

BEFORE THE TENNESSEE WATER QUALITY CONTROL BOARD

In the Matter of:	:)
Tennessee Department of Environment and Conservation	:)
Division of Water Pollution Control	:)
NPDES Permit Number TN0080870	:)
Case No. _____	:)
Docket No. _____	:)

PETITION FOR STATUTORY APPEAL

1. After operating the Kingston Fossil Plant for 54 years without effective air pollution controls, the Tennessee Valley Authority ("TVA") is at last installing a flue gas desulfurization ("FGD") system to control air pollution. This petition for statutory appeal concerns State of Tennessee National Pollutant Discharge Elimination System ("NPDES") Permit Number TN0080870 (the "Permit"), which authorizes TVA's Kingston Fossil Plant to discharge wastewater containing toxic pollutants including mercury and selenium from its FGD system into the Clinch River arm of the Watts Bar Reservoir. While the operation of this FGD "scrubber" system will dramatically reduce emissions of harmful pollutants into the air, it will create a new liquid waste stream that will exacerbate acute water pollution problems.
2. Specifically, TVA has been licensed to discharge approximately one million gallons of untreated FGD wastewater per day from the Kingston Fossil Plant into a settling pond that will empty into the Clinch River. Under the Federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. §§ 1251 *et seq.*, the Tennessee Department of Environment and Conservation ("TDEC") must set stringent limits on discharges from the new FGD system in order to ensure

that crucial gains in air quality do not come at the expense of water quality in the Clinch River and surrounding waters. As it stands, the Permit does not contain any limits for metals, total dissolved solids (“TDS”), or sulfates that will be discharged in the wastewater from the FGD system at the Kingston Fossil Plant.

3. By issuing the Permit without effluent limits for all of these pollutants of concern, TDEC has authorized TVA to pollute a stretch of river that cannot withstand additional pollution. In December 2008, TVA was responsible for the largest coal ash spill in history when a dike at its Kingston Fossil Plant broke and spilled one billion gallons of toxic coal ash into the surrounding area including the Clinch River. Even before this disaster, TDEC identified the Clinch River as “water quality limited” based on high levels of mercury, chlordane, and polychlorinated biphenyl compounds (“PCBs”), stating that the river should be “considered a priority for water quality improvement efforts.” After the 2008 coal ash spill, water quality problems in the Clinch River have become only more urgent.

4. In allowing TVA to freely discharge mercury and other toxic pollutants into the Clinch River, TDEC is violating the Clean Water Act and ignoring pressing threats to drinking water supplies, fisheries, and aquatic life in the Clinch River, the Tennessee River, and all streams within and around the Watts Bar Reservoir.

JURISDICTION

5. Petitioner Sierra Club hereby notifies the Water Quality Control Board (the “Board”) that it is exercising its statutory right to appeal the Permit pursuant to Tenn. Code Ann. § 69-3-105(i), which gives the Board the duty and authority to “review the commissioner’s permit decision and [] reverse or modify the decision upon finding that it does not comply with any provisions of [the Tennessee Water Quality Control Act].” Tenn. Code Ann. § 69-3-105(i).

6. Sierra Club submitted written comments to the commissioner of TDEC during the public comment period on the draft permit. Sierra Club therefore has satisfied the preconditions for filing the instant appeal. *See* Tenn. Code. Ann. § 69-3-105(i).
7. TDEC issued the Permit on October 16, 2009, and public notice of the issuance of this Permit was given via email on the same day. Pursuant to Tenn. Code Ann. § 69-3-105(i) “any aggrieved person who participated in the public comment period” shall file a petition for permit appeal “within thirty (30) days after public notice of the commissioner’s decision to issue or deny the permit.” This petition for permit appeal is therefore timely.

PARTIES

8. Petitioner Sierra Club is a national nonprofit environmental organization dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth’s ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives.
9. The Sierra Club has approximately 700,000 members, with 6,000 members living in Tennessee. Members of the Tennessee Chapter live and work in the vicinity of the Kingston Fossil Plant.
10. Ann Harris is a member of the Sierra Club who has a longstanding interest in protecting the water quality and integrity of the Clinch River and the Tennessee River into which the Clinch River flows. Mrs. Harris lives in Rockwood, Tennessee approximately five miles away from the Kingston Plant. Mrs. Harris grew up on the Watts Bar Reservoir portion of the Tennessee River in a home that her family had owned since before Tennessee became a state in

1796. Growing up, Mrs. Harris frequently swam and fished in the Clinch River. Due to her fear of pollution from the Kingston Fossil Plant, Mrs. Harris sold her family home eight years ago.

11. Mrs. Harris frequently visits friends who live directly on the Tennessee River downstream from the Clinch River and the Kingston Fossil Plant. She is upset that the river smells like sewage and appears green and murky. If the river were cleaner, she would enjoy swimming and boating in it as she once did.

12. Mrs. Harris is also aware of advisories that caution against eating fish from the Clinch River arm of the Watts Bar Reservoir due to contamination from mercury and PCBs, and she knows that fishermen release the fish they catch because they are afraid to eat them. Additional pollution from the Kingston Fossil Plant will exacerbate existing contamination from mercury and other persistent heavy metals such as selenium and arsenic, compromising any future efforts to restore healthy fisheries. This enduring harm to fisheries also injures Mrs. Harris' aesthetic and recreational interests in the Clinch River.

13. Leaf Myczack and Cielo Sand Hodson are also Sierra Club members with a longstanding interest in protecting and restoring water quality in the Watts Bar Reservoir, including the Clinch and Tennessee Rivers. Mr. Myczack and Ms. Hodson live and work at the Broadened Horizons Organic Teaching Farm, which they founded in 2005. Located at 226 Rodgers Lane in Rockwood, Tennessee, the farm lies just 185 feet from the Tennessee River and 20 miles downstream from the Kingston Fossil Plant. The Clinch River flows directly into this stretch of the Tennessee River.

14. For fifteen years prior to starting their organic farm, Mr. Myczack and Ms. Hodson served as citizen Riverkeepers of the Tennessee River. During this time, Mr. Myczack and Ms.

Hodson lived on a boat on the Tennessee River and dedicated their lives to documenting and advocating for the biological health of the river.

15. Mr. Myczack and Ms. Hodson have been directly harmed by TVA's failure to control pollution from the Kingston Fossil Plant. They continue to see remnants of coal ash floating in the Tennessee River near their farm to this day – almost a year after the spill. Mr. Myczack and Ms. Hodson irrigate with water pumped directly from the Tennessee River, and they are very concerned that additional water pollution from the Kingston Fossil Plant will harm their organic crops.

16. Moreover, Mr. Myczack and Ms. Hodson get their drinking water from Rockwood Utility Company, which draws its water from the waters in the Watts Bar Reservoir, including the Clinch and Tennessee Rivers. Mr. Myczack and Ms. Hodson have a vital interest in ensuring that the water they use for drinking is clean and safe. This interest is harmed by TDEC's failure to set stringent limits on the discharge of toxic heavy metals and other pollutants as the Clean Water Act and implementing Tennessee state laws require.

17. Finally, Mr. Myczack and Ms. Hodson own boats that are docked on the Tennessee River, and they travel weekly in these boats to fish for bluegills to use as feed for their chickens. They are concerned that the bluegills they catch may be contaminated by pollution from the Kingston Fossil Plant, and they are concerned that this contamination will affect the quality of their organic chickens.

18. Respondent is the Tennessee Department of Environment and Conservation ("TDEC"), Division of Water Pollution Control, which is the agency responsible for administering the Clean Water Act NPDES program in the State of Tennessee. TDEC gave public notice of its decision to issue the Permit on October 16, 2009.

STATUTORY BACKGROUND

A. Clean Water Act

19. Congress passed the Clean Water Act in 1972 “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). The Act protects all waters of the United States, including surface waters that supply drinking water, support fish and wildlife, and provide aesthetic and recreational opportunities for current and future generations of Americans.
20. The Clean Water Act’s goal is to eliminate all discharges of pollution into navigable waters. *See* 33 U.S.C. § 1251(a)(1). To this end, the Act establishes the NPDES permit program, which is managed by the Environmental Protection Agency (“EPA”) in partnership with state environmental agencies, including TDEC, which are authorized to issue NPDES permits. *See* 33 U.S.C. § 1342; *see also* Tenn. Code Ann. § 69-3-08; Tenn. Comp. R. & Regs. § 1200-4-10-.03(1).
21. The Clean Water Act prohibits point sources from discharging pollutants into surrounding waters without a NPDES permit. *See* 33 U.S.C. §§ 1311(a), 1342(a). A point source is “any discernible, confined and discrete conveyance” and includes effluent pipes. 33 U.S.C. § 1362(14). A discharge is the “addition of any pollutant to navigable waters from any point source.” 33 U.S.C. § 1362(12).
22. The NPDES permit must contain effluent limits sufficient both to “restore” and “maintain” the receiving waterbody. 33 U.S.C. § 1251(a). At a minimum, permitting agencies must set technology-based effluent limits (“TBELs”) that reflect the ability of available technologies to reduce, or ideally, eliminate pollution discharges. *See* 33 U.S.C. §§ 1311, 1342(a)(1). In no event may a discharge “interfere with the attainment or maintenance” of water

quality standards. 33 U.S.C. § 1312(a). If a planned discharge could cause or contribute to a violation of water quality standards in the receiving waterbody, the permitting agency must include water quality-based effluent limitations (“WQBELs”) in the NPDES permit to prevent the violation. *See id.*; *see also* 40 C.F.R. § 122.44(d)(1)(i).

1. Water Quality-Based Effluent Limits

23. Under the Clean Water Act, states must set effluent limits that maintain or improve the water quality of the receiving waterbody. Where TBELs would not be sufficiently stringent to protect water quality standards, a state permitting agency must establish WQBELs. *See* 33 U.S.C. § 1312(a) (stating that, wherever the discharge of pollutants “would interfere with the attainment or maintenance of [] water quality,” the Clean Water Act requires that more stringent WQBELs be established “which can reasonably be expected to contribute to the attainment or maintenance of such water quality”). WQBELs must be set at levels that ensure that water quality criteria will be achieved, regardless of cost and regardless of the availability of control technology.

24. In keeping with the Clean Water Act, governing state regulations prohibit TDEC from issuing a permit if the proposed discharges “will cause or contribute to the violation of water quality standards.” Tenn. Comp. R. & Regs. § 1200-4-5-.04(1)(g); *see also* 33 U.S.C. § 1312(a) (permitting agencies must set effluent limits that are stringent enough “to ensure the appropriate water quality of the receiving water body”).

a. Impaired Water Bodies and Clean Water Act § 303(d)

25. In order to ensure that violations of water quality standards are identified and remedied, the Clean Water Act requires that impaired water bodies be listed under § 303(d) of the Clean Water Act. *See* 33 U.S.C. § 1313(d). Pursuant to the requirements of § 303(d), TDEC

publishes a “303(d) List” that identifies all streams and lakes in Tennessee that are “water quality limited” or are expected to exceed water quality standards within the next two years.

26. By definition, “water quality limited” streams are in violation of one or more water quality standards. Once a stream is listed on the 303(d) list, TDEC cannot authorize additional loadings of the pollutant(s) that are causing impairment. See 33 U.S.C. §§ 1313(d)(1)(A), (D); see also TDEC, Division of Water Pollution Control, *Final Year 2008 303(d) List 1* (June 2008), available at http://www.state.tn.us/environment/wpc/publications/pdf/2008_303d.pdf (“2008 303(d) List”) (“If a stream is on the 303(d) List, [TDEC] cannot authorize additional loadings of the same pollutant(s)”). Instead, TDEC must establish a total maximum daily load (“TMDL”) for all pollutants that violate water quality criteria. See 33 U.S.C. § 1313(d)(1)(D). TMDLs are used in determining the necessary WQBELs for discharge of the 303(d)-listed pollutants in NPDES permits. Until a TMDL is issued for the 303(d)-listed pollutants, a state permitting agency either must prohibit discharges or set WQBELs on a case-by-case basis to prevent further degradation of the impaired stream. See 33 U.S.C. § 1312(a).

b. Technology-Based Effluent Limits

27. Regardless of whether a stream is impaired, a NPDES permit always must limit pollution to the greatest extent that is economically achievable. To ensure that dischargers do not pollute up to the water quality standards, permitting agencies must set TBELs that reflect technologies available to control the concentrations of discharged pollutants. See 33 U.S.C. §§ 1311 (establishing TBELs), 1342(a)(1) (requiring that NPDES permits incorporate TBELs); Tenn. Comp. R. & Regs. § 1200-4-5-.08(1)(a) (requiring that TDEC establish effluent limits in NPDES permits applying the best available technology economically achievable (“BAT”) in

accordance with the requirements of the Clean Water Act). All sources and all pollutants must be subject to TBELs. See 33 U.S.C. § 1313(e).

28. To help implement the Clean Water Act's TBEL requirements, EPA is required to promulgate effluent limitations and guidelines (collectively "ELGs") to control discharges of pollutants into the waters of the United States from industrial point sources. 33 U.S.C. §§ 1311(b), 1314(b). These ELGs establish an absolute minimum level of pollution control that must be achieved by industrial point sources. See *Natural Res. Def. Council v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988). State permitting agencies look first to these nationally-promulgated ELGs when setting TBELs. See *id.*

29. Where ELGs do not exist for a particular pollutant or class of pollutants to be discharged from a point source, states are required to exercise their best professional judgment ("BPJ") and set TBELs based on the "best technology economically achievable" or BAT for each pollutant. *Id.*; 33 U.S.C. § 1311(b)(2)(A). "BAT should represent 'a commitment of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges.'" *Natural Res. Def. Council v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988) (citing *EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 74 (1980)).

30. In determining BAT on a case-by-case basis, state permitting agencies such as TDEC must consider various factors, including the production process in use and the possibility of changing processes, the non-water quality impacts of controlling pollution, the age of equipment, the costs of pollution control, and "the engineering aspects of various control techniques." 33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3) (codifying statutory factors).

31. BAT-based limits "*shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him . . . that such elimination is*

technologically and economically achievable.” 33 U.S.C. § 1311(b)(2)(A) (emphasis added). Thus, a state permitting agency must set effluent limits that eliminate pollution to the greatest extent possible using technology that is “available” and “economically achievable.” *Id.* Where technology exists to achieve zero liquid discharge, BPJ standards require that BAT-based effluent limits be set at zero.

32. A technology is “available” where there is evidence that its use is practicable within the relevant industry, even if such technology is not yet in use in the relevant industry. *Hooker Chems. & Plastics Corp. v. Train*, 537 F.2d 620, 636 (2d Cir. 1976) (“That no plant in a given industry has adopted a pollution control device which could be installed does not mean that the device is not ‘available’”). The use of technology is “economically achievable” if it is affordable by other plants in the industry. As the Supreme Court has explained, “[n]o one who can afford the best available technology can secure a variance” from stringent BAT limits. *EPA v. Nat’l Crushed Stone Ass’n*, 449 U.S. at 75.

FACTUAL BACKGROUND

A. Water Quality and the Clinch River

33. The Kingston Fossil Plant is located on the Clinch River at the headwaters of Watts Bar Reservoir near the confluence of the Clinch and Emory Rivers. TVA seeks to discharge essentially untreated wastewater from its wet FGD system into the Clinch River at Mile 2.5. This stretch of the Clinch River cannot withstand additional pollution from scrubber wastewater on account of ongoing impairment by mercury, chlordane, and PCBs, as well as the devastating and lasting effects of the December 2008 coal ash spill.

34. The Clinch River arm of the Watts Bar Reservoir has suffered from pollution for well over a decade. In the 1990s, Watts Bar Reservoir was placed on the National Priorities List for

Superfund as a result of the accumulation of sediment-bound contaminants from three Department of Energy (“DOE”) facilities nearby. Despite early clean-up efforts made by DOE, water quality has continued to worsen in the Clinch River.

35. In 2002, TDEC found high levels of mercury in fish and officially identified mercury as a “metal of concern” in the Clinch River. TDEC, Division of Water Pollution Control, *Final Version Year 2002 303(d) List 52* (Jan. 2004), *available at* http://www.state.tn.us/environment/wpc/publications/pdf/2002_303dFinal.pdf. TDEC has continued to identify mercury impairment in the Clinch River in its 303(d) Lists published in 2004, 2006, and 2008. TDEC, Division of Water Pollution Control, *Final Version Year 2004 303(d) List 86* (Apr. 2005), *available at* <http://www.state.tn.us/environment/wpc/publications/pdf/2004303dListFinal.pdf>; *Final Version Year 2006 303(d) List 96* (Aug. 2006), *available at* <http://www.state.tn.us/environment/wpc/publications/pdf/303d2006.pdf>; 2008 303(d) List at 83. As a result, there is a “fishing advisory due to PCBs and mercury” in place on the Clinch River, and as TDEC concedes, there is a pending obligation under the Clean Water Act to “produce [a] TMDL for pollutants from DOE facilities.” 2008 303(d) List at 83.

36. In December 2008, water quality in the Clinch River was degraded even further by the largest and most devastating coal ash spill on record. Specifically, on December 22, 2008, a retaining wall at the Kingston Fossil Plant collapsed and released 5.4 million cubic yards, or 1.1 billion gallons, of toxic coal ash across 300 acres. The Clinch River, along with the Emory and Tennessee Rivers, bore the brunt of this disaster. Due to the health and environmental dangers created by the spill, EPA is treating the spill area as a Superfund site.

37. This environmental catastrophe (“the spill”) caused massive environmental and property damage. Coal ash from the spill completely filled two inlets of the Emory River, which

flows into the Clinch River and then into the Tennessee River, which collectively supply millions of Tennessee residents with their drinking water.

38. Coal ash contains the same “constituents that naturally occur in coal, such as arsenic, cadmium, lead, mercury, and selenium.” TVA, Final Environmental Assessment, *Emergency Dredging for the Kingston Fossil Plant Ash Dike Failure 8* (Mar. 2009), available at http://www.tva.gov/environment/reports/kingston_dredge/environmental_assessment.pdf. In March 2009, TVA tested the waters surrounding the Kingston Fossil Plant affected by the spill and detected arsenic, lead, mercury, and selenium in each of the 47 water samples it tested and cadmium in 21 of the 47 samples it tested. *Id.* at 9. A later survey suggests that these testing results did not adequately portray the full extent of damage to the Clinch River from the spill. Water quality sampling completed in June 2009 indicated levels of arsenic, lead, mercury, cadmium, chromium, selenium, antimony, nickel, thallium, barium, and beryllium that exceed water quality criteria for drinking water, aquatic organisms, and recreational uses in the Clinch River. See Letter from Gary A. Davis, Gary A. Davis & Assoc., to Leo Francendese, EPA Region IV, and Paul Sloan, Deputy Commissioner, TDEC, Water Sample Results for Metals Downstream of TVA Kingston Coal Ash Sludge Release, and enclosures (June 30, 2009) (attached as Exhibit 1).

39. In surveys taken following the spill, coal ash particles were found in fish gills and bellies, and chemical measurements showed violations of water quality criteria. See *Preliminary Summary Report from Water, Sediment and Fish Samples Collected at the TVA Ash Spill by Appalachian State University, Appalachian Voices, Tennessee Aquarium, and Wake Forest University* (May 2009), available at http://www.appvoices.org/resources/AppVoices_TVA_Ash_Spill_Report_May15.pdf. Moreover, studies suggest that the worst impacts are to come.

Due to the persistent and bioaccumulative nature of mercury, selenium, and the other coal ash pollutants released, local ecosystems may suffer increasingly severe and far-reaching degradation.

40. In short, the coal ash spill left the Clinch River critically impaired. Adding additional and dangerous pollutants to this beleaguered river would exacerbate the Clinch River's serious water quality problems and irreparably harm the health of the river system and the people who depend on it.

B. The Kingston Fossil Plant

41. The Kingston Fossil Plant is a very large coal-fired power plant with a capacity of 1,456 megawatts. It operates with nine coal-fired generating units and consumes 14,000 tons of coal per day. When it was first constructed in 1955, it held the distinction of being the largest coal-burning power plant in the world.

42. The plant is a major source of water and air pollution. In 2008 alone, the plant emitted 2,767,522 pounds of toxic water pollutants, including mercury, arsenic, barium, lead, and cobalt. See TVA, *Emissions, Kingston Fossil Plant, available at* <http://www.tva.com/environment/air/kingston.htm>. Moreover, in 2008, the plant emitted more than 11,000 tons of carbon dioxide, nearly 10,000 tons of nitrogen oxides, approximately 50,000 tons of sulfur dioxide, and 4,171,592 pounds of hazardous air pollutants. *Id.* Based upon an analysis of 2006 data from the EPA's Toxic Release Inventory, the plant ranked 23rd on a list of the 100 most-polluting electric utility facilities in the United States. See Institute for Southern Studies, *TRI On-Site Surface Impoundment Releases for 100 Top-Polluting U.S. Electric Facilities, 2006* (Jan. 2009), *available at* http://www.southernstudies.org/assets_c/2009/01/tri_top_100_surf_imp_rels_p11.html. Although updated data ranking the degree of pollution caused by

individual power plants has not been released in 2009 following the coal ash spill, the plant's release of one billion gallons of coal ash in January 2008 makes it one of the most – if not the most – polluting coal-fired power plants in the United States today.

43. TVA is installing a scrubber at the Kingston Fossil Plant in a long overdue effort to reduce harmful air emissions. This upgrade will allow the Kingston Fossil Plant to continue operating in compliance with new federal and state air pollution standards, including the Clean Air Interstate Rule (“CAIR”)¹ and the Tennessee Air Quality Act. However, this upgrade will also generate an entirely new waste stream. Specifically, TVA has been given permission to discharge one million gallons of untreated scrubber wastewater per day into mile 2.5 of the Clinch River. Thus, under the current permit, dangerous metal toxins stripped from the air by the scrubber system will be discharged into the severely impaired waters surrounding the Kingston Plant.

C. Toxins Present in Scrubber Wastewater

44. Pollution from toxic scrubber wastewater is a growing national concern. As of 2009, 50 percent of the coal-fired plants in the United States had incorporated scrubber systems, and the EPA expects this number to increase to 66 percent in 2015 and 78 percent in 2025. Despite the significant and growing use of scrubbers at coal-fired power plants, EPA has yet to issue national standards that limit water pollution from scrubber wastewater.

¹ Although CAIR remains in effect today, the D.C. Circuit recently issued a decision ordering EPA to “correct CAIR’s flaws.” *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008). After originally holding that aspects of CAIR were inconsistent with the plain language of the Clean Air Act, upon remand, the D.C. Circuit recognized the need to preserve the environmental gains afforded by CAIR and therefore issued a new order requiring EPA to “correct CAIR’s flaws” but allowing CAIR “to remain in effect until it is replaced by a rule consistent with [the court’s] opinion.” *Id.*

45. Coal-fired power plants such as the Kingston Fossil Plant use scrubbers to control fly ash and sulfur dioxide (SO₂) emissions from the flue gas generated in the plants' boiler. Scrubbers use a sorbent to enable the "mass transfer of sulfur dioxide [from the flue gas] as it is absorbed into the slurry stream." EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report 4-15* (Oct. 2009) ("EPA Report"), available at <http://www.epa.gov/guide/steam/finalreport.pdf>. Flue gas contains pollutants such as metals, nitrogen compounds, and chlorides, which are transferred to the scrubber wastewater (also referred to as "slurry") during the sulfur dioxide cleaning process. The pollutants in the flue gas, including heavy metals, ultimately leave the scrubber via the scrubber wastewater. *Id.*
46. Many plants recirculate the scrubber slurry within the FGD system prior to releasing wastewater in an effort to reduce the amount of slurry produced. However, once-through scrubber systems, such as the one proposed for use at TVA's Kingston Plant, do not recirculate scrubber slurry prior to discharging it. As a result, the Kingston Plant will discharge a relatively large volume of wastewater.
47. According to EPA, "FGD wastewater contains significant concentrations of chloride, TDS, nutrients, and metals, including bioaccumulative pollutants such as arsenic, mercury, and selenium." *Id.* at 4-18. Based upon a study of 26 plants operating 57 wet FGD systems, EPA identified numerous toxic heavy metals that are present in FGD wastewater. Specifically, EPA identified 26 Routine Total Metals, 27 Routine Dissolved Metals, 10 Low-Level Total Metals, and 10 Low-Level Dissolved Metals that are present in FGD wastewater. The following metals were present in each of these categories: antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, thallium, and zinc. *Id.* at 4-19 to 4-23.

48. TDEC has explicitly acknowledged that “metals such as arsenic, mercury, boron, cadmium, and zinc” are water quality “constituents of concern” in the scrubber wastewater at the Kingston Fossil Plant. TDEC, State of Tennessee NPDES Permit No. TN0080870, issued to TVA for the Kingston Fossil Plant on October 16, 2009, at R-2, *available at* <http://tn.gov/environment/wpc/ppo/tn0080870.pdf>. This acknowledgment was based on a sampling of the FGD discharges from TVA’s Cumberland Fossil Plant, which revealed high concentrations of all of these pollutants, often at levels exceeding Tennessee water quality criteria.
49. Many of the metals present in scrubber wastewater pose dangerous health risks. Mercury, for example, is a well-known toxin. Exposure to mercury in pregnant women can cause serious damage to the brain and nervous system of the developing fetus. Adults exposed to elevated levels of mercury can experience impairment of peripheral vision; disturbances in sensations (“pins and needles” feelings, usually in the hands, feet, and around the mouth); lack of coordination of movements; impairment of speech, hearing, walking; and muscle weakness.
50. Eating fish from mercury-impaired waters is extremely dangerous because mercury bioaccumulates as it is absorbed into the food chain. Fish such as pike and bass bioaccumulate mercury at levels “approximately 1 to 10 million times greater than dissolved methylmercury concentrations found in surrounding waters.” EPA, *Mercury Update: Impact on Fish Advisories 2* (June 2001), *available at* <http://www.epa.gov/waterscience/fish/advice/mercupd.pdf>. Moreover, “[s]kinning and trimming the fish does not significantly reduce the mercury concentration in the fillet, nor is it removed by the cooking processes.” *Id.* Mercury is exceedingly toxic, with adverse impacts occurring at levels lower than 70 parts per trillion.
51. Selenium is extremely toxic to aquatic organisms and endangers human health when ingested at elevated levels. Drinking water containing high selenium concentrations can cause

hair and fingernail loss, numbness in extremities, and problems with circulation. Like mercury, selenium is a bioaccumulative pollutant. Elevated levels of selenium affect the growth and survival of juvenile fish, and offspring of adult fish that were exposed to excessive selenium suffer skeletal deformities. EPA, *Aquatic Life Criteria for Selenium* (2009), available at <http://www.epa.gov/waterscience/criteria/selenium/questions.htm>.

52. Other metals present in scrubber wastewater also pose significant human health risks. Arsenic is a known human carcinogen that causes cancer of the skin, bladder, and lungs. Cadmium exposure can result in diarrhea, stomach pains, severe vomiting, bone fracture, adverse reproductive effects, nerve damage, immune system damage, or psychological disorders. Like mercury, cadmium is exceedingly toxic even in low concentrations. One part per billion (“ppb”) of cadmium is enough to kill sensitive species such as rainbow trout.

53. TDS is a catch-all category of pollution that includes common chemical salts such as sulfates and chlorides and also the toxic metals discussed above. Dissolved pollutants are considerably harder to treat and are often beyond the capability of drinking water systems to remove because they are dissolved in water and not merely suspended in it. TDS at concentrations above water quality standards make water taste and smell bad and also increase corrosion in pipes, industrial machinery, and household appliances.

D. There Are No EPA Standards Regulating Metal Discharge in Scrubber Wastewater

54. There are no national standards regulating the toxic metals routinely discharged in scrubber wastewater. The current effluent limits that apply to Steam Electric Power Generators (such as the scrubber at the Kingston Plant) were promulgated in 1982 and limit only the following parameters: (1) pH and PCBs, (2) total suspended solids (“TSS”), and (3) oil and grease. *See* 40 C.F.R. § 423.12. Despite having acknowledged that “FGD wastewaters generally

contain significant levels of metals,” EPA has not revised the effluent limits in the Steam Electric Power Generating Category since 1982 to address these metals of concern. EPA Report at xii; 47 Fed. Reg. 52,290-01 (Nov. 19, 1982) (“reserving effluent limitations for four types of wastewaters for future rulemaking” including “[f]lue gas desulfurization waters”). As EPA recently has made clear, the current effluent limits have been ineffective in regulating scrubber wastewater for over 25 years. As explained by the Agency, “EPA’s review of wastewater discharges from power plants, and the treatment technologies available to reduce pollutant discharges, has indicated the need to update the current national effluent guidelines regulations.” 74 Fed. Reg. 55,837, 55,839 (Oct. 29, 2009).

55. Accordingly, EPA has recently announced that it plans to revise the existing standards in the Steam Electric Power Generating Category and create effluent limits that regulate scrubber wastewater. EPA, *EPA Expects to Revise Rules for Wastewater Discharges from Power Plants* (Sept. 15, 2009), available at <http://www.epa.gov>, under News Releases by Date. “EPA’s decision to revise the current effluent guidelines is largely driven by the high level of toxic-weighted pollutant discharges from power plants and the expectation that these discharges will increase significantly in the next few years as new pollution controls are installed.” EPA, *Draft Questionnaire for the Steam Electric Power Generating Effluent Guidelines* i (Oct. 22, 2009), available at <http://www.regulations.gov>, with Docket No. EPA-HQ-OW-2009-0819.

56. Although EPA now intends to revise the effluent limits in the Steam Electric Power Generating Category to address pollutants typically found in scrubber wastewater, these national standards will not be in effect for several years. In the meantime, it is the duty of state

permitting agencies including TDEC to use BPJ to set stringent effluent limits for all metals present in scrubber discharge.

57. When setting permit limits, state permitting agencies must consider the existing water quality of the receiving waters as well as technologies available to reduce or eliminate the discharge of pollutants. EPA has identified four types of wastewater treatment technologies currently used in the United States that entirely prevent the discharge of wastewater from scrubbers: complete recycle, evaporation ponds conditioning dry fly ash, and underground injection. See EPA Report at 4-36. One or more of these design/operating practices achieving zero discharge has been implemented at 32 of the 84 plants surveyed by EPA, representing 38 percent of all coal-fired power plants nationwide. *Id.* at 4-43.

58. The majority of plants that achieve zero discharge completely recycle their scrubber purge. These plants operate a solids separation/dewatering process within their scrubber systems that rotates the slurry within the scrubber and forcefully separates the solids from the effluent. In a solids separation/dewatering process, “the moisture retained within the landfilled solids entrains sufficient chlorides [such] that a separate wastewater purge stream is not needed.” *Id.* at 4-36. “By operating in this manner, the transfer of the FGD solids to the landfill essentially serves as the chloride purge from the system.” *Id.*

59. EPA also has identified one plant that uses scrubber wastewater to condition its dry fly ash, which results in zero liquid discharge from the plant. Additionally, EPA has identified three plants using evaporation ponds and two plants that will use underground injection to achieve zero discharge from their scrubber systems by the end of 2009.

60. The successful implementation of zero discharge practices in 32 U.S. coal-fired power plants that currently operate scrubber systems demonstrates that zero discharge technology is available and economically achievable.

61. In addition to the 38 percent of plants that operate scrubber systems with successful zero discharge practices, 28 percent of the plants surveyed have implemented technologies that significantly reduce the amount of pollutants discharged from their scrubber systems. *Id.* at 4-44 to 4-46. Specifically, 20 percent of plants reduce the pollutants discharged in scrubber wastewater through the use of chemical precipitation wastewater treatment systems, 2 percent of plants use biological wastewater treatment systems, and 6 percent of plants use a combination of clarifier technologies, constructed wetlands, or systems in which scrubber wastewater is commingled with other wastewater in the plant. *Id.* Based upon their collective use by 24 plants around the country, all of these control technologies are available and economically achievable.

62. Despite the widespread availability of technologies that would allow TVA to operate its scrubber system either with zero waste or with a waste stream in which toxins are greatly reduced, TVA opted to use a settling pond for wastewater treatment. Settling ponds are not designed for, and are completely ineffective with respect to, reducing the amount of metals present in the scrubber discharge. EPA has stated:

[S]ettling ponds are not designed to reduce the amount of dissolved metals in the wastewater. The FGD wastewater entering a treatment system contains significant concentrations of several pollutants in the dissolved phase, including boron, manganese, and selenium. Therefore, these dissolved metals are likely discharged if FGD wastewater is treated in settling ponds. . . . FGD wastewater [also] includes high loadings of volatile metals which can impact the solubility of metals in the ash pond, thereby potentially leading to increases in the effluent metal concentrations.

Id. at 4-26.

E. The Kingston Fossil Plant Permit

63. Notwithstanding the fact that settling ponds do nothing to control metals pollution, TDEC failed to adequately consider any other alternative treatment methods before it issued the Permit, which authorizes further pollution to be discharged into critically impaired waters.

64. Under the Permit, TVA is licensed to discharge one million gallons of untreated scrubber wastewater into its settling pond per day, and water from the settling pond will empty into the Clinch River. As the EPA Report makes clear, this scrubber wastewater will be laden with “high loadings of volatile metals” that “are likely to be discharged if FGD wastewater is treated in settling ponds.” *Id.*

65. Nevertheless, the Permit does not set any effluent limits on the amounts of mercury and other toxic metals, sulfates, or TDS that will be discharged in the wastewater from the scrubber system at TVA’s Kingston Plant.

66. TDEC has failed to offer any explanation for its failure to set WQBELs that reflect impaired water quality in the Clinch River.

67. With respect to TBELs, TDEC incorrectly maintains that it was not obligated to set effluent limits beyond those prescribed by EPA under the existing ELGs. On this basis, TDEC entirely neglected to consider the many technologies available to eliminate or greatly reduce discharges from TVA’s scrubber system and further refused to establish BPJ-based effluent limits for metals, sulfates or TDS.

LEGAL VIOLATIONS

68. TDEC’s failure to impose WQBELs and TBELs in the Permit violates the Clean Water Act and the Tennessee Water Quality Control Act, which direct TDEC to impose effluent limits for all pollutants, including toxic metals, that will be discharged from TVA’s FGD system.

See 33 U.S.C. §§ 1311(b)(2)(A), 1312(a); Tenn. Code Ann. § 69-3-108(f); see also *Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 969 (5th Cir. 1986) (stating that “[w]here EPA has not promulgated applicable technology-based effluent limitations guidelines, the permits must incorporate, on a case-by-case method, ‘such conditions as the Administrator determines are necessary to carry out the provisions of the Act’”).

69. The Permit allows TVA to pollute a river that already has been devastated by mercury pollution and a billion gallons of coal ash. Given the state of the Clinch River, TDEC’s decision to issue a Permit that allows TVA to discharge an entirely new coal combustion waste stream containing unlimited concentrations of dangerous heavy metals is incomprehensible — and illegal under the Clean Water Act.

70. First, the Permit violates the Clean Water Act and implementing state regulations because it does not set necessary WQBELs to ensure that discharges of mercury and other metals will not cause or contribute to water quality violations. See 33 U.S.C. §§ 1312(a), 1313(d); Tenn. Comp. R. & Regs. § 1200-4-5-.04(1)(g) (a permit may not be issued if the proposed discharges “will cause or contribute to the violation of water quality standards”). TDEC identified the Clinch River as a waterbody impaired by mercury on the 303(d) List. In the absence of a TMDL for mercury, TDEC is required to set a WQBEL for mercury that prohibits additional loadings of mercury into the Clinch River. *Id.* Further, TDEC failed to undertake any principled evaluation to determine whether WQBELs must be set for other pollutants.

71. Second, the Permit violates the Clean Water Act because it does not set TBELs for any of the toxic metals and other pollutants that will be discharged in the scrubber wastewater. See 33 U.S.C. § 1311(e). TDEC was obligated to use BPI to set TBELs for all discharged pollutants based upon the best available technology economically achievable. See *id.* §§

1311(b)(2)(A), 1342(a)(1). In this case, the EPA Report demonstrates that zero discharge practices are both available and economically achievable in 32 of the currently operating coal-fired power plants in the United States. Thus, TDEC violated the Act by failing to consider the availability of zero discharge technology when setting TBELs, and, moreover, by failing to set any TBELs for the metals and other pollutants that will be discharged in the scrubber wastewater. By proposing to use a settling pond to treat its scrubber wastewater, TVA has chosen – and TDEC has approved – the least advanced option available for wastewater treatment.

72. TVA now holds an unrestricted license to discharge toxic metals and other pollutants into the Clinch River. Unless the Permit is amended to impose suitably stringent limits for all of the pollutants present in TVA’s scrubber wastewater, including metals, TDS, and sulfates, the Clinch River will be irreparably harmed.

PETITIONERS’ CONTENTIONS

73. Petitioner contends generally that the Permit will allow pollution in the waters of the state of Tennessee and is not adequately protective.

74. Petitioner contends that TDEC violated the Clean Water Act and the Tennessee Water Quality Control Act by issuing a NPDES permit to TVA that does not include any technology-based effluent limits or water-quality based effluent limits for metals, TDS, and other parameters aside from pH, TSS, and oil and grease.

75. Petitioner contends that TDEC must reverse the issuance of this Permit and reissue it inclusive of effluent limitations for all metals discharges, including mercury discharge. This revised permit should be re-noticed and opened to the public review and comment.

PRAYER FOR RELIEF

Petitioner requests that:

76. The Water Quality Control Board take jurisdiction over this appeal as a contested case pursuant to Tenn. Code Ann. § 4-5-301 and following;
77. The Board provide public notice of the contested case by publication in the Tennessee Administrative Register as has been the Board's practice in declaratory ruling cases, the method previously used for public contests of permit issuances;
78. The Board direct TDEC to file a response to this Petition no later than 30 days following the publication of notice in the Tennessee Administrative Register;
79. The Board direct that a hearing be conducted in this matter;
80. The Board promptly request the assignment of an Administrative Law Judge by the Office of Administrative Procedures and that a single judge be designated for all purposes prior to the hearing and to conduct the hearing of this matter; and
81. The Board reverse the issuance of this Permit.

Respectfully submitted on this 12th day of November 2009.


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Exhibit 1

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June 30, 2009

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Deputy Commissioner
Tennessee Department of Environment and Conservation
401 Church Street, L&C Annex, 1st Floor
Nashville, TN 37243

Re: *Water Sample Results for Metals Downstream of TVA Kingston Coal Ash Sludge Release*

Dear Mr. Francendese and Mr. Sloan:

Recently I received post-coal-ash-disaster water sampling results for samples taken since January 2009 in the ash release area and downstream as far as Tennessee River (Watts Bar Reservoir) Mile 545. The results are enclosed. These samples were taken by qualified consultants using EPA and TDEC sampling methods, and analyzed by a certified laboratory in Tennessee. The results are compared to Tennessee Water Quality Standards as shown in the spreadsheet and as discussed in the attached Interpretation of Results. We can provide the laboratory results sheets if requested.

Although these samples have been taken for litigation purposes, we believe that the agencies with the responsibility to protect public health and the environment should have the results in order to make informed decisions about protecting downstream water users,

KINGSTON, TENNESSEE OFFICE:

P. O. BOX 12

924 N. KENTUCKY STREET

KINGSTON, TN 37763

TELEPHONE: 865-376-6769

Mr. Leo Francendese
Mr. Paul Sloan
June 30, 2009
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particularly given the upcoming July 4th weekend, which will surely include significant public contact with the waterways as part of the holiday festivities and recreation.

Please let me know if you have any questions about the samples or the results.

Sincerely,

Gary A. Davis

GAD/ndg
Enclosures