

BEFORE THE TENNESSEE WATER QUALITY CONTROL BOARD

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

PETITION FOR STATUTORY APPEAL

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 Tennessee within the past two 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, 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 fact, as EPA recognized in June 2009, TVA operates five of the 49 most hazardous CCW impoundments in the United States at its Bull Run, Colbert, Cumberland, and Widows Creek Fossil Plants.

2. This petition for statutory appeal concerns State of Tennessee National Pollutant Discharge Elimination System (“NPDES”) Permit Number TN0005410 (the “Permit”), which authorizes TVA’s Bull Run Fossil Plant (“Bull Run”) to discharge 19 million gallons per day of

toxic CCWs from its settling pond directly into Melton Hill Reservoir on the Clinch River, less than 50 miles upstream from the disastrous Kingston spill. The decision of the Tennessee Department of Conservation (“TDEC”) to sanction TVA’s continued use of one of the most hazardous settling ponds in the United States as a means of preventing water pollution – notwithstanding the incalculable water pollution problems already caused by TVA’s settling ponds – violates the Federal Water Pollution Control Act (“Clean Water Act”), 33 U.S.C. §§ 1251 (2010) *et seq.*

3. The Clean Water Act requires that TDEC set stringent limits on liquid discharges from coal plants based upon the best available technology that is economically achievable (“BAT”). In issuing the Permit, TDEC violated the Clean Water Act by failing to consider any alternative technologies that could control pollution much more effectively than Bull Run’s already-existing – and concededly hazardous – settling pond. Further, TDEC violated the Clean Water Act by failing to set numeric limits based upon the availability of these superior technologies to control the amount of toxic metals and total dissolved solids (“TDS”) that Bull Run will discharge into the Melton Hill Reservoir, which is the source of drinking water for approximately 170,000 people.

JURISDICTION

4. Petitioners Tennessee Clean Water Network (“TCWN”) and Southern Alliance for Clean Energy (“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].” Tenn. Code Ann. § 69-3-105(i) (2010).

5. Under the Tennessee 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. *See id.* TCWN submitted written comments to the Commissioner of TDEC 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 42. TCWN and SACE therefore have satisfied the preconditions for filing the instant appeal.¹ *See id.*

6. TDEC issued the Permit on September 30, 2010, and public notice of the issuance of the Permit was given via letter dated October 1, 2010. 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. This petition for permit appeal 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, 3rd 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

¹ On behalf of TCWN, Earthjustice submitted a written request to Jim Fyke, Commissioner of TDEC, dated October 19, 2010, requesting that TDEC re-notice the Permit and provide the public an opportunity to comment on the material changes to the Permit that were not made available for public comment on the draft, such as the new “Best Professional Judgment Analysis.” TDEC did not re-notice the Permit to provide an opportunity for public comment on these material changes.

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 recreate and fish downstream from Bull Run.

8. Renée Victoria Hoyos is the Executive Director and long-standing member of TCWN. Ms. Hoyos has kayaked on the Clinch River downstream from the Bull Run Fossil Plant on numerous occasions. While participating in kayak roll practices at the Clark Center in Oak Ridge, she has been submerged in the Clinch River. She plans to continue kayaking in the area. She also plans to participate in the Knoxville Dragon Racing Club's practices in the Clinch River, which will take place weekly from spring through summer 2011. Uncontrolled pollution from Bull Run harms Ms. Hoyos' ecological, aesthetic, and recreational interests in the Clinch River.

9. 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, only 20 miles from Bull Run, SACE long has focused on clean water issues, particularly with respect to TVA operations. SACE's has many interested and active members who are directly impacted by water pollution caused by Bull Run. Members of SACE live on the shores of the Clinch River and Melton Hill Reservoir near Bull Run, and many also boat and swim in these waters and walk along their shores. Bull Run's uncontrolled discharges of pollution directly harm SACE members' ecological, aesthetic, and recreational interests in the Clinch River.

10. 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 1, 2010.

STATUTORY BACKGROUND

A. Clean Water Act

11. 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 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.

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 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) (2010). 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 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 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 both to “restore” and “maintain” the receiving waterbody. *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 ultimately, eliminate pollution discharges. *See id.* §§ 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 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. § 1311(b)(2)(A), unless more stringent water quality-based effluent limits (“WQBELs”) are required to avoid exceedances of water quality standards, *see 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. *See id.*

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. 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 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 . . . 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) (2010) (echoing language of 40 C.F.R. § 122.44 and indicating that numeric effluent limits are acceptable when “when numeric effluent limitations are infeasible”). Because EPA itself has demonstrated repeatedly 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.

FACTUAL BACKGROUND

A. The Melton Hill Reservoir

21. The Permit authorizes Bull Run to discharge 19 million gallons of CCWs per day from a 30-acre settling pond into mile 46.3 of the Clinch River. Mile 46.3 of the Clinch River is part of the Melton Hill Reservoir. Based upon data published by EPA and maintained by the TDEC’s Division of Water Supply, the Melton Hill Reservoir provides drinking water for approximately 170,000 people in four counties surrounding the Bull Run plant. Many of the pollutants found in CCWs, such as TDS and mercury, are difficult to treat when introduced into municipal water supplies, especially when the municipal treatment facilities already may have been burdened by the residual affects of the Kingston ash spill.

22. According to TVA, the Melton Hill Reservoir is a frequently-used stretch of water that provides nearly 200 miles of shoreline and 5,470 acres of water surface for recreation. It also is a popular boating area that attracts numerous recreational boaters, kayakers, and rowers throughout the year. Roads on both sides of the river are used daily for walking, jogging, and biking.

23. Additionally, the Melton Hill Reservoir is a popular fishing destination that supports healthy stocks of sauger, crappie, bass, and musky. During the spring, largemouth bass and crappie move into coves in the Melton Hill Reservoir to spawn. Although water quality in the Reservoir currently supports fishing of most fish species, there is an advisory against the consumption of catfish due to contamination by polychlorinated biphenyls (“PCBs”).

B. The Bull Run Fossil Plant

24. Bull Run is a 43-year old coal-fired power plant with a capacity of approximately 950 megawatts. It operates with a single, very large boiler that consumes 7,300 tons of coal per day and over two million tons of coal per year. Bull Run is and historically has been a major source of pollution. In 2009 alone, for example, the plant discharged 55,709 pounds of toxic water pollutants, including arsenic, barium, copper, vanadium, and zinc. *See* TVA, Emissions, Bull Run Fossil Plant, *available at* <http://www.tva.gov/environment/air/bullrun.htm#tri>.

25. To curb air emissions and achieve compliance with new federal and state air pollution standards, including the Clean Air Interstate Rule (“CAIR”)¹ and the Tennessee Air Quality Act,

¹ Although CAIR remains in effect today, the D.C. Circuit recently issued a decision ordering EPA to “remedy 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 “remedy CAIR’s flaws” but allowing CAIR “to remain in effect until it is replaced by a rule consistent with [the court’s] opinion.” *Id.*

TVA recently constructed and installed at Bull Run a flue gas desulfurization (“FGD”) system, or scrubber, which became operational in 2009. This scrubber reduces sulfur dioxide emissions from the plant, yet it creates an entirely new and toxic wastewater stream carrying all of the pollutants that otherwise would have exited the stack. The Permit does not contain an estimated volume of scrubber wastewater to be discharged at the plant, but a similar permit issued to the Kingston Fossil Plant estimates that its scrubber will discharge approximately one million gallons per day of wastewater. *See* TDEC, Kingston Fossil Plant NPDES Permit No. 0080870, at 3 (Oct. 1, 2009).

26. In addition to scrubber wastewater, the plant also produces a waste stream of bottom ash sludge created during operation of the boiler. Based upon past operations, the Permit estimates that total bottom ash production at the plant will range from approximately 191,000 to 210,000 tons of ash per year. *See* Permit at NOD-28.

27. Bull Run discharges all of its scrubber wastewater, bottom ash sludge, coal pile runoff, dry fly ash,¹ metal cleaning wastes, and other minor waste streams into a 30-acre settling pond, which is required to maintain a minimum free water volume of 40.5 million gallons at all times. Scrubber wastewater is the newest addition to the multiple wastes commingled in Bull Run’s settling pond, which existed for years prior to Bull Run’s construction and operation of its scrubber. In June 2009, EPA classified Bull Run’s settling pond as one of the top 49 high hazard potential sites holding wet CCWs in the United States. *See* EPA, Fact Sheet: Coal Combustion Residues (CCR) – Surface Impoundments with High Hazard Potential Ratings (last updated Aug. 2009), <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ccrs-fs/>. EPA made this determination using criteria developed by the National Dam Safety Program, under which a high

¹ Although the Bull Run Fossil plant collects most of its fly ash dry, the Permit authorizes it to discharge fly ash into the ash pond and thereafter into the Clinch River. *See* Permit at NOD-27.

hazard potential rating indicates that a failure of the structure of the settling pond probably will cause loss of human life.

C. CCWs and Toxicity

28. CCWs comprise a variety of wastes from the coal combustion process, including fly ash, bottom ash, and solids produced by a plant's scrubber system. 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 Bull Run does, the bottom ash and fly ash are transported from the boiler as a liquid waste stream. Operation of scrubbers to control air pollution from the boilers creates an additional liquid waste stream.

29. Fly ash and bottom ash transport waters typically contain significant concentrations of total suspended solids ("TSS") 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, magnesium, mercury, selenium, and titanium. *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." *Id.* at 6-2.

30. FGD wastewater contains many of the same pollutants as ash transport water, but in much higher concentrations. 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 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. *See id.* at 4-19 to 4-22. Among the routine metals identified in scrubber wastewater through this survey were antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, thallium, and zinc. *Id.* at 4-19 to 4-22. Additionally, EPA identified extremely high concentrations of TDS in the FGD wastewaters sampled, reaching levels up to 89 times the national secondary drinking water standards. *Id.* at 4-23.

31. 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.

32. 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 suffered skeletal deformities.

33. 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.*

34. 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 brain, kidney, and nervous system functioning as well as to red blood cells.

35. 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 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. Additionally, elevated TDS levels can be toxic to aquatic organisms and adversely impact agriculture and wetlands.

36. 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. In fact, 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. Additionally, EPA has recognized that adding FGD waste to an existing settling pond containing CCWs and other waste streams “reduces the settling efficiency” of the other waste streams and “increases [] the effluent metal concentrations from the ash pond.” *Id.* at 5-14. Settling ponds that commingle multiple waste streams before discharging them in bulk into surrounding waterways therefore pose even greater risks to human health and the environment than settling ponds designed to treat a single waste stream.

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

37. There are no national standards regulating the toxic metals routinely discharged from power plants in CCWs. 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) 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, 52,291 (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 CCWs 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).

38. Accordingly, 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). “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”).

39. EPA’s revised standards will not be in effect until late 2013. *See* Memorandum from James A. Hanlon, Director of Office of Wastewater Management, to EPA Water Division Directors, Regions 1-10, at 1 (“EPA Memorandum”) (June 7, 2010), *available at* <http://www.epa.gov/npdes/pubs/hanlonccrmemo.pdf>. In the meantime, it is the duty of state

permitting agencies to use their BPJ to set stringent TBELs for all metals present in CCW discharges.

40. EPA recently issued guidance to assist state agencies charged with issuing NPDES permits in establishing TBELs for CCW discharges from power plants until it promulgates the new effluent limitations in late 2013. *See* EPA Memorandum; EPA Memorandum, Attachment A - Technology-based Effluent Limits, Flue Gas Desulfurization (FGD) Wastewater at Steam Electric Facilities (“EPA Memorandum, Attachment A”) (June 7, 2010), *available at* <http://www.epa.gov/npdes/pubs/steamelectricbpjguidance.pdf>. This guidance restates the obligation established by the Clean Water Act that state agencies “must include technology-based effluent limitations in its permits for pollutants not addressed by the effluent guidelines for that industry.” *See* EPA Memorandum, Attachment A at 2.

41. 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 CCWs. Specifically, EPA identified a number of 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 reiterates a number of the advanced technologies that EPA identified in its 2009 Report.

42. First, EPA has identified multiple CCW treatment technologies currently used in the United States that achieve zero liquid discharge (“ZLD”), including complete recycle, evaporation ponds, conditioning dry fly ash, underground injection, and vapor-compression evaporation. *See* EPA Report at 4-36; EPA Memorandum, Attachment A at 5. One or more of

these design/operating practices achieving ZLD has been implemented at 33 of the 84 plants surveyed by EPA that operate CCW treatment systems. *See* EPA Report at 4-45.

43. 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.*

44. EPA also has identified one plant that uses scrubber wastewater to condition its dry fly ash, resulting 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. Finally, EPA has identified one plant in the United States and six plants in Italy that achieve ZLD through the use of vapor compression evaporation, which uses an evaporator to process wastewater into a solid by-product and a reusable distillate stream.

45. In addition to the 33 plants surveyed that operate scrubber systems with successful ZLD technologies, 21 surveyed have implemented technologies that significantly reduce the amount of pollutants discharged from their scrubber systems. *Id.* at 4-44 to 4-46. Specifically, 15 plants use chemical precipitation technology, which is capable of reducing concentrations of toxic metals such as mercury. Several plants also use biological treatment technologies that are effective at reducing concentrations of selenium. Additionally, a number of plants use clarifiers

and constructed wetlands. Based upon their collective use by 21 plants surveyed around the country, all of these control technologies are available and economically achievable.

46. The successful implementation of ZLD technologies at 33 U.S. coal-fired power plants demonstrates that ZLD technology is available and economically achievable. Likewise, the successful implementation of technologies that drastically reduce the concentrations of toxic metals and TDS at 21 additional plants demonstrates that there are many available options to reduce toxic metals pollution from CCWs.

47. In contrast to these demonstrated technologies that effectively reduce concentrations of toxic metals in CCWs or eliminate liquid waste streams entirely, settling ponds are not designed for, and are completely ineffective with respect to, reducing the amount of dissolved 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. These dissolved metals are likely discharged largely unremoved from FGD wastewater 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. EPA added in its recent guidance that “settling ponds are unlikely to represent the BAT for control of pollutants in FGD wastewater, given that more effective treatment technologies have been demonstrated to reduce pollutants in FGD wastewater.” *See* EPA Memorandum, Attachment A at 3. TDEC itself has acknowledged that “ash ponds are not designed to treat dissolved metals from sluiced ash or other wastewater sources.” Permit at NOD-29.

E. The Bull Run Fossil Plant Permit

48. Notwithstanding the fact that settling ponds do nothing to reduce concentrations of dissolved metals or TDS, the Permit authorizes TVA's continued use of an old and concededly hazardous 30-acre settling pond as a means of controlling pollution.

49. Even though TDEC claims to have performed a BPJ analysis for the first time in this Permit, TDEC's BPJ analysis did not consider any alternative treatment technologies to relying exclusively on Bull Run's existing settling pond. TDEC justified its decision not to consider alternative technologies on the basis 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. If TVA, in fact, did convert to a dry system, the conversion would eliminate the need for a liquid CCW stream. TVA, however, is under no legal obligation to convert Bull Run to a dry system on any specific time period, and the Permit indicates that TVA expects the dry conversion at Bull Run to take eight to ten years to complete. Thus, TDEC's BPJ analysis failed to consider alternative technologies that would have reduced or eliminated the discharge of pollutants within the five-year life cycle of the Permit.

50. Further, TDEC failed to impose numeric TBELs for TDS or any toxic metals, including arsenic, mercury, and selenium. Instead, TDEC is allowing TVA to develop its own Best Management Practices ("BMP") 90 days after the Permit becomes final. These BMPs leave pollution control completely up to the future discretion of TVA.

LEGAL VIOLATIONS

51. By issuing the Permit without effluent limits for TDS or toxic 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 Bull Run.

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).

52. The Clean Water Act obligated TDEC to use its BPJ and conduct an analysis of the best available technologies economically achievable to control discharges of pollutants from Bull Run. 33 U.S.C. §§ 1311(b)(2)(A). EPA has demonstrated repeatedly that technologies are both available and economically achievable to eliminate liquid discharges from power plants or greatly reduce concentrations of metals and TDS in those discharges. TDEC violated the Clean Water Act by failing to consider the availability of these alternatives to Bull Run's settling pond as part of its BPJ analysis, and, moreover, by failing to set any TBELs reflecting the level of pollution control that these technologies can achieve.

53. Finally, TDEC's imposition of BMPs as an alternative to numeric effluent limitations violates the Clean Water Act and TDEC regulations, which requires that TDEC set numeric TBELs except when it is infeasible to do so. *See* 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) (2010).

PETITIONERS' CONTENTIONS

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

55. 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 metals, TDS, and other parameters aside from pH, TSS, and oil and grease.

56. Petitioners contend that TDEC must reverse the issuance of this Permit and reissue it inclusive of numeric TBELs for all pollutants to be discharged from the Bull Run plant. This revised permit should be re-noticed and opened to the public review and comment.

PRAYER FOR RELIEF

Petitioners request that:

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

58. 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;

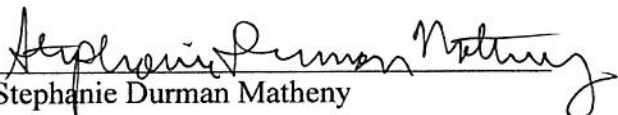
59. The Board direct TDEC to file a response to this Petition no later than 30 days following the publication of notice in the Tennessee Administrative Register;

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

61. 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

62. The Board reverse the issuance of this Permit.

Respectfully submitted on this 1st day of November, 2010.


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