UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability **85 Fed. Reg. 83,478 (Dec. 22, 2020)**	)	**Docket ID No. EPA-HQ-OLEM-2020-0463** *Submitted via regulations.gov*

COMMENTS OF EARTHJUSTICE, ALIANZA COMUNITARIA AMBIENTALISTA DEL SURESTE, CLEAN AIR PRINCE GEORGE'S, CITIZENS ACTION COALITION OF INDIANA, INC., CLEAN WATER ACTION, CLEAN WATER FOR NORTH CAROLINA, COMITÉ DIALOGO AMBIENTAL, INC., EL PUENTE LATINO CLIMATE ACTION NETWORK, ENVIRONMENTAL INTEGRITY PROJECT, HOOSIER ENVIRONMENTAL COUNCIL, JUST TRANSITION NWI, LEAGUE OF CONSERVATION VOTERS, MAYAGÜEZANOS POR LA SALUD Y EL AMBIENTE, NATURAL RESOURCE DEFENSE COUNCIL, SIERRA CLUB, SOUTHERN ENVIRONMENTAL LAW CENTER, SOUTHWINGS, AND WATERKEEPER ALLIANCE; CATHERINE DENNENBERG, CATHI MURRAY, JULIE BLEDSOE, MIKE CRAFT, SUSAN WIND, AND TERESA DELIMA

May 11, 2021

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GLOSSARY LIST

ACAA = American Coal Ash Association

ADEC = Alaska Department of Environmental Conservation

ARA = Agricultural Retailers Association

ASTM = American Society of Testing and Materials

Coal Ash = coal combustion residuals

CCR = Coal Combustion Residuals

CDC = Center for Disease Control

CLSM = Controlled Low Strength Material

COPC = contaminants of potential concern

E.O. = Executive Order

EPA = United States Environmental Protection Agency

FGD = Flue-gas desulfurization

ICR = Information Collection Requests

LEAF = Leaching Environmental Assessment Framework

NCDEQ = North Carolina Department of Environmental Quality

NODA = Notice of Data Availability

OLEM = EPA Office of Land and Emergency Management

PCA = Portland Cement Association

RCRA = Resource Conservation and Recovery Act

SPLP = Synthetic Precipitation Leaching Procedure

TCLP = Toxicity characteristic leaching procedure

TVA = Tennessee Valley Authority

USACE = United States Army Corp of Engineers

USWAG = Utility Solid Waste Activities Group

I. EXECUTIVE SUMMARY

Decades after arsenic-laden coal ash was used indiscriminately as fill in Town of Pines, Indiana, twenty-one years after the ash poisoned drinking water, and twenty years after the town was declared a Superfund site, the United States Environmental Protection Agency ("EPA") still permits, without reasonable restrictions or notice, the use of unlimited volumes of toxic waste as a soil substitute *everywhere.* For years, scores of health and environmental groups, scientists, and citizens have decried this policy and submitted voluminous information to EPA describing the harm to public health caused by unencapsulated coal ash. Yet Americans remain unprotected, and each year *millions of tons* of toxic ash are used as soil and functionally dumped in the guise of "beneficial use."

Since establishment of the Coal Combustion Residuals ("CCR" or "coal ash") Rule,[1] it has become abundantly clear that the past disposal of billions of tons of coal ash is causing widespread contamination of water resources. The damning evidence is found in thousands of monitoring wells at hundreds of coal ash sites nationwide, from data published by the utility industry itself.[2] Whether coal ash is disposed of in a surface impoundment, waste pile or even a lined landfill, data reveal that nearly all the dump sites are contaminating groundwater to levels exceeding federal drinking water standards. Thanks to the transparency requirements of the CCR Rule, anyone can obtain these data – but no one can arrive at a different conclusion. And no one can credibly assert that contamination has not and will not occur at "beneficial" use sites where heavy metal-laden coal ash is placed directly on the ground with no barriers.

Despite the incontrovertible evidence of widespread poisoning of groundwater by coal ash, the Trump EPA in 2019 proposed lifting safeguards on coal ash disposed of in waste piles and structural fills.[3] The Trump EPA took none of the new and publicly available groundwater data into consideration in developing its proposed rule and cited no new data of their own to support the removal of essential safeguards. In response, health and environmental groups submitted hundreds of pages of comments demonstrating the harm caused by coal ash fill and waste piles and demanded withdrawal of the dangerous proposal.[4] The Trump EPA did not finalize the rule, but it started a process of gathering more information. This took the form of several stakeholder meetings in the summer of 2020, and culminated in the filing of the Notice of

[1] 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").
[2] *See* 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-publicly-accessible-internet-sites-hosting-compliance-data-and-information-required; Environmental Integrity Project & Earthjustice, Coal's Poisonous Legacy: Groundwater Contaminated by Coal Ash Across the U.S. (Mar. 2, 2019, rev. July 11, 2019) ("Coal's Poisonous Legacy"), https://www.environmentalintegrity.org/reports/coals-poisonous-legacy/.
[3] 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, 84 Fed. Reg. 40,353 (Aug. 14, 2019) ("Phase 2 Proposal").
[4] 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 2 Comments").

Data Availability on December 22, 2020 ("NODA"), which asks for additional information to inform a new rulemaking.[5]

No new information is necessary. Commenters have already submitted substantial data in their response to the 2019 proposal.[6] In addition, environmental stakeholders provided additional information concerning damage caused by CCR fill sites and waste piles during the 2020 stakeholder process. Existing data requires the prohibition of the use of coal ash as fill unless protective regulations at least as stringent as those applicable to new CCR landfills are established. Similarly, the data and expert reports already submitted demonstrate the need to expand protections against CCR releases from waste piles at utility sites and at off-site storage and manufacturing facilities.

In this NODA response, Commenters provide additional information regarding the deficiencies in state regulation of waste piles and the environmental justice implications of waste pile storage. Our analysis of state regulations reveals a critical gap in protections that EPA must fill. In addition, EPA's own analysis and additional analysis of disproportionate impacts on low-income communities and communities of color demonstrate that CCR waste piles at manufacturing sites pose important environmental justice concerns that EPA must address. Third, we submit two expert reports that demonstrate the need to continue to treat flowable fill and agricultural applications of Flue-Gas Desulfurization ("FGD") gypsum as unencapsulated waste. Lastly, to the extent we have information, we respond to specific questions posed in the NODA.

Foremost, because of the high risk of harm from the release of hazardous substances, we reiterate that the use of unencapsulated coal ash without effective safeguards must be prohibited and protective safeguards imposed on CCR waste piles wherever the waste is accumulated. To meet the statutory protectiveness standard of the Resource Conservation and Recovery Act ("RCRA")[7], EPA must:

- Prohibit the use of unencapsulated coal ash as fill and regulate its placement on land as disposal, thus subjecting fills to all of the protections required at new CCR landfills, including the installation of liners, leachate collection, groundwater monitoring, and caps. EPA must treat the placement of coal ash on land, in any volume or location, as the dangerous deposition of a hazardous substance, known to have a high likelihood of creating highly toxic air and water pollution and presenting substantial risk of direct contact and ingestion.

- Retain current safeguards at CCR waste piles located on coal plant sites. In addition, EPA must increase fugitive dust protections by requiring air monitoring and

[5] Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability, 85 Fed. Reg. 83,478, 83,479 (Dec. 22, 2020) ("NODA").
[6] Phase 2 Comments.
[7] 42 U.S.C. §§ 6901-6992k.

establishing a health-protective particulate standard. EPA must also strengthen dust controls and containment requirements at CCR waste piles located off-site.

- Comply immediately with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* to prevent disproportionately high and adverse health or environmental impact on low-income communities and communities of color.

We urge EPA to act quickly. A prohibition on the inherently dangerous use of coal ash fill is needed immediately to prevent additional damage to health and water resources. To illustrate the urgency, our comments discuss three examples of coal ash fill projects that are posing emblematic and ongoing threats. Information concerning these dump sites has been repeatedly presented to state agencies and EPA without effective response. We elevate these examples again for their importance to the questions raised in the current NODA and to request assistance to the impacted communities as soon as possible. We look forward to EPA's prompt regulatory response to protect all Americans from exposure to toxic coal ash waste.

II. RESPONSE TO CROSS-CUTTING ISSUES RAISED IN THE NODA REGARDING CCR BENEFICIAL USE AND WASTE PILES

A. EPA requests information concerning whether utility compliance websites should be used as a source for information and data pertaining to the management of CCR accumulations.

As explained at length in our Phase 2 Comments, EPA must consider the extensive evidence of water and air pollution caused by existing CCR landfills and surface impoundments, as well as inactive surface impoundments, because such pollution is often a proxy for the damage caused by CCR stored in waste piles and beneficially reused. EPA must analyze the evidence of damage found in this extensive database prior to removing any existing protections.

In addition, EPA must examine the sufficiency of the information required to be posted on utility compliance websites. EPA's NODA inquiries reveal gaps in available information concerning CCR waste piles and landfills. The information currently required for CCR landfills is considerably less than what is required for CCR surface impoundments, and consequently the public database is deficient. EPA should close this gap by requiring additional information regarding CCR piles and landfills, including (1) identification of all waste piles as such (owners and operators are not required to differentiate between CCR piles and engineered landfills); (2) augmented information in annual inspection reports including the specific geometry of the pile or landfill and the total acreage occupied by the unit; (3) demonstrations indicating whether the landfill liner is compliant with the CCR Rule's liner standards for new landfills; (4) demonstrations concerning the presence of a leachate collection system; (5) demonstrations indicating compliance with the location restrictions found in sections 257.60-64[8]; and (6) information regarding the distance of the unit from drinking water wells and surface water bodies. This additional information will help inform the public of the potential risks of the landfills while providing EPA with critical information concerning the universe of existing units.

[8] 40 C.F.R. § 257.60-64.

This information is particularly important, because the utility industry is becoming increasingly dependent on landfills and piles as a result of the closure of hundreds of unlined and leaking surface impoundments. In addition, as power plants themselves close and are decommissioned, it will be critical for the public and regulators to have adequate information about the CCR landfills and piles at the plants.

B. EPA asks whether environmental release data attributable to CCR accumulations at utility sites should be used to estimate environmental releases from CCR accumulations at intermediary (*e.g.*, marketer and retailer) and beneficial use sites.

EPA must consider the environmental release data from CCR landfills and surface impoundments available on utility websites in its evaluation of both CCR piles at "intermediary" sites (marketer and retailer) and beneficial use sites. The data indicate that ninety-one percent of CCR units are contaminating underlying groundwater at levels exceeding federal drinking water standards for numerous constituents, including arsenic, boron, cobalt, lithium and molybdenum.[9] EPA must follow the science. The propensity of coal ash to leach will be the same whether the waste is stacked in a pile at an intermediary site or at a fill site. The industry data can be used to predict the damage that will occur at unmonitored and unlined sites. Therefore, EPA must establish regulations that prevents this predictable damage.

C. EPA requests approaches (*e.g.*, surveys) the public would consider appropriate to understand environmental releases from intermediary and beneficial use sites if the public finds the data from the utility compliance websites is not applicable.

Commenters do not believe that more information is required to determine whether controls are necessary at intermediary and beneficial use sites. EPA should move to establish the controls for intermediary and beneficial use sites that it deemed necessary for existing and new CCR landfills.

In addition, in order to determine whether releases of CCR constituents are occurring from CCR accumulations at intermediaries, EPA should use surveys, Information Collection Requests ("ICRs"), to obtain a consistent dataset from those industries that use CCR piles. This would include all cement and gypsum wallboard facilities, as well as any intermediary storage facilities. It is important to gather data on management practices, including volumes of CCR stored, nature of CCR storage (containerized, siloed, lined pad, etc.), dust suppression and monitoring methods, duration of storage, tracking procedures for waste, recordkeeping, and disposal of excess or rejected CCR. It is unlikely that voluntary submissions received by EPA pursuant to this NODA will provide the agency with sufficient information to determine the extent to which releases are occurring at these facilities.

Further, there is a large and critical data gap that EPA should address by an additional industry survey. Information regarding past land disposal (sometimes alleged to be "beneficial" use) is necessary to identify areas of coal ash placement for the purposes of determining the

[9] *See* Coal's Poisonous Legacy.

extent of damage that may be occurring at these sites, to notify affected landowners and residents, to record deposition, and to determine the necessary measures to protect health and the environment. EPA should send ICRs to utilities, reuse companies, and ash marketers to obtain such information. This information should include the location of past coal ash disposal areas both on and off the utility site, the use of coal ash as fill and the locations of such use, the identification of vendors that may have used the coal ash as fill, and the volume of coal ash used for such purposes at each site and date of deposition. EPA has statutory authority to collect such information pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act[10] and Section 3001(b)(3)(B)(i)(I) of the Resource Conservation and Recovery Act.[11] The information should be made available to the public, when received.

D. EPA seeks comment on the Agency's approach to using the information on the utility compliance websites to identify management of CCR accumulation practices that could be part of CCR regulations to prevent a reasonable probability of adverse effects on human health and the environment.

EPA must consider the data provided by utilities concerning groundwater contamination occurring at existing CCR landfills and waste piles. In addition, since utilities are requesting that EPA raise the current threshold triggering the requirement for an environmental demonstration at sites where CCR is placed on land to 74,800 tons, it is critical for EPA to evaluate all landfill sites with volumes equal to or less than 74,800 tons.[12] According to the American Coal Ash Association's erroneous claim,[13] this volume represents "[t]he real smallest landfill in EPA's rulemaking record."[14] Extensive discussion of these data is included in our Phase 2 Comments.

III. SITE-SPECIFIC INFORMATION THAT PERTAINS TO THE PRACTICES USED FOR THE HANDLING OF WALLBOARD-GRADE FGD GYPSUM

A. EPA must close the information gap concerning use of FGD gypsum at wallboard facilities.

There is no information available in the docket regarding the releases from piles of FGD gypsum at wallboard facilities. Because FGD gypsum piles are usually not stored within a silo, there is considerable likelihood of CCR constituent releases to air, groundwater, and potentially to nearby surface water. Groundwater monitoring data from FGD gypsum surface impoundments and landfills at utility sites indicate that most have contaminated underlying groundwater.[15] As

[10] 42 U.S.C. § 9604(e).
[11] *Id.* § 6921(b)(3)(B)(i)(I).
[12] According to the American Coal Ash Association, this volume represents "the real smallest landfill in EPA's rulemaking record."
[13] Phase 2 Comments at 36-39.
[14] Am. Coal Ash Ass'n, Disposal of Coal Combustion Residuals From Electric Utilities; Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability ACAA Comments to Docket ID No. EPA-HQ-OLEM-2020-0463, Docket ID No. EPA-HQ-OLEM-2020-0463-0027 at 13 (Feb. 22, 2021).
[15] *See* 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-publicly-

stated earlier, EPA should conduct a survey through an Information Collection Request to determine how FGD piles are managed at the facilities, including the size of piles, the precise nature of any liners and containment, information regarding wind and water protection, and the proximity to groundwater and surface water. EPA should not, however, delay the application of protective measures at gypsum manufacturing sites until this information is received, since the presence of uncovered FGD gypsum piles poses known threats to health and the environment. At the very minimum, the requirement to complete environmental demonstrations under the fourth criterion of the beneficial use definition must be maintained for FGD gypsum piles.

IV. THE PROPOSED REDEFINITION OF THE SCOPE OF UNENCAPSULATED USES SUBJECT TO CRITERION 4 OF THE BENEFICIAL USE DEFINITION IS NOT SUPPORTED BY DATA.

In the CCR Rule, EPA defined encapsulated beneficial use as applications that bind the CCR into a solid matrix that minimizes mobilization into the environment. EPA provided several examples of encapsulated uses that include replacement for, or raw material used in production of, cementitious components in concrete; and raw material in wallboard production.[16] EPA recognized that unencapsulated uses present much higher risk to health and the environment due to the leaching proclivity of the CCR. EPA provided examples of common unencapsulated uses of CCR that present higher risks, which include: (1) flowable fill; (2) structural fills; (3) soil modification/stabilization; (4) waste stabilization/solidification; (5) use in agriculture as soil amendment; and (6) aggregate.[17]

In this NODA, EPA suggests that flowable fill, waste stabilization and use in agriculture as soil amendment could be removed from the category of unencapsulated uses. There is insufficient factual basis, however, to recategorize these wastes, and existing data point to the risks posed by the applications, as explained below.

A. Flowable fill

There is nothing in the record that supports the reclassification of flowable fill as an encapsulated use of CCR. In fact, the available evidence supports the need for *additional* restrictions on its use, particularly when it is placed in proximity to groundwater. A report submitted by the American Coal Ash Association, entitled "Risk Evaluation of Fly Ash-based Controlled Low Strength Material,"[18] purports to provide evidence that Controlled Low Strength Material ("CLSM"), or flowable fill, provides negligible risk to health and the environment and should be considered encapsulated. An analysis of this report by Professional Geologist Mark Hutson (attached) points out major limitations of the industry evaluation, including the absence

accessible-internet-sites-hosting-compliance-data-and-information-required (*e.g.* Cumberland Fossil Plant's Gypsum Storage Area, Ghent Generating Station's Gypsum Stack and Reclaim Pond/Gypsum Stack Surge Pond, James M. Barry Electric Generating Plant's Gypsum Storage Pond, Plant Crist's Gypsum Storage Area, and William C. Gorgas Electric Generating Plant's Gypsum Pond).

[16] 80 Fed. Reg. at 21,328.

[17] *Id.* at 21,353.

[18] Am. Coal Ash Ass'n. Comments, Gradient Corp., Risk Evaluation of Fly Ash-based Controlled Low Strength Material, Docket ID No. EPA-HAQ-OLEM-2020-0463-0027, Attach. 8 (Feb. 19, 2021).

of data for the bulk and leachate concentrations covering the range of potential CLSM. Because of this lack of data, the industry analysis was unable to follow applicable EPA guidance on beneficial use risk evaluations.[19] Without knowledge of the actual range of contaminants of potential concern ("COPC") concentrations in bulk CLSM and CLSM leachates, there is no assurance that the range of concentrations evaluated in the industry risk evaluation encompasses the range of real-world impact scenarios. Other major deficiencies include:

- Failure to evaluate scenarios where CLSM will be in contact with groundwater, despite the fact that common application in trenches, sewers, and other low-lying areas often put the material in close contact with groundwater;

- Failure to evaluate findings of exceedances of selenium and cadmium in leachate concentrations that may adversely impact nearby surface water;

- Use of data that underestimate the range of COPC concentrations in CLSM leachate;

- Failure to indicate that protective measures are required despite the admission that the concentrations of arsenic, boron, and molybdenum in porewater data would result in greater than the modeled health – protective concentration levels in wells located 1000-feet downgradient of an embankment constructed of CLSM; and

- Failure to examine the threat posed by attenuation of COPC to stream bottom sediments. Attenuated COPC in stream bottom sediment increase exposure to ecological receptors through bioaccumulation in fish. The report fails to evaluate the increased risk to aquatic life and to human receptors through direct contact with impacted sediments and consumption of impacted fish.

EPA, therefore, has insufficient basis to recategorize flowable fill and cannot do so without violating the protectiveness standard of Section 4004(a) of RCRA.

B. Waste stabilization

EPA's rationale for considering reclassification of stabilized CCR from unencapsulated to encapsulated is unclear and unsupported by the record, as well as the reality of how CCR is used in practice. The term encapsulated implies the presence of some form of barrier separating waste and the environment. Specifically, encapsulation of CCR would require that a barrier be present that prevents interaction with the waste and migration of CCR constituents from the waste when contacted by infiltrating precipitation or groundwater. Stabilization of waste does not necessarily achieve the ability to contain CCR contaminants. Waste stabilization takes many forms, some of which might contain CCR contaminants and many that would not be protective of the environment.

In practice, waste stabilization techniques are very commonly used in waste site remediation projects to aid in waste handling and allow for transporting and disposing of

[19] Mark Hutson, P.G., Geo-Hydro, Inc., Comments on Reconsideration of Beneficial Use Criteria and Piles (May 3, 2021) ("Hutson Beneficial Use Report") (attached).

hazardous materials as solid waste. In fact, fly ash is a common material that is added to wet wastes such as sludge, to act as a stabilizing agent where the disposed waste must be sufficiently dry and solidified to meet acceptance criteria at secure disposal facilities. Stabilized wastes, including CCR, can be stabilized and can achieve transportation and disposal requirements, while retaining the ability to leach CCR constituents when contacted by water. Due to the many meanings of the term stabilization, EPA must not reclassify stabilized CCR to the encapsulated category.

C. Agricultural applications

The information contained in the EPA's summary of the "EPA CCR BU Stakeholder Engagement Conference Call with Agricultural Retailers Association" demonstrates the need to subject the use of CCR in agricultural applications to regulatory oversight.[20] According to representatives of the Agricultural Retailers Association ("ARA"), FGD gypsum is used to supply calcium to crops, including peanuts and vegetables such as peppers and tomatoes. The ARA indicated how gypsum stockpiling begins each year in April, May, and June when the CCR is delivered by trucks. Users typically stack the FGD gypsum in 10,000-ton piles in order to maintain the piles "below the current 12,400-ton cutoff,"[21] thus avoiding the requirement to develop an environmental demonstration under the fourth criterion of the beneficial use definition.[22] The FGD gypsum is "placed on a compressed dirt area," and a "holding pond is used to capture gradually declining material."[23] Use rates for FGD gypsum are about 1,000 pounds per acre, and a typical application is 150-200 tons.[24] The ARA commented that these practices are "generalizable and *applied everywhere*."[25]

It is clear from the ARA's description that releases of CCR constituents to air, groundwater and surface water are likely during storage of the FGD gypsum in piles that are exposed to wind and water and from placement directly on the ground without an impermeable barrier. Avoidance of the fourth criterion's environmental demonstration requirement and the CCR rule requirements, which users dub "onerous site evaluation and storage requirements,"[26] has resulted in an absence of information concerning potential leaching or wind dispersion of the FGD gypsum. The ARA indicated that the price of FGD gypsum was approximately $4/ton.[27] A valuation this low may not provide an incentive to take sufficient care that FGD material is not washed away, dispersed by wind, or discarded. In any event, the purposeful avoidance of the

[20] *See* EPA Stakeholder Engagement Meeting Summaries (May to Aug. 2020) ("Stakeholder Summaries"), CCR BU Stakeholder Engagement Conference Call with Agricultural Retailers Association, Summary Notes, Docket ID. No. EPA-HQ-OLEM-2020-0463-003, PDF 1, § 1 at 2-4 (May 27, 2020).
[21] *Id.*, § 1 at 4.
[22] 40 C.F.R. § 257.53.
[23] *See* Stakeholder Summaries, § 1 at 3.
[24] *Id.*, § 1 at 3-4.
[25] *Id.*, § 1 at 4 (emphasis added).
[26] Stakeholder Summaries, EPA CCR BU Stakeholder Engagement Conference Call with American Coal Ash Association ("ACAA"), National Ready-Mix Concrete Association, and Portland Cement Association, § 2 at 6 (May 28, 2020).
[27] Stakeholder Summaries, § 1 at 3.

environmental demonstration requirement must be considered by EPA, since mismanagement of volumes of FGD gypsum below the 12,400-ton threshold may harm air and water.

According to the attached expert report by Mark Hutson, the analyses offered by the Electric Power Research Institute ("EPRI") as evidence supporting the use of FGD gypsum for agricultural uses is of questionable value for informing public policy.[28] The fact that an undetermined segment of the entire FGD gypsum population was excluded from the evaluation clouds the relevance of the evaluation. Results of the Synthetic Precipitation Leaching Procedure ("SPLP") leachate analyses conducted on FGD gypsum and mined gypsum showed that under test conditions the FGD gypsum wastes leached twelve constituents in significantly higher concentrations than was released by mined gypsum. The median concentration of boron in SPLP leachates from FGD gypsum samples was at least three orders of magnitude higher than leachate derived from mined gypsum. The significance of the analytical tests cited is also questionable. EPA has for many years acknowledged the limitations of the SPLP test procedures with regard to characterizing leaching potential from coal combustion wastes. In addition, in 2010 EPA published results of testing conducted on twenty FGD gypsums that had been analyzed using the Leaching Environmental Assessment Framework ("LEAF") methods. Results of EPA's testing showed that at the upper end of the leachate concentrations ranges for antimony, arsenic, boron, cadmium, molybdenum, selenium, and thallium concentrations exceed drinking water or other potentially applicable standards, and in the case of selenium even exceeded the toxicity characteristic value for a hazardous waste.[29] The discrepancy in results obtained by EPA and EPRI further calls into question the validity of EPRI's conclusions. The multiple sources of uncertainty that underlie the conclusions presented in EPRI's 2011 comments should make an appropriately skeptical reviewer very cautious in accepting the cited results at face value.

Finally, EPA stated that a draft report evaluating the beneficial use of FGD gypsum in agricultural applications has been completed, in conjunction with the United States Department of Agriculture and is undergoing review.[30] Commenters urge the swift completion and publication of this report for comment because it is likely to have a bearing on any rulemaking affecting agricultural use of CCR.

V. EPA MUST ISSUE REGULATIONS, NOT GUIDANCE, TO ESTABLISH PROTECTIVE STANDARDS FOR UNENCAPSULATED USE OF CCR.

EPA indicates in the NODA that it is considering developing guidance, such as "a best practice guide for using CCR in fill, structural fill, or other unencapsulated uses," in lieu of regulations.[31] The agency's suggestion to rely on guidance, rather than an enforceable rule, is misguided. The CCR Rule must prevent a reasonable probability of adverse effects on health or the environment in order to meet the protectiveness standard required by Section 4004(a) of

[28] Hutson Beneficial Use Report.
[29] *See* 75 Fed. Reg. 35,128, 35,141-42 (June 21, 2010).
[30] Stakeholder Summaries, EPA CCR BU Stakeholder Engagement Conference Call with Utility Solid Waste Activities Group, American Public Power Association, and National Rural Electric Cooperative Association, § 3 at 7 (June 3, 2020).
[31] 85 Fed. Reg. at 83,482.

RCRA.[32] The rule functions as a floor; states are free to establish more stringent standards, but they cannot adopt less protective ones. In contrast, guidance by definition is not enforceable, and states are not bound to adopt it. Reliance on guidance, rather than enforceable regulations, will encourage a race to the bottom in some states, with resulting harm to health and the environment.

Alternatively, EPA is also considering whether criterion 4 of its beneficial use definition should apply only to a subset of unencapsulated uses. EPA suggests, for example that "certain [unencapsulated beneficial] uses could potentially be excluded *if there are sufficient regulations at the federal, state, and local level that provide for engineering controls* of the beneficial use application."[33] There is nothing in the record that indicates there are sufficient regulations on any level that require protective engineering controls. As we demonstrated in our Phase 2 Comments, state regulations pertaining to the use of CCR as fill are inconsistent, deficient, and inadequate to protect health and the environment.[34] Similarly, state regulations fail to adequately address waste piles that are located on non-utility sites.[35] A federal rule is absolutely necessary in the absence of consistent and effective state standards.

Lastly, industry commenters have asserted that standards developed by the American Society of Testing and Materials ("ASTM") can function in lieu of regulations for the use of unencapsulated CCR, particularly in the construction of structural fills and the use of CCR in agricultural applications and waste stabilization.[36] In fact, these commenters have suggested eliminating the fourth criterion of the beneficial use definition at 40 C.F.R. § 257.53.[37] While the ASTM standards may be useful in some contexts, these are not enforceable standards. In fact, the ASTM standards are not even available to the public (without a large fee), and the standards have not been subject to government review and approval. There is no guarantee that such standards will be implemented nor are there consequences to the user if they are not. The presence of such standards fails to guarantee that harm to health and the environment will not routinely occur from "beneficial" use of CCR.

VI. GENERAL QUESTIONS POSED BY EPA IN THE NODA

A. EPA requests information regarding the site and location characteristics and the design and construction requirements for CCR used in structural fill projects.

Our 2019 Phase 2 comments contain extensive information regarding the *inadequacy* of siting, design, and construction requirements for CCR used in structural fill projects at both the federal and state levels.[38]

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[32] 42 U.S.C. § 6944(a).
[33] 85 Fed. Reg. at 83,482 (emphasis added).
[34] Phase 2 Comments, State Beneficial Use Survey (attached).
[35] *See* Section VI.B.2, *infra.*
[36] *See, e.g.*, Comments of the Utility Solid Waste Activities Group on Hazardous and Solid Waste Management System: Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability, Docket ID No. EPA-HQ-OLEM-2020-0463-0032 at 3, 12-16 (Feb. 22, 2021).
[37] *Id.* at 3.
[38] Phase 2 Comments at 47-51; *see also id.*, State Beneficial Use Survey.

B. EPA requests information regarding state and local policies and regulations pertaining to specific unencapsulated uses of CCR for beneficial use.

1. *Deficiencies of State Regulations Pertaining to Use of CCR as Fill*

In our Phase 2 Comments, we included a detailed State Beneficial Use Survey of state law governing the use of CCR as fill.[39] Our analysis of state CCR beneficial use regulations demonstrated the need for a federal rule establishing protective standards for use of unencapsulated CCR. In the absence of a federal rule, Americans are subjected to a patchwork of mostly inadequate state rules. State regulation of CCR use ranges from a total absence of use restrictions, to a web of exemptions, to case-by-case individual permits. Only a handful of states, in fact, place restrictions on the use of CCR as structural fill. Moreover, even states with some restrictions fail to establish the comprehensive set of safeguards necessary to protect human health and the environment.

In our State Beneficial Use Survey, we determined that nineteen states (thirty-eight percent) do not directly regulate CCR beneficial use, including: three states that appear to entirely lack any solid waste beneficial use requirements (Arizona, Hawaii, and Nevada); twelve states that regulate beneficial use of waste materials, but exempt or do not specifically regulate CCRs (Arkansas, Connecticut, Massachusetts, Missouri, New Hampshire, New Mexico, Oregon, Rhode Island, South Dakota, Tennessee, Washington, and Wyoming); and four states that have adopted the federal coal ash beneficial use regulation (Alabama, Oklahoma, Vermont, Virginia).[40]

2. *Deficiencies of State Regulations Pertaining to CCR Waste Piles*

Specifically, EPA requested detailed and specific information about facilities and sites to which existing regulations apply (e.g., cement and concrete manufacturing plants, wallboard manufacturing plants, agricultural retail facilities and farms, or utilities).[41] EPA also asked for specific examples of these regulations and requirements (*e.g.*, leachate controls, surface water runoff sampling, area groundwater monitoring in the form of permits, beneficial use determinations, or other documentation of compliance).[42]

Commenters reviewed more than twenty state regulations on CCR piles and found that the vast majority of states do not adequately regulate CCR piles.[43] Only a few states have comprehensive regulations specific to beneficial use of CCR.[44] Some states, like Alabama and Texas, have no applicable regulations beyond the incorporation of the definition of "beneficial

[39] State Beneficial Use Survey.
[40] *Id.*
[41] 85 Fed. Reg. at 83,483.
[42] *Id.*
[43] Surveyed states include, but are not limited to, those with multiple cement and/or gypsum manufacturing plants – where CCR storage may lead to air and water contamination – including Alabama, California, Colorado, Illinois, Indiana, Florida, Maryland, Missouri, Montana, New York, Oklahoma, Texas, Pennsylvania, and South Carolina.
[44] *See, e.g.*, 25 Pa. Code §§ 290.1 through 290.415.

use" at 40 C.F.R. § 257.53[45] and/or exempt beneficial use of CCR from other CCR regulations.[46] Where regulations do exist, they almost universally fail to adequately manage the risks of release of hazardous substances from CCR piles. For example, some states have vague, challenging-to-enforce mandates that CCR beneficial use not pose significant risks to public health and the environment, without imposing – or imposing very few – specific measures to achieve these mandates.[47] Illinois is one of several states that imposes these vague mandates, but it does not impose reporting requirements when the CCR is used in cement, concrete, and gypsum wallboard.[48] Other states, like Maryland, have mandates to limit water pollution, but have not codified setback requirements to advance these mandates.[49] Other states limit the duration of CCR piles, but require no measures to verify compliance with those mandates.[50] Pennsylvania's comprehensive beneficial use regulation is one of the few with CCR pile size limits, standards for chemical analysis, and liner requirements.[51] This patchwork of state regulations leaves glaring regulatory gaps.

Current federal regulatory schemes do not fill those gaps. Stormwater permit requirements do not adequately protect against water pollution, as they are primarily designed to reduce (or, in some cases, eliminate) discharges of pollutants to surface waters from contaminated stormwater runoff but not to prevent other forms of releases, including releases to

[45] "Beneficial use of CCR means the CCR meet all of the following conditions: (1) The CCR must provide a functional benefit; (2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction; (3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and (4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use." 40 C.F.R. § 257.53.

[46] *See, e.g.*, Ala. Admin. Code 335-13-15 regulates CCR disposal in landfills and surface impoundments but does not apply to CCR in beneficial use ("(f) This chapter does not apply to practices that meet the definition of a beneficial use of CCR."); *see also* Illinois where the recently-implemented Section 845 of Title 35 of the Administrative Code regulates CCR surface impoundments but does not apply to CCR in beneficial use (35 ILCS § 845.100(f) states that "This Part does not apply to the beneficial use of CCR") although 415 ILCS 5/3.135, *infra*, imposes vague beneficial use CCR regulations.

[47] *See, e.g.*, Fla. Stat. Ann. § 403.7047(2) ("The storage of fossil fuel combustion products destined for beneficial use must . . . be conducted in a manner that does not pose a significant risk to public health or violate applicable air or water quality standards"); *see also* 9 Va. Admin. Code 20-85-40(3) (for 12,400 tons or less of unencapsulated CCR, regulations specify that storage and stockpiling "shall be in a manner necessary to protect human health and safety and the environment").

[48] 415 ILCS 5/3.135(a)(2); (a-5)(C), (D), (E).

[49] *See* Md. Code Regs. 26.04.10.01 through 26.04.10.10.

[50] *See* 415 ILCS § 5/3.135(a-5)(E) ("[Coal combustion byproduct ("CCB")] is not to be accumulated speculatively. CCB is not accumulated speculatively if during the calendar year, the CCB used is equal to 75% of the CCB by weight or volume accumulated at the beginning of the period"); Phase 2 Comments at 104-06.

[51] *See* 25 Pa. Code §§ 290.1 through 290.415.

groundwater.[52] Surface water runoff controls do not in any way address releases to groundwater or adequately substitute for the 2015 CCR Rule's protections against releases from landfills.

Air permits also lack sufficient protections to minimize dust pollution from CCR piles. In the air permits discussed below, the mandates are minimal and vague, making enforcement highly challenging. For example, a Title V Air Permit for an Iowa manufacturer that uses mined gypsum only requires that the facility avoid "visible emissions" and take "reasonable precautions" to prevent causing a nuisance with respect to fugitive dust, but does not require specific control measures or any monitoring requirements for fugitive dust.[53] Similarly, the only controls required by a Title V permit for a bottom ash storage pile at Maryland's Lehigh cement company is a vague directive to take "reasonable precautions to prevent particulate matter from becoming airborne."[54] These mandates are wholly insufficient to limit pollution from CCR piles.

Finally, fugitive dust plans for coal ash at CCR-rule regulated power plants do not adequately address the risks of pollution from piles of CCR accumulated for beneficial use. For example, the wallboards manufactured at facilities in Carrollton, KY (near Kentucky Utilities Company's Ghent Generating Station); Moundsville, WV (near American Electric Power's Mitchell Plant); and Roxboro, NC (near Duke Energy's Roxboro Steam Electric Plant) contain high amounts of pre-consumer recycled content (or FGD).[55] The plans do not provide the public or regulators with adequate information and provisions to protect public health and the environment.

The plan for the Ghent Generating Station, for example, states that "a large portion of the gypsum is dewatered and shipped by barge to a wallboard manufacturer,"[56] and notes that gypsum is "sluiced with a moisture content that will be adjusted as necessary . . . to minimize dusting,"[57] but does not describe what happens once the gypsum leaves the site. There is no indication of whether the barge carrying the gypsum is covered, whether moisture is added to minimize dust while the gypsum is transported by barge, or what measures are taken to minimize dust once the gypsum reaches the wallboard facility. Similarly, the fugitive dust plant for the Mitchell plant describes measures taken onsite to limit CCR fugitive dust, including "moisture

[52] *See, e.g.*, 40 C.F.R. §§ 122.26(b)(14)-(15), 411.30.
[53] *See* Iowa Dep't of Nat. Resources, Title V Operating Permit Draft, Permit No. 99-TV-028R3 – CertainTeed Gypsum & Ceiling Mfg, Inc. (Aug. 21, 2019) (attached).
[54] *See* Md. Dep't of the Env't, Part 70 Operating Permit, No. 24-013-0012 – Lehigh Cement Company, Union Bridge (Jan. 1, 2017) (attached).
[55] *See* CCR Fugitive Dust Control Plan – Ghent Generating Station at 3 (Oct. 2015) ("Ghent Fugitive Dust Plan") ("Approximately one-third of the gypsum generated at Ghent is beneficially reused as wallboard additive. In addition, coal ash has been approved for direct application to roadways in the winter months for traction control and as a soil additive for agricultural purposes."), https://ccr.lge-ku.com/sites/ccr/files/ccr/W_GH_GNST_OR_FUGDST_101915.pdf; Kentucky Power Company, Mitchell Plant: Coal Combustion Residuals Fugitive Dust Control Plan at 6 (Revision 2, Sept. 2019) ("Mitchell Fugitive Dust Plan"), https://www.aep.com/Assets/docs/requiredpostings/ccr/2019/11-4-2019/ML-FugitiveDustPlan-101419.pdf; CCR Fugitive Dust Control Plan: Duke Energy Progress, LLC Roxboro Steam Station at 2 (Oct. 2018) ("Roxboro Fugitive Dust Plan"), https://www.duke-energy.com/_/media/pdfs/our-company/ash-management/rox-plan-dust.pdf?la=en.
[56] Ghent Fugitive Dust Plan at 4.
[57] *Id*. at 7.

content of the gypsum; and enclosed or partially enclosed conveyors and transfers."[58] Nowhere, however, does the plan describe measures taken to minimize CCR dust once the gypsum arrives at the wallboard facility. The fugitive dust plan for the Roxbury plant likewise lacks information about any offsite controls to minimize dust from gypsum at the adjacent wallboard plant.[59] In short, CCR fugitive dust plans for regulated sites do not adequately address – or address at all – minimizing CCR fugitive dust from CCR piles for beneficial use at offsite locations.

C. EPA requests data, documented damage cases, or other information pertaining to beneficial use applications that has become available since 2010.

Commenters submitted extensive documentation of damage cases and other information concerning harm from beneficial use applications in their Phase 2 Comments and during the 2020 EPA stakeholder meetings.[60] Much of this information became available after 2010. While significant examples of harm caused by beneficial use applications have been provided to EPA, documentation of damage is very difficult because beneficial use sites are rarely monitored and often the use of coal ash is not even known to the public. Examples abound of coal ash that has been used in ways likely to cause releases and unsafe exposure to hazardous substances, for example as fill in residential areas, as unpaved roads, as paths and as cover at municipal solid waste landfills. The impact of these applications is not known because these sites are not monitored. Therefore, any current count of "damage cases" likely significantly underestimates the harm. As the American Coal Ash Association observed, "more than 200 million tons of [coal combustion products] have been placed in structural fill applications since 1980."[61] It is highly likely therefore that there are many sites currently contaminating groundwater and surface water that have not yet been documented.

VII. GENERATION AND OFF-SITE MANAGEMENT OF CCR ACCUMULATIONS

A. EPA is considering developing a best practice guide on the appropriate environmental controls that should be utilized for various storage and staging situations.

As explained in Section V, *supra*, EPA must not issue guidance in lieu of enforceable regulations for establishing critical environmental controls for storage and staging of CCR.

[58] *See* Mitchell Fugitive Dust Plan at 6.
[59] *See* Roxboro Fugitive Dust Plan at 2.
[60] *See, e.g.*, Phase 2 Comments at 29-91.
[61] American Coal Ash Association, Disposal of Coal Combustion Residuals From Electric Utilities; Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability, EPA Docket ID. No. EPA-HQ-OLEM-2020-0463-0027 (Feb. 22, 2021) at 8.

B. EPA is considering whether to incorporate into the regulations a specific exemption for wallboard-grade FGD gypsum that has not been discarded and is continually managed as a valuable product from the point of generation at the utility to the manufacturing of the wallboard.

EPA must not incorporate into the CCR Rule a specific exemption for wallboard-grade FGD gypsum. Wallboard manufacturers store FGD gypsum in piles without cover, and piles may sit directly on the ground and are likely to be unmonitored. Thus, it is reasonable to assume releases are occurring from such piles, given the data in the record documenting releases from gypsum accumulations at utility sites. There are no data in the record indicating that gypsum piles at industry sites have been monitored are not similarly releasing hazardous contaminants to water or air. Thus there is a reasonable probability that storage without safeguards of FGD gypsum at industrial facilities would have adverse effects on health and the environment. Consequently, an exemption for FGD gypsum at wallboard manufacturing facilities would violate the protectiveness standard of Section 4004(a) of RCRA.

VIII. DAMAGE FROM CCR ACCUMULATIONS AT INDUSTRIAL FACILITIES

In our Phase 2 Comments we provided extensive information, expert reports and recommendations regarding the storage of CCR accumulations at industrial facilities.[62] Although there were no monitoring data available at such industrial facilities, the documented groundwater contamination caused by existing CCR waste piles at utility sites as well as the contamination caused by CCR landfills demonstrated the need for protective safeguards at CCR piles operating at non-utility sites. Thus, in order for the rule to meet the RCRA protectiveness standard, we made the following recommendations. EPA must:

- Retain current safeguards at onsite CCR waste piles, which are currently regulated as landfills and subject to all the requirements applicable to landfills. In addition, EPA must strengthen dust controls at CCR piles by requiring cover of all waste piles as well as air monitoring.

- Establish containment requirements for CCR accumulations stored at industrial sites that are effective to prevent releases of CCR and CCR constituents to water and air. Such measures must include storage on impermeable liners, dust monitoring,

[62] *See, e.g.*, Phase 2 Comments at 19-20, 92-118; Expert Reports, Steven K. Campbell, Ph.D., P.G., Technical Memo Evaluating Aspects of Three Environmental Demonstrations for the Beneficial Reuse of Coal Combustion Residuals (CCRs), USA (Sept. 25, 2019) ("Campbell Expert Report"); Expert Comment Report on EPA's Proposed Rule (August 14, 2019): 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 Number EPA-HQ-OLEM-2018-0524 (Oct. 15, 2019) ("Sahu Expert Report"); Mark A. Hutson, P.G., Responses to EPA Solicitation for Comments on Enhancing Public Access to Information; Reconsideration of Beneficial Use Criteria and Piles (Oct. 14, 2019) ("Hutson Expert Report"); Paul Mathewson, Ph.D, Wisconsin Coal Ash Landfill Groundwater Monitoring Data Analysis, A Review of the Impacts on Groundwater of 25 Coal Combustion Residuals Monofills (Oct. 14, 2019) ("Mathewson Expert Report").

groundwater monitoring, location restrictions,[63] corrective action provisions, and other specific dust control measures detailed in our Phase 2 Comments.[64]

- Comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* to prevent disproportionately high and adverse health or environmental impact on low-income communities and communities of color.

The information in the NODA docket reinforces the above recommendations concerning CCR waste piles at off-site facilities. The industry descriptions of CCR reuse, transport and storage indicate that CCR is stored at many gypsum manufacturing facilities in piles without containment,[65] and the use of fly ash at cement manufacturing facilities similarly provides opportunities for release of CCR to air and water. No evidence was provided in the NODA that indicates such releases are routinely addressed or monitored, and no information was provided indicating sufficient or consistent federal, state or local regulation of such accumulations. In fact, industry statements, such as by the Portland Cement Association ("PCA"), indicate that the threat level is likely to rise. According to the EPA's summary of the "EPA CCR BU Stakeholder Engagement Conference Call with American Coal Ash Association, National Ready-Mix Concrete Association, and Portland Cement Association," the PCA representative stated, "[a]s utilities shift to a more intermittent approach of burning coal, i.e., 'peak' energy use, CCR availability, sourcing, and delivery have become more erratic, *requiring beneficial users to develop and handle larger stockpiles to ensure sufficient supply*. This consideration also applies to wallboard manufacturers (using FGD gypsum)."[66] Thus our recommendations above remain consistent with the additional information contained in the NODA.

IX. DAMAGE FROM UNENCAPSULATED USE OF CCR AS FILL

In our Phase 2 Comments, we submitted extensive information, recommendations and expert reports regarding the actual and potential harm from unencapsulated use of CCR as fill.[67] In sum, the data received to date by EPA demonstrate the many sites at which beneficial use of

[63] *See, e.g.*, 25 Pa. Code § 290.406(d), § 290.101(e).
[64] *See* Phase 2 Comments at 102.
[65] *See, e.g.*, Comments Submitted by the Gypsum Association, Docket ID No. EPA-HQ-OLEM-2020-0463-0028 (Feb. 22, 2021); Stakeholder Summaries, Meeting Notes for Stakeholder Engagement Conference Call with the Gypsum Association, § 4 (June 4, 2020).
[66] *See* Stakeholder Summaries, § 2 at 6 (emphasis added).
[67] *See, e.g.*, Phase 2 Comments at 2-92; *see also* expert reports submitted including Steven K. Campbell, Ph.D., P.G., Technical Memo Evaluating Aspects of Three Environmental Demonstrations for the Beneficial Reuse of Coal Combustion Residuals (CCRs), USA (Sept. 25, 2019) ("Campbell Expert Report"); Expert Comment Report on EPA's Proposed Rule (Aug. 14, 2019): 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 Number EPA-HQ-OLEM-2018-0524 (Oct. 15, 2019) ("Sahu Expert Report"); Mark A. Hutson, P.G., Responses to EPA Solicitation for Comments on Enhancing Public Access to Information; Reconsideration of Beneficial Use Criteria and Piles (Oct. 14, 2019) ("Hutson Expert Report"); Paul Mathewson, Ph.D, Wisconsin Coal Ash Landfill Groundwater Monitoring Data Analysis, A Review of the Impacts on Groundwater of 25 Coal Combustion Residuals Monofills (Oct. 14, 2019) ("Mathewson Expert Report").

CCR as fill contaminated groundwater above federal health and state standards, caused dangerous fugitive dust, required remediation under state and federal cleanup programs, and posed harm to human health via direct contact, as a result of hazardous contaminants exceeding safe levels.

Multiple industry comments stated that the NODA provided no information on any new damage cases "from CCR beneficially used consistent with the 2015 CCR rule beneficial use criteria."[68] In fact, the National Rural Electric Cooperative Association goes so far as to insist that there "is nothing in the rulemaking record that would support revising the 2015 criteria."[69] In fact, Utility Solid Waste Activities Group ("USWAG") states, "Indeed, no [environmental non-governmental organization] representative during this meeting was able to identify an actual instance of environmental harm from CCR beneficially used in accordance with the rule's criteria or from CCR accumulated in accordance with the CCR rule.[70] This, however, is not the case.

A. Dumping of coal ash in Fairbanks, Alaska

The decade-long dumping of coal ash by Aurora Energy, Inc. at a "structural fill site" in Fairbanks, Alaska provides an excellent example of a current and ongoing damage case. In addition, the site illustrates how the CCR Rule's requirements for beneficial use are insufficient to protect health and the environment.

For more than ten years, concern over the high-volume coal ash dumping in the wetland area at Harold Bentley Dr. and Northside Blvd. in Fairbanks has attracted the attention of local residents, the Alaska Department of Environmental Conservation, Solid Waste Division ("ADEC") and the US Army Corp of Engineers, Alaska District ("USACE"). To illustrate the problem, as well as the ineffective government response, we provide numerous documents received as part of a Freedom of Information Act request submitted to the USACE in August 2020 (attached).[71]

The documents reveal that coal ash from Aurora Energy's Chena Power Plant has been used as fill at the Fairbanks site for at least ten years. The Chena Power Plant generates about 50,000 tons of coal ash annually, but the utility maintains no CCR compliance website, which indicates that it does not operate any CCR disposal units onsite. Further, there is no coal ash landfill operating in Fairbanks. Based on data in emails from ADEC, it appears that from 2012 to 2017, Aurora Energy has disposed of a large portion of its coal ash as "structural fill" at a site

[68] *See* Comments of National Rural Electric Cooperative Association (NRECA), Docket ID No. EPA-HQ-OLEM-2020-0463-0039 at 4 (Feb. 22, 2021).
[69] *Id.*
[70] Utility Solid Waste Activities Group, Comments of The Utility Solid Waste Activities Group on Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Reconsideration of Beneficial Use Criteria and Piles; Notification of Data Availability, Docket ID. No. EPA-HQ-OLEM-2020-0463 at 14 (Feb. 22, 2021).
[71] *See* Response of USACE to Ms. Patrice Lee (Sept. 21, 2021), which include records of communication between the US Army Corps of Engineers and the Alaska Department of Environmental Conservation pertaining to solid waste/coal ash dumping at Harold Bentley Dr. and Northside Blvd. from 2017 to present (attached).

referred to as the Northside Business Park property.[72] The original USACE permit to fill the property was issued in 2008 to allow 118,899 cubic yards of coal ash, but it has since been amended and expanded multiple times. Annual coal ash deposition figures have not been provided for the years 2008–2012, but it is likely that substantial deposition also occurred during these years. Despite the placement of large amounts of coal ash as fill over thirteen years, there is no business park yet constructed at the site.

Instead, the documents obtained from the USACE reveal large volumes of uncovered coal ash in and near wetlands and in waterbodies. The documents, which date from 2014 to 2017 and include correspondence between USACE and ADEC, reveal concern about potentially illegal activity and permit violations. Descriptions and photographs indicate the dumping of coal ash in close proximity to and into water and wetlands, erosion caused by water flowing through piles of coal ash up to three-feet deep, use of excess amounts of coal ash,[73] potential placement of coal ash into the water table,[74] unauthorized placement of large volumes of ash,[75] and large areas of uncovered coal ash piles. While testing of ash, water and sediment is discussed by the officials, the necessary testing does not appear to have occurred.

In fact, despite the concern expressed by USACE and ADEC officials regarding the dumping, the officials appear shockingly ill-informed of the risk of coal ash and even of the requirements of the CCR rule. For example, when providing advice to USACE regarding testing of the onsite pond for the presence of coal ash, an ADEC official stated in an email, "Speaking for the Solid Waste program, because analytical testing of Alaskan coal ash shows that the material does not readily leach contaminants, our primary concern is avoiding physical changes to surface water (e.g. discoloration)."[76]

However, analytical testing of Alaskan coal ash has never demonstrated that it "does not readily leach contaminants." In fact, nowhere in the record does it appear that coal ash from the Chena Power Plant was tested using the LEAF test. Toxicity characteristic leaching procedure ("TCLP") and SPLP analyses have been provided in various industry and government documents, but these tests, according to EPA, are unreliable to determine leaching and often underestimate the level of leaching that will occur in a real-world setting. In addition, what is known to officials regarding the coal ash from the Chena Power Plant is concerning. For example, the elevated pH (maximum 11.13 S.U.[77]) and the high total metals of the Aurora Energy fly ash (e.g., 160 mg/kg of arsenic, 95 mg/kg of chromium, 37 mg/kg of selenium, 17 mg/kg of uranium and 210 mg/kg of vanadium)[78] indicate a high risk that coal ash leachate from

[72] *See* Correspondence from Northside Management to ADEC (Feb. 6, 2014) at 1 (attached).
[73] Letter from Douglas Buteyn, ADEC to Daniel Himebauch, North Side Management, Inc. (Dec 30, 2014) (attached).
[74] *Id.*
[75] *Id.*
[76] Buteyn, Douglas (ADEC) Email to Lyons, Ellen (USACE), Re: [Non-DoD Source] RE: Northside Business Park, Himebauch (July 10, 2017) (attached).
[77] Haley and Aldrich, Evaluation of Beneficial Use Evaluation of Coal Combustion Residuals, as Structural Fill—CCR Rule Component 4, Tbl. 2 (Mar. 31, 2016) ("Haley and Aldrich Report") (attached).
[78] *Id.*

the ash may contain these hazardous metals in significant amounts.[79] Coal ash that has a high pH is likely to leach higher levels of dangerous metals such as arsenic, lead, cadmium and selenium.

Furthermore, the "environmental demonstration" generated for the site pursuant to the CCR Rule was grossly insufficient. The analysis, completed by Lisa Bradley of Haley and Aldrich in 2016, simply comments on SPLP analytical data and bulk analyses of CCR that were supplied by Aurora Energy.[80] SPLP data, as explained above, is not reliable for predicting leaching of coal ash in the field. Nevertheless, based on the single exceedance for aluminum noticed by the consultant of groundwater standards in the SPLP data, Bradley concludes that there is no risk to groundwater. However, even based on the SPLP data, the molybdenum concentration at 65.8 ug/L also exceeds EPA's groundwater protection standard of 40 ug/L. Concerning levels of leaching for chromium and lithium are also presented in the data but receive no comment from Bradley. Furthermore, Bradley's comparison of the leach data only to groundwater standards for human consumption as drinking water ignores the wetland and pond features of the site that are likely harmed by the coal ash and its constituents.

The bulk analysis of the Aurora Energy coal ash that is contained in the environmental demonstration similarly raises concerns. Data reveal cobalt and arsenic levels above EPA's safe levels for residential soil.[81] While these levels may not pose a problem if the CCR was placed beneath a road or buildings at an industrial park, it should have been clear to the consultants that no construction has occurred on the site, and large amounts of ash are left uncovered, subject to leaching, direct contact and airborne dispersal.

In sum, despite repeated attempts by concerned citizens in Fairbanks to bring this "fill" project to the attention of state and federal regulators, the significant risks presented by the site have been repeatedly ignored, and the application of the CCR rule's weak safeguards for fill have proven entirely ineffective to prevent adverse impacts to the environment. We ask that EPA determine the legality of the dumping at the Northside Business Park property and require those responsible to adequately test the ash, investigate the CCR releases, monitor the groundwater, and remediate the area, as necessary, to restore the groundwater and wetlands.

B. Dumping of coal ash in Puerto Rico

Extensive information has already been submitted to EPA concerning the use of more than two million tons of unencapsulated coal ash from the AES-Puerto Rico ("AES-PR") Guayama Power Plant at dozens of construction projects in Puerto Rico, including housing, commercial developments and road projects.[82] Even though the coal ash was deposited primarily

[79] In addition, the EPA Site Assessment in the NODA Docket found the following after reviewing analyses for total metals in Aurora Energy ash: "Results indicate that concentrations of barium, lead, and mercury in coal ash were significantly higher than concentrations in background soil samples. Significantly higher is defined by the observed release criteria for chemical analysis in the EPA [Hazard Ranking System] Rule." *Id.* at 2-8. Analytical results of soil samples and coal ash samples are presented in Tbl. 2-7.
[80] *See* Haley and Aldrich Report.
[81] *See id.*, Tbl. 2.
[82] *See* Phase 2 Comments.

between 2004 to 2012, uncovered coal ash remains at dozens of the placement sites. The vast majority of construction sites where coal ash was disposed are directly above the South Coast Aquifer in the vicinity of public supply water wells and in proximity to the AES-PR plant in southeastern Puerto Rico. Excess quantities of coal ash were often used to grade construction sites in flood-prone areas in order to raise ground elevations. In some cases, construction projects were filled with coal ash below the water table.[83] The exposed ash that remains today threatens the health of Puerto Rico residents via airborne dust, direct contact, and potential damage to drinking water and surface water. The Guayama region where the coal ash was placed has a high percentage of residents of African descent and is historically one of the poorest regions on the island.

The Puerto Rico coal ash issue is already well known to EPA. In fact, EPA expressed concern about the dumping of unencapsulated ash in Puerto Rico in the preamble to the CCR Rule. EPA singled out the AES-PR fill projects as examples of CCR use that would not meet the fourth criterion of the beneficial use definition.[84] Over the course of more than a decade, upon the request of impacted residents, EPA has met with affected Puerto Rico residents and experts in Washington, D.C.;[85] in EPA Region 2 (New York); and at the EPA Caribbean Office in San Juan. Community members have also testified multiple times at EPA public hearings about Puerto Rico coal ash pollution. To date, however, EPA has taken no action. The Agency has failed to require the removal of the exposed coal ash from areas where human exposure is likely, such as near homes, schools and a hospital. EPA representatives inspected the uncovered ash ten years ago, but never returned or required cleanup.

[83] *See* 80 Fed. Reg. at 21,329 ("[T]he available facts illustrate several of the significant concerns associated with unencapsulated uses. Specifically, the AGREMAX was applied without appropriate engineering controls and in volumes that far exceeded the amounts necessary for the engineering use of the materials. Inspections of some of the sites where the material had been placed showed use in residential areas, and to environmentally vulnerable areas, including areas close to wetlands and surface waters and over shallow, sole-source drinking water aquifers. In addition, some sites appeared to have been abandoned.").

[84] *See id.* at 21,328 ("During the development of this final rule, EPA obtained information on a comparable situation in which large quantities of unencapsulated CCR were placed on the land in a manner that presented significant concerns. The AES coal-fired power plant in Puerto Rico lacked capacity to dispose of their CCR on-site, and off-site landfills in Puerto Rico were prohibited from accepting CCR. In lieu of transporting their CCR off of the island for disposal, AES created an aggregate ("AGREMAX") with the CCR generated at their facility, and used the aggregate as fill in housing developments and in road projects. Over two million tons of this material was used between 2004 and 2012.").

[85] On April 17, 2019, medical and scientific experts and impacted residents of Puerto Rico, as well as representatives from environmental groups met with senior officials of the EPA's Office of Land and Emergency Management ("OLEM") to discuss the harm AES coal ash has caused. Numerous EPA staff from EPA headquarters and EPA Region 2 attended, both in person and over the phone. Among those present representing EPA in person in the meeting was the acting Assistant Administrator, Barry Breen; the soon-to-be Acting Administrator, Peter Wright; and senior management officials Barnes Johnson and Betsy Devlin. The latest (virtual) meeting with EPA occurred on March 4, 2021 with Acting Assistant Administrator Barry Breen, Deputy Assistant Administrator Carlton Waterhouse, and OLEM staff.

The AES-PR fill sites in southeastern Puerto Rico exemplify two critical failings of EPA's approach to "beneficial" use of unencapsulated coal ash. The first is EPA's continuing failure to address environmental justice. Contamination at "beneficial" use sites disproportionately occur in low-income communities and communities of color.[86] Health threats in environmental justice communities are often exacerbated by cumulative sources of pollution, as well as limited access to health care and poor nutrition. The Puerto Rico coal ash problem is emblematic, as is EPA's lack of response. EPA must finally correct the inequities of past policies nationwide and stop the harm occurring in environmental justice communities. EPA should start with ordering the cleanup of these festering "beneficial" use sites in Puerto Rico.

Second, the Puerto Rican problem highlights EPA's refusal to tackle head-on the dumping of coal ash in the guise of "beneficial" use at structural fill sites. EPA quibbles about the volume of coal ash that may be used, but never wrestles with the real issue: determining the safeguards that must be imposed on the use of coal ash as fill to protect public health and the environment. Until EPA takes decisive action to determine measures that will prevent the release of hazardous substances at fill sites, EPA should prohibit the practice. In the absence of federal action, dangerous disposal, in the guise of beneficial use, will continue to threaten U.S. communities.

C. Dumping of coal ash in North Carolina

EPA has also received substantial information concerning the use of coal ash as construction fill in North Carolina. According to the North Carolina Department of Environmental Quality ("NCDEQ"), about 1.8 million cubic yards of coal ash from Duke Energy's Marshall Steam Station were buried between 1990 and 2015 in and around Huntersville and Mooresville, two Charlotte suburbs in the Lake Norman area.[87] This volume significantly underestimates the total amount of unencapsulated coal ash used in the area, since the figure does not include many smaller projects that were not required to be documented.

The high incidence of rare cancers in the two towns has been widely publicized. A papillary thyroid cancer cluster, as defined by the Center for Disease Control ("CDC"), has been confirmed in Mooresville by researchers. The incidence in two Mooresville zip codes is nearly three times the national average, and many of those affected are children who attended Lake Norman High School.[88] In addition, at least thirty people in Huntersville, a town of 50,000

[86] Phase 2 Comments at 14.
[87] Savannah Lewis, WCNC Charlotte, 'The gig is up': Erin Brockovich to investigate cancer clusters in Huntersville, Mooresville (Feb. 10, 2020), https://www.wcnc.com/article/news/investigations/erin-brockovich-huntersville-mooresville-cancer-cluster-investigation/275-5cc18dd7-cc94-435e-9fd5-37c61ac2bfd1; *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/; Bruce Henderson, "Coal ash unmonitored in fill sites across NC," Charlotte Observer (Apr. 20, 2014), https://www.charlotteobserver.com/news/local/article9114410.html.
[88] Jaime Gatton, Officials: State 'failed' in response to Mooresville cancer cases, Mooresville Tribune (Oct. 30, 2018), https://mooresvilletribune.com/news/officials-state-failed-in-response-to-mooresville-cancer-cases/article_70cefd9e-dc71-11e8-9f37-276ba9743957.html.

residents, have been diagnosed with ocular melanoma, a rare cancer that normally occurs in five out of every million people.[89] Lack of funding for research has prevented scientists from determining what has caused the disproportionate incidence of cancer.

The alarming problem of coal ash fill sites in North Carolina is not limited to the Charlotte area.[90] Although state records are far from comprehensive,[91] as of 2019, there were 80 structural fills regulated under the North Carolina 13B rules, according to records available in the state's online database.[92] Fills under these rules "are unlined and without groundwater monitoring and an impervious cap."[93] These 80 fills do not include unregulated dump sites created before 1994 and do not account for countless smaller fill sites. The August 2019 inventory of structural fill projects greater than 10,000 cubic yards provides the locations of 50 structural fill sites.[94] Based on these locations, the risks and burdens associated with structural fills in North Carolina are disproportionately carried by communities of color and low-income communities.[95] In addition, most of these fill sites are large, with sixty-four percent exceeding 50,000 cubic yards of coal ash.

The press has reported numerous instances of noncompliance with the North Carolina regulations as well as inadequate state oversight.[96] A limited round of inspections in 2009 by state regulators found violations at fifteen fill sites. Owners of six sites broke rules intended to prevent ash from reaching water. State records of the twenty-three Charlotte-area sites include photos of badly eroded fill sites and uncovered ash deposits. NC solid waste inspectors reported a stream running through one site and an undisclosed well at another.[97] As of 2014, the state

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[89] Savannah Lewis, WCNC Charlotte, 'The gig is up': Erin Brockovich to investigate cancer clusters in Huntersville, Mooresville (Feb. 10, 2020), https://www.wcnc.com/article/news/investigations/erin-brockovich-huntersville-mooresville-cancer-cluster-investigation/275-5cc18dd7-cc94-435e-9fd5-37c61ac2bfd1; *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/

[90] *See* Phase 2 Comments at 23-26.

[91] "[T]here is no notification requirement if the amount of ash is less than 1,000 cubic yards. Nor do state records document all of the old 'legacy' sites — coal ash dumps from the 1950s, for example — when such activity was virtually unregulated." Lisa Sorg, NC Policy Watch, Do you live near a coal ash disposal site? (Sept. 4, 2018), http://www.ncpolicywatch.com/2018/09/04/do-you-live-near-a-coal-ash-disposal-site/.

[92] *See* Phase 2 Comments at 23 at n.95, "North Carolina CCR Structural Fill Sites_EJScreen.xlsx"; North Carolina CCR Structural Fill Sites, Oct. 2019 Compilation.

[93] *Id.*

[94] NCDEQ Inventory of Structural Fill Projects Greater than 10,000 Cubic Yards (Aug. 26, 2019), https://files.nc.gov/ncdeq/Coal%20Ash/SF-Inventory-for-website-20190826.pdf.

[95] *See* Phase 2 Comments at 23-26; *see generally* 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.

[96] Bruce Henderson, "Coal ash unmonitored in fill sites across NC," Charlotte Observer (Apr. 20, 2014), https://www.charlotteobserver.com/news/local/article9114410.html.

[97] *Id.*

reports didn't show any follow-up action.[98] Recently the press reported a twenty-foot deep sinkhole that formed in September 2020 at a coal ash fill site in Mooresville where nearly 49,000 tons of coal ash was placed near Lake Norman. Repeated failures at the same fill site occurred in 2018 and 2019. The state did not require removal of the ash during those repairs, and the 2020 collapse resulted in the release of coal ash to a nearby creek.[99]

The use of coal ash as fill in North Carolina raises two issues that are highly relevant to the EPA's NODA. First, the use of Duke Energy's coal ash was largely untracked, creating unknown risks of exposures throughout the communities that received the ash. As long as regulators turn a blind eye to the dangers of unencapsulated ash in residential areas, near drinking water wells, homes, and on school property, significant threats to health will persist. While industry commenters criticize the record, stating that case histories of harm from coal ash fill are not current enough, the primary problem is that communities are often unaware that coal ash was used as fill. Consequently, contamination and injuries to health likely occur, but without attribution to the placement of coal ash. Any rule that fails to provide for the notification and recordation of placement of unencapsulated coal ash fails the community and certainly fails the protectiveness standard of RCRA. Further, as mentioned earlier in these comments, EPA must require utilities and marketers to report all locations where coal ash has been used as fill.

In addition, state officials in North Carolina failed to provide the public with accurate information concerning the cancer and coal ash threats. On September 28, 2020, the Iredell County Health Department published a document intended to answer questions raised by the public concerning the thyroid cancers, entitled, "Thyroid Cancer & Structural Coal Ash Facility, Iredell County Community Questions and NC Multi-Agency Response."[100] The "Q & A" by "expert panelists" replaced, at least temporarily, a public meeting scheduled for March 2020 that was cancelled due to Covid-19. This document, however, is more spin than science. First, there is no acknowledgement of the thyroid cancer cluster, although the chief researcher from Duke University maintains that the elevated incidence of cancer meets the CDC definition.[101] Second, there are numerous statements by government officials that are grossly misleading and underestimate the risk from coal ash. For example, the North Carolina Occupational and Environmental Epidemiology Branch stated,

> Coal ash can contain heavy metals, like arsenic and cadmium, which are considered carcinogens. Exposure to these carcinogens, via coal ash or other sources, can increase

[98] *Id.*
[99] Joe Marusak, 20-foot sinkhole sent coal ash into Lake Norman-area creek, NC investigators say, Charlotte Observer (Sept. 26, 2020), https://www.charlotteobserver.com/article246001030.html.
[100] Thyroid Cancer & Structural Coal Ash Facility Iredell County Community Questions and NC Multi-Agency Response (Sept. 28, 2020), https://www.co.iredell.nc.us/DocumentCenter/View/15732/2020-03-05-Thyroid--Coal-Ash-Community-Meeting-Questions-from-Survey-003-003; *see also* Iredell County, North Carolina, Thyroid Cancer Information, https://www.co.iredell.nc.us/1255/Thyroid-Cancer-Information.
[101] Conversation with Dr. Heather Stapleton, Duke University (Apr. 27, 2021).

> the risk of getting cancer . . . . It is difficult to determine whether an individual's cancer risks could be increased through coal ash exposure.[102]

In fact, for many decades, EPA and industry have known that coal ash contains heavy metals that are carcinogenic, neurotoxic, and harmful to health in a wide variety of ways. Due to the presence of powerful carcinogens, like arsenic, exposure to coal does increase cancer risk. The question is not whether, but how much.

Further, with regard to exposure via airborne emissions, NCDEQ stated that there are "two primary ways for coal ash to become airborne: release from the plant or movement of dry ash to the landfill."[103] NCDEQ failed to mention exposure from fugitive dust from coal ash disposed of in people's yards or at a local school. This is a particularly egregious omission because the lack of cover over a 40,000-ton deposit of coal ash at the Mooresville High School has recently required government remediation.[104]

Communities like Mooresville, where families have experienced the tragic consequences of cancer, need truth, transparency and clarity. The obfuscation of the issue by North Carolina public officials is not benign; it causes significant damage. Because officials in North Carolina have refused to acknowledge the cancer cluster, research remains at a standstill due to lack of funding and government support. The only significant research to date occurred as a result of the raising of funds by Susan Wind, a parent of a child with thyroid cancer. This is wholly unacceptable. The public has a right to a clear articulation of the risks posed by coal ash and the harm occurring in their communities. The search for the truth must not be hampered by politics, and EPA should provide clear and complete information as well as assistance in determining the cause of diseases that may be coal-ash related.

D. Fugitive dust and use of unencapsulated coal ash

Deaths and serious illness have occurred from direct contact with and inhalation of coal ash.[105] The devastating harm suffered by cleanup workers of the coal ash spill at the Kingston Tennessee Valley Authority ("TVA") Fossil Plant in Harriman, Tennessee provides tragic confirmation of this risk.[106] In the decade following the TVA cleanup, more than fifty cleanup workers died and over 400 have been sickened by the inhalation of coal ash, all with ailments known to be caused by long-term exposure to arsenic, radium and other toxins and metals found in coal ash, according to a lawsuit filed after the spill.[107] Seventy-three plaintiffs, comprising sick

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[102] Thyroid Cancer & Structural Coal Ash Facility Iredell County Community Questions and NC Multi-Agency Response (Sept. 28, 2020), https://www.co.iredell.nc.us/DocumentCenter/View/15732/2020-03-05-Thyroid--Coal-Ash-Community-Meeting-Questions-from-Survey-003-003.
[103] *Id.* at 7.
[104] *Id.* at 10.
[105] Phase 2 Comments at 79-82.
[106] *Id.* at 81-2.
[107] *Id.*; *see also* Jamie Satterfield, *Judge rejects TVA contractor's ask for a new trial over coal ash contamination lawsuit,* Knox News (Mar. 1, 2019), https://www.knoxnews.com/story/news/crime/2019/03/01/judge-says-evidence-backs-jury-verdict-kingston-coal-ash-contamination/3017696002/; Jamie Satterfield, *Sickened Kingston coal ash workers left*

workers and families of deceased workers, sued in federal district court and won a jury verdict in November 2018 that found the cleanup contractor failed to exercise reasonable care to protect the health of cleanup workers. The jury also found that exposure to toxic heavy metals and radiation in coal ash could be responsible for the workers' illnesses, including skin rashes, lung disease and cancer.[108]

The use of coal ash as structural fill has been a major source of harmful air pollution. Landfill employees and workers handling coal ash in "beneficial use" operations such as structural fills and minefills often experience harmful exposure to airborne ash. Workers at the Arrowhead Landfill in Uniontown, Alabama, which received more than four million tons of coal ash from the cleanup of the TVA Kingston spill in 2009–2010, reported significant injuries to health.[109] A construction manager overseeing the use of coal ash as fill in the construction of a golf course also claimed serious injury due to inhalation of fly ash.[110] As noted in our Phase 2 Comments, EPA's confirmed "fugitive dust damage cases" include seven structural fill sites.[111] The evidence is clear that use of unencapsulated ash as fill produces harmful fugitive dust that must be properly controlled to prevent serious harm to human health. EPA must establish

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with faulty, manipulated test results, Knox News (Sept. 2, 2018), https://www.knoxnews.com/story/news/crime/2018/09/02/kingston-coal-ash-spill-faulty-manipulated-testing/1126963002/; Jamie Satterfield, *EPA bowed to TVA, contractor on worker safety standards at nation's largest coal ash disaster, records say*, Knox News (Feb. 2, 2017), https://www.knoxnews.com/story/news/crime/2017/08/23/epa-bowed-tva-contractor-worker-safety-standards-nations-largest-coal-ash-disaster-records-say/574855001/; Jamie Satterfield, *Kingston coal ash spill cleanup probe spurs more complaints of disease, death*, Knox News (Aug. 11, 2017), https://www.knoxnews.com/story/news/crime/2017/08/11/kingston-coal-ash-spill-cleanup-probe-spurs-more-complaints-disease-death/551596001/; *180 new cases of dead or dying coal ash spill workers, lawsuit says*, Knox News (Mar. 28, 2018), https://www.knoxnews.com/story/news/crime/2018/03/28/tva-coal-ash-spill-cleanup-roane-county-lawsuits-dead-dying-workers/458342002/; J.R. Sullivan, *A Lawyer, 40 Dead Americans, and a Billion Gallons of Coal Sludge*, Men's Journal (Aug. 26, 2019), https://www.mensjournal.com/features/coal-disaster-killing-scores-rural-americans; Travis Loller, *Sick and dying workers demand help after cleaning coal ash* (Aug. 28, 2019), https://abcnews.go.com/Health/wireStory/tva-backlash-grows-coal-ash-spill-workers-fall-65234169; Sworn Declaration of R. Doug Hudgens, Vanguilder v. Jacobs Engineering Group, Inc., No. 3:15-cv-00462-TAV-HBG, Doc. 129-7 (E.D. Tenn. Oct. 28, 2017); Affidavit of Dan. R. Gouge, Vanguilder v. Jacobs Engineering Group, Inc., No. 3:15-cv-00462-TAV-HBG, Doc. Doc. 129-5 (E.D. Tenn. Oct. 28, 2017); Kingston Ash Release Response Project, Jan. 2013 Rev. 06, at Tbl. 4-2: Fly Ash Constituent Information, Vanguilder v. Jacobs Engineering Group, Inc., No. 3:15-cv- 00462-TAV-HBG, Doc. 129-1 (E.D. Tenn. Oct. 28, 2017).

[108] *See generally* preceding footnote citations.

[109] Holly Haworth, Oxford American, Something Inside of Us, Issue 82 (Nov. 11, 2013), http://www.oxfordamerican.org/articles/2013/nov/11/something- inside-us/.

[110] *See* Marjon Rostami, Norfolk Virginian-Pilot, "Chesapeake fly ash suit against Dominion refiled" (Feb. 22, 2012), http://hamptonroads.com/2012/02/chesapeake-fly-ash-suit-against-dominion-refiled, describing lawsuit by construction manager at the Battlefield Golf Course who alleges his cancer is attributable to arsenic exposure.

[111] Phase 2 Comments at 82; EPA, Damage Cases: Fugitive Dust Impact, Docket ID No. EPA-HQ-RCRA-2009-0640-11992 (Dec. 18, 2014).

effective controls at both structural fill sites and waste piles, including an enforceable particulate standard, to meet the RCRA protectiveness standard.

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

EPA's action seeks comments and information for the agency to consider in reconsidering the beneficial use definition and provisions for CCR accumulations. A key element of its reconsideration process must be to meaningfully administer executive orders as required. Commenters refer EPA to detailed submissions in previous coal ash rulemakings and highlight Executive Order ("E.O.") 12898 here, which is particularly relevant given the known risks detailed in this document and previous comments.[112]

Executive Order 12898 requires that:

> each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.[113]

Despite extensive agency guidance outlining the steps EPA must take to address environmental justice issues and avoid, or at least minimize, disproportionate impacts, the Trump EPA failed to take all lawful and practicable steps to identify and address the disproportionate and adverse impacts of coal ash mismanagement on communities of color and low-income communities in previous rulemakings. The Biden EPA must change course on these recent failures by assessing and preventing adverse health and environmental impacts on low-income communities and communities of color.[114]

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[112] 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; these 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. *See, e.g.*, Phase 2 Comments; *see also* Earthjustice, CCR Rulemaking Index, Trump Administration Wages Multifront Assault on Coal Ash Protections (last updated Dec. 7, 2020), https://earthjustice.org/sites/default/files/files/rulemaking_index_multifront_assault_on_coal_ash_protections_12-07-2020_0.pdf (referencing Coal Ash Phase One Rollback Comments – Apr. 30, 2018; Coal Ash Part A Rule Comments – Jan. 31, 2020; Coal Ash Part B Rule Comments – Apr. 17, 2020; Coal Ash Federal Permitting Program Comments – July 17, 2020; Coal Ash Legacy Ponds Comments – Feb. 12, 2021).

[113] Exec. Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, 59 Fed. Reg. 7629, 7629 (Feb. 11, 1994).

[114] 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

A. Analysis of cement and concrete manufacturing plants and wallboard manufacturing plants

As noted above, EPA should use surveys to obtain a consistent dataset from industries that accumulate CCR. Commenters are unaware of comprehensive and recent data on management practices, nature of CCR storage, and other recordkeeping related to these sites. However, Commenters provide a preliminary analysis of potential intermediary storage facilities, including cement and concrete manufacturing plants and wallboard manufacturing plants,[115] to highlight the importance of assessing and addressing the environmental justice implications of CCR management and mismanagement.

First, cement and concrete manufacturing plants – and the impacts of CCR storage risks related to such sites – likely disproportionately harm low-income communities and communities of color. For example, in a Risk and Technology Review rulemaking on the Portland cement manufacturing industry,[116] an analysis of socio-economic factors for populations living near manufacturing facilities found more minority people (45 percent compared to 38 percent nationally) and more low-income people (18 percent below the poverty level compared to 14 percent nationally) living within 5 km of facilities than the nationwide average.[117]

Second, wallboard manufacturing plants – and the impacts of CCR storage risks related to such sites – likely also disproportionately harm low-income communities and communities of color. For example, of the approximately 728,000 million people estimated as living within three miles of potential FGD gypsum manufacturing facilities,[118] approximately 396,000 thousand, or

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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, 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."

[115] As EPA's NODA acknowledges, "[t]his document . . . may affect the following entities: . . . Concrete batch plant manufacturing facilities under NAICS codes 327320, 32733, and 327390; Cement kiln manufacturing facilities under NAICS code 327310; Highway construction projects under NAICS code 237310; and Wallboard manufacturing plants under NAICS code 327420." 85 Fed. Reg. at 83,479.

[116] *See generally* 82 Fed. Reg. 44,254 (Sept. 21, 2017).

[117] "Analysis of Socio-Economic Factors For Populations Living Near Portland Cement Manufacturing Facilities," Docket ID No. EPA-HQ-OAR-2016-0442-0170 (June 2017).

[118] Data collected by the Greenhouse Gas Reporting Program for 2019 includes 56 sites as Gypsum Product Manufacturing sites. *See* "Gypsum+Cement Manufacturing from 2019 GHGP Data_EJSCREEN 2021.xlsx" (attached); "This industry comprises establishments primarily engaged in manufacturing gypsum products, such as wallboard, plaster, plasterboard, molding, ornamental moldings, statuary, and architectural plaster work. Gypsum product manufacturing establishments may mine, quarry, or purchase gypsum." 2017 North American Industry Classification System (NAICS) Definition, 327420 - Gypsum Product Manufacturing, https://www.census.gov/naics/?input=327420&year=2017&details=327420. According to a map from

fifty-four percent, are people of color. This is significantly higher than thirty-nine percent minority average nationwide.[119] 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 of FGD gypsum manufacturing facilities are higher than the respective state averages for over half of the known sites. The totals are similarly concerning when comparing estimates of the low-income population within three miles of the facilities with the national average.[120]

This preliminary analysis makes clear that continued delay in issuing strong regulations for waste piles may disproportionately impact the majority minority people and majority low-income communities living close to potential CCR accumulations. EPA must ensure that these sites are regulated in a way that protects communities from adverse effects on health and the environment as comprehensively as possible. Re-use regulations present a real opportunity to expand and increase the health, environmental, and economic benefits certain CCR Rule provisions are providing to communities to *more* communities of color and low-income communities.

B. EPA must consider and address potential adverse environmental and human health impacts on minority or low-income populations pursuant to E.O. 12898 in the proposed rulemaking.

During the Obama administration, EPA published numerous planning and guidance documents describing the steps the Agency must take to comply with E.O. 12898. These include Plan EJ 2014 (September 2011),[121] "Guidance on Considering Environmental Justice During the Development of Regulatory Actions" (May 2015),[122] EJ 2020 Action Agenda,[123] and the "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis" (June 2016).[124] The latter technical guidance provides very specific directives for EPA rulemaking. As

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Gypsum Association Comments and additional online research, 27 of these sites are likely partially or fully relying on FGD gypsum. *See* Gypsum Association Comments, Docket ID No. EPA-HQ-RCRA-2009-0640-8227, at Exhibit 1 (Nov. 19, 2010).

[119] "Gypsum+Cement Manufacturing from 2019 GHGP Data_EJSCREEN 2021.xlsx," attached, compiles estimates derived from 2014-2018 American Community Survey from the U.S. Census Bureau, which are also available in EPA's EJSCREEN's Standard Reports. EJSCREEN was designed in the context of EPA's environmental justice policies and is a screening tool that can help identify areas that may warrant additional consideration, analysis, assistance, and outreach.

[120] *Id.*

[121] EPA, Plan EJ 2014 (Sept. 2011), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100DFCQ.PDF?Dockey=P100DFCQ.PDF.

[122] EPA, Guidance on Considering Environmental Justice During the Development of Regulatory Actions (May 2015), https://www.epa.gov/sites/production/files/2015-06/documents/considering-ej-in-rulemaking-guide-final.pdf.

[123] EPA, EJ 2020 Action Agenda, https://www.epa.gov/sites/production/files/2016-05/documents/052216_ej_2020_strategic_plan_final_0.pdf.

[124] 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.

a threshold matter, it requires EPA to consider the following three questions to determine potential environmental justice impacts for all regulatory actions:

- Are there potential [environmental justice ("EJ")] concerns associated with environmental stressors[125] affected by the regulatory action for population groups of concern in the baseline?[126]

- 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?[127]

This year, the Biden Administration has also formalized a commitment to making environmental justice a part of the mission of every federal agency by directing agencies to develop programs, policies, and activities to address the disproportionate health, environmental, economic, and climate impacts on disadvantaged communities. For the administration to meet its commitments and for EPA to fulfill its required duties under E.O. 12898, the agency must concretely identify the potential environmental justice impacts and benefits of any proposed rule and then address these impacts and benefits – or explain why they cannot be addressed or guaranteed.

In other words, 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 reconsidering the beneficial use definition and provisions for CCR accumulations, 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 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.

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[125] *Id.* at 11 ("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.").
[126] *Id.* ("*Baseline* is defined by the OMB as 'the best assessment of the way the world would look absent the proposed action' (OMB, 2003) . . . .").
[127] *Id.* (footnotes added).

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.

XI. CONCLUSION

In sum, significant harm from the release of hazardous substances is likely to result from the use and storage of unencapsulated coal ash without effective safeguards. Therefore, to meet the statutory protectiveness standard of the Resource Conservation and Recovery Act ("RCRA"), EPA must:

- Prohibit the use of unencapsulated coal ash as fill and regulate its placement on land as disposal, thus subjecting fills to all of the protections required at new CCR landfills, including the installation of liners, leachate collection, groundwater monitoring, and caps. EPA must treat the placement of coal ash on land, in any volume or location, as the dangerous deposition of a hazardous substance, known to have a high likelihood of creating highly toxic air and water pollution and presenting substantial risk of direct contact and ingestion.

- Retain current safeguards at CCR waste piles located on coal plant sites. In addition, EPA must increase fugitive dust protections by requiring air monitoring and establishing a health-protective particulate standard. EPA must also strengthen dust controls and containment requirements at CCR waste piles located off-site.

- Comply immediately with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* to prevent disproportionately high and adverse health or environmental impact on low-income communities and communities of color.

We also urge EPA to act quickly to address ongoing harm occurring from coal ash sites. EPA received substantial evidence of harm during the stakeholder process that preceded this NODA. These sites include the coal ash fill sites and waste piles in southeastern Puerto Rico; Fairbanks, Alaska; and Iredell County, North Carolina.

We reiterate that it is critical that EPA to take prompt action to protect all Americans from exposure to toxic coal ash waste.

** Continued for signatures*

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