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Sent via email and certified mail

Re: Comments on the Tennessee Valley Authority's Draft Environmental Assessment for the Kingston Dry Fly Ash Conversion in Roane County, Tennessee

Dear Mr. Robinson:

Please accept these comments from the Environmental Integrity Project ("EIP"), Earthjustice, Tennessee Chapter of the Sierra Club, Cumberland Stewards, and the Tennessee Clean Water Network (collectively, "Commenters") regarding the Environmental Assessment ("EA") for the Dry Fly Ash Conversion Project ("Conversion") at Kingston Fossil Plant.

I. The EA is Inadequate, and TVA Should Prepare a Supplemental EA or an Environmental Impact Statement.

As a federal agency, the Tennessee Valley Authority ("TVA") must comply with the National Environmental Policy Act ("NEPA").¹ Although TVA intends to start Conversion construction without delay,² the EA, for all of the reasons explained below, is inadequate and TVA should prepare a supplemental EA or an Environmental Impact Statement ("EIS"). For example, this EA fails to:

- Examine environmental justice impacts of TVA's proposed offsite coal combustion waste ("CCW") disposal.
- Identify offsite CCW disposal site(s) and assess the environmental or public health impacts of CCW disposal at each site.
- Evaluate potential environmental and public health impacts from CCW disposal in mines, a proposal first made by TVA Vice President John Kammeyer on March 16, but not evaluated in this EA.

¹ 42 U.S.C. § 4321, et seq.

² See TVA, Environmental Assessment, *Kingston Dry Fly Ash Conversion*, 1 (March 2010) available at http://www.tva.gov/environment/reports/kif_dry_ash/dea.pdf (proposing a 14 month construction schedule beginning in May 2010).

- Address the conversion of all wet CCW storage, in particular, wet bottom ash and flue gas desulfurization (“FGD”) wastes, despite TVA’s stated commitment to phase out all wet CCW storage at Kingston.³
- Assess the cumulative impacts of the Conversion and TVA’s ongoing and future coal ash cleanup efforts at Kingston, which include the disposal of 2.5 - 6.8 million cubic yards of coal ash over the next several years to offsite landfills.
- Assess the cumulative impacts of airborne CCW particles and fugitive dust emissions from the Conversion and ongoing and future ash cleanup activities at Kingston, and present evidence to support conclusions regarding the level of environmental and public health risk associated with these emissions.
- Assess environmental and public health risks, including accident risks and liability, associated with CCW transport by rail or truck.
- Assess environmental and workplace safety at the Conversion site to protect employees, contractors and the environment.

NEPA has two goals, the first of which “places upon [an] agency the obligation to consider every significant aspect of the environmental impact of a proposed action.”⁴ Second, “it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decision-making process.”⁵ The NEPA process begins by an agency conducting an EA⁶ to determine whether the proposed action is likely to “significantly affect [] the quality of the human environment.”⁷ The EA must consider the environmental impacts of the proposed action and alternatives.⁸ The courts are clear that the “range of alternatives that an agency must consider decreases as the environmental impact of the proposed action becomes less and less substantial.”⁹ Conversely, if an action has substantial negative environmental impacts, then more alternatives need to be included in the assessment.

When considering alternatives to a proposed action in an EA, the courts have emphasized the importance of discussing the underlying cumulative impacts.¹⁰ Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.”¹¹ Courts have held that an EA may be deficient if it fails to include a “cumulative impact analysis or to tier to an

³ See, TVA, Press Release, *Coal Combustion Products Remediation Plan Proposed* (Aug. 20, 2009) (Passed by the TVA Board in July, and Remediation Plan proposed in August 2009); see also, Duncan Mansfield, *TVA Plans Dry Coal Ash Storage for All Sites*, Associated Press (Aug. 10, 2009).

⁴ *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983).

⁵ *Id.*

⁶ 40 C.F.R. § 1501.4.

⁷ *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 703 (10th Cir. 2009); 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1508.9.

⁸ 40 C.F.R. § 1508.9(b).

⁹ See, *Sierra Club v. Espy*, 38 F.3d 792, 803 (5th Cir. 1994) (upholding *Olmsted Citizens for a Better Community v. U.S.*, 793 F.2d 201, 208 (8th Cir. 1986)); see also, *Highway J Citizens Group v. Mineta*, 349 F.3d 938, 960 (7th Cir. 2003).

¹⁰ *Kern v. United States BLM*, 284 F.3d 1062 (9th Cir. 2002).

¹¹ 40 C.F.R. § 1508.7.

[environmental impact statement] that has conducted such an analysis.”¹² The Third Circuit Court of Appeals went even further and held that “if the cumulative impact of a given project and other planned projects is significant, an applicant cannot simply prepare an EA for its project, issue a FONSI [finding of no significant impact], and ignore the overall impact of the project.”¹³ In addition, if TVA decides not to prepare an EIS or supplemental EA under NEPA, it must supply a convincing statement of reasons to explain why the Conversion’s impacts are insignificant, and this statement of reasons is crucial to determining whether TVA took a hard look at the potential environmental impact of a project.¹⁴ As drafted, this EA does not take a “hard look” as NEPA requires, at the environmental effects of the Conversion, or at the cumulative impacts of the Conversion and other CCW management activities at Kingston, such as the cleanup process and FGD waste management construction and operation.

TVA’s NEPA procedures state that TVA may prepare an EA to “determine whether an EIS is necessary.”¹⁵ In particular, an EA is designed to “briefly provide sufficient data and analysis for determining whether to prepare an EIS.”¹⁶ However, this EA does not provide sufficient data and analysis, and TVA must either supplement the EA, or prepare an EIS to comply with NEPA requirements. NEPA and its implementing regulations make clear that Agencies *shall* “prepare supplements to either draft or final environmental impact statements if: (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”¹⁷ TVA’s NEPA procedures also require TVA to amend its environmental review of the Conversion if significant new information concerning probable environmental effects becomes available.¹⁸

There are a variety of new and existing sources of information that TVA has not considered in this EA. For example, this EA did not consider:

- U.S. Environmental Protection Agency (“EPA”) studies regarding the public health impacts of CCW disposal.¹⁹ Experts have stated, “Human health risk assessment methods are available to evaluate population exposures to multiple chemical mixtures. Coal combustion waste is a complex mixture of constituents. Risk assessment methods for multiple chemical exposures will be essential to evaluating

¹² *Native Ecosystems Council v. Dombek*, 304 F.3d 886, 895 (9th Cir. 2002). See also *Hall v. Norton*, 266 F.3d 969, 978 (9th Cir. 2001); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214 (9th Cir. 1998); *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1152 (9th Cir. 1998).

¹³ *Soc’y Hill Towers Onwers Ass’n v. Rendell*, 210 F.3d 168, 180 (3rd Cir. 2000).

¹⁴ National Environmental Policy Act of 1969, § 2 et seq., 42 U.S.C.A. § 4321 et seq.

¹⁵ Tennessee Valley Authority (TVA), NEPA Procedures § 5.3.1 (April 28, 1983) available at http://www.tva.gov/environment/reports/pdf/tvanepa_procedures.pdf.

¹⁶ *Id.* at § 5.3.3.

¹⁷ See, 42 U.S.C. § 4332; 40 C.F.R. § 1502.9(3)(c)(1)(i),(ii).

¹⁸ See, TVA NEPA Procedures, *supra* note 2 at § 5.3.6 (“If new information concerning action modifications, alternatives, or probable environmental effects becomes available, the initiating office, in consultation with the Environmental Quality Staff and the Office of the General Counsel, will consider preparing a revision or supplement to the EA based on the significance of the new information”).

¹⁹ See e.g., U.S. EPA, *Human and Ecological Risk Assessment of Coal Combustion Wastes* (draft, prepared by RTI) (Aug.6, 2007).

- health risks of exposure to coal combustion waste.”²⁰ Yet this EA proposes dumping Kingston’s CCW in unidentified offsite disposal locations without assessing the impact of CCW disposal on the surrounding environment or public health.
- Environmental justice concerns at TVA’s proposed offsite CCW disposal sites, or recommendations from the National Environmental Justice Advisory Council (“NEJAC”).²¹
 - The imminent announcement of federal regulations for CCW disposal. TVA must prepare a supplemental EA ensure that TVA’s CCW disposal practices at the Kingston Fossil Plant and associated landfills meet all new federal requirements.²²
 - EPA’s detailed studies of the Steam Electric Point Source Category, including the constituents of concern in CCW and associated environmental and health risks.²³
 - Recent reports prepared by the Electric Power Research Institute, including the recent “Evaluation of Potentially Exposed Populations in the Vicinity of Coal Combustion Waste Storage Units and Associated Cancer Risk.”²⁴
 - Studies regarding the environmental and public health impacts of CCW disposal in mines, such new reports from Earthjustice, “Waste Deep Filling Mines with Coal Ash Is Profit for Industry, But Poison for People”; the National Research Council (“NRC”) report “Managing Coal Combustion Residues in Mines”; or the detailed study of Water Quality impacts from CCW disposal in Pennsylvania coal mines.²⁵
 - Recent studies of the health risks posed by CCW fugitive dust emissions, and best technologies and practices to reduce such risks.²⁶
 - Recent reports by EPA’s Office of Research and Development on the leaching potential of CCW.²⁷

²⁰ See, Written testimony prepared by Mary A. Fox, PhD, MPH, Assistant Professor, Johns Hopkins Bloomberg School of Public Health, for the House of Representatives Committee on Energy and Commerce, Subcommittee on Energy and Environment Hearing (Dec. 10, 2009) (“Coal combustion waste disposal practices must be improved to ensure population exposures are controlled through appropriate long-term containment and management. Human health risks are reduced or eliminated if human exposure is reduced or eliminated”).

²¹ See e.g., National Environmental Justice Advisory Council, *Environmental Justice and Federal Facilities: Recommendations for Improving Stakeholder Relations between Federal Facilities and Environmental Justice Communities* (October 2004) available at <http://www.epa.gov/compliance/ej/nejac/recommendations.html>.

²² U.S. EPA Rulemaking Gateway, Regulation Identifier Number: 2050-AE81, *Standards for the Management of Coal Combustion Residuals Generated by Commercial Electric Power Producers*, available at <http://yosemite.epa.gov/oepi/RuleGate.nsf/byRIN/2050-AE81> (last visited Mar. 30, 2010) (EPA projects publication of the Notice of Proposed Rulemaking in the Federal Register in April 2010).

²³ See e.g., U.S. EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report*, EPA 821-R-09-008, 3-19 (October 2009).

²⁴ See e.g., Electric Power Research Institute (EPRI), *An Evaluation of Potentially Exposed Populations in the Vicinity of Coal Combustion Waste Storage Units and Associated Cancer Risk* (draft) (December 2, 2009).

²⁵ See e.g., Earthjustice, *Waste Deep: Filling Mines with Coal Ash Is Profit for Industry, But Poison for People*, available at http://www.earthjustice.org/library/reports/earthjustice_waste_deep.pdf; see also, National Research Council, *Managing Coal Combustion Residues in Mines* (2006); see also, Stant et al, *Impacts on Water Quality from Placement of Coal Combustion Waste in Pennsylvania Coal Mines* (July 2007) available at <http://www.catf.us/publications/view/94>; see also, U.S. EPA, *EPA Minefill Regulatory Concerns, Draft* (Aug. 14, 2003).

²⁶ See e.g., Laura Ruhl et al, *Survey of the Potential Environmental and Health Impacts in the Immediate Aftermath of the Coal Ash Spill in Kingston, Tennessee*, 43 ENVT’L SCIENCE & TECHNOLOGY, Issue 16, at 6326–6333 (Aug. 15, 2009).

²⁷ U.S. EPA, *Characterization of Coal Combustion Residues from Electric Utilities Using Multi-Pollutant Control Technology – Leaching and Characterization Data* (EPA-600/R-09/151) December 2009, available at

For these reasons, discussed more fully below, TVA should prepare a supplemental EA for public review or an EIS to properly evaluate the environmental and public health impacts associated with the Conversion.

II. The EA Does Not Address Environmental Justice Impacts at Offsite CCW Disposal Locations.

TVA need not look far to see the environmental justice implications of its offsite CCW disposal. For example, serious environmental justice concerns, to date unaddressed by TVA, have been raised about TVA's CCW disposal at Arrowhead landfill in Perry County.²⁸ A recent letter to Congressman John Lewis from several leaders in the environmental justice movement states:

A long history of bad decisions in [EPA] Region 4 has turned far too many low-income and people of color communities into the dumping grounds, lowering nearby residents' property values (stealing their wealth), and exposing them to unnecessary environmental health risks...This point was driven home by the recent clean-up of a TVA coal ash spill in East Tennessee and disposal in predominately black Perry County, Alabama—a situation that parallels what happened in Warren County, North Carolina more than twenty-five years ago (PCB spill cleaned up along roadways in a dozen North Carolina Counties in 1978 and ultimately was dumped in mostly black Warren County in 1982; this act was defined as environmental racism and sparked the national EJ Movement).²⁹

Even more recently, at a Congressional hearing to assess the progress of ash cleanup at Kingston, advocates for Perry County asked, “Why has this [CCW disposal] not been identified as an Environmental Justice issue with extra agency support to local communities? When waste is being collected in a mostly affluent, white Roane County and being disposed in a mostly poor, African- American Perry County, this action should be labeled what it is.”³⁰

Yet this EA does not even acknowledge that proposed disposal sites could be located in environmental justice communities and does not explain how TVA will address environmental justice concerns. TVA's current CCW disposal site in Perry County, Alabama has been widely

<http://www.epa.gov/nrmrl/pubs/600r09151/600r09151.html>.

²⁸ EPA, Press Release, *EPA Approves Plan for Disposal of Coal Ash from TVA Kingston Site at the Arrowhead Landfill in Perry County, Alabama* (July 2, 2009).

²⁹ See Letter to Congressman John Lewis from Environmental Justice Resource Center at Clark Atlanta University (Oct. 8, 2009) available at

<http://www.ejrc.cau.edu/Letter%20to%20Congressman%20John%20Lewis%20EJ%20in%20Region%204%2010-16-09%20%282%29.pdf>.

³⁰ See Testimony at House Transportation and Infrastructure Subcommittee on Water Resources and Environment Hearing, *The One Year Anniversary of the Tennessee Valley Authority's Kingston Ash Slide: Evaluating Current Cleanup Progress and Assessing Future Environmental Goals* (Dec. 9, 2009).

criticized and continues to be controversial due to financial problems, environmental issues, and environmental justice concerns.³¹ TVA must analyze environmental justice impacts and a supplemental EA or EIS is the proper place to conduct such analysis.

Executive Order 12898 directs TVA to conduct its programs "that substantially affect human health or the environment in a manner that ensures that such programs... do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies and activities because of their race color or national origin."³²

Further, NEJAC prepared recommendations for federal facilities to better address environmental justice concerns.³³ TVA can use this document, as well as recent recommendations from environmental justice communities in the TVA region, to address the problems NEJAC identified at federal facilities, such as:

- Lack of sufficient outreach efforts by federal facilities to inform and educate environmental justice communities about present and potential impacts of contamination from their sites to these communities;
- Apparent disregard by federal facilities of community input related to contamination and its impact on the surrounding community;
- Length of time taken and amount of analysis performed by federal agencies before health issues are acknowledged;
- Lack of interim measures adopted by federal facilities to address the health effects on communities;
- Lack of enforcement by federal agencies of environmental laws and regulations at their facilities; and
- Limited funding and resources allocated to communities that are adversely affected by contamination at federal facilities.³⁴

TVA's duty to ensure that its Conversion does not unfairly impact environmental justice communities does not subside once state or federal agencies approve CCW disposal sites. TVA should prepare a supplemental EA, or a full EIS prepared to identify disposal sites with specificity, and to fully examine the environmental justice impacts, if any, at these sites.

³¹ Shaila Dewan, *Clash in Alabama Over Landfill's Plans to Take Tennessee Coal Ash*, NEW YORK TIMES (Aug 30, 2009); Scott Barker, *Landfill owner files for Chapter 11: TVA, contractor say action won't stop coal ash spill shipments*, THE KNOXVILLE NEWS-SENTINEL (Jan. 28, 2010); AP Alert (Alabama), *Lawsuit planned over landfill's coal ash shipments*, ASSOCIATED PRESS (Feb. 5, 2010); Bill Poovey, *Plant in Alabama stops taking coal ash drainage*, ASSOCIATED PRESS (Feb. 6, 2010).

³² See Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (February 16, 1994).

³³ National Environmental Justice Advisory Council, *Environmental Justice and Federal Facilities: Recommendations for Improving Stakeholder Relations between Federal Facilities and Environmental Justice Communities* (October 2004) available at <http://www.epa.gov/compliance/ej/nejac/recommendations.html>.

³⁴ *Id.*

III. The EA Does Not Identify Offsite CCW Disposal Sites or Assess the Environmental or Public Health Risks at Offsite CCW Disposal Sites.

The EA fails to identify offsite disposal locations with specificity, yet claims that these sites are “representative” of all CCW disposal options without conducting even the most rudimentary analysis to assess environmental or public health risks.

First, the CCW disposal sites in the EA are not “representative” of all CCW disposal options, and represent vastly different facilities, in different states, operating under different state regulations, offer varying levels of waste containment standards, and are surrounded by different environments and communities. The disposal sites selected for the EA are also not representative of minefill projects, as discussed further below.

Second, this EA must examine the full environmental and public health impacts of the conversion, including CCW storage, transport, and disposal. As drafted, this EA fails to present any analysis of the environmental or public health impacts of CCW disposal. Will offsite CCW landfills avoid environmental risks, such as ground and surface water contamination, or fugitive dust emissions? How will TVA’s selected landfills contain CCW waste or collect and treat leachate? Using the resources noted above and provided in references, TVA can properly assess the potential health and environmental impacts of CCW disposal, analyze state requirements, voluntary compliance measures, utilization of fugitive dust controls, and the existence and/or adequacy of landfill liners and leachate collection systems.

Tennessee, like many states, is seeking to reduce the amount of waste sent to Class I, municipal landfills.³⁵ In 2007, Tennesseans generated 14,056,132 tons of solid waste with 6,810,800 tons disposed of in Class I landfills.³⁶ Yet this EA does not explain how TVA will avoid overburdening Tennessee Class I landfills, or even fully account for the volume of Kingston CCW that will need to be disposed of in offsite landfills. If TVA is considering CCW disposal in Tennessee landfills, it must also comply with Tennessee’s new coal waste disposal law, which is applicable to new landfills and expansions of existing landfills.³⁷

In addition to identifying specific disposal sites, examining the environmental and public health impacts of CCW disposal at each site, and providing basic information about waste volumes and available landfill space, TVA should also investigate the ability of each disposal site to treat CCW leachate. In particular, TVA should consider that landfills in rural communities may need special controls to prevent CCW leachate from entering groundwater or aquifers that supply local well water. If landfills are not in rural areas, TVA should analyze the available treatment options for CCW leachate at local wastewater treatment plants. Not all wastewater treatment plants can remove the metals and toxic pollutants found in CCW, for example, TVA has already encountered this problem at the Perry County landfill, where it has proven difficult to treat CCW leachate locally. Without proper treatment, local water supplies could be polluted by CCW leachate at TVA’s offsite CCW disposal sites.

³⁵ TDEC, Annual Report to the Governor and General Assembly on the Solid Waste Management Act of 1991 (Fiscal Year 2007-2008) available at <http://www.tennessee.gov/environment/swm/pdf/0708GovRpt.pdf>.

³⁶ *Id.*

³⁷ T.C.A. § 68-211-106.

TVA's selection criterion for CCW disposal sites is also unclear, and this EA should assess the minimum standards that each CCW disposal site must meet in order to be deemed suitable for CCW disposal. For example, it is highly relevant to know whether TVA considered or deemed acceptable only disposal sites with composite liners, leachate collection systems, or groundwater monitoring for the life of the unit.

As drafted, the EA is grossly inadequate and TVA should immediately prepare a supplemental EA or an EIS that identifies offsite disposal locations with specificity and fully characterizes the environmental, public health and environmental justice impacts at each CCW disposal site.

IV. The EA Does Not Address the Environmental and Public Health Impacts from CCW Disposal in Mines.

On March 16, 2010, TVA held a public meeting to discuss the Conversion. At this meeting, John Kammeyer, TVA Vice President of Coal Combustion Products, stated that TVA is looking at two mines as potential disposal sites for CCW from the Kingston Fossil Plant. Specifically, Mr. Kammeyer suggested that TVA may purchase a mine as part of the Conversion to use as a regional coal ash landfill for Kingston and Bull Run Fossil Plants, and expressed a preference for mine sites with railroad access. This option, to dispose of CCW in a mine ("minefill") was not addressed in the EA, and the proposed landfill sites in the EA are not representative of minefills. If TVA, as Mr. Kammeyer suggests, is proposing to dispose of CCW in former mines, it should immediately supplement this EA or prepare a full blown EIS to properly characterize the unique environmental and public health risks posed by CCW minefills.

Minefills pose unique risks to the environment, and there are several critical differences between CCW landfills and minefills, including regulatory and legal differences, as well as environmental differences, such as the lack of liners, leachate collection systems, and the unique ability of CCW to enter groundwater, aquifers, and pollute important water sources from mines. TVA has not evaluated any of these risks in its EA, yet TVA is well aware of the risks of improper CCW disposal in mines and has firsthand experience at the Bivens minefill in Benton County, Tennessee.³⁸ The improper disposal of TVA's CCW in this former gravel mine caused CCW wastes to leach into groundwater and surface water, prompting enforcement action by the Tennessee Department of Environment and Conservation ("TDEC"), and more recently, emergency action from U.S. EPA to stop mercury contamination in a nearby residential drinking well.³⁹ The Bivens minefill is representative of the environmental risks resulting from the placement of CCW in mines and quarries that were drilled below the water table, thereby allowing CCW to contaminate groundwater and nearby aquifers.

³⁸ TVA, Supplemental Environmental Assessment, *Johnsonville Fossil Plant, Ash Disposal Site Expansion* (May 2009) available at http://www.tva.org/environment/reports/johnsonville_ash/jof_ash_phase2_fsea-no_appendices.pdf.

³⁹ U.S. EPA, Region IV \$250,000 Emergency Action Memo, from Steve Spurlin (OSC) to Regional Response Center, subject Gibson Mercury Well Site (Sept. 25, 2009).

The dangers of CCW disposal in mines are well documented, and independent studies, as well as a recent National Academy of Sciences report, demonstrate the adverse environmental impacts of CCW disposal in mines. For example, a detailed study of 15 CCW minefills in Pennsylvania found:

(1) characterization of sites insufficient to establish monitoring systems that will detect pollution from ash; (2) inadequate numbers of groundwater and surface water monitoring points; (3) not enough baseline data; (4) insufficient frequency of data collection; (5) significant lapses in data collection; (6) analysis of monitoring samples at detection limits too high to monitor the creation of toxic conditions; (7) failure to monitor indicator parameters that would readily differentiate ash contamination from mine pollution; (8) inadequate records describing dates, quantities, and locations of ash placement; and (9) the absence of monitoring after the completion of ash placement. Despite these deficiencies, which occurred in varying degrees in all permits, substantive evidence exists of degradation of groundwater and/or surface water from CCW in *two-thirds of the permits*, based on rising trends in concentrations of CCW contaminants at relevant ash monitoring points. Specifically, the authors found that in 10 of the 15 minefills studied, coal ash contributed to degraded water quality.⁴⁰

In 2000, EPA acknowledged the potential of heavy metals from coal ash to leach into ground and surface waters when ash is placed in mines, stating:

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. Thus if the complexities related to site-specific geology, hydrology, and waste chemistry are not taken into account when minefilling coal combustion wastes, we believe that certain minefilling practices have the potential to degrade, rather than improve, existing groundwater quality and can pose a threat to human health and the environment.⁴¹

In 2006, after Congress directed the National Academy of Sciences (“NAS”) to study this issue, the NAS published a report warning of the dangers of placement of coal ash in mines without strict controls to prevent mobilization of toxic contaminants from the coal ash into the

⁴⁰ Stant et al, *Impacts on Water Quality from Placement of Coal Combustion Waste in Pennsylvania Coal Mines* (July 2007) available at <http://www.catf.us/publications/view/94>.

⁴¹ U.S. EPA, Regulatory Determination on Wastes from the Combustion of Fossil Fuels, 65 Fed. Reg. 32,214, 32,228 (May 24, 2000).

environment.⁴² The NAS report concluded that “*that the presence of high contaminant levels in many CCR [coal combustion residue] leachates may create human health and ecological concerns at or near some mine sites over the long term.*”⁴³ Due to these potential risks, NAS concluded that minefilling of coal ash is only a viable management option if: “(1) CCR placement is properly planned and is carried out in a manner that avoids significant adverse environmental and health impacts and (2) the regulatory process for issuing permits includes clear provisions for public involvement.”⁴⁴

In addition, in 2003, the EPA produced a set of regulatory concerns regarding the placement of CCW in minefill projects, including:

- The need for groundwater monitoring at minefill sites, including specific well design and deployment; monitoring parameters, frequency and duration.
- The need to protect groundwater from exceeding Maximum Contaminant Levels (“MCLs”) and avoid the degradation of surface waters
- The need to avoid placing ash in direct contact with water sources, such as aquifers, that could serve as drinking water sources for nearby residents or communities
- Location restrictions, such as the avoidance of CCW placement in floodplains, near wetlands, fault areas, seismic impact zones, unstable areas or critical receptors.
- The need to establish baseline monitoring, and operational requirements to avoid unnecessary pollution to air, water or land.
- The need to address post-closure care, including maintenance and inspection, monitoring, and the need to provide financial assurance for any problems or necessary reclamation activities.⁴⁵

TVA should prepare a supplemental EA or an EIS to properly identify and assess the environmental and public health impacts of potential CCW minefill sites for the Conversion.

V. The EA Does Not Include Conversion of All Wet CCW at Kingston, Including FGD Waste and Bottom Ash.

Kingston will soon operate wet scrubbers, adding a new, one million gallon per day (“MGD”) stream of FGD wastewaters into associated surface impoundments and ponds, with eventual discharge to the Clinch River. TVA began planning the installation of scrubbers at Kingston several years ago,⁴⁶ and wet scrubbers were installed and tested in late 2009. TVA obtained permits to discharge wastewaters from its new, wet, FGD disposal system, and

⁴² See, Committee on Mine Placement of Coal Combustion Wastes, Nat’l Research Council, Nat’l Academy of Sciences, *Managing Coal Combustion Residues in Mines* 42 (2006), available at <http://www.nap.edu/catalog/11592.html>. (emphasis supplied).

⁴³ *Id.* at 3 (emphasis supplied).

⁴⁴ *Id.* at 1 (emphasis supplied).

⁴⁵ EPA, Minefill Regulatory Concerns, Draft (Aug. 14, 2003) available at <http://www.epa.gov/waste/nonhaz/industrial/special/fossil/reg-cons.pdf>.

⁴⁶ TVA, Environmental Assessment, *Installation of Flue Gas Desulfurization System at Kingston Fossil Plant* (April 2006) available at <http://www.tva.gov/environment/reports/kingston2/ea.pdf>.

operation of the FGD system is imminent.⁴⁷ Despite TVA's extensive planning, the new FGD waste containment system at Kingston already experienced failures, including dike stability problems and seepage issues.⁴⁸ TDEC issued a Notice of Violation in November 2009,⁴⁹ and required that TVA take corrective action to repair the FGD surface impoundments and ponds, and prevent further unauthorized discharges of CCW wastewaters.⁵⁰

The EA is also inadequate because it does not assess the addition of FGD waste streams on water resources, or Conversion operations. The EA states that the "the makeup of coals burned at KIF might change" when the scrubbers are placed in service, and wastewaters may "become more acidic and contain different amounts of various metals than the present wastewaters."⁵¹ Despite TVA's experience operating FGD systems at other fossil plants, its detailed analysis of FGD waste streams, and widely available information prepared by EPA about FGD waste streams, TVA provided no assessment of this waste stream in the EA. Since the operation of Kingston's FGD scrubbers is imminent, TVA should supplement the EA or prepare an EIS to fully assess the impact on the Conversion and cumulative impact on water sources from FGD operation and Conversion construction.

Despite the TVA Board resolution to convert all wet CCW disposal to dry systems, the problems with wet FGD waste containment at Kingston, and recent TDEC enforcement action, this EA does not evaluate the effect of Kingston's new FGD waste stream on the Conversion, or propose how TVA might convert wet FGD waste to a dry disposal system.

In addition, the EA does not address the Conversion of bottom ash at Kingston. Kingston produces approximately 80,000 – 110,000 tons of bottom ash each year.⁵² Bottom ash was wet sluiced with fly ash to the active ash disposal area.⁵³ However, this EA suggests that bottom ash at Kingston is now "reclaimed for use in on-site dike and roadway construction primarily in the ash pond area."⁵⁴ TVA should only be undertaking CCW disposal actions that are approved and permitted by TDEC, and should clarify whether bottom ash is to be handled in the same method as fly ash in the EA, and if not, fully account for the disposal of 80,000 – 110,000 tons of bottom ash at Kingston Fossil Plant.

This EA should, at a minimum, explain how the Conversion will impact FGD and Bottom Ash disposal at Kingston. In addition, TVA should consider supplementing this EA with additional information about the overall conversion of CCW disposal at Kingston, as directed by the TVA Board, including the conversion of FGD waste and bottom ash.

⁴⁷ Application for NPDES modification (Feb. 13, 2009) ("operation of the FGD system is currently scheduled to begin as early as October 2009").

⁴⁸ TVA, Stormwater Pond Leakage Evaluation: Gypsum Disposal Area – Peninsula Site (Dec. 22, 2009).

⁴⁹ TDEC, Kingston Monthly Update (January 2010) (TDEC Division of Water Pollution Control issued a Notice of Violation (NOV) on Nov. 25, 2009, for a loss of water from the Flue Gas Desulfurization Stormwater Pond. The NOV cites TVA for failing to make timely notification of a possible leak as required by permit, and for an unpermitted discharge. It requires investigation and corrective action).

⁵⁰ Letter from Saya Qualls, TDEC, to Cynthia Anderson, TVA, Re: Stormwater Pond Leakage Evaluation and Liner Design (Jan. 19, 2010) (Approving TVA's corrective actions for FGD waste ponds).

⁵¹ TVA, Draft Environmental Assessment, *Kingston Dry Fly Ash Conversion*, *supra* note 2 at 21.

⁵² TVA, Installation of Flue Gas Desulfurization System at Kingston Fossil Plant, *supra* note 39.

⁵³ TVA, Installation of Flue Gas Desulfurization System at Kingston Fossil Plant, *supra* note 39 at 30.

⁵⁴ TVA, Draft Environmental Assessment, *Kingston Dry Fly Ash Conversion* (March 2010) *supra* note 2.

VI. The EA Fails to Address How the Conversion Will Impact TVA's Ongoing Ash Cleanup Efforts and Current Engineering Evaluation/Cost Analysis

The EA fails to analyze how the Conversion will impact the ongoing, time critical ash cleanup efforts, or the current Engineering Evaluation/Cost Analysis (“EE/CA”) for non-time critical cleanup at Kingston Fossil Plant. The EE/CA proposes alternatives for restoration of the Swan Pond Embayment area impacted by the spilled coal ash, and the stabilization and closure of the failed dredge cell.⁵⁵ As currently drafted, the EE/CA calls for the removal of 2.5 – 6.8 million cubic yards of coal ash from Kinston’s failed dredge cell and disposal of this coal ash in an offsite landfill.⁵⁶ Currently, the only approved offsite disposal location is the Arrowhead Landfill in Perry County, Alabama. TVA should supplement this EA to explain how the Conversion will impact TVA’s long-term ash cleanup plan at Kingston, in particular, the need for coal ash from both ongoing power production and ongoing cleanup activities to be disposed of in offsite landfills.

The EA provides only the most cursory information about how TVA’s short term and long term cleanup and ash disposal activities may impact the Conversion and vice versa. The EA states that “ash from power production and ash dredged from the river are discharged to a channel, dipped out, dewatered, and then loaded onto rail cars for disposal at a permitted landfill in Alabama.”⁵⁷ However, this statement does not show that TVA has analyzed its long term offsite disposal needs, the capacity of offsite landfills, the cumulative environmental impacts of concurrent Conversion activities and cleanup activities, or possibilities to integrate the two activities to store, transport, and dispose of CCW in a manner that minimizes risk to the environment and public health.

VII. The EA Does Not Sufficiently Examine Public Health Risks from Airborne CCW Particles and CCW Fugitive Dust Emissions

TVA must assess the environmental and public health risks from fugitive CCW dust, and explain the basis for its conclusion that fugitive dust emission presents minimal risks to the surrounding community. EPA recently found TVA’s air monitoring for particulate matter (“PM”) to be deficient at Kingston Fossil Plant.⁵⁸ Specifically, EPA found that TVA’s PM 2.5 and PM 10 monitoring “failed to meet quality assurance procedures as specified in the Dust Control and Air Monitoring Plan” required by the Kingston Consent Order.⁵⁹ Although EPA stated that the public was not at risk during TVA’s lapse in air sampling data, commenters encourage TVA to supplement this EA or prepare an EIS to assess the cumulative risks posed by fugitive dust emissions from ongoing cleanup work, and new fugitive dust emissions from the Conversion. Fugitive dust emissions cannot be considered piecemeal, project by project, but

⁵⁵ TVA, Kingston Ash Recovery Project, *Non-Time-Critical Removal Action Embayment/Dredge Cell Engineering Evaluation/Cost Analysis (EE/CA)* (Jan. 15, 2010) available at <http://www.tva.gov/kingston/eeca/index.htm>.

⁵⁶ *Id.*

⁵⁷ TVA, Draft Environmental Assessment, *Kingston Dry Fly Ash Conversion*, *supra* note 2 at 19.

⁵⁸ Memo from: Leo Francendese, EPA On-Scene Coordinator, to Steve McCracken, TVA Kingston Project Manager, Subject: Evaluation of the Perimeter Air Monitoring Strategy and Identification of Corrective Actions at the TVA Kingston Fly Ash Release Time-Critical Removal Action (January 25, 2010).

⁵⁹ *Id.*

must be evaluated on a site-wide basis in order to properly assess environmental and public health risks. Part of TVA's revised EA to look at the cumulative impacts of fugitive dust should be the findings presented in a peer-reviewed Duke University study of the health implications of coal ash disposal at the Kingston Fossil Plant.

The Duke University study, which TVA did cite as a source for its EA preparation, found alarming health risks from the inhalation of fugitive dust emissions from dry fly ash.⁶⁰ Specifically, Duke University scientists concluded that "exposure to radium- and arsenic-containing particulates in the ash could have severe health implications"⁶¹ and reported:

Of particular concern to human health is the wind-blown resuspension of fly ash into the atmosphere. It is well-known that wind-blown dust can travel long distances, as exemplified by Asian dust storms that result in transport to locations as far away as the U.S. It is possible that coal ash exposed to the atmosphere can be resuspended and transported to populated areas where human exposure may occur...The particles that are of most importance for human health are in the fine particulate (PM2.5) mode, which readily deposit deep in the lung....In some cases, fly ash-airborne particles were also found in remote areas (up to 30 km from power stations). Overall, past work indicates that coal ash contains inhalable particulate matter, and that fly ash emitted from the burning of coal is readily transported in the atmosphere...The toxic metal content in coal ash, the sizes of fly ash particulates, and the ionizing radiation (IR) exposure (both incorporated and external) may act synergistically or, less frequent, antagonistically, affecting human health directly (predominantly through inhalation of contaminated air) and indirectly through the food chains (consuming contaminated agricultural products). Coal ash was recognized as a Group I human carcinogen (based on occupational exposure studies) associated with increased risks of skin, lung, and bladder cancers. Arsenic and radium exposures in humans are associated with increased risks of skin, lung, liver, leukemia, breast, bladder, and bone cancers for exposure predominantly due to chronic ingestion or chronic inhalation, with the dose-response curve dependent on location, sources, and population susceptibility and/or tolerance.⁶²

TVA should specify the "dust control techniques" it will employ to reduce harmful ash emissions. It should provide information about past fugitive dust problems at the Kingston site,

⁶⁰ Laura Ruhl et al, *Survey of the Potential Environmental and Health Impacts in the Immediate Aftermath of the Coal Ash Spill in Kingston, Tennessee*, 43 ENV'T L SCIENCE & TECHNOLOGY, Issue 16, at 6326–6333 (Aug. 15, 2009).

⁶¹ Duke University, *Exposure To Ash From TVA Spill Could Have 'Severe Health Implications'*, Science Daily (Feb. 14, 2009), available at <http://www.sciencedaily.com/releases/2009/02/090203090859.htm> (last visited Mar. 30, 2010).

⁶² Laura Ruhl et al, *supra* note 49 (emphasis added).

and Kingston's overall wind profile. If TVA plans to control dust with water, a common technique, it must also address the runoff of CCW-affected waters from the site. TVA must also consider the cumulative impacts of fugitive dust emissions at the Kingston site. For example, TVA recently proposed to store dewatered ash recovered from the failed dredge cell and embayment on the ball field at Kingston.⁶³ It is not clear that TVA has studied the impact both the Conversion and TVA's ongoing cleanup activities will have on the nearby community, or accurately modeled the cumulative emissions from all activities onsite. Due to the public health risks associated with the mobility and inhalation of coal ash dust, TVA should be required to make its air modeling studies available for public review and prepare a supplemental EA or EIS to better address this health risk.

VIII. The EA Does Not Address Environmental or Public Health Risks from CCW Transport by Rail or Truck.

The EA is inadequate because it does not assess the environmental or public health risks associated with transporting CCW for disposal. For example, TVA should specify what types of trucks it will use, and how CCW will be covered during transport to prevent wet CCW from leaking out of the bottom of trucks, or dry ash from blowing onto private property, schoolyards, or waterways. TVA only evaluated traffic conditions (i.e. how busy the roads are), but failed to evaluate road safety, or the protocols that will be followed to reduce risks and avoid accidents. In addition, TVA should fully explain who will bear responsibility and legal liability for rail or truck accidents, and the protocols that will be followed to cleanup CCW if spills or accidents occur.

TVA is able to conduct road safety analysis, and has conducted analysis for the transport of CCW for the Kingston cleanup in its EE/CA, yet has failed to assess these same risks for the offsite transport of CCW required under the Conversion.⁶⁴ For example, the short-term risks of railroad incidents or rail-vehicle intersection accidents may be proportionate to the number of trip-miles.⁶⁵ For the EE/CA, TVA estimated that CCW removal would require approximately 300,000 trip-miles by rail with the risk of 3 rail accidents, 2 rail injuries, and 0.9 rail fatalities.⁶⁶ Similarly, the EE/CA calculated road safety risks for CCW transport by truck, and stated that "truck transport would pose short-term risks of traffic accidents" and if CCW is transported (to Perry County) by truck for 1.7 million trip-miles, that 2 truck accidents, 0.8 truck injuries, and 0.04 truck fatalities could result.⁶⁷ If TVA can assess the risks of transporting CCW for offsite disposal in its EE/CA, it should also provide that analysis in a supplemental EA or EIS.

Open trucking of CCW should not be allowed until TVA can assess the environmental and public health risks associated with CCW transportation. At the March 16, 2010 meeting, David Robinson, NEPA Officer at TVA, stated that TVA would use open dump trucks to transport

⁶³ TVA, Kingston Ash Recovery Project, *Non-Time-Critical Removal Action Embayment/Dredge Cell Engineering Evaluation/Cost Analysis (EE/CA)*, (Jan. 15, 2010) available at <http://www.tva.gov/kingston/eeca/index.htm>.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

CCW, and the trucks would meet Tennessee Department of Transportation's minimal requirements. If TVA has decided on a mode of transportation, that should be reported and properly assessed in a supplemental EA or EIS.

Since TVA has received complaints in the past about wet CCW leaking from the back of its trucks, TVA should better examine the measures required to ensure that CCW is either too wet or dry, and describe the environmental and public health risks associated with various modes of CCW transportation.

IX. The EA Does Not Assess Workplace Safety to Protect Employees, Contractors and the Environment.

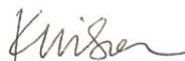
This EA does not assess how TVA and its contractors will systematically integrate safety into management and work practices at the Conversion site to protect the public, employees and contractors, as well as the environment. This EA should explain and assess how TVA can best integrate safety management into all facets of the Conversion planning and execution. It appears that TVA has not assessed how to implement health and safety plans, and Commenters recommend that TVA require such measures as:

- Vehicle washing upon leaving the site to remove CCW;
- Personal protective equipment to protect workers from unnecessary exposure to CCW
- Routine air and water monitoring to ensure a safe working environment for employees and contractors
- Institutional hygiene monitoring of workers
- Dust control in all work areas, and protective measures to protect workers from dust inhalation
- Detailed stormwater pollution prevention and erosion and sediment control plan, implemented to protect the environment from construction runoff and pollution.

X. Conclusion

For the foregoing reasons, TVA should prepare a supplemental EA for public comment and review, or an EIS to properly assess the environmental, public health, and environmental justice implications of the Conversion, including a detailed analysis of all offsite CCW disposal sites.

Sincerely,



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