mg/L	2/43	5%
Gross Alpha	15 pCi/L	1/1	100%
Gross Beta	4 mrem/yr	1/1	100%
Lead	15 µg/L	12/91	7%
Lithium	40 µg/L	5/7	71%
Manganese	300 µg/L	61/73	84%[169]
Mercury	2 µg/L	3/72	4%
Molybdenum	40 µg/L	23/35	66%
Nickel	100 µg/L	12/54	22%
Nitrate	10 mg/L	10/37	27%
Nitrite	1 mg/L	0/9	0%
Radium	5 pCi/L	1/5	20%
Selenium	50 µg/L	11/95	12%
Silver	100 µg/L	0/39	0%
Strontium	4 mg/L	3/9	33%
Sulfate	500 mg/L	51/94	54%
Thallium	2 µg/L	8/50	16%
Uranium	30 µg/L	0/3	0%
Any of the above		91/96	95%
Four or more of the above		37/96	39%

Figure 2 below shows the profile of contamination at the three main subsets of CCR units. Again, there is a group of pollutants that consistently crop up as the most prevalent pollutants of concern in all three subsets – arsenic, boron, cobalt, lithium, molybdenum, and sulfate. Commenters believe that manganese should also be in this group – if EPA required manganese monitoring, Commenters believe that owners and operators would find unsafe levels of manganese at most sites, as discussed in the following section.

[169] The manganese analysis used EPA's Lifetime Health Advisory of 0.3 mg/L as the health-based threshold. If EPA's Regional Screening Level (0.43 mg/L) is used instead, the results would change slightly – 81% of plants would exceed this threshold. The overall results (the last two rows in the table) would not change.

Figure 2. *Prevalence of unsafe groundwater contamination caused by CCR disposal units in three major subcategories, by power plant. Gross alpha and gross beta were omitted as they were only measured at one site.*



To summarize, our updated analysis confirms what Commenters found in the 2019 report. The vast majority of CCR disposal units are causing unsafe levels of groundwater contamination and present a serious threat to human health and the environment. At early closure ponds, perhaps the closest analogue to legacy ash ponds, Commenters find that virtually all power plants with early closure ponds – ninety-two percent – suffer unsafe levels of contamination attributable to the early closure ponds. The data point to several important lessons for EPA:

- First, there is no reason to assume that legacy ash ponds present any less of a risk than other CCR disposal units. The data show that they are just as likely to contaminate groundwater. In order to meet its RCRA mandate, EPA must regulate legacy ponds at least as stringently (and more stringently, for reasons discussed throughout these comments) as it regulates other CCR impoundments.

- Second, the data highlight a gaping chasm in EPA's existing regulatory scheme. By only regulating CCR disposal units that were active (or contained ash and liquids) as of 2015, EPA is ignoring hundreds of CCR disposal units that are just as likely to be causing groundwater contamination, as shown by our analysis of the Ashtracker database. Our analysis also shows that the vast majority of CCR landfills threaten human health and the environment. It turns out that distinctions based on landfill type or date of closure are effectively meaningless from a risk perspective. The nationwide threats posed by coal ash will never be resolved, and EPA will never meet its RCRA mandate, until EPA applies its regulatory oversight to all CCR disposal units.

- Finally, as explained in more detail in the next section, our analysis of the Ashtracker data shows that EPA's decision to omit manganese from appendix IV

monitoring was misguided. Manganese is a neurotoxin leaking into the environment at unsafe levels at CCR units across the country, and EPA has a responsibility to ameliorate this threat.

E. Record Evidence and New Evidence Before EPA Demonstrates That EPA Has Impermissibly Allowed Manganese to Threaten Human Health and the Environment.

The preceding section shows that manganese is one of the most prevalent pollutants of concern at coal ash sites not regulated by the CCR Rule. The CCR Rule does not require manganese monitoring as part of either detection monitoring or assessment monitoring. This is a critical oversight on EPA's part.

Manganese is a known neurotoxin.[170] There is growing concern in the scientific community over the effects of manganese, specifically in drinking water.[171] The effects of manganese exposure, even at levels that are found naturally in North American groundwater supplies, and at levels well below EPA's Lifetime Health Advisory of 0.3 mg/L, include reduced IQ and impaired memory and attention.[172] As with many neurotoxins, children are more sensitive than adults.[173]

Commenters looked at a subset of the data available on Ashtracker, specifically a subset of the data for the 2010-2015 period (pre-dating the CCR rule).[174] Using these data, Commenters generated average (mean) concentrations for each pollutant in each well. Commenters then further isolated wells that had mean concentrations for both boron and manganese. Commenters were able to identify 1,184 such wells from 117 disposal areas at 67 power plants.

At the power plant or disposal area level, Commenters frequently see clear patterns associating manganese contamination with coal ash. The Albright Power Station's ash disposal site provides an illustrative example. As shown in the following table, manganese concentrations in the downgradient monitoring wells are clearly elevated above background, and well above

[170] *See, e.g.*, Agency of Toxic Substances & Disease Registry ("ATSDR") (2012), Toxicological Profile for Manganese; Grandjean and Landrigan (2014), Neurobehavioural Effects of Developmental Toxicity, *Lancet Neurol.* 13:330-338.
[171] *See, e.g.*, Ljung and Vahter (2007), Time to Re-Evaluate the Guideline Value for Manganese in Drinking Water? *Envtl. Health Perspect.* 115:1533-1538; Roels et al. (2012), Manganese exposure and Cognitive Deficits: A Growing Concern for Manganese Toxicity, *Neurotoxicology* 33(4):872-880.
[172] *See, e.g.*, Oulhote et al. (2014), Neurobehavioral Function in School-Age Children Exposed to Manganese in Drinking Water, *Envtl. Health Perspect* 122:1343-1350; Bouchard et al. (2011), Intellectual Impairment in School-Age Children Exposed to Manganese from Drinking Water, *Envtl. Health Perspect.* 119:138-143; Schullehner et al. (2020), Exposure to Manganese in Drinking Water during Childhood and Association with Attention-Deficit Hyperactivity Disorder: A Nationwide Cohort Study, *Envtl. Health Perspect.* 128.
[173] ATSDR (2012), Toxicological Profile for Manganese.
[174] The analysis does not include all of the pre-2015 data available on Ashtracker. Commenters are currently in the process of re-coding the data to reflect more site characteristics, and only have a subset of the data available for analysis. The current subset is arbitrary and does not reflect a bias in any particular direction.

EPA's Regional Screening Level of 0.43 mg/L in many wells. Manganese at Albright is also roughly correlated with boron, an indicator of coal ash. The wells with mean manganese concentrations greater than 0.43 mg/L have an average (mean) boron concentration of 0.6 mg/L, while the wells with manganese concentration less than 0.43 mg/L have a mean boron concentration of 0.03 mg/L. In other words, the wells with unsafe levels of manganese also have roughly 20 times more boron than other wells. The difference between up- and downgradient manganese concentrations, combined with the manganese-boron correlation, strongly suggest that the manganese contamination at Albright is attributable to coal ash.

For sites like Albright – and there are many such sites – the evidence very strongly suggests that coal ash is contributing to manganese concentrations an order of magnitude greater than concentrations that might be considered safe.

Table 6. *Boron and manganese concentrations at Albright Power Station's ash disposal area, 2010-2015.*[175]

gradient	well ID	Boron Mean (mg/L)	Manganese Mean (mg/L)	Date range		B count	Mn count
Upgradient	MW1	0.04	0.18	2/2/2010	9/30/2015	11	11
Upgradient	MW101	0.03	0.24	2/2/2010	9/30/2013	7	7
Upgradient	MW206S	0.06	0.08	2/2/2010	8/31/2014	4	4
Upgradient	MW208S	0.02	0.11	2/9/2011	2/9/2011	1	1
Upgradient	MW301A	0.02	0.38	2/2/2010	9/30/2013	7	7
Upgradient	MW401	0.03	0.28	2/2/2010	9/30/2015	9	9
Unknown	MW-401	0.02	0.30	2/28/2014	8/31/2014	2	2
Unknown	MW-402	0.02	0.34	2/28/2014	2/28/2015	3	3
Downgradient	MW102	0.64	7.41	2/1/2010	9/30/2013	5	5
Downgradient	MW103	1.80	4.64	2/1/2010	9/30/2013	7	7
Downgradient	MW104	0.15	5.66	2/1/2010	9/30/2013	5	5
Downgradient	MW2	1.17	6.43	2/1/2010	9/30/2015	12	12
Downgradient	MW201S2	0.04	0.36	2/2/2010	9/30/2013	7	7
Downgradient	MW203S1	0.02	0.41	2/2/2010	9/30/2013	7	7
Downgradient	MW205S	0.01	0.37	8/2/2010	9/30/2013	6	6
Downgradient	MW208D	0.02	0.04	2/2/2010	3/31/2013	5	5
Downgradient	MW3	2.64	1.79	3/31/2013	8/31/2014	3	3
Downgradient	MW308D	0.37	6.84	2/1/2010	9/30/2013	7	7
Downgradient	MW310D	0.04	4.23	2/1/2010	9/30/2013	7	7
Downgradient	MW311S	0.05	2.10	2/1/2010	9/30/2013	7	7
Downgradient	MW312S	0.01	4.53	8/2/2010	9/30/2013	6	6
Downgradient	MW313D1	0.04	0.59	8/2/2010	9/30/2013	6	6
Downgradient	MW314D	0.06	3.97	8/2/2010	9/30/2013	6	6
Downgradient	MW317S	0.58	1.33	2/1/2010	9/30/2015	12	12
Downgradient	MW318S	0.01	0.77	2/1/2010	9/30/2015	11	11
Downgradient	MW402	0.02	0.34	2/1/2010	9/30/2015	9	9
Downgradient	MW403	0.02	0.34	2/2/2010	9/30/2015	12	12
Downgradient	MW404	0.02	0.40	2/1/2010	9/30/2015	12	12
Downgradient	MW5	0.04	0.04	2/2/2010	9/30/2015	11	11
Downgradient	MW6	0.04	0.03	2/8/2012	2/8/2012	1	1

To assess the correlation between manganese and boron more broadly, Commenters divided the 1,184 wells with matched boron and manganese concentrations into manganese quartiles, based on the mean concentration for each well, and looked at the distribution of boron data within each quartile. The following table shows that coal ash disposal area wells with high

[175] For purposes of calculating average values, nondetects were treated as being present at one-half of the detection limit.

manganese concentrations tend to also have high boron concentrations. Although manganese can sometimes exceed safe levels due to natural sources, the available data strongly suggest that manganese contamination at coal ash sites is different – it is very often *not* naturally occurring, but instead coming from coal ash.

Table 7. *Boron data distribution by manganese quartile*.[176]

Manganese concentrations (mg/L)	No. of wells	Boron (mg/L): Median and (25^{th} – 75^{th} %ile)
< 0.02 mg/L	296	0.10 (0.04-0.58)
0.02 – 0.13 mg/L	296	0.09 (0.03-0.36)
0.13– 0.54 mg/L	296	0.38 (0.06-2.15)
> 0.54 mg/L	296	1.25 (0.21-5.28)

Our analysis of the Ashtracker data shows that EPA's decision to omit manganese from appendix III and IV monitoring was misguided. Manganese is a neurotoxin leaking into the environment at unsafe levels at CCR units across the country, and EPA has a responsibility to ameliorate this threat.

F. Record Evidence Before EPA Shows That the Health and Environmental Benefits of Regulating Legacy Ponds Are Significant, and That the Risks Related to Legacy Ponds Will Persist Absent Strict Regulation.

As the 2014 RIA summarized, the qualitative and quantitative benefits of the CCR Rule's protections are significant. For example, "[t]he CCR final rule is expected to reduce continued human health risks and natural resource damage from current and future CCR contamination of groundwater and surface waters in neighborhoods and communities surrounding coal-fired electric utility plants."[177] In addition, "by reducing future incidences of CCR contamination of groundwater and surface waters, the CCR final rule is expected to reduce the future costs associated with groundwater and surface water cleanup (i.e., remediation and corrective action costs)."[178]

The 2014 RIA considered a number of health and environmental impacts from changes in CCR regulatory requirements.[179] EPA considered and monetized the benefits of:

- Reduced releases from disposal units, including reduced future cleanup costs, reduced future legal fees, and reduced natural resource damages;

[176] Statistics derived from mean boron and manganese concentrations for each well.
[177] RIA at 1-11.
[178] *Id.*
[179] RIA at ES-5 to ES-11.

- Reduced groundwater contamination, including avoided future groundwater remediation costs, reduced legal fees, and reduced groundwater natural resource damages;

- Reduced incidence of cancer from eating fish contaminated by CCR;

- Reduced IQ losses from children's consumption of lead and mercury in contaminated fish and reduced need for compensatory education for affected children;

- Improved recreation and aesthetic and ecological health benefits from water quality improvements; and

- Protection of threatened and endangered species, which are at risk from water pollution caused by CCR disposal unit releases, among other benefits.

The 2014 RIA also considered and acknowledged important benefits that could not be monetized, including:

- Human health benefits from reduced hazards of recreational water use and fish consumption (beyond the small categories that could be monetized);

- Reduced fear, stress, and anxiety for people living near CCR impoundments;

- Reduced dust nuisance from fugitive CCR dust;

- Avoided sediment contamination from reduced deposition of toxic pollutants;

- Reduced water treatment costs;

- Improved commercial fisheries yields and reduced fish mortality;

- Increased water-based recreation due to water quality improvements; and

- Increased property values near CCR facilities, among other benefits.[180]

Strong legacy pond regulation would extend – and expand on – the many benefits flowing from the CCR Rule.

In sum, whether legacy impoundments leak slowly or fail suddenly, "EPA has documented several damage cases that have occurred due to inactive CCR surface impoundments . . . ."[181] EPA began the coal ash rulemaking in response to the disaster at the Tennessee Valley Authority's Kingston Fossil Plant, where an active coal ash impoundment failed catastrophically, sending more than 1 billion gallons of coal ash sludge barreling into

[180] *Id.* at 6-1 to 6-12.
[181] 80 Fed. Reg. at 21,342.

homes and the surrounding environment.[182] EPA ended the rulemaking in the wake of the Dan River disaster, in which an inactive coal ash impoundment failed catastrophically.[183] To prevent more Kingston and Dan River disasters, and to address the slow-motion disasters of toxic ash from inactive impoundments leaking into surface water and groundwater, EPA must require legacy impoundments meet the statutory mandate to assure "no reasonable probability of adverse effects on health or the environment" from disposal of coal ash.[184] The significant risks related to legacy ponds will persist absent strict regulation.

IV. THE ANPRM IS UNLAWFUL AND INCONSISTENT WITH THE D.C. CIRCUIT'S *USWAG* REMAND AND RCRA'S PROTECTIVENESS STANDARD.

A. The ANPRM Fails to Respond to the D.C. Circuit's Decision Vacating and Remanding the CCR Rule's Legacy Pond Exemption.

The D.C. Circuit in *USWAG* held that EPA had acted arbitrarily and capriciously and contrary to RCRA in exempting legacy ponds from regulation.[185] It consequently vacated and remanded the provision of the CCR Rule exempting legacy ponds to EPA for further action consistent with the court's opinion.[186]

Now, more than two years later, EPA still has failed to regulate legacy ponds as required by the *USWAG* decision. EPA has instead pursued other rulemakings which have *weakened* rather than strengthened the CCR Rule.[187] The ANPRM likewise fails to regulate legacy ponds as required by *USWAG*. Instead, the ANPRM seeks additional information concerning legacy ponds, which the Agency claims will "better inform a future rulemaking."[188] The ANPRM requests input on the number and status of legacy impoundments and how such units should be regulated. It also seeks input on ways EPA may act to limit the universe of legacy ponds, either by size[189] or date,[190] or even by "reinterpret[ing] the extent of [EPA's] authority under RCRA subtitle D" – "including [by] potentially identifying an alternative basis for not regulating [legacy ponds]."[191]

EPA's information collection is a continued delay tactic. As a threshold matter, seeking ways *to avoid regulating* legacy ponds is hardly a way to comply with a court directive *to regulate* such units. And in any event, EPA does not need additional information in order to regulate legacy ponds. EPA had sufficient information to do so in 2018 and thus could – and

[182] *Id.* at 21,313.
[183] *Id.* at 21,394.
[184] 42 U.S.C. § 6944(a).
[185] 901 F.3d at 449.
[186] *Id.*
[187] *See* Earthjustice CCR Rulemaking Index.
[188] 85 Fed. Reg. at 65,017.
[189] *Id.* at 65,018 ("[S]hould there be a size limitation for legacy CCR surface impoundments?").
[190] *Id.* (proposing three definitions for "legacy CCR surface impoundment" based on whether the unit contained both CCR and liquids in 2015, 2018, or on the future date on which EPA issues a final rule regulating legacy ponds).
[191] 85 Fed. Reg. at 65,017-18.

should – have regulated legacy ponds without delay directly following the *USWAG* decision. In fact, EPA had sufficient information to regulate legacy ponds as far back as 2010 when it published the proposed CCR Rule.[192]

EPA's recent grant of an industry request to extend the ANPRM comment period by sixty days only compounds EPA's already considerable and impermissible delay and stands in stark contrast to EPA's repeated denials of public interest organizations' requests for comment period extensions for EPA's many rollbacks weakening coal ash regulations.[193]

EPA's protracted delay in regulating legacy ponds both fails to comply with the *USWAG* remand and violates RCRA's protectiveness standard. As the D.C. Circuit noted, "legacy ponds present a unique confluence of risks: They pose the same substantial threats to human health and the environment as the riskiest Coal Residuals disposal methods, compounded by diminished preventative and remediation oversight due to the absence of an onsite owner and daily monitoring."[194] There is "no gainsaying the dangers that unregulated legacy ponds present" and "relying on cleaning up [legacy pond] spills after great damage is done and harm inflicted does not sensibly address those dangers . . . [or] fulfill the EPA's statutory duty to ensure 'no reasonable probability of adverse effects' to environmental and human well-being."[195] Unless and until EPA takes action to regulate legacy ponds in compliance with *USWAG,* those sites remain inadequately regulated and so pose an extreme risk of catastrophic environmental and human harm in contravention of RCRA.

B. EPA Does Not Have the Discretion to Reinterpret the Extent of Its Authority Under RCRA Subtitle D.

With respect to EPA's question whether it has any discretion to avoid regulating legacy ponds as required by *USWAG*, no such discretion exists.[196] The D.C. Circuit's *USWAG* decision definitively resolves the question of EPA's authority in the affirmative, and EPA cannot now reinterpret the extent of its authority under RCRA subtitle D to preclude regulation of legacy ponds.

Under *Chevron, U.S.A., Inc. v. NRDC*, a court reviewing an agency's construction of a statute that it administers asks two questions. First, the court asks "whether Congress has directly spoken to the precise question at issue."[197] If and only if the answer to that question is no, the court further asks "whether the agency's answer is based on a permissible construction of the statute."[198] However, "[i]f the intent of Congress is clear, that is the end of the matter; for the

[192] *See* Section III – Extensive Evidence.
[193] Earthjustice CCR Rulemaking Index.
[194] *USWAG*, 901 F.3d at 432.
[195] *Id.* at 433 (quoting 42 U.S.C. § 6944(a)).
[196] 85 Fed. Reg. at 65,017-18.
[197] *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842 (1984).
[198] *Id.* at 843.

court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."[199]

The *USWAG* decision held that RCRA unambiguously authorizes EPA to regulate inactive impoundments, resolving the question of EPA's authority under *Chevron* Step One. As the court explained, "the statute creates a binary world: A facility is a permissible sanitary landfill, or it is an impermissible open dump. The EPA regulates both."[200] The timing or continuation of waste disposal is irrelevant:

> [A]n open dump includes any facility (other than a sanitary landfill or hazardous waste disposal facility), where solid waste still "is deposited," "is dumped," "is spilled," "is leaked," or "is placed," regardless of when it might have originally been dropped off. *See* 42 U.S.C. § 6903(3), (14). In other words, the waste in inactive impoundments "is disposed of" at a site no longer receiving new waste in just the same way that it "is disposed of" in at a site that is still operating.[201]

Hence, "RCRA is explicit that inactive sites may qualify as open dumps if they are facilities where waste 'is disposed of,' regardless of whether they are also facilities where more 'disposal' continues to occur."[202]

Significantly, this determination applies to all inactive sites without regard to their location—meaning it applies to both inactive impoundments at active sites and inactive impoundments at *inactive* sites (also known as legacy ponds).[203] EPA's authority likewise extends to all inactive impoundments without regard to whether those impoundments are located at power plants that once sold electric power to the grid or supplied it only to a single site or facility.[204] It is not the location of the impoundment, but rather the presence of disposed coal ash, that controls.

Because the Court in *USWAG* made its determination under *Chevron* Step One and found RCRA to unambiguously grant EPA authority to regulate inactive impoundments, EPA cannot

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[199] *Id.* at 842-43; *see also Sturgeon v. Frost*, 139 S. Ct. 1066, 1080 n.3 (2019) ("Because we see . . . no ambiguity as to [the statutory provision's] meaning, we cannot give deference to the Park Service's contrary construction."); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1358 (2018) ("Even under *Chevron*, we owe an agency's interpretation of the law no deference unless, after 'employing traditional tools of statutory construction,' we find ourselves unable to discern Congress's meaning.").
[200] *USWAG*, 901 F.3d at 439.
[201] *Id.* at 440.
[202] *Id.* at 442.
[203] *See id.* at 436 (declining "EPA's request to remand the challenge to the agency's authority to regulate inactive impoundments so that it can reconsider its interpretation of the statute," in part, because "EPA's statutory authority over inactive sites necessarily implicates the Environmental Petitioners' claim regarding legacy ponds.").
[204] *See* 85 Fed. Reg. at 65,018 (requesting comment on whether EPA's regulation of inactive units should be limited based on the nature of the former plant at which the inactive units are located).

now "reinterpret" its authority[205] as limited to a smaller subset of units based on "technical," "policy," or any "other" reasons.[206] "[T]he agency . . . must give effect to the unambiguously expressed intent of Congress"[207] by regulating legacy ponds and other inactive coal ash sites wherever they occur.[208]

Neither do technical, policy, or other reasons justify reduced regulation at legacy sites compared to other sites. As the D.C. Circuit explained, and as discussed more fully in Sections III – Extensive Evidence, V – Definitions, and VII – Requirements, above and below, "[t]he risks posed by legacy ponds are at least as substantial as inactive impoundments at active facilities."[209] EPA must therefore promulgate regulations that are at least as strong – and in certain ways stronger – than those applicable to other coal ash sites in order to satisfy RCRA's protectiveness standard.

C. EPA's Rule Must Consider All Required Actions that Are Technically Feasible to Address the Risks Posed by Legacy Ponds.

EPA must consider all required actions that are *technically feasible* in addressing the risks presented by legacy ponds. In *USWAG*, the D.C. Circuit made clear that RCRA Subtitle D does not allow consideration of costs in standards for CCR units. The court explained:

> Under any reasonable reading of RCRA, there is no textual commitment of authority to the EPA to consider costs in the open-dump standards. RCRA's statutory language instructs the EPA to classify a disposal site as a sanitary landfill and not an open dump only "if there is no reasonable probability of *adverse effects on*

[205] *See Chevron*, 467 U.S. at 843 n.9 ("The judiciary is the final authority on issues of statutory construction and must reject administrative constructions which are contrary to clear congressional intent. . . . If a court, employing traditional tools of statutory construction, ascertains that Congress had an intention on the precise question at issue, that intention is the law and must be given effect."); *Neal v. United States*, 516 U.S. 284, 295 (1996) ("Once we have determined a statute's meaning, we adhere to our ruling under the doctrine of stare decisis, and we assess an agency's later interpretation of the statute against that settled law."); *United States v. Mead Corp.*, 533 U.S. 218, 248-49 (2001) (Scalia, J., dissenting) ("I know of no case, in the entire history of the federal courts, in which we have allowed a judicial interpretation of a statute to be set aside by an agency – or have allowed a lower court to render an interpretation of a statute subject to correction by an agency. As recently as 1996, we rejected an attempt to do *precisely* that." (*citing Neal v. United States*, 516 U.S. 284, 294-95 (1996)).

[206] 85 Fed. Reg. at 65,018.

[207] *Chevron*, 467 U.S. at 842-43.

[208] In asking whether, in light of the *USWAG* decision, EPA has authority to reinterpret the extent of its authority, the ANPRM directs commenters to *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005). At most, *Brand X* explains that agency inconsistency is not inherently invalidating under *Chevron*, provided an agency explains its reasoning, because *Chevron* "leaves discretion provided by the ambiguities of a statute with the implementing agency." 545 U.S. at 981 (*quoting Smiley v. Citibank (S.D.), N.A.*, 517 U.S. 735, 72 (1996)). As with other case law discussing the *Chevron* standard, *Brand X* limits agency interpretation to areas of statutory ambiguities. *Id.* at 980-93. The *USWAG* decision makes clear that no such ambiguity exists as to EPA's authority to regulate legacy ponds and other inactive impoundments.

[209] *USWAG*, 901 F.3d at 433.

> *health or the environment* from disposal of solid waste at such facility." 42 U.S.C. § 6944(a) (emphasis added). There is no explicit mention of costs in section 6944; nor is there any flexible language such as "appropriate and necessary" that might allow the EPA to consider costs in its rulemaking.[210]

The court's holding applies to legacy surface impoundments and should be familiar to EPA; indeed, in its brief to the D.C. Circuit in *USWAG*, EPA argued that RCRA should be read precisely as the D.C. Circuit interpreted it.[211] EPA likewise correctly noted that, "[w]hen environmental criteria are the sole bases for the establishment of regulatory requirements, EPA cannot inject costs into the establishment of those requirements."[212]

EPA's duty is to ensure there is "no reasonable probability of adverse effects on health or the environment" from dangerous legacy impoundments,[213] and it can only do so by mandating the complete closure and clean-up of such impoundments wherever technically feasible, and as soon as technically feasible.

V. THE DEFINITION OF LEGACY CCR SURFACE IMPOUNDMENTS MUST MEET RCRA'S PROTECTIVENESS STANDARD

A. EPA's Definition of Legacy CCR Surface Impoundments Must Address the Universe of Inactive Impoundments at Inactive Plants That Pose a Reasonable Probability of Adverse Effects on Health or the Environment from the Disposal of CCR.

As discussed in Section IV, the court concluded that EPA paid "scant attention to the substantial risk of harm to human health and the environment posed by legacy ponds" and therefore rejected the 2015 CCR Rule's legacy pond exemption as arbitrary and capricious.[214] The court ordered EPA to remedy this omission, but EPA's exceedingly narrow proposed definitions of legacy surface impoundments in this ANPRM fail to cure the fatal omission.

To meet the RCRA protectiveness standard, EPA must define legacy CCR surface impoundments in a manner that addresses the known risks and damage caused by such units. EPA's current definition of CCR surface impoundment should serve as a baseline. EPA defines "CCR surface impoundment or impoundment" as "a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and

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[210] *Id.* at 448-49 (citing *Michigan v. EPA*, 135 S. Ct. 2699, 2709 (2015)).
[211] *See* Brief of Respondent EPA, *USWAG v. EPA*, Case No. 15-1219, at 60 (D.C. Cir. filed Sept. 6, 2016) (recognizing that 42 U.S.C. §§ 6944(a) and 6945(a), "[o]n their face, . . . do not allow for or even imply that costs must – or even can – be considered").
[212] *Id.* at 61 (citing *Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 457, 467-71 (2001) and *Michigan v. EPA*, 135 S. Ct. 2699, 2709 (2015)); *see also Murray Energy Corp. v. EPA*, 936 F.3d 597, 621-22 (D.C. Cir. 2019) (reiterating that a statutory mandate to develop standards "requisite to protect the public health" does not permit consideration of costs in setting those standards).
[213] 42 U.S.C. § 6944(a).
[214] *USWAG*, 901 F.3d at 432.

the unit treats, stores, or disposes of CCR."[215] The definition has two critical components: the unit must be "designed" to hold CCR and liquids, and it "treats, stores or disposes" of CCR.

It follows that a legacy CCR impoundment should be defined as a "CCR surface impoundment" (i.e., an impoundment designed to hold CCR and liquids that continues to treat, store or dispose of CCR), which is located at a power plant that ceased generating power prior to October 19, 2015. The definition must include certain high-risk impoundments, regardless of age or condition, because of the likelihood that they are causing or will cause adverse effects to health and the environment, including those located in floodplains and unstable areas and those with bases inundated by groundwater. These categories of inactive impoundments must be included in the definition of legacy impoundment in order to meet the protectiveness standard of Section 4004(a) of RCRA.

B. Subtitle D of RCRA Provides EPA with Authority to Regulate Inactive Surface Impoundments of Any Age or Condition.

1. *EPA's statutory authority to regulate all inactive solid waste impoundments is clear, and EPA has previously used this authority to regulate inactive CCR surface impoundments.*

As explained in Section IV, EPA's statutory authority under RCRA subtitle D to regulate inactive and abandoned solid waste units is clear under both EPA's and the *USWAG* court's interpretation of "disposal." With regard to the congressional intent of subtitle D's authority, EPA explained:

> Congress was clear that subtitle D was intended to specifically address the problem of abandoned leaking "open dumps" scattered across the country, "where frequently the use of the site for waste disposal is neither authorized nor supervised." H. Rep. No. 94-1491, p 37, 94th Cong., 2d Sess (1976). For example, the report described the consequences when "the City of Texarcana Arkansas/Texas, abandoned its six open dumps, in 1968" to support the need to require open dumps to upgrade or close. . . .
>
> *Consequently, subtitle D of RCRA provides clear authority to address inactive or abandoned disposal sites. The relevant provisions of RCRA subtitle D do not distinguish between "active" and "inactive" disposal units. Nor do any of the relevant provisions tie jurisdiction to the receipt or disposal of waste after a specific date.*[216]

Thus subtitle D provides clear authority to address "inactive or abandoned" surface impoundments regardless of age, and it provides EPA with authority to address such sites in

[215] 40 C.F.R. § 257.53.
[216] 80 Fed. Reg. at 21,344-45 (emphasis added).

whatever condition they are currently found (i.e., with or without standing water) as long as they can be considered "open dumps."

In addition, EPA's subtitle D authority to regulate inactive and abandoned solid waste units is not only clear, it has been exercised repeatedly by EPA, including with regard to CCR surface impoundments. EPA's original subtitle D regulations at 40 C.F.R. Part 257, Subpart A, promulgated in 1979, applied to "all solid waste disposal facilities and practices" except for eleven specific exemptions, which are not relevant to this issue.[217] Surface impoundments under Subpart A are defined as

> a facility or part of a facility that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), *that is designed to hold an accumulation of liquid wastes or wastes containing free liquids* and that is not an injection well. Examples of surface impoundments are holding storage, settling, and aeration pits, ponds, and lagoons.[218]

According to the above definition, there is no requirement for surface impoundments to currently contain liquids. Currently, Subpart A, in fact, applies to inactive CCR surface impoundments (and landfills) of any age or condition.[219]

However, the Subpart A regulations for protection of floodplains (§ 257.3-1), surface water (§ 257.3-3), and groundwater (§ 257.3-4) do not adequately address the adverse impacts caused by legacy CCR surface impoundments. The long-standing application of these regulations, nevertheless, resolves any controversy as to EPA's authority to establish such protections. It is now required of EPA to significantly strengthen protective requirements in response to the order of the court of appeals and in light of the record of substantial damage from inactive CCR impoundments.

The current Part 257, Subpart A regulations applicable to CCR legacy surface impoundments lack nearly all of the critical CCR rule requirements that specifically address the threats posed by such units. Among the absent safeguards are groundwater monitoring, corrective action, closure, post-closure, and dust control requirements. Furthermore, the 1979 Subpart A regulations fail entirely to ensure the stability of these inactive impoundments, and they contain no maintenance, inspection, or structural stability requirements. In sum, the well-documented, significant threats posed by inactive CCR impoundments are not addressed by the existing regulations.

[217] 40 C.F.R. § 257.1(c); *see also* 80 Fed. Reg. at 21,342.
[218] 40 C.F.R. § 257.2 (emphasis added).
[219] *See id.* §§ 257.3-1 to 3-4.

2. *EPA regulation of legacy surface impoundments must consider the temporal behavior of CCR leaching from impoundments.*

EPA's draft risk assessment found that peak contaminant releases from CCR surface impoundments will not occur until seventy years after waste placement.[220] Consequently, at minimum, the record supports defining a universe of legacy CCR impoundments that includes impoundments that have contained CCR for seventy years. EPA's arbitrary limits on when an impoundment is considered a "legacy impoundment," i.e., if it contains CCR and water in 2015, 2018, or sometime after July 2021, would consequently exclude a great number of older impoundments, whose hazardous constituents, including arsenic, boron, cobalt, selenium, and thallium, may be at a point of peak contaminant release.[221] These arbitrary cut-offs consequently would not meet the RCRA protectiveness standard.

3. *All three of EPA's proposed definitions of legacy CCR impoundments fail to meet the RCRA protectiveness standard because they condition regulation of legacy impoundments on arbitrary dates on which the impoundments "contained both CCR and liquids."*

EPA's three proposed options for the definition of legacy surface impoundments are identical except for the time period determining the date when such impoundments last contained "both CCR and liquids."[222] Specifically, EPA proposes that a legacy surface impoundment must be located at a power plant that ceased generating power prior to October 19, 2015, and contain both CCR and liquids on:

(1) October 19, 2015 (the effective date of the CCR rule);

(2) October 15, 2018 (the date the Court issued its mandate for the August 21, 2018 court decision); or

(3) An unspecified date post-July 2021, defined as the date on which the agency issues its final rule.[223]

All of these options would result in a rule far too narrow in scope to address the ongoing harm caused by legacy CCR impoundments. Therefore, all fail to meet the RCRA protectiveness standard. The Court held in *USWAG* that EPA has the legal authority to regulate a far greater universe of inactive impoundments where CCR is disposed beyond those proposed in the above three options.[224] Strong evidence in the record, described in Section III, shows that legacy

[220] *See* Office of Solid Waste & Emergency Response, EPA, Human and Ecological Risk Assessment of Coal Combustion Wastes (draft), Docket ID No. EPA-HQ-RCRA-2009-0640-0002, at 4-11 to 4-12, Table 4-7 (Apr. 2010); *see also* Campbell Expert Report at 4.
[221] *Id.*
[222] 85 Fed. Reg. at 65,018.
[223] EPA stated in the Spring 2020 Unified Agenda of Regulatory and Deregulatory Actions that a Notice of Proposed Rulemaking for legacy surface impoundments would not be published in the federal register until July 2021. *See* EPA/OLEM, RIN 2050-AH14, https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202004&RIN=2050-AH14.
[224] *See* Section VII.

impoundments that contained both CCR and liquids at much earlier dates than EPA selected in the above options are causing adverse impacts to health or the environment. EPA's failure to consider the adverse impacts of such impoundments, as well as the reasonable probability of such effects, violates its statutory duty under § 4004(a) of RCRA.

4. *EPA's definitions of legacy CCR surface impoundments, which significantly limit the applicability of the protective requirements, are not supported by the record and are therefore arbitrary and capricious.*

In the ANPRM, EPA limits the applicability of protective safeguards that would be applied to legacy surface impoundments by artificially constraining the universe of impoundments by the date the impoundment last contained "CCR and liquids." Any such limits must be rational and based on evidence in the record. EPA provides no rationale for the dates proposed in EPA's three options, and there is none that can support the constraints. The dates selected by EPA appear to have been chosen for the convenience of the coal power industry and are unrelated to the risk posed by legacy impoundments. Because these arbitrary dates significantly limit the universe of legacy impoundments, the proposed definitions lower the costs to owners and operators. Defining a smaller universe based on cost, however, is impermissible under RCRA.[225]

Furthermore, EPA's proposed definition of legacy CCR impoundment requiring that the impoundment contain "both CCR and liquids" on a date certain is unclear. Setting aside Commenters' assertion that this is an illegal limiting condition, the requirement itself is impermissibly vague. While impoundments that currently contain visible, standing water would fit this definition, EPA must include additional dangerous legacy impoundments within the definition, as explained below, to meet the RCRA protectiveness standard.

C. EPA Must Define Legacy Surface Impoundment to Include Inactive Impoundments That Pose Unreasonable Risks.

1. *EPA must extend protections to all legacy CCR surface impoundments whose bases are in contact with groundwater.*

Many CCR surface impoundments were built with their bases in contact with surface water or groundwater. Impoundments in contact with surface water would include all the impoundments constructed by damming streams in valleys. These include numerous impoundments in the southeast, such as the impoundments at Alabama Power's Plant Miller and Plant Gorgas in Alabama; impoundments at Duke Energy's Mayo, Roxboro, Asheville, Belews Creek, Cliffside, Allen, Marshall, and Buck Plants in North Carolina; and impoundments at Dominion Energy's Bremo and Possum Point Plants in Virginia. An even larger number of impoundments sit with their bases in constant or intermittent contact with the underlying groundwater. This set of impoundments is discussed in the attached expert report of Steve Campbell.[226] In fact, pursuant to the demonstration requirement of § 257.60(c)(1), utilities certified that more than half of the regulated CCR impoundments have bases within five feet of

[225] *USWAG*, 901 F.3d at 448-49 (citing *Michigan v. EPA*, 135 S. Ct. 2699, 2709 (2015)).
[226] Campbell Expert Report at 6-8.

groundwater.[227] Consequently, one can extrapolate that many legacy surface impoundments have intermittent, recurring, or sustained hydraulic connection between the base of the unlined CCR impoundment and the uppermost aquifer. Many impoundments that store CCR in contact with groundwater or buried streams may no longer have standing water at their surface. These impoundments, nevertheless, "contain" water, as there is clearly water above the base of the impoundment. Such water exists above the base of the surface impoundment by design.

The record clearly demonstrates the need to capture these CCR surface impoundments in the definition of legacy impoundment. When the base of an impoundment is in contact with water, there is a direct pathway for CCR contaminants to enter the groundwater.[228] Further, the hydraulic head associated with surface impoundments (even partially submerged impoundments) "promotes rapid leaching of contaminants into neighboring groundwater," according to EPA.[229] The groundwater monitoring data posted by the large universe of regulated impoundments pursuant to the CCR Rule show the serious damage from such releases: ninety-two percent of the industry's coal ash pits are leaking toxic contaminants into groundwater above federal health standards, and at least half of these impoundments are known to have a unit bases within five feet of the groundwater.[230] Unless EPA captures these impoundments in the definition of legacy impoundment, the definition will fail to meet the RCRA protectiveness standard.

In addition to the heightened risk of leaching of hazardous substances from impoundments in contact with groundwater, such impoundments also pose an increased risk of catastrophic collapse. As explained in the expert report of Gordon Johnson, CCRs that have been placed hydraulically continue to present a stability concern as long as the CCRs remain saturated.[231] This is because the CCRs will behave as a fluid. The massive TVA Kingston spill is a prime example of a CCR impoundment that was destabilized by liquefaction, brought on by the presence of liquid at the base of the impoundment (approximately sixty feet below the surface of

[227] Of all 522 surface impoundments listed in an EPA Part A memorandum, 362 (or seventy percent) are not listed as affirmatively passing the aquifer location restriction. *See* Part A Rule, Data for RIA Exhibits 2-1-A, B, and C, Docket ID No. EPA-HQ-OLEM-2019-0172-0044 (Jan. 2020). Of the 353 impoundments listed as passing or failing the aquifer location restriction, 193 (or fifty-four percent) are listed as failing the restriction. *Id.*; *see also* Earthjustice, Mapping the Coal Ash Contamination, https://earthjustice.org/features/map-coal-ash-contaminated-sites (last updated Oct. 6, 2020) (of the 426 applicable surface impoundments, utilities failed to post aquifer restriction location demonstrations for 55 units, posted non-compliance demonstrations for 200 units, and posted 171 compliance demonstrations, for a total of 255, or sixty percent, in non-compliance).
[228] Campbell Expert Report at 6-8.
[229] 80 Fed. Reg. at 21,328.
[230] *See* Environmental Integrity Project & Earthjustice, Coal's Poisonous Legacy: Groundwater Contaminated by Coal Ash Across the U.S., tbl.2 (Mar. 2, 2019, rev. July 11, 2019); Earthjustice, Mapping the Coal Ash Contamination, https://earthjustice.org/features/map-coal-ash-contaminated-sites (last updated Oct. 6, 2020).
[231] Burgess Envtl. Report at 6.

the impoundment). Another example of water destabilizing an otherwise dry embankment of CCR occurred in Forward Township, Pennsylvania, on January 25, 2005.[232]

2. *EPA must extend protections to all legacy CCR surface impoundments located in floodplains in order to meet the RCRA protectiveness standard.*

EPA's proposed definition must include all inactive CCR surface impoundments that are located in floodplains. These impoundments are likely to be in sustained or intermittent contact with groundwater. Even if this is not the case, their location in the floodplain makes it reasonably likely that they will be inundated with water. After such inundation, releases of hazardous contaminants from the CCR impoundment are likely to occur. Therefore, there is a reasonable probability that continued storage of CCR in inactive impoundments in the floodplain will result in adverse effects to health or the environment.[233]

Widespread evidence of environmental damage from CCR impoundments demonstrates the necessity of permanent isolation of the waste from water and indicates that unstable locations such as floodplains are not appropriate locations for wastes to be stored and disposed.[234] Failure to isolate CCR from water results in leaching of contaminants and the formation of leachate. According to EPA, leachate "includes liquid, including any suspended or dissolved constituents in the liquid, that has percolated through or drained from waste or other materials . . . , or that passes through the containment structure (e.g., bottom, dikes, berms) of a surface impoundment."[235] If released to soils, groundwater, or surface water, coal ash leachate can impair and degrade soil and/or water quality and the environment with hazardous constituents.[236]

Surface impoundments constructed on floodplains are located on highly unstable locations due to active hydrologic and geomorphic processes that endanger the stability of facilities.[237] There are currently at least twenty-nine potential legacy impoundments, or about half of the preliminary universe identified, that are partially or fully within the area of inundation of the 100-year flood.[238] Locating impoundments within the 100-year floodplain is unacceptable waste management and a practice that will facilitate contamination of water and have potentially disastrous results.[239] Storm events will eventually create flood conditions that will overtop the berms and increase the potential for catastrophic release of wastes.

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[232] U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, Health Consultation: Coal Fly Ash Landslide, Forward Township, Allegheny County, Pennsylvania, (June 1, 2006), https://www.atsdr.cdc.gov/hac/pha/coalflyashlandslide/coalflyashlandslidehc060106.pdf.
[233] *See* Campbell Expert Report at 8-9; Burgess Envtl. Report at 3-4, 7.
[234] *See, e.g.*, Geo-Hydro Inc., Mark A. Hutson, P.G., Responses to EPA Proposed Rules on: Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure Part B: Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure, at 3 (Apr. 15, 2020) ("Hutson Part B Expert Report") (attached).
[235] EPA, Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67,838, 67,847 (Nov. 3, 2015) (40 C.F.R. Part 423).
[236] *See* Proposed CCR Rule, 75 Fed. Reg. 35,128, 35,139-42 (June 21, 2010).
[237] *See* Hutson Part B Expert Report at 4.
[238] Section III.C.4 – Extensive Evidence.
[239] *See* Hutson Part B Expert Report at 4.

Releases from inactive surface impoundment in floodplains are also likely because river channels are not stationary features. Lateral and/or downstream channel migration or sudden switches of the channel location, likely initiated during a flood event, will impinge on and undercut containment structures.[240] The likelihood of CCR releases grows when utilities abandon these impoundments and cease inspection and maintenance of the structures.

Since sites located on active floodplains are subject to hydrologic and geomorphic processes that, over time, damage impoundments and eventually cause catastrophic releases of stored wastes, EPA should apply protective regulations to all legacy CCR impoundments in the floodplains that still contain CCR. Rising water elevations caused by even minor high water events will re-wet CCR contained in the inactive impoundment and renew production of leachate with each inundation of water.

Hydrologic damage to CCR impoundments located on floodplains occurred in September 2018 during the aftermath of Hurricane Florence. Rising floodwaters of the Cape Fear River flowed through active and inactive ash impoundments and released an unknown quantity of ash into the river at Duke Energy's L.V. Sutton Steam Plant in Wilmington, North Carolina.[241] Similarly, hurricane flood waters covered three inactive CCR impoundments at Duke's shuttered H.F. Lee Steam Station in Goldsboro, North Carolina, resulting in releases of ash to the Neuse River.[242]

In addition, recent data from bottom sediments collected in Sutton Lake reveal that earlier storm events have likely resulted in similar releases from flooded or breached CCR impoundments and that these releases are having adverse impacts.[243] Sampling of lake sediments in 2015 and 2018 provide evidence indicating the presence of coal ash solids in the bottom sediments of Sutton Lake. The concentrations of coal ash contaminants in the lake's sediments exceed ecological screening standards for freshwater lakes. Further, the study found that ash contaminants in bottom sediments mobilize into the lake's ecological system. Lastly, the presence of contaminated sediments in both 2015 and 2018 indicate that unmonitored coal ash spills may be more common than recognized for Lake Sutton and other lakes near power plants in areas susceptible to hurricane and storm events.

Further, detailed examination of CCR surface impoundments during their closure process in Georgia and Alabama by expert Mark Hutson[244] has brought to light significant threats posed by numerous impoundments located in the floodplains. For example:

(1) **Georgia Power's Plant Wansley**: Georgia Power's Closure Plan proposes to close the unlined impoundment AP-1 in place on the floodplain of a perennial creek where

[240] *See* Burgess Envtl. Report at 4 and Hutson Part B Expert Report.
[241] "Flooding problems worsen for Duke Energy at Lee, Sutton plants," John Downey, Charlotte Business Journal (Sept. 20, 2018), https://www.bizjournals.com/charlotte/news/2018/09/20/flooding-problems-worsen-for-duke-energy-at-lee.html.
[242] *Id.*
[243] Vengosh, Avner *et al.*, Evidence for unmonitored coal ash spills in Sutton Lake, North Carolina: Implications for contamination of lake ecosystems, Science of the Total Environment, Science of the Total Environment, 686 (2019), 1090-1103 (attached).
[244] *See generally* Hutson Part B Expert Report.

the disposed waste will be subjected to re-wetting and erosion during high water events.[245] The bottom of the ash is located less than five feet above the uppermost natural water table. In fact, the uppermost natural water table is above the bottom of the ash within AP-1 and will continue to be above that level post-closure. The bottom of the ash impoundment is and would remain unlined under the closure plan. Lack of a bottom liner, together with the depth of the water table in relation to the depth of coal ash in AP-1 will result in coal ash remaining submerged in groundwater post-closure, degrading groundwater quality in perpetuity.

(2) **Alabama Power's Plant Barry**: The Plant Barry Ash Pond is a 597-acre basin sited on low-lying wetland located within a meander loop on the Mobile River and within the Mobile-Tensaw River Bottomlands Natural Landmark.[246] The Amended Closure Plan indicates that the Barry Ash Pond contains approximately 21,700,000 cubic yards of CCR.[247] The location of the Plant Barry Ash Pond on the floodplain of a meandering river creates questions about the long-term stability and permanence of any facility, but it is an especially poor location for what is proposed to be a permanent waste disposal facility. In addition to continuing contamination of groundwater, the location of the Barry Ash Pond in lowlands along the Mobile River threatens human health and the environment with catastrophic release of the 21,700,000 cubic yards of CCR. Over the long term, any wastes left in place on the floodplain will certainly be subject to flooding and/or release by the meandering river system.

The long-term significant benefits of removing legacy coal ash from floodplains is illustrated by the avoided disaster at Santee Cooper's Grainger plant. In 2018, the flood waters of Hurricane Florence inundated the long-closed coal ash lagoon at Santee Cooper's closed Grainger facility on the banks of the Waccamaw River in Conway, South Carolina, near the coast. That lagoon had contained over 1 million tons of coal ash. However, due to a 2013 settlement of state and federal clean water litigation brought by citizens groups, Santee Cooper had excavated all the coal ash from that old impoundment, thus avoiding what could have been one of South Carolina's worst environmental disasters. Santee Cooper and state authorities avoided further catastrophe by narrowly preventing the flood waters from inundating a second lagoon, from which all the coal ash had not yet been removed.[248]

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[245] *See id.* at 8 & n.11 (citing Geo-Hydro, Inc., 2019a, Review of Closure Permit Application and Other Pertinent Materials, Plant Wansley Ash Pond 1, prepared for Southern Environmental Law Center, July 26, 2019).
[246] *Id.* at 9 & n.17 (citing Geo-Hydro, Inc., 2020, Review of Closure Permit Application and Other Pertinent Materials, Plant Barry Ash Pond, prepared for Southern Environmental Law Center, February 11, 2020).
[247] *Id.* at 9 & n.18 (citing Alabama Power, 2019, Amended Closure Plan For Ash Pond, Plant Barry, Alabama Power Company, Bucks, Alabama, July 2019).
[248] Charles D. Perry, Santee Cooper clears coal ash from ponds near river bank, MyHorryNews (May 10, 2019), https://www.myhorrynews.com/news/local/horry_county/santee-cooper-clears-coal-ash-from-ponds-near-river-bank/article_f28e1d08-7328-11e9-bd5d-b7dc0fa61ef4.html; Thad Moore, Flooded SC river within inches of spilling into coal ash pit with 200,000 tons of waste, Post and Courier (Sept. 25,

No amount of hydrogeologic characterization will render the active floodplain along a meandering river an acceptable location for permanent disposal of a utility's waste. River channels are not stationary features, and lateral migration or avulsion of the channel will eventually impinge on and undercut containment structures. Risks of leakage through alluvial sediments is high, and hydrologic and geomorphic processes create conditions are unstable over the long term.

3. *EPA must extend protections to all legacy CCR surface impoundments that are located in unstable areas in order to meet the RCRA protectiveness standard.*

Similarly, legacy CCR impoundments located in unstable areas present unreasonable risk of adverse effects on health and the environment. Surface impoundments constructed on unstable locations due to active hydrologic and geomorphic processes will endanger the stability of facilities.[249] For example, at Georgia Power's Plant Hammond, Ash Pond-3 (AP-3) is an unlined 25-acre impoundment containing an estimated volume of 1,108,000 cubic yards of CCR, some of which is located below the elevation of the water table.[250] Available information contained in the impoundment's history of construction acknowledges leakage of approximately 1,000,000 gallons per day from the impoundment, which was identified the month after the impoundment was placed into service in 1977.[251] The unidentified features that caused the seepage were reportedly repaired sometime following discovery of the leak. The impoundment was placed back into service, with water levels inside the pond being held as low as possible until the pond was converted to a dry ash disposal area in the early 1980s. Information submitted to EPA in 2010 indicates that a sinkhole investigation at AP-3 had been conducted and recommendations were submitted, but no evidence of subsequent sinkhole repair, investigation of the full nature and extent of subsurface geological features, or final disposition of the issue had been documented.[252] The 2010 disclosure also reports that "low to very high permeability measurements in materials below the dike, including solution cavities, were encountered during coring operations" at AP-3.[253]

2018), https://www.postandcourier.com/news/flooded-sc-river-within-inches-of-spilling-into-coal-ash-pit-with-200-000-tons/article_b32ab830-c0c0-11e8-9f36-c3a9518cf2dd.html; Amanda Kinseth, Santee Cooper removes last of coal ash stored in coal ash ponds in Conway, WPDE (May 6, 2019), https://wpde.com/news/local/santee-cooper-removes-last-of-coal-ash-stored-in-coal-ash-ponds-in-conway.

[249] *See* Hutson Part B Expert Report at 4; *see also* Burgess Envtl. Report at 3-4.

[250] Hutson Part B Expert Report at 8 & n.13 (citing Stantec, 2018a, Permit Application (Part A), AP-3 – Inactive Surface Impoundment, Plant Hammond, Floyd County, Georgia, November, 2018).

[251] *Id.* at 8-9 & nn.13-15 (citing Stantec, 2018b, History of Construction, 40 C.F.R. 257.100(e)(3)(iv), Plant Hammond Ash Pond 3 (AP-3), April, 2018; Geo-Hydro, Inc., 2019b, Review of Closure Permit Application and Other Pertinent Materials, Plant Hammond Ash Pond AP-3, prepared for Southern Environmental Law Center, July 29, 2019).

[252] *Id.* at 9 & n.15 (citing AMEC, 2010, Report of Safety Assessment, Coal Combustion Surface Impoundments, Georgia Power, Plant Hammond, Rome Georgia, AMEC Project No. 3-2106-0174.0500, December 2010).

[253] *Id.*

Information provided to EPA about past leakage from AP-3 and its apparent cause indicates that the structural stability and ability of the closed AP-3 to contain coal ash and its associated contaminants, in perpetuity, is seriously in question. If a sinkhole opened below the impoundment in the past, it is likely do so again in the future.

D. EPA Must Include in Its Definition of Legacy CCR Surface Impoundments Those Inactive Impoundments That Have Not Closed According to the Requirements of the CCR Rule.

EPA does not address in the ANPRM the threat posed by inactive surface impoundments that have not closed in a manner consistent with the requirements of the CCR rule at § 257.102(d). In particular, any inactive impoundment without a cover system equivalent to that required by the CCR rule and/or that still contains liquids poses the reasonable likelihood of adverse effects on health and the environment in violation of the RCRA protectiveness standard.[254] Impoundments without sufficient covers will be subject to precipitation that will inundate the waste as well as potential run-on.[255] Inactive impoundments that have closed in place but still contain liquids are likely to leach hazardous contaminants in perpetuity.

In the preamble to the 2015 CCR rule, EPA discusses the necessity of regulating "inactive" CCR impoundments at active facilities. EPA proposed to regulate "inactive" surface impoundments that contain both CCR and water but had not completed closure of the surface impoundment before the effective date. To distinguish between "inactive" units that EPA would regulate and those "closed" units it would not, EPA stated, "a 'closed' surface impoundment would no longer contain water, although it may continue to contain CCR (or other wastes), *and would be capped* or otherwise maintained."[256] EPA concluded that "the final rule does not impose any requirements on any CCR surface impoundments that have in fact 'closed' before the rule's effective date – *i.e.,* those *that no longer contain water and can no longer impound liquid*."[257]

Legacy surface impoundments that have not closed, lack an adequate cap, and can and do still impound liquid unequivocally pose unacceptable risk.[258] In light of the substantial evidence in the record, originating from industry monitoring data at many hundreds of CCR impoundments and landfills, it is clear that these types of sites are irrefutably part of the waste disposal problem that RCRA was intended to address. Releases from such sites have contaminated groundwater with CCR contaminants across the nation.

[254] *See, e.g.*, Section III – Extensive Evidence.
[255] *See* Campbell Expert Report at 5-6, 10.
[256] 80 Fed. Reg. at 21,343 (emphasis added).
[257] *Id.* (emphasis added).
[258] *See* Campbell Expert Report at 5-10.

E. EPA May Not Lawfully Include an "Innocent Landowner" Exemption from RCRA Regulation of Legacy Coal Ash Impoundments.

1. *An "innocent owner" exemption would be unlawful.*

EPA may not include in its definition of legacy coal ash impoundments regulated by the CCR Rule an exemption for so-called "innocent landowners." Unlike the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), to which Congress expressly added an "innocent landowner" defense to liability for cleanup costs,[259] no such exemption from regulation is authorized under RCRA, as noted by the D.C. Circuit in *USWAG*.[260] Rather, EPA is required under RCRA Subtitle D to regulate all coal ash impoundments where waste "is disposed of", regardless of the current ownership of the property or whether waste is still being actively deposited there.[261]

That RCRA and CERCLA would have different legal requirements is not surprising; Congress enacted the two statutes with different purposes in mind. "Congress enacted CERCLA with two principal goals in mind – to facilitate the cleanup of potentially dangerous hazardous waste sites and to force polluters to pay the costs associated with their pollution."[262] Thus, CERCLA's primary purpose is to expedite the cleanup of hazardous waste contamination that has already occurred, allocate liability for the costs of clean-ups, and give certain parties the right to recover cleanup costs from those parties responsible for the polluted sites.[263] By contrast, the primary goal of RCRA is preventing future contamination. In enacting RCRA, Congress instructed EPA to issue regulations for managing hazardous and non-hazardous solid wastes.[264] Congress tasked EPA with regulating solid waste facilities so that they do not cause future harm, as a facility can be classified as a sanitary landfill only if there is "no reasonable probability of adverse effects on health or the environment."[265] Regulation of *all* legacy coal ash impoundments, regardless of current ownership, is consistent with RCRA's goal of preventing harm, because, as discussed throughout these comments, absent federal regulation, legacy coal ash impoundments will continue to have adverse effects on human health and the environment.[266]

In fact, the concern that EPA now raises in the legacy pond ANPRM for seeking to exclude so-called "innocent landowners" of legacy coal ash impoundments from CCR Rule regulation is inconsistent with the D.C. Circuit's decision requiring EPA to regulate legacy sites. Namely, EPA states in the legacy pond ANPRM a "concern that the present owner of the land on which an inactive site was located might have no connection (other than present ownership of the

[259] 42 U.S.C. § 9601(35)(A).
[260] *See USWAG*, 901 F.3d at 442 ("RCRA's distinct language comes with no such limiting textual indicia.").
[261] *See id.* at 440-42.
[262] *United States v. CDMG Realty Co.*, 96 F.3d 706, 717 (3d Cir. 1996) (citations omitted); *see also Carson Harbor, Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 880 (9th Cir. 2001).
[263] *See* 42 U.S.C. §§ 9604, 9607.
[264] *Id.* §§ 6922-24, 6942, 6944.
[265] *Id.* § 6944(a).
[266] *See also USWAG*, 901 F.3d at 432-34 (describing the risks posed by legacy coal ash impoundments and holding that EPA must regulate them).

land) with the prior disposal activities."[267] However, the D.C. Circuit in *USWAG* rejected EPA's purported lack of information about the owners of legacy sites as a legitimate basis for not regulating them, noting that EPA already has extensive evidence about legacy coal ash impoundments[268] and that legacy coal ash impoundments pose substantial risks to human health and the environment that RCRA requires EPA to try to prevent through Subtitle D regulations.[269] Further, in holding that EPA has authority under RCRA to regulate inactive impoundments, the D.C. Circuit found that it was the continuing presence of disposed-of waste that triggers RCRA regulation.[270] Adding an "innocent landowner" exemption to the definition of legacy coal ash impoundments would be contrary to these holdings.

2. *EPA should use available legal tools to address legacy coal ash impoundment sites where ownership changed since the impoundments became inactive.*

Instead of seeking to create unlawful exemptions to the CCR Rule, EPA should use the legal tools that it already has available to address any legitimate issues with CCR Rule compliance that may exist for legacy coal ash impoundment sites that have changed ownership since becoming inactive.

For many (if not most) legacy sites at which ownership has changed, the current owner is likely to be a responsible party that is fully capable of complying with CCR Rule requirements without any special assistance. Many legacy coal ash impoundment sites, particularly those that have retired in the last fifteen years, are owned by a successor utility company if they are not still owned by the utility that operated a power plant at the site while the legacy coal ash impoundments were active. For sites where ownership has transferred away from a utility company, particularly in recent years, many of those transactions likely occurred with companies or public entities seeking to redevelop the site, with responsibility for remediation, cleanup liabilities, and other ongoing environmental obligations likely addressed contractually as part of those transactions. Such redevelopment entities likely engaged in due diligence of potential cleanup liabilities and other environmental obligations prior to purchasing their sites, and thus should already be in a position to comply with the CCR Rule at their sites. Whether the current owner of a site is a successor utility company or a redevelopment entity, such owners cannot be considered "innocent" and should not need any special assistance to comply with the CCR Rule's requirements.[271]

Accordingly, the number of legacy coal ash impoundment sites whose current owners are not readily capable of complying with CCR Rule requirements is likely to be small (if they exist at all). To the extent EPA identifies any legacy sites whose current owners are not in a position

[267] 85 Fed. Reg. at 65,017.
[268] *See* Section III – Extensive Evidence.
[269] *See USWAG*, 901 F.3d at 433-34.
[270] *See id.* at 440-42; *see also* Section IV – Inconsistent with *USWAG*.
[271] As discussed below, EPA should require legacy coal ash impoundments to comply with all of the requirements of the 2015 CCR Rule, as well as additional protections that EPA should establish to address the unique risks posed by legacy coal ash impoundments. *See* Section VII – Requirements. This is true regardless of the current ownership status of the impoundment.

to readily comply with the CCR Rule, EPA has other legal tools available to ensure that CCR Rule requirements are met. First, in issuing the ICR for this rulemaking that is discussed above,[272] EPA should require that all utilities responding to the ICR provide information concerning all legacy coal ash impoundments that either they (or a predecessor company) once owned but no longer own, including information about the current ownership of the site. Utilities should also be required to provide for their formerly-owned sites all of the other information concerning CCR Rule requirements the ICR will request from utilities for the sites they continue to own. These utilities should still have this information about legacy sites they no longer own, and requiring them to provide the information is an important step that EPA should take in the ICR to address any concerns that the current owners of any site may no longer have all of the relevant information in their possession to readily comply with CCR Rule requirements.

Second, EPA has additional legal authorities under RCRA and CERCLA to address any sites where the current owners are not capable of complying with CCR Rule requirements. For example, some legacy sites may have owners who lack sufficient resources to comply with the CCR Rule, such as redevelopment companies that have not been adequately capitalized to address cleanup liabilities. Such sites are properly dealt with on a case-by-case basis through enforcement proceedings that include as parties not only their current owners, but also past contributors of coal ash waste to the sites. To the extent that waste disposal conditions at any sites threaten imminent harm to human health or the environment, EPA has ample authority under the imminent and substantial endangerment provisions of RCRA to address past contributors.[273] Similarly, under CERCLA, EPA has ample authority to seek cleanup in a manner that appropriately allocates costs, with current owners having the ability to seek contributions from past owners who may be responsible parties.[274]

These existing legal authorities, plus any further authorities that may be available to state agencies to provide assistance, are more than adequate to address any current owners who may not have sufficient information or resources to meet CCR Rule requirements. Moreover, as discussed above, any such cases where current owners have difficulty meeting any CCR Rule requirements are likely the exception and not representative of the vast majority of sites, and therefore they are not a legitimate basis for weakening the CCR Rule's requirements as to the vast majority of legacy sites that are readily capable of complying with CCR Rule requirements.

VI. EPA MUST PRESCRIBE TIMEFRAMES FOR COMING INTO COMPLIANCE WITH REGULATIONS THAT ENSURE NO REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HEALTH OR THE ENVIRONMENT.

In light of the threats posed by leaking and unstable legacy CCR impoundments, it is essential that such impoundments be required to comply with the CCR Rule as soon as feasible to prevent adverse effects on health and the environment. The immediate and time-sensitive goals of the legacy pond regulations must include ascertaining the structural stability of legacy impoundments, determining adverse impacts to groundwater and the need for corrective action and moving the impoundments to safe closure and cleanup as quickly as possible. Requirements

[272] *See* Section III – Extensive Evidence.
[273] *See* 42 U.S.C. § 6973.
[274] *See id.* §§ 9604, 9607, 9613.

should require timely completion of these actions, while affording meaningful transparency and public participation opportunities to nearby communities and regulatory agencies.

For several reasons, the timeframes established in the 2015 CCR Rule are generally too lengthy and thus inappropriate for legacy impoundments.[275] First, owners of legacy impoundments have already had many years of notice that EPA would apply protective requirements for these units. At the very least, owners have been on notice since the order of the court of appeals in August 2018 that EPA would promulgate requirements. Secondly, most owners of legacy ponds have a history of complying with identical requirements at active CCR surface impoundments that they own and operate, and thus they are likely to have the institutional experience, relationship with contractors, and expertise to meet similar (or identical) requirements efficiently for their legacy impoundments. Consequently, these owners would not need the long compliance periods initially provided by the 2015 CCR Rule. Third, EPA is now aware of the seriousness of the groundwater contamination caused by CCR impoundments, as a result of the wealth of groundwater monitoring data posted by industry since 2018. Therefore, regulations that delay implementation of monitoring, corrective action, and closure would violate the RCRA protectiveness standard, since adverse effects are likely currently occurring at all CCR legacy impoundments.

The following table provides recommended timeframes for compliance with CCR Rule provisions.

Table 8. *Implementation timeframes for the minimum criteria for existing CCR surface impoundments*

Requirement	**2015 Implementation timeframe (# of months after publication of rule)**	**Recommended timeframe for legacy units (# of months after rule publication)**	**Description of requirement to be completed**
Location Restrictions (§§ 257.60–.64)	42 months	6 months	—Complete demonstration for placement above the uppermost aquifer. —Complete demonstrations for wetlands, fault areas, seismic impact zones, and unstable areas.
Design Criteria (§ 257.71)	18 months	6 months	—Document whether CCR unit is either a lined or unlined CCR surface impoundment.
Structural Integrity (§ 257.73)	8 months 18 months	6 months 9 months	—Install permanent marker. —Compile a history of construction, complete initial hazard potential classification assessment, initial

[275] *See* Burgess Envtl. Report at 4-5.

	24 months	9 months	structural stability assessment, and initial safety factor assessment. —Prepare emergency action plan.
Air Criteria (§ 257.80)	6 months	6 months	—Prepare fugitive dust control plan.
Hydrologic and Hydraulic Capacity (§ 257.82)	18 months	6 months	—Prepare initial inflow design flood control system plan.
Inspections (§ 257.83)	6 months 6 months 9 months	3 months 3 months 6 months	—Initiate weekly inspections of the CCR unit. —Initiate monthly monitoring of CCR unit instrumentation. —Complete the initial annual inspection of the CCR unit.
Groundwater Monitoring and Corrective Action (§§ 257.90–.98)	30 months	18 months	—Install the groundwater monitoring system; develop the groundwater sampling and analysis program; initiate the detection monitoring program; and begin evaluating the groundwater monitoring data for statistically significant increases over background levels.
Closure and Post-Closure Care (§§ 257.103–.104)	18 months	9 months	—Prepare written closure and post-closure care plans.
Recordkeeping, Notification, and Internet Requirements (§§ 257.105–.107)	6 months	3 months	—Conduct required recordkeeping. —Provide required notifications. —Establish CCR website.

VII. THE REQUIREMENTS FOR LEGACY CCR IMPOUNDMENTS MUST INCLUDE ALL THE MANDATES OF THE 2015 CCR RULE, AS WELL AS ADDITIONAL PROTECTIONS.

Given the ongoing, potentially growing risks created by the failure to monitor, remediate, and properly close legacy CCR surface impoundments, EPA should impose all requirements of the 2015 CCR Rule on such impoundments. As explained in detail herein, available evidence provides no basis to exclude legacy ash ponds from those requirements. Indeed, because legacy impoundments pose unique and, in some cases, greater risks than operating impoundments or inactive impoundments at operating power plants, additional protections must be established for legacy impoundments. Such protections include, but are not limited to:

- immediate identification of potential receptors, testing of drinking water sources, and replacement of contaminated water;
- testing of adjacent surface waters;
- enhanced security measures;
- more frequent inspections;
- a prohibition on closure in place of impoundments located in unsafe, unsuitable locations;
- expanded CCR dust monitoring;
- continuation of the post-closure care period until compliance with the groundwater protection standards has been achieved without any active remediation measures; and
- financial responsibility requirements for clean-up, closure, and post-closure of impoundments.

These protections are necessary to meet RCRA's Section 4004(a) protectiveness standard.

A. All Requirements of the 2015 CCR Rule Must Be Applied to Legacy CCR Impoundments.

1. *All requirements of the 2015 CCR Rule, including history of construction, structural stability assessments, safety factor assessments, liner status, and location restrictions must be required for legacy CCR impoundments.*

As explained in Section IV, the D.C. Circuit's decision in *USWAG* vacates the 2015 CCR Rule's exemption of legacy CCR impoundments and therefore clarifies that all requirements that apply to existing CCR surface impoundments must also apply to legacy impoundments. Accordingly, it is settled law that all provisions that apply to existing CCR surface impoundments under Part 257 must also apply to legacy CCR surface impoundments – at a minimum, those legacy impoundments that continued to contain both CCR and liquids at the time of the rule's promulgation in 2015.

Failing to require legacy CCR surface impoundments to comply with all mandates of the CCR rule that apply to existing (active or inactive) impoundments is, as the Court determined in *USWAG*, impermissible and unreasonable because the risks posed by such impoundments are equal to or greater than the risks posed at inactive or active CCR surface impoundments at operating power plants. As the D.C. Circuit explained, "legacy ponds present a unique confluence of risks: They pose the same substantial threats to human health and the environment as the riskier Coal Residual disposal methods, compounded by diminished preventative and remediation oversight due to the absence of an onsite owner and daily monitoring."[276] All provisions determined to be required for CCR surface impoundments at active power plants (or those that were operating as of the effective date of the rule), are, therefore, just as necessary – if not more so – at legacy impoundments to ensure satisfaction of RCRA's Section 4004(a) protectiveness standard.

[276] *USWAG*, 901 F.3d at 432.

There are no exceptions. EPA suggests that several provisions of the 2015 CCR Rule – including mandates to provide design and construction information for the impoundment and to demonstrate whether the impoundment complies with location restrictions – "may not be necessary to apply" to legacy impoundments.[277] To the contrary, those provisions are absolutely necessary. The history of construction, required at 40 C.F.R. § 257.73(c)(1), directs owners and operators to compile a history of construction of the impoundment, which includes such critical information as the location of the CCR unit, a "description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed," the "type, size, range, and physical and engineering properties of the materials used in constructing each zone or state of the CCR unit," ". . . detailed dimensional drawings of the CCR unit," " . . any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation," " . . . any record or knowledge of structural instability of the CCR unit," and much more.[278] Such information is critical to an evaluation of the long-term stability of the unit, which must be considered in determining whether closure performance standards for closure in place can be met at the impoundment[279] and whether a given corrective action meets the requirement to select a safe, protective remedy.[280] The history of construction is also critical in the event of any failure of the impoundment: emergency response personnel must have access to that information to determine how to halt further failure, and further release of CCR, as quickly as possible.[281]

Similarly, requirements for structural stability assessments[282] and safety factor assessments[283] must apply to legacy CCR impoundments. As discussed further in Section III herein, structural stability concerns are not limited to operating impoundments. In fact, such concerns are likely *greater* at legacy impoundments, given the age of such units; the higher percentage of legacy ponds (as compared to operating ash ponds) that were neither designed by, nor built under the supervision of, a professional engineer; and the higher percentage of legacy impoundments determined to be in "poor" or "fair" condition.[284] As the D.C. Circuit explained, "Legacy ponds caused multiple human health and environmental disasters in the years leading up to the Rule's promulgation. For example, a pipe break at a legacy pond at the Widows Creek plant in Alabama caused 6.1 million gallons of toxic slurry to deluge local waterways."[285]

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[277] 85 Fed. Reg. at 65,019.
[278] 40 C.F.R. § 257.73(c)(1).
[279] *See* 40 C.F.R. § 257.102(d)(1)(iii)-(iv) (To close the impoundment in place, the owner or operator "must ensure that, at a minimum, the CCR unit is closed in a manner that will: . . . (iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period; [and] (iv) Minimize the need for further maintenance of the CCR unit"); *id.* § 257.102(d)(2)(ii) (before any final cover is installed, "Remaining wastes must be stabilized sufficient to support the final cover system").
[280] *See id.* § 257.97(b)(1) ("Remedies must: (1) Be protective of human health and the environment"); id. § 257.94(c)(1)
[281] *See, e.g., id.* § 257.73(a)(3) (requiring development of an Emergency Action Plan setting out procedures in the event of a safety emergency at certain impoundments).
[282] *See id.* § 257.73(d).
[283] *See id.* § 257.73(e).
[284] *See* Section III.
[285] *USWAG*, 901 F.3d at 433 (internal citations omitted).

Investigation and analysis of the status of, and risks to, the stability of legacy impoundments is essential for preventing catastrophes because they notify entities and regulators of the need to take urgent action to avoid failures. In the D.C. Circuit's words, "Simply hoping that somehow there will be last minute warnings about imminent dangers at sites that are not monitored, or relying on cleaning up the spills after great damage is done and the harm inflicted does not sensibly address those dangers,"[286] nor does it "fulfill the EPA's statutory duty to ensure 'no reasonable probability of adverse effects' to environmental and human well-being."[287]

A demonstration of whether a legacy ash pond has a liner that meets EPA's standards[288] is likewise critical to evaluating the safety and propriety of closure and corrective action measures that determine the impoundment's fate over the long term. The owner or operator, regulators, and the public all must know whether a unit is lined before they can meaningfully evaluate how it can be closed, and contamination halted and cleaned up, in accordance with the Rule's requirements. As the D.C. Circuit explained, unlined impoundments have a far higher likelihood of contaminating groundwater than properly lined impoundments[289] and allow far more extensive pollution that is more difficult to remediate:

> Leakage from unlined impoundments is typically quicker, more pervasive, and at larger volumes than from lined impoundments. Unlike lined impoundments, in which leaks are "usually caused by some localized or specific defect in the liner system that can more readily be identified and corrected," leakage from unlined impoundments is more pervasive and less amenable to any quick, localized fix. When an unlined impoundment begins to leak, Coal Residual sludge "will flow through the unit and into the environment unrestrained,'" such that retrofit or closure of the unit are typically "the only corrective action strateg[ies] that [the] EPA can determine will be effective."[290]

Unlined impoundments also provide pathways for groundwater to flow unconstrained into and through coal ash when the water table is high (or at all times if the coal ash is continuously within the water table), allowing leaching to continue for hundreds or, in some cases, thousands of years.[291] As explained by professional geologist Mark Hutson, "Rising water elevations . . .

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[286] *Id.*
[287] *Id.*
[288] Whether an impoundment is lined is determined by evaluating whether it has a liner meeting the criteria set out at 40 C.F.R. § 257.71.
[289] *USWAG*, 901 F.3d at 428.
[290] *Id.* at 429.
[291] *See* Mark A. Hutson, P.G., Responses to EPA Proposed Rules on: Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure Part B: Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure, at 2-3, Docket ID No. EPA-HQ-OLEM-2019-0173 (Apr. 15, 2020) ("Hutson Part B Expert Report") ("Coal ash that is present in . . . ash basins will be capable of leaching toxic metals into the environment at any time in the present, or the near or distant future for as long as soluble metals contained in ash are allowed to come into contact with water. Therefore, effective management of coal ash requires that the waste be permanently isolated from water: including precipitation, surface water, and groundwater") (attached).

will re-wet CCR contained in the unlined disposal unit and renew production of leachate each time."[292] Consistent with that statement, EPA has observed that "[p]lacement of CCR into un-engineered, unlined units in permeable strata has plainly led to adverse impacts to groundwater."[293] Properly lined impoundments, in contrast, provide far better protection against saturation of coal ash by rising groundwater.[294] In short, whether an impoundment is lined or unlined is fundamental to determining the proper method to stop leaks and clean up releases – i.e., the proper corrective action[295] – as well as to determining which closure method is effective, and meets all requirements, for a given ash pond.[296]

For similar reasons, requirements to demonstrate compliance with location restrictions also must be applied to legacy surface impoundments. The first of the 2015 CCR Rule's location restrictions requires that CCR surface impoundments "be constructed with a base that is located no less than 1.52 meters (five feet) above the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table) . . . ."[297] This restriction addresses the problem that Mr. Hutson described: the constant or periodic re-wetting of CCR, which allows leaching of toxic coal ash constituents to continue for hundreds or thousands of years.[298] Whether or not an impoundment satisfies the aquifer location restriction is, for the reasons explained above, essential information for regulators and the public in determining the proper corrective action and closure methods for the impoundment.[299, 300]

Likewise, it is similarly critical to require legacy CCR surface impoundments to demonstrate whether or not they satisfy the seismic, fault area, and unstable area location restrictions.[301] Each of those location restrictions addresses circumstances that may have a major

[292] Hutson Part B Expert Report at 8.
[293] 2015 CCR Rule, 80 Fed. Reg. at 21,362.
[294] *See* Hutson Part B Expert Report at 2-3; *USWAG*, 901 F.3d at 429.
[295] *See* 40 C.F.R. § 257.97(b); *id.* § 257.97(c)(1)(ii).
[296] *See id.* § 257.102(d)(1) (requiring an owner or operator of an impoundment that plans to close an impoundment in place to close the impoundment in a manner that will "(i) 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; (ii) Preclude the possibility of future impoundment of water, sediment, or slurry; . . ."); *id.* § 257.97(d)(2) (requiring that, prior to any cap being placed over an impoundment, "(i) free liquids must be eliminated by removing liquids wastes or solidifying the remaining wastes and waste residues; (ii) Remaining wastes must be stabilized sufficient to support the final cover system").
[297] *Id.* § 257.60.
[298] *See* Hutson Part B Expert Report at 2-3.
[299] *See* 40 C.F.R. § 257.97; *id.* § 257.102(d).
[300] Even if an impoundment has a proper liner – which legacy ponds are extremely unlikely to have, *see* Section III; *USWAG*, 901 F.3d at 434 ("The EPA also considers it 'quite clear' that older, unlined impoundments – which are primarily legacy ponds – pose 'the greatest risks to human health and the environment'"(internal citations omitted)) – compliance with the aquifer location is an important consideration in determining closure and corrective action, as liners can be worn down, or small holes in them widened, by the pressure of groundwater rising from below (known as "hydraulic uplift").
[301] *See* 40 C.F.R. §§ 257.62, 257.63, and 257.64.

destabilizing impact on an impoundment, whether or not it is a legacy or operating impoundment.[302] There is no reasoned justification for reduced analysis or information regarding legacy impoundments versus operating or inactive impoundments concerning such conditions, as a legacy impoundment may collapse due to an earthquake, sinkhole, flood, or powerful erosive forces just as an operating or inactive impoundment might.[303] Indeed, the likely more-antiquated infrastructure of legacy impoundments and the lack of active maintenance as compared to impoundments at active plants,[304] such as rusty pipes or more eroded embankments,[305] make legacy impoundments potentially even more susceptible to damage to the impoundments' stability. Regulators and the public must be provided with this information to properly evaluate closure and corrective action at legacy impoundments.

There is similarly no justification to omit demonstrations of compliance with wetlands location restrictions for legacy impoundments. As explained above, coal ash in contact with water can leach out toxic chemicals for many generations, degrading wetlands and the sensitive ecosystems that depend on them. Actual harm to wetlands and the aquatic life that live in them from surface impoundments was one of the reasons EPA included that location restriction in the 2015 CCR rule.[306] Taking those damage cases into account, EPA concluded that, "[a]bsent these location restrictions, the risk of impacts to human health and the environment from releases from CCR units, including from the rapid and catastrophic destruction of CCR surface impoundments,

[302] *See*, *e.g.*, 80 Fed. Reg. at 21,361 ("In one case, in 2002, the structural stability of a CCR surface impoundment was directly compromised by sinkhole development, leading to the release of 2.25 million gallons of CCR slurry. In another, an unusually weak foundation of ash and silt beneath a CCR surface impoundment (i.e., man-made unstable ground) was identified as one of several likely factors contributing to the dike failure that in 2008 resulted in the largest CCR spill in United States history").
[303] *See* Burgess Envtl. Report.
[304] *See USWAG*, 901 F.3d at 432-34; *see also* Section III.
[305] *See* 80 Fed. Reg. at 21,394 ("Hydraulic structures, particularly corrugated metal pipe, are subject to deterioration and corrosion over time and, as deterioration proceeds, the hydraulic structure becomes more susceptible to collapse, translation, or malfunction. Issues with hydraulic structures within the dike may exacerbate structural or operational issues with the CCR surface impoundment due to the significant internal deterioration of the dike via the hydraulic structure. As an example, on February 2, 2014, Duke Energy's Dan River Fossil Plant experienced a structural collapse of a corrugated metal storm water discharge pipe which passed underneath the interior of a CCR surface impoundment. The subsequent collapse of the base of the CCR surface impoundment led to a massive release of CCR to the environment. Additionally, the adjacent dike of the CCR surface impoundment was severely damaged due to the erosion of the upstream slope.")
[306] *See* 80 Fed. Reg. at 21,361 ("In many [damage] cases, effluent discharges from the surface impoundments caused significant ecological damage to aquatic life in nearby streams and wetlands"); *id.* at 21,363 ("In support of the provisions finalized in this rule, EPA is citing several damage cases, including 30 cases of 'proven' damage to the environment that involve aquatic disposal of CCR, 14 of which involve impacts to wetlands from release of CCR"); *see also*, *e.g.*, Compendium of Damage Cases, Vol. I at 133-40 (describing damage to wetlands at the DOE Savannah River and Urquhart Station coal ash impoundment sites in South Carolina); *id.* at 154-57 (describing damage to wetlands from the DOE Oak Ridge coal ash impoundments and landfill in Tennessee); *id.* at 195-199 (describing damage to wetlands from coal ash surface impoundments at Alliant's Columbia Energy Center in Wisconsin, and noting that the closed impoundments continue to leach contaminants "at concentrations toxic to aquatic life" into groundwater that migrates into wetlands).

sited in these sensitive areas would exceed acceptable levels."[307] Whether an impoundment is located in a wetland is, accordingly, critical information for making an informed, proper decision about closure and corrective action at that impoundment.

2. *All requirements applicable to operating and inactive impoundments must apply to legacy CCR impoundments from which liquids have already leaked out.*

The full slate of requirements applicable to operating and inactive CCR surface impoundments must also apply to legacy impoundments that no longer continuously contain liquid. As explained in detail above,[308] the fact that legacy CCR impoundments may no longer continuously contain liquid – a realistic possibility since liquid once contained in them may already have leaked out[309] – does not ensure compliance with RCRA's Section 4004(a) protectiveness standard. Far from it. Rather, CCR disposed of in legacy pits may be intermittently or constantly re-wetted from below as groundwater rises into the CCR, or from above if the impoundment is not closed or was closed in a manner that does not meet closure performance standards or with a cover that falls short of the standards set out in the CCR rule.[310] As described herein, intermittent re-wetting of coal ash will allow contaminants to continue to leach out of that ash, even if the ash is dry in the intervals between saturation;[311] plus, if CCR is re-wetted, liquefaction of the ash can potentially lead to a release of ash into adjacent surface waters.[312]

Moreover, some risks affecting the long-term containment and stability of coal ash ponds depend little, or not at all, on the volumes of liquid in the impoundment. A meandering river can erode away the embankments of an ash pond, allowing ash to spill into the river even if the ash had been largely or entirely dry.[313] If the CCR is located on a floodplain, erosion and overtopping of the embankment are to be expected.[314] Karst terrain or old mine shafts – which underlie some legacy impoundments[315] – can lead to sinkholes or other shifts of terrain that re-

[307] *See* 80 Fed. Reg. at 21,361.
[308] *See* Section V – Definitions.
[309] *See* Illinois Environmental Protection Agency's Final Post-Hearing Comments, Ill. Pollution Control Bd., R2020-19, at 32 (Oct. 30, 2020), https://pcb.illinois.gov/documents/dsweb/Get/Document-103325 ("However, in its experience with closing a number of CCR surface impoundments, . . . the Agency has found that many unlined CCR surface impoundments constructed in permeable sediments are unable to retain liquids discharged into them. The impoundments were designed (i.e.., intended) to the hold CCR, liquids and other wastes sent there as part of plant operations. . . . [T]he design in many cases has not been adequate to prevent wastewater from leaking into the underlying groundwater, in some instances leaving the impoundments dry once the impoundment was no longer in use (i.e.., inactive)").
[310] *See* Section V – Definitions.
[311] *See id.*; Hutson Part B Expert Report at 2-3.
[312] *See* Burgess Envtl. Report at 5-7.
[313] *See* Hutson Part B Expert Report at 4.
[314] *See id.*; *see also* Section V – Definitions.
[315] *See* Compendium of Damage Cases, Vol. I (describing a sinkhole causing subsidence of an impoundment berm at Appalachian Power Company's now-retired Glen Lyn station in Virginia); Dave Waitkus, Glen Lyn Plant: A History of Service (June 8, 2015), https://aepretirees.com/2015/06/08/glen-

wet or release CCR. If the CCR is in a fault area or seismic impact zone, then earthquakes may destabilize the CCR and cause releases of ash into ground- or surface waters, regardless of whether the CCR was wet before the earthquake occurred.

Finally, when an impoundment lacks standing water, it poses a great risk of emitting fugitive CCR dust pollution – a risk even greater than impoundments that contain liquid.[316] Coal ash dust is highly toxic: exposure to it can cause extensive, long-term harm to health, including but not limited to cancer, respiratory ailments, cardiovascular problems, and even death.[317] Concerns with dry impoundments are well-known to EPA. In its 2014 compendium of fugitive dust damage cases, EPA documented severe fugitive CCR dust pollution – and harms from that pollution – at impoundments lacking standing water, including at the Four Corners Power Plant and at the Little Blue Run impoundment of the Bruce Mansfield Power Plant.[318] EPA quoted residents near the Little Blue Run impoundment as stating:

> We had a dry spell in 1993. First Energy employees knocked on our door and told us to make sure we washed the vegetables from our garden and to stay indoors as much as possible. It seemed that because of the dry, cold weather and low water level in the impoundment, the fly ash, normally in a wet slurry form, had dried to a fine powder and blown through the air covering Hookstown and Georgetown in a layer of dust.

EPA further reported that local stakeholders testified that, at the same impoundment, "[i]n (March) 2009, dry conditions on the surface of the Impoundment covered nearby residents' homes in a layer of coal ash fugitive dust, prompting a NOV."[319] Release of toxic fugitive CCR dust is, accordingly, a serious risk at impoundments that no longer contain liquid, and failure to regulate legacy impoundments of that description would not satisfy RCRA's Section 4004(a) protectiveness standard.

In short, a legacy surface impoundment where coal ash is or may be exposed to water, that is in an unsuitable location, or that exposes nearby residents to fugitive CCR dust pollution, poses similar risks as CCR surface impoundments that continuously contain liquids and CCR. For all the reasons explained above, the federal CCR rule's documentation and analysis mandates, including but not limited to the history of construction, structural stability analyses, liner demonstrations, and demonstrations of compliance with location restrictions, are just as

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lyn-plant-a-history-of-service/ (noting that the plant shut down in spring 2015); Kelron Environmental, Regional and Local Hydrogeology and Geochemistry, Vermilion Power Plant, Illinois, Vol. 1 of 2, at 4 (Nov. 20, 2003) (excerpt attached).

[316] *See, e.g.*, Alexander Livnat, U.S. EPA, Damage Cases: Fugitive Dust Impact, Docket ID No. EPA-HQ-RCRA-2009-0640-11992, at 45 (Dec. 18, 2014) ("Fugitive Dust Damage Cases") (describing CCR fugitive dust from the "uncovered and not reclaimed impoundments a serious problem" at the Four Corners Power Plant); *id.* at 11-12 (describing dry conditions at the Little Blue Run Impoundment causing severe fugitive CCR dust pollution in the area).

[317] *See* Phase Two Comments at 79-81.

[318] *See* Fugitive Dust Damage Cases at 11-12, 45.

[319] *Id.* at 12.

critical for properly determining the safety and effectiveness of closure and corrective action at impoundments that no longer continuously contain liquid as they are for those that do.

3. *A legacy impoundment that has been closed in place must be required to re-close if not closed in a manner that meets or exceeds the 2015 CCR rule's provisions for closure in place.*

EPA must not exempt legacy CCR surface impoundments from closure requirements unless the impoundment was closed in full compliance with either the closure mandate for removal set out at 40 C.F.R § 257.102(c), or the closure performance standards, drainage and stabilization directives, and cover system requirements set out at 40 C.F.R. § 257.102(d). As explained in Section V, if a CCR surface impoundment was not closed in compliance with the mandates of the CCR rule, neither EPA nor the public can be certain that the closure provides the protections necessary to ensure no reasonable probability of adverse effects to health and the environment. Inadequate covers – including covers that were well designed and constructed but are not periodically inspected and maintained – permit precipitation to leach into CCR from above, allowing "closed" impoundments to again impound liquids.[320] CCR that was not properly drained or stabilized can result in cracks or other breaches of the cap and/or berms, leading to precipitation filtering through the CCR and/or groundwater continuing to flow through it, carrying out harmful constituents in the process. Failure to ensure slope stability of the cover risks sloughing or collapse of the cap, leading to re-wetting and destabilization of the ash.

The preamble to the 2015 CCR rule explained why the closure requirements EPA established are necessary,[321] and EPA has not proven that anything short of those requirements suffices to meet RCRA's protectiveness standard. Accordingly, even if a legacy surface impoundment is already "closed," it must re-close in accordance with the Part 257 mandates unless its prior closure was in full compliance with those mandates.

4. *Failure to require legacy CCR surface impoundments to comply with and post the history of construction, structural stability analyses, liner status demonstrations, demonstrations of compliance with location restrictions, and closure plans consistent with Part 257 would be inconsistent with the USWAG decision and RCRA's public participation directives.*

In enacting RCRA, Congress recognized the importance not just of substantive protections but also of a transparent process that involves the public in both developing standards and ensuring compliance with them.[322] As EPA explained in the preamble to the 2015 CCR Rule,

[320] *See* Section V - Definitions.
[321] *See* 80 Fed. Reg. at 21,409-14.
[322] The Supreme Court has described language in the Clean Water Act that is nearly identical to Congress' public participation mandates in RCRA as demonstrating "strong congressional desire that the public have input in decisions." *Costle v. Pac. Legal Found.*, 445 U.S. 198, 215 (1980) (citing 33 U.S.C. § 1251(e)).

> RCRA contains neither provisions that grant facilities the right to withhold regulatory compliance information from the public, nor provisions that establish any reasonable expectation that such information will be kept confidential. To the contrary, section 7004 explicitly provides that "[p]ublic participation in the [development, revision,] implementation, and enforcement of any regulation under this chapter shall be provided for, encouraged, and assisted by the Administrator."[323]

EPA's public participation regulations echo that mandate, committing the Agency to "provide for, encourage, and assist the participation of the public,"[324] and "to foster a spirit of openness and mutual trust among EPA . . . and the public" and "use all feasible means to create opportunities for public participation, and to stimulate and support participation."[325] More specifically, EPA's public participation duties require it to "assure . . . that the government fully considers the public's concerns."[326]

Such transparency and opportunities for participation are critical not just for community acceptance and open government, but also because they enhance substantive protections. As EPA further explained in the preamble to the 2015 CCR Rule,

> [A] key component of EPA's support for determining that the rule achieves the [RCRA Section 4004(a)] statutory standard is the existence of a mechanism for states and citizens to monitor the situation, such as when groundwater monitoring shows evidence of potential contamination, so that they can determine when intervention is appropriate. The existence of effective oversight measures provides critical support for the statutory finding, particularly with respect to some of the more flexible alternatives

[323] 80 Fed. Reg. at 21,338-39 (quoting 42 U.S.C. § 6974(b)).
[324] 40 C.F.R. § 25.3(a).
[325] *Id.* § 25.3(c).
[326] 40 C.F.R. § 25.3(c)(1). *See also id.* § 25.3(b), which defines public participation to include "that part of the decision-making process through which responsible officials become aware of public attitudes by providing ample opportunity for interested and affected parties to communicate their views." EPA's 40 C.F.R. Part 25 regulations are designed to implement the Agency's statutory duty to provide for, encourage, and assist public participation under 42 U.S.C. § 6974(b). *See also* STIR, 61 Fed. Reg. at 2595 (noting that "opportunities for public review of and input to key post-permit decisions (e.g., significant permit modifications) is essential to an effective public participation program . . . . While some States/Tribes may distinguish between minor permit actions . . . and major permit actions (e.g., selecting a corrective action remedy), *the public should be involved in key decisions which affect their health and their community*. For example, public notice of remedial actions and opportunity to comment on the selection of remedies is recommended") (emphasis added); *see also* EPA, Alaska: Tentative Determination and Final Determination of Full Program Adequacy of the State of Alaska's Municipal Solid Waste Landfill Permit Program, 65 Fed. Reg. 453, 457 (Jan. 5, 2000) (stating that EPA was basing its approval of Alaska's municipal solid waste landfill program, in part, on Alaska's representation in its state program application that it will "provide additional public participation opportunities after a permit is issued, including at the time of permit renewals and major modifications or variances …").

> EPA has adopted in certain of the technical standards in response to commenters' requests for greater flexibility. *These "transparency" requirements serve as a key component by ensuring that the entities primarily responsible for enforcing the requirements have access to the information necessary to determine whether enforcement is warranted*. Unlike a federal or state regulatory authority, private citizens cannot access a private facility to conduct inspections. While EPA encourages states to adopt and implement a CCR regulatory program, . . . EPA cannot require it. The final rule therefore must establish oversight mechanisms that will function effectively even in the absence of a state regulatory authority. Such notifications will also reduce the incentives for owners or operators to abuse the rule's self-implementing requirements, and can improve compliance.[327]

As EPA has recognized,[328] the transparency and posting requirements mandated by the 2015 CCR Rule – including but not limited to the requirements of 40 C.F.R. §§ 257.105-107 – are even more essential given the "self-implementing" nature of the CCR rule.[329]

In addition to ensuring compliance via enforcement, robust public participation is also fundamental to making certain that the plans and assessments developed for each site meet RCRA's Section 4004(a) protectiveness standard. As described in Earthjustice et al.'s comments on the proposed federal permitting rule for CCR units,[330] hereby incorporated as if fully set forth herein, members of the public may have unique or specialized knowledge of local conditions, site history, or local uses that are essential to confirm that groundwater monitoring, fugitive dust controls, clean-up, and closure, among other protections, suffice to ensure no reasonable probability of adverse effects to health and the environment.[331] Accordingly, the public must be afforded a meaningful opportunity to review and comment on plans and assessments for each individual CCR unit site.

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[327] *See* 80 Fed. Reg. at 21,338-39 (emphasis added); *see also id.* at 21,426-27 ("EPA believes that it cannot conclude that the RCRA subtitle D regulations will ensure that there is no reasonable probability of adverse effects on health or the environment, unless there are mechanisms for states and citizens to monitor the situation . . . so they can determine when intervention is appropriate").
[328] *See id.*
[329] *See* 80 Fed. Reg. at 21,311. While the 2016 Water Infrastructure Improvements for the Nation Act authorized states to apply for EPA approval of a state CCR program provided the program is "at least as protective as" the federal CCR rules set out in Part 257, Pub. L. No. 114-322, 130 Stat. 1628 (2016) (codified at 42 U.S.C. § 6945(d)), only Oklahoma and Georgia currently have approved CCR programs, *see* https://www.epa.gov/coalash/permit-programs-coal-combustion-residual-disposal-units#guidance, and a portion of Oklahoma's program approval was reversed as unlawful. *Waterkeeper All., Inc. v. Wheeler*, Case No. 18-2230 (JDB), 2020 WL 1873564, *5-*7 (Apr. 15, 2020). EPA now proposes to approve Texas' CCR program as well, *see* https://www.epa.gov/sites/production/files/2020-12/documents/prepublicationdisclaimer_ccrtexas.pdf, but the CCR rule remains self-implementing in the vast majority of states.
[330] Permitting Rule Comments (attached).
[331] *See id.* at 43-45, 84.

The public policy and legal mandates underlying the need for transparency and robust public participation apply to legacy CCR surface impoundments just as they do for operating and inactive impoundments. Indeed, those mandates are perhaps even more necessary at legacy ash ponds, given the lack of on-site personnel and consequently fewer opportunities for problems to be spotted before they become disasters.[332] Accordingly, all plans, assessments, historic documentation, and other documents required by the 2015 CCR Rule must be prepared, and all recordkeeping and posting requirements[333] complied with, at legacy CCR surface impoundments just as they are for active and inactive impoundments at operating power plants.

B. Additional Protections Must Be Mandated Due to the Unique Circumstances of Legacy CCR Impoundments.

Legacy impoundments are not the same as operating impoundments or even inactive impoundments at operating power plants. Overall, in addition to other risks detailed herein, they lack the oversight incumbent to a site with plentiful onsite personnel, the structural stability consistent with being designed and constructed by professional engineers, and the liners installed in newer impoundments built with more oversight and forethought.[334] Accordingly, additional protections must be established for legacy impoundments. Such protections include, but are not limited to, immediate identification of potential receptors, testing of drinking water sources, and replacement of contaminated water; testing of surface waters; enhanced security measures; more frequent inspections; a prohibition on closure in place of impoundments located in unsafe, unsuitable locations; expanded dust monitoring; continuation of the post-closure care period until compliance with the groundwater protection standards has been achieved without any active remediation measures; and financial assurance. All are needed to meet RCRA's Section 4004(a) protectiveness standard.

1. *Owners of legacy impoundments must identify potential receptors, test potentially contaminated drinking water sources, and provide alternative potable water if coal ash contamination is found.*

Given the unique circumstances of legacy CCR impoundments – i.e., the fact that, by definition, they have not been in operation for years; they have likely been releasing CCR contaminants for years;[335] and there has likely been little or no investigation of the full extent and severity of that contamination – EPA should include additional requirements for legacy impoundments to immediately identify potential receptors; test any potentially impacted drinking water sources for the CCR constituents found in Appendices III and IV,[336] as well as manganese;[337] and replace any contaminated water with clean, potable water for receptors. Testing requirements should extend to domestic water wells, public water supply wells, and any potentially contaminated surface water bodies that serve as a source of drinking water. Abundant

[332] *See USWAG*, 901 F.3d at 432-33.
[333] 40 C.F.R. §§ 257.105-107.
[334] *See* Section III.
[335] *See id.*
[336] *See* 40 C.F.R. Part 257, Appendices III and IV.
[337] *See id.*

evidence shows that CCR contamination of both ground- and surface waters can pose a risk to human health and the environment.[338]

Such identification, testing, and replacement requirements are not unprecedented. North Carolina's Coal Ash Management Act requires owners of coal ash surface impoundments to identify all drinking water supply wells within a half-mile downgradient from the compliance boundary of the impoundment, to pay for sampling all such wells for coal ash constituents, and, if the well water is found to be contaminated, to promptly replace that water with an alternate source of drinking water.[339] Similarly, Virginia law calls provides that, during the closure process of CCR surface impoundments, "the owner or operator shall, at its expense, offer to provide a connection to a municipal water supply, or where such connection is not feasible provide water testing, for any residence within one-half mile of the CCR unit."[340]

People may have been drinking or using CCR-contaminated water, unbeknownst to them, for decades. Protection of health and the environment – as mandated by RCRA's Section 4004(a) protectiveness standard – requires immediate detection and replacement of such water.

2. *The rules should require sampling of all surface waters and sediment within 0.5 mile of legacy CCR surface impoundments.*

For similar reasons, EPA should require immediate sampling of all surface water bodies, and sediment therein, within a 0.5 mile radius of legacy CCR surface impoundments. Coal ash contaminated groundwater generally communicates with, and often discharges into, surface waters adjacent to coal plants and the surface impoundments into which plant owners dispose of CCR.[341] Depending on the size, flow rate, and other factual circumstances of the surface water body at issue, CCR contaminants may increase to significant, dangerous concentrations in the surface water body – causing significant harm to aquatic life and other animals that use those waters[342] – and/or sink to the bottom, building up to unsafe levels in sediment.[343] This, in turn, can harm the aquatic organisms that feed on the lake or river bottoms and the fish and other

[338] *See id.*; Comments of Avner Vengosh, Duke University, U.S. EPA Public Hearing on the Proposed "Phase 2" Amendments to the Federal 2015 Coal Ash Rule (Sept. 2019) (attached); *see also* Susan Wind, After My Daughter's Cancer Diagnosis, I Helped Discover Our Town is a Cancer Hot Spot, USA Today (Sept. 23, 2019), https://www.usatoday.com/story/opinion/voices/2019/09/23/coal-ash-cancer-north-carolina-mother-column/2368665001/?utm_source=feedblitz&utm_medium=FeedBlitzRss&utm_campaign=news-opinion.

[339] N.C. Gen. Stat. § 130A-309.211 (2016).

[340] *See* Va. Code § 10.1-1402.03(C) (2019); Va. Code § 10.1-1402.04(C) (2020).

[341] *See* Campbell Expert Report.

[342] *See* Section III; Compendium of Damage Cases, Vol. I at 43-49, 51-63, 154-57, 177-80; Compendium of Damage Cases, Vol. IIb, Part II at 45-50.

[343] For example, chemistry data collected from sediments underlying the South Branch of the Elizabeth River, adjacent to the Chesapeake Energy Center CCR impoundment in Virginia, revealed arsenic in porewater at concentrations up to 452.2 ug/l and in sediments at the bottom of the river at concentrations up to 8.2 mg/l. *See* AMEC Earth and Environment, 2010, Natural Attenuation of Arsenic Demonstration, Chesapeake Energy Center Ash Landfill, Chesapeake, Virginia, June 7, 2010 (attached).

organisms that consume them, damaging entire ecosystems.[344] Due to the long-term, ongoing, and often unexamined breadth and severity of contamination from legacy CCR surface impoundments, [345] it is imperative that the full extent of pollution from these impoundments be determined immediately so that the pollution may be halted and remediated as soon as possible.

3. *Security measures must be required given that operating personnel are not present at legacy impoundment sites.*

Because legacy CCR impoundments are located at inactive power plants, unlike impoundments at operating power plants, they almost certainly lack the oversight and protection afforded by significant numbers of on-site personnel.[346] Consequently, the integrity of impoundments and berms and the safety of nearby residents depend on robust security measures to ensure that people are not – whether intentionally or unknowingly – entering the site and taking actions (such as ATV driving, dirt-biking, or other similar activities) that endanger the integrity of the impoundment or expose trespassers to health risks. To minimize that risk, the rules should require sturdy, long-lasting fencing at legacy impoundment sites, together with warning signs, security cameras, and onsite guards, as necessary, until the closure process is complete.

4. *Structural stability analyses must be conducted more frequently than at operating impoundments, including prior to final decisions on corrective action and closure of the impoundment.*

As explained above, structural stability concerns are likely *greater* at legacy impoundments, given the age of such units; the higher percentage of legacy ponds that were neither designed by, nor built under the supervision of, a professional engineer; and the higher percentage of legacy impoundments determined to be in "poor" or "fair" condition.[347] In light of that evidence and the D.C. Circuit's admonition that "[s]imply hoping that somehow there will be last minute warnings about imminent dangers at sites that are not monitored, or relying on cleaning up the spills after great damage is done and the harm inflicted does not sensibly address those dangers,"[348] EPA cannot comply with RCRA's Section 4004(a) protectiveness standard unless it provides for enhanced structural stability protections at legacy impoundments.

Specifically, as described in the attached report of Burgess Environmental, EPA should require structural stability assessments to be conducted *annually* for legacy impoundments classified as high hazard potential or significant hazard potential,[349] and safety factor

[344] *See, e.g.*, Vengosh, Avner *et al.*, Evidence for unmonitored coal ash spills in Sutton Lake, North Carolina: Implications for contamination of lake ecosystems, Science of the Total Environment, Science of the Total Environment, 686 (2019), 1090-1103; Phase Two Comments at 63 n.297, 73 n.349 (citing numerous studies).
[345] *See* Section III; *USWAG*, 901 F.3d at 432-34.
[346] *See USWAG*, 901 F.3d at 433.
[347] *See* Section III.
[348] *USWAG*, 901 F.3d at 433 (internal citations omitted).
[349] Consistent with the recommendation of Burgess Environmental, the Illinois Environmental Protection Agency has proposed rules requiring that structural stability assessments (together with safety factor

assessments to be conducted every five years or whenever changed conditions are observed in conducting the Structural Stability Assessment or site inspections, if sooner. In addition, safety factor assessments should be required as part of an impoundment's closure plan.[350]

Further, for legacy impoundments that close in place[351] and, after dewatering, become, in effect, permanent CCR landfills, EPA should require enhanced run-on and run-off controls, as described in the Burgess Environmental report.[352] Finally, to avoid the flow of surface water through legacy CCR impoundments – which, according to Burgess Environmental, represents "one of the most significant risks of failure of the impoundment" – EPA should require the legacy impoundment owners to develop a plan to divert inflows of water away from that impoundment until the closure of the impoundment is complete (and after, per current federal CCR rule mandates, if the impoundment is closed in place).[353]

5. *The "unstable area" location restriction should be expanded to explicitly include areas of wave and current erosion, floodplains, and areas with underground mines.*

Erosive forces, floods, and underground mines underlying coal ash impoundments all should be explicitly listed as examples of unstable areas, as set forth in 40 C.F.R. § 257.64, because all pose a significant threat to impoundment stability and, consequently, to human health and the environment.[354] Current erosion and wave erosion are "capable of impairing the structural integrity of a CCR surface impoundment" and, Burgess Environmental found, "the potential for erosion" from such processes "is often overlooked" in assessments of compliance with the unstable area location requirement.[355] Erosion has forced legacy CCR impoundment owners to seek dam stabilization measures in some cases[356] and poses an ongoing threat. Likewise, underground mine openings are "prone to collapse" and can thereby destabilize impoundments; such openings are "likely to be present beneath legacy CCR surface impoundments because underground coal mining and power generation in proximity to the mines" were once common.[357]

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assessments and hazard potential assessments) be conducted annually, as opposed to every five years, for CCR surface impoundments in the state. *See* https://pcb.illinois.gov/documents/dsweb/Get/Document-102005 at proposed 35 Ill. Admin. Code 845.440-460.

[350] *See* Burgess Envtl. Report at 5.

[351] These requirements should be enhanced for all impoundments that close in place, not solely legacy impoundments.

[352] *See* Burgess Envtl. Report at 5-6.

[353] *See id.*

[354] *See id.* at 4-5.

[355] Burgess Envtl. Report at 3-4.

[356] *See* Prairie Rivers Network, National Park Service Encourages Removal of Dynegy's Coal Ash From Vermilion River Floodplain (Sept. 3, 2016), https://prairierivers.org/uncategorized/2016/09/national-park-service-encourages-removal-dynegys-coal-ash-vermilion-river-floodplain/.

[357] Burgess Envtl. Report at 4; *see also* Kelron Environmental, Regional and Local Hydrogeology and Geochemistry, Vermilion Power Plant, Illinois, Vol. 1 of 2, at ix, 10, 15, and 37 (describing underground coal mines underlying coal ash ponds at the retired Vermilion coal plant near Oakwood, Illinois) (attached).

Finally, floodplains must be explicitly listed as examples of unstable areas because "[n]atural fluvial processes are active throughout the floodplain of a stream or river and therefore are potentially destabilizing to any . . . structure within the floodplain."[358] Location of CCR surface impoundments in floodplains is a frequent concern: as geologist Steven Campbell explains, "it is common for power plants to be located next to a river or large lake to take advantage of the copious volumes of water required for plant operation and for CCR transport and disposal," and "an integral component of most river systems is the floodplain."[359] In addition to destabilizing the impoundment, flood events "elevate the local water table, can inundate the surface of CCR impoundments, and can erode the embankments that enclose many CCR impoundments, thus producing uncontrolled CCR releases to the immediate area and to downstream areas," as occurred in North Carolina in 2018.[360]

6. *Closure in place should be barred for legacy impoundments that fail to meet the location standards.*

Given the significant ongoing risks posed by leaving CCR impoundments in unstable areas – including in areas of current or wave erosion, floodplains, or with underlying underground coal mines – EPA should prohibit legacy impoundments from closing in place in such areas.[361] Neither capping the impoundment nor dewatering it – to the extent dewatering is fully possible in a floodplain to begin with – would prevent the forces described above, or other unstable circumstances such as karst geology or a foundation composed of CCR – from destabilizing the coal ash, potentially resulting in catastrophic collapse. With many legacy CCR surface impoundments not designed or constructed by professional engineers,[362] the risks posed by those conditions are heightened and must not be ignored.

EPA should likewise prohibit closure in place of legacy CCR surface impoundments that do not meet the remaining location restrictions, including location in a fault area, an area of seismic impact, a wetland, or with a base less than five feet above the uppermost aquifer.[363] As explained above, given the lack of engineered protections at many legacy impoundments, such impoundments (even after closure in place) could be destabilized or collapse entirely in the event of seismic activity. Moreover, legacy impoundments are likely to be unlined and therefore are prone to leaking unabated into groundwater[364] and becoming saturated with groundwater rising from below, as is a frequent occurrence in a flood, in wetlands, or otherwise where the water table sits just below the base of the impoundment.[365] With contaminants continuing to leach out of coal ash for decades or centuries, abandoning CCR in locations where it continues to be exposed to water does not satisfy RCRA's Section 4004(a) protectiveness standard.

[358] Burgess Envtl. Report at 4.
[359] Campbell Expert Report at 8.
[360] *Id.* at 9.
[361] *See* Burgess Envtl. Report at 3-4.
[362] *See* Section III.
[363] *See* 40 C.F.R. §§ 257.60-63; *see, e.g.*, Burgess Envtl. Report at 2, 4.
[364] *See USWAG*, 901 F.3d at 428.
[365] *See* Campbell Expert Report at 7-9.

7. *Post-closure care must be required at least until the site has returned to detection monitoring without the use of active remedial measures.*

The end of post-closure care should not be permitted until the legacy CCR surface impoundment returns to detection monitoring *without* the continued use of remedial measures. Ongoing active remediation measures, such as a pump-and-treat system, sheet pile walls, and permeable reactive barriers, require inspection, maintenance, and – in the case of pump-and-treat systems – active operation in order to be effective. After post-closure care is complete, such inspection, maintenance, and operation will cease.[366] Because, as explained herein and in EPA's 2014 Risk Assessment, coal ash constituents can continue to leach out of CCR for hundreds or even thousands of years,[367] dangerous concentrations of CCR pollutants could resume leaching out of the coal ash once inspection, maintenance, and – where applicable – operation of those measures halt and their effectiveness diminishes or disappears altogether. Accordingly, the return to detection monitoring triggering the end of post-closure care must not rely on such measures; rather, it must reflect conditions at the site once post-closure care is over and no one is inspecting, maintaining, or operating any of those devices.

8. *Fugitive dust protection measures must be enhanced for legacy CCR surface impoundments.*

EPA should likewise enhance the protections against pollution from legacy CCR impoundments. First, EPA should require monitoring of fugitive CCR dust at the site and, if ash is transported offsite for disposal, on the transportation route. The fugitive dust control measures required by the 2015 CCR rule call for a menu of control options to be evaluated and implemented,[368] but there is no method, such as dust monitors or visual checks, mandated to ensure those measures are effectively limiting dust pollution.

As explained in great detail in prior comments submitted by Earthjustice and others, fugitive CCR dust poses a grave risk to those inhaling it in excess quantities, which may include workers removing CCR or cleaning up a CCR spill, communities adjacent to CCR dumps, or residents who live near CCR disposal sites to which ash is transported.[369] Without staff onsite at legacy ponds to observe and address fugitive dust pollution, and with potentially no or little liquid in the impoundments given that water is no longer actively added to them, the risk of dangerous fugitive CCR dust pollution is greater at legacy impoundments than at their operating counterparts.[370] EPA's own study indicates that fugitive dust pollution at CCR landfills – which

[366] *See* 40 C.F.R. § 257.104(b)-(c).
[367] *See* Section III; 2014 Risk Assessment at Table 5-25; *see also* Campbell Expert Report at 4.
[368] 40 C.F.R. § 257.80. The 2015 CCR Rule does require "procedures to log citizen complaints," *id.* § 257.80(b)(3), but citizens often do not know how much pollution is too much or how to make such complaints, and they may not be present or awake to see excess dust pollution every time it occurs. CCR dust is not dangerous only when a lay person observes it. In short, relying on citizen complaints to ensure continuous compliance falls far short of RCRA's Section 4004(a) protectiveness standard.
[369] *See* Permitting Rule Comments at 79-80; Phase Two Comments at 8-10, 78-82; *see also* EPA, Fugitive Dust Damage Cases, Docket ID No. EPA-HQ-RCRA-2009-0640-11992 (Dec. 18, 2014) (attached).
[370] *See* 80 Fed. Reg. at 21,386 ("EPA discovered that fugitive dust was also of concern at CCR surface impoundments, either under conditions of windy winter spells affecting CCR exposed above or next to

dry- or drying-out impoundments approximate – could exceed the Clean Air Act's health-based National Ambient Air Quality Standards if uncontrolled.[371] Accordingly, fugitive dust monitors such as those recommended by engineer Ranajit Sahu for CCR disposal areas in Michigan City, Indiana,[372] should be required for legacy coal ash impoundments and, if the CCR from those impoundments is removed, along the transportation route and at the disposal site.

Second, EPA should establish a standard for fugitive dust pollution at legacy CCR surface impoundments. Such a standard was included in EPA's 2010 proposed CCR rule.[373] In the 2015 CCR Rule, EPA rejected the use of that standard on the basis that it might conflict with a state's State Implementation Plan ("SIP") under the Clean Air Act, that limited health studies demonstrated harm to human health from fugitive CCR dust, and that measurement of fugitive dust is complicated.[374]

None of those items provide a reasoned justification for EPA not to impose a fugitive CCR dust standard in 2021. First, under the language of the proposal – which could be re-adopted here – the standard necessarily would not conflict with a state's SIP: if the SIP established a different standard, that other standard would apply. Second, since EPA issued the 2015 CCR Rule in 2015, far more evidence has been gathered and made available to EPA concerning the potentially devastating health impacts that can result from inhalation of CCR dust.[375] Finally, air monitors can and do monitor, with precision, fugitive dust emissions – including PM2.5[376] as well as PM10.[377] EPA could, as it does under the Clean Air Act, establish an averaging time to determine compliance with the fugitive CCR dust standard and ensure that owners/operators install monitors that can demonstrate compliance with the standard over the relevant averaging periods.

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the CCR surface impoundment boundary, or due to the total CCR surface impoundment evaporation in arid areas.")

[371] *See* 75 Fed. Reg. at 35,145 ("EPA also conducted a separate draft fugitive dust screening assessment which indicates that, without fugitive dust controls, there could be exceedances of the National Ambient Air Quality Standards for fine particulate matter in the air at residences near CCR landfills."); EPA, Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills, Docket ID No. EPA-HQ-RCRA-2009-0640-0142 (May 2010).

[372] *See* Comments on Fugitive Dust Management and Lack of Air Monitoring As Part of Coal-Ash Removal Project at NIPSCO Michigan City Generating Station (MCGS), at 6-8 (June 2020) ("Michigan City Comments") (attached).

[373] *See* 75 Fed. Reg. at 35,245 (proposed 40 C.F.R. § 257.80(a), providing that "CCR surface impoundments and CCR landfills must be managed in a manner that fugitive dusts do not exceed 35 μg/m3, unless some alternative standard has been established pursuant to applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.")

[374] *See* 80 Fed. Reg. at 21,386-88.

[375] *See* Permitting Rule Comments at 79-80; Phase Two Comments at 8-10, 78-82.

[376] *See* Michigan City Comments at 6-7, Attachment A.

[377] *See id.*; *see also* Fugitive Dust Plan of S.H. Bell Co., Revised Nov. 2017, at 50, Figs. 1-2 (attached).

9. *Financial assurance*

EPA should also impose financial assurance requirements on owners of legacy impoundments. EPA has authority to do so under both RCRA[378] and Section 108(b) of CERCLA,[379] which directs the President to "promulgate requirements . . . that classes of facilities establish and maintain evidence of financial responsibility consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances."

EPA should require financial responsibility for legacy surface impoundments for multiple reasons. First, as discussed in detail herein, they pose at least as great as – and in some cases more – risk than impoundments at operating power plants. Legacy CCR impoundments were not regulated under the 2015 rule and – more than two years after the *USWAG* decision – EPA has yet to issue specific regulations for those impoundments. They are generally older, unlined, and more frequently not designed and constructed by professional engineers than impoundments at operating facilities. While EPA is already aware of significant damage from legacy surface impoundments, there is almost certainly additional pollution from such impoundments that has been leaching out, undetected, for years – and continues to do so because these impoundments lack necessary protections to prevent further leaching. Moreover, given the relatively high percentage of legacy impoundments designed and constructed without oversight by professional engineers, their risk of catastrophic failure exceeds that of impoundments at operating facilities.

Second, unlike impoundments at operating power plants, legacy CCR surface impoundments are no longer a source of revenue for owners. In fact, in some cases, the utility

[378] *See*, *e.g.*, EPA, Solid Waste Disposal Facility Criteria, 56 Fed. Reg. 50,978 (Oct. 9, 1991) (establishing financial assurance requirements for municipal solid waste landfills under the authority of RCRA Sections 1008, 2002, 4004, and 4010).

[379] In December 2020, EPA finalized a decision not to require financial assurance for coal-fired power plants, among other electric generation, transmission, and distribution facilities, under CERCLA Section 108(b). *See* EPA, Financial Responsibility Requirements Under CERCLA Section 108(b) for Facilities in the Electric Power Generation, Transmission, and Distribution Industry; the Petroleum and Coal Products Manufacturing Industry; and the Chemical Manufacturing Industry, 85 Fed. Reg. 77, 384 (Dec. 2, 2020). Commenters disagree with EPA's decision not to impose financial assurance requirements for coal fired power plants and believe that decision is inconsistent with the purpose and mandate of CERCLA, for the reasons set out herein and in the Comments of Sierra Club, Earthworks, Environmental Integrity Project, and Western Organization of Resource Councils, Docket ID No. EPA-HQ=SFUND-2019-0085 (Sept. 27, 2019) ("CERCLA Comments") (attached).

Importantly, it is not clear that EPA's decision not to impose financial assurance requirements on coal-fired power plants covers legacy CCR surface impoundments. EPA stated in the final rule that "Financial responsibility requirements under Section 108(b) would not apply to legacy operations that are no longer operating," but rather "would apply to facilities that follow current industry practices and are subject to the modern regulatory framework (i.e., the regulations currently in place that apply to the industry." 85 Fed. Reg. at 77,390. By definition, legacy CCR surface impoundments are "legacy operations," and EPA has not yet – notwithstanding the *USWAG* decision more than two years ago – proposed, let alone finalized, rules for legacy CCR impoundments. Nothing in CERCLA Section 108(b), 42 U.S.C. § 6908(b), prevents EPA from establishing financial responsibility requirements for CCR surface impoundments. Accordingly, EPA may and should establish those requirements for these high-risk disposal sites.

company may no longer own the surface impoundment and may have transferred all – or at least some – liability to another corporation.[380] Owners and operators have, accordingly, little financial incentive to spend significant funds cleaning up a toxic mess at a site that no longer contributes to their bottom line and/or that their predecessor left behind.[381]

If the owner or operator spends insufficient money on cleanup or closure of a coal ash impoundment, the site may pose a major continuing risk to the environment and neighboring communities for centuries. The failure to properly clean-up and close legacy impoundments poses a significant risk for human health and the environment for the many reasons discussed herein. If coal ash were abandoned in old, unlined impoundments with questionable structural integrity, in floodplains or otherwise unsuitable locations, the harm to health and the environment that could result from either slow-leaching pollution or catastrophic collapse could be enormous. Prior catastrophic collapses and severe damaging from ongoing leaching make clear that these threats are very real,[382] and they only grow larger as climate change makes flooding more frequent and severe in many parts of the country.

To ensure that owners do not put in slip-shod, minimal efforts at cleanup or closure or put no effort in whatsoever to properly remediate and close these toxic liabilities, EPA should require financial assurance for legacy impoundments for remediation and closure. Such bonds or other assurance devices should not be released until proper closure and, where necessary, remediation have been properly completed and certified by independent reviewers as well as EPA or responsible state officials. Delaying the return of financial assurance until closure and/or

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[380] *See, e.g.*, Comments of the Board of County Commissioners of Clermont County, Ohio, Docket No. EPA-HQ-OLEM-0107-014, at 4 (Dec. 4, 2020) ("Clermont County Comments") (addressing the transfer of ownership of the former Beckjord coal plant in Ohio from Duke Energy to a new owner); Bryce Gray, Site of Closed Wood River Coal Plant in East Alton sold to company that specializes in demolition and remediation, St. Louis Post-Dispatch (Oct. 5, 2019), https://www.stltoday.com/business/local/site-of-closed-wood-river-coal-plant-in-east-alton-sold-to-company-that-specializes/article_be0c118a-5b2e-53fa-9c3e-85c4728caf22.html; Commercial Development Company, Inc. (CDC), Tanners Creek Power Plant, Sustainable Reclamation Project at Retired Coal-Fired Power Plant (last visited Feb. 11, 2021), https://www.cdcco.com/2018/01/11/tanners-creek-power-plant/ ("In 2016, CDC purchased the 725-acre retired AEP coal-fired power plant in Lawrenceburg, IN. [Environmental Liability Transfer, Inc.] agreed to assume legacy environmental liabilities and decommissioning obligations at the site."); Tanner's Creek Fly Ash Pond Assessment Report (Final Report), Lockheed Martin, for USEPA (Sept. 2009), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/tan-crk-fly-final.pdf; Tanner's Creek Bottom Ash Complex Assessment Report (Final Report), Lockheed Martin, for USEPA (Sept. 2009), https://archive.epa.gov/epawaste/nonhaz/industrial/special/fossil/web/pdf/tan-crk-bot-final.pdf.

[381] Local governments have made this concern clear. *See* Clermont County Comments at 4 ("In the case of the Beckjord impoundments, Duke Energy ceased electric generation at the facility in large part to avoid regulation under the 2015 Coal Ash Residuals Rule. We understand that the current owner, NRDC, took ownership of the facility subject to an obligation to 'close' the impoundments. Clermont County sees no reason why Duke and NRDC should not be jointly responsible for assuring proper closure and protection of human health and the environment. The risk presented by coal ash are simply too significant to provide a free pass to either the entity generating the waste or the current owner of the facility which took ownership with full knowledge of the coal ash and the threat to the Clermont County wellfield.")

[382] *See* Section III; Compendium of Damage Cases, Vol. I; Compendium of Damage Cases, Volume IIa; Compendium of Damage Cases, Vol. IIb, Part I; Compendium of Damage Cases, Vol. IIb, Part II.

cleanup are properly implemented provides an incentive for owner and operators to carry out their obligations well and in a timely fashion.[383] Furthermore, EPA should specify circumstances under which such financial assurance shall be forfeited, including but not limited to bankruptcy of the owner, refusal or failure to perform required clean-up or closure obligations, the refusal or failure to maintain the financial assurance, or emergency situations.[384]

Moreover, in light of the challenging financials for many owners of coal-ash legacy impoundments and plants,[385] EPA should strictly limit the use of "financial tests," "corporate guarantees," or any other form of self-bonding as financial assurance. EPA should likewise strictly limit the use of insurance as financial assurance, as insurance coverage is often the subject of years-long litigation that would delay access to funds urgently needed to properly remediate and close legacy CCR impoundments.[386] Rather, similar to what Illinois has required for the cleanup and closure of privately-owned CCR surface impoundments,[387] EPA should make clear that the broadly acceptable forms of financial assurance are surety bonds and irrevocable letters of credit. It is imperative that financial assurance be a liquid asset so that funds are immediately available to EPA or, in the case of an approved state, state regulatory agencies to allow for prompt response to any CCR releases and preventative measures to halt further releases.[388]

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[383] *See* CERCLA Comments at 12; James Boyd, Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?, at, *e.g.*, 9-11 (2001) (attached); Power Consulting Inc., The Economic Rationality of EPA's Proposed Financial Responsibility Requirements under CERCLA 108(b) for Hardrock Mining Industry Facilities: Comments on EPA's Regulatory Impact Analysis, at 9-11 (July 11, 2017).

[384] *See* Earthworks, Making Polluters Pay: How EPA can ensure mining companies, not taxpayers, pay for mine clean-up, July 2016 at 8 (recommending forfeiture of financial assurance in the following instances: "● noncompliance with applicable permits ● failure to perform tasks in a timely manner ● failure to achieve required benchmarks ● the refusal or failure to perform work ● the refusal to failure to maintain the financial assurance ● emergency situations ● preventing meaningful public participation in establishing the financial assurance amounts and any financial assurance release") ("Making Polluters Pay") (attached); *see also* Illinois Pollution Control Bd. No. R2020-19, Proposed New 35 Ill. Admin. Code Part 845 (Mar. 30, 2020) at proposed 35 Ill. Admin. Code §§ 845.960-990 (directing the Illinois Environmental Protection Agency ("IEPA") to forfeit or draw on the financial assurance if the owner/operator of a CCR surface impoundment abandons the impoundment, is adjudicated bankrupt, fails to initiate or carry out closure or corrective action in the manner approved by IEPA, or fails to provide alternate financial assurance if so required).

[385] *See* S&P Global Mark Intelligence, *US EPA finalizes rule easing hazard assurances for coal and oil power plants*, Nov. 25, 2020 (attached) (quoting former EPA assistant administrator Mathy Stanislaus as stating that "so many of these [coal plant] sites bec[a]m[e] orphan sites" when "companies responsible for them went bankrupt");

[386] *See* CERCLA Comments at 13.

[387] *See* 415 Ill. Comp. Stat. 5/22.59(f) (2019); *see also* C.R.S.A. § 34–32–117(3)(f) (limiting financial assurance for mine reclamation to surety bonds, letters of credit, certificates of deposit, deeds of trust, security agreements, or trust funds) (2019).

[388] *See* Making Polluters Pay at 19-28 (explaining and providing examples of the inadequacy and risk of "self-bonding" mechanisms).

VIII. ADDITIONAL PROTECTIONS MUST BE MANDATED FOR LEGACY IMPOUNDMENTS, AS WELL AS EXTENDED TO ALL COAL ASH UNITS, TO MEET THE PROTECTIVENESS STANDARD OF § 4004(A) OF RCRA.

As noted throughout these comments, legacy impoundments pose unique and, in some cases, greater risks than operating and inactive impoundments at operating power plants. However, the fact of the matter is that all active impoundments, inactive impoundments, and landfills also present known, serious risks.[389] Section VII highlights additional protections that must be established for legacy impoundments. EPA must also extend many of these protections to all existing coal ash units to meet RCRA's Section 4004(a) protectiveness standard.

Analysis of what is needed for legacy impoundments in response to EPA's ANPRM has uncovered gaps and deficiencies in the current CCR Rule that EPA must address in a timely rulemaking so that essential protections are applicable to all coal ash units. EPA cannot regulate legacy ponds in compliance with *USWAG* while letting other sites remain inadequately regulated in contravention of RCRA – the agency must reduce risk of catastrophic failure of, and harmful pollution from, other coal ash units as well.

A. EPA's Failure to Include Manganese in Appendix IV Violates the Protectiveness Standard of Section 4004(A) of RCRA.

Manganese is a known neurotoxin.[390] There is growing concern in the scientific community over the effects of manganese, specifically in drinking water.[391] The effects of manganese exposure, even at levels that are found naturally in North American groundwater supplies, and at levels well below EPA's Lifetime Health Advisory of 0.3 mg/L, include reduced IQ and impaired memory and attention.[392] As with many neurotoxins, children are more sensitive than adults.[393]

As described in Section III, the Environmental Integrity Project collected extensive groundwater monitoring data through their "Ashtracker" program at a substantial number of surface impoundments and landfills that are not currently regulated by the CCR rule. Commenters note in Section III that the monitoring data include pollutants not listed in appendices III or IV. Analysis of the Ashtracker data reveals that eighty-four percent of power plants have unsafe levels of manganese contamination in groundwater attributable to unregulated

[389] *See, e.g.*, Sections III.C & III.D.
[390] *See, e.g.*, ATSDR (2012), Toxicological Profile for Manganese; Grandjean and Landrigan (2014), Neurobehavioural Effects of Developmental Toxicity, *Lancet Neurol* 13:330-338.
[391] *See, e.g.*, Ljung and Vahter (2007), Time to Re-Evaluate the Guideline Value for Manganese in Drinking Water? *Envtl. Health Perspect.*, 115:1533-1538; Roels et al. (2012), Manganese exposure and Cognitive Deficits: A Growing Concern for Manganese Toxicity, *Neurotoxicology* 33(4):872-880.
[392] *See, e.g.*, Oulhote et al. (2014), Neurobehavioral Function in School-Age Children Exposed to Manganese in Drinking Water, *Envtl. Health Perspect.*, 122:1343-1350; Bouchard et al. (2011), Intellectual Impairment in School-Age Children Exposed to Manganese from Drinking Water, *Envtl. Health Perspect.*, 119:138-143; Schullehner et al. (2020), Exposure to Manganese in Drinking Water during Childhood and Association with Attention-Deficit Hyperactivity Disorder: A Nationwide Cohort Study, *Envtl. Health Perspect.*, 128.
[393] ATSDR (2012), Toxicological Profile for Manganese.

disposal units. In fact, manganese is one of the most prevalent pollutants of concern at coal ash sites not regulated by the CCR Rule, based on data from nearly 1200 wells from 117 CCR units at sixty-seven coal plants. The prevalence of high manganese in groundwater indicates that failure to require manganese monitoring as part of either detection monitoring or assessment monitoring is a critical oversight on EPA's part that may have significant adverse health impacts.

Because of the frequency of exceedances above health standards documented in Ashtracker and the serious health consequences of ingestion of elevated manganese, EPA should immediately place manganese in appendix IV so that its presence in groundwater at dangerous levels will be detected and remediated. In light of substantial data, EPA can no longer ignore the threat posed to human health by manganese releases from both legacy impoundments and other CCR units.

B. EPA's Failure to Establish Appropriate Run-On Controls for CCR Impoundments Violates the Protectiveness Standard of Section 4004(A) of RCRA.

As detailed in Gordon Johnson's expert report,[394] the owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must, in accordance with 40 C.F.R. § 257.81, design, construct, operate, and maintain:

1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and

2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

It is recognized that the requirements of 40 C.F.R. § 257.81 are intended to apply to CCR landfills and not surface impoundments. However, the hydraulic capacity requirements of 40 C.F.R. § 257.82, which do apply to surface impoundments, are essentially run-off controls. Accordingly, there are no specific requirements for run-on controls for surface impoundments, especially surface impoundments located in flood plains, where the potential for external erosion puts the surface impoundment at considerable risk.

To mitigate risks to the surface impoundment resulting from external flooding and to be consistent with § 257.82, the owner or operator of a CCR legacy, active, or inactive surface impoundment should design, construct, operate, and maintain:

- For high hazard impoundments: A run-on control system to prevent erosion and inflow during the peak discharge from a maximum probable event.

- For significant hazard impoundments: A run-on control system to prevent erosion and inflow during the peak discharge from a 1 in 1,000 years event.

[394] Burgess Envtl. Report at 5-6; *see also* Section VII.B.

- For low hazard impoundments: A run-on control system to prevent erosion and inflow during the peak discharge from a 1 in 100 years event.[395]

C. EPA's Failure to Address Ongoing Harm from Inactive Coal Ash Landfills Violates the Protectiveness Standard of Section 4004(A) of RCRA.

As explained in Section III, *supra*, the data from leaking CCR landfills highlight a gaping chasm in EPA's existing regulatory scheme. Because EPA only regulates CCR landfills that were active after October 2015, hundreds of coal ash landfills escape all closure, source control, and remediation requirements. Commenters now know that these coal ash landfills are currently causing serious groundwater contamination. The analysis of the Ashtracker data presented in these comments shows that the vast majority of CCR landfills threaten human health and the environment. Data indicate that distinctions based on landfill type or the date that the unit ceased operation are effectively meaningless from a risk perspective. Unless EPA addresses the threats posed by inactive landfills, the CCR Rule will continue to fall short of the RCRA protectiveness standard. Serious and ongoing harm caused by coal ash will never be resolved, until EPA applies its regulatory oversight to these toxic open dumps.

D. EPA Must Address Other Gaps and Deficiencies in the Current CCR Rule in the Process of Mandating Necessary Protections for Legacy Impoundments.

EPA must address the ways in which the current CCR Rule falls short of meeting RCRA's Section 4004(a) protectiveness standard. At least the following provisions discussed in Section VII in the context of legacy impoundments should also apply broadly to active ponds, inactive ponds, and landfills:

- Identification of potential receptors, testing of drinking water sources, and replacement of contaminated water (Section VII.B.1);

- Testing of nearby surface water and sediments (Section VII.B.2);

- Inclusion of safety factor and structural stability assessments as part of closure plans (part of Section VII.B.4);

- Unstable areas should include erosive forces, floodplains, wave areas (Section VII.B.5);

- Closure in place should be barred for impoundments that violate location restrictions, including being located in floodplains (Section VII.B.6);

- Post-closure care should continue until groundwater protection standards have been met without active remediation measures (Section VII.B.7);

[395] *Id.* ("These more stringent criteria are also generally consistent with the USDA (2005) hydrologic criteria for spillways for Earth Dams and Reservoirs (Table 2-5). These USDA (2005) dam design criteria are also cited by 30 CFR 816.49 and 30 CFR 816.84 for the design of surface mining impoundments.").

- Fugitive dust requirements – including monitors and standards (Section VII.B.8); and

- Financial assurance, at least under RCRA (Section VII.B.9).

The above provisions are by no means exhaustive. Commenters appreciate the opening this legacy impoundment ANPRM presents to reflect on overarching gaps and deficiencies in the CCR Rule, and look forward to participating in EPA rulemaking(s) to issue long overdue regulations for legacy impoundments and to extend many of the new and necessary provisions developed to address legacy impoundments to all other coal ash units.

IX. NORTH CAROLINA'S 2014 COAL ASH MANAGEMENT ACT PROVIDES PRECEDENT FOR EPA RULE ON LEGACY IMPOUNDMENTS.

In 2014, following the catastrophic coal ash spill into the Dan River, the North Carolina legislature enacted the Coal Ash Management Act to protect North Carolina's clean water, environment, and communities from the dangers of coal ash pollution and impoundment failure. Because the threats posed by old or so-called "legacy" coal ash impoundments are no different – and can even be greater – than those posed by operating coal ash impoundments, the Coal Ash Management Act does not differentiate between abandoned and operating coal ash impoundments. In fact, the Coal Ash Management Act expressly includes "[a]n impoundment that is dry due to the deposited liquid having evaporated, volatilized, or leached" and one "that has been covered with soil or other material after the final deposition of coal combustion residuals at the impoundment."[396]

Under the Coal Ash Management Act, the utility is required to assess all coal ash impoundments – including legacy impoundments – for groundwater contamination and implement corrective action for exceedances.[397] The Act requires the testing of all drinking water wells within one-half mile of the compliance boundary of a coal ash impoundment, and the Act requires the public utility that owns a coal ash impoundment to provide a permanent alternate water supply to every household with a drinking water well within one-half mile of any coal ash impoundment and to any such households if coal ash contaminants are expected to migrate to the area of a drinking water well.[398]

Further, the Coal Ash Management Act also requires North Carolina's Department of Environmental Quality to determine the proper method of closure of all the coal ash impoundments – including legacy impoundments – based on the risks to public health, safety, and welfare; the environment; and natural resources.[399] The North Carolina legislature itself mandated excavation of all the coal ash from seven sites in North Carolina, including all legacy and operating lagoons at those sites (i.e., the Riverbend, Asheville, Sutton, Dan River, Cape Fear, Lee, and Weatherspoon Steam Stations).[400] Court orders also require the excavation of all

[396] N.C. Gen. Stat. § 130A-309.201(6)(a), (d).
[397] *Id.* § 130A-309.211.
[398] *Id.* § 130A-309.211(c), (c)(1).
[399] *Id.* §§ 130A-309.213 and .214.
[400] S.L. 2014-122 §§ 3 (b)–(c); S.L. 2016-95 §§ 3 (a)–(b).

ash from all impoundments at those locations, and a settlement of federal Clean Water Act and state clean water laws litigation requires the excavation of all impoundments at an eighth site, the Buck Steam Station.

On April 1, 2019, the North Carolina Department of Environmental Quality issued Closure Determinations that all of the coal ash impoundments in North Carolina remaining in dispute – both operating and legacy impoundments – must be closed by excavating the coal ash from those impoundments, based on their impacts on public health, safety, and welfare; the environment; and natural resources. On February 5, 2020, the North Carolina Superior Court entered a consent order, to which the Department, plaintiff community groups, and Duke Energy agreed, requiring excavation of the remaining coal ash impoundments, *including all legacy impoundments*. Excavation has been completed at the Riverbend, Dan River, and Sutton sites. The total amount of coal ash that has been or will be excavated from all coal ash impoundments in North Carolina, including legacy impoundments, is more than 125 million tons.

Consequently, in North Carolina, all legacy coal ash impoundments either have been or will be excavated. The utility is required to assess all impoundments for groundwater impacts and implement corrective action for groundwater contamination. In addition, the utility has been required to test all drinking water wells within the prescribed statutory distance and provide an alternative drinking water supply for those wells and others in areas where coal ash contamination is expected to migrate. Since coal ash pollution imposes risks on public interests, the environment, and natural resources, whether it comes from legacy impoundments or those in operation, North Carolina legislation, decisions of the North Carolina environmental agency, and the orders of North Carolina courts have not differentiated between the two categories. EPA rules governing coal ash impoundments should meet – or exceed – the requirements established by North Carolina.

X. EPA MUST CHANGE COURSE ON ITS RECENT FAILURES TO MEANINGFULLY ADMINISTER STATUTORY AND EXECUTIVE ORDERS IN COAL ASH RULEMAKINGS.

EPA's action seeks comments and suggestions for the agency to consider in developing a subsequent proposed rule. For starters, EPA must address the statutes and Executive Orders ("E.O.") as required. Commenters refer EPA to detailed submissions in previous coal ash rulemakings[401] and highlight three particularly relevant E.O.s below given the significant risks associated with legacy ponds.

In addition, E.O. 14008 of January 27, 2021 on tackling the climate crisis highlights the importance of securing environmental justice and spurring economic opportunity. There is no just transition without cleaning up the devastating legacy of coal and all other fossil fuels. EPA must approach coal ash with the approach and seriousness described in E.O. 14008:

> Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health,

[401] *E.g.* Permitting Rule Comments at 142-162.

> environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts. It is therefore the policy of my Administration to secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care.[402]

A. EPA Must Consider the Potential Adverse Environmental and Human Health Impacts on Minority or Low-Income Populations Pursuant to E.O. 12898 in the Proposed Rulemaking.

Previous coal ash comments noted that despite extensive agency guidance outlining the steps EPA must take to address environmental justice and avoid, or at least minimize, disproportionate impacts, EPA has recently totally reneged on its responsibility. As a threshold matter, technical guidance requires EPA to consider the following three questions to determine potential environmental justice impacts:

- Are there potential [environmental justice ("EJ")] concerns associated with environmental stressors[403] affected by the regulatory action for population groups of concern in the baseline?[404]

- Are there potential EJ concerns associated with environmental stressors affected by the regulatory action for population groups of concern for the regulatory option(s) under consideration?

- For the regulatory option(s) under consideration, are potential EJ concerns created or mitigated compared to the baseline?[405]

An analysis of minority and low-income population data near potential legacy ponds confirms previous documentation of disproportionate impacts of coal ash on environmental justice communities. For example, of the approximately 1.95 million people living within three-miles of the seventy-two potential legacy sites presented with these comments, approximately 1 million, or fifty-one percent, are people of color based on estimates. This is significantly higher than thirty-nine percent minority average nationwide. (Limiting the universe of potential legacy

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[402] Executive Order 14008 of January 27, 2021, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7629 (Feb. 1, 2021).
[403] EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis, at 11 (June 2016) ("The term *environmental stressor* (or *stressor*) encompasses the range of chemical, physical, or biological agents, contaminants, or pollutants that may be subject to a regulatory action."), https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.
[404] *Id.* ("*Baseline* is defined by the OMB as 'the best assessment of the way the world would look absent the proposed action' (OMB, 2003) . . . .").
[405] *Id.* (footnotes added).

sites to the sixty-four designated as most likely to have legacy ponds also results in a fifty percent estimate.)[406]

In addition, considering the percentage of individuals in households with an income of less than or equal to twice the federal poverty level, defined here as "low-income" individuals, also reveals disproportionate impacts. Estimates of the low-income population within three miles[407] of potential legacy sites are higher than the respective *state* averages for over 61 percent of sites, and the ratio is similar when looking at inactive power plant sites with potential legacy ponds only.[408] Finally, the totals are similarly disproportionate when comparing estimates of the low-income population within three miles of the facilities with the *national* average.[409] And again, the same is true when focusing on likely ponds alone.

This preliminary analysis makes clear that continued delay in issuing strong regulations for legacy ponds may disproportionately impact the majority minority people, and majority low-income communities living by potential legacy ponds. EPA must ensure that these sites are regulated in a way that ensures the communities are protected from adverse effects on health and the environment as fully as possible as a result of any proposed rule. Legacy ponds present a real opportunity not only to expand the health, environmental, and economic benefits from the CCR Rule's safeguards and remediation requirements to more communities of color and low-income communities, but also to increase those benefits by proposing more comprehensive and effective provisions.

EPA must ensure that it has a good understanding of the populations impacted by all proposed regulations and use all the information, tools, and expertise at the agency's disposal to assess and address disproportionate impacts. In addition, the agency must also note that although gathering demographic information is important, this alone does not assure identification and involvement of the community groups and leaders who can best inform EPA action. EPA must follow all best practices per the E.O. and guidance, which have been ignored for far too long in coal ash rulemakings.

To achieve environmental justice objectives in a proposed rule on legacy ponds, EPA must recognize that community members have a basic right to know what is going into their environment so that they can use this information to better protect their own health and advocate for stronger protection, and so that they can know whether or not a source is in compliance or needs action to bring it into compliance. To date, EPA has been moving in the opposite direction

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[406] *See* "Potential CCR Legacy Units (2021).xlsx" (attached) ("EJSCREEN2020" and "EJSCREEN2020_PONDS ONLY" tabs).
[407] *Id.* This analysis considered three-mile estimates because they are available for all units, unlike one-mile estimates. These estimates are derived from the 2013-2017 American Community Survey 5-Year Estimates and were available in EJSCREEN's Standard Reports in December 2020. EJSCREEN was designed by EPA as a tool to further its environmental justice policies and is a screening tool that helps identify areas that may warrant additional consideration, analysis, or outreach. *See* EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (June 2016), https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.
[408] *See* "Potential CCR Legacy Units (2021).xlsx" (attached) ("EJSCREEN2020" and "EJSCREEN2020_PONDS ONLY" tabs).
[409] *Id.*

on coal ash issues. For example, EPA has proposed to weaken or forego public participation requirements for various coal ash permitting and other processes that are particularly critical to people living in disadvantaged communities.

EPA should provide timely information to affected communities when the proposed rule is published, solicit public comments as effectively as possible given COVID-19 constraints, and assess specific needs of the impacted communities, such as enhanced oversight and enforcement and technical assistance to community groups to ensure that the final rule is administered effectively and equitably.

B. EPA Must Assess Tribal Implications Pursuant to E.O. 13175 in the Proposed Rulemaking.

Pursuant to E.O. 13175, it is federal policy "to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications."[410] A 2009 presidential memorandum reaffirmed the principles in E.O. 13175, namely, that "[c]onsultation is a critical ingredient of a sound and productive Federal-tribal relationship."[411] To implement E.O. 13175, EPA's policy is to "ensure[] the close involvement of tribal governments and give[] special consideration to their interests whenever EPA's actions may affect . . . tribal interests."[412] E.O. 13175 defines "[p]olicies that have tribal implications" to include "regulations . . . that have substantial direct effects on one or more Indian tribes."[413] EPA must determine, to the best of its abilities, whether a proposed rule on legacy ponds would have such effects. If there are, notification of the initial consultation process "should occur *sufficiently early* in the process to allow for meaningful input" and the process can require "subsequent rounds of consultation."[414]

Fulsome consultation with tribal governments is essential given EPA's legacy of inaction in addressing coal ash pollution on tribal lands. The notes from an EPA call with several elected officials from the Ute Tribe highlight longstanding major concerns with environmental impacts from coal ash dumps, as well as EPA's ongoing failure to enforce protections. Regarding the Bonanza Power Plant, the notes state that:

> Enforcement is the primary issue. The tribe consulted on similar issues a few years ago and supported establishment of a permit program. The facility is on an honor system right now, and it is not working. The facility and the area around it looks like a Superfund site – there are no animals and no vegetation. Coal ash has been improperly disposed of. It is harming the environment around the plant and the river itself. Sometime around 2006-2007 a pond used to store ash burst and the spill went everywhere. We're not sure if

[410] E.O. 13175, 65 Fed. Reg. 67,249, 67,249 (Nov. 6, 2000).
[411] Presidential Memorandum on Tribal Consultation, 74 Fed. Reg. 57,881, 57,881 (Nov. 5, 2009).
[412] EPA, Policy on Consultation and Coordination with Indian Tribes, at 4 (May 4, 2011) ("EPA Policy").
[413] E.O. 13175 § 1(a).
[414] EPA Policy at 5 (emphasis added).

> these spills were never reported to EPA, but they have had an impact.[415]

C. EPA Must Consider the Potential Adverse Impacts on the Environmental Health and Safety of Children Pursuant to E.O. 13045 in the Proposed Rulemaking.

E.O. 13045 provides that:

> to the extent permitted by law and appropriate, and consistent with the agency's mission, each Federal agency . . . (a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.[416]

In the 2015 CCR Rule, EPA identified and assessed environmental health risks and safety risks that may disproportionately affect children:

> In general, risks to infants tended to be higher than other childhood cohorts, and also higher than risks to adults. . . . Screening risks exceeded EPA's human health criteria for children exposed to contaminated air, soil, and food resulting from fugitive dust emissions and run-off. Similarly, 90th percentile child cancer and non-cancer risks exceeded the human health criteria for the groundwater to drinking water pathway under the full probabilistic analysis.[417]

Pursuant to this E.O., EPA must consider the findings on manganese contamination of groundwater from coal ash units, described in Section III. The Agency of Toxic Substances & Disease Registry believes manganese contamination may have serious and heightened health consequences for children when ingested. In light of the evidence presented and the mandates of the E.O, EPA must address this significant threat to children by adding manganese to appendix IV of the rule so that exposure to manganese-contaminated water is promptly discovered and addressed.

Given these types of findings, EPA must ensure that any new provisions address the disproportionate risks to children that result from coal ash. The CCR Rule noted:

> [T]he screening assessment finds that risks fell below the criteria when wetting and run-on/runoff controls required by the rule are

[415] Summary of Ute Tribe Coordination Call on Federal CCR Permit Program Proposal, June 9, 2020, 4:30 p.m. EDT, Docket ID No. EPA-HQ-OLEM-2019-0361-0094, at 1 (July 1, 2020).
[416] E.O. 13045, § 1-101, 62 Fed. Reg. 19,885 (Apr. 21, 1997).
[417] 80 Fed. Reg. at 21,466 (citing Table 5-17 in the Human and Ecological Risk Assessment of Coal Combustion Wastes).

> considered. Under the full probabilistic analysis, composite liners required by the rule for new waste management units showed the ability to reduce the 90th percentile child cancer and non-cancer risks for the groundwater to drinking water pathway to well below EPA's criteria. Additionally, the groundwater monitoring and corrective action required by the rule will reduce risks from current waste management units.[418]

EPA must consider its previous information on coal ash, such as the conclusions presented above, and propose a rule that will be fully protective of children's health.

XI. CONCLUSION

For all of the reasons set forth above and in attachments submitted with this letter, the undersigned Commenters strongly urge EPA to swiftly regulate legacy ponds – and all coal ash units across the country – in a manner that meets RCRA's protectiveness standard and ensures the health and safety of all communities.

Sincerely,

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[418] *Id.*

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