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 TN0005428	:)	

PETITION FOR STATUTORY APPEAL

I. INTRODUCTION

1. This petition for statutory appeal challenges the ongoing failure of the Tenneessee Department of Environment and Conservation ("TDEC") to compel installation of modern technologies to curb discharges of toxic pollutants and minimize harm to fish and other aquatic life from the Tennessee Valley Authority's ("TVA") aging Gallatin Fossil Plant. Petitioners Southern Alliance for Clean Energy ("SACE"), Sierra Club, and Tennessee Clean Water Network ("TCWN") appeal State of Tennessee National Pollutant Discharge Elimination System ("NPDES") Permit Number TN0005428 (the "Permit"), which authorizes TVA's Gallatin Fossil Plant ("Gallatin") to discharge nearly 28 million gallons per day ("MGD") of contaminated wastewater and approximately 940 MGD[1] of very hot once-through condenser cooling water to the Cumberland River.

2. This Permit authorizes TVA to continue operating — and polluting — without installing readily available pollution controls. Although the U.S. Environmental Protection

[1] The Permit gives inconsistent estimates of this flow. *Compare* Permit Rationale at 7 (approximately 940 MGD) *with id.* at 23 (reasonable potential analysis assuming 922.44 MGD).

Agency ("EPA") has informed TDEC of its mandatory obligation under the Clean Water Act to impose technology-based effluent limits on the discharge of the many harmful pollutants that are present in Gallatin's coal combustion wastewaters, TDEC has refused to set any such limits. As a result, TVA's wastewaters will receive only the most rudimentary treatment in an unlined settling pond that is not effective at removing dissolved heavy metals and other toxics. And, as recent history has shown at other TVA facilities, ash ponds like the one at Gallatin are vulnerable to catastrophic failure.

3. The Permit also allows TVA to continue operating without employing any measures to protect fish and other aquatic life. TVA is a major contributor to thermal pollution in the Cumberland Reservoir, and it withdraws up to one-third of the flow of the Cumberland River through the Gallatin plant's outdated cooling water intake structure, killing many thousands of fish and other organisms in the process. Nevertheless, TDEC has granted TVA a variance that exempts it from thermal pollution control requirements, and it has allowed TVA to continue operating its cooling water intake structure without making any improvements.

4. TVA has operated the Gallatin plant for well over fifty years, but it has never been required to comply with the Clean Water Act's core requirement to keep up with technological innovations that would give the Cumberland River the protection it deserves. With this appeal, Petitioners seek to compel TDEC to revise the challenged permit to effectively limit toxic discharges and minimize harm to fish and other wildlife as governing laws require.

II. JURISDICTION

5. Petitioners appeal the Permit pursuant to Tenn. Code Ann. § 69-3-105(i), which gives the Tennessee Water Quality Control Board (the "Board")[2] 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]."

6. 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. *Id.* Petitioners submitted written comments during the public comment period on the draft permit and have satisfied the preconditions for filing the instant appeal.

7. A permit appeal must be filed within thirty days after public notice of the Commissioner's decision to issue or deny the permit. *Id.* As this Permit was issued on May 31, 2012, and Petitioners received notice on June 1, 2012, this petition for permit appeal is timely filed thirty days from permit issuance. *See* Tenn. Comp. R. & Regs. 1360-4-1-.04(1).

III. PARTIES

8. 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,

[2] Legislation passed this year will change the composition and name of this Board, which will become the Board of Water Quality, Oil and Gas. The new Board will have the same duties and powers as the existing Board to decide permit appeals.

and advancing water policy. TCWN regularly reviews and comments on permits affecting water quality in Tennessee. TCWN is a membership organization with members whose conservation, aesthetic, and recreational interests are injured by Gallatin's discharges of pollution and the environmental damage caused by Gallatin's cooling water intake structure. TCWN and its members further suffer informational injury as a result of violations of public notice and comment requirements.

9. Petitioner SACE promotes responsible energy choices that create global warming solutions and ensure clean, safe, and healthy communities throughout the Southeast. Headquartered in Knoxville, SACE has long focused on clean water issues, particularly with respect to TVA operations. SACE has members whose conservation, aesthetic, and recreational interests are injured by Gallatin's discharges of pollution and the environmental damage caused by Gallatin's cooling water intake structure. SACE and its members further suffer informational injury as a result of violations of public notice and comment requirements.

10. 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. The Sierra Club has approximately 600,000 members, with over 6,500 members living in Tennessee, including members whose conservation, aesthetic, and recreational interests are injured by Gallatin's discharges of pollution, including its thermal pollution, and by the environmental damage caused by Gallatin's cooling water intake structure. Sierra Club and its members further suffer informational injury as a result of violations of public notice and comment requirements.

11. Respondent is the TDEC Division of Water Pollution Control, which is the agency responsible for administering the Clean Water Act National Pollutant Discharge Elimination System ("NPDES") program in the State of Tennessee.

IV. LEGAL BACKGROUND

A. The Clean Water Act, the Tennessee Water Quality Control Act, and TDEC's Delegated Authority to Issue NPDES Permits in Tennessee

12. 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.

13. 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).

14. The Clean Water Act's goal is to eliminate all discharges of pollutants to navigable waters. *See* 33 U.S.C. § 1251(a)(1) (contemplating elimination of pollutant discharges by 1985). To this end, the Clean Water Act establishes the NPDES permit program, which is managed by EPA in partnership with state environmental agencies such as TDEC that 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. 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 issuing 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).

15. 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). Importantly, "effluent limitations . . . shall be applied to *all* point sources of discharge of pollution" *Id.* § 1311(e).

16. A point source is "any discernible, confined and discrete conveyance" and includes "any pipe, ditch, channel, tunnel, conduit, well, [or] discrete fissure . . . from which pollutants are or may be discharged." *Id.* § 1362(14). A discharge is the "addition of any pollutant to navigable waters from any point source." *Id.* § 1362(12). As this broad definition makes clear, point sources at the Gallatin plant are not only designated outfalls but also other conduits such as seeps from the plant's ash pond.

17. In deriving NPDES permit limits, permitting authorities must separately evaluate the need for water quality-based effluent limits ("WQBELs") and for technology-based effluent limits ("TBELs"), and impose the more stringent of these limits. *See* 33 U.S.C. § 1312 (WQBEL requirements); *id.* § 1311 (TBEL requirements); 40 C.F.R. § 122.44(a), (d).

18. Applicants for NPDES permits in Tennessee must provide sufficient information for TDEC to determine appropriate permit requirements. *See* Tenn. Comp. R. & Regs. 1200-04-05-.05(2) ("Applicants must complete and submit standard application forms supplied by the commissioner together with such engineering reports, plans and specifications as are required. The commissioner may subsequently request additional reasonable information as required in order to make the permit decision.").

B. Mandatory Use of BPJ to set BAT-Based Effluent Limits on Coal Combustion Wastewater on a Case-by-Case Basis

19. Every NPDES permit must contain effluent limits sufficient to both "restore" and "maintain" water quality in the receiving waters. 33 U.S.C. § 1251(a). To this end, the Clean Water Act requires permitting agencies to set 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); 40 C.F.R. § 122.44(a) (same). TBELs should be based on the best available technology economically achievable ("BAT") for toxic and nonconventional pollutants such as toxic 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 TDEC to establish effluent limits in NPDES permits applying BAT in accordance with the requirements of the Clean Water Act).

20. 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. 33 U.S.C. § 1342(a)(1); 40 C.F.R. §§ 122.44(a), 125.3(a). State permitting agencies look first to these nationally-promulgated ELGs when setting TBELs.

21. EPA promulgated an ELG for the Electric Steam Generating Category (*i.e.* power plants) in 1982, but at that time, EPA concluded that it did not have sufficient information to regulate the discharge of most pollutants including toxics discharged by coal plants. Thus, with

respect to coal combustion wastewaters, the existing ELG limits only the following parameters: (1) pH and PCBs, (2) total suspended solids, and (3) oil and grease. *See* 40 C.F.R. § 423.12.

22. EPA has acknowledged that its failure to revise the ELG over the past thirty years raises serious concern given that coal plants are now among the top dischargers of toxic pollutants every year. While the agency has commenced a rulemaking process to update the standard, the new ELG will not be finalized until April, 2014 at the earliest. In the meantime, as EPA has made clear, it is the duty of state permitting agencies to use their best professional judgment ("BPJ") to set stringent, BAT-based TBELs for all treatable pollutants that are present in CCW discharges. *See* 33 U.S.C. §§ 1311(b)(2)(A), 1342(a)(1)(A); 40 C.F.R. §§ 122.44(a), 125.3(c); *see also* 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* http://www.epa.gov/npdes/pubs/steamelectricbpjguidance.pdf.

23. To aid state agencies in establishing BAT-based TBELs, EPA's guidance identifies several technologies that are available to effectively treat "both soluble and particulate forms of metals, and for removing other pollutants such as . . . total dissolved solids." EPA Memorandum, Attachment A at 3. EPA has also recently developed a draft permit for the Merrimack Station in Bow, New Hampshire that proposes numeric TBELs on coal combustion wastewater discharges that were developed using BPJ.

24. In exercising BPJ to set case-by-case TBELs, NPDES permitting agencies such as TDEC must evaluate alternative technologies and factors unique to the applicant to determine what constitutes BAT based on the following factors: the age of equipment and facilities

involved; the production process in use at the facility and the possibility of changing processes; the non-water quality environmental impacts of controlling pollution; the age of equipment, the costs of pollution control; the engineering aspects of various control techniques; and such other factors as the permitting agency deems appropriate. 33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3) (codifying statutory BPJ factors).

25. "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)). Because the purpose of deriving BAT-based effluent limits is to determine which technology is most efficient in reducing pollutants, factors relating to water quality are not considered in the BPJ analysis. *See American Petroleum Inst. v. E.P.A.*, 661 F.2d 340, 344 (5th Cir. 1981) ("Analogous to a strict liability standard, this section [301 of the Clean Water Act] mandated technological improvements and imposed stringent pollution restrictions even where the discharge caused no discernible harm to the environment.")

26. 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.

27. 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.

See 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 that 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-based limits. *EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. at 75.

C. Narrative Effluent Limits in Lieu of Numeric Limits

28. EPA regulations promulgated pursuant to the Clean Water Act mandate that NPDES permitting authorities impose TBELs in numeric form at all times except when "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 in the form of best management practices are acceptable in lieu of numeric limits only when "when numeric effluent limitations are infeasible").

29. To constitute narrative effluent limitations, BMPs must contain "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of 'waters of the United States.'" 40 C.F.R. § 122.2. Tennessee rules require that BMPs be designed to "control or abate the discharge of pollutants." Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(i). Thus, permits that rely upon BMPs in lieu of numeric effluent limits must impose narrative conditions that require the prevention, reduction, control, or abatement of pollutant discharges.

D. Development of Effluent Limits on Thermal Discharges

30. As with discharges of chemical pollutants, the Clean Water Act also requires that NPDES permits include BAT-based effluent limitations on the discharge of thermal pollution

such as Gallatin's discharge of cooling water from Outfall 002. 33 U.S.C. §§ 1311(b)(2)(A) & (F). In the absence of a national ELG for thermal discharges, NPDES permitting authorities are required to implement BAT-based TBELs on a case-by-case basis using BPJ. *See* 33 U.S.C. § 1342(a)(1); 40 C.F.R. §§ 122.44(a)(1), 125.3(c)(2). The process for developing BPJ limits for thermal discharges and the factors to be considered when making a BPJ determination are identical to those described above for the pollutants discharged in Gallatin's coal combustion wastewaters. *See* 40 C.F.R. § 125.3(d)(3).

31. In addition to determining the appropriate BAT-based TBELs for thermal discharges, TDEC is required to separately calculate WQBELs, and then apply the more restrictive limit. The applicable water quality criteria in Tennessee regarding temperature provide:

> The maximum water temperature change shall not exceed 3C° relative to an upstream control point. The temperature of the water shall not exceed 30.5°C and the maximum rate of change shall not exceed 2C° per hour.

Tenn. Comp. R. & Regs. 1200-4-3-.03(1)(g) (domestic water supply); (2)(g) (industrial water supply); (3)(e) (fish and aquatic life); (4)(e) (recreation). For fish and aquatic life, the rules additionally require that "[t]here shall be no abnormal temperature changes that may affect aquatic life unless caused by natural conditions." *Id.* 1200-4-3-.03(3)(e)(3).

32. Pursuant to Section 316(a) of the Clean Water Act, TDEC may issue a variance to the BAT-based TBEL requirement only if the permit 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 ("BIP") of aquatic organisms. 40 C.F.R. § 125.73(a).

33. BIP is "[a] biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination by pollution tolerant species." 40 C.F.R. § 125.71(c). While BIP may include non-native sports fish, *id.*, it also includes "the indigenous population that existed prior to the impacts of pollutants, not solely the current population of organisms." *In Re Dominion Energy Brayton Point,* 12 Environmental Appeals Decision (E.A.D.) 490, 557 (2006). Aquatic organisms include fish and other species that live in the water, but also other animals that depend on water (*e.g.*, birds such as kingfishers that depend on fish consumption for survival).

34. The standard for granting a Section 316(a) variance is stringent; Congress intended that such variances be granted only rarely. *See* S. Rep. No. 95-370 (1977), reprinted in 1988 U.S.C.C.A.N. 4,326, 4,334 (Congress intended this to be a "very limited waiver" applied only where it could be established "beyond any question" that a balanced, indigenous population ("BIP") would be protected). It is the permit applicant's burden of proof, in seeking to renew its existing variance-based limits, to demonstrate that a power plant's operations have not caused "appreciable harm" to the BIP. 40 C.F.R. § 125.73(c). Thus, it is TVA's responsibility to conduct the required studies sufficient to justify any permitting decision to apply a variance. Tenn. Comp. R. & Regs. 1200-04-05-.05(2) (permit applicants must provide required information to TDEC).

35. Tennessee has incorporated Section 316(a)'s thermal variance into its water quality criterion for fish and aquatic life. 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 criterion for fish and aquatic life). Thus, for protection of the fish and aquatic life use only, an adequately-supported Section 316(a) constitutes compliance with both TBEL and WQBEL requirements. However, Tennessee has not incorporated this variance into its water quality criteria for domestic water supply, industrial water supply, or recreation, all of which are designated uses of the Old Hickory Reservoir. *Id.* 1200-4-3-.03(1)(g) (domestic water supply); (2)(g) (industrial water supply); (4)(e) (recreation).

E. Section 316(b) of the Clean Water Act

36. Section 316(b) of the Clean Water Act provides that effluent limits in NPDES permits "shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b). A central purpose of this provision is to prevent harm to fish at cooling water intake structures, which are a serious and widespread source of fish mortality nationwide.

37. In the absence of applicable national standards, permitting authorities must exercise their BPJ to impose permit conditions that minimize impingement and entrainment based on the best technology available ("BTA"). *See* 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2); *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 213 (2009). Because the BTA standard is similar to the various standards imposed under Section 301 of the Clean Water Act, EPA has determined it is appropriate to look to that section for guidance in determining BTA. *National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities*, 69 Fed. Reg. 41,576, 41,583 (Jul. 9, 2004).

F. Required WQBELs to Protect Narrative Water Quality Criteria

38. In addition to TBELs, NPDES permits must include more stringent WQBELs if necessary to avoid exceedances of water quality standards. 33 U.S.C. § 1312(a); 40 C.F.R. § 122.44(d). WQBELs ensure that discharges do not "interfere with the attainment or maintenance of" applicable water quality standards. 33 U.S.C. § 1312(a).

39. For each discharge authorized by a NPDES permit, TDEC must evaluate whether that discharge, notwithstanding the application of TBELs, has the reasonable potential to cause or contribute to exceedances of instream water quality standards. 40 C.F.R. §§ 122.44(d)(1)(i), (ii), 123.25. If the reasonable potential exists, then NPDES permits must include WQBELs that are sufficiently stringent to prevent water quality violations. 33 U.S.C. § 1312(a); Tenn. Code Ann. § 69-3-108(g)(1); 40 C.F.R. §§ 123.25(a)(15), 122.44(d)(1)(vii)(A); Tenn. Comp. R. & Regs. 1200-4-5-.04(f).

40. To ensure that discharges do not violate narrative water quality criteria, permitting authorities are required to impose effluent limits by either (A) using a calculated numeric water quality criterion, (B) using EPA's water quality criteria published under Section 304(a) of the Clean Water Act on a case-by-case basis, or (C) establishing a limit on "an indicator parameter for the pollutant of concern." 40 C.F.R. §§ 122.44(d)(1)(vi)(A); *see also* 123.25(a)(15) (applying § 122.44 to state programs).

41. TDEC has adopted several narrative water quality criteria to protect fish and aquatic life that are applicable to this Permit. For iron, the rules provide that "[t]he water shall not contain iron at concentrations that cause toxicity or in such amounts that interfere with habitat due to precipitation or bacteria growth." Tenn. Comp. R. & Regs. 1200-4-3-.03(3)(i). For other pollutants such as manganese and aluminum that are not subject to pollutant-specific

criteria, the rules provide: "[t]he waters shall not contain other pollutants that will be detrimental to fish or aquatic life" and "[t]he waters shall not be modified through the addition of pollutants ... to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or adversely affected.". Tenn. Comp. R. & Regs. 1200-4-3-.03(3)(h), (m).

G. Public Notice and Comment Pursuant to the Clean Water Act and the Tennessee Water Quality Control Act

42. In recognition of the right of Tennesseans to unpolluted waters and their rights to participate in government decision-making, TDEC rules establish a detailed set of requirements designed to ensure adequate public notice and a meaningful opportunity to comment on draft permits. *See generally* Tenn. Comp. R. & Regs. 1200-04-05-.06 (Notice and Public Participation). If TDEC makes an initial determination to issue a permit, "then a draft permit shall be prepared that includes *proposed effluent limitations*." *Id.* at 1200-04-05-.06(2) (emphasis added).

43. Of particular importance to Petitioners, "[i]nterested persons *may submit written comments* on the tentative determinations within either 30 days of public notice or such greater period as the commissioner allows. All written comments submitted *shall be ... considered in the final determination*." *Id.* at 1200-04-05-.06(11) (emphases added). Finally, members of the public have a right to appeal permits based either on timely comments on the draft permit or changes to the permit that were not placed on public notice. Tenn. Code Ann. § 69-3-105(i).

V. FACTUAL BACKGROUND

A. The Cumberland River & Old Hickory Reservoir

44. The Gallatin Fossil Plant is located in Sumner County, Tennessee on the banks of the Old Hickory Reservoir within the Cumberland River. Given its scenic and water quality

values, this waterway is an important natural resource for Tennessee. *See* Tennessee Rivers Assessment Program, the Tennessee Rivers Assessment Summary Report (1998), *available athttp://tn.gov/environment/wpc/pubications/pdf/1998%20_TN_Rivers_Assessment_Report.pdf.* The Old Hickory Reservoir in particular is a popular fishing and boating area enjoyed by many recreational users.

45. The waters directly downstream from the Plant are the source of drinking water for more than twenty thousand Tennesseans. TDEC Source Waters Assessment Report, *available at* http://www.tennessee.gov/environment/dws/dwassess.shtml (2003). The Gallatin Water Department's intake is located at river mile 239.1, which is about 1.4 miles downstream from the Gallatin coal plant's discharge points. According to TDEC, the water department withdraws approximately 5.1 MGD for a population of about 28,000 people. *See* TDEC Source Waters Assessment Report, *available at http://www.tennessee.gov/environment/dws /dwassess.shtml* (2003).

B. The Gallatin Coal Plant's Discharge of Toxic Pollutants

46. Gallatin, which was completed in 1959, is one of TVA's oldest and least efficient coal-fired power plants. Its four generating units have a total summer net capacity of 970 megawatts and collectively burn about 12,350 tons of coal per day.

47. 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 consists of the heavier ash particles that collect in the bottom of the boiler. The Gallatin plant employs "wet handling" to dispose of all this ash, using water to flush the ash and transport it out of the boilers to a settling pond.

48. This "ash transport" wastewater is laced with the toxics originally present in coal. As EPA has recognized, effluent associated with coal ash has high concentrations of dangerous constituents, including aluminum, arsenic, barium, boron, iron, lead, manganese, mercury, and selenium. *See* EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report,* 5-7 to 5-9 (Oct. 2009), *available at* http://www.epa.gov/waterscience/guide/steam/finalreport.pdf.

49. Many of these heavy metals and metalloids, including selenium, arsenic, and mercury, pose significant health risks, especially as they bioaccumulate in aquatic ecosystems. Selenium is extremely toxic to aquatic organisms and endangers human health when ingested at elevated levels. Arsenic is a known human carcinogen. Mercury is a potent neurotoxin that is generally considered dangerous at levels above one microgram per liter.

50. The settling pond, which collects the ash transport water along with coal pile runoff and other wastewater streams, does not provide effective treatment for these and other pollutants of concern. To the extent that pollutant removal occurs at all, it is achieved by gravity when the solids in the wastewaters are allowed to settle to the bottom of the pond. But, as EPA has cautioned, settling ponds do not provide effective, if any, treatment for the dissolved contaminants in coal combustion wastewaters.

51. TVA has represented that it will convert to dry handling of its ash, which would dramatically reduce the volume of wastewater deposited in the settling pond and the discharge of toxic pollutants accordingly. However, TVA has been unwilling to make any binding commitment to undertake this dry conversion process on a firm schedule, if ever. The Permit notes that TVA plans to complete closure of the ash ponds in 2020. *See* Permit at A-3. However, TVA expressly requested that a diagram regarding its "Coal Combustion Products

Master Strategy" be removed from the Permit Rationale in order to avoid the implication that TVA is making any commitment to undertake pond closure and other aspects of a conversion to dry handling.

52. In the meantime, continued operation of the settling pond poses the risk of catastrophic failure. TVA's coal plants have spilled more than a billion gallons of coal ash and 10,000 gallons of gypsum slurry into the waters of the Tennessee Valley within the past five years. These spills, which occurred at TVA's Kingston and Widows Creek Fossil Plants, were caused by the failure of unlined ponds used to store coal ash and other solid and liquid coal combustion wastes. There is no indication that the same kind of pond at Gallatin is any less prone to failure.

53. In fact, TVA's consultants have documented ongoing seeps at the Gallatin ash pond. These seeps raise concerns about the pond's structural integrity. They also raise concerns about ongoing pollutant discharges to surface water. Two of these seeps are immediately adjacent to the Cumberland River and thus can discharge directly into the river. Other seeps allow pollutants to flow into groundwater, which in turn flows into the river where there is a hydrological connection between the groundwater aquifer and the river.

C. The Gallatin Coal Plant's Thermal Discharges

54. The Gallatin Plant discharges 940 MGD of main condenser cooling water each day at temperatures of up to 32.8 degrees Celsius (91 degrees Fahrenheit). River temperatures downstream from this discharge range from over 2 degrees Fahrenheit to over 6 degrees Fahrenheit higher than temperatures upstream of the discharge.

55. It is well understood that thermal discharges can drastically alter aquatic communities. As EPA recently noted, a large body of research demonstrates that critical habitat

factors, including levels of dissolved oxygen, growth rates in aquatic organisms, and life cycle behaviors in fish, can be damaged by thermal pollution. *See* EPA Environmental and Economic Benefits Analysis of the Proposed Section 316(b) Existing Facilities Regulation, 2-12 (March 20, 2011), *available at* http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/environbenefits.pdf. "[T]emperature has long been recognized as a major environmental factor at the molecular, cellular, tissue, organism and ecosystem levels of biological hierarchy." *See* University of Maryland Center for Environmental Science, *The Effects of Temperature on Invertebrates and Fish: A Selected Bibliography*, *available at* http://www.mdsg.umd.edu/issues/chesapeake/habitat/fishtemp/.

D. The Gallatin Plant's Cooling Water Intake Structures

56. In addition to thermal discharges, the Gallatin coal plant's cooling system has significant impacts on the aquatic ecosystem. TVA diverts roughly one third of the Cumberland River's flow for use as cooling water at the Gallatin Fossil Plant. At full operating capacity, cooling water flows through the plant's condensers at a rate of 1,320 cubic feet second (cfs). This powerful diversion has deadly consequences for fish and other aquatic life, resulting in both "impingement" and "entrainment."

57. Impingement occurs when larger fish and other aquatic life become trapped on screening devices or other barriers installed at the entrance of the intake structure. Impingement is caused by the force of water passing through the intake structure and can result in starvation and exhaustion (when organisms are trapped against an intake screen), asphyxiation (when organisms are forced against a intake barrier by velocity forces that prevent proper gill movement or when organisms are removed from the water for prolonged periods of time),

descaling (when organisms are removed from an intake screen by a wash system), and other physical harms.

58. Entrainment occurs when fish, shellfish, fish eggs and larvae, and other aquatic organisms pass through screening devices and are drawn into a cooling water intake structure and then into a plant's cooling system. As small, fragile entrained organisms pass through the cooling system, they are subject to mechanical, thermal, and toxic stressors, including physical impacts in the pumps and condenser tubing; pressure changes caused by diversion of the cooling water into the plant or by the hydraulic effects of the condensers; thermal shock in the condenser and discharge tunnel; and chemical toxemia induced by antifouling agents such as chlorine. Few, if any, entrained organisms survive.

59. TVA's most recent available study of fish impingement indicates that an estimated 120,848 fish were impinged and killed at Gallatin's cooling water intake in 2005 and that 268,625 fish were impinged and killed in 2006. *See* TVA, *Fish Impingement at Gallatin Fossil Plant from 2005 through 2007*, 8 (2007) (Table 4). As these estimates do not seek to address entrainment, they do not account for the much heavier toll on fish and other organisms that Gallatin's cooling water intake structure actually takes.

E. Issuance of the Challenged Permit

60. TDEC issued a draft of the Permit on May 17, 2011. The draft did not propose any TBELs to limit the discharge of harmful pollutants present in coal combustion wastewaters. Nor did it propose any effluent limit (either a TBEL or WQBEL) for thermal pollution. Instead, TDEC purported to rely on Section 316(a) of the Clean Water Act to grant a variance from otherwise required thermal pollution limits. TDEC also declined to propose permit conditions

consistent with Section 316(b)'s requirement to minimize harm from Gallatin's cooling water intake structure and further omitted to propose needed WQBELs.

61. Petitioners submitted comments on the draft Permit raising all of the issues set forth in this Petition and underscoring in particular TDEC's failure to impose case-by-case TBELs to limit the discharge of harmful pollutants that are not currently regulated by the national ELGs.

62. On August 11, 2011, EPA submitted detailed, critical comments also addressing the draft permit's failure to propose required case-by-case TBELs for the discharge of pollutants not regulated by the ELGs. EPA specifically stated that the Permit "must" include numeric TBELs for these discharges, that "it does not appear that ...TDEC examined pollutants expected to be in the discharge from the ...ash pond," and that TDEC should "at a minimum" evaluate whether chemical precipitation or biological treatment could provide a superior level of treatment in place of the settling pond. Letter from Christopher Thomas, EPA Region 4 to Paul Davis, TDEC (August 11, 2011) ("EPA Letter") at 1-2.

63. EPA also criticized TDEC's proposed reliance on a Section 316(a) thermal variance in the absence of sufficient information regarding the status of local shellfish, fish, and wildlife populations. EPA said "the draft permit lacks detail," expressed concern that more study is needed "[g]iven the thinness of the available record to justify prior variance determinations," and concluded that "the existing data needs to be evaluated and presented in the context of a BIP definition that the existing record does not adequately provide." *Id.* at 2.

64. In disregard of EPA's comments and its obligations under the Clean Water Act, TDEC issued the final Permit on May 31, 2012 without conducting any BPJ analysis or setting BAT limits on the discharge of pollutants in coal combustion wastewaters, without imposing

BAT limits on thermal pollution, without imposing any requirements to mitigate ongoing and unacceptable adverse environmental impacts caused by the plant's cooling water intake structure, and without imposing proper WQBELs.

i. TDEC's Failure to Impose BAT Limits on Pollutant Discharges

65. With respect to BAT limits on pollutant discharges, TDEC stated that it was under no legal obligation to impose them. In its response to comments, TDEC insisted that "development of numeric ELGs is not required." Permit at A-19.

66. TDEC also noted that "[d]ry fly ash handling is being planned which, when implemented, will substantially reduce the volume of sluice water flowing through the ash pond." Permit at A-1; *see also id.* at A-9 to A-10. However, the Permit does not require dry conversion and ash pond closure.

67. The only provisions of the Permit that purport to address Gallatin's toxic ash pond discharges are monitor-only requirements for metals, a once-per-permit-cycle whole effluent toxicity limit, and a BMP provision that does not prevent, reduce, control, or abate the discharge of pollutants. *See* Permit at 23 (requiring that: (1) "the facility will develop and incorporate an additional best management practices plan that specifically address [sic] controls on toxic metals in ash pond discharges" and (2) "[e]ach practice must be developed and measured to document the relationship between operations and effluent metals concentrations.").

ii. TDEC's Failure to Impose BAT Limits on Thermal Pollution

68. TDEC similarly declined to impose either TBELs or WQBELs on thermal pollution. Applying a Section 316(a) variance, the Permit allows TVA to continue discharging 940 MGD of main condenser cooling water at temperatures up to 32.8 degrees Celsius (91 degrees Fahrenheit) from Outfall 002.

69. In approving this variance, TDEC relied on TVA's representation in its May 2009 permit renewal application that "no significant change in the operation of the facility has occurred which would increase the quantity or degree of heated water discharged to Old Hickory Reservoir" and that "to the best of [TVA's] knowledge (except for paddlefish), no significant change has occurred to the aquatic biological community" near the Gallatin plant. Permit Rationale at 9. However, TDEC effectively conceded that more data is needed to support the variance, and it imposed requirements for additional study to support its application in the next permit cycle.

iii. TDEC's Failure to Impose Section 316(b) Requirements

70. With respect to Gallatin's cooling water intake structure, TDEC stated that "316(b) limitations for this facility are determined to be in compliance based on best professional judgment." Permit at 29. However, TDEC did not undertake any BPJ analysis that is disclosed in the Permit Rationale or related documents placed on public notice. Further, there are no "316(b) limitations" much less requirements reflecting BTA included in the Permit.

iv. TDEC's Failure to Impose Needed WQBELs

71. TDEC conducted several reasonable potential analyses for a range of metals to determine whether WQBELs were required for TVA's CCW discharges at Outfall 001. In the draft Permit, TDEC calculated hypothetical numeric WQBELs for iron, manganese, and aluminum using EPA's recommended numeric criteria for these pollutants, as there are no applicable numeric criteria in Tennessee. Ultimately, the reasonable potential analysis indicated the need for iron and aluminum WQBELs, and as Petitioners commented, a WQBEL is also needed for manganese given that there does not appear to be assimilative capacity for manganese in the receiving waters of the Cumberland River. In response to comments, TDEC declined to

set TBELs based on narrative criteria for iron and aluminum. For manganese, it conducted a revised reasonable potential analysis using new, unjustified assumptions and on the basis of this analysis improperly declined to impose a WQBEL for manganese as well.

v. TDEC's Failure to Properly Address Seeps and Groundwater

72. The Permit did not attempt to evaluate or address ongoing discharges from identified seeps at the Gallatin ash pond. Although the Permit imposes narrative requirements to inspect the affected dikes, these requirements are designed to address structural integrity. They do not address the discharge of pollutants from the ash pond via seeps abutting the river and via seeps flowing into groundwater that is hydrologically connected to the river.

VI. LEGAL VIOLATIONS

73. In failing to use BPJ to impose BAT-based effluent limits of any kind on the discharge of pollutants that are not regulated by the existing ELGs, TDEC violated the Clean Water Act, the Tennessee Water Quality Control Act, and implementing federal and state regulations. *See* 33 U.S.C. §§ 1311(b)(2)(A), 1311(e), 1342(a)(1); 40 C.F.R. §§ 122.44(a), 125(c); Tenn. Code Ann. § 69-3-108(g)(1); Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a).

74. TDEC violated the Clean Water Act and the Tennessee Water Quality Control Act in failing to impose numeric BAT-based effluent limits in the absence of any demonstration that setting numeric limits is infeasible. 33 U.S.C. §§ 1311(b)(2)(A), 1342(a)(1); 40 C.F.R. §§ 122.44(a),(k)(3); Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(i).

75. To the extent that BMP provisions are intended to impose effluent limitations, the Permit violates the public participation requirements of CWA and TDEC regulations by authorizing TVA to develop BMPs without public notice, comment, or hearing. 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.

76. The Permit violates Section 316(a) of the CWA by failing to support the issuance of a variance with current analysis adequately demonstrating that the cumulative impact of Gallatin'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." 33 U.S.C. § 1326(a); *see also* 40 C.F.R. § 125.73; Tenn. Comp. R. & Regs. 1200-4-3-.03(3)(e).

77. In failing to impose effluent limitations of any kind on discharges of thermal pollution, the Permit violates the permitting requirements of the Clean Water Act, the Tennessee Water Quality Control Act, and implementing federal and state regulations. 33 U.S.C. §§ 1311(b)(2)(A), 1312(a), 1342(a)(1); 40 C.F.R. §§ 122.44(a), (d), 125.3(a), (c); Tenn. Code Ann. § 69-3-108(g)(1); Tenn. Comp. R. & Regs. 1200-4-3-.03(1)(g), (2)(g), (3)(e), (4)(e); *id.* 1200-4-3-.03(3)(e)(3).

78. In failing to impose effluent limits that are sufficiently stringent to attain and maintain applicable water quality criteria for iron, manganese, or aluminum, the Permit violates the Clean Water Act, the Tennessee Water Quality Control Act, and implementing federal and state regulations. 33 U.S.C. §§ 1312(a), 1342(a)(1); 40 C.F.R. § 122.44(d); Tenn. Code Ann. § 69-3-108(g); Tenn. Comp. R. and Regs. 1200-4-5-.04(1)(f).

79. The Permit violates the Clean Water Act and the Tennessee Water Quality Control Act by failing to provide a reasonable potential analysis and to impose either WQBELs or TBELs on the discharge of pollutants through seeps at Gallatin's ash ponds. 33 U.S.C. §§

1311(e), 1312(a), 1342(b)(1)(A), 1362(14); 40 C.F.R. §§ 122.44(a), (d), 125.3(a), (c); Tenn. Comp. R. and Regs. 1200-4-5-.04(f).

VII. PRAYER FOR RELIEF

Petitioners respectfully request that:

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

2. 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;

3. 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;

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

5. 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

6. The Board reverse the issuance of this Permit; and

7. The Board grant all other appropriate relief.

Respectfully submitted on this 2nd day of July, 2012.

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Terminology

BAT = best available technology economically achievable

BIP = balanced indigenous population

Board = Water Quality Control Board (to become the Board of Water Quality, Oil and Gas)

BPJ = best professional judgment

BMP = best management practices

BTA = best technology available

CCW = coal combustion wastes

CWA = Clean Water Act

ELG = effluent limitations and guidelines

EPA = United States Environmental Protection Agency

EPA Letter = Letter from Christopher Thomas, EPA Region 4 to Paul Davis, TDEC (8/11/11)

MGD = million gallons per day

NPDES = National Pollutant Discharge Elimination System

TBEL = technology-based effluent limit

TCWN = Tennessee Clean Water Network

TDEC = Tennessee Department of Environment and Conservation

TDS = total dissolved solids

TVA = Tennessee Valley Authority

SACE = Southern Alliance for Clean Energy

WQBEL = water quality-based effluent limit