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Re: Correction of EPA's Blanket Prohibition on the Beneficial Use of Coal Combustion Residuals to Reclaim Clay Mines

Dear Mr. Johnson:

I write on behalf of Charah, LLC ("Charah") to ask that EPA correct an erroneous and counter-productive interpretation of the coal combustion residuals ("CCR") rule that imposes an *absolute* prohibition on the beneficial use of CCR to reclaim clay mines. This is an undisputable environmentally beneficial use of CCR, as it restores mine sites for productive use, avoids the needless extraction and use of virgin materials, and can meet EPA's beneficial use criteria to ensure these practices are environmentally protective. EPA's current interpretation, however, is that owners/operators of clay mines are precluded from *even trying* to demonstrate that the use of CCR to reclaim clay mines meets the CCR rule's beneficial use criteria. This interpretation makes no sense and cannot be the Administration's intent, as it would universally prohibit this environmentally productive practice.

Fortunately, EPA can readily correct this erroneous interpretation by clarifying that nothing in the CCR rule precludes an owner/operator from demonstrating that the use of CCR to reclaim a clay mine meets the CCR rule's beneficial use criteria. We urge EPA to issue this clarification in writing as soon as possible. As discussed below, we believe the most expeditious

process for making this written clarification is in EPA's online interpretations addressing the beneficial use of CCR.[1]

I. Background

This issue has arisen because Charah's Brickhaven No. 2 Mine Tract "A" in North Carolina—a clay mine—was listed on EPA's Draft Initial Open Dump Inventory of CCR facilities because Charah had not established a CCR rule compliance website for the facility. Apparently, EPA's position was based on the argument that the placement of CCR at the Brickhaven site for reclamation automatically renders the site a CCR landfill subject to full regulation under the CCR rule.[2] This is incorrect, however, because Charah's use of CCR to reclaim the site constitutes a CCR beneficial use, which is excluded from regulation under the rule. The CCR used at its Brickhaven site (1) provides a functional benefit by reclaiming a clay excavation site and returning its contour to level where the property can be used for commercial or industrial purposes; (2) substitutes for the use of a virgin material (such as borrow soils) that would be needed to restore the site, thus conserving natural resources that would otherwise need to be obtained through practices such as extraction; and (3) meets ASTM E2277 Standard Guide for Design and Construction of Coal Ash Structural Fills, and the State of North Carolina's regulations for structural fills. Charah has further demonstrated that, as a result of the compacted clay subsurface and installation of a synthetic liner system, any potential environmental releases associated with the beneficial use of CCR at the site will be comparable to or lower than those from analogous products made without CCR, or will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use. Thus, the use of CCR meeting these criteria falls squarely within the definition of a beneficial use under the rule.[3]

EPA's current interpretation, however, prevents Charah from even attempting to demonstrate that the above beneficial use of CCR at the Brickhaven site meets the rule's beneficial use criteria. EPA is claiming that *any* clay mine that receives CCR for *any* purpose is automatically a "CCR landfill" under the rule, irrespective of the CCR's use, function or environmental benefits. As discussed below, this interpretation is at odds with the rule's text and the rulemaking record and relies on a cramped and unnecessary regulatory interpretation as to the type of sites that must be considered CCR landfills.

Again, this issue can be readily corrected by the issuance of a written clarification in EPA's online interpretations addressing the beneficial use of CCR. For the reasons discussed below, that interpretation should state explicitly that clay mines are *not* included within the CCR

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[1] See EPA's Frequent Questions About the Beneficial Use of Coal Ash at https://www.epa.gov/coalash/frequent-questions-about-beneficial-use-coal-ash.

[2] While Charah believes that EPA's interpretation of the CCR Rule is incorrect, it nonetheless established a CCR website and is in compliance with the rule's obligations for CCR landfills. The Brickhaven site was therefore not listed on the Final Open Dump Inventory.

[3] *See* definition of "Beneficial use of CCR" at 40 C.F.R. § 257.53.

rule's definition of "sand and gravel pit or quarry" and therefore nothing in the CCR rule precludes a person from demonstrating that CCR used to reclaim a clay mine—like any other structural fill beneficial use—meets the rule's beneficial use criteria. In fact, Charah (and other parties) made such a suggestion in written comments on Executive Order 13777.[4]

Charah and other affected interests, including, among others, representatives from the American Coal Ash Association, would like the opportunity to discuss this issue further with you and the appropriate EPA representatives, including Samantha Dravis and/or other appropriate officials from EPA's Office of Policy, in the near future. In the meantime, these points are addressed further below.

II. EPA's Position is Inconsistent with the Plain Meaning of the Regulations and the Rulemaking Record.

The plain language of the rule's definition of "beneficial use" places no limitations on what activities can constitute beneficial use, so long as the use meets all applicable beneficial use conditions.[5] The only exception is EPA's determination that the placement of CCR in a "sand and gravel pit or quarry" automatically constitutes a CCR landfill.[6] The phrase "sand and gravel pit or quarry," in turn, is defined as "an excavation for the extraction of aggregate, minerals or metals."[7]

Therefore, to reach its interpretation that the beneficial use of CCR to reclaim a clay mine automatically renders the mine site a CCR landfill, EPA staff have construed the phrase "an excavation for the extraction of ... *minerals*" to include clay mines. In other words, the placement of CCR in the mine, irrespective of purpose or function, immediately renders the site a CCR landfill because the clay mine is or was a site used for the extraction of minerals—*i.e.*, clay. This interpretation contradicts a common sense reading of the regulations and the rulemaking record.

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[4] *See* Comments of Charah on EO 13777 (Docket ID No. EPA-HQ-OA-2017-0190) at 8 ("Consistent with EPA's statement, there is a 'current lack of evidence affirmatively demonstrating an environmental or health risk' associated with productive use of coal ash in clay mines. Given the available beneficial use criteria and strong state regulatory oversight, there is no environmental justification for a prohibition of CCR beneficial use at clay mines. Such a prohibition would be counterproductive, burdensome, and would inhibit or eliminate appropriate economic benefits."). *See also* Comments of the Utility Solid Waste Activities Group ("USWAG") on EO 13777 (Docket ID No. EPA-HQ-OA-2017-0190) at 6 ("EPA should therefore clarify that the definition of 'sand and gravel pit or quarry' does not include clay mines and that owners/operators of such sites be provided the opportunity, as is the case with other CCR structural fill activities, to demonstrate that the use of CCR to reclaim such sites meets the CCR rule's beneficial use criteria.").

[5] *See* 40 C.F.R. § 257.53 (definition of "beneficial use of CCR").
[6] 80 Fed. Reg. 21302, 21354 (Apr. 17, 2015); *see also* definition of "CCR landfill" at 40 C.F.R. § 257.53 as including a "sand and gravel pit or quarry."
[7] 40 C.F.R. § 257.53 (definition of "sand and gravel pit and quarry").

First, it is clear, in defining the term "sand and gravel pit or quarry" EPA was necessarily referring to sites that are sand and gravel pits or quarries, and not the entire universe of minerals, least of all clay. To read the term "mineral" in the definition of "sand and gravel pit or quarry," as EPA does, to include *any* mineral excavated from *any* site effectively reads the term "sand and gravel pit" out of the rule and replaces it with any "mineral excavation site." This would be analogous to EPA regulating chromium and then defining chromium to include all metallic elements. EPA cannot broaden the scope of a regulatory definition by interpreting the definition to mean something far broader than the plain language of the term itself. But that is precisely what EPA's current interpretation does by construing the definition of "sand and gravel pit or quarry" to encompass literally any mining operation in the country, irrespective of whether it involves sand and gravel.[8] It is a basic principle of administrative law that regulations are not to be interpreted in a manner that is illogical and at odds with the plain meaning of the regulatory text.

Second, the rulemaking record makes clear that EPA's basis for including the placement of CCR in a "sand and gravel pit or quarry" within the definition of a CCR landfill was the Agency's concern that placement of CCR in *sand and gravel pits*—not other sites, least of all clay mines—poses an environmental risk. As EPA itself explained, the "risks of greatest concern from unencapsulated beneficial uses [identified in the proposed CCR rule] were associated with the placement of CCR in quarries and sand and gravel pits and with large scale fill operations used to re-grade the landscape" and, as such, EPA proposed that such operations should generally be included in the definition of disposal.[9] In the final rule, EPA retained that approach "*with respect to sand and gravel pits and quarries,*" but concluded that large scale CCR fill operations could qualify for CCR beneficial use.[10] This point is underscored by the fact that the damage cases EPA cites to in the rulemaking record as the source of this concern only involved the placement of CCR in sand and gravel pits. It is therefore only these damage cases that constitute the rulemaking record underlying EPA's determination that the placement of CCR in sand and gravel pits and quarries can never be a beneficial use, but rather is always disposal of CCR in a landfill:

> EPA recognizes that several proven damage cases involving the large-scale placement, akin to disposal, of CCR have occurred under the guise of "beneficial use"— the "beneficial" use being the filling up of old quarries or gravel pits, or the re-grading of landscape with large quantities of CCR. EPA did not consider this type of use as a "beneficial" use in its May 2000 Regulatory Determination, and still does not consider this type of use to be covered by the exclusion.

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[8] The rule does exclude CCR placement at active or abandoned underground surface coal mines from regulation because these sites will be regulated under future Department of Interior rulemaking. However, this exclusion does not address or excuse EPA's obligation to interpret the term "sand and gravel pit or quarry" in a manner consistent with the regulatory text and rulemaking record.
[9] 80 Fed. Reg. at 21351.
[10] *Id.* (emphasis added).

> Therefore, the final rule explicitly removes these types of uses from the category of beneficial use, and from this Regulatory Determination. . . . The final rule expressly defines the placement of CCR in sand and gravel pits or quarries as disposal in a landfill.[11]

Further, with regard to the May 22, 2000 Regulatory Determination EPA references, EPA considered only 5 proven or potential damage cases associated with mines or pits:

- City of Beverly/Vitale Brothers Fly Ash Pit, Massachusetts
- Virginia Power Yorktown Power Station Chisman Creek Disposal Site, Virginia
- WEPCO Cedar-Sauk Landfill, Wisconsin
- Lemberger Landfill, Wisconsin
- WEPCO Highway 59 Landfill, Wisconsin.[12]

All of these cases involved sand and gravel pits; *not* one site involved a clay mine. Furthermore, EPA's updated assessment of proven damage cases included only 6 mining sites (all other sites were landfills, CCR surface impoundments, or structural fills):

- BBSS S&G Quarries, Constellation Energy, Maryland
- North Lansing Landfill, Lansing Board of Water & Light, Michigan
- CCW Landfill, Trans Ash Inc., Tennessee
- Chisman Creek, VEPCO, Virginia
- Cedar Suak Ash Landfill, WEPCO, Wisconsin
- Highway 59, We Energies, Wisconsin[13]

Again, all of these sites involved sand and gravel sites, and *not* a single clay mine. Thus, the known proven damage cases forming the basis of EPA's finding that the placement of CCR in any sand and gravel pit or quarry constitutes a CCR landfill involved, not surprisingly, *only* sand and gravel pits. When interpreting what the term "mineral" means in the definition of "sand and gravel pit or quarry," EPA is necessarily limited to the evidence in the rulemaking record. EPA cannot extend this key operative term to sites, including clay mines, which were not evaluated in the rulemaking record, let alone found to pose any environmental concerns similar to sand and gravel pits.

III. Basic Science Makes Clear that Clay Is Distinct From Sand and Gravel, and That Clay Mines Do Not Present the Environmental Risks of Sand and Gravel Pits.

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[11] *Id.* at 21330.
[12] *See* Summary of EPA Coal Combustion Waste Damage Cases Involving Sand & Gravel Mines/Pits/Operations (June 11, 2001).
[13] *See* Damage Case Compendium, Technical Support Document, Volume I: Proven Damage Cases (Dec. 18, 2014).

The Agency's current interpretation also is at odds with fundamental mineralogy. As detailed above, all the damage cases involving the placement of CCR in excavation sites involved sand and gravel pits, and not a single clay mine. This is not surprising, as clay is a distinct mineral with fundamentally different characteristics from those of sand and gravel, which allow for a higher risk of leachate migration to adjacent groundwater. As EPA is aware, this risk of leachate migration is not true for clay or clay mines, since clay soils have the opposite characteristics from sand and gravel.

Indeed, the distinctive characteristics of clay is precisely why EPA identified a compacted clay liner as an example of the lower component of the rule's required composite liner system capable of meeting the rule's liner permeability requirement of $\leq 1 \times 10^{-7}$ cm/sec.[14] In fact, the rule specifically allows a clay liner *alone* to serve as the liner system for existing CCR surface impoundments.[15] Therefore, to suggest that clay mines are subsumed with the same category of sand and gravel pits for purposes of CCR rule's regulatory definition of "sand and gravel pit or quarry" defies EPA's own recognition of the regulatory distinction between clay versus sand and gravel. As EPA itself recognizes, clay has the unique quality of becoming less permeable when compacted, and this is precisely why the CCR rule specifically contemplates the design of CCR unit liner systems incorporating a layer of clay soil compacted to achieve specific permeability levels.

The fundamental distinction in the mineral characteristics between clay versus sand and gravel is further underscored by how common usage in the soil sciences classifies the two distinct minerals, with sands and gravel being characterized as non-cohesive soils and clays characterized as cohesive soils. The soil classification system uses as a major component classifying soils according to the size of particles. Soils with particle diameter less than 0.067 mm are called cohesive soil and consists of clay and silt. Soils with particle diameter more than 0.067 mm are called cohesion less soil and consists of sand, gravel and stone. This physical distinction is reflected in the ASTM D2487-11 Standards for Soil Classification chart below.

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[14] *See* 80 Fed. Reg. at 21369-70; *see also* 40 C.F.R. 257.70(b) (setting forth the criteria for a composite liner system).
[15] *See* 40 C.F.R. § 257.71(a).

D2487 – 11

TABLE 1 Soil Classification Chart

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
COARSE-GRAINED SOILS	Gravels (More than 50 % of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5 % fines[C])	$Cu \geq 4$ and $1 \leq Cc \leq 3$[D]	GW	Well-graded gravel[E]
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3]$[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12 % fines[C])	Fines classify as ML or MH	GM	Silty gravel[E,F,G]
More than 50 % retained on No. 200 sieve			Fines classify as CL or CH	GC	Clayey gravel[E,F,G]
	Sands (50 % or more of coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5 % fines[H])	$Cu \geq 6$ and $1 \leq Cc \leq 3$[D]	SW	Well-graded sand[I]
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3]$[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12 % fines[H])	Fines classify as ML or MH	SM	Silty sand[F,G,I]
			Fines classify as CL or CH	SC	Clayey sand[F,G,I]
FINE-GRAINED SOILS	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OL	Organic clay[K,L,M,N] Organic silt[K,L,M,O]
50 % or more passes the No. 200 sieve	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OH	Organic clay[K,L,M,P] Organic silt[K,L,M,Q]

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Stone		> 60 mm
Gravel	Coarse gravel	20 – 60 mm
	Medium gravel	6 – 20 mm
	Fine gravel	2 – 6 mm
Sand	Coarse sand	0.6 – 2 mm
	Medium sand	0.2 – 0. 6 mm
	Fine sand	0.06 – 0.2 mm
Silt	Coarse silt	0.02 – 0. 06 mm
	Medium silt	0.006 – 0.02 mm
	Fine silt	0.02 – 0.006 mm
Clay		< 0.002 mm

Summary of ASTM D2487 Data

Soils are further separated into two groups; organic soils and inorganic soils. Organic soil refers to soils with a high organic content such as roots, leaves etc.; and inorganic soil which is without organic matter. Inorganic soils are classified as cohesive soil (clay - silt) or cohesion less soil (sand - gravel - stone). These established ASTM soil science definitions and classifications make clear that there is absolutely no technical basis to categorize sand and gravel pits or quarries as including clay mines.

IV. Prohibiting the beneficial use of CCR in clay mines is inconsistent with public policy.

Aside from being inconsistent with the regulatory text, the underlying rulemaking record, and controlling science, imposing a blanket prohibition on the beneficial use of CCR in clay mines contradicts an underlying goal of RCRA and the CCR rule to encourage the beneficial use of CCR to conserve natural resources. The qualified beneficial use of CCR in clay mines furthers this goal. However, prohibiting owners/operators of clay mines from even attempting to demonstrate that the use of CCR in clay mines can meet the beneficial use criteria discourages otherwise environmentally beneficial activities and leads to undesirable consequences.

Stigma**:** As numerous parties commented during the development of the CCR rule, there can be legitimate concerns regarding the impact of stigma upon efforts to use CCR in a productive manner. In this case, when developing the Brickhaven site for commercial use, there is a meaningful difference in how the site is perceived when it is identified as a beneficial use project, versus a declaration that the clay mine is a CCR landfill. Given that any beneficial use must meet EPA's beneficial use conditions—which are intended to ensure protection of human health and the environment—the negative stigma is without purpose and technical justification. Prohibiting owners/operators of clay mines from *even* attempting to make a beneficial use demonstration when CCR is used to reclaim a site needlessly undermines the ability of owners/operators to revitalize these important mine lands. And, again, Charah is not arguing that the placement of CCR in clay mines or similar sites constitutes a legitimate CCR beneficial use in all instances. But the absolute prohibition on even allowing owners/operators from making this demonstration is environmentally counter-productive and unwarranted—especially given that EPA cannot identify a single clay mine where the use of CCR has caused environmental damage.

Negative Impacts to Real Estate Transactions: Labeling a CCR beneficial use site as a landfill will negatively impact the value added by a beneficial use project. The use of CCR as a structural fill (that meets the beneficial use criteria) to add value and/or restore value to real estate is well demonstrated in many projects across the United States. Improvement of real property by preparing grades to accommodate a more valued land use almost always results in a subsequent development and sales transaction. In virtually all real estate transactions for commercial or industrial use properties, the financing institution requires a phase one environmental assessment. In cases where CCR structural fill properties are involved, a phase

two environmental assessment often is requested by the lending institution. The environmental consulting community has a distinctive negative interpretation when a development property is labelled a "landfill property" versus a property that has a structural fill as a beneficial use. This negative connotation invariably diminishes the economic value of the property, and in many cases, the lending institutions will not participate in transactions involving "disposal landfills." Again, given that any CCR beneficial use in a land redevelopment project must meet EPA's beneficial use conditions—which ensure protection of human health and the environment—the negative implications for real estate redevelopment are without purpose and counter-productive.

Negative Implications on other Beneficial Use Activities: EPA's overly broad interpretation of the definition of "sand or gravel pit or quarry" as encompassing the excavation for the extraction of any mineral can, when taken to its logical extreme, inappropriately capture otherwise undeniably legitimate beneficial use activities. For example, the definition of "beneficial use" contemplates the use of CCR in large scale roadway and non-roadway applications. During such activities, it is not uncommon for excavation to occur involving the extraction of soils and other minerals (*e.g.*, clays, stone, and/or sand and gravel), and for CCR (including CCR amended concrete, flowable fill and structural fill) to then be used at these locations (the excavated material may then be used off-site for other projects).

Under EPA's broad reading of the term mineral, however, even these CCR beneficial use activities arguably would fall into the definition of a "sand and gravel pit or quarry" based solely on the fact that they involve an excavation activity that results in the extraction of a mineral. Obviously, this is not EPA's intent, but an overly literal application of the definition of "sand and gravel pit or quarry" without any consideration of the purpose or intended scope behind the definition can, as is the case here, result in such illogical and counter-productive results.

Onerous Regulatory and Cost Burden for Companies Engaged in Resource Conservation: By utilizing CCR to restore a clay mining site for productive commercial/industrial use, Charah is conserving resources that would otherwise need to be utilized. This activity provides substantial economic savings associated with the land restoration and results in significantly increased property value. Prohibiting CCR beneficial use at clay mines will prevent companies from taking such action, needlessly subject them to an added regulatory burden, and lessen the value of the land recovered. In the CCR Rule, EPA stated its support for beneficial use:

> Finally, EPA does not wish to inhibit or eliminate the measurable environmental and economic benefits derived from the use of this valuable material given the current lack of evidence affirmatively demonstrating an environmental or health risk. Consequently, EPA is confident that the combination of the final rule, EPA guidance, current industrial standards and practices, and in many cases, state

> regulatory oversight is sufficient to address concerns associated with the beneficial uses to which the Determination applies.[16]

Consistent with this statement, there is a "current lack of evidence affirmatively demonstrating an environmental or health risk" associated with productive use of coal ash in clay mines. Given the available beneficial use criteria and strong state regulatory oversight, there is no environmental justification for a prohibition of CCR beneficial use at clay mines. Such a prohibition would be counterproductive, burdensome, and would inhibit or eliminate appropriate economic benefits.

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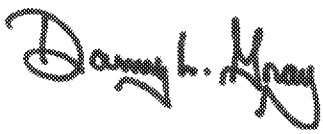
Given the above, Charah requests that EPA clarify in its online interpretations addressing the beneficial use of CCR that the definition of "sand and gravel pit or quarry" does not include clay mines and that owners/operators of such sites have the opportunity, as is the case with other CCR beneficial use structural fill activities, to demonstrate that the use of CCR to reclaim such sites satisfies meet the CCR rule's beneficial use criteria.

As noted above, Charah and other interested parties would like the opportunity to discuss the above issues further with you and other appropriate EPA representatives, including Samantha Dravis and/or other appropriate officials from EPA's Office of Policy. I will contact your office in the near future to find a mutually convenient time.

Respectfully,



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Email cc: Samantha Dravis, Senior Policy Counsel and Associate Administrator for Policy
Eric Baptist, EPA Senior Deputy General Counsel

[16] 80 Fed. Reg. at 21330.