



cleanenergy.org

Working towards a clean energy future

Southern Alliance for
Clean Energy



THE STATE OF COAL ASH REGULATION IN TENNESSEE

Prepared by the Southern Alliance for Clean Energy, Knoxville, Tennessee

On behalf of:

Environmental Integrity Project

Earthjustice

Tennessee Clean Water Network

Tennessee Chapter of the Sierra Club

Tennessee Environmental Council

Tennessee Interfaith Power & Light

United Mountain Defense

Greenpeace USA

French Broad Riverkeeper

Western North Carolina Alliance

Watauga Watershed Alliance

October 26, 2010

EXECUTIVE SUMMARY

In the wake of the Tennessee Valley Authority's Kingston coal ash disaster, the state of Tennessee moved into a position to become a national leader in requiring the safe and effective storage, treatment and disposal of coal ash waste. This report finds that with the health, economic and human toll of unregulated coal ash so terrifyingly apparent, Tennessee could have reviewed and revised its outdated and inadequate laws governing coal ash in order to reduce the likelihood of future disasters of similar nature. Yet, lawmakers and regulators in Tennessee and other states have failed to enact more protective coal ash laws. Today, even as East Tennessee is still reeling from the havoc of over 1 billion gallons of coal ash that ravaged area backyards, waterways, homes and businesses, Tennessee's laws remain weak and new cases of coal ash damage continue to surface.

Tennessee is home to five specific cases of coal ash damage, as well as wet ash impoundments that could cause life-threatening disasters on a scale even greater than Kingston (see Section III, below). "Damage cases" refers to documented groundwater and surface water contamination in and around ash storage facilities at the Tennessee Valley Authority's coal-fired power plants in Tennessee. High levels of contaminants ranging from arsenic, a known carcinogen, to lead, a potent neurotoxin, are found in routine investigation of waterways and soils surrounding coal ash sites in Tennessee. Coal ash is known to contain at least a dozen metals and chemicals, which pose real threats to human and ecosystem health. Likewise, the Environmental Protection Agency identified two wet ash impoundments in Tennessee that are deemed "high hazard," meaning that if either fails, human lives will probably be lost (see Section III, below).

Although releases of water from ash impoundments are regulated, ash impoundments themselves are not regulated in Tennessee. Ash pond water discharges are subject to National Pollution Discharge Elimination System permits, which are only designed to limit the direct release of pollutants into the water. These permits not set standards for structural integrity, groundwater monitoring, siting, corrective action, closure and post-closure care. Neither, in fact do they even properly limit pollution discharges as required by federal law (see Section II.A.ii, below).

Tennessee's programs for dry storage provide for better coal ash oversight, but they also provide unnecessary leeway and exceptions that can undermine protection of public health and the environment. First, the solid waste laws that apply to landfills only apply to dry landfills, leaving Kingston-type impoundments unregulated. Furthermore, the comprehensive landfill permitting process only applies to a subset of coal ash landfills, while others are issued "permits-by-rule," an alternative that provides weaker standards and no opportunity for public input. While the solid waste laws do address important issues such as run-off, leachate collection, liners, siting, corrective action and more, the Commissioner of the Tennessee Department of Environment and Conservation or the Department of Solid Waste Management may waive each and every provision of these regulations. (see Section II.B, below).

The Kingston disaster was nothing short of a tragedy, but it was also an opportunity for change. Unfortunately, Tennessee has failed to become a leader in setting strong standards for coal ash disposal. The EPA, however, has presented another chance to secure regulations that ensure safe disposal of coal ash. The Agency is currently considering a proposal to regulate coal ash at the federal level. This proposal offers two options. One, known as Subtitle C, would create a comprehensive system of federal regulation complete with permitting and enforcement authority. The other option, known as Subtitle D, would provide suggested guidelines for coal ash management, but would grant no authority for federal enforcement. Subtitle D would rely on states to adopt the guidelines as law and take responsibility for their enforcement. Subtitle C regulations will provide far better protection for the environment and for communities living near coal ash disposal sites. Given that states like Tennessee have failed to accept regulatory responsibility for coal ash in the past, it is unwise to rely solely on states to ensure that electric generators safely dispose of their coal waste. If a catastrophe the scale of the Kingston disaster is not enough to drive state regulations to protect public health and the environment, suggested guidelines with no federal enforcement authority and minimal oversight are equally unlikely to do so.

THE STATE OF COAL ASH REGULATION IN TENNESSEE

INTRODUCTION

On December 22, 2008, over 1 billion gallons of coal ash waste erupted from a surface impoundment at the Tennessee Valley Authority's Kingston Fossil Plant in Roane County, Tenn.¹ The wave of sludge that poured from the impoundment covered 300 acres of land surrounding the plant, contaminated water, killed fish, destroyed property, and incalculably impacted the lives of people across the region.²

Coal ash is the waste left behind after coal is burned for energy. With 136 million tons generated each year, coal ash is the second largest industrial waste stream in the United States.³ There are over 600 impoundments like the one in Kingston⁴ and approximately 300 landfills.⁵ The ash is a dangerous concoction of toxic chemicals and heavy metals, and is present in enormous quantities. Coal ash contains arsenic, barium, boron, cadmium, lead, mercury, selenium and many other dangerous substances that cause cancer, neurological damage, birth defects, respiratory problems and more.⁶ Given the severity of toxic coal ash damage, the story of the Kingston disaster is oft repeated as a warning about the dangers of allowing industry to generate, treat, store, transport and dispose of such a waste without any comprehensive government oversight.

The Tennessee Department of Environment and Conservation did provide monitoring results and status updates on clean up efforts to the public in the immediate aftermath of the Kingston disaster. Tennessee lawmakers and regulators have, however, failed to implement the toughest standards available for protecting people and the environment from the dangers of coal

¹ CNN, "Tennessee Sludge Spill Estimate Grows to 1 Billion Gallons", Dec. 28, 2008. *Available at* http://articles.cnn.com/2008-12-26/us/tennessee.sludge_1_sludge-spill-ash?_s=PM:US

² *Id.*

³ U.S. EPA, *Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities*, Proposed Rule, 75 Fed. Reg. 35128, 35151 (Jun. 21, 2010).

⁴ US EPA, Information Request Responses from Electric Utilities, <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/surveys/>

⁵ US EPA, Appendix for Regulatory Impact Analysis for EPA's Proposed RCRA Regulation of Coal Combustion Residues Generated by the Electric Utility Industry, Exhibit F1 (April 30, 2010), *available at* <http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480ae5d02>.

⁶ U.S. EPA, *Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities*, Proposed Rule, 75 Fed. Reg. 35128, 35138 (Jun. 21, 2010).

ash.⁷ Despite the inherent dangers of coal ash, and despite being home to the largest coal ash disaster in history, two high-hazard coal ash impoundments, and five documented cases of water contamination from ash storage, Tennessee still does not have a regulatory system to protect individuals and the environment from the unique dangers of coal ash. Rather, coal ash is handled under two disparate regulatory systems—water pollution and solid waste. Neither system properly accounts for the distinctive characteristics and toxic dangers of coal ash.

This report will examine Tennessee coal ash regulations and damage cases. Section II.A addresses wet storage (impoundment) regulations; Section II.B discusses dry storage (landfill) regulations; Section III details damage cases resulting from this insufficient regulation; and the final Section offers the recommendation that the EPA adopt a federally enforceable system of coal ash permitting under Subtitle C of the Resource Conservation and Recovery Act.

II. TENNESSEE DOES NOT PROPERLY REGULATE COAL ASH

Tennessee’s coal ash governance fails because it divides one type of waste—coal ash—into two very different regulatory programs, and because neither program works to suitably safeguard people and the environment from coal ash. The two programs are administered separately, and neither program is designed for the unique nature of coal ash.

The Tennessee Department of Environment and Conservation (TDEC) houses the Division of Water Pollution Control, which carries out the National Pollution Discharge Elimination System program for wastewater discharges at wet ash impoundments. TDEC is also home to the Division of Solid Waste Management, which has jurisdiction over dry ash landfills. NPDES permits do not regulate any aspect of wet handling other than discharge, and solid waste regulations are rife with opportunities for waiver and exemption.

A. Wet Storage

i. NPDES permits regulate only discharges, not coal ash impoundments

⁷ In May 2009 the Tennessee General Assembly did pass an act amending the Solid Waste Disposal Act to require a liner and final cap on coal ash landfills. 2009, Ch. 255, §1. However, this was the only legislative success following the Kingston disaster and a broad exemption swallows the rule. The liner and cap requirements do not apply to “the use of coal ash for fill, to any agricultural use, to any engineered uses as a feedstock for the production of a product, to wastewater treatment units, or to the disposal of coal ash in connection with any of the foregoing...” *Id.*

The Clean Water Act (CWA) and the Tennessee Water Quality Control (TWQCA) Act task TDEC with implementing the NPDES program.⁸ In carrying out NPDES, TDEC issues permits covering discharges from coal ash impoundments. These permits cover point-source outfalls and other discharges into state and federal waters,⁹ but they do not cover the broader operations of a wet impoundment. TDEC NPDES permits do not set standards for crucial issues such as structural integrity, groundwater monitoring, unit siting, leachate collection, run-on and run-off controls, fugitive dust controls, financial assurances, corrective action or unit closure.¹⁰ Moreover, because the NPDES permits cover only discharges, it is not clear that the CWA or TWQCA grant sufficient authority for TDEC to monitor and regulate impoundments after they close. Thus, when a wet storage unit no longer receives ash, and is no longer discharging, the reach of an NPDES permit is terminated and the impoundment may go completely unmonitored and unregulated indefinitely. This failure to regulate surface impoundments after they close is particularly troubling given the fact that peak human exposure to migrating groundwater contaminants is unlikely to occur until at least 70 years after waste disposal operations begin.¹¹

ii. TDEC does not set effluent limitations in NPDES permits for ash impoundments.

The first shortcoming of NPDES's authority as the primary source of wet ash regulation is that NPDES permits only cover discharges. Unfortunately, even these discharges are not adequately limited in the NPDES permits that TDEC issues. The CWA and the Tennessee rules require numeric, technology-based effluent limitations for all discharged pollutants.¹² EPA has not developed specific effluent limitation guidelines for most pollutants associated with wastewater

⁸See Federal Water Pollution Control Act, 33 U.S.C. §§ 1251 *et. seq.*; Tennessee Water Quality Control Act, Tenn. Code Ann. §§ 69-3-101 through 142.

⁹ T.C.A. §69-3-108(b).

¹⁰ See *id.* and Tenn. Comp. R. and Regs. 1200-04-05-.06, 1200-04-05-.07 (listing permit and permit application requirements).

¹¹ US EPA, Human and Ecological Risk Assessment of Coal Combustion Waste, p. 4-11, Table 4-7 (draft, April 2010), available at <http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480ae5d04>.

¹² See 40 C.F.R. § 122.44 (“Each NPDES permit shall include...technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of CWA, on [*sic*] case-by-case effluent limitations determined under section 402(a)(1) of CWA, or a combination of the three, in accordance with § 125.3 of this chapter”); 40 C.F.R. § 125.3 (“Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act”); see also Tenn. Comp. R. & Regs. 1200-04-05-.08(1)(a) (“effluent limitations shall be designed to require application of the best practicable control technology currently available and application of the best available technology economically achievable”).

discharges from coal-fired power plants.¹³ TDEC, therefore, must use its best professional judgment to set effluent limitations.¹⁴ Recent draft permits for ash impoundment discharges, however, contain no effluent limits for most pollutants, demonstrating that TDEC has failed to comply with the law and establish the proper protections.¹⁵

iii. TDEC does not regulate wet ash-storage impoundments as solid waste facilities.

Wet ash impoundments are improperly overlooked by solid waste permitting authorities, as will be further outlined in this part. An outfall (the point where water discharges from an ash impoundment into the larger river) from which there is a wastewater discharge is distinct from the larger ash impoundment. Thus, while NPDES-permitted discharges are exempt from solid waste regulations, the settled ash and larger ash pond should be subject to the Tennessee Solid Waste Disposal Act.¹⁶ The Act requires that TDEC register and permit solid waste disposal units.¹⁷ Yet, TDEC does not issue solid waste permits for wet storage.

TDEC argues that the Solid Waste Disposal Act and its associated regulations neither require nor allow permitting of ash ponds as solid waste disposal units because they are wastewater treatment units.¹⁸ Industrial wastewater processing and discharges, if governed by an NPDES permit, are in fact exempt from solid waste regulation¹⁹, but ash impoundments are not primarily wastewater treatment units.

¹³ U.S. EPA, *Steam Electric Power Generating Point Source Category: Effluent Limitations Guidelines, Pretreatment Standards and New Source Performance Standards*, Final Rule, 47 Fed. Reg. 52,290 (Nov. 19, 1982).

¹⁴ 33 U.S.C. §1342(a)(1)(B); 40 C.F.R. §125.3; Tenn. Comp. R. and Regs. 1200-04-05-.09(1)(b)(2).

¹⁵ E.g., TDEC, Tennessee Valley Authority Johnsonville Fossil Plant NPDES Permit, Permit No. TN 000544 (issued Feb. 28, 2005) (*hereinafter* Johnsonville Permit); TDEC, Draft NPDES Permit No. TN 0005444, Johnsonville Fossil Plant, R-35 (Dec. 30, 2009) (*hereinafter* Johnsonville Draft Permit). TDEC recently issued a new NPDES permit for TVA's Bull Run plant, which, for the first time, includes a best professional judgment analysis. TDEC, Tennessee Valley Authority Bull Run Fossil Plant NPDES Permit, Permit No. TN 0005410 (issued Oct. 1, 2010). Unfortunately, this analysis concluded that no numeric effluent limitations should be established. *Id.*

¹⁶ T.C.A. §68-211-103(8) (“‘Solid Waste’ means garbage, trash, refuse, abandoned material, spent material, byproducts, scrap, ash, sludge, and all discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, and agricultural operations, and from community activities... Solid waste does not include solid or dissolved materials in ... industrial discharges that are point sources subject to permits under § 402 of the Federal Water Pollution Control Act (compiled at 33 U.S.C. §1342).”).

¹⁷ T.C.A. §68-211-106.

¹⁸ Letter from Paul L. Sloan, TDEC Deputy Commissioner, to Josh Galperin, Southern Alliance for Clean Energy and Kimberly Wilson, Environmental Integrity Project, 1 (Sept. 7, 2010).

¹⁹ Tenn. Comp. R. and Regs. 1200-01-07-.02(b)(x) and (xi)(II).

Ash impoundments are not treatment units because they are primarily used for ash storage and they do not sufficiently treat wastewater. Most ash ponds operate for decades as disposal facilities where coal plants dump and maintain their ash waste.²⁰ Ash is stored in ponds that are open to rainwater and industrial process water that must be discharged. The ponds are neither created nor utilized to treat these waters. Rather, they are built for storage. Water discharge is a necessary consequence. The only aspect of impoundment operation that one could classify as wastewater treatment is the passive settlement of ash to the bottom of the pond prior to discharge of the freeboard water. Settlement alone does not sufficiently treat this wastewater because the discharged effluent still contains dangerous contaminants,²¹ which Tennessee NPDES permits repeatedly fail to limit.²²

Given that the primary purpose of ash impoundments is disposal of waste, and that the disposal area is distinct from the permitted discharge, ash ponds should be subject to solid waste permitting, which is more inclusive and protective than the NPDES system.

iv. The Tennessee Safe Dams Act does not apply to “wastewater impoundment barriers” or to TVA facilities.

Had the coal ash impoundment at Kingston been subject to structural integrity requirements of the Tennessee Safe Dams Act of 1973²³, it may not have devastatingly failed as it did.²⁴ However, the Safe Dams Act excludes “wastewater impoundment barriers” from the definition of the word “dam”.²⁵

“Wastewater impoundment barrier” means “an artificial barrier impounding a body of wastewater for the purpose of treatment and designed so that no surface runoff from areas

²⁰ Stantec Consulting Services Report to TVA, TVA Disposal Facility Assessment, Phase 1 Coal Combustion Product Disposal, 2009. The Johnsonville, Bull Run, Cumberland, Gallatin and John Sevier plants all have active ash ponds that have been in operation for over three decades. *Id.*

²¹ *Memorandum from James A. Hanlon, Director, EPA Office of Wastewater Management to Regional Water Division Directors*, Attachment A, pg. 3 (June 7, 2010) (“However, other pollutants such as selenium, boron, and magnesium, are present mostly in soluble form and are not effectively and reliably removed by wastewater settling ponds.”)

²² *E.g.*, Johnsonville Permit; Johnsonville Draft Permit; TDEC, Tennessee Valley Authority Bull Run Fossil Plant NPDES Permit, Permit No. TN 0005410 (issued Oct. 1, 2010)

²³ T.C.A. §69-11-101 *et. seq.*

²⁴ *See, e.g.*, AECOM, “Root Cause Analysis of TVA Kingston Dredge Pond Failure on December 22, 2008” Vol. 1, June 25, 2009, 80 (Stating that a number of issues contributed the failure including active loading, cell location, high water level, dike geometry, loose ash fill, and creep sensitive foundation slime material.) The Rules governing the operations of dams under the Safe Dams Act have detailed requirements for stability and slope protection. *Tenn. Comp. R. and Regs. 1200-05-07-.06(1)&(2)*.

²⁵ T.C.A. §69-11-102(3)(B).

adjacent to the barrier is introduced into the impoundment”.²⁶ As noted above, impoundments are not primarily wastewater treatment facilities, and one can argue that the Act’s provisions should cover the storage impoundments. However, the Act also exempts all federal dams, including TVA dams, from its provisions.²⁷ TVA ash ponds, therefore, escape the structural stability requirements imposed by the Safe Dams Act.

Even in the wake of Kingston, knowing the dangers of structurally unsound and unregulated impoundments, Tennessee has not amended the Act in order to bring ash impoundments under its jurisdiction.²⁸

B. Dry Storage

Dry ash storage in Tennessee is regulated under the Tennessee Solid Waste Disposal Act.²⁹ The Division of Solid Waste Management carries out and enforces this Act. The Act has two paths for permitting coal ash disposal facilities: permit-by-rule and permit-by-application.

Where dry ash is used for the ostensible purpose of a structural fill project, a more stringent solid waste permitting regime gives way to permissive permit-by-rule allowances.³⁰ A permit-by-rule does not have provisions requiring run-on or run-off controls, extensive siting requirements or protective groundwater monitoring.³¹ Moreover, the permit-by-rule does not mandate a composite liner or any financial assurances.³² Most strikingly, the permit-by-rule regulations do not demand any assurance from the operator that the fill area will ultimately be used for the initially stated purposes such as “a highway overpass, levee, runway or foundation backfill,”³³ or for “[s]uch other similar uses as the Commissioner may approve in writing.”³⁴ Without an assurance provision, an operator may establish a coal ash landfill under the auspices

²⁶ *Id.* at §102(13).

²⁷ *Id.* at §102(10).

²⁸ In the aftermath of the Kingston disaster TVA is, in fairness, planning to transition all of its coal ash operations to dry storage over the coming decade. TVA, Fact Sheet, “TVA’s Conversion of Wet Ash and Gypsum to Dry Storage”, Dec. 16, 2009, *available at* http://www.tva.gov/news/kingston/dry_ash.pdf. This impending transition may be the reason for legislative or regulatory inaction on broadening the scope of Tennessee Safe Dams Act (or Solid Waste Disposal Act) jurisdiction.

²⁹ T.C.A. §68-211-101 *et. seq.*

³⁰ Tenn. Comp. R. and Regs. 1200-01-07-.02(1)(c)(ii).

³¹ *Id.*

³² *Id.*

³³ *Id.* at 1200-01-07-.02(1)(c)(ii)(III)(I).

³⁴ *Id.* at 200-01-07-.02(1)(c)(ii)(III)(II)

of developing a fill project, thereby avoiding the more protective but also more burdensome requirements of the solid waste permit-by-application process.³⁵

Under the full permitting process, SWM issues permits for construction, expansion and upgrades to landfills³⁶ as well as normal, ongoing operations.³⁷ The Act does not cover and the state does not regulate transportation of ash prior to disposal.³⁸ With respect to final disposal, the Act and rules do require groundwater monitoring, the results of which must be reported to TDEC annually,³⁹ run-on and run-off controls;⁴⁰ dust controls;⁴¹ siting requirements;⁴² composite liners;⁴³ and financial assurances in the form of performance bonds, which cover operation and closure.⁴⁴ The financial assurances, however, do not apply to federal facilities,⁴⁵ so any TVA-owned disposal units are exempt from this requirement. Finally, and unique to coal ash, the Act requires a liner and a final cap, although there are broad exemptions to these requirements.⁴⁶

The standards under the permit-by-application framework are certainly more stringent than applicable permit-by-rule standards. Both, in fact, are stricter and more protective than the practically non-existent standards that apply under the NPDES program for wet storage. However, the solid waste rules allow the commissioner unlimited authority to vary or dispose of any requirements.⁴⁷ With such broad authority, the Solid Waste Disposal Act does not necessarily protect public health or the environment from unsafe disposal of coal ash.

³⁵ *E.g.*, The Bivins Industrial Park Monofill site, Phase I, which receives all the ash from the Johnsonville Fossil Plant, is permitted by rule based on the promise that it will ultimately turn from a landfill into an industrial park. Commissioner's Order, *In the Matter of Trans Ash, Inc., Division of Solid Waste Management, SWM Case No. 04-SW006, OGC Case No. 04-0399 (Apr. 11, 2005)* at 5. Phase II of this landfill operates under a full permit. *Registration Authorizing Solid Waste Disposal Activities in Tennessee, Trans-Ash, Inc (Bivins Industrial Park Monofill)*, IDL 03-0215, June 24, 2009.

³⁶ T.C.A. §68-211-105(a)

³⁷ *Id.* at §106(a)(1).

³⁸ Tenn. Comp. R. and Regs. at 1200-01-07-.02(1)(b)(1) (“The requirements of this rule apply as specified to operators of facilities in Tennessee. Except as otherwise provided in this rule, no facility can lawfully store, process, or dispose of solid waste unless the operator has a permit.”).

³⁹ T.C.A. § 68-211-107(c).

⁴⁰ Tenn. Comp. R. and Regs. at 1200-01-07-.04(i).

⁴¹ *Id.* at 1200-01-07-.04(j).

⁴² *Id.* at 1200-01-07-.04(n)-(r), (u)-(w).

⁴³ *Id.* at 1200-01-07-.04(4)(a)(1) & (4)(b).

⁴⁴ T.C.A. §68-211-116. For example, the permit for Bivins Industrial Park Monofill Phase II grants waivers from litter control standards, random inspection requirements, horizontal buffer standards and gas mitigation control. *Registration Authorizing Solid Waste Disposal Activities in Tennessee, Trans-Ash, Inc (Bivins Industrial Park Monofill)*, IDL 03-0215, June 24, 2009.

⁴⁵ Tenn. Comp. R. and Regs. 1200-01-07-.03(1)(b)(2).

⁴⁶ T.C.A. §68-211-106(j).

⁴⁷ Tenn. Comp. R. and Regs. 1200-01-07-.02(1)(c)(3) and 1200-01-07-.02(4)(a)(1).

Another worrisome shortcoming of the solid waste regulations is their permissive system for approving disposal of a special waste. Special wastes “are solid wastes that are either difficult or dangerous to manage and may include...combustion wastes.”⁴⁸ The regulations allow a landfill operator to accept special wastes for disposal, including coal ash, without any public permitting process.⁴⁹ For example, a landfill permitted for municipal or domestic waste could gain approval for coal ash disposal merely by making a request to the commissioner, which the commissioner then approves. This process does not provide for any public notice, hearing, or opportunity to appeal, it is all done through private correspondence between TDEC and the landfill operator.⁵⁰

III. DAMAGE CASES

The following section briefly overviews five cases of damage resulting from insufficient oversight of coal ash disposal and two cases of potential disasters that are not properly addressed by Tennessee laws. These examples cover five of the seven TVA coal-fired power plants within Tennessee. Importantly, these damage cases are only the most recently documented examples. In addition to the five cases herein, EPA has also reported two proven damage cases in Tennessee, one at the Kingston plant and another at the Department of Energy’s Oak Ridge Y-12 steam plant.⁵¹

A. Johnsonville Fossil Plant and Trans-Ash / Bivins Industrial Park Landfill

TVA’s Johnsonville Fossil Plant is located on the Tennessee River about 50 miles south of where the river crosses into Kentucky. On the edge of the river, just west of the Johnsonville plant, is an island that serves as the plant’s active ash pond. “Ash Island” has documented

⁴⁸ *Id.* at 1200-01-07-.01(2).

⁴⁹ *Id.* at 1200-01-07-.01(4).

⁵⁰ *Id.* One potent example of the Special Waste Approval process is the use of the procedure for disposal of radioactive materials. DSWM uses this opaque method to allow disposition of low-level radioactive wastes at Class I landfills, which are otherwise permitted for typical municipal and domestic wastes. *Memorandum from Lawrence E. Nanney, Director, Tennessee Department of radiological Health to Tennessee Municipal Solid Waste Advisory Committee (June 19, 2007).*

⁵¹ U.S. EPA, *Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities*, Proposed Rule, 75 Fed. Reg. 35128, 35237-238 (Jun. 21, 2010).

unpermitted discharges into the Tennessee River through seeps and leachate.⁵² Additionally, an area just north of the plant, known as Area A, has ongoing discharges into the river and is entirely unpermitted.⁵³

Ash Island is currently operating under an NPDES permit that expired on February 27, 2008.⁵⁴ The impoundment does not have a solid waste permit,⁵⁵ and the current NPDES permit, as well as the draft renewal NPDES permit, only contains effluent limitations for pH, total suspended solids, and oil and grease.⁵⁶ TDEC has not established effluent limitations for discharges from the ash pond despite the fact that the Clean Water Act and the Tennessee Water Quality Control Act require technology and water-quality based effluent limitations.⁵⁷

TVA discovered and reported a number of wastewater seepage points in the active Johnsonville ash pond.⁵⁸ These seeps discharge directly into the river and are not covered under either the current or draft permits.⁵⁹ In a report on TVA ash impoundments that was initiated following the Kingston disaster, the Office of the TVA Inspector General stated that these “uncontrolled seepage points. . . [a]pparently have existed for many years. They have been documented by TVA engineers and/or their consultants in various inspection reports; however no action has been taken to resolve the conditions.”⁶⁰

In this same vein, TVA has been dredging the Johnsonville ash pond and trucking dredged ash to an independently operated landfill across the Tennessee River.⁶¹ Because, to TDEC’s credit, this landfill is unable to obtain an NPDES permit, TVA collects the landfill leachate and returns it to Ash Island from which it is then released into the Tennessee River.

⁵² Environmental Integrity Project *et. al.*, “In Harm’s Way: Lack of Federal Coal Ash Regulations Endangers Americans and Their Environment”, Aug. 26, 2010, 201.

⁵³ *Id.* at 202.

⁵⁴ Johnsonville Permit.

⁵⁵ See TDEC Office of Solid Waste Management “Permitted Solid Waste Facilities Database”, last updated Aug. 28, 2010, available at http://www.tennessee.gov/environment/swm/solid_waste, click on “Solid Waste Facilities Database” at the bottom of the page.

⁵⁶ Johnsonville Draft Permit; Johnsonville Permit.

⁵⁷ Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§1251 *et seq.*; Tennessee Water Quality Control Act (TWQCA), Tenn. Code Ann. §§ 69-3-101 through 13.

⁵⁸ TVA, Johnsonville Fossil Plant (JOF) 2009 Annual Dike Stability and Seepage Report (Sept. 23, 2009); TVA Johnsonville Fossil Plant Environmental Assessment, Dike Stabilization (February 2010).

⁵⁹ Johnsonville Draft Permit; Johnsonville Permit.

⁶⁰ TVA, Office of the Inspector General (OIG), Inspection 2008-12283-02, *Review of the Kingston Fossil Plant Ash Spill Root Cause Study And Observations About Ash Management*, 34 (July 23, 2009).

⁶¹ TVA, Supplemental Environmental Assessment, *Johnsonville Fossil Plant Ash Disposal Site Expansion*, Benton, Houston, and Humphreys Counties, Tennessee (May 2009). The Trans-Ash landfill is privately owned and operated but is used entirely for waste generated at the Johnsonville Plant.

Under the existing permit, leachate discharge from the active ash pond is not authorized.⁶² Currently TDEC is addressing this problem by adding leachate discharge to the draft Johnsonville NPDES permit.

The active ash pond on Ash Island is not the only location with wastewater discharges into the Tennessee River. In conducting work on behalf of TVA, Stantec Engineering discovered and reported seeps in an abandoned ash site known as Area A.⁶³ Area A was used for ash storage from the 1950's through the 1970's, then covered with soil and abandoned.⁶⁴ Stantec reports that runoff from Area A discharges directly to the Tennessee River and that there is ongoing leachate discharge from the site.⁶⁵ Rather than requiring TVA to stop the discharge of this contaminated wastewater, TDEC is amending the existing NPDES permit such that TVA can collect 64,000 gallons per day of leachate from Area A and discharge this wastewater, untreated and without effluent limitations, through the Ash Island outfall.⁶⁶ This permit amendment required no detailed analysis or public input because TDEC deemed the added discharge “a *de minimus* increase” that “does not represent degradation.”⁶⁷

B. Bull Run and Cumberland Fossil Plants

TVA's Bull Run and Cumberland coal plants both operate ash impoundments that EPA categorizes as “high hazard”.⁶⁸ The high hazard rating represents the probable loss of human life if the ash impoundments structurally fail as the impoundment at the Kingston Plant did in 2008.⁶⁹

⁶² Johnsonville NPDES Permit.

⁶³ Stantec Consulting Services Report to TVA, TVA Disposal Facility Assessment, Phase 1 Coal Combustion Product Disposal, Facility Summary, Johnsonville Fossil Plant (JOF), North Abandoned Ash Disposal Area 1 (CDA1) (2009), *available at*: http://www.tva.gov/power/stantec/tn/rpt_009_appndx_g_jof_171468118.pdf.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ Letter from Vojin Janjic, Manager, Permit Section, TDEC Division of Water Pollution Control, to Linden P. Johnson, Manager, Water Permitting and Compliance, TVA Johnsonville Fossil Plant (Aug. 6, 2010).

⁶⁷ *Id.*

⁶⁸ EPA, Fact Sheet: Coal Combustion Residuals (CCR)- Surface Impoundments with High Hazard Potential Ratings, EPA530-F-09-006, (June 2009, updated August, 2009) *available at* <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ccrs-fs/>. On October 20, 2010, TVA announced the culmination of an effort to stabilize a number of risky impoundments. *Anne Paine, “No big risk seen in TVA coal ash ponds”, The Tennessean, Oct. 21, 2010, available at* <http://www.tennessean.com/article/20101021/NEWS01/10210337/2066/NEWS03>. The announcement suggests that only TVA's Cumberland impoundments maintain a high hazard rating. *Id.* However, the EPA listing has not been updated to reflect any such change.

⁶⁹ EPA, Fact Sheet: Coal Combustion Residuals (CCR)- Surface Impoundments with High Hazard Potential Ratings, EPA530-F-09-006, (June 2009, updated August, 2009) *available at* <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ccrs-fs/>.

Given the very real threat posed by the Bull Run ash pond and the Cumberland ash and gypsum ponds, one might expect that TDEC has established a strong oversight regime in order to protect the life and property of those living near these impoundments. In fact, neither of these high hazard impoundments is required to obtain a solid waste permit with its associated safeguards.

The Cumberland Plant is also the source of documented groundwater contamination. Groundwater wells down-gradient of the Cumberland impoundment register levels of arsenic and selenium well above federal maximum contaminant levels (MCLs).⁷⁰ These same wells contained boron 12.7 times above the federal Health Advisory Level and aluminum, chloride, iron, manganese, sulfate and total dissolved solids in excess of the federal Secondary MCLs.⁷¹ Each and every one of these contaminants was found in higher quantities in the down-gradient wells than in the up-gradient wells, providing solid evidence that the ash storage is responsible for the pollution.⁷² Were the Cumberland impoundment regulated under a solid waste permit, the permit could require certain groundwater protection safeguards like liners. The only protections currently provided are in the form of a NPDES permit for surface water discharges, and, as detailed in Section II.A.2, in this and other permits, Tennessee regularly fails to limit discharges of critical contaminants as required by state and federal law.⁷³

C. Gallatin Fossil Plant

The Gallatin Fossil Plant, on the banks of the Cumberland River, houses an inactive ash impoundment that is contaminating groundwater with beryllium, nickel, cadmium, boron, aluminum, iron, manganese, sulfate and total dissolved solids.⁷⁴ This damage is particularly dangerous because the groundwater contamination is in close proximity to the Cumberland River, which is the source of drinking water for approximately 38,000 people served by the Gallatin Water Department.⁷⁵

⁷⁰ Environmental Integrity Project *et. al.*, “In Harm’s Way: Lack of Federal Coal Ash Regulations Endangers Americans and Their Environment”, Aug. 26, 2010, 193.

⁷¹ *Id.*

⁷² *Id.* at 194-195.

⁷³ TDEC, Tennessee Valley Authority Cumberland Fossil Plant NPDES Permit, Permit No. TN 0005789 (issued Nov. 30, 2005).

⁷⁴ *Id.* at 197.

⁷⁵ *Id.* at 199.

While it is likely that the inactive pond and the active ponds are both sources for this contamination, the inactive pond is of particular concern because it is no longer even ostensibly treating coal ash wastewater and is not covered by an NPDES permit.⁷⁶ As noted in Subpart II.A.iii, above, TDEC regulations exempt impoundments from solid waste coverage if their discharges are covered by NPDES permits. Once the impoundments go inactive and are no longer covered for their wastewater discharges, they become non-exempt disposal areas subject to landfill permitting.

D. John Sevier Fossil Plant

The John Sevier Fossil Plant is located on the Holston River. Groundwater data from wells located between the plant and the river show high levels of cadmium, in excess of MCLs; aluminum, manganese and sulfate in excess of secondary MCLs; arsenic and manganese in excess of EPA National Recommended Water Quality Criteria for human health; and cadmium levels in excess of chronic and acute levels for freshwater aquatic life.⁷⁷

All of these high contaminant levels were recorded at wells located between the plant and the Holston River or its tributaries. TVA stated that groundwater in this area discharges into surface water, meaning that the pollution from this particular pond endangers both surface and groundwater.⁷⁸

IV. RECOMMENDATIONS

All of these state- and self- regulatory failings demonstrate the obvious shortcomings that result from leaving regulatory authority over more than 136 million tons of waste to varied and inadequate state programs. Given that Tennessee is home to the largest coal ash disaster in the nation's history, it is particularly startling that Tennessee's coal ash regulations are not some of the best in the nation.⁷⁹

⁷⁶ Personal communication between Josh Galperin, Southern Alliance for Clean Energy and Vojin Janjic, Manager, Permit Section, TDEC Division of Water Pollution Control (October 2010).

⁷⁷ Environmental Integrity Project and Earthjustice, "Out of Control: Mounting Damages from Coal Ash Waste Sites", Feb. 24, 2010, 98.

⁷⁸ *Id.*

⁷⁹ *See, e.g.*, Letter from Brian Tormey, Chair, ASTSWMO Solid Waste Subcommittee and Stephen Cobb, Chair, ASTSWMO Hazardous Waste Subcommittee to Matt Hale, Director, Office of Resource Conservation and Recovery, United States EPA, 2-3 (Apr. 1, 2009) (noting that some states have regulations specifically designed for coal ash, that some states impose minimum performance standards on surface impoundments and that some states

Although Tennessee failed to enact protective regulations after the Kingston disaster, the United States Environmental Protection Agency has finally realized the severity of the problem and the urgency with which it must be addressed. EPA recently proposed two alternative rules for governing coal ash under the Resource Conservation and Recovery Act.⁸⁰ One option would establish suggested guidelines for coal ash disposal under Subtitle D of RCRA, which covers non-hazardous wastes.⁸¹ The second option would regulate the generation, transportation, treatment, storage and disposal of coal ash as a “Special Waste” under Subtitle C, which covers hazardous wastes.⁸²

The primary difference between these two options is that Subtitle C would create a federally enforceable permitting program, which would cover the entire lifecycle of ash. Subtitle D would establish only guidelines for ash disposal. Moreover, Subtitle D guidelines are only enforceable if individual states adopt the guidelines as state law; an unlikely outcome given states’ laissez-faire attitude toward the coal ash problem. There is no authority for federal oversight under Subtitle D.

Subtitle C is the recommended option for adequately regulating coal ash waste. In fact, Subtitle C is the only viable option because it is the only option that offers comprehensive, federally enforceable, cradle-to-grave management of coal ash. States like Tennessee have shown that they are not proactively interested in proper regulation of toxic coal ash, and even where individual states provide reasonably protective regulations, a patchwork of differing systems from state to state creates a difficult situation for the regulated community and an unsafe situation for human health and the environment.

Please contact Josh Galperin, Policy Analyst and Research Attorney, Southern Alliance for Clean Energy; josh@cleanenergy.org

require liners, groundwater monitoring, leachate collection, final cover, post closure care, siting control, corrective action, structural stability and financial assurances for surface impoundments as well as landfills).

⁸⁰ 42 U.S.C. 6901 *et. seq.*

⁸¹ *Id.* at 6941 *et. seq.*

⁸² *Id.* at 6921 *et. seq.*

FOR MORE INFORMATION:

Coal Combustion Residuals - Proposed Rule, Environmental Protection Agency, available at:
<http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ccr-rule/index.htm>

Learn About Details: EPA's New Coal Ash Rules, Southern Alliance for Clean Energy, available at:
http://www.cleanenergy.org/index.php?/Learn-About-Detail.html?form_id=52&item_id=90

Out of Control: Mounting Damages from Coal Ash Waste Sites, Earthjustice and Environmental Integrity Project, available at:
<http://earthjustice.openissue.com/sites/default/files/library/reports/ejeipreportout-of-control-final.pdf>

In Harm's Way: Lack Of Federal Coal Ash Regulations Endangers Americans And Their Environment, Earthjustice, Environmental Integrity Project, and Sierra Club, available at:
http://www.environmentalintegrity.org/news_reports/documents/INHARMSWAY_FINAL2.pdf