

Overview of Coal Ash Disposal, Regulation and Beneficial Use

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According to the U.S. Energy Information Administration, the commonwealth of Pennsylvania is the largest generator of coal ash in the United States. Pennsylvania is home to roughly 100 coal ash disposal facilities, three of which have been classified as "high hazard" by the U.S. Environmental Protection Agency (EPA). Throughout the country, numerous electric generating facilities have been retiring coal-fired units in favor of natural gas combined cycle units. Still, many of those same electric generating plants find themselves undertaking large-scale coal ash mobilization projects resulting from decades of coal ash accumulation and catalyzed by new regulations from the EPA. With litigation both arising from, and in opposition to, the coal ash regulations, it is an area worth watching at the state and federal levels.

Coal combustion residuals (CCR), commonly known as coal ash, are byproducts of the combustion of coal at power plants by electric utilities and independent power producers. There are several different types of materials produced during the process including fly ash: powdery, fine material composed primarily of silica, made from burning finely ground coal in a boiler; bottom ash: large, jagged, and coarse ash particles that collect at the bottom of the coal furnace; flue gas desulfurization material (FGD): residue from the process of reducing sulfur dioxide emissions from a coal-fired boiler, which may look like wet sludge consisting of calcium sulfate or calcium sulfite or a dry powdery mixture of sulfates and sulfites and; boiler slag: molten bottom ash from slag tap and cyclone furnaces that turns into glassy pellets after being rinsed in water. The composition of coal ash varies, but it generally contains contaminants such as mercury, cadmium, lead and arsenic. Though it contains the aforementioned contaminants, the EPA and the Pennsylvania Department of Environmental Protection (DEP) currently classify coal ash as nonhazardous waste.

Coal ash is routinely listed as one of the top two largest quantities of industrial waste generated in the United States. According to the American Coal Ash Association's Coal Combustion Production & Use Survey Report, 117.3 million tons of coal ash was generated in 2015. Coal ash is disposed of in two primary ways: in its wet form, coal ash is disposed of in large ponds or lagoons known as surface impoundments. In its dry form, coal ash is placed into landfills. Historically, many coal ash landfills and surface impoundments were unlined, creating potential risks to groundwater and surface water. In 2008, one of the surface impoundments at the Tennessee Valley Authority's (TVA) Kingston Fossil Fuel Plant in Harriman, Tennessee failed, causing a slurry of coal ash and water to spill into the Clinch and Emory Rivers and flooding approximately 300 acres of land. In the wake of the Kingston TVA coal ash spill, the EPA worked to establish national rules for coal ash disposal and increase existing controls on water discharges.

The disposal of coal combustion residuals from electric utilities final rule (CCR rule) was published in the federal register on April 17, 2015. The CCR rule outlines technical requirements for landfills and surface impoundments under Subtitle D of the Resource Conservation and Recovery Act (RCRA) and also establishes recordkeeping and reporting requirements, including the online posting of annual groundwater monitoring and corrective action reports, CCR fugitive dust control plans and closure completion notifications.

The CCR rule became effective in October 2015. In addition to its technical requirements, the CCR rule notably requires the closure of certain landfills and surface impoundments. Under the CCR rule, closure of a coal ash basin is triggered by the following three circumstances:

(1) When a basin receives its last waste shipment or when the owner or operator removes the final volume of coal ash from the unit for the purposes of beneficial use. In this case, closure must begin within 30 days of such receipt or volume removal.

(2) For "idled" basins—the CCR Rule establishes a presumption that the owner or operator must initiate closure of the unit no later than two years after the most recent receipt of coal ash or any non-coal ash waste stream or no later than two years after the most recent date that coal ash was removed from the unit for the purpose of beneficial use, whichever is later.

(3) When a unit fails to meet certain technical criteria such as, if the coal ash cannot meet the location criteria, if an unlined coal ash surface impoundment is found to contaminate groundwater in excess of a groundwater protection standard, or if a coal ash surface impoundment cannot demonstrate that it meets the minimum factors of safety regarding structural integrity of the unit.

If a unit does not meet provisions (1) or (2), it may qualify for alternative closure requirements if it can demonstrate there is no alternative coal ash disposal capacity or if the coal-fired boiler will be permanently retiring in the near future.

In October 2016, the EPA finalized a rule and a companion proposal extending the compliance deadlines by 547 days in order to reinstate time lost between the signature date of final rule and the last business day of the week during which the order from the court granting the motion to vacate 40 CFR Sections 257.100(b), (c), and (d) was signed. Despite that extension for certain inactive coal ash surface impoundments, for many owners and operators of coal ash surface impoundments and landfills, excavation proceeds at a breakneck pace in order to meet the compliance deadlines required by the CCR rule.

Predictably, the CCR rule came under fire from several parties. In December 2015, shortly after finalization of the rule, the Utility Solid Waste Activities Group, along with several other industry petitioners, filed suit in the U.S. Court of Appeals for the D.C. Circuit challenging portions of the CCR rule that regulate inactive impoundments. Environmental groups, including the Sierra Club and the Waterkeeper Alliance joined the fray, filing briefs in support of the EPA's defense of the CCR rule. As of this publication, the litigation is ongoing.

In addition to the CCR rule, the EPA suggested that the states take advantage of the preexisting Solid Waste Management Plans (SWMPs) process by revising their SWMPs to adopt the federal minimum criteria laid out in the CCR rule. The CCR rule does not preclude a state from adopting more stringent requirements. Unlike some states, Pennsylvania required environmental permits for coal ash disposal facilities and regulated the beneficial use of coal ash as a residual waste for many years prior to the finalization of the CCR rule. In December 1986, Pennsylvania's Solid Waste Management Act was amended to authorize the beneficial use of coal ash. In July 1992, DEP amended its residual waste management regulations (25 Pa. Code Chapter 287), to include the beneficial use of coal ash.

In January 1997, the beneficial use of coal ash regulations 25 Pa. Code Sections 287.663 and 287.664 were once again amended to change the requirements related to groundwater monitoring, reporting, coal ash beneficial uses, and the quantities of coal ash that may be used at active coal mine and abandoned mine sites. Like the EPA, the DEP defines coal ash as nonhazardous, residual waste and the DEP's regulations focus heavily on the beneficial use of coal ash. Pennsylvania's beneficial use permitting

allows for several applications including, but not limited to, as a structural fill, for reclamation at an active surface coal mine site, in the manufacture of concrete, as a drainage material or pipe bedding, and as a stabilized product where the physical or chemical characteristics are altered prior to use or during placement so the potential of the coal ash to leach constituents is reduced.

Under the enforcement structure of Subtitle D of the RCRA, the EPA does not have direct enforcement authority over the CCR program. As a result, in addition to encouraging state implementation, the EPA designed the rule to facilitate citizen lawsuits. Per the CCR rule, industry parties place compliance information in an "operating record" and then, within 30 days, post the information to a public website, where citizen groups can then review the data and search for compliance issues. The utilities (or other owners and operators) also must notify the state environmental agency within that 30-day period. Though the DEP has long regulated coal ash, the CCR has frequently been a point of contention and source of litigation. Over the past decade, there have been citizen suits related to spills, permitting and disposal of coal ash in several Pennsylvania counties. Currently, utilities face active suits filed by environmental organizations including the Environmental Integrity Project and Public Justice in Fayette, Greene and Luzerne counties related to coal ash management. The final outcome of the CCR rule is yet to be seen in the D.C. Circuit but current regional and national developments suggest there may be more Pennsylvania coal ash litigation to come.

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