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Sent: Tuesday, December 22, 2009 9:16 PM
To: EP, RegComments
Cc: 'Jeff Stant'; lwidawsky@environmentalintegrity.org
Subject: Comments on Proposed Rulemaking - Coal Ash Beneficial Use
Attachments: EIP Earthjustice Comments on Coal Ash Beneficial Use Rules 12 22 09.pdf

Please accept the attached comments submitted on behalf of Environmental Integrity Project and Earthjustice.

Thank you,

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December 22, 2009

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Via Electronic Submission

Re: Public Comments Submitted on Behalf of the Environmental Integrity Project and Earthjustice on the Proposed Rulemaking Amending 25 Pa. Code Chapter 290 Relating to the Beneficial Use of Coal Ash

Dear Secretary Hanger and Members of the Environmental Quality Board,

The Environmental Integrity Project (EIP) appreciates this opportunity to comment on the proposed Chapter 290 regulation, which revises the requirements for the "beneficial use" and storage of coal ash in Pennsylvania. Our comments focus on essential safeguards that are needed to prevent contamination of the Commonwealth's water supplies from of coal ash — and in particular, from placement of coal ash in mines.

We recognize that the proposed Chapter 290 rules include improvements in requirements to characterize coal ash quality and monitor ash placement in Pennsylvania mines. These requirements include: more frequent analysis and leach testing for a greater number of ash constituent parameters including calcium, magnesium, potassium, beryllium, cobalt, thallium, vanadium; retesting and further analysis of the ash to determine its suitability for mine placement based on lower thresholds of leaching for constituents such as arsenic and lead; twelve months of monitoring to characterize the hydrogeology and water quality at sites prior to ash placement and quarterly monitoring of water quality for ash parameters after ash placement begins; and monitoring for 10 years after the completion of ash placement. The proposed rules also appear to tighten requirements to isolate coal ash from the water table in coal mines, and they establish provisions governing assessment and abatement of water contamination from coal ash.

While we are encouraged by these changes, these regulations must be more protective. Water quality is now degraded around many Pennsylvania coal ash mine sites, and as the recent National Research Council Report and voluminous monitoring data confirm, damage from minefilling is ongoing and extensive. If minefilling is nevertheless allowed to continue as a "beneficial use," there must be a regulatory regime in place to prevent further damage in the first instance and to compel timely and effective clean-ups if and when water contamination does occur.

Overarchingly, the proposed regulations fall short because nearly all of the requirements listed above can be waived by the Department of Environmental Protection ("PADEP") at its discretion, without any showing why the waiver will not compromise adequate protection of human health and the environment.

More specifically, the test that will be used to characterize coal ash leaching, the Synthetic Precipitation Leaching Procedure (SPLP), will not reliably predict the toxicity of the coal ash to be placed in mines. Flawed testing will lead to inadequate characterization and potentially an underestimate of the risk the ash poses. Under these circumstances, PADEP may use its discretion to waive important isolation requirements and allow ash placement in dangerous proximity to the water table.

In addition, the standard for triggering an assessment of water contamination remains unclear in the proposed regulations and thus does not assure that increases in contaminant concentrations beyond baseline concentrations will be investigated in time to prevent serious damage from occurring.

Below please find an inventory of specific deficiencies or loopholes that we have identified in the proposed Chapter 290 regulations. We first quote the language of the regulation and then provide our comments. We have focused the bulk of our comments on those areas of concern that have been the subject of lengthy discussion with PADEP staff and other stakeholders — specifically, the requirements for monitoring, isolation, and corrective action in connection with coal ash placement at mines. Other concerns are addressed in the order they appear in the proposed regulations. Finally, we reiterate our concern that the rules fail to include any financial assurance requirements in light of the known risks associated with ash placement.

Specific Comments

1) 290.101. General requirements for the beneficial use of coal ash. (d) A water quality monitoring plan in accordance with § 290.301 (relating to water quality monitoring) and, if applicable, Chapters 86—90 must be developed and implemented if either more than 10,000 tons of coal ash per acre is to be used on a project or more than 100,000 tons of coal ash in total will be used at a project. Contiguous projects will be considered a single project for purposes of this section. The Department may require a water quality monitoring plan for projects involving lesser quantities of coal ash where site conditions warrant.

This provision waives critically important monitoring requirements for the "use" of coal ash in quantities that pose a serious threat of contamination to water supplies. The Environmental Proetction Agency ("EPA") has compiled a list of Damage Case Assessments that includes sites where far fewer than 100,000 tons of coal ash have contaminated water supplies. For example, placement of approximately 7,000 tons of coal ash below the water table in a pit at the Highway 59 Landfill near Waukesha, Wisconsin contaminated twelve offsite drinking water wells in glacial and dolomite aquifers necessitating an estimated cleanup cost of $6.6 million.[1] Furthermore,

[1] Wisconsin Electric Power Company, ADDENDUM TO ENVIRONMENTAL CONTAMINATION ASSESSMENT HIGHWAY 59 ASH LANDFILL TOWN OF WAUKESHA, WISCONSIN, prepared by Science & Technology Management, Inc, Brookfield WI & Natural Resource Technology, Inc, Pewaukee, WI (Nov. 1998). While substantially more than 7,000 tons of coal ash were disposed at this site, the

monitoring at minefills in Pennsylvania such as the Bloom #1 Mine (Permit #17950111), in which approximately 50,000 tons of FBC ash have been placed, and EP Bender Mine (Permit # 11930102), in which 65,000 tons of FBC ash have been placed, indicates that the ash is contaminating groundwater. Regardless of whether the Department concedes that ash is the source of the contamination at these two sites, the facts are that water quality was considerably worse after ash placement commenced and that several of the pollution parameters that have increased are highly soluble ash parameters. The increases in these concentrations are occurring at monitoring points established to detect impacts from the ash. These examples demonstrate that the 100,000 ton threshold for monitoring is much too high. The cutoff should be at least as low as 10,000 tons — and given the damage caused by 7,000 tons of coal ash in Wyoming, a lower threshold may be needed.

(e) Coal ash may not be placed within 8 feet of the water table, unless the Department approves placement within 8 feet at a coal mining activity site based upon a demonstration that groundwater contamination will not occur.

Effectively isolating coal ash from the water table is the key safeguard to prevent water contamination, especially in mines where acid mine drainage may exacerbate the leaching of toxic coal ash constituents. Yet this provision allows the 8-foot separation requirement to be waived based upon an undefined "demonstration." There are no criteria or standards setting forth the evidence that must be provided to make such a demonstration. Nor is it clear that such criteria could reasonably be set. We do not know how such a demonstration could be made short of embarking on a long-term pilot demonstration(s) at the site in question using the ash in question. Yet under the proposed regulations, the Department's discretion to accept a proffered "demonstration" is unfettered. This language would allow ash to be placed directly into the water table of an aquifer that supplies drinking water so long as PADEP was willing to accept an assertion that no harm would ensue.

In the past, the Department has used this same loophole in existing regulations to allow coal ash placement closer than 8 feet to the water table in the absence of any credible, scientifically supported showing that water quality would remain unharmed. To date, the only "demonstration" that the Department has produced to assert that groundwater contamination will not occur when coal ash is placed closer than 8 feet to the water table is the result of an SPLP test. However, the results of single condition lab leach tests such as the SPLP, which is not designed to predict how the coal ash will leach in the disposal setting, cannot serve as the sole basis for a credible demonstration.

Given the difficulty of ensuring protection of water quality once ash is placed near the water table, the isolation requirements should always be met. There are volumes of data and information from across the country documenting the harm that coal ash has done to groundwater when placed in the water table or in close proximity to it.

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cleanup consultants and state regulators believe that the placement of this limited quantity (7,000 tons) below the water table caused the contamination. To remediate the site, they proposed to remove only this quantity of ash from below the water table, cap the site, and replace contaminated drinking water.

Placement of coal ash too close to groundwater is the common causal factor in the expanding list of 71 "proven or potential damage case sites" maintained by EPA. In its 1999 Report to Congress, EPA acknowledged concerns about the leaching and mobilization of constituents in mine-placed coal combustion waste ("CCW") both from acid mine drainage as well as placement of CCW below the water table — two scenarios that are likely to occur repeatedly in Pennsylvania in the same mines and at the same time as a result of this loophole in the isolation requirement. The RTC stated:

> If the available alkalinity in UCCWs is consumed by AMD, however, continued leaching may mobilize the constituents of the ash or sludge . . .
>
> Placement of UCCWs in mines completed below the water table will result in inundation of the wastes. Inundation may result in continued leaching of constituents of concern from the wastes.

EPA, Report to Congress, Wastes from the Combustion of Fossil Fuels, Volume 2 – Methods, Findings and Recommendations, EPA 530-R-99-010, at 3-52 (Mar. 1999).

In its 2000 Regulatory Determination, USEPA again officially raised the concern that coal combustion wastes could contaminate groundwater in mines if dumped into the water table:

> We are aware of situations where coal combustion wastes are being placed in direct contact with ground water in both underground and surface mines. This could lead to increased releases of hazardous metal constituents as a result of minefilling.

U.S. EPA, Regulatory Determination on Wastes from the Combustion of Fossil Fuels, 65 Fed. Reg. 32,314, 32,228 (May 22, 2000)

The panel of scientists and mining experts who studied ash placement/disposal in coal mines for the National Research Council reached the consensus conclusion that a chief objective of this practice should be to minimize contact of water with coal ash in mines. The following is one of several statements to this effect in Managing Coal Combustion Residues in Mines (2006), at page 162:

> Given the known impacts that can occur when CCRs react with water in surface impoundments and landfills, CCR placement in mines should be designed to minimize reactions with water and flow of water through CCRs. Regardless of whether the CCR is placed in an active or an abandoned coal mine, the issue of limiting the interactions of CCRs with groundwater should be a priority.

This pressing need to isolate CCS from water was again highlighted in EPA's 2007 Draft Human and Ecological Risk Assessment of Coal Combustion Waste, which

modeled unacceptably high human cancer and wildlife risks from disposal of CCW in unlined and clay lined surface impoundments and landfills that are above the water table. U.S. EPA, Human and Ecological Risk Assessment of Coal Combustion Wastes, Draft (Aug. 2007) (prepared by RTI International) ("EPA Risk Asssessment").

Indeed, the highest risks were modeled from units that co-manage coal ash with acid-producing coal wastes, which is the typical scenario in the Pennsylvania minefill context. See, e.g., EPA Risk Assessment, at 4-14, tbl. 4-7 (documenting cancer risks as high as 1 in 50 from contamination of drinking water by groundwater sources near unlined impoundments that were co-disposing of coal ash and coal refuse). According to the Risk Assessment, these risks are reduced to acceptable levels if CCW is disposed in composite-lined units to prevent the migration of its leachate to groundwater. Id. at ES-1, 4-9 & tbl. 4-3, 4-14.

We note the substantial emphasis that is placed in the proposed regulations in subchapters 290.401-414 on isolating coal ash from groundwater when coal ash is stored in surface impoundments and other sites outside of coal mines. These provisions require coal ash storage sites to install composite liners and leachate collection systems and prohibit their placement of ash within 8 feet of the water table or in floodplains. Wisely, the proposed regulations do not allow these safeguards to be waived or relaxed based on vague demonstrations, nor can they be waived or relaxed based solely on the result of an SPLP test.

The same rule should apply to minefills given the wealth of data demonstrating that ash placement in the water table in Pennsylvania coal mines has resulted in the release of hazardous constituents from the ash into the groundwater. For example, such data has been compiled both by the Department and tghe Clean Air Task Force scientists in their examination of the Big Gorilla Pit Demonstration Project (Solid Waste Permit 301304) at the Silverbrook Refuse Reprocessing Site (SMP 54920201) in Schuylkill County. Big Gorilla Pit was a 16 acre lake with a depth of 90 feet that directly intersected the minepool which is the predominant water table underneath the Silverbrook site. Big Gorilla was filled with 3 million tons of FBC ash from 1997 to 2004 to eliminate dangerous highwalls and reduce acid mine drainage into the underlying minepool.

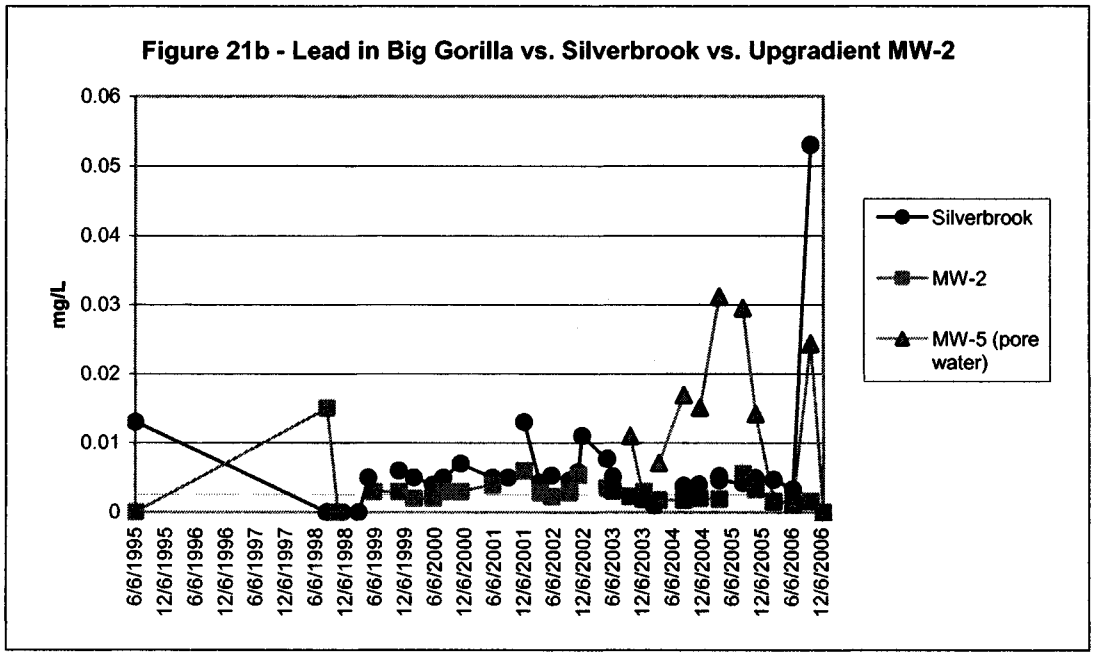
In Coal Ash Beneficial Use in Mine Reclamation and Mine Drainage Remediation in Pennsylvania, at 285–288 (2004), PADEP acknowledges that chromium, arsenic, copper, and selenium were measured in Big Gorilla Pit water after ash placement had begun at significantly higher concentrations than ever measured in the acid water in the Big Gorilla Pit prior to ash placement and in the groundwaters of the Llewellyn and Pottsville coals mined at this site. Chromium concentrations in the Big Gorilla Pit water during ash placement reached 0.260 mg/L, more than five times higher than the highest concentrations in the groundwater or acidic pre-ash Big Gorilla Pit water and almost three times higher than the DWS. Arsenic reached 0.022 mg/L, more than four times higher than the highest arsenic in the groundwaters of area coals or in the pre-ash Pit water and more than twice the DWS. Copper levels in the Big Gorilla water after ash placement were 3 to 4 times higher than the highest copper levels measured in the

groundwaters of area coals and in the Big Gorilla acid water before ash placement. PADEP did not cite background levels of selenium in the coal mines, but selenium levels in the pit water during the ash placement period (1997 to 2002) were up to 0.101 mg/L, 50 times higher than the highest selenium levels measured in the pit water before ash placement. This level is more than twice the drinking water standard ("DWS") and 20 times the federal water quality standard (chronic aquatic life criteria) for selenium.

Once the pit was filled with FBC ash, the concentrations of selenium, molybdenum, cadmium, barium, strontium chloride, sodium, fluoride, sulfate and other pollutants were also much higher in several samplings of two test borings dug into the water table in the ash compared to concentrations for those constituents in a test boring dug into the water table in adjacent culm deposits.

Although the concentrations of lead in the groundwater of area coal mines has varied widely according to PADEP, data from samplings of the Big Gorilla Pit water showed that lead increased from a highest concentration measured before ash placement of 0.002 mg/L to a highest concentration after ash placement started of 0.027 mg/L, an increase of more than 13 times, after ash placement began exceeding the drinking water standard (0.015 mg/L). Since those measurements were recorded, additional monitoring of lead in the water table of MW-5, a monitoring well drilled into the ash, has shown an apparent mobilization of lead. Figure 21b below shows that 5 of 12 samples taken from September 2003 through December 2006 at MW-5 found lead above the drinking water standard. Of concern also is the latest measurement of lead in this Figure: 0.053 mg/l measured at the Silverbrook outfall, which is assumed to be hydrologically connected to the Big Gorilla Pit and the most downgradient monitoring point at the boundary of the Silverbrook permit area. The large volume of water in the Silverbrook Discharge at this monitoring point, measured at between 800 and 1800 gallons per minute, makes this concentration of lead, which exceeds the Pennsylvania and federal aquatic life surface water quality standard by more than 20 times, a matter of concern. In fact, the Silverbrook discharge regularly exceeds the water quality standards for cadmium and lead of 0.00025 mg/l and 0.0025 mg/L respectively, posing potentially serious adverse impacts on the aquatic life in receiving waters flowing to the Little Schuylkill River.[2]

[2] Except for the value of 0.0244 mg/L on Sept. 2006 at MW-5, the concentrations in Figure 21-b are for total rather than dissolved lead, although there is usually little difference between the two values when they are provided. The value of 0.11 mg/l of total lead on Nov. 2002 was measured by USGS, not PADEP monitoring. The water quality standard referenced is the federal Continuous Criterion Concentration ("CCC") for protection of aquatic life. This CCC is based on the dissolved rather than total concentration of these metals and is also adjusted for hardness, although given the relatively low hardness of the Silverbrook Discharge, the standard is not likely to be higher than the numbers referenced in the discussion above.



In summary, damage has been repeatedly documented throughout the nation when CCW has been placed in close proximity to water. EPA modeling predicts that the highest risk to human health and the environment from CCW occurs when CCW is co-managed with acid producing coal waste in unlined sites, a scenario likely to occur when coal ash is placed in Pennsylvania mines. NRC scientists studied the placement of coal ash in mines and concluded by consensus that contact with water should be minimized. This recommendation should be adopted in Pennsylvania, as monitoring data indicates that the placement of ash into the water table at Pennsylvania mine sites has mobilized trace metals in harmful concentrations. Accordingly we urge that all wording after "water table" in Section 290.101.(e) be eliminated and the comma replaced with a period.

Alternatively, the regulation should not allow coal ash to be placed closer than 8 feet to the uppermost water table in a mine without the use of a cap, leachate collection and detection systems and a composite liner (using synthetic material and clay) to minimize leachate generation and prevent leachate from reaching groundwater.

At the very least, these regulations should prohibit the placement of coal ash within the water table in an active or abandoned coal mine.

§ 290.301. Water quality monitoring.

(a) A water quality monitoring plan shall be submitted to the Department for approval prior to placement or storage of coal ash at the sites identified in §§ 290.101(d), 290.104, 290.405(d) or 290.411(e) (relating to general requirements for the beneficial use of coal ash, storage piles – operating requirements and surface impoundments -

operating requirements). At a minimum, the plan must include the following information:

(2) A minimum of 12 background samples from each monitoring point taken at monthly intervals prior to placement of coal ash, unless a different number or frequency is approved by the Department.

Subsection (a) should be changed to clarify that the water quality monitoring plan be submitted and approved prior to the approval of any permit for coal ash placement. With respect to the beneficial use of coal ash in active mines, the Department cannot meet its obligation under governing state and federal law to ensure protection of water supplies unless it requires monitoring to characterize the location, quality, rates and directions of water flow at the site and further requires development of an enforceable monitoring plan based on that characterization that ensures that harm to water both on-site and off-site will be detected and addressed. Thus, in this subsection and/or in Section 290.104.(b)(4), the criteria for "material damage to the offsite hydrologic balance" that must be prevented, as well as the standards that trigger assessment and abatement of contamination under Sections 290.304 and 290.305, should be explicitly identified as part of the water quality monitoring plan.

Allowing for a "different number or frequency" of background samples to be "approved by the Department" without further qualification allows the Department unfettered discretion to continue to accept fewer background samples than necessary to characterize the full hydrologic cycle at a monitoring point prior to ash placement and thus to rely on less information than is needed to characterize baseline water quality properly. This provision would allow PADEP to issue a permit based on just one or two samples, as it did for the BD Mining Site under Permit # 54850202. Baseline water quality must be fully characterized at ash monitoring points to enforce effective triggers for corrective action if it becomes necessary.

(3) Samples to be taken quarterly after approval from each monitoring point, unless a different number or frequency is approved by the Department.

Again, allowing for "a different number of frequency" to be "approved by the Department" without further qualification allows the Department unfettered discretion to continue to allow more infrequent sampling. Thus, scant annual monitoring at the Ernest, Ellengowan, BD Mining, and other minefill sites could continue under the proposed regulations. Infrequent monitoring increases the possibility that water contamination will be missed entirely and enhances the likelihood that responsive action will not occur until after off-site pollution has occurred.

We urge the Department to replace "different number or frequence" 290.301(a)(2) & (a)(3) with "greater number or greater frequency."

(g) Water quality monitoring shall continue quarterly for a minimum of 5 years after final placement or storage of coal ash at the site, and annually thereafter

from the end of year 5 through 10 years after final placement or storage of coal ash at the site. The Department may require more frequent or longer water quality monitoring if the results of water quality monitoring indicate that contamination may be occurring.

At least thirty years of quarterly monitoring should be required after ash placement is finished. Monitoring should continue for a period long enough to differentiate contamination by ash from impacts of mining. Thirty years is the duration of monitoring after closure at more hydrologically stable and less fractured municipal solid waste landfills. Because groundwater in mined areas can require considerable time to recharge due to major disruption of aquifers from mining, the duration of monitoring requirements for minefills should be longer not shorter than the requirements for landfills.

Gradual and/or deferred contamination of water at ash sites is documented in monitoring data. The Department frequently claims that ash is cementitious and will harden or become "pozzelanic" in mines, but monitoring data reveals that hardened ash breaks down with time requiring long periods of monitoring to detect leaching of its constituents, particularly its toxic metals. For example, monitoring data for the Knickerbocker Demonstration site demonstrates changing flow patterns from the apparent breakdown of ash and leaching of lead and other metals that was not detected until 8 to 9 years after ash placement started and 2 to 3 years after it was completed. In fact, modeling indicates that the peak leaching potential at coal ash surface impoundments is 78 to 105 years, and "hundreds to thousands of years" can pass before the peak leaching potential occurs at coal ash landfills according to EPA's 2007 Draft Human and Ecological Risk Assessment of Coal Combustion Wastes. EPA Risk Assessment, at 4-7 to 4-8. Thus, 30 years of post placement monitoring at a frequency that will detect if contamination is occurring is needed at mine ash sites.

§ 290.302. Number, location and depth of monitoring points.

(a) The water quality monitoring system shall accurately characterize groundwater flow, groundwater chemistry and flow systems on the site and adjacent area. The system must consist of the following:

(1) At least one monitoring well at a point hydraulically upgradient from the coal ash placement area in the direction of increasing static head that is capable of providing representative data of groundwater not affected by placement of coal ash, except when the coal ash placement area occupies the most upgradient position in the flow system. In that case, sufficient downgradient monitoring points shall be placed to determine the extent of adverse effects on groundwater from the coal ash placement.

This provision fails to ensure or allow for the establishment of a functional upgradient monitoring point. Thus, this provision preserves a basic deficiency that has prevented the creation of adequate monitoring systems at the Ernest, McDermott, EP Bender, Hartley, Buterbaugh, BD Mining, and Ellengowan sites studied in the Clean Air

Task Force Report. These systems are fundamentally inadequate to differentiate pollution caused by coal ash and its effects from pollution caused by mining alone. Installing more downgradient monitoring points will not address the deficiency. Water at the mine site that is affected by mining but not ash placement must be monitored. Otherwise, when contaminant increases occur at any of the downgradient points, the Department will lack data that will enable it to understand, with a reasonable degree of confidence, the degree to which the ash is contributing to the problem. As a result, the Department will remain unable to effectively judge the veracity of claims by operators that sources other than the ash are responsible for water quality problems. This loophole should be eliminated. The basis for presuming that ash placement must occur "at the most upgradient position in the flow system" to address drainages further downgradient in a mine has never been established. Even if such a basis could be shown, ash placement should never truncate the capability of the monitoring necessary to protect water supplies.

§ 290.304. Groundwater assessment plan.

(a) A person shall prepare and submit to the Department a groundwater assessment plan within 60 days after one of the following occurs:

(1) Data obtained from monitoring by the Department or the person indicates a significant change in the quality of groundwater or surface water from background levels determined under § 290.301(a)(2) (relating to water quality monitoring) at any downgradient monitoring point.

The wording, "a significant change in the quality of groundwater or surface water from background levels" is too vague to reliably trigger corrective action requirements in time to prevent full-scale contamination of offsite water supplies. Given the longstanding debate over ash as the source of contamination in settings where previous and/or ongoing mining is already degrading water quality, it is crucial to establish a clear and simple trigger for investigation. We recommend a standard keyed to the measurement of a concentration for an ash parameter at a downgradient ash monitoring point that exceeds the highest background concentration measured for that parameter at the same monitoring point. This standard will encourage baseline water quality data to be competently gathered at the outset and leave all concerned parties with the simple task of 'comparing numbers to numbers' in order to decide whether a problem may be occurring as a result of ash placement. An exceedance of the highest background concentration at a downgradient ash monitoring point should be the simple trigger for requiring investigation of contaminant increases.

The currently proposed standard for triggering assessment will invite dispute a "significant change in the quality of groundwater or surface water from background levels" is clearly defined and a foolproof method for detecting such a change is prescribed in the regulations.

Prior to April 1998, a standard for assessment was formally in place at mine ash placement sites: measurement of a concentration exceeding the Drinking Water Standard or highest background concentration for an ash parameter—whichever concentration was higher—at a downgradient ash monitoring point. However, this standard triggered assessment only after significant damage, *i.e.* exceedance of drinking water standards, already had occurred. Consistent with Section 287.1 of Pennsylvania's residual waste regulations, which defines "groundwater degradation" as "[a] measurable increase in the concentration of one or more contaminants in groundwater above background concentrations for those contaminants," measurement of an increase above the highest background concentration must be the standard for investigation to ensure that degradation of mine waters from ash placement is minimized and offsite damage to the hydrologic balance is avoided in compliance with state and federal mining laws. See 25 Pa. Code § 278.1. In fact, the Pennsylvania regulations for residual waste landfills requires a groundwater assessment plan:

> [W]ithin 60 days after one of the following occurs:
> (1) Data obtained from monitoring by the Department or the operator indicates groundwater degradation at any monitoring point.
> (2) Laboratory analysis of one or more pubic or private water supplies indicates groundwater degradation that could reasonably be attributed to the facility.

25 Pa. Code § 288.256(a). Consequently, the residual waste regulations require a groundwater assessment within 60 days of any PADEP or operator monitoring data indicating "groundwater degradation"—defined as monitoring that indicates a measurable increase in the concentration of one or more contaminants groundwater above background levels. Requiring a groundwater assessment only when the obscure standard of a "significant change in the quality of groundwater or surface water from background levels" has been met is impermissibly, and unjustifiably, more lenient than existing regulatory regulations that should apply to coal ash landfills.

(b) The person is not required to conduct an assessment under this section if one of the following applies:

(1) Within 10 working days after receipt of sample results indicating groundwater degradation, the person resamples the affected monitoring points and analysis from resampling shows, to the Department's satisfaction, that groundwater degradation has not occurred.

This provision again gives PADEP too much discretion to ignore data that may indicate a serious contamination problem. Groundwater contamination may move in pulses and can be expected to do so as pollutants move through minepools. A resampling that measures a concentration below background levels does not necessarily mean that a previous concentration above background levels did not occur or is no longer ongoing. If a first concentration is measured at a monitoring point above the highest background concentrations and resampling obviates the requirement to conduct a groundwater assessment, the regulations should ensure that a subsequent measurement above the

highest background concentration at the same monitoring point would trigger the need for a groundwater assessment without the option to resample under subsection (b)(1).

(2) Within 20 working days after receipt of sample results indicating groundwater degradation, the person demonstrates that the degradation was caused entirely by seasonal variations or activities unrelated to coal ash placement.

The requisite evidence to make such a demonstration should be further defined in this provision. Monitoring at an upgradient point that reveals concentrations exceeding background concentrations that are roughly equivalent and of the same order of magnitude as those at the downgradient point where the high concentration has been measured could serve as the basis for this demonstration, provided that the hydrologic position of the upgradient point has not changed relative to the ash placement. Unsubstantiated assertions or irrelevant statements such as claims about degradation caused by mining operations elsewhere or results of the SPLP test on the ash at the site should not be considered a sufficient demonstration.

(c) The assessment plan shall specify the manner in which the person will determine the existence, quality, quantity, areal extent and depth of groundwater or surface water degradation and the rate and direction of migration of contaminants. An assessment plan shall be prepared and sealed by an expert in the field of hydrogeology who is a licensed professional geologist in the Commonwealth. The plan must contain the following information:

(5) Identification of the abatement standard that will be met.

Section 290.304.(c)(5) should also specify the material damage that is prohibited under the permit.

§ 290.305. Abatement plan.

The abatement standards that are being met inside the permit area should be set at locations and concentrations that provide a margin of safety in ensuring that material damage beyond the permit boundary is avoided altogether. Therefore if the only abatement standards for groundwater are located at the property boundary and based on drinking water standards or other health standards, this objective will not be accomplished. Any violation of applicable surface water quality standards or groundwater standards in waters draining beyond the mine property boundary should be considered prohibited material damage to the offsite hydrologic balance that abatement plans are explicitly designed to prevent.

(d) For measuring compliance with secondary contaminants under subsections (c)(1) or (c)(3), the Department may approve a compliance point beyond 500 feet on land owned by the owner of the coal ash placement area.

The regulation should define "secondary contaminants" more clearly. There are health advisories or drinking water advisories for contaminants such as sulfate or zinc for which secondary drinking water standards have been established. These advisories should not be exceeded in water beyond the ash placement area by application of the secondary standard at a more distant compliance point beyond 500 feet from the ash placement area. There are also water quality criteria for copper, silver and zinc that should not be exceeded in surface waters beyond the ash placement area as a result of application of a distant compliance point for achieving the secondary drinking water standard for these metals.

In addition, Section 290.305.(c) should require that the operator verify under the abatement plan that material damage as defined in the permit is not occurring in offsite groundwater or surface water or if such violation is occurring, that it has been permanently abated. Accordingly, the monitoring under the assessment and abatement plans must sample all offsite private and public water supplies and surface waters which have any reasonable potential to be impacted by the contamination.

Upfront specification in permits of material damage that must be avoided will ensure that monitoring systems capable of detecting material damage will be in place before ash placement starts. This requirement would help to avoid the common situation where growing problems are ignored until contamination has been documented and lengthy deliberations over assessment and abatement plans are necessary. Not counting the time that the Department will need to consider the plans that operators submit, these regulations afford the operators up to 435 days from the date contamination is first detected to implement an abatement plan. Having adequate monitoring in place will help minimize the debate over such plans and encourage prompt action to address contamination before material damage occurs and the public is harmed.

These regulations should base all corrective action steps on clear standards that third parties such as effected citizens and communities can understand and enforce.

Other Concerns:

§ 290.102. Use of coal ash as structural fill.

(a) At least 60 days before using coal ash as structural fill, the person proposing the use shall submit a written notice to the Department. The notice must contain, at a minimum, the following information:

(1) A description of the nature, purpose and location of the project, including a topographic map showing the project and available soils maps of the area of the project.

(2) The estimated beginning and ending dates for the project.

(3) Construction plans for the structural fill, including a stability analysis when necessary, which shall be prepared by a registered professional engineer in accordance with sound engineering practices and which shall be signed and sealed by the engineer.

(4) An estimate of the volume of coal ash to be used for the project.

(5) A bulk chemical and leaching analysis for the coal ash to be used in the project. If the coal ash was generated at a facility for which the Department has previously approved a chemical and leaching analysis and the analysis is not older than 1 year, the person may submit a copy of the analysis that was approved.

(6) A signed statement by the owner of the land on which the structural fill is to be placed, acknowledging and consenting to the use of coal ash as structural fill.

(7) This statement by the landowner in (6) shall be a recordable document for any project, or set of contiguous projects involving placement of more than 10,000 tons of coal ash per acre. Prior to beneficial use of more than 10,000 tons of coal ash per acre under this section, the statement by the landowner shall be recorded at the office of the recorder of deeds in the county in which the proposed coal ash beneficial use will take place.

There is no permit required for a structural fill, regardless of the size of the fill or the potential for harm that it poses to the surrounding community. Subsection (7) allows for structural fills that could involve potentially several hundred thousand tons of coal ash to proceed without any record of such fills being noted on the deeds to the properties on which they occur. Because coal ash contains substantially higher concentrations of potentially harmful trace metals than surrounding soils, <u>all</u> structural fills involving coal ash should be readily noted on the deeds to the properties on which they are placed.

(c) A person proposing to use coal ash as structural fill where more than 10,000 tons of coal ash per acre is to be used on a project or more than 100,000 tons of coal ash in total will be used at a project shall place at the time of filing a request with the Department, an advertisement in a local newspaper of general circulation in the locality of the proposed coal ash beneficial use activities at least once a week for 3 consecutive weeks. Contiguous projects will be considered a single project for purposes of this section. The Department may require public notice for projects involving less than 10,000 tons of coal ash per acre if the Department determines that the proposed beneficial use activities are of significant interest to the public or site conditions warrant. At a minimum, the notice must contain the following information:

(1) The name and business address of the person proposing to beneficially use coal ash.

(2) A brief description of the location and scope of the proposed beneficial use.

(3) The location of the public office where a copy of the request that is being or was sent to the Department is available for public inspection.

Again, this provision will allow structural fills of considerable size, (e.g., up to 9,999 tons per acre on 10 acres up to 99,999 tons), to be approved and carried out without any notice provided to the surrounding community. In addition, there is no opportunity for public comment on structural fills of any size, particularly by local individuals in the surrounding community who may likely be highly knowledgeable about site characteristics. This will increase the potential for project approvals by the Department that violate other siting standards such as the distance to outcrops, sinkholes or wetlands. The provisions in this rule should assure that the Department will reach out to the local community as a source for important relevant information.

(d) For coal ash to be beneficially used as a structural fill, the following additional requirements must be satisfied:

(8) The offsite dispersion of dust from coal ash and other materials shall be minimized.

The rule should prohibit offsite dispersion of dust from coal ash in structural fills and enunciate the means for complying with this prohibition. The word "minimized" is vague and by definition could allow for significant amounts of fugitive dust to cross the property line from the fill area.

§ 290.103. Use of coal ash as a soil substitute or soil additive.

This section requires no permit, no public notice and comment nor any monitoring of projects involving coal ash as a soil substitute or soil additive regardless of their size. There is no description of the chemical and leaching analyses that must be done on coal ash to be used for this application and no requirement for a leaching analysis on the mixture(s) of soil and ash that will occur at application sites. There are no limits on the steepness of slopes on which coal ash can be applied as a soil substitute or additive. There are no cumulative contaminant loading rates in subsection (f) established for trace metals known to be present in eastern coal ashes such as antimony, thallium, berillium, cobalt, or vanadium. The absence of permitting or public involvement requirements increases the potential for inappropriate, and harmful applications of coal ash as a soil substitute or additive to occur. Without any monitoring of water infiltrating below the vadoze zone, surface water drainages, ash application rates, metals loading and plant uptake of metals that actually occur, there is no means for ascertaining that projects involving coal ash as a soil substitute or additive comply with the requirements in this section and avoid harm after they are approved without repeated inspections and sampling by Department staff — oversight which is not required and highly unlikely to occur under the proposed regulatooms. The National Research Council's Report,

Managing Coal Combustion Residues in Mines, (2006), emphasized that the uptake by plants of harmful levels of constituents in coal ash applied as soil amendment is a concern:

> Topsoil Replacement. . . . . In some cases, CCR is used as a soil additive to neutralize acidic soil. However, as discussed in Chapter 4 and in the following section, the uptake by vegetation of metals and other contaminants that may be present in CCRs is a concern.
>
> Revegetation. ... Many post-mining land uses, such as prime farmland, commercial forestry, and wildlife habitat, have specific revegetation requirements with very specialized planting practices. The uptake by vegetation of metals and other contaminants that may be present in CCRs is a concern, especially when the reclaimed land will be used as farmland. Sufficient soil cover, which is appropriate for the type of vegetation, is necessary to minimize plant uptake (see Chapter 4).
>
> Reclamation of Abandoned Mine Lands
> . . . Finally, CCRs are used as either a soil amendment or a soil replacement, particularly at abandoned mine sites where topsoil may be totally lacking (see Chapter 2). However, plant uptake of contaminants must be considered when CCRs are used as a soil replacement. (pages 161 & 162)

§ 290.104. Beneficial use of coal ash at coal mining activity sites.

(e) Operating requirements. The beneficial use of coal ash for reclamation purposes at a coal mining activity site shall be designed to achieve an overall improvement in water quality or shall be designed to prevent the degradation of water quality.

(f) (6) (iv) The integrated project shall be designed to achieve an overall improvement of surface water or groundwater quality at each site, where acid mine drainage is evident. If acid mine drainage is not evident, the project shall be designed to prevent degradation of the surface or groundwater quality.

Without defining "overall improvement," section (e) and subsection (f) appear to allow ash placement projects that contaminate ground and surface waters as long as Department staff decide improvements in other parameters justify such contamination. "Overall improvement" must be further defined to avoid arbitrary decisions that result in the longterm contamination of water supplies by ash placement. The language should make clear that all projects involving ash placement, including coal refuse reprocessing sites where acid mine drainage is evident, shall be designed to prevent degradation of the surface or groundwater quality.

(f) (9) The offsite dispersion of dust from coal ash and other materials shall be minimized.

The rule should prohibit offsite dispersion of dust from coal ash in coal mines and coal refuse reprocessing sites and enunciate the means for complying with this prohibition. The word "minimized" is vague and by definition could allow for significant amounts of fugitive dust to cross the property line from the fill area.

(g) Additional operating requirements for the beneficial use of coal ash as a soil substitute or soil additive.

See comments above regarding Section 103. Without monitoring requirements, the means for ensuring compliance with the requirements in this section concerning ash application and metals loading rates are questionable, and the avoidance of plant uptake of metals or surface water pollution is not ensured. Also offsite dispersion of dust from coal ash should be prohibited in (g)(4) rather than "minimized."

(h) Additional operating requirements for the beneficial use of coal ash at coal refuse disposal sites.

The language should make clear that projects involving ash placement at coal refuse disposal sites shall be designed to prevent degradation of the surface or groundwater quality. Also the offsite dispersion of dust from coal ash should be prohibited in (h)(2) rather than "minimized."

§ 290.105. Coal ash beneficial use at abandoned coal surface mine sites.

(b) Request. The request for the use of coal ash at abandoned mine sites must contain the following:

(5) If applicable, water quality monitoring plan.

The regulation should explicitly state that water quality monitoring will be required for projects involving the use of more than 10,000 tons of ash at abandoned coal surface mine sites. Determining the safety and success of ash placement at abandoned mines, which are often sites with serious AMD problems, is no less important than evaluating impacts at active mine sites. Such findings were voiced repeatedly in the NRC Report (for example see Chapter 8, page 183, in Managing Coal Combustion Residues in Mines).

(6) A person proposing to use coal ash for reclamation involving use of more than 10,000 tons of coal ash per acre on a project or more than 100,000 tons of coal ash in total at any project shall place at the time of filing a request with the Department, an advertisement in a local newspaper of general circulation in the locality of the proposed coal ash beneficial use activities at least once a week for 3 consecutive weeks.

See response above to 290.102.(c) to this provision for structural fills. We have the same concern with this provision. It allows sizeable projects (up to 99,999 tons) to occur without any public notice. Furthermore it fails to explain public input procedures for use of coal ash in unlimited volumes in abandoned mine reclamation sites which input should be emphasized by this rule. Without a requirement for a permit, the process for soliciting input of the surrounding community and incorporating that input into the decision to use coal ash at an abandoned mine site should be explained in this regulation.

(e) Operating requirements. The use of coal ash as part of the reclamation activity at abandoned coal surface mine sites must satisfy the following additional requirements:

(8) The offsite dispersion of dust from coal ash and other materials shall be minimized.

As stated for other uses of coal ash, offsite dispersion of ash dust should be prohibited and steps for complying with this prohibition enunciated.

(9) Coal ash used for reclamation may not be located:

(i) Within 100 feet of an intermittent or perennial stream, unless . . . the ash has been placed as a low permeability material to function as an aquatard as part of an engineered stream channel restoration.

The use of ash as a "low permeability material" to function as an aquitard may have some utility if its location is isolated above groundwater or away from streams. However, monitoring data documenting contamination from liners constructed of compacted ash, the collapse of levees made out of "fixated ash" and dissolution of other low permeability, cementitious applications of ash when exposed indefinitely to water, demonstrate that this rule should not sanction the use of coal ash in the construction of a stream channel. The Department should present longterm monitoring data demonstrating the success from such an application without adverse impacts to water quality before it is encouraged by this rule.

(10) The following apply to the beneficial use of coal ash as a soil substitute or soil additive:

(i) Coal ash shall be applied at a rate per acre that will protect public health, public safety and the environment.

(ii) The coal ash that is applied will be part of the approved reclamation plan in order to increase the productivity or properties of the soil.

(iii) The coal ash is not used in amounts that exceed the maximum cumulative loading rates in § 290.103(f) (relating to use of coal ash as a soil substitute or soil additive).

The lack of monitoring marginalizes these "requirements."

§ 290.106. Other beneficial uses of coal ash.

(b) The following uses of coal ash are deemed to be beneficial and do not require a permit from the Department under the act provided the uses are consistent with the requirements of this section: . . .

(6) The use of coal ash as a drainage material or pipe bedding, if the person proposing the use has first given advance written notice to the Department, and has provided to the Department an evaluation of the pH of the coal ash and a chemical analysis of the coal ash.

(7) The use of coal ash for mine subsidence control, mine fire control and mine sealing, if the following requirements are met:

(i) The person proposing the use gives advance written notice to the Department.

(ii) The pH of the coal ash is in a range that will not cause or allow the ash to contribute to water pollution.

(iii) Use of the coal ash in projects funded by or through the Department is consistent with applicable Departmental requirements and contracts.

(iv) The coal ash shall be utilized within 24 hours of its delivery to the site unless stored in accordance with Subchapter E (relating to coal ash storage).

These uses raise concerns about water pollution. In both scenarios, the application will likely involve constant contact of coal ash with water, the scenario that heightens the potential for contamination of water. Use of coal ash as a drainage material is a scenario for generating ash leachate. The Department's data from ash monitoring points at the EME Generation (Homer City) Coal Waste Disposal site, (Permit # 32753702) suggests that the use of bottom ash as a drainage medium in the liner system at this site may have contaminated shallow groundwater underneath the liner. The regulation should provide a more substantive basis for waiving all permit requirements for such an application than simply, "an evaluation of the pH" and "a chemical analysis of the coal ash." Similarly, there should be a more substantive basis than an assessment of pH, before all permitting requirements are waived for the use of coal ash in mine subsidence control, mine fire control and mine sealing. In fact, we are unaware of any "range" of pH that "will not cause or allow the ash to contribute to water pollution" and would appreciate seeing any data the Department has in support of this presumption.

At a minimum, this regulation should require monitoring of both of these applications, regular reporting of the monitoring data to the Department and regular assessment of the impacts of such applications so that adverse impacts are promptly addressed.

§ 290.201. Coal ash qualification.

(a) Qualification standards are as follows:

(1) Maximum acceptable leachate levels for qualification:

(i) For metals and other cations, 25 times the waste classification standard for a contaminant.

(ii) For contaminants other than metals and cations, the waste classification standard for a contaminant. . . .

(b) Qualification may be granted for use of a coal ash not meeting all the appropriate standards in subsection (a) if the following conditions are met:

(1) The coal ash will be used only at a specified mine site(s). The coal ash qualification is limited for use only at the specified site.

(2) Only standards based on secondary MCLs (aluminum, chloride, iron, manganese, sulfate, silver and zinc) are exceeded. All other limits shall be met.

(3) The mine site operator can demonstrate that use of the coal ash at these levels will not adversely impact the surface water or groundwater quality and that the use of the coal ash will achieve an overall benefit in groundwater quality.

The exceedance of leach test standards whether based on primary or secondary MCL's establishes a theoretical basis for concern about the toxic-forming characteristics of the ash in question. Secondary MCL's are substantially higher than water quality criteria for aluminum, silver, and zinc in subsection (b (2). Excessive levels of iron, manganese, sulfate and chloride can also degrade water supplies. The regulation should outline substantive information that the operator shall provide to demonstrate that the use of coal ash leaching high levels of these parameters will not adversely impact surface water or groundwater. Otherwise, this language is a loophole that will allow for arbitrary decisions not supported by the weight of credible, scientific evidence available.

(c) A request for coal ash qualification must contain the following information on a form provided by the Department: . . .

(5) A detailed chemical analysis on at least four (4) representative samples spaced throughout a 2- 6-month sampling period within the

last year that fully characterizes the composition of the coal ash. This analysis must include:

(i) Total and leachable concentrations for aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, sulfate, thallium, vanadium and zinc and leachable concentrations for ammonia, chloride, fluoride, nitrate and nitrite using methods found in EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW-846) or comparable methods approved by the Department. Leachate concentrations shall be determined using EPA Method 1312, the Synthetic Precipitation Leaching Procedure, or another leaching procedure approved by the Department.

The requirement for chemical analysis on four representative samples spaced over a 2-6 month period is an improvement over current characterization requirements of a single sample.

However the continued reliance on the Synthetic Precipitation Leaching Procedure is inexplicable given the consensus reached by scientists that single-point lab leaching tests, such as the SPLP and TCLP do not test ash under the range of leaching conditions encountered in the field. In Managing Coal Combustion Residues in Mines, the NRC's panel stated the following about these tests:

> Recent research has compared laboratory leaching tests with field behavior at CCR disposal sites (Ladwig, 2004). Field leachate from sluiced ash was compared to the results from two laboratory leaching protocols—the SPLP and a synthetic sluicing procedure. The agreement between the field data and the leaching test protocols was variable. The laboratory results generally ranged about one order of magnitude both above and below the field-collected data, depending on the trace element of interest, although some trace element concentrations showed variations of more than two orders of magnitude between the laboratory and field leaching data (Ladwig, 2004). These results suggest that improvements in laboratory leaching protocols are necessary if they are to be considered representative of CCR behavior in the field. (pages 125-126) . . . .
>
> Current characterization practice relies heavily on laboratory leaching tests, in particular the TCLP, to evaluate the potential hazards of CCR placement in mines.
>
> These tests do not use leaching solutions that are representative of the large range of geochemical conditions likely to be encountered in mines, and they may greatly underestimate the actual leaching that will occur. It is recommended that leaching procedures be continually improved to encompass the range of pH and oxidation-reduction conditions that might be encountered in pore-water close

to the CCR placement area over an extended time (many decades to centuries). Leaching tests should also assess slower dissolution reactions. . . .

These leaching conditions should include low-pH leaching solutions to represent the aggressive leaching that may occur in the most reactive areas of the unsaturated zone. The composition of the leaching solution should be monitored both before and after leaching is complete to ensure that the final leaching solution is representative of expected conditions at the mine site. Leaching tests should be conducted over longer periods (e.g., several weeks) and a few solid-to-solution ratios should be evaluated to assess whether precipitation controls are limiting leaching characteristics. Samples that do not pass a predetermined criterion should be rejected for mine placement. Samples that do pass the criterion may still have to be evaluated in greater detail, depending on the potential risks of CCR placement determined from site characterization, including column leaching tests and longer-term evaluations of leaching as CCR materials age. (page 127)

Despite these recommendations, which over three years ago corroborated earlier findings from the EPA's Science Advisory Board criticizing the poor predictive capability of single condition lab leach tests, this regulation will continue to rely on such a test to characterize how CCW will behave in a Pennsylvania coal mine.

The Department's staff are undoubtedly well aware of the protocol developed by Dr. David Kosson and others that has been examined and endorsed by US EPA's Science Advisory Board and Research Triangle Park staff as a greatly improved testing method over the SPLP and other single condition lab leach tests for predicting leaching from coal ash under differing field conditions. This approach for leaching evaluation is explained in: D.S. Kosson, van der Sloot, H.A., Sanchez, F., and Garrabrants, A.C., An Integrated Framework for Evaluating Leaching in Waste Management and Utilization of Secondary Materials, Department of Civil and Environmental Engineering, Vanderbilt University, Nashville, TN, USA & The Netherlands Energy Research Foundation, Petten, the Netherlands, Environmental Engineering Science, In-press, 2002. The 'Kosson Leaching Framework' requires more knowledge of the factors that affect leaching at sites, specifically pH, liquid to solid leaching ratio and waste form, but is not too complicated or expensive for state regulatory agencies to use. To quote the conclusion of the paper just referenced:

The proposed framework presents an approach to evaluate the leaching potential of wastes over a range of values for parameters that have a significant impact on constituent leaching (e.g., pH, LS, and waste form) and considering the management scenario. This approach presents the potential to estimate leaching much more accurately (than many currently used leach tests), relative to field leaching, when conditions for leach test data are matched with field conditions. ...

> Appropriately used in waste regulatory programs, this approach could make those programs substantially more cost-effective and protective of the environment. The flexibility of the proposed approach allows for development of the framework to provide a greater degree of tailoring to site conditions, to account for the effects of other waste leaching parameters critical to a particular site. Reliance on a tiered approach to testing can also make this approach more economical for smaller waste volumes and therefore more broadly feasible.

The Department has repeatedly characterized itself as a leader among states in the development of policies for the beneficial use of coal ash in mines with much expertise in the chemistry of coal ash and its behavior in the mine setting. Using this expertise, the Department should replace its reliance on the SPLP test in these regulations with a Pennsylvania-specific protocol utilizing the Kosson Leaching Framework or another test approach that addresses the leaching factors just discussed in Managing Coal Combustion Residues in Mines.

§ 290.202. Revocation of qualification.

(a) The Department will revoke qualification for a source of coal ash if any of the following occur: . . .

(2) The results from the analyses of the coal ash consistently exceed the qualification criteria.

This provision appears to contradict the qualification standards outlined in section 290.201. which state that the limits for metals and cations at 25 times the waste classification standard, "shall be met." The use of the word "consistently" in this provision explicitly implies that maximum acceptable leachate levels for an ash can exceed any of the limits in the leach test at least several times before the qualification for that ash would be revoked. This word should be removed.

(b) If qualification is revoked, the coal ash cannot be used at a coal mining activity site or an abandoned coal surface mine site in the Commonwealth unless the coal ash generator requests re-qualification under subsection (c) and the coal ash is re-qualified by the Department.

(c) The generator of coal ash that had its qualification revoked may request re-qualification. For qualification to be reinstated, the generator shall demonstrate to the Department's satisfaction that:

(1) A detailed chemical analysis on three recent monthly representative samples establish that the coal ash meets the qualification requirements. . . .

§ 290.203. Exceedance of qualification requirements.

If the coal ash sample analysis results exceed any qualification requirement, this source may continue to be used if the person can demonstrate to the Department's satisfaction that the exceedance was a rare event and is not a typical representation of the coal ash as a whole. This demonstration shall include comparisons with prior coal ash analyses, a new sampling strategy and new sample analyses. The demonstration shall explain the cause of any high value and how this type of event will be avoided in the future

The objective of these regulation should be to encourage the safe, "beneficial use" of coal ash in mines and other environments. Yet these provisions encourage generators of coal ash that readily leaches high levels of metals in short-term, single-condition lab leach tests to retest their ash until they have gathered enough results that meet qualification requirements to pass muster with the Department. The possibility that they are being encouraged by these provisions to readily disregard and not submit results that fail the test is overlooked.

At 25 times drinking water standards, the maximum acceptable leachate concentrations allowed by these tests are already set above levels that would produce toxic impacts. Furthermore the rule has no isolation requirements to keep such ash from contact with water. Yet rather than encouraging generators to dispose of such ash at safer sites with liners and separation requirements, the language of section 290.203 openly encourages efforts to explain away toxic results. The language should be eliminated.

Instead, the regulation should clearly require that failure of the test for any parameter one time will result in the immediate suspension of the beneficial use certification. If the generator chooses to test the ash a second time, the regulation should require split sampling of a second sample with an independent lab that does not have any business relationship with the generator or the mine operator. The exceedance of a leaching threshold a second time by either of the labs or an exceedance in a subsequent test by the generator should permanently disqualify the ash from mine placement. This prohibition should apply to the ash as long as it is being generated by the same combustion unit and comes from the same coal seam being mined as the fuel source. Changes to either the combustion unit or fuel source should enable the generator or mine operator to apply for a new qualification of the ash for mine placement.

The Need for Financial Assurances

The proposed rules fail to address the need for financial assurances despite the known threats posed by ash placement in mines. As the previously referenced NRC and Pennsylvania Minefill reports have documented in detail, minefilling has resulted in severe and widespread water contamination in Pennsylvania and around the country. Unfortunately, state governments and taxpayers are often saddled with the high costs of

clean-ups. Occasionally when the costs are very high, clean-up is long delayed or may never occur at all. The public should not be forced to bear the financial (as well as health and environmental) risks posed by ash placement in mines. Companies that seek to cut costs by disposing of ash in mines must be held accountable for clean-up costs, and the only way to achieve this accountability reliably is to obtain financial assurances at a time when companies are still viable and solvent. Any company that cannot obtain the requisite financial assurances to cover remediation of potential environmental impacts should not be allowed to engage in the risky business of minefilling.

There are several provisions of federal law that could serve as a template for financial assurance provisions in the minefilling context. For instance, under the Resource Conservation and Recovery Act ("RCRA"), hazardous waste disposal facilities are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities. They also must demonstrate that they have sufficient funds to pay for the clean up of any accidental releases of hazardous constituents during the active life of their facilities, and compensate any third parties for any resulting bodily injury or property damage. *See* 40 C.F.R. 264 subpart H. Municipal solid waste landfill owners and operators are subject to analogous requirements. 40 C.F.R. §§ 258.71-73. Companies that use mines as disposal facilities for coal ash should be subject to similar requirements.

Before issuing any beneficial use certification, companies should be required to comply with upfront bonding requirements that are set at an amount sufficient to cover the cost of long-term monitoring and potential remediation costs. In the event that corrective action is needed, the adequacy of financial assurances should be revaluated and, if necessary, increased in light of the estimated costs of site investigation, interim clean-up measures, and ultimate remediation.

Conclusion

Thank you for your thoughtful consideration of these and previous comments submitted by EIP and Earthjustice, and for your active engagement with all of the stakeholders interested in this important rulemaking.

Sincerely,

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