

Creating a Sensible Waste Management System

By Brett Barkley

The Environmental Protection Agency (EPA) is proposing a rule to address the risks posed from the disposal of coal combustion residuals (CCRs). These residuals include fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste. The rule primarily considers federal regulation of CCRs under subtitle C (which governs hazardous wastes) or subtitle D (which governs non-hazardous solid wastes) of the Resource Conservation and Recovery Act (RCRA).

I am a recent college graduate with no interest in these matters other than as a concerned citizen and submit these comments from the perspective of the public. I hope they will be of some assistance to the EPA in making a sound decision.

Background on EPA's Proposal

Under a subtitle C regulation, CCRs destined for disposal in landfills or surface impoundments (sometimes referred to as Waste Management Units-WMUs) would be listed as a hazardous waste and subject to regulation from the point of their generation to the point of their final disposition. Subtitle C is commonly referred to as "cradle to grave" regulation and encompasses generator and transporter requirements, siting and liner requirements, run-on and run-off controls, groundwater monitoring, fugitive dust controls, financial assurance, corrective action, closure of units, and post-closure care. Facilities that dispose of, treat, or store CCRs would be required to obtain a permit. Subtitle C would also require dam safety measures similar to what is prescribed by subtitle D.

Under a subtitle D regulation, EPA would maintain its Bevill Regulatory Determinations made in August 1993 and May 2000 by issuing national minimum criteria for the safe disposal of CCRs in landfills or surface impoundments. This would entail location standards, composite liner requirements, groundwater monitoring and corrective action standards for releases from the unit; closure and post-closure care requirements; and requirements to address the stability of WMUs. New landfills and surface impoundments would require composite liners, while existing surface impoundments would have to retrofit within five years, or cease operation. EPA would have no authority to enforce these requirements, nor could they require permits. Unlike subtitle C regulation, states or citizens, rather than EPA, are responsible for enforcing subtitle D requirements.

EPA also proposes a third option called “D Prime”. It is identical to subtitle D, except existing surface impoundments would not be required to install composite liners but could continue operating for their useful life. New WMUs would still require composite liners.

The EPA has statutory authority for this action under the Solid Waste Disposal Act of 1970, the Resource Conservation Recovery Act of 1976, and the Hazardous and Solid Waste Amendments of 1984, all of which are generally referred to as RCRA. According to RCRA section 3001(b)(3)(A), fly ash, bottom ash, slag, and flue gas emission control waste are exempt from subtitle C until EPA has conducted sufficient research to determine whether they are in fact hazardous to human health and the environment. Section 3004(x) also allows EPA

to tailor certain specified requirements for particular categories of wastes, including those that are the subject of today’s proposal...EPA is authorized to modify the requirements of sections 3004 (c), (d), (e), (f), (g), (o), and (u), and section 3005(j), to take into account the special characteristics of the wastes, [and] the practical difficulties associated with implementation of such requirements. (Federal Register, 35135)

This is relevant to EPA’s decision in the current proposal to list CCRs as a “special waste” rather than a “hazardous waste” in consideration of fears that a “hazardous” label would stigmatize and effectively reduce its beneficial use.

Analysis of EPA’s Proposal

These comments focus on whether the proposed rule addresses the primary issue at hand, which is the structural integrity of WMUs; uncertainty surrounding EPA’s risk assessment; the redundancy of a subtitle C regulation given other rules already in place; and potential stigmatizing effects on beneficial uses in the event of a subtitle C decision.

First, it is important to consider the need for the proposed rule. According to the EPA,

[t]his decision is driven in part by the failure of a surface impoundment retaining wall in Kingston, TN in December 2009...Ultimately, the approach selected will need to ensure that catastrophic releases such as occurred at the Tennessee Valley Authority’s (TVA’s) Kingston, Tennessee facility do not occur and that other types of damage cases associated with CCR surface impoundments and landfills are prevented. (Federal Register, 35132)

It is worth noting that EPA has made a small error in their records. The coal ash spill in Kingston, TN occurred in December 2008, not December 2009. Nonetheless, as a native of Tennessee, I agree with EPA’s determination to do everything in their power to prevent tragic events like the one that occurred in my home state a couple years ago. Moreover, the safe disposal of CCRs is vitally important to human health and the environment across the United

States. Currently, there are landfills or surface impoundments containing coal ash in 47 states. So, it is obviously of national interest, and we should all learn from the shortcomings that led to the failure at TVA's Kingston facilities.

In order to correct what went wrong, the first step is to figure out just what exactly went wrong. The proximate cause of the "catastrophic release" would not seem to be coal ash per se. There is nothing inherent in coal ash that caused it to break through the surface impoundment and into neighboring areas. Rather, the main culprit would seem to be the structural integrity of the surface impoundment. In light of this, the preventive steps that are taken should directly address issues related to the structural integrity of surface impoundments or landfills. The focus on whether coal ash should be labeled hazardous or not seems to be misplaced. If the EPA adopted a subtitle C regulation, which heavily monitors the generation, treatment, and disposal of coal ash, they would be trying to treat the wrong thing. EPA is correct to recognize the damage pursuant to the 2008 coal ash spill, but to reason that 'damage occurred, therefore coal ash must be hazardous' is not logical.

The same can be said even after considering the possibility of coal ash leaching into groundwater or surface water. Again, the proximate cause of leaching has to do with the structural integrity of surface impoundments or landfills, not coal ash itself. If the risk to human health and the environment can be addressed solely by improving the structural integrity of such disposal sites (subtitle D), what is the purpose in also subjecting CCRs to hazardous waste treatment (subtitle C)? The EPA implicitly acknowledges this to be the case: "Composite liners, as modeled in this [risk] assessment, effectively reduce risks from all constituents to below the risk criteria for both landfills and surface impoundments at the 90th and 50th percentiles" (Federal Register, 35145). Even in the case of clay-lined or unlined waste management units, all constituents are below the risk criteria at the 50th percentile. Some reputable scholars believe this mean value of the risk should be the appropriate guide when making policy decisions given the fairly broad range of scientific uncertainty (Viscusi in *Cutting Green Tape: Toxic Pollutants, Environmental Regulation and the Law*, edited by Richard L. Stroup and Roger E. Meiners, Independent Institute, 2000, p. xiii). Seeing that EPA recognizes "significant uncertainties in national risk assessments of this nature", the legitimacy of a subtitle D regulation, much less a subtitle C regulation, greatly diminishes (Federal Register, 35145).

In considering the quality of groundwater and surface water in relation to RCRA, the EPA should be careful that they don't create overlapping and potentially confusing regulation. The Safe Drinking Water Act (SDWA) and Clean Water Act (CWA), respectively, are supposed to ensure the quality of our nation's drinking and surface water. If there indeed have been damage cases from the contamination of water sources, it would seem at least in part to be the result of government failure to enforce existing regulations. Since such rules are already in place, to regulate CCRs under subtitle D or subtitle C of RCRA to ensure clean water could be redundant. Moreover, if relevant parties are not complying with the current regulations, SDWA and CWA, why will they comply with new ones? Instead of complying, industry users will likely

become more confused with the increasingly complex web of regulation and attempt to avoid products or constituents that are subject to it even if those products or constituents would otherwise be preferable.

Such confusion has clouded industry decisions on whether to recycle or beneficially use waste products for many years. EPA acknowledged the ambiguous nature of regulations pertaining to beneficial use of wastes in their 2008 rule, Definition of Solid Wastes (DSW). An independent study quoted by EPA in their regulatory impact analysis to that rule concludes:

The laws applying to recycling are difficult to understand and implement, and the consequences of recycling are uncertain. For many, this becomes an unacceptable risk, and this risk often leads to avoidance. Even the EPA concedes that the current regulations are difficult to implement and discourage safe recycling of hazardous waste. (The Reason Foundation, “Recycling Hazardous Waste: How RCRA Has Recyclers Running Around in CERCLAS”, by Alexander Volokh, Policy Study nr. 197, October 1995)

Another independent study speaks particularly to the case of CCRs:

Regulatory barriers result from the EPA RCRA designation of [coal combustion byproducts] as solid wastes even when they are utilized rather than disposed of. In the absence of special state exemptions from solid waste regulations for beneficial use, the “waste” designation can trigger case-by-case approval and permitting procedures that discourage the use of CCBs because of cost and the time required to complete adjudicatory processes. The ineffectiveness of federal agencies to promulgate regulations and guidelines to overcome this barrier continues to hinder use of byproducts. (EERC, “Barriers to the Increased Utilization of Coal Combustion/ Desulfurization By-Products by Government and Commercial Sectors-Update 1998”, EERC Topical Report, July 1999; p. xix)

This is not the way the regulatory system is supposed to work. According to Executive Order 12866 regulations should be “consistent, sensible, and understandable.” (Federal Register, Vol. 58 No. 190)

In their 2008 DSW rule, EPA attempted to make beneficial use regulation exhibit such qualities and effectively less confusing. It was essentially a response to recommendations by the DSW task force dating all the way back to 1992 at which time the task force acknowledged that, “RCRA Subtitle C regulations are difficult to understand and apply, and that the rules do not regulate [industrial hazardous waste] consistently” (quoted in DSW Rule RIA, 14). EPA professed that, “[t]he DSW final rule is de-regulatory in nature because it excludes certain recyclable materials that have heretofore been subject to RCRA hazardous waste regulations, from Subtitle C regulation as hazardous waste... The DSW final rule is not intended to bring new

wastes into the RCRA regulatory system” (DSW Rule RIA, 16). With all due respect, today’s rule proposing to regulate new wastes under subtitle C, in contrast to the 2008 DSW rule, does not make a noticeable effort to further a consistent, sensible, and understandable regulatory system. I fear it will have the opposite effect.

It is important to acknowledge that the proposal does make explicit that CCRs beneficially used will not be subject to subtitle C regulation. However, the EPA then requests comment on what constitutes beneficial use: “EPA requests... suggestions for other criteria that may need to be included to ensure that legitimate beneficial uses can be identified and enforcement action can be taken against inappropriate uses” (Federal Register, 35163). Essentially, EPA has authority to regulate under subtitle C anything they deem to be an “inappropriate” use. It is highly questionable that industry will bear such risk given that the consequences of beneficial use are so uncertain. This uncertainty is apparent when one visits EPA’s web page for its Coal Combustion Products Partnership (C2P2). All you see is a note that says, “program Web pages have been removed while the program is being re-evaluated.” At best, beneficial uses that are thoroughly defined in the rule may experience little or no setback; but the prospect of expanding the beneficial use market by finding new and innovative ways to recycle CCRs will have slim hopes under subtitle C. Industry will likely be unwilling to recycle CCRs in any manner that is not explicitly defined in the rule. For the EPA to expect otherwise is unrealistic.

EPA recognizes that the fate of beneficial use of CCRs under a subtitle C regime is uncertain, and it presents three regulatory impact scenarios that reflect different degrees of recycling. The first scenario assumes that beneficial use will increase primarily due to the increased cost of disposal under subtitle C. In this scenario, subtitle C renders the highest net benefits. However, if beneficial use remains constant or decreases, subtitle C renders the highest net losses compared to the other regulatory options. This seems to be a very large risk to take. Even so, the EPA remains quite confident in their forecast: “On the basis of past experience, EPA believes that it is likely that recycling rates will increase as presented in the first scenario.” (Federal Register, 35215) As discussed above, EPA’s past experience with recycling under subtitle C is in fact a bit more ambiguous (see 2008 DSW rule and 1990s DSW task force).

The “past experience” that EPA refers to in the currently proposed rule is cases of hazardous waste where beneficial use still exists. EPA cites six examples where this is so. Among them are electric arc furnace dust, electroplating sludge, and chat. It is not clear that there are any general lessons to be drawn from these examples. Electric arc furnace dust is only used in fertilizer under very stringent conditions. There is not a wide beneficial use market. In the case of electroplating sludge, the question of a stigma reducing beneficial use is not particularly important because the beneficial use involves recovering additional metals from the sludge, which effectively removes any possible stigma on the final product. As for Chat, it is not even a listed hazardous waste. Why EPA cites it as an example is unclear and a bit misleading. Moreover, special rules were specifically enacted to induce industry to use chat. CCRs are in the

exact opposite situation. Industry wants to use CCRs, but EPA is proposing a rule that could potentially prevent them from doing so.

In conclusion, considering the many potential unintended consequences that might stem from a subtitle C regulation, EPA should maintain the current status of CCRs as a non-hazardous waste. The alternatives, subtitle D or “D Prime”, are preferable; and unless new risk information finds constituents below the 50th percentile level, “D Prime” is the most sensible. There is not substantive evidence that damage has been done to ground or surface water from the leaching of coal ash. Moreover, there are already rules in place to ensure the quality of our nation’s water sources. The immediate concern of today’s proposed rule should be the structural integrity of surface impoundments and landfills to prevent tragic events like the one that occurred in Kingston, Tennessee in December 2008. Given our current knowledge, “D Prime” is sufficient to do that and therefore makes a subtitle C or D regulation unjustified.