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**PAIN IN THE ASH?
EPA'S PROPOSED REGULATION OF FLY ASH AND THE IMPENDING
ECONOMIC THREAT TO SUSTAINABLE CONCRETE**

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“Even if exceptions are granted for the use of fly ash in concrete pavement, labeling it as a hazardous material would likely have unintended, negative repercussions that regulators may not fully appreciate.”¹

"On May 22, 2000, the [Environmental Protection Agency] EPA published its final Regulatory Determination on Wastes from Fossil Fuels[,] in which the Agency concluded that coal combustion residuals 'do not warrant regulation under subtitle C of [the Resource Conservation and Recovery Act].'"² The EPA announced that they did not intend to place burdensome restrictions on these extremely useful materials. They openly acknowledged that fly ash materials were beneficial to the environment by helping to preserve natural resources, and lowering the economic burden produced by unnecessary waste disposal. "On December 10, 2003, [the] EPA announced that its enforcement priorities for the next three years [would] include increased" targeting of mineral

¹ Al Rickard, *Unlocking Concrete Pavement Potential*, CONCRETE PAVEMENT PROGRESS- 1ST QUARTER 2010, http://mlppubsonline.com/display_article.php?id=342735 (last visited July 13, 2013).

² Letter from Mike Silvertooth, President, Tex. Coal Ash Utilization Grp., to Hon. Lisa Jackson, Admin'r, U.S. Env'tl. Prot. Agency (Sept. 2, 2009), *available at* <http://tcaug.org/media/TCAUG%20%20EPA%20Letter-Lisa%20Jackson.pdf>.

processing facilities,³ directed at regulating coal combustion residuals⁴ generally, and fly ash in particular.

Since the EPA announced its position in 2000, the amount of coal combustion residuals has greatly increased. With this, concerns over the potential economic and environmental impacts of regulating these materials have also significantly amplified as coal combustion residuals encompass numerous different materials such as fly ash and boiler slag. In 1999, coal combustion residual “utilization was estimated to be [only] 30% or approximately 30 million tons annually.⁵ In 2008, that number had risen to 43% and 56 million tons annually,” nearly doubling the amount of tonnage reported in 1999.⁶ The increasing amount of coal combustion residual utilization is a great achievement, and the total tonnage of coal combustion residuals produced over the last few years continues to increase.⁷ At the outset, this comment reviews the current regulations in place to monitor coal combustion residuals and illustrates how they are both economically and environmentally beneficial. Next, this comment discusses how these benefits are placed in jeopardy due to the EPA’s impending proposed regulations. Finally, this comment advances possible categorical alternatives that ensure the regulatory purpose of the EPA will be carried out, without adversely affecting fly ash recycling efforts.

³ Dean Miller, Davis Graham & Stubbs LLC, *The Bevill Exemption from Hazardous Waste Regulation*, COLO. BAR ASS’N, <http://www.cobar.org/docs/cbabevill.pdf?ID=2773> [hereinafter *The Bevill Exemption*] (citing 68 Fed. Reg. 68893-01 (Dec. 10, 2003)) (reproduction of PowerPoint presentation).

⁴ Coal combustion residuals, or coal combustion products, are byproducts of the combustion of coal at power plants and are disposed of in liquid form at large surface impoundments and in solid form at landfills. *See generally Fly Ash*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/epawaste/conserv/imr/ccps/flyash.htm> (last visited June 12, 2012).

⁵ Letter from David W. Hill, Exec. Dir., to Sen. Rockefeller (Sept. 22, 2009).

⁶ *Id.*

⁷ *Id.*

Introduction

Materials regulated under the broad category of coal combustion residuals include fly ash, bottom ash, boiler slag, flue gas desulfization material, and other types of materials including fluidized bed combustion ash, and scrubber residues.⁸ These residuals contain contaminants such as "mercury, cadmium and arsenic, which are associated with cancer and [] other" serious health hazards.⁹ The EPA's risk assessment and damage cases demonstrate that without proper protections in place, contaminants can leach into groundwater, migrate to drinking water sources, and pose significant public health concerns.¹⁰

The EPA's most recent regulations target fly ash, which is a byproduct "of burning finely ground coal in a boiler to produce electricity."¹¹ It is removed from the power plant's exhaust gases primarily by electrostatic precipitators and secondarily by scrubber systems.¹² "[F]ly ash is a very fine, powdery material."¹³ "[C]omposed mostly of silica[,] nearly all [of its] particles are spherical in shape."¹⁴ It "is generally light tan in color," has a texture similar to talcum powder, and "consists mostly of silt-sized and clay-sized glassy spheres."¹⁵

Both proponents of the productive use of coal combustion residuals and those strongly opposed were present when the EPA held a public hearing in Dallas, Texas on the topic of fly ash. Many individuals believe that the classification of fly ash as a

⁸ See *Coal Combustion Residuals*, U.S. ENVTL. PROT. AGENCY (Nov. 15, 2012), <http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/coalashletter.htm>.

⁹ News Release, U.S. Env'tl. Prot. Agency, EPA Announces Plans to Regulate Coal Ash (May 4, 2010), available at <http://yosemite.epa.gov/opa/admpress.nsf/0/4ECA022F6F5C501185257719005DFB1B>.

¹⁰ *Id.*

¹¹ *Fly Ash*, *supra* note 4.

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

hazardous material will worsen the problem of excessive fly ash to dispose of rather than improve it.¹⁶ The chosen solution should work towards finding more useable alternatives for fly ash as opposed to regulating it by means that cause more fly ash to be disposed of in a non-reusable manner. Based on what comprises it, fly ash does not rise to the level of toxicity that would qualify it as a hazardous waste. "[T]he best way to deal with fly ash disposal [] is to stop throwing it away and recycle it."¹⁷ Opponents of the regulations argue that "the 'hazardous waste' designation will put a stop to [] current [] recycling efforts because no one will want products" composed of hazardous materials.¹⁸ A large majority of the public will focus solely on the material's designation as hazardous, grievously minimizing the possibility for continued use of the product. The stigma of a hazardous waste label will cause more fly ash to accumulate in landfills rather than to be repurposed for subsequent beneficial use.

I. Benefits Provided By Coal Combustion Residuals

Coal combustion residuals may be used beneficially by direct incorporation, or by substituting them for other products based on performance criteria.¹⁹ The EPA has designated "performance criteria" that facility operators can obtain in lieu of the regulated technical design standards that are typically in place for facilities. This allows operators a greater flexibility when complying with minimum national criteria. The productive use of coal combustion residuals generates significant environmental and economic benefits, by protecting against overuse of rarer resources, reducing "energy

¹⁶ Jennifer Loren, *Oklahoma Fails Small Town in Fly Ash Regulations*, NEWS ON 6 (Nov. 16, 2010, 4:15 PM), <http://www.newson6.com/story/13407868/ok-impact-story>.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Hazardous and Solid Waste Management System, Identification and Listing of Special Wastes, Disposal of Coal Combustion Residuals, 75 Fed. Reg. 35,133 (June 21, 2010) [hereinafter Hazardous and Solid Waste Management System].

consumption and greenhouse gas emissions," decreasing the amount of fly ash that ends up in landfills and lowering costs relative to other useable materials.²⁰ The use of coal combustion residuals is less expensive than other useable materials, and the amount that ends up in landfills drastically decreases as more productive uses are established.²¹ However, harsh EPA regulations run the risk of jeopardizing these benefits.

A. Performance Benefits

Fly ash is used commercially in a variety of ways. Utilizations include: (1) a "[r]aw material in concrete products and grout"; (2) a feed stock component "in the production of cement"; (3) a mineral filler in asphalt production, structural applications and embankments; (4) an [i]ngredient in waste stabilization and/or solidification"; (5) a component of road bases, pavement and flowable fill; and (6) an "[i]ngredient in soil modification and/or stabilization."²² As a primary material in the creation of concrete, fly ash improves the production of concrete by allowing fresh workability, improved strength, and reduced permeability.²³ In turn, these factors increase the concrete's durability, long-term performance, and resistance to premature deterioration.²⁴

The American Coal Ash Association Educational Foundation (The Foundation) is an active supporter of using fly ash in various construction projects. The Foundation recently stated that fly ash has been in use to construct roads and interstate highways since the early 1950s.²⁵ The Foundation also acclaimed that "[i]n 1974, the Federal

²⁰ *Coal Combustion Products; Environmentally and Socially Beneficial*, COAL ASH FACTS.ORG (Fact Sheet #3, Mar. 10, 2009), http://www.coalashfacts.org/CCP%20Fact%20Sheet%203%20-%20Environmentally%20&%20Socially%20Beneficial_FINAL.pdf [hereinafter *Coal Combustion Products*] (sponsored by the American Coal Ash Association Educational Foundation).

²¹ *Id.*

²² *Fly Ash*, *supra* note 4.

²³ *See Coal Combustion Products*, *supra* note 20.

²⁴ *See id.*

²⁵ *Id.*

Highway Administration encouraged the use of fly ash in concrete pavement . . . [by urging] states to allow partial substitution of fly ash for cement whenever feasible.”²⁶

This demonstrates not only that fly ash has been used effectively for a long period of time, but also that with today’s advanced resources, its use and efficiency can become even more prevalent.

B . Environmental and Economic Benefits

Concrete is the most common building agent in the world and is the second most consumed resource behind water.²⁷ The primary binding agent in concrete is portland cement.²⁸ The production of portland cement accounts for approximately five to seven "percent of the world’s carbon dioxide output."²⁹ "One of the most common and effective" means of reducing these carbon dioxide emissions is to "replace a portion^[30] of the portland cement with fly ash."³¹ In 2007, the American Concrete Institute found that incorporating fly ash in concrete production resulted in a beneficial 15 million ton reduction of carbon dioxide emissions.³² Thus, replacing portland cement with fly ash, a material which would otherwise end up in a landfill, serves the dual purpose of limiting the adverse environmental impact of cement production and reducing the fly ash burden on landfills.³³

²⁶ *Id.*

²⁷ Jason Ideker, *New Fly Ash Regulations Threaten Sustainable Concrete*, SUSTAINABLE BUS. OR. (May 8, 2011, 4:30 PM), http://www.sustainablebusinessoregon.com/columns/2010/08/new_fly_ash_regulations_threaten_sustainable_concrete.html.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.* (“commonly between 25 percent and 50 percent by mass of cement”).

³¹ *Id.*

³² See *Coal Combustion Products*, *supra* note 20.

³³ See Ideker, *supra* note 27.

In 2004 and 2005 combined, “[f]ederal concrete projects used an estimated 5.3 million metric tons of coal fly ash.³⁴ This substitution” of fly ash into concrete projects produces numerous environmental benefits,³⁵ including avoided energy use of approximately 25 billion megajoules;³⁶ avoided water consumption of two billion liters; and avoided carbon dioxide equivalent emissions of 3.8 million metric tons.”³⁷ Using market prices, “the beneficial use of coal fly ash [in those two] years resulted in energy savings valued at approximately [\$700 million], and water savings valued at approximately \$1.2 million.”³⁸

II. Class Issues Under Resource Conservation and Recovery Act

Congress enacted the Resource Conservation and Recovery Act (RCRA)³⁹ to prevent environmental contamination through “ensur[ing] proper management of hazardous wastes from the point of generation until final disposal.”⁴⁰ Unlike various other statutes, RCRA is not air or water specific; it aims to protect all aspects of the environment. The primary goals of RCRA are to “ensure that hazardous waste disposal does not harm humans or the environment,” aid in the conservation of natural resources, reduce generated waste, and see that the management of waste is accomplished in a way that does not harm the environment. RCRA is not a “recycling statute,” it is instead a management act that follows the course of various substances from creation to ultimate

³⁴ *Energy and Environmental Benefits of RMC Use in Federal Concrete Projects*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/osw/conservation/tools/cpg/pdf/rmc/chap3.pdf> (last visited July 5, 2013) [hereinafter *Energy and Environmental Benefits*].

³⁵ *Id.*

³⁶ A megajoule (MJ) is equal to one million (10^6) joules, or approximately the kinetic energy of a one-tonne vehicle moving at 160 km/h (100 mph).

³⁷ *Energy and Environmental Benefits*, *supra* note 34.

³⁸ *Id.*

³⁹ 42 U.S.C.A § 6901 (West 2012).

⁴⁰ *Resource Conservation and Recovery Act (RCRA) Program*, NEB. DEP’T OF ENVTL. QUALITY, <http://www.deq.state.ne.us/rcra.nsf> (last visited Apr. 13, 2013).

placement.⁴¹ Under RCRA, all solid wastes are subject to two sets of regulations: hazardous wastes under Subtitle C,⁴² and ordinary solid wastes under Subtitle D.⁴³ Pursuant to RCRA, before a waste "can be classified as a hazardous waste, it must first be a *solid* waste."⁴⁴ Subtitle D regulates solid waste by controlling the construction and operation of landfills to prevent release of chemicals into the environment.

To differentiate between those materials that are merely solid waste and those that are hazardous wastes, the hazardous waste identification (HWID) process is used.⁴⁵ The HWID uses a four-step inquiry to determine whether a waste is hazardous: (1) "Is the material a solid waste?" (2) "Is the waste specifically excluded from RCRA?" (3) "Is the waste a listed hazardous waste?" (4) "Does the waste exhibit a characteristic of hazardous waste?"⁴⁶ Wastes that have not been specifically listed as hazardous may still be so considered if they exhibit one of the four characteristics.⁴⁷ In addition, Toxicity Characteristic Leaching Procedures (TCLP), established by RCRA, are "used to determine if a solid waste exhibits the characteristic of toxicity and is therefore deemed 'hazardous' as a characteristic waste."⁴⁸ The four characteristics of a hazardous waste are: ignitability, corrosivity, reactivity, and toxicity.⁴⁹ "The TCLP determines the extent to

⁴¹ *See id.*

⁴² 42 U.S.C.A § 6921.

⁴³ *Id.* § 6941.

⁴⁴ *Definition of Solid Waste for RCRA Subtitle C Hazardous Waste*, U.S. ENVTL. PROT. AGENCY (Nov. 30, 2012), <http://www.epa.gov/osw/hazard/dsw/index.htm>.

⁴⁵ *See Waste Identification*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/osw/hazard/wastetypes/wasteid/index.htm> (last updated Nov. 15, 2012).

⁴⁶ *Id.*

⁴⁷ 40 C.F.R. §§ 261.20-261.24 (2012).

⁴⁸ Dustin Till, *Environmental Groups Target Coal Ash Disposal*, MARTEN LAW (May 2, 2012), <http://www.martenlaw.com/newsletter/20120502-groups-target-coal-ash-disposal>.

⁴⁹ 40 C.F.R. §§ 261.20-261.24.

which toxic metals and other contaminants may leach from solid waste" and are ultimately determined to be hazardous.⁵⁰

Subtitle C of RCRA establishes a comprehensive "cradle-to-grave"⁵¹ regulatory program for "treatment, storage, and disposal of hazardous waste."⁵² The "cradle-to-grave" scheme is meant to be an all-encompassing approach to the responsible management of wastes from their moment of creation until they are eventually completely used up or permanently stored. "Under RCRA, a person who 'comes into contact with a 'hazardous waste' during its life cycle' bears [various] responsibilities."⁵³ The purpose of this statute is to "promote the protection of health and the environment and to conserve valuable material and energy resources."⁵⁴ This goal is accomplished by requiring anyone "who comes into contact with any substance defined as hazardous under the statute to 'keep records, file reports, and properly handle such wastes.'"⁵⁵ For purposes of RCRA, burning hazardous waste constitutes "treatment," thus giving the EPA authority to regulate this activity.⁵⁶

It is through regulation by the EPA being based primarily around the hazardous and non-hazardous distinctions that the importance of the specific classification under RCRA becomes a major concern for industries. As to these classifications, "RCRA Subtitle C regulates 'hazardous waste' generators and transporters, [] treatment, storage,

⁵⁰ Till, *supra* note 48.

⁵¹ *Summary of the Resource Conservation and Recovery Act*, U.S. ENVTL. PROT. AGENCY, <http://www2.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act> (last visited July 14, 2013).

⁵² *Id.*

⁵³ Mark Harrison Foster, *Ash Holes: The Failure to Classify Coal Combustion Residuals as a Hazardous Waste Under RCRA and the Burden Borne by a Minority Community in Alabama*, 12 VT. J. ENVTL. L. 735, 755 (2011).

⁵⁴ 42 U.S.C.A. § 6902(a) (West 2012).

⁵⁵ Foster, *supra* note 53.

⁵⁶ *Cement Kiln Recycling Coalition v. EPA*, 493 F.3d 207, 211 (D.C. Cir. 2007) (citing authority pursuant to 42 U.S.C. § 6924(q)(1)).

and disposal [] facilities."⁵⁷ "RCRA Subtitle D regulates management of 'solid' waste."⁵⁸ Certain hazardous waste is excluded from regulation under Subtitle C and is instead regulated under Subtitle D, through the use of the "Bevill exemption."⁵⁹ The Bevill exemption allows materials classified under Subtitle D to be reused, and enter back into the stream of commerce. A Bevill exempt material, such as spent materials, sludge, or byproducts, can avoid the "reclamation" analysis of 40 § C.F.R. 261.2(c).⁶⁰ Avoiding reclamation analysis and a consequent classification as hazardous, aids in the productive reuse of materials which would otherwise simply be disposed of in a permanent waste facility. Numerous other commonly used materials in the industrial process are protected under the Bevill exception. This allows for the materials to be used as effective substitutes for commercial products, and avoids the "recycling" analysis of 40 § C.F.R. 261.2(e).⁶¹ Coal combustion residuals would be exempted from the "recycling" analysis under the Bevill exception since the goal of using coal combustion residuals is to serve as an ingredient in an industrial process and to make an effective substitute for other commercial products.

"In 1988, EPA filed a report with Congress recommending that coal ash and other" coal combustion residuals be exempted "from RCRA Subtitle C regulation."⁶² In 1999, the "EPA filed a second report with Congress" strongly suggesting that coal ash be excluded from RCRA's Subtitle C regulation.⁶³ The EPA released its final regulatory

⁵⁷ *The Bevill Exemption*, *supra* note 3.

⁵⁸ See 42 U.S.C.A. § 6941.

⁵⁹ *The Bevill Exemption*, *supra* note 3.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² Till, *supra* note 48.

⁶³ *Id.*

determination on the subject in May 2000, announcing "that waste from the combustion of fossil fuel should not be regulated as a Subtitle C hazardous waste" under RCRA.⁶⁴

While both industry members and environmentalists fervently debate these proposed regulations, neither group is satisfied with the way in which RCRA operates as a statute. One of the primary problems with RCRA is that there are no good alternatives to it. Industry members strongly oppose RCRA because it is too murky by design and strict compliance with the statute is nearly impracticable.⁶⁵ On the other hand, environmental groups dislike RCRA because it operates as a management statute, rather than a national recycling act.

RCRA is not targeted at seeing that fly ash is "recycled." It is instead in place to ensure that the substances are managed and disposed of in a way that is safe to all aspects of the environment. However, the industry is demonstrating that coal combustion residuals can be effectively reused and recycled in various ways that align with RCRA and are environmentally and economically friendly. The underlying issue is deeper than just the classification of one substance. Environmental groups should not be allowed the opportunity to be dismissive about the productiveness of RCRA, and still use its precise language to unduly burden and target coal combustion residuals. If there are serious problems with the substance of RCRA, those issues should be addressed prior to it being relied upon to justify such drastic actions and regulations as the EPA and environmental groups are attempting to do.

⁶⁴ *Id.*

⁶⁵ See Alexander Volokh, Men of Steel, Regulations of Kleenex: How RCRA Has Recyclers Running Around in CERCLAs: Address at Gorham/Intertech Consulting's Steel Mill Wastes and By-Products Conference (June 24-26, 1999), available at <http://www.volokh.com/sasha/kleenex.html>.

III. Coal Combustion Residual Litigation

According to one commentator, "[i]n these risk-averse times, many end users of fly ash,' including concrete producers and construction companies, 'would be discouraged by counsel to use fly ash, noting that it is not absolutely necessary.'"⁶⁶ Numerous frivolous cases exist where "[a]ttorneys have demonstrated that litigation can be initiated even without demonstrated damage."⁶⁷ Approximately 98% of all litigation involving RCRA is centered on the issue of whether or not a material is hazardous.

A. Tennessee Valley Authority

The potential harms associated with coal ash impoundment were seen in late December 2008, when an impoundment containing 5.4 million cubic yards of waste fly ash, generated by the Tennessee Valley Authority, broke.⁶⁸ This produced a large spill that covered millions of cubic feet of land and river in Kingston, Tennessee. The spill manufactured hundreds of millions of dollars of environmental cleanup costs and investigative measures which were overseen by the EPA. In addition, residents in the surrounding area focused on the health consequences of inhaling the dust-like residuals that remained after the liquid evaporated. As a result of the spill and its aftermath, there has been keener scrutiny of the regulations governing coal combustion residuals and the responses regarding the subject that are currently being undertaken.

B. Environmental Group Suits

"Eleven environmental groups filed a federal lawsuit on April 5, 2012 [against the EPA], seeking to compel the agency to take action on the disposal of coal combustion

⁶⁶ Nadine M. Post, *Fly Ash Looms as the "New Asbestos,"* GREEN SOURCE (Apr. 15, 2010), http://greensource.construction.com/news/2010/100415Fly_ash-1.asp (citing Thomas Adams, Exec. Dir., Am. Coal Ash Ass'n, Aurora, Colo.).

⁶⁷ *Id.* (citing Thomas Adams, Exec. Dir., Am. Coal Ash Ass'n, Aurora, Colo.).

⁶⁸ Till, *supra* note 48.

residuals."⁶⁹ The complaint stated that the EPA had not reviewed and revised specific regulations exempting coal ash, in violation of RCRA regulations mandating review every three years.⁷⁰

"The plaintiffs also alleged that [the] EPA [] failed to revisit its Toxicity Characteristic Leaching Procedure[s],"⁷¹ as statutorily required, and that the TCLP is inaccurate in its calculations of emitted coal combustion residuals.⁷² Similar to many other EPA regulated statutes, the organization seeking to be permitted under the statutes are required to routinely examine the procedures that are currently in place to determine if they are still warranted or should be amended.⁷³ Another shortcoming is that "the TCLP is designed to simulate conditions in a municipal solid waste landfill," even though "many industrial wastes, including coal combustion residuals, are rarely disposed of in municipal landfills."⁷⁴

Plaintiffs rely on *Association of Battery Recyclers, Inc. v. EPA*, which held that the EPA failed to justify "its application of the TCLP to" waste generated at manufactured gas plants.⁷⁵ As a result of this litigation, the EPA revisited its regulations to clarify "that the TCLP cannot be used to determine whether waste from manufactured gas plants is toxic."⁷⁶ The plaintiffs argue that these shortcomings show that the EPA failed to fully comply with its compulsory obligation to review and revise its regulations.⁷⁷ As this is the primary duty of the EPA, any potential finding to this extent

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *See id.*

⁷³ 42 U.S.C.A. § 6974(b) (West 2012).

⁷⁴ Till, *supra* note 48.

⁷⁵ 208 F.3d 1047, 1065 (D.C. Cir. 2000).

⁷⁶ Till, *supra* note 48.

⁷⁷ *See id.*

should not be taken lightly. A thorough examination of all available scientific data, along with an analysis of the EPA's actions regarding this matter should be taken before haphazard regulations are put into place that threaten to seriously harm industry members.

C. Industry Suit

Various industry members have brought suits over the regulations of coal combustion residuals. One of the most successful has been Headwaters Resources, Inc., a leading "manufacturer and marketer of coal combustion residuals," who recently filed a law suit against the EPA, alleging that the EPA's delay in finalizing the controversial and uncertain coal combustion residual rule created uncertainty in the marketplace for the sale and beneficial use of residuals.⁷⁸ Headwaters Resources requested a court order that would compel the "EPA to finalize its proposal."⁷⁹

It is through such industry suits that final resolutions regarding the ultimate categorization of coal combustion residuals will be established. Just as monitoring procedures exist that allow members of the public to regulate the production methods of the concrete industry, so too must industry use its resources to adequately monitor the EPA to ensure that effectiveness and practicality are achieved through the actions of all interested parties. While positive results were achieved in the Headwater case, it is an eventual goal that industry members may not have to expend their resources to monitor governmental actions. Ideally both groups would work together to achieve environmental safety and economic stability through reasonably and realistically required regulations based on science and not on unwarranted prejudices or subjective biases.

⁷⁸ *Id.*

⁷⁹ *Id.*

IV. EPA's Proposed Regulations and Goals

The EPA published a proposed rule which lists fly ash and other coal combustion residuals as hazardous wastes under RCRA. Coal combustion residuals "are currently considered exempt wastes under an amendment to RCRA."⁸⁰ The EPA believes the proposed regulations will provide groundwater contamination protection, prevent future coal combustion residuals impoundment failures, and increase incentives for beneficial uses of coal combustion residuals.⁸¹

The EPA's proposal encourages public comment on the two approaches available under RCRA for regulating and managing fly ash.⁸² One option draws "from remedies available under Subtitle C," to create "a comprehensive program of federally enforceable requirements for waste management and disposal."⁸³ The second "option includes remedies under Subtitle D."⁸⁴ Subtitle D remedies allow the EPA a greater "authority to set performance standards for waste management facilities which" have a narrower scope and would be primarily enforced by states through their adoption of unique and individualized coal ash management programs.⁸⁵ A further analysis of these two unique regulatory schemes demonstrates why it is so vital to the concrete industry that coal combustion residuals not be stigmatized with a "hazardous" classification.

A. Subtitle C Regulations

By regulating coal combustion residuals as waste under Subtitle C, the EPA would follow the residuals "from the point of their generation to the point of their final

⁸⁰ *Coal Combustion Residuals*, *supra* note 8.

⁸¹ *Id.*

⁸² See *Frequent Questions: Coal Combustion Residues (CCR) - Proposed Rule*, U.S. ENVTL. PROT. AGENCY (Nov. 15, 2012), <http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/ccr-rule/ccrfaq.htm> [hereinafter *Frequent Questions*].

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

disposition, including during and after closure of any disposal unit.”⁸⁶ EPA would list certain coal combustion residuals as special wastes subject to nearly full regulation as hazardous wastes pursuant to RCRA Subtitle C.⁸⁷ Under Subtitle C, all facilities handling hazardous materials would need to meet strict requirements, including precise monitoring of where the facility could be located, various types of liner and “run-on and run-off controls, groundwater monitoring, fugitive dust controls, financial assurance,” and corrective action that comprises facility-wide corrective actions or closure of units.⁸⁸

Subtitle C regulations monitor generators and transporters of coal combustion residuals, as well as standards for new facilities managing coal combustion residuals. Facilities that treat, store, or dispose of coal combustion residuals would also be required to obtain RCRA Subtitle C permits.⁸⁹ Significantly, under this proposal, "existing surface impoundments without liners" need to be excavated and retrofitted with liners "within five years, or cease receiving" coal combustion residuals and close.⁹⁰ Existing landfills, where coal combustion residual waste is not mixed with water, would not be subject to liner requirements, but would necessitate groundwater monitoring to detect releases to groundwater.⁹¹

In addition to creating harsher compliance and permitting standards, Subtitle C regulations also implicate the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).⁹² All RCRA hazardous wastes are also considered

⁸⁶ Hazardous and Solid Waste Management System, *supra* note 19.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *EPA's Proposed Rule for Coal Combustion Residuals (CCRs)*, AECOM, <http://www.recyclingfirst.org/pdfs/12.pdf> (last visited July 2, 2013).

⁹⁰ Hazardous and Solid Waste Management System, *supra* note 19.

⁹¹ *Id.*

⁹² 42 U.S.C §§ 9601-9675 (2012).

“hazardous substances” for purposes of CERCLA.⁹³ If a CERCLA hazardous substance is released in amounts that equal or exceed the reportable quantity, the release must be reported pursuant to CERCLA section 103.⁹⁴ Because "the key constituents of concern in coal combustion residue, [including] arsenic, cadmium, mercury, and selenium[,] are already listed as CERCLA hazardous substances, persons who spill or release such substances already have reporting" obligations under the CERCLA statutory scheme.⁹⁵ "Acknowledging the massive volume of coal combustion residuals," the EPA proposed raising the current statutory one-pound reportable quantity that would apply.⁹⁶ The EPA's consideration of an increase of the mandated reportable quantity for releases of coal combustion residuals demonstrates that the potential hazardous effects of these materials are not of exceedingly great concern. It would be extremely contradictory for the Agency to increase the CERCLA reporting standard and at the same time, require Subtitle C regulation.

Under Subtitle C regulations, the "EPA would reverse its August 1993 and May 2000 Bevill Regulatory Determinations regarding coal combustion residuals (CCRs) and list these residuals as special wastes subject to regulation under subtitle C of RCRA, when they are destined for disposal in landfills or surface impoundments."⁹⁷ This reversal would significantly increase the level of difficulty industry members will face when attempting to recycle coal combustion residuals into substances such as sustainable concrete. Regulation as a hazardous waste under Subtitle C would have far-reaching

⁹³ *Reportable Quantities*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/superfund/policy/release/rq/> (last visited Apr. 13, 2013).

⁹⁴ *Id.*

⁹⁵ Till, *supra* note 48.

⁹⁶ *Id.*

⁹⁷ Hazardous and Solid Waste Management System, *supra* note 19.

adverse impacts on coal combustion waste's beneficial use. In this vein, industry member shared their concern that the regulatory stigma of a Subtitle C label, even with specific exemptions, could place unnecessary barriers to the future beneficial use of coal combustion wastes.⁹⁸

B. Subtitle D Regulations

An alternative to monitoring coal combustion residuals under Subtitle C is regulation under Subtitle D. Subtitle D regulation would establish national standards for surface impoundments and landfills.⁹⁹ New surface impoundments would require liners, and existing surface impoundments would have to be retrofitted with liners within five years.¹⁰⁰ Under this proposal, the EPA would leave the Bevill determination in place and regulate disposal of such materials [] by issuing national minimum criteria."¹⁰¹

Unlike the "cradle to grave" approach of Subtitle C, Subtitle D regulations would not address the handling of coal combustion residuals prior to disposal.¹⁰² The EPA would have limited authority under Subtitle D, and would no longer be exclusively responsible for regulating the entire existence of coal combustion residuals.¹⁰³ This authority would instead be shifted to state environmental agencies which would be required to adopt regulations and enforce permit programs.¹⁰⁴

⁹⁸ Letter from Mike Silvertooth to Hon. Lisa Jackson, *supra* note 2.

⁹⁹ *Coal Combustion Residuals- Key Differences Between Subtitle C and Subtitle D Options*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ccr-rule/ccr-table.htm> (last updated Nov. 15, 2012) [hereinafter *Key Differences Between Subtitle C and Subtitle D Options*].

¹⁰⁰ *Id.*

¹⁰¹ Hazardous and Solid Waste Management System, *supra* note 19.

¹⁰² *See Key Differences Between Subtitle C and Subtitle D Options*, *supra* note 99 ("Enforcement through citizen suits; States can act as citizens.").

¹⁰³ *See id.*

¹⁰⁴ *See id.*

Both RCRA and CERCLA have citizen suit provisions that could be triggered should harm arise from the inappropriate handling of coal combustion residuals.¹⁰⁵ Classification under subsection D would help eliminate frivolous lawsuits brought merely because of fear associated with the term hazardous. In seeking these regulations, industry members are not attempting to avoid responsibility for any harmful acts. Instead, their goal is to balance justifiable risks against reasonable economic burdens, such that overstated fears do not unnecessarily inflate the already considerable costs of compliance.¹⁰⁶

V. Economic Impact of Proposed Regulations

The devastating economic impact of the EPA's proposed regulation of coal combustion residuals would be seen through an increased cost of regulatory compliance and a further impact on the industry by decreasing its ability to successfully use fly ash in the creation of various types of structural projects.

A. Cost of Compliance

"The Regulatory Impact Analysis (RIA) [anticipates] the average annual regulatory cost" for coal combustion residuals over "the next 50 years [] to be \$1.474 million" per year under Subtitle C and \$587 million per year under Subtitle D.¹⁰⁷ "These estimates include the costs of industry compliance and state and federal government oversight and enforcement costs."¹⁰⁸ "These average annual costs total [] \$20.3 billion" for Subtitle C and \$8.1 billion¹⁰⁹ for Subtitle D.¹¹⁰

¹⁰⁵ See Till, *supra* note 48.

¹⁰⁶ See, e.g., Volokh, *supra* note 65 (arguing for a more reasoned application of hazardous waste litigation).

¹⁰⁷ *Frequent Questions*, *supra* note 82.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* ("On a 50-year present value basis at a 7% discount rate").

¹¹⁰ *Id.*

It is often these compliance costs that are more burdensome than basic production expenses to industry members. Because both regulatory schemes adequately ensure environmental safety, there is no reason to unduly encumber the industry's efforts to safely use and recycle coal combustion residuals by imposing higher than necessary compliance requirements.

B. Impact to Industry

Both regulators and members of the industry work to examine and distinguish where the line should be drawn between the regulation of fly ash and the concrete it is used to produce.¹¹¹ Members of the concrete industry adamantly caution that the proposed regulation of coal combustion residuals make fly ash "the 'new asbestos' or 'new lead paint.'"¹¹² A fair balance of these two objectives would maintain environmental safety while ensuring that industry groups are not unduly burdened in their usage of fly ash. One supporter of more practical regulations warns that, "[a] hazardous-waste designation for fly ash would 'stigmatize its use as an ingredient in concrete, even if EPA were to focus a designation only on fly ash that is disposed rather than beneficially reused.'"¹¹³ The Texas Coal Ash Utilization Group petitioned the EPA regarding this issue.¹¹⁴ They firmly believe that "[i]f the EPA were to reverse its Final Determination and assign a hazardous waste designation for [coal combustion residuals], even for the limited purpose of disposal operations," the consequences "would have a devastating effect on the [future] beneficial use of the resource."¹¹⁵

¹¹¹ See Post, *supra* note 66.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Letter from Mike Silvertooth to Hon. Lisa Jackson, *supra* note 2.

¹¹⁵ *Id.*

The economic impact of a hazardous labeling of coal combustion residuals would extend far beyond the mandatory cost of compliance required in the creation of by-products. "Producers, marketers and users of" coal combustion residuals face many new uncertainties and perceived, albeit potentially unfounded, "risks associated with marketing, handling, transporting and utilizing [coal combustion particles]."¹¹⁶ A hazardous label runs the risk of significantly diminishing or "eliminating the [] environmental, economic, and sustainability benefits" provided by coal combustion residuals.¹¹⁷

"In 2005, the American Coal Council performed an economic assessment of the impact that the [coal combustion residual] industry ha[d] on the nation's economy." It estimated "the combined direct and indirect economic benefits" of coal combustion residuals at approximately \$4.5 billion.¹¹⁸ Since 2005, this number continues to increase as utilization of coal combustion residuals has grown significantly, and more industries have increasingly focused on greener means of production and construction.¹¹⁹ Similarly, the reduction of green house gases and greater local availability of sustainable materials have created numerous jobs that utilize coal combustion residual products in sustainable green projects. Stereotypical ideas associated with the environmental danger of fly ash, and coal energy in general, are becoming alarmingly more prevalent. Individuals and regulatory agencies must ignore popular misconceptions and begin focusing on examining the scientific facts relating to this industry. Additionally, the fact that environmentally friendly operations and job opportunities can be created should not

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

be lightly discounted. Instead, it encourages a more science-based approach to regulation that does not impose unwarranted economic burdens on businesses in the coal industry.

Below, reprinted from a Veritas Economic Consulting publication, is a summary of compliance costs and the impact on job opportunities from the two regulatory options.¹²⁰

Proposed Regulatory Option	Description	Cost to Industry (3% Discounted Rate Over 20 Years)	Estimated Job Losses
Subtitle C	CCRs destined for disposal are regulated from the point of generation to the point of final disposition; surface impoundments are completely phased out; in-plant engineering retrofits are required to meet RCRA hazardous waste standards; landfills must meet siting and design criteria.	\$78.92 billion to \$110.00 billion	183,900 to 316,000
Subtitle D	National liner, siting, and stability criteria for impoundments and landfills; surface impoundments must retrofit to meet liner and siting requirements or close	\$22.77 billion to \$34.66 billion	39,000 to 64,700

In response to the proposed notice of rulemaking, American Concrete Paving Association (ACPA) and the Portland Cement Association sent a joint letter to the U.S. Department of Transportation, stating, "[e]ven if EPA plans only to regulate disposal of fly ash as a hazardous waste, the stigma associated with such an approach will have a

¹²⁰ VERITAS ECON. CONSULTING, AN ECONOMIC ASSESSMENT OF NET EMPLOYMENT IMPACTS FROM REGULATING COAL COMBUSTION RESIDUALS tbl. 1, at 1 (June 2011), *available at* <http://www.recyclingfirst.org/pdfs/101.pdf>.

chilling effect on the use of the material in infrastructure."¹²¹ This sentiment is shared by numerous companies throughout the industry, as well as many "state transportation agencies, state environmental regulatory agencies, municipal governments, public utilities, state public service commissions," governors and members of both the House and Senate.¹²²

VI. Compromise Between Current and Proposed Regulations

The May 2000 Regulatory Determination should have been proposed for the purposes of furthering the beneficial use of coal combustion residuals and ensuring that these materials were exempt from the hazardous waste regulations under Section 3001(b)(3)(A) of RCRA. However, due to the EPA's actions following this decree, neither of these goals has been met. The harm from the potential branding of coal combustion residuals as "hazardous," stems primarily from the stigma associated with the term hazardous. "It's very complicated.... If fly ash is a hazardous waste and it becomes part of a concrete wall, is the wall a hazardous material?"¹²³ This question may seem rhetorical, but it is exactly the type of issue faced by many operators dealing with the use and disposal of hazardous waste. A simple label, particularly when unfounded, can take a substance such as fly ash and alter its usage from wide to sparing. The hazardous label then literally attaches to every derivative use of fly ash, making its usage in any constructive manner almost impossible.

One of the primary goals in regulating fly ash should be to avoid thwarting the productive use of the material in sustainable concrete and other ways. As illustrated

¹²¹ Rickard, *supra* note 1 (citing a joint letter from Portland Cement Association and ACPA to the U.S. Department of Transportation).

¹²² *Id.*

¹²³ Post, *supra* note 66 (citing interviewee Scot Horst, senior vice president of Leadership in Energy and Environmental Design).

above, this will be difficult to do if the “hazardous” label is placed on coal combustion residuals. Any "new rules [will] have a substantial financial impact on firms that generate, transport, and dispose of coal combustion residuals."¹²⁴ The "EPA estimates that its proposed rules would have annualized regulatory compliance costs between \$587 million and \$1.4 billion, while industry trade groups estimate that the rule’s potential costs could be three to four times higher."¹²⁵

There are strong tensions between the EPA and members of the coal industry. Given the power and resources of these two groups, it is highly unlikely that either side will gain an ideal end result regarding the regulation of these materials. However, through a dynamic analysis of these two sides, an extremely beneficial compromise can be attained. The most effective compromise between the current and proposed regulations, and essentially between members of the industry and environmental groups, should focus on the primary goals of what each set of regulations accomplishes and what each group desires. The current regulations, which are supported by members of the concrete industry, foster greater production and productive usage of coal combustion residuals throughout various structural formations. The proposed regulations will not change the May 2000 Regulatory Determination for beneficially used coal combustion residuals, which therefore allows various materials to remain exempt from the hazardous waste regulations under Section 3001(b)(3)(A) of RCRA.¹²⁶ This illustrates that both groups agree on the fundamental belief that fly ash should be used throughout structural projects, thus permitting economic and environmental benefits to be fully realized.

¹²⁴ Till, *supra* note 48.

¹²⁵ *Id.*

¹²⁶ Hazardous and Solid Waste Management System, *supra* note 19.

This shared desire for the productive usage of fly ash does not resolve the issue created by the current and proposed regulations. Even though the proposed regulations make exemptions for fly ash that is productively incorporated into structural projects, unused fly ash is still classified as hazardous. This issue was best stated in a November 23, 2009 letter to EPA Administrator: “In our view, the stigma and legal ramifications associated with using a ‘hazardous waste’ material could effectively eliminate the ability to use Fly Ash in highway construction, even if exceptions are made to allow its use for beneficial applications.”¹²⁷ The harm caused by classifying coal combustion residuals as hazardous will not be alleviated by making an exception for reused material. The primary harm in the “hazardous” label is the detrimental connotation that accompanies the term itself. Individuals will be unwilling to use any product with this stigma, regardless of whether the byproduct is exempted as a recycled material and contains lower compliance requirements.

Given that the ultimate goal of the EPA and concrete industry is shared, the compromise between the current and proposed regulations should instead focus on increasing the productive use of fly ash.¹²⁸ This goal cannot be fully achieved by the proposed regulations and its exemption for re-used materials. Any “hazardous” label will result in initial economic harm and eventual environmental harm. The ecological benefits achieved through the use of fly ash will come to a screeching halt if the “hazardous” label is attached. A proposed compromise to this problem would seek to reach the level of protection granted from a hazardous label, without actually attaching the stigmatizing brand to any form of coal combustion residuals.

¹²⁷ *There Is Strong Support for Regulating Coal Ash as Non-Hazardous Waste*, NAT’L MINING ASS’N (Jan. 2010), http://www.nma.org/pdf/legal/012610_eei_coal_ash2.pdf.

¹²⁸ See Rickard, *supra* note 1 (detailing beneficial uses of fly ash).

Conclusion

The issue of how best to regulate coal combustion residuals should not become one of economic gain versus environmental protection. Instead, a wider view is necessary when analyzing the entire process. Both industry members and environmentalists must recognize that despite an underlying risk of harm, coal combustion residuals are of great environmental and economic value. Risks and benefits are to be weighed against one another. Potential fear of harm need not automatically override any possible benefit that can be derived from coal combustion residuals, when these benefits significantly outweigh the possibility of harm. RCRA, by its very nature, is about the management and placement of garbage. Using fly ash in sustainable concrete effectively eliminates the need for the management of “garbage.” It also significantly lowers risks that arise when the substance escapes its designated location.

It remains to be seen whether the EPA will impose significant new regulations on extant structures that produce coal ash. A further question asks if new regulations are put in place, will they be solutions under Subtitle C or Subtitle D? The chance of continued economic success for sustainable concrete is obviously greater under Subtitle D regulations. Since RCRA itself has various flaws, the “hazardous” versus “non-hazardous” distinction should be looked at beyond just the label itself. The management intention of the Act should be the focus of both environmental and industry groups. A primary management function regarding coal combustion residuals is the ability to effectively reuse the material in various structural projects. This purpose cannot be carried to its full potential with any form of “hazardous” label.

Overall, the goal of achieving environmental and public safety should be balanced to ensure that coal combustion residuals will continue to be used in sustainable concrete projects. An exhaustive evaluation and compromise between environmental groups and the industry will ultimately result in the greatest potential for performance, economic, and environmental benefits. This examination will hopefully bring all involved parties to a compromise in which the coal combustion residuals are not unnecessarily labeled as hazardous, the true commercial benefits of fly ash are understood, and regulations are put in place for the purpose of productive and practical protection of human health and the environment.