

February 11, 2008

Notice of Data Availability on the Disposal of  
Coal Combustion Waste in Landfills and  
Surface Impoundments  
Environmental Protection Agency  
Mailcode: 5305T  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Re: Docket ID No. EPA-HQ-RCRA-2006-0796

Dear Administrator Johnson:

By this letter, Earthjustice, Clean Air Task Force, Environmental Integrity Project, Southern Environmental Law Center, the Appalachian Center for the Economy and the Environment, Kentucky Resource Council and Plains Justice, as well as 65 undersigned groups are submitting comments concerning the *Notice of Data Availability on the Disposal of Coal Combustion Waste in Landfills and Surface Impoundments* (“NODA”) published on August 29, 2007. We believe these comments demonstrate conclusively that EPA’s failure, for nearly eight years, to regulate coal combustion waste (CCW) has resulted in damage to health and the environment and that the absence of federal standards poses a significant threat to the nation’s health and water resources. EPA must therefore act on the present record, as contained in the attached documents, as well as those published in the NODA, to fulfill its statutory responsibility to protect health and environment from the mismanagement of solid waste and the open dumping of CCW.

In the NODA, the Agency specifically solicited “comments on the extent to which the damage case information, the results of the risk assessment and the new liner and ground water monitoring information from the DOE/EPA Report should affect the Agency’s decisions.” 72 Fed. Reg. 49714. In addition, the NODA refers to an “approach” proposed by the electric utility industry, the “Voluntary Action Plan,” which was submitted to the Agency for the purposes of avoiding federal regulation.

In response to EPA’s specific requests, our comments include the following:

- (1) An analysis of the draft *Human and Ecological Risk Assessment of Coal Combustion Waste* by Jeffery Foran, Ph.D., (Appendix A and Attachment A-1);
- (2) Data and comments in response to the Department of Energy (DOE) and EPA’s Report, *Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004* (hereinafter *DOE/EPA Report*) (Appendix B and Attachments B1-B-9);
- (3) Data and comments in response to EPA’s *Damage Case Assessment*, dated August 2007 (Appendix C); and

- (4) Comments on the Utility Solid Waste Activity Group's Voluntary Action Plan, (Appendix D).

In sum, the data made available by EPA in the NODA illustrate the necessity for EPA to promulgate expeditiously minimum federal standards for safe disposal of CCW. The documents demonstrate clearly that the threat to health and the environment from CCW is very high, that state regulations are grossly insufficient to control the waste, that damage to health and the environment has occurred in the past and *continues* to occur throughout the U.S. today, and finally that the utility industry is *not* willing to employ voluntarily the minimum safeguards necessary to protect health and the environment.

In addition, we wish to emphasize that over the last eight years EPA has flouted the explicit commitments made in its *Regulatory Determination on Wastes from the Combustion of Fossil Fuels* of May 2000.<sup>1</sup> EPA's complete departure from the spirit and intent of its 2000 Regulatory Determination is so thorough and unjustified, in the face of clear harm to health and the environment from CCW, that its details demand elucidation. Because the Agency's actions violate explicit statutory requirements of the Resource Conservation and Recovery Act (RCRA), they must be brought to light.

First, without explanation, EPA has excluded, both from mention in the NODA and from the 46-document docket that accompanies the NODA, EPA's own 2006 report on CCW, entitled *Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control*. This report examines the increased toxicity of CCW generated by coal-fired power plants with activated carbon injection.<sup>2</sup> The study found that arsenic and selenium leach at very high levels from CCW generated by plants with mercury controls. Specifically, the EPA report reveals that arsenic leaches as high as 100 times its maximum contaminant level (MCL) and selenium leaches at levels up to 200 times its MCL. Yet nowhere in EPA's August 29, 2007 NODA or even in the Agency's 2007 Risk Assessment is this EPA study even mentioned. In fact, the study cannot be found in any of EPA's seven CCW dockets, which comprise 4563 documents and make up the Agency's complete record on this issue since 1988.<sup>3</sup>

And there is good reason why. In its 2000 Regulatory Determination, EPA established a threshold for concern for CCW that the Agency is now arbitrarily ignoring.

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<sup>1</sup> On April 24, 2000, EPA acknowledged in its Regulatory Determination that "coal combustion wastes could pose risks to human health and the environment if not properly managed" and "national regulations under subtitle D of RCRA are warranted for coal combustion wastes when they are disposed in landfills or surface impoundments." U.S. Environmental Protection Agency. *Regulatory Determination on Wastes from the Combustion of Fossil Fuels*, 70 Fed. Reg. 32,214 at 33,214. Hereinafter this document is referred to as the "2000 Regulatory Determination."

<sup>2</sup> US EPA. *Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control*, EPA/600/R-06/008, January 2006.

<sup>3</sup> The EPA dockets include the following in addition to the NODA docket (EPA-HQ-RCRA-2006-0796: EPA-HQ-RCRA-RCRA-1988-0070, EPA-HQ-RCRA-RCRA-1993-0042, EPA-HQ-RCRA-RCRA-1999-0022, EPA-HQ-RCRA-RCRA-2003-0003, EPA-HQ-RCRA-RCRA-2003-0002, EPA-HQ-RCRA-RCRA-2004-0001.

In the 2000 Regulatory Determination, EPA identified “potential risks from arsenic” based on a finding that “a significant percentage of available [coal combustion] waste samples had leach concentrations for arsenic that were greater than ten times the [drinking water (MCL)] criteria.”<sup>4</sup> (Emphasis added.) EPA stated in 2000 that it found that only arsenic and cadmium<sup>5</sup> had exceeded their MCL by ten times, the benchmark for a level of concern that, despite “dilution and attenuation” may present threats to drinking water sources.<sup>6</sup> Therefore, a study that documents arsenic and selenium concentrations in CCW leachate *hundreds of times above the MCL* should certainly have raised red flags.

This increase in CCW toxicity was not unexpected. In 2000, EPA anticipated that a jump in toxicity would follow the more stringent regulation of power plant air emissions under the Clean Air Act. EPA explicitly stated as much in the 2000 Regulatory Determination, pledging “We will reevaluate risk posed by managing coal combustion solid wastes if levels of mercury or other hazardous constituents change due to any future Clean Air Act air pollution control requirements for coal burning utilities.”<sup>7</sup> EPA’s 2006 study explicitly demonstrated such heightened risk, but this critically important study remains buried and ignored by the Agency.

Furthermore, EPA recently released *additional* new data on the increasing toxicity of CCW.<sup>8</sup> EPA is in the process of preparing a second report that will provide even greater evidence of metal leaching from CCW. The second EPA report, to be published in 2008, tests CCW generated by coal-fired power plants employing wet scrubbers. Preliminary data indicate that EPA found that CCW from these plants leached high levels of numerous metals far over the articulated level of concern, including significantly elevated leaching of arsenic (at 400 times its MCL), antimony (at 33 times its MCL), chromium (at 40 times its MCL), thallium (at 150 times its MCL), mercury (at 12.5 times its MCL) and selenium (at 60 times its MCL).<sup>9</sup> For thallium, boron, barium, and selenium, leachate levels were above the hazardous waste threshold.<sup>10</sup> In addition, levels of concern for other metals including molybdenum, cadmium and lead were found.<sup>11</sup>

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<sup>4</sup> Id.

<sup>5</sup> Since cadmium was found to have exceeded this level “in one instance,” it was not identified as posing potential risks.

<sup>6</sup> Id. EPA explains “Groundwater models that we currently use, when applied to large volume monofill sources of metals, frequently predict that dilution and attenuation will reduce leachate levels on the order of a factor of 10 under reasonable high end conditions. This multiple is commonly called a dilution and attenuation factor (DAF). For this reason and because lower dilution and attenuation factors ... are often associated with larger disposal units such as those typical at facilities where coal is burned, we assessed the frequency of occurrence of leach concentrations for various hazardous metals which were greater than 10 times the drinking water criteria.

<sup>7</sup> 65 Fed. Reg. 32,221.

<sup>8</sup> U.S. EPA, Office of Research and Development. “Evaluating the Fate of Metals from Management of Coal Combustion Residues from Implementation of Multi-Pollutant Controls at Coal-Fired Electric Utilities,” Presentation for 32<sup>nd</sup> Annual EPA-A&WMA Information Exchange, December 4, 2007.

<sup>9</sup> Id.

<sup>10</sup> Id.

<sup>11</sup> Id.

Clearly in view of these data indicating much higher toxicity than was noted in 2000, EPA must reevaluate the risk posed by CCW.<sup>12</sup> The 2006 study should have been a part of this NODA, for its findings are absolutely critical to the decision currently before the Agency. Therefore, EPA should immediately publish a Supplemental Notice of Data Availability containing the Agency's 2006 study, as well as the preliminary data that will support its second study of CCW leaching and toxicity. Failure to do so clearly presents an erroneous picture to the public of the current state of EPA's knowledge of CCW toxicity and CCW's potential impact when land disposed and thus prevents scientists, regulators and the public from presenting informed and meaningful comments.

Yet EPA's failure goes far beyond suppressing damaging data. By failing to regulate CCW disposal, EPA has knowingly permitted the proliferation of illegal open dumps, an act clearly contrary to the intent of Congress and the requirements of RCRA. Evidence of illegal open dumping at CCW landfills and surface impoundments is rampant in EPA's Damage Case Assessment, the EPA draft Risk Assessment, and in data gathered by the undersigned groups. It is occurring at CCW landfills, surface impoundments, minefills, and at "beneficial" use sites (where CCW is used as fill) throughout the country. Although these illegal open dumps violate federal standards, they often occur at sites that are permitted by state law. In fact, the voluntary standards proposed by the electric utility industry, currently under consideration by EPA, do not prohibit such open dumping.

The Resource Conservation and Recovery Act, nevertheless, does clearly prohibit open dumping.<sup>13</sup> The regulations defining what constitutes open dumping are found at 40 C.F.R. Part 257. According to these regulations, "solid waste disposal facilities and practices which violate the criteria set forth in sections 257.1 through 257.4 pose a reasonable probability of adverse effects on health or the environment," and these facilities and practices are considered open dumps or open dumping.<sup>14</sup> The prohibition most often violated by CCW disposal units is the requirement that "a facility or practice shall not contaminate an underground drinking water source beyond the solid waste boundary."<sup>15</sup> Exceedances of lead, selenium, cadmium and arsenic above the standards set forth in the regulation have been found at numerous sites, some of which EPA has refused to even acknowledge as 'proven damage cases' in its 2007 Damage Case Assessment. Clearly, current state regulations governing CCW disposal are inadequate to prevent open dumping and to protect health and environment, as required by RCRA Section 4005(a), 42 U.S.C. § 6945(a). It is EPA's statutory duty to promulgate

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<sup>12</sup> In 2000, the Regulatory Determination, relying upon the 1999 Report to Congress noted "Fossil fuel wastes infrequently exceed the hazardous waste characteristic. For co-managed wastes, 2% (1 of 51 samples) exceeded the characteristic level. For individual waste streams, 0% of the coal bottom ash, 2% of the coal fly ash, 3% of the coal flue gas desulfurization, and 7% of the coal boiler slag samples that were tested exceeded the characteristic level." 65 Fed Reg. at 32,222. Clearly these percentages have changed as a result of Clean Air Act emissions control requirements.

<sup>13</sup> RCRA section 4005(a) prohibits "any solid waste management practice or disposal of solid waste or hazardous waste which constitutes the open dumping of solid waste or hazardous waste." 42 U.S.C. § 6945(a).

<sup>14</sup> 40 C.F.R. § 257.3

<sup>15</sup> 40 C.F.R. § 257.3-4(a).

regulations that will prevent the open dumping of CCW and thereby protect health and the environment.

With regard to the specific documents contained in the NODA, we ask that the Agency carefully consider the analysis and data contained in Appendices A through D to this letter. Below, we briefly summarize our response to the primary NODA documents.

### 1. EPA's Draft Human Health and Ecological Risk Assessment

EPA's Human Health and Ecological Risk Assessment identified highly elevated and unacceptable risks to humans, non-human organisms, and ecological systems from the disposal of CCW in landfills and surface impoundments. For example, cancer risks associated with exposure to CCW constituents are as high as the risks of:

- Smoking a pack of cigarettes per day
- Breathing air with a radon concentration 20 times the safe level
- Consuming water contaminated with vinyl chloride at 20 times the acceptable risk level and 10 times the EPA maximum contaminant level.

The ecological risks of constituents in CCW are also extremely high. For example, concentrations of arsenic and selenium are 10 times higher, concentrations of lead are 20 times higher, and concentrations of boron are 2000 times higher than levels that are safe for non-human organisms and ecosystems.

Although EPA's draft risk assessment identified extremely high risks, these human and ecological risk levels likely *underestimate* actual risks associated with disposal of CCW. There are at least a dozen significant errors and omissions in the risk assessment that cause it to underestimate risks. Such errors and omissions include failure to:

- Address all exposure pathways in human and ecological risk assessment
- Consider and address concurrent exposure to CCW constituents via multiple pathways (routes)
- Consider and address concurrent exposure to multiple contaminants
- Consider and include exceptional exposure scenarios in the HHRA
- Rely upon fully protective ecological criteria
- Address and protect threatened and endangered species
- Adequately protect amphibians
- Address and incorporate consideration of multiple stressors in ecological risk assessment
- Chose percentiles and risk levels that are fully protective of public health
- Include all appropriate CCW constituents in the full-scale risk assessment
- Include direct releases to ground- and surface water in the risk assessment
- Include input and participation of affected stakeholders in the development of the risk assessment.

Lastly, EPA relied inappropriately on attenuation factors to assess (and dismiss) risk of excluded CCW constituents. As a result of these substantial failures and omissions, the report underestimates human and ecological risks associated with exposure to CCW constituents.

## **2. DOE and EPA's Report: *Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004***

The DOE/EPA Report presents a grossly misleading analysis of recently built or expanded CCW disposal units and a highly inaccurate and incomplete analysis of current state regulation. The report embraces the dangerous fiction that current state regulatory programs have improved and are now adequately addressing the threat posed by CCW. DOE/EPA's repeated failure, however, to recognize the magnitude of the states' discretionary power and the use of widespread exemptions for CCW resulted in fundamental inaccuracies and wildly overblown claims regarding the scope and effectiveness of the state programs reviewed in the report.

Furthermore, the report's review of 56 CCW waste disposal units out of the more than 600 currently operating CCW landfills and surface impoundments in the U.S. makes far too much of some improved safeguards at a small subset of recently permitted facilities. Almost all the units reviewed in the report were self-selected by the electric utility industry. Yet the DOE/EPA Report draws broad conclusions from these hand-picked units, which represent about 4% of the past and current CCW disposal units in the U.S. The DOE/EPA Report does not address the fact that the overwhelming majority of disposal sites in the country are still operating without basic safeguards. EPA must not base its rulemaking on a biased study that examines, with both blinders and rose-colored glasses, a very small part of an extremely significant problem. EPA must take a hard look at current management practices at a *majority* of CCW landfills and surface impoundments in the U.S. and examine actual state regulations in *all states* where CCW is generated and disposed.

To correct some of the primary deficiencies in the DOE/EPA Report, we have prepared analyses of state regulatory programs in 20 CCW-generating states. All of our state summaries reveal substantial gaps in state regulatory authority. In fact, we identify several states that have recently changed state law to *weaken* their regulatory programs. Our analyses indicate that state programs are inadequate to protect health and the environment and thus clearly demonstrate the need for national minimum standards.

## **3. EPA's Coal Combustion Waste Damage Case Assessments**

EPA's "Coal Combustion Waste Damage Case Assessment" dated July 9, 2007, recognizes 24 proven damage cases -- more than double the number of recognized damage cases cited in EPA's 2000 Regulatory Determination. Further, EPA recognizes another 43 "potential" damage cases in the 2007 Assessment.<sup>16</sup> Given the serious

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<sup>16</sup> "Potential damage cases," by EPA's definition, constitute sites at which groundwater or surface water is contaminated by CCW leachate but where the agency has no evidence of migration beyond the property

deficiencies in monitoring systems at most CCW sites, and the *complete lack of monitoring* at many CCW sites, damage caused by lax management of CCW is highly likely to be underestimated, as EPA conceded in its 2000 Regulatory Determination.<sup>17</sup> Furthermore, EPA readily admits that in the nearly eight years that have passed since the Regulatory Determination, the *Agency has not actively investigated damage from CCW*. Thus, while we believe that EPA's damage case list represents only a small fraction of the contaminated sites caused by CCW, *the significant increase* in the number of proven and potential damage cases speaks for itself. We believe this sharp increase in officially recognized, documented damage cases to groundwater and surface water by mismanaged CCW since 2000 justifies an immediate response from EPA in the form of federal regulations.

In addition, with this submission, we are providing information on 16 additional CCW disposal sites in Florida, Illinois, Indiana, Maryland, New Mexico, North Carolina, Pennsylvania and West Virginia where contamination of surface water or groundwater has recently occurred. We ask that EPA immediately investigate these sites, take action under their emergency powers pursuant to section 7003 of RCRA to obtain cleanup of the sites, and add these sites to the list of CCW damage cases.

#### **4. Utility Solid Waste Activity Group's "Voluntary Action Plan"**

The "Utility Industry Action Plan for the Management of Coal Combustion Products" is a hollow proposal from USWAG that offers far too little, too late, and is designed to allow the electric utility industry to continue avoiding the cost of safe disposal of its voluminous toxic waste. The plan intentionally fails to require monitoring that would detect pollution escaping CCW surface impoundments and landfills or to require any specific response should pollution be detected. The plan fails to require the most basic of safeguards, composite liners, and it fails to prohibit the placement of CCW directly into groundwater. In view of all the documented damage from disposal of CCW in leaking landfills, surface impoundments, and mines and all the drinking water ruined and lives threatened by carelessly managed CCW, it is an affront to the public and to regulators to be offered such an ineffective "plan." Furthermore, in view of the current and continuing damage from coal ash and the hundreds of disposal units operated by industry today without any safeguards whatsoever, it is untenable for EPA to entertain an *unenforceable, voluntary* proposal from USWAG.

#### **Conclusion**

The documents in the NODA present ample information that CCW poses a continuing, increasing and substantial threat to human health and the environment. The documents also reveal that EPA failed to take timely and effective action to control this

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boundary or where contaminants are not listed as primary contaminants under the Safe Drinking Water Act. "Potential" does not mean that contamination is not proven.

<sup>17</sup> EPA stated, " Given the volume of coal combustion wastes generated nationwide (115 million tons) and the numbers of facilities that currently lack some basic environmental controls, especially groundwater monitoring, other cases of proven and potential damage are likely to exist." 2000 Determination at 32,216.

dangerous waste. What is almost entirely missing, however, is any discussion of the threat posed by “use” of the toxic waste in fill operations throughout the country, in mines, gravel pits, as road base and other uncontrolled settings.

In 2000, EPA made the decision to address the disposal of CCW in mines separately from the disposal of CCW in landfills and surface impoundments. This decision has led to the current fast tracking of minefill regulations by the Office of Surface Mining (OSM) with only minimal involvement by EPA. EPA’s failure, however, to comment substantively on OSM’s 2007 Advance Notice of Proposed Rulemaking, its failure to perform a risk assessment on the threats posed by dumping millions of tons of CCW in mines, and its failure to abide by the recommendations of the National Academies of Science in their March 2006 Report, *Managing Coal Combustion Residue in Mines*, represent an abrogation of EPA’s statutory duty under RCRA. CCW is a RCRA solid waste and the unregulated disposal of CCW in mines is creating illegal open dumps throughout the country. Although EPA asserts that CCW minefilling is not a topic of the NODA, such rampant dumping of the same toxic waste that EPA admits poses high human and ecological risk in landfills and surface impoundments *should* have been an integral part of this NODA.

Therefore we request that a Supplemental NODA be issued on CCW minefilling. For this NODA, we request that EPA complete a supplemental Human Health and Ecological Risk Assessment focused on the risks posed by minefilling. This Supplemental NODA should also contain an EPA Damage Case Assessment pertaining to minefills wherein EPA examines the data already submitted to the Agency, which contain evidence of surface and groundwater contamination by CCW disposal in mines.<sup>18</sup> To date, the agency has excluded consideration of all minefills in its damage case assessments.

EPA also decided in its 2000 Regulatory Determination to refrain from addressing “beneficial uses” of CCW, including structural fill. This action has led to a proliferation of unregulated CCW fill projects in numerous states that are endangering health and the environment. Thus, lastly, we request that EPA include in this Supplemental NODA an assessment of the risk posed by fill projects and an assessment of current state regulation of CCW as fill.

Thank you in advance for your consideration of these materials.

Respectfully submitted:

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<sup>18</sup> Extensive damage to groundwater and surface water was shown in the recent report by the Clean Air Task Force, *Impacts of Water Quality from Placement of Coal Combustion Waste in Pennsylvania Coal Mines*, September 2007.

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