BEFORE THE TENNESSEE WATER QUALITY CONTROL BOARD

In the Matter of:	:)	Case No. _____
Tennessee Department of Environment and Conservation Division of Water Pollution Control	:)	Docket No. _____
NPDES Permit Number TN0005410	:)	

PETITION FOR STATUTORY APPEAL

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1. The Tennessee Valley Authority's ("TVA") coal plants have spilled more than one billion gallons of coal ash and 10,000 gallons of gypsum slurry into the waters of the Tennessee Valley within the past three years. These spills, which occurred at TVA's Kingston and Widows Creek Fossil Plants, were caused by the failure of unlined impoundments that TVA uses to store coal ash and other solid and liquid coal combustion wastes ("CCWs") laden with toxic metal pollutants including arsenic, mercury, hexavalent chromium, and selenium. Although the U.S. Environmental Protection Agency ("EPA") has stated repeatedly that impoundments, also known as settling ponds, do not effectively control toxic metals pollution, they provide the sole means of "treatment" for all of TVA's coal-fired power plants. In two recent permitting decisions, the Tennessee Department of Environmental Conservation ("TDEC") has expressly authorized TVA to continue to rely on these precarious impoundments at its Bull Run and Johnsonville Fossil Plants. Petitioners Tennessee Clean Water Network ("TCWN") and Southern Alliance for Clean Energy ("SACE") bring this appeal to compel a solution to longstanding pollution problems associated with TVA's settling ponds.

2. This petition for statutory appeal concerns State of Tennessee National Pollutant Discharge Elimination System ("NPDES") Permit Number TN0005444 (the "Permit"), which authorizes TVA's Johnsonville Fossil Plant ("JOF" or "Johnsonville") to discharge more than 21 million gallons per day of toxic coal combustion wastewaters and nearly 1.2 billion gallons per day of very hot once-through cooling water to the Tennessee River. The Permit allows TVA to continue operating the 60-year-old Johnsonville plant without making any investment in modern controls to prevent water pollution. TDEC has sanctioned TVA's continued use of an old, leaking, and potentially unstable settling pond notwithstanding the incalculable damage TVA's settling ponds have caused already and, based on ecological data that is more than 35 years old, has given TVA a variance from thermal effluent limits designed to protect fish and other aquatic life. This failure to impose basic pollution control requirements violates the Federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. §§ 1251 *et seq*, and the Tennessee Water Quality Control Act ("WQCA"), Tenn. Code Ann. § 69-3-102 *et seq*.

3. The Clean Water Act requires TDEC to set stringent limits on wastewater discharges based upon the best available technology economically achievable ("BAT") for the control of toxic and nonconventional pollutants at coal-fired power plants. Further, the Clean Water Act requires compliance with water quality-based limits on thermal pollution absent an affirmative demonstration that less stringent limits will assure protection and propagation of balanced, indigenous populations of fish, shellfish, and wildlife. In issuing the Permit, TDEC violated the Clean Water Act, the Tennessee Water Quality Control Act, and implementing regulations by: failing to use its best professional judgment to consider the potential for alternative technologies that would control water pollution more effectively than JOF's existing settling pond; failing to set BAT-based numeric limits on the discharge of toxic metals and total dissolved solids

("TDS") and relying instead on "best management practices" to be developed by TVA without public participation; allowing the discharge of water exceeding Tennessee water quality standards for temperature without considering current impacts on fish, shellfish and wildlife; permitting "seeps" from JOF's ash ponds without undertaking required analysis or imposing effluent limits; and failing to provide public notice of issuance of the final Permit.

JURISDICTION

4. Petitioners TCWN and SACE appeal the Permit pursuant to Tenn. Code Ann. § 69-3-105(i), which gives the Tennessee Water Quality Control Board (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]."

5. Under Tennessee's Water Quality Control Act, a petition for permit appeal may be filed by any person who participated in the public comment period or by any person who appeals material changes included in a final permit that were not made available for public comment on the draft. *Id*. TCWN submitted written comments during the public comment period on the draft permit. Additionally, TCWN and SACE base this appeal on the material changes set forth in the Permit that were not made available for public comment on the draft, including the new "Best Professional Judgment Analysis" set forth at pages NOD-17 to NOD-42. TCWN and SACE therefore have satisfied the preconditions for filing the instant appeal.

6. Pursuant to Tenn. Code Ann. § 69-3-105(i), a permit appeal must be filed within thirty (30) days after public notice of the Commissioner's decision to issue or deny the permit. TDEC issued the Permit on February 9, 2011, but neither TCWN nor the Environmental Integrity Project were notified that the final Permit had been issued, despite having commented

on the draft. Petitioners became aware of issuance of the final permit by searching TDEC's permit database on or about February 17, 2011, more than a week after the Permit had been issued. This petition for permit appeal is filed 30 days from permit issuance, which would be the earliest date on which public notice could have been issued, and is therefore timely.

PARTIES

7. Petitioner TCWN is a nonprofit corporation organized under the laws of the State of Tennessee with its principal office at 625 Market Street, 8th Floor, P.O. Box 1521, Knoxville, Tennessee 37901. TCWN was organized to advocate for strong policies and programs that result in more effective protection and restoration of Tennessee waters; to educate organizations, decision-makers, and the public about important water resource issues; and to ensure the protection and restoration of Tennessee's waters. TCWN organizes Tennesseans to claim their right to clean water and healthy communities by fostering civic engagement, building coalitions, and advancing water policy. TCWN is a membership organization with members who boat, swim, fish, and otherwise recreate downstream from JOF and who are injured by JOF's discharges to the Kentucky Reservoir.

8. Petitioner SACE promotes responsible energy choices that create global warming solutions and ensure clean, safe, and healthy communities throughout the Southeast. Headquartered at P.O. Box 1842, Knoxville, Tennessee 37901, SACE has long focused on clean water issues, particularly with respect to TVA operations. SACE has many interested and active members who are directly impacted by the failure to adequately treat JOF's CCW effluent prior to discharge. Members of SACE live near the plant and recreate in the Kentucky Reservoir downstream from JOF. JOF's uncontrolled discharges of pollution directly harm SACE members' ecological, aesthetic, and recreational interests in the Tennessee River. SACE

members also live near the Trans-Ash, Inc. landfill where TVA dumps much of JOF's ash, and are therefore directly affected by the manner in which ash is treated at the Plant.

9. Respondent is the TDEC Division of Water Pollution Control, which is the agency responsible for administering the Clean Water Act NPDES program in the State of Tennessee.

STATUTORY BACKGROUND

10. 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 Clean Water Act protects all navigable 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.

11. Tennessee adopted the Water Quality Control Act in 1977 recognizing that waters of the state "are held in public trust for the use of the people of the state" and "the people of Tennessee, as beneficiaries of this trust, have a right to unpolluted waters." Tenn. Code Ann. § 69-3-102(a).

12. The Clean Water Act's goal is to eliminate all discharges of pollution into navigable waters. *See id*. § 1251(a)(1). To this end, the Clean Water Act establishes the NPDES permit program, which is managed by EPA in partnership with state environmental agencies, including TDEC, which are authorized to issue NPDES permits. *See id*. § 1342; *see also* Tenn. Code Ann. § 69-3-108; Tenn. Comp. R. & Regs. 1200-4-10-.03(1). Tennessee enacted the Water Quality Control Act in part to obtain and exercise this delegation of NPDES permitting authority. Tenn. Code Ann. § 69-3-102(c). When it issues NPDES permits pursuant to its delegated authority under the Clean Water Act, TDEC must comply with applicable federal statutes and regulations.

Tenn. Code Ann. § 69-3-108(g)(1); *see also* 40 C.F.R. § 123.25 (listing specific federal regulations applicable to the states).

13. The Clean Water Act prohibits point sources from discharging pollutants to surrounding waters without a NPDES permit. 33 U.S.C. §§ 1311(a), 1342(a). A point source is "any discernible, confined and discrete conveyance" and includes effluent pipes and other channels "from which pollutants are or may be discharged." 33 U.S.C. § 1362(14). A discharge is the "addition of any pollutant to navigable waters from any point source." *Id*. § 1362(12).

14. Every NPDES permit must contain effluent limits sufficient to both "restore" and "maintain" water quality in the receiving waters. *Id*. § 1251(a). To this end, the Clean Water Act requires permitting agencies to set technology-based effluent limits ("TBELs") that reflect the ability of available technologies to reduce or eliminate pollution discharges. *See id*. §§ 1311 (establishing TBELs), 1342(a)(1) (requiring that NPDES permits incorporate TBELs). TBELs should be based on the best available technology economically achievable for toxic and nonconventional pollutants such as metals and thermal discharges. 33 U.S.C. §§ 1311(b)(2)(A) & (F), 1314(a)(4) (excluding thermal discharges from the definition of conventional pollutants); 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 in accordance with the requirements of the Clean Water Act). All sources and all pollutants must be subject to TBELs, 33 U.S.C. § 1311(b)(2)(A), unless more stringent water quality-based effluent limits ("WQBELs") are required to avoid exceedances of water quality standards, *id*. § 1312(a).

15. 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.

16. 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") to set case-by-case TBELs for these pollutants in NPDES permits. *Id*.; 33 U.S.C. §§ 1311(b)(2)(A), 1342(a)(1)(A); 40 C.F.R. § 125.3(c); *see also Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 969 (5th Cir. 1986) ("Where 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.'") (citations omitted).

17. The BPJ analysis should evaluate BAT, among other factors. *See* EPA Comment 19, Permit at NOD-8. In determining BAT on a case-by-case basis, state permitting agencies such as TDEC must consider statutory and corresponding regulatory factors, including the production process in use and the possibility of changing processes, the non-water quality environmental 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). "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)).

18. BAT-based numeric effluent limits "*shall require the elimination of discharges of all pollutants* if the Administrator finds, on the basis of information available to him [sic] . . . 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.

19. 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.

20. Importantly, EPA regulations promulgated pursuant to the Clean Water Act mandate that state agencies impose TBELs in numeric form at all times except where "numeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k)(3); *see also* Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(i) (echoing language of 40 C.F.R. § 122.44 and indicating that narrative effluent limits are acceptable in lieu of numeric limits only when "when numeric effluent limitations are infeasible"). Because EPA itself has repeatedly demonstrated that affordable and available technology exists to reduce or eliminate toxic pollutants discharged from coal-fired power plants, state agencies must take this technology into consideration when performing their BPJ

analysis and impose numeric TBELs based upon the demonstrated BAT standards in the industry.

21. In addition to determining the appropriate BAT-based TBEL for each discharge authorized by a NPDES permit, TDEC must also evaluate whether that discharge has the reasonable potential to cause or contribute to exceedances of in-stream water quality standards. 40 C.F.R. §§ 122.44(d)(1)(i) & (ii), and 123.25. If the reasonable potential exists, then NPDES permits must include water quality-based effluent limits sufficiently stringent to prevent water quality violations. 33 U.S.C. §§ 1342(b)(1)(A) and 1312(a); 40 C.F.R. §§ 122.44(d)(1)(vii)(A) and 123.25; Tenn. Comp. R. & Regs. 1200-4-5-.04(f).

22. The Clean Water Act creates a limited exception to the WQBEL requirement for thermal discharges. Pursuant to Section 316(a) of the Clean Water Act, TDEC may issue a variance allowing discharges that will exceed state water quality standards only if the applicant affirmatively demonstrates that the proposed effluent limit is "more stringent than necessary to assure the pro[t]ection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made." 33 U.S.C. § 1326(a). EPA regulations require a demonstration that "the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected" will assure a balanced indigenous population of aquatic organisms. 40 C.F.R. § 125.73; *see also id.* § 123.25(a)(33) (applying this requirement to states). Tennessee has incorporated this variance process into its water quality standards. Tenn. Comp. R. & Regs. 1200-4-3-.03(3)(e) ("A successful determination as determined by the state conducted for thermal discharge limitations under Section 316(a) of the

Clean Water Act…shall constitute compliance with" the temperature criteria for fish and aquatic life).

23. Finally, the Clean Water Act and the WQCA provide for meaningful public involvement in the NPDES permitting process, including the opportunity to review and comment on draft permits and to appeal final permits. The WQCA requires that appeals must be filed within 30 days "after *public notice* of the commissioner's decision to issue or deny the permit." Tenn. Code Ann. § 69-3-105(i) (emphasis added). TDEC has defined the process for public notice of other NPDES permitting actions to include publication in a local newspaper and mailing (or emailing) a notice to the applicant, federal and state agencies, people on a mailing list, and local government. Tenn. Comp. R. & Regs. 1200-04-05-.06(9).

FACTUAL BACKGROUND

A. The Kentucky Reservoir

24. The Permit authorizes JOF to discharge more than 21 million gallons of CCW effluent per day from a settling pond via Outfall 001 into mile 100.2 of the Tennessee River. The Permit further authorizes CCW effluent discharges from Outfall 011 at mile 100.4 and steam condenser cooling water from Outfall 003 at mile 99.4.

25. This stretch of the Tennessee River is part of the Kentucky Reservoir, the largest artificial lake in the Eastern United States. The Kentucky Reservoir is a major recreational destination. It has 2,064 miles of shoreline that includes the Land Between the Lakes National Recreation Area, the Tennessee National Wildlife Refuge, two state wildlife management areas, and four state parks as well as numerous marinas, boat docks, and launching ramps. Recreational use is reported at 17 million visits each year. Popular recreational uses of the

Kentucky Reservoir include swimming, fishing, motor boating, water skiing, sailing, and windsurfing.

26. The Kentucky Reservoir is home to many varieties of fish, including largemouth and smallmouth bass, catfish, bluegill, sauger, and crappie. Fishing is very popular in the Kentucky Reservoir. The Reservoir is also home to a number of federally listed threatened or endangered aquatic species including the pygmy madtom and the pink mucket, ring pink, and rough pigtoe mussels. In addition, piping plovers are a federally listed threatened species known to be present in the area.

B. The Johnsonville Fossil Plant

27. Construction of the Johnsonville Fossil Plant began in 1949, and it is the oldest coal plant in the TVA fleet, and in Tennessee. JOF burns 9,600 tons of coal a day. Over the past sixty years, Johnsonville's operation has generated so much coal waste that, in 2002, TVA anticipated that the ash impoundment only had enough capacity to operate until 2004. Seven years later, the impoundment is still operating, but it has become necessary to ship JOF's CCW (comprised of bottom ash and fly ash) to an off-site landfill run by Trans-Ash, Inc. Recently, TVA's CCW production necessitated further expansion of this landfill. While the Trans-Ash landfill waits to receive a NPDES permit, TVA is trucking coal ash leachate (approximate flow of 32,000 gallons per day) from the Trans-Ash landfill, across the Tennessee River, and back into ash ponds at Johnsonville for disposal and discharge into the Tennessee River.

28. JOF discharges ash transport water, ash landfill leachate, fly ash, boiler bottom overflow, coal pile runoff, ash system leakage, metal cleaning wastes, stormwater, and other lower volume waste streams into a settling pond that discharges through Outfall 001. This active ash pond is required to maintain a minimum free water volume of 53.8 million gallons at all

times. JOF will also discharge ash slurry, runoff from ash stacking, and associated stormwater from Outfall 011.

29. JOF's settling pond is urgently in need of regulation, as a recent report prepared by TVA's consultant, Stantec, made clear. Stantec prioritized JOF for corrective action to prevent water pollution from CCW ponds. Specifically, the report notes problems at "Johnsonville Ash Disposal Areas 2 and 3 (Active Ash Disposal Area) due to inadequate freeboard, observed seepage, steep slopes, and tall, unsupported weir spillways with history of sinkholes." Stantec Consulting Services Report to TVA, Assessment of Coal Combustion Product Impoundments and Disposal Facilities Various Locations, Tennessee, 5-6 (June 24, 2009), *available at* http://www.tva.gov/power/stantec/index.htm. Stantec, TVA, EPA, and the Office of the Inspector General have all noted uncontrolled seepage from JOF ash impoundments. Given serious concerns about the impoundment's integrity, Stantec recently recommended complete closure of JOF's active ash pond, and one TDEC employee has even called this impoundment "a disaster waiting to happen."

C. CCWs and Toxicity

30. CCWs comprise a variety of wastes from the coal combustion process, including fly ash and bottom ash. Combusting coal in steam electric boilers creates both fly ash, which consists of the finer ash particles that are light enough to be transferred out of the boiler with the flue gas exhaust, and bottom ash, which consist of the heavier ash particles that collect in the bottom of the boiler. If the plant runs a "wet" disposal method, as JOF does, the bottom ash and fly ash are transported from the boiler as a liquid waste stream.

31. Fly ash and bottom ash transport waters typically contain significant concentrations of total suspended solids ("TSS"), total dissolved solids, and heavy metals. Based upon a survey

of discharges at TVA's Widows Creek Fossil Plant, EPA identified 20 total routine metals, 10 dissolved metals, six total low-level metals, and two total low-level dissolved metals in ash transport waters transferred to a settling pond. *See* EPA, Steam Electric Power Generating Point Source Category: Final Detailed Study Report 5-7 to 5-9 (Oct. 2009) ("EPA Report"), *available at* http://www.epa.gov/waterscience/guide/steam/finalreport.pdf. Among the routine metals identified in Widows Creek's ash transport water were aluminum, arsenic, barium, boron, iron, lead, manganese, mercury, and selenium. *Id*. Although concentrations of metals in ash transport waters are typically lower than those of scrubber wastewater, the "bioaccumulative properties [of many of these metals]" make them a serious potential threat, especially given the "long recovery times associated with many of the ecological impacts" that flow from metals pollution. *Id*. at 6-2.

32. Many of the metals present in CCWs pose dangerous health risks. Mercury, for example, is a well-known toxin. Mercury serves no beneficial physiological function in humans and is generally considered dangerous at levels above one microgram per liter. Exposure to mercury in pregnant women can cause serious damage to the brain and nervous system of a developing fetus, and children exposed to mercury can suffer from impaired nervous systems as well as pulmonary and nephritic damage. Adults exposed to elevated levels of mercury can experience impairment of peripheral vision; disturbances in sensations ("pins and needles" usually in the hands, feet, and around the mouth); lack of coordination of movements; impairment of speech, hearing, and walking; and muscle weakness. As a bioaccumulative pollutant, mercury becomes increasingly toxic as it moves up the food chain.

33. Hexavalent chromium, long known to be a carcinogen by inhalation, is now known to be a carcinogen by ingestion as well. EPA, Draft Toxicological Review of Hexavalent

Chromium (Sept. 2010), *available at* http://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=221433. Health effects found in animal studies include anemia and damage to the gastrointestinal tract, lymph nodes and liver. Hexavalent chromium also has ecological effects including diminished growth and other sublethal effects in fish and other aquatic species. EPA Report at 6-3, 6-15

34. 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, and "[a]s a result, selenium-related environmental impacts can linger for years even after exposure to coal combustion wastewater has ceased." *Id*. at 6-4. Selenium poses a particularly grave threat to fish. Elevated levels of selenium affect the growth and survival of juvenile fish, and offspring of adult fish that were exposed to excessive selenium have been found to suffer skeletal deformities.

35. Arsenic, a known human carcinogen that causes cancer of the skin, bladder, and lungs, also has been found in significant concentrations in CCWs. "[A]rsenic is highly mobile and is frequently observed at elevated concentrations at sites located downstream from coal combustion wastewater impoundments." *Id*. at 6-5. Like mercury and selenium, arsenic bioaccumulates in aquatic communities, and it has been associated with "biological impacts such as liver tissue death, developmental abnormalities, and reduced growth." *Id*.

36. Other metals present in CCWs also pose significant human health risks. Cadmium exposure can result in diarrhea, stomach pains, severe vomiting, bone fracture, adverse reproductive effects, nerve damage, immune system damage, or psychological disorders. Exposure to elevated levels of manganese in drinking water has caused adverse neurotoxic

effects in children and adults. Exposure to lead in drinking water has resulted in serious damage to nervous system and kidney functioning as well as to red blood cells.

37. TDS is a catch-all category of pollutants 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 within 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. Additionally, elevated TDS levels can be toxic to aquatic organisms and adversely impact agriculture and wetlands.

38. While all of the pollutants present in CCWs pose serious threats to human health and the environment when analyzed in isolation, their capacity for toxic pollution increases exponentially when combined in settling ponds. EPA has recognized that:

> [T]he practice of commingling coal combustion wastewater with other waste streams from the plant in surface impoundments can result in a chemically complex effluent that is ultimately released into the environment . . . .Exposure to coal combustion wastewater has been associated with fish kills, reductions in the growth and survival of aquatic organisms, behavioral and physiological effects in wildlife and aquatic organisms, potential impacts to human health (i.e., drinking water contamination), and changes to local habitat.

Id. at 6-2. Settling ponds such as JOF's pond that commingle multiple waste streams before discharging them in bulk into surrounding waterways therefore pose an especially great risk to human health and the environment.

D. Lack of National Standards for CCW Discharges from Power Plants

39. There are no national standards regulating the toxic metals routinely discharged from power plants in CCW effluent. The current effluent limits in the Steam Electric Power Generating Category that apply to low volume wastes and ash transport waters 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. In the ensuing 29 years since EPA first promulgated these standards, EPA has never undertaken revisions to address metals, even though the agency acknowledges these discharges to be a major concern. EPA Report at xii; 47 Fed. Reg. 52,290, 52,291 (Nov. 19, 1982). As EPA has made clear, the current effluent limits have been ineffective for over 25 years, and "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).

40. EPA recently announced that it plans to revise the existing standards in the Steam Electric Power Generating Category and create effluent limits that regulate the full suite of toxins discharged by power plants. *See* Press Release, EPA Expects to Revise Rules for Wastewater Discharges from Power Plants (Sept. 15, 2009), *available at* http://www.epa.gov/newsroom/newsreleases.htm#date (follow "2009" hyperlink). Further, the agency has entered into a consent decree that sets forth court enforceable deadlines for promulgating the new rules.

41. As explained by the agency, "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 (enter Docket No. EPA-HQ-OW-2009-0819 into "Search" box and search for title within "Supported and Related Materials").

42. EPA's revised standards will not be finalized until January, 2014. In the meantime, it is the duty of state permitting agencies to use their best professional judgment to set stringent, BAT-based TBELs for all metals present in CCW discharges. *See* 33 U.S.C. § 1311(b)(2)(A); Memorandum from James A. Hanlon, Director of Office of Wastewater Management, to EPA Water Division Directors, Regions 1-10 ("EPA Memorandum") Attachment A - Technology-based Effluent Limits, Flue Gas Desulfurization (FGD) Wastewater at Steam Electric Facilities, (June 7, 2010) at 2, *available at* http://www.epa.gov/npdes/ pubs/steamelectricbpjguidance.pdf.

43. To clarify this obligation, EPA recently issued guidance restating the Clean Water Act's requirement that state agencies "must include technology-based effluent limitations in its permits *for pollutants* not addressed by the effluent guidelines for that industry." EPA Memorandum, Attachment A at 2 (emphasis added). Thus, although there are ELGs that apply to this point source category, TDEC is nonetheless required to establish TBELs for *the pollutants* – in this case, toxic metals and TDS - that are not addressed by the ELGs.

44. To aid state agencies in establishing BAT-based TBELs, EPA's guidance identifies a number of effective treatment technologies currently in use at power plants throughout the United States that have demonstrated capability to reduce or eliminate pollutant concentrations in CCW effluent. Specifically, EPA identified several available "[t]echnologies [that are] more advanced than settling ponds . . . and more effective at removing both soluble and particulate forms of metals, and for removing other pollutants such as . . . total dissolved solids." *Id*. at 3. EPA's guidance also identifies several of the advanced technologies that EPA discussed in its 2009 Report. Relevant zero liquid discharge technologies include evaporation ponds, conditioning dry fly ash, underground injection, and vapor-compression evaporation. *See* EPA Report at 4-36; EPA Memorandum, Attachment A at 5. Other technologies include clarifiers,

constructed wetlands, chemical precipitation technology, which is capable of reducing concentrations of toxic metals such as mercury, and biological treatment technologies, which can be effective at reducing concentrations of metals such as selenium. And, as TDEC is aware, timely conversion to dry handling would be a viable alternative to eliminate, or dramatically reduce, liquid discharges.

45. In contrast to these demonstrated technologies that effectively reduce concentrations of toxic metals in CCW effluent or eliminate liquid waste streams entirely, settling ponds are not designed for, and are completely ineffective at, reducing the amount of dissolved metals present in CCW wastewater. EPA has made clear that "ash ponds are not designed to treat dissolved metals from sluiced ash or other wastewater sources." Permit at NOD-30.

E. The JOF Permit

Even though settling ponds do nothing to reduce concentrations of dissolved metals or TDS, the Permit authorizes TVA's continued use of an old, leaking settling pond as a means of controlling pollution. The Permit does not impose any numeric BAT-based effluent limits for metals and TDS but rather allows TVA to develop BMPs of its choosing to address metals. Moreover, the Permit allows TVA to continue to discharge extremely hot once-through cooling water based on ecological data that is at least 35 years out of date, and it purports to authorize the discharge of CCW effluent through non-specified seeps in the settling ponds without the benefit of any analysis characterizing the discharge or its impact on receiving waters. Finally, the Permit was issued without any notice to the public.

TDEC's Failure to Consider Alternative Control Technologies

46. Even though TDEC claims to have performed a best professional judgment analysis for the first time in this Permit renewal, this BPJ analysis did not consider any technology-based alternatives to exclusive reliance on JOF's existing settling pond.

47. In part, TDEC declined to consider alternative technologies on grounds that TVA has announced its intention to convert its wet fly ash and bottom ash handling systems to dry ash handling systems at six of its 11 coal-fired plants, including JOF. Permit at NOD-35. If TVA, in fact, did convert to a dry system, the conversion would largely, but not completely, eliminate the discharge of CCW effluent. However, TVA is currently under no legal obligation to convert to dry ash handling at JOF or any other plant. Moreover, TVA has not committed to any schedule for a dry conversion at JOF. Instead, TVA has indicated vaguely that it expects the overall dry conversion process for six plants to take eight to ten years to complete. *See* Permit at NOD-23.

48. Given that TVA has yet to deliver on a promise that it made in 1988 to convert to dry handling, there is no reason to expect that the conversion will ever be accomplished on a voluntary basis, much less on an expeditious schedule. Nevertheless, TDEC claims that "[d]uring this permit term" of 2 years and 9 months, "it is likely that TVA will replace JOF equipment and processes with conversion to dry ash handling." Permit at NOD-27. Based on this assumption, TDEC asserts that consideration of alternative technologies is unnecessary because the dry conversion will be accomplished before any other pollution control system could be installed at JOF. In the absence of any binding requirement on TVA, TDEC's reliance on the prospect of dry handling is unwarranted.

49. If, as TDEC assumes, it is feasible to accomplish a dry conversion during the permit term, TDEC could have set BAT-based TBELs that reflect the pollution reductions achievable

through dry handling and imposed an enforceable schedule in the permit to achieve compliance with these effluent limits. However, TDEC never considered this — or any other — option that could effectively address the discharge of TDS and metals.

TDEC's Failure to Set Numeric BAT-Based Limits for Toxic Metals

50. Having failed to undertake a meaningful best professional judgment analysis to determine BAT, TDEC declined to impose numeric TBELs for either TDS or any toxic metals, including, but not limited to, arsenic, mercury, hexavalent chromium, and selenium, stating that such limits are "infeasible pending EPA publication of revised Effluent Limitations Guidelines." Permit at NOD-35. Because it never attempted to evaluate pollution reduction achievable by alternative technologies, TDEC failed to make the required demonstration that numeric effluent limits are infeasible for this Permit.

51. Instead of imposing numeric effluent limits, TDEC authorized TVA to develop its own Best Management Practices ("BMPs") "as permit conditions" 90 days after the Permit becomes final. Permit at 23. The Permit gives TVA broad discretion to specify its BMPs so long as they "address controls on toxic metals in ash pond discharges," are "site-specific," and "document the relationship between operations and effluent metals concentrations." *Id.* Thus, the Permit leaves pollution controls for TDS and toxic metals completely up to the future discretion of TVA and TDEC without affording any opportunity for public review or comment.

52. Even if it were appropriate to use narrative limits in lieu of numeric limits for TDS and metals, the Permit's undefined BMP plan does not constitute a properly derived effluent limit. Nothing in the Permit requires the BMPs to satisfy *any* technology-based requirement, so the future BMP plan is not a BAT-based TBEL. TDEC asserts, without citation, that it is not required to "impose BAT limits where TDEC has reasonably concluded, as in the case of JOF,

that the pollutants will not be discharged at levels likely to cause toxic effects." Permit at NOD-8 to NOD-9. TDEC's assertion appears to confuse the need to impose TBELs, which are driven by available technology, with the standards for WQBELs, which are based on impacts to the receiving waters. Moreover, EPA made it abundantly clear that TDEC was required to assess BAT in conducting its BPJ analysis. Permit at NOD-8. Finally, the Permit does not provide for required public participation in the review of these BMPs, which constitute an effluent limit or plan subject to public review requirements of the Clean Water Act and Tennessee regulations.

TDEC's Failure to Impose Applicable Thermal Pollution Limits

53. The Permit allows TVA to discharge 1,188 million gallons per day of once-through cooling water at temperatures up to 38.9˚ C (102˚ F) from Outfall 3. TDEC acknowledges this discharge has the "reasonable potential to be detrimental to fish and aquatic life." Permit at R-14. However, after more than three decades, TDEC still permits TVA to continue operating under a thermal variance pursuant to Section 316(a) of the Clean Water Act, 33 U.S.C. § 1326(a), that is based on biological studies from 1973-1975.

54. TDEC allowed TVA to continue to use this variance based only on TVA's assertions that there were no significant operational changes since the studies were conducted and that TVA "belie[ves] that operation of the JOF does not have any significant impact on the indigenous population of fish and aquatic life in Kentucky Reservoir." Permit at R-16. However, to grant a variance under Section 316(a) and its implementing regulations, the relevant inquiry is not simply whether operations at JOF have changed since 1975, but instead whether other conditions impacting the river and its aquatic populations have changed such that the cumulative impact of JOF's thermal discharges in conjunction with other environmental factors may be detrimental to the health of balanced, indigenous populations. *See* 40 C.F.R. § 125.73.

Studies that are now over 35 years old cannot begin to answer that fundamental ecological question. Nevertheless, TDEC authorized TVA to continue discharging millions of gallons of exceedingly hot water every day instead of requiring TVA to undertake studies documenting the current status of native fish, shellfish, and wildlife in this stretch of the Tennessee River, which is home to endangered species of fish, birds, and mussels, and which is designated as Exceptional Tennessee Waters for that reason.

TDEC's Failure to Properly Address Seeps

55. The Permit purports to authorize discharges through seeps in various JOF settling ponds. Permit at NOD-10. TDEC apparently did not attempt to measure the volume of discharge from these seeps or determine the chemical constitution of these discharges. Instead, it made "visual observations" to determine that the seeps "are not considered to represent a significant water quality impact." *Id.* at NOD-8. The Permit fails to impose effluent limits on these seeps. Although the Permit imposes narrative requirements to inspect the affected dikes, these requirements are designed to address structural integrity rather than the prevention or evaluation of the ongoing leaks that concededly result in the discharge of pollutants to the Kentucky Reservoir. *See id.* at 20-21. The Permit does not assess whether these seeps or the dike inspection regime constitutes a BAT-based TBEL for this point source.

TDEC's Failure to Provide Public Notice of Issuance of the Final Permit

56. Petitioner TCWN submitted detailed comments on the draft permit through the Environmental Integrity Project, and has signed up on a list to be included in notification of TDEC's NPDES permitting actions. Neither TCWN nor the Environmental Integrity Project received notice of issuance of the final JOF Permit, but instead learned of the permit issuance on or about February 17, 2011 by checking the online permits database.

LEGAL VIOLATIONS

57. By issuing the Permit without BAT-based TBELs for TDS or metals, TDEC has violated the Clean Water Act and the Tennessee Water Quality Control Act, which direct TDEC to impose TBELs for all pollutants that will be discharged from the settling pond at JOF. *See* 33 U.S.C. §§ 1311(b)(2)(A), 1311(e), 1342(a)(1); *see also* Tenn. Code Ann. 69-3-108(g)(1) (requiring TDEC to comply with federal statutes when issuing NPDES permits), Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a).

58. The Clean Water Act obligates TDEC to use its best professional judgment to conduct an analysis of the best available technologies economically achievable to control discharges of toxic and nonconventional pollutants from JOF. 33 U.S.C. § 1311(b)(2)(A). EPA has demonstrated repeatedly that technologies are both available and economically achievable to eliminate or drastically reduce liquid discharges from power plants and to significantly reduce concentrations of metals and TDS in those discharges. TDEC violated the Clean Water Act by failing to consider the availability of these alternative technologies as part of its BPJ analysis and by failing to set any TBELs reflecting the level of pollution control that these technologies can achieve.

59. TDEC's provision for an undefined future BMP plan in lieu of numeric effluent limitations violates the Clean Water Act and TDEC regulations requiring TDEC to impose numeric effluent limits except when it is infeasible to do so. 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 122.44(k)(3); Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(i).

60. The Permit, in authorizing TVA to develop BMPs without public notice or hearing, violates the public participation requirements of the Clean Water Act and TDEC regulations. 33 U.S.C. § 1251(e) ("public participation in the development … of any … effluent limitation …

shall be provided for, encouraged, and assisted by the …States"); Tenn. Comp. R. & Regs. 1200-4-5-.06.

61. The Permit violates Section 316(a) of the Clean Water Act by failing to support the issuance of a variance with current analysis demonstrating that the cumulative impact of JOF's thermal discharges combined with all other impacts on affected species will not interfere with "the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife." *See* 33 U.S.C. § 1326(a); 40 C.F.R. §§ 125.73 & 123.25(a)(33).

62. The Permit violates the Clean Water Act and the WQCA by failing to conduct a reasonable potential analysis and impose WQBELs on the discharge of CCWs through seeps at JOF's settling ponds. 33 U.S.C. §§ 1342(b)(1)(A) and 1312(a); 40 C.F.R. §§ 122.44(d)(1) and 123.25; Tenn. Comp. R. and Regs. 1200-4-5-.04(f).

63. The Permit violates the Clean Water Act and the WQCA by failing to impose BAT-based TBELs on the discharge of CCWs through seeps at JOF's settling ponds. 33 U.S.C. §§ 1311, 1342(a)(1); Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a).

64. TDEC's failure to provide affirmative notice of issuance of the final Permit to parties who had commented on the draft permit violates the public notice requirement of the permit appeal provision of the WQCA, Tenn. Code Ann. § 69-3-105(i).

PETITIONERS' CONTENTIONS

65. Petitioners contend generally that the Permit will allow pollution in the waters of the state of Tennessee and is not adequately protective.

66. Petitioners contend 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

numeric technology-based effluent limits for CCW wastes aside from pH, TSS, and oil and grease or otherwise require the use of the best available control technology.

67. Petitioners contend that TDEC must reverse the issuance of this Permit and reissue it inclusive of numeric, BAT-based TBELs for all CCW pollutants to be discharged from the JOF plant; conduct an updated Section 316(a) analysis; impose either WQBELs or TBELs on the discharge of CCWs through seeps; and provide affirmative public notice of the issuance of the final Permit. This revised permit should be re-noticed and opened to the public review and comment.

PRAYER FOR RELIEF

Petitioners request that:

68. The Water Quality Control Board take jurisdiction over this appeal as a contested case pursuant to Tenn. Code Ann. § 4-5-301 *et seq.*;

69. 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;

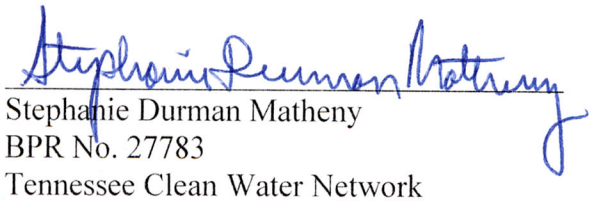
70. The Board direct TDEC to file a response to this Petition no later than 30 days following the publication of notice in the Tennessee Administrative Register;

71. The Board direct that a hearing be conducted in this matter;

72. 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

73. The Board reverse the issuance of this Permit.

Respectfully submitted on this 10th day of March, 2011.



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