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April 9, 2010

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Re: Comments on Draft NPDES Permit No. TN 0005410 for the Tennessee Valley Authority (TVA) Bull Run Fossil Plant.

Please accept these comments from the Environmental Integrity Project (“EIP”), Defenders of Wildlife, Tennessee Clean Water Network, Tennessee Chapter of the Sierra Club, Tennessee Environmental Council, and Earthjustice (collectively, “Commenters”) on the Tennessee Department of Environment and Conservation’s (“TDEC”) draft National Pollutant Discharge Elimination System (“NPDES”) Permit No. TN 0005410 for the Tennessee Valley Authority (“TVA”) Bull Run Fossil Plant.

In summary, our comments address the following problems with the draft NPDES permit for the Bull Run Fossil Plant:

- The Bull Run Fossil Plant NPDES permit does not contain *any numeric effluent limits* for metals contained in, or whole effluent toxicity caused by, discharges of coal combustion waste (“CCW”) pollutants to the Clinch River.
- Although required by the Clean Water Act, TDEC failed to set technology-based effluent limits or water quality-based effluent limits in the Bull Run Fossil Plant draft permit.
- TDEC has not performed water quality analysis for all pollutants discharged by the Bull Run Fossil Plant, including cyanide, manganese, and iron despite data indicating that these pollutants are present in the Clinch River at levels that exceed the U.S. Environmental Protection Agency’s (“EPA”) national recommended water quality criteria.

I. Background

The NPDES permit for TVA’s Bull Run Fossil Plant expired on March 30, 2008.¹ TVA sent a permit renewal application to TDEC over two years ago, on September 24, 2007.² In September 2009, the EIP and other organizations requested that TDEC renew the Bull Run Fossil Plant NPDES permit, and set effluent limits in the renewal to control the discharge of toxic metals and other pollutants into the Clinch River. On January 26, 2010, TDEC issued the

¹ TDEC, Bull Run Fossil Plant, NPDES Permit No. TN005410 (Mar. 31, 2005).

² Gordon G. Park, Tennessee Valley Authority (TVA) to Mr. Phil Chambers, Tenn. Dep’t Env’t and Conservation, *TVA-Bull Run Fossil Plant-NPDES Permit No. TN 0005410– Application for Renewal* (Sept. 24, 2007).

draft NPDES permit for Bull Run and gave EIP notice of the availability of the draft NPDES permit. TDEC also extended the original 30-day comment period by an additional 45 days. These comments are timely submitted in advance of the April 12, 2010 deadline.

The Bull Run Fossil Plant is located along the Clinch River, upstream of the Kingston Fossil Plant. The Bull Run Fossil Plant began operating a single 950 MW coal-fired boiler in 1967, and burns approximately 2.2 million tons of coal per year.³ The Bull Run Fossil Plant disposes of several types of CCW, including fly ash, bottom ash, flue gas desulfurization (“FGD”) waste, and pyritic wastes into a series of disposal ponds and impoundments, ultimately discharging into the Clinch River. In August 2009, the EPA included the fly ash pond at Bull Run Fossil Plant on its list of “High Hazard” CCW disposal sites.⁴ In addition, the EPA included Bull Run Fossil Plant on its list of 70 cases of proven and potential environmental damage from improper CCW disposal.⁵

The discharge of CCW pollutants into the Clinch River is of particular concern because of Bull Run’s location upstream of the Kingston Fossil Plant and the cumulative impacts of Kingston and Bull Run’s discharges on the overall health and water quality of the Clinch River.

Boating, fishing, and water sports are popular on the Clinch River. TDEC, in partnership with a coalition of federal, state, and regional government agencies; nongovernmental organizations; and conservation groups and citizens, completed the *Tennessee River Assessment Project Summary Report* in 1998 that rated the Clinch River’s natural scenic quality as part regionally and part locally significant. Recreational boating on the Clinch River was rated as regionally significant.⁶

The discharge of CCW pollutants from Bull Run Fossil Plant also affects surface waters such as Bull Run Creek, Worthington Branch, and an unnamed stream that bisects the bottom ash and dry bottom ash storage areas.⁷ The waterways are also regionally important, for example, Bull Run Creek drains a 104-square-mile area including portions of Anderson, Knox, Union, and Grainger Counties and empties into the Clinch River at mile 46.7, just south of the southwest corner of the Bull Run Fossil Plant boundary.⁸

³TVA, Final Environmental Assessment, *Installation of Flue Gas Desulfurization System at Bull Run*, Anderson County, Tennessee (April 2005).

⁴ U.S. EPA, Fact Sheet: Coal Combustion Residues (CCR) - Surface Impoundments with High Hazard Potential Ratings, EPA530-F-09-006, June 2009 (Aug. 2009) available at <http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ccrs-fs/national.pdf> (last visited Apr. 9, 2010) (A high hazard ranking indicates that a failure of the CCW impoundment at Bull Run will probably cause loss of human life. It does not indicate the likelihood of such a failure).

⁵ See, Memorandum from Ron Jordon, EPA Engineering and Analysis Division to Record for the Steam Electric Detailed Study, Re: Documented Cases of Environmental Impacts from Coal Combustion Wastewater: Pollutant Sources and Impacted Water Resources (Oct. 14, 2009); see also, U.S. EPA, Office of Solid Waste, *Coal Combustion Waste Damage Case Assessments* (July 9, 2007).

⁶ TVA, Environmental Assessment for FGD System, *supra* note 3.

⁷ *Id.*

⁸ *Id.*

Bull Run Fossil Plant's discharge of pollutants into the Clinch River is also of particular concern because the Clinch River is on Tennessee's 303(d) list of impaired waters.⁹ Specifically, the Clinch River appears on the State's 303(d) list in Anderson County, near Bull Run Fossil Plant, due to pollution caused by "Thermal Modifications and Habitat Loss due to Stream Flow Alteration."¹⁰ The source of this pollution is an "upstream impoundment."¹¹ TDEC acknowledges TVA's role in creating these impaired waters, stating that "TVA has taken action to improve dissolved oxygen and flow conditions downstream of the dam."¹² However, TDEC has not taken action to help limit this pollution or prevent further degradation of the Clinch River in the draft NPDES permit for Bull Run Fossil Plant.

II. The Clean Water Act and TDEC's draft NPDES Permit for Bull Run Fossil Plant

Under the Clean Water Act ("CWA") and the Tennessee Water Quality Control Act ("TWQCA"), TDEC is required to prevent water pollution by limiting the discharges of CCW pollutants, such as arsenic and mercury, from the Bull Run Fossil Plant.¹³ The draft Bull Run NPDES permit does not contain *any numeric effluent limits* on discharges of CCW pollutants other than total suspended solids, oil and grease, and pH.

As discussed in detail below, the CWA and the TWQCA require that TDEC set technology-based effluent limits ("TBELs") that reflect the ability of available technologies to reduce or eliminate pollution discharges. In addition, if the discharge of pollutants from Bull Run could cause or contribute to a violation of water quality standards in the Clinch River, TDEC must set water quality-based effluent limits ("WQBELs") to protect the River and prevent exceedances of water quality criteria. The CWA requires NPDES permits to contain effluent limits sufficient both to "restore" and "maintain" water quality in the receiving water body, in this case, the Clinch River.¹⁴ The CWA requires that permits impose *numeric* effluent limits, in addition to appropriate narrative limits, unless it is infeasible to do so.¹⁵ For the reasons discussed below, the Bull Run Fossil Plant NPDES permit violates the CWA and the TWQCA,

⁹ TDEC, Division of Water Pollution Control, Planning and Standards Section, *Final YEAR 2008 303(d) LIST* (June, 2008) available at http://www.state.tn.us/environment/wpc/publications/pdf/2008_303d.pdf (last visited Apr. 9, 2010).

¹⁰ *Id.* at 85.

¹¹ *Id.*

¹² *Id.*

¹³ See Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §1251 *et seq.*; Tennessee Water Quality Control Act (TWQCA), Tenn. Code Ann. § 69-3-101 *et seq.* The TWQCA specifically requires TDEC to comply with the CWA, in addition to the TWQCA, when issuing NPDES permits. Tenn. Code Ann. § 69-3-108(g)(1) (requiring that no permit may be issued that fails to comply with federal laws or regulations); Tenn. Comp. R. and Regs. 1200-4-5-.04(1)(f).

¹⁴ 33 U.S.C. §1251(a).

¹⁵ See 40 C.F.R. § 122.44(d)(1)(k)(3) ("Each NPDES permit shall include conditions meeting...any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318, and 405 of CWA necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality"); see also, U.S. EPA, Office of Water, *Technical Support Document For Water Quality-based Toxics Control*, EPA/505/2-90-001, 48 (March 1991) ("Under this regulation [40 C.F.R. § 122.44(d)(1)(vi)], permitting authorities need to investigate for the existence of specific chemicals in effluents for which the State has not adopted numeric criteria, but which may be contributing to aquatic toxicity or impairment of human health. Narrative criteria apply when numeric criteria do not protect all the designated uses").

and threatens to degrade the quality of the Clinch River, which is currently classified for Domestic Water Use, Industrial Water Use, Fish & Aquatic Life, Recreation, Livestock Watering and Wildlife, Irrigation, and Navigation.¹⁶

1) TDEC Must Establish Technology-Based Effluent Limits in the Bull Run Fossil Plant NPDES Permit

Under the CWA, NPDES permits, at a minimum, must include TBELs for all discharged pollutants.¹⁷ Pursuant to the CWA and TDEC's own regulations, TBELs must reflect pollutant controls constituting the "best available technology economically achievable" ("BAT"), and these effluent limitations "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."¹⁸

Where EPA has not yet promulgated ELGs for particular pollutants discharged by a given point source category, the CWA requires TDEC to stand in the shoes of EPA and use its best professional judgment ("BPJ") to set case-by-case TBELs for these pollutants in NPDES permits.¹⁹ EPA has not yet established ELGs for CCW pollutants from steam electric power generators such as the Bull Run Fossil Plant, but the agency recently announced its intention to revise the ELGs as the Clean Water Act requires.²⁰ EPA last promulgated ELGs for the steam electric power generation industry in 1982 – nearly 28 years ago – before the agency was fully cognizant of threats posed by waste waters from coal ash handling and air pollution control systems. With respect to these waste streams, the outdated ELGs cover only (1) pH and PCBs, (2) total suspended solids ("TSS"), and (3) oil and grease.²¹

¹⁶ TDEC, Division of Water Pollution Control, Rule 1200-4-4-.09 (October 2007).

¹⁷ 40 C.F.R. § 122.44(a) ("Each NPDES permit shall include conditions meeting the following requirements... Technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of CWA, on case-by-case effluent limitations determined under section 402(a)(1) of CWA, or a combination of the three, in accordance with § 125.3 of this chapter"); 40 C.F.R. § 122.44(e) ("Each NPDES permit shall include conditions meeting the following requirements... Technology-based controls for toxic pollutants"); 40 C.F.R. § 125.3 ("Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act"); *see also* Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a) ("effluent limitations shall be designed to require application of the best practicable control technology currently available and application of the best available technology economically achievable").

¹⁸ 33 U.S.C. § 1311(b)(2)(A); *see also* Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a).

¹⁹ 33 U.S.C. § 1311(b)(2)(A); 33 U.S.C. § 1342 (a)(1)(B); 40 C.F.R. § 125.3(c), (d); *NRDC v. EPA*, 863 F.2d 1420, 1425 (9th Cir. 1988).

²⁰ U.S. EPA, *Steam Electric Power Generating Point Source Category: Effluent Limitations Guidelines, Pretreatment Standards and New Source Performance Standards*, Final Rule, 47 Fed. Reg. 52,290 (Nov. 19, 1982); U.S. EPA, News Release, *EPA Expects to Revise Rules for Wastewater Discharges from Power Plants* (Sept. 15, 2009) ("The U.S. Environmental Protection Agency plans to revise the existing standards for water discharges from coal-fired power plants to reduce pollution and better protect America's water. Wastewater discharged from coal ash ponds, air pollution control equipment, and other equipment at power plants can contaminate drinking water sources, cause fish and other wildlife to die and create other detrimental environmental effects").

²¹ *See* 40 C.F.R. §§ 423.12, 423.13 (also regulating *for cooling tower blowdown waste streams only*: chlorine, chromium, and zinc, in addition to 126 pollutants contained in chemicals added for cooling tower maintenance, and *for metal cleaning wastes and chemical and non-chemical waste streams only*: copper and iron).

While EPA's forthcoming ELGs will address the full suite of pollutants discharged by coal-fired power plants, the new rules will not be finalized for several years. In the interim, the Clean Water Act requires that TDEC use its best professional judgment to set BAT-based TBELs to limit pollution and protect the Clinch River.²²

TDEC can no longer afford to ignore metals pollution from coal ash handling and disposal sites. The Steam Electric Power Generating Industry is the second largest discharger of toxic pollutants, and the toxicity of these discharges is primarily driven by metals associated with CCW handling and wet Flue Gas Desulfurization ("FGD") systems.²³ EPA recently stated:

An increasing amount of evidence indicates that the characteristics of coal combustion wastewater have the potential to impact human health and the environment. Many of the common pollutants found in coal combustion wastewater (e.g., selenium, mercury, and arsenic) are known to cause environmental harm and can potentially represent a human health risk. Pollutants in coal combustion wastewater are of particular concern because they can occur in large quantities (i.e., total pounds) and at high concentrations (i.e., exceeding Maximum Contaminant Levels (MCLs)) in discharges and leachate to groundwater and surface waters. In addition, some pollutants in coal combustion wastewater present an increased ecological threat due to their tendency to persist in the environment and bioaccumulate in organisms, which often results in slow ecological recovery times following exposure.²⁴

Specifically, EPA has identified 27 pollutants to analyze in CCW wastewaters, including: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, sodium, thallium, tin, titanium, vanadium, yttrium, and zinc.²⁵

Using the wealth of data available from EPA and power plants in Tennessee, TDEC can and must use its best professional judgment to set BAT-based numeric effluent limits for heavy metals, such as the 27 pollutants listed above, present in CCW wastewaters.²⁶ In evaluating BAT, TDEC must consider the same mandatory factors that EPA would consider in setting national effluent limitations, including the age of facilities, the process employed, engineering

²² 33 U.S.C. § 1311(b)(2)(A).

²³ U.S. EPA, *Notice of Availability of Preliminary 2008 Effluent Guidelines Program Plan*, 72 Fed. Reg. 61,335, 61,342 (Oct. 30, 2007).

²⁴ U.S. EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report*, EPA 821-R-09-008, 3-19 (Oct. 2009).

²⁵ *Id.* at 3-34; *see also* U.S. EPA, *Notice of Final 2008 Effluent Guidelines Program Plan*, 73 Fed. Reg. 53,218 (Sept. 15, 2008).

²⁶ 33 U.S.C. § 1342 (a)(1)(B); 40 C.F.R. § 125.3; Tenn. Comp. R. & Regs. 1200-4-5-.08(1)(a) ("effluent limitations shall be designed to require application of the best practicable control technology currently available and application of the best available technology economically achievable").

aspects of various control techniques, process changes, and non-water environmental impacts.²⁷ While a thorough review of available technologies, including their cost and performance is required, this analysis will not be overly burdensome because EPA has already done the groundwork in its *Steam Electric Power Generating Point Source Category* reports, the most recent of which was issued in October 2009. EPA has made extensive materials available to state permit writers, and over the course of its multi-year study of the Steam Electric Industry, it has coordinated directly with state and regional permit writers.²⁸ For example, EPA hosted a webcast seminar in December 2008 to review information on wastewater discharges from coal-fired power plants for NPDES permitting and pretreatment authorities.²⁹ The webcast provided an update on EPA's review of the current effluent guidelines (40 C.F.R. Part 423) and presented information on pollutant characteristics and treatment technologies for wastewater from FGD scrubbers.³⁰ During the webcast, state and interstate approaches for managing steam electric power plant wastewaters were shared by representatives from Wisconsin, North Carolina, and the Ohio River Valley Water Sanitation Commission (ORSANCO).³¹

Even though the resources needed to set BPJ limits are readily available from EPA, TDEC has ignored CWA and TWQCA requirements and declined to complete any analysis to set TBELs for pollutants entering the Clinch River from the Bull Run Fossil Plant. Before TDEC can issue a final permit, it must undertake the required BAT analysis and use BPJ to set TBELs reflecting state-of-the-art pollutant controls that are currently in use around the country.

2) TDEC Must Establish Water Quality-Based Effluent Limits in the Bull Run Fossil Plant NPDES Permit

Whenever a discharge of a pollutant has the reasonable potential to cause or contribute to an exceedance of a water quality standard, the CWA and the TWQCA require imposition of water quality-based effluent limitations (“WQBELs”) to ensure protection of water quality.³² TDEC must set effluent limits to control all pollutants which may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above Tennessee water quality standards, in the Bull Run NPDES permit renewal.³³ When feasible, these limits should be in numeric form.³⁴ Therefore, TDEC is obligated to establish WQBELs for the Bull Run Fossil Plant if necessary to prevent unlawful degradation of water quality.

In light of existing water quality problems in the Clinch River, pollution discharged by the Bull Run plant will exacerbate ongoing exceedances of water quality standards for mercury, iron, cyanide, antimony, manganese, and aluminum, and perhaps cause additional violations of

²⁷ *NRDC v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988) (*per curiam*); 33 U.S.C. §1314(b)(2)(B).

²⁸ U.S. EPA, *Steam Electric Report*, *supra* note 24

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² 40 C.F.R. § 122.44(d); Tenn. Code Ann. § 69-3-108(g)(1); Tenn. Comp. R. & Regs. 1200-4-5.04(1)(g).

³³ 40 C.F.R. § 122.44(d); Tenn. Comp. R. & Regs. 1200-4-5.04(1)(g); *see also* 33 U.S.C. 1323(a)(permitting agencies must set effluent limits that are stringent enough “to ensure the appropriate water quality of the receiving water body”); Tenn. Code Ann. § 69-3-108(g)(1).

³⁴ *See* 40 C.F.R. § 122.44(d)(1)(k)(3).

water quality standards. For example, TDEC found that background mercury, cyanide, and antimony levels in the Clinch River currently exceed Tennessee Water Quality Criteria (“WQC”), and iron, aluminum, and manganese levels in the Clinch River, as measured at Bull Run Fossil Plant’s water intake point, also exceed EPA recommended national water quality criteria (“EPA WQC”).³⁵

Therefore, at a minimum, TDEC must set WQBELs in the Bull Run NPDES permit to control the discharge of all other pollutants that may contribute to water quality violations in the Clinch River. These limits appear to be required for mercury, iron, cyanide, antimony, manganese, and aluminum, as pollution levels in the Clinch River already exceed state or federal WQC for each of these parameters. Yet the draft permit contains no WQBELs. This violates both the CWA and the TWQCA.

Pollutant	Clinch River Background Concentration ³⁶	TN WQC ³⁷	EPA WQC ³⁸	Effluent Limit in draft permit?
Mercury	0.2 µg/L ³⁹	Human health: 0.051 µg/L and 0.05 µg/L		No
Iron	2200 µg/L ⁴⁰		Human Health for the consumption of water and organism: 300 µg/L; Freshwater Aquatic Life: 1000 (chronic)	No
Cyanide	60 µg/L ⁴¹	Freshwater Aquatic Life: 22 µg/L (acute)5.2 µg/L (chronic)	Freshwater Aquatic Life: 22 µg/L (acute)5.2 µg/L (chronic)	No
Antimony	6.1 µg/L ⁴²	Human Health for the consumption of water and organism: 5.6 µg/L	Human Health for the consumption of water and organism: 5.6 µg/L	No
Manganese	93 µg/L ⁴³		Human health: 50 µg/L and 100 µg/L	No
Aluminum	350 µg/L ⁴⁴		Freshwater Aquatic Life: 87 µg/L (chronic) and 750 µg/L (acute)	No

³⁵ TDEC, Bull Run Fossil Intake Data From EPA Form 2C vs Water Quality Criteria (spreadsheet).

³⁶ *Id.* (As measured at Bull Run Fossil Plant intake point on EPA Form 2C (1998, 2003, and 2007)).

³⁷ Tenn. Comp. R. & Regs 1200-4-3.

³⁸ See U.S. EPA Recommended National Water Quality (2009) available at

<http://www.epa.gov/waterscience/criteria/wqtable/nrwqc-2009.pdf> (last visited Apr. 9, 2010).

³⁹ Spreadsheet, *supra* note 35 (EPA Form 2C, 1998 and 2007).

⁴⁰ Spreadsheet (EPA Form 2C, 2007).

⁴¹ Spreadsheet (EPA Form 2C, 1998).

⁴² Spreadsheet (EPA Form 2C, 2003).

⁴³ Spreadsheet (EPA Form 2C, 2007).

⁴⁴ *Id.*

TVA reports that the background concentration of mercury in the Clinch River is 0.2 µg/L—a level that exceeds Tennessee WQC for recreational waters (0.051 µg/L and 0.05 µg/L) by an order of magnitude.⁴⁵ However, TDEC did not use this value in the Bull Run permit, and instead conducted water quality based effluent calculations using a mercury value of 0.1 µg/L—half of the actual amount detected and reported by TVA. TDEC must correct and re-calculate mercury concentrations in the final permit for Bull Run Fossil Plant. However, even uncorrected, mercury levels in the Clinch River still exceed Tennessee WQC and Bull Run Fossil Plant should not be allowed to further degrade the Clinch River with additional mercury discharges.

TDEC established that mercury levels of 0.051 µg/L and 0.05 µg/L limit are the upper limit, past which point waters could be rendered “unsafe or unsuitable for water contact activities including the capture and subsequent consumption of fish and shellfish, or will propose toxic conditions that will adversely affect man, animal, aquatic life, or wildlife.”⁴⁶ However, TDEC failed to place an effluent limit in the draft Bull Run NPDES permit for mercury to protect human health and the environment. Commenters suggest that the mercury limit should be zero, given that the receiving waters contain mercury concentrations well above the applicable water quality criterion. Based on TDEC’s own calculations, any discharge of mercury would cause or contribute to a condition of pollution.

In addition to setting WQBELs for mercury, iron, cyanide, antimony, manganese, and aluminum, TDEC must evaluate whether pollutants, such as those listed below, have a reasonable potential to cause or contribute to an excursion above state water quality standards.⁴⁷

Water Quality Based Calculations for Outfall 001		
Pollutant	January 2010 Draft Permit	March 2005 Permit
Chromium		X
Manganese		X
Aluminum		
Antimony		
Barium		
Beryllium		
Boron		
Calcium		
Cobalt		
Magnesium		
Cyanide		
Molybdenum		
Sodium		
Tin		
Titanium		
Vanadium		
Yttrium		

⁴⁵ See TDEC, Draft NPDES Permit No. TN 0005410, Bull Run Fossil Plant, R-38(Jan. 2010); *see also*, Tenn. Comp. R. & Regs 1200-4-3-.03(4)(j).

⁴⁶ See Tenn. Comp. R. & Regs 1200-4-3-.03(4)(j).

⁴⁷ See Draft Bull Run NPDES Permit, *supra* note 45; *see also*, 40 C.F.R. §§ 122.44(d)(1)(i),(ii), 123.25.

In TDEC's reasonable potential analysis,⁴⁸ it must examine whether the discharge of CCW pollutants will cause, have the reasonable potential to cause, or contribute to an excursion above water quality standards. If TDEC finds such potential, it can rely on its narrative criteria for water quality,⁴⁹ as required by Clean Water Act regulations,⁵⁰ or use EPA WQC to provide sound scientific rationale to establish water quality-based effluent limits for discharges of CCW pollutants from Bull Run Fossil Plant to the Clinch River.⁵¹

TDEC should have analyzed the pollutants listed above, which includes EPA's list of pollutants present in CCW wastewaters.⁵² TDEC's water-quality analysis must include accurate calculations, based on current background levels of CCW pollutants in the Clinch River, the hardness of the water (at the time of data collection), existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, or the dilution of the effluent in the receiving water.⁵³ Based on the current permitting record, it appears that TDEC has conducted little if any water quality modeling, upstream or downstream water monitoring, or reasonable potential analysis for CCW pollutants to support this permit issuance.

As discussed further in outfall-specific comments (Part III); recent discharges from Bull Run CCW outfall 001 exceed EPA and Tennessee water quality criteria. Although water quality criteria are usually not enforceable at the end of pipe unless incorporated into a permit, the high levels of CCW pollutants discharged from Bull Run Fossil Plant, combined with high levels of CCW pollutants in stream background data suggests that TDEC should take steps to limit the discharge of CCW pollutants into the Clinch River from Bull Run Fossil Plant.

⁴⁸ Reasonable Potential is defined by EPA as where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors, and federal NPDES regulations (40 C.F.R. § 122.44) require permitting authorities to conduct a *reasonable potential analysis* to make this determination. *See e.g.*, U.S. EPA, *Technical Support Document*, *supra* note 15 at 93 ("The regulations at 40 C.F.R. § 122.44(d)(1) require that regulatory authorities first determine whether a discharge causes, has the reasonable potential to cause, or contributes to an excursion above water quality standards (narrative or numeric). In making these determinations, regulatory authorities must use a procedure that accounts for effluent variability, existing controls on point and nonpoint sources of pollution, available dilution, and (when using toxicity testing) species sensitivity").

⁴⁹ TDEC has adopted narrative criteria for "other pollutants" applicable to several uses designated for the receiving waters covered by this permit. *See* Tenn. Comp. R. & Regs. 1200-4-3-.03(1)(k), (2)(j), 3(h), 4(k), 5(g), 6(g), and 7(b).

⁵⁰ 40 C.F.R. § 122.44(d)(1).

⁵¹ *See* 40 C.F.R. § 122.44(d)(1)(vi) ("Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits"); *see also*, U.S. EPA, *Technical Support Document*, *supra* note 15 at 1 ("Where States have not developed chemical specific numeric criteria, States may interpret their narrative standards for specific chemicals by using EPA criteria updated with current quantitative risk values").

⁵² *See* U.S. EPA, Steam Electric Report, *supra* note 24; *see also* U.S. EPA, *Notice of Final 2008 Effluent Guidelines*, *supra* note 25.

⁵³ 40 C.F.R. § 122.44(d)(1)(ii).

Pollutant	Bull Run Outfall 001	U.S. EPA Water Quality Criteria (2009) ⁵⁴	Tennessee Water Quality Criteria (2008) ⁵⁵
Antimony	9.9 µg/l ⁵⁶	<ul style="list-style-type: none"> • 5.6 µg/l (Human Health for Consumption of Water + Organism) 	<ul style="list-style-type: none"> • 5.6 µg/l (Recreation Use, Water + Organism). • 6 µg/l (Domestic Water Use)
Arsenic	11 µg/l ⁵⁷	<ul style="list-style-type: none"> • .018 µg/l (Human Health for Consumption of Water + Organism) • .14 µg/l (Human Health for Consumption of Organism) 	<ul style="list-style-type: none"> • 10 µg/l (Domestic Water Use)
Cadmium	.68 µg/l ⁵⁸	<ul style="list-style-type: none"> • .25 µg/l (Freshwater Criterion Continuous Concentration) 	<ul style="list-style-type: none"> • .25 µg/l (Fish and Aquatic Life, Freshwater Criterion Continuous Concentration)
Selenium	15 µg/l ⁵⁹ 23 µg/l ⁶⁰	<ul style="list-style-type: none"> • 5 µg/l (Freshwater Criterion Continuous Concentration) 	<ul style="list-style-type: none"> • 5 µg/l (Fish and Aquatic Life, Freshwater Criterion Continuous Concentration) • 20 µg/l (Fish and Aquatic Life, Criterion Maximum Concentration).
Thallium	1.4 µg/l ⁶¹	<ul style="list-style-type: none"> • .24 µg/l (Human Health for Consumption of Water + Organism) • .47 µg/l (Human Health for Consumption of Organism) 	<ul style="list-style-type: none"> • .24 µg/l (Recreation Use, Water + Organism). • 47 µg/l (Recreation Use, Organism Only) • 2 µg/l (Domestic Water Use)

Finally, in addition to setting WQBELs in the Bull Run Fossil Plant NPDES permit, TDEC should consider adding the Tennessee River to the state’s 303(d) listing of impaired waters for mercury, iron, cyanide, antimony, manganese, and aluminum, as levels of these pollutants already exceed the protective WQC set by Tennessee and/or EPA near the Bull Run Fossil Plant.

3) TDEC Should Set Enforceable Terms, Including a Timeline and Remedial Action Plan for the Closure of Bull Run Fossil Plant Ash Ponds in its NPDES Permit

TDEC is proposing to require TVA to submit an ash closure plan for the Bull Run Fossil Plant within 180 days from the effective date of the draft NPDES permit.⁶² Commenters agree that TVA should phase out its aging wet impoundments and CCW ponds and protect the Clinch River from further discharges of CCW pollutants. However, commenters urge TDEC to use its

⁵⁴ U.S. EPA, National Recommended Water Quality Criteria, *supra* note 38.

⁵⁵ Tennessee Water Quality Criteria, Tenn. Comp. R. & Regs 1200-4-3.

⁵⁶ TVA Bull Run Fossil Plant NPDES Permit Renewal Application, *supra* note 2 at V-3.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ TVA Bull Run Fossil Plant Discharge Monitoring Report (“DMR”) (Jan. 7, 2008).

⁶¹ TVA Bull Run Fossil Plant NPDES Permit Renewal Application, *supra* note 2, at V-3.

⁶² See Draft Bull Run NPDES Permit, *supra* note 45, at 14.

authority to put enforceable terms, deadlines and conditions in this draft permit to ensure that TVA does indeed close the wet CCW disposal areas at the Bull Run Fossil Plant. Specifically, TDEC can require remedial actions, or impose increased monitoring to ensure safe closure.

In August 2009, after the Kingston coal ash spill heightened public and regulatory scrutiny of TVA's wet coal combustion waste disposal practices, TVA announced it would transition its wet coal waste disposal systems into dry systems within eight years.⁶³ However, TVA proclaimed this same intention *over 20 years earlier* to avoid federal regulation, stating, "because of concerns about groundwater contamination, TVA is moving away from wet ash disposal techniques to dry stacking."⁶⁴ TVA's most recent announcement may be another empty promise. After eight months, the details of TVA's plan for Bull Run still remain elusive. To ensure that TVA will take steps to eliminate discharges of CCW pollutants to the Clinch River, TDEC should include an ash pond closure plan, with an enforceable timeline, in the NPDES permit for Bull Run Fossil Plant.

4) TDEC Should Correct and Revise Permit Condition D

TDEC has changed language in the draft NPDES permit conditions (Part I, Condition D, page 3) to state "Outfall 002 shall not contain materials other than those naturally occurring in the intake water." Since industrial pollutants are not "naturally occurring," this phrase should be replaced. Commenters recommend the following language:

The intake screen backwash discharged through Outfall 002 should not contain pollutants other than those previously present in the intake water. The discharge should not have a visible oil sheen.

5) TDEC Should Add a Permit Condition to Protect Water Quality

TDEC should protect the Tennessee River by adding the following language as a permit condition applicable to all outfalls, at page 3 in the draft NPDES Permit for Bull Run Fossil Plant:

The discharge activity shall not cause or contribute to violations of water quality criteria as stated in the TDEC Rules, Chapter 1200-4-3-.03. Under no circumstances may discharges exceed numeric water quality criteria for aquatic and human life as stated in Tennessee Water Quality Criteria, Tenn. Comp. R. & Regs 1200-4-3.

⁶³ See TVA, Press Release, *TVA Coal Combustion Products Remediation Plan Proposed* (Aug. 20, 2009) available at http://www.tva.gov/news/releases/julsep09/ccprp_other.htm (last visited Apr. 9, 2010); see also, Dave Flessner, *TVA Going Dry for Disposal of Fly Ash*, CHATTANOOGA TIMES FREE PRESS (Aug. 10, 2009).

⁶⁴ TVA, Office of the Inspector General (OIG), Inspection 2008-12283-02, *Review of the Kingston Fossil Plant Ash Spill Root Cause Study And Observations About Ash Management*, (July 23, 2009) Appendix C, 15 (citing W.M. Bivens, Vice President of Power Engineering and Construction, to Morris G. Herndon, Manager of Dam Safety Program, December 29, 1988, Archived TVA files, Tennessee).

This language is adapted from the Tennessee General NPDES Permit for Discharges of Stormwater Associated with Construction Activities, TNR100000, § 4.3.2, and preserves TDEC’s authority to protect water quality in the event the permit’s numeric effluent limits and monitoring requirements prove to be insufficient during the permit term. Given that very similar language is included in TDEC’s construction general permit, which applies to numerous point-source dischargers around the state, it is reasonable to include this provision in the Bull Run Fossil Plant NPDES permit.

6) TDEC Should Revise Permit Condition B (Dike Inspections)

As drafted, Permit Condition B (Part II at 14-15) states that “the Director *may* re-open this permit to incorporate more stringent requirements or any applicable standards pertaining to the operation and maintenance of coal combustion waste impoundments.”

As state and national regulations regarding coal ash evolve, Commenters request that TDEC affirmatively state that it will re-open those NPDES permits which regulate coal ash disposal sites in Tennessee to incorporate new rules and regulations. For example, EPA will soon propose national regulations for coal ash disposal,⁶⁵ and these rules will likely be finalized during the upcoming permit period for Bull Run Fossil Plant. Commenters request that TDEC change the language in Permit Condition B(3) to state, “the Director *will* re-open this permit to incorporate more stringent requirements or any applicable standards pertaining to the operation and maintenance of coal combustion waste impoundments.”

In addition, Permit Condition B should include the recommendations and findings in TDEC’s Advisory Committee Report on the Kingston Disaster.⁶⁶ Namely, the TDEC Advisory Committee recommended that:

- TVA should provide site-specific quarterly reports of coal ash impoundment activity and analysis to TDEC;
- Ash Closure Plans and wet to dry transitions of coal ash ponds be conducted under the supervision of the TVA Dam Safety Group;
- All reports and analyses for TVA wet storage facilities, dry storage facilities and landfills should be submitted to TDEC, including reports prepared by consultants and relevant to permits (such as stability or geotechnical reports, and inspection reports and recommendations);
- Calculations and Reports must be signed and sealed by a Registered Professional Engineer, registered in the State of Tennessee;
- Through the permitting process, TVA should prepare a detailed inspection regimen for each phase of operation, construction or closure, and inspections must

⁶⁵ U.S. EPA, News Release, *Statement on Coal Ash* (Dec. 17, 2009) (announcing that EPA will propose new regulations within a “short period” of time).

⁶⁶ TDEC, *Lessons Learned from the Kingston Dredge Cell Containment Facility Failure: TDEC Advisory Board Recommendations for Safe Performance*, (Nov. 30, 2009) available at http://www.tennessee.gov/environment/kingston/pdf/adv_board/11_30_09_rpt_lessons_learned.pdf (last visited Apr. 9, 2010).

be conducted by Registered Professional Engineers that have qualified training and experience;

- TDEC should develop criteria for impoundments and use criteria in permit approval.

In addition, TDEC should require TVA to implement the National Incident Management System (“NIMS”), required by Homeland Security Presidential Directive (HSPD -5) and recommended by the TDEC Advisory Committee on the Kingston Disaster, to improve communications with other agencies in the event of an emergency.⁶⁷ Any emergency plan for the Bull Run plant developed by TVA in conjunction with the NIMS should be included in this condition or otherwise as a permit requirement. Specifically, this emergency plan should include emergency management personnel at the plant and a complete comprehensive hazardous analysis and risk assessment for the Bull Run plant as recommended by the Advisory Committee. The preparedness plan should consider a boundary for potentially affected topographic features based on mud flow and flood wave propagation for any coal ash impoundment over 25 feet from adjacent ground (and lower if adjacent risks are identified) in order to minimize life threatening effects due to failure.

7) TDEC Should Investigate Two Recent CCW Spills at Bull Run and Require TVA to Take Remedial Action

Two recent CCW spills at the Bull Run Fossil Plant should be investigated by TDEC, and if necessary, TDEC should require TVA to take remedial action to clean up any spilled CCW or CCW leachate.⁶⁸ First, a bottom ash collection system at Bull Run failed, spilling into Worthington Branch Creek.⁶⁹ Second, a gypsum slurry pipe failed, also spilling gypsum slurry into Worthington Branch Creek.⁷⁰ Since TVA has a high-hazard CCW impoundment on site, TDEC should take special care to investigate this and make any necessary changes in the Bull Run NPDES permit to prevent future unpermitted discharges at the Bull Run Fossil Plant.

8) TDEC Should Investigate Selenium Discharges at Bull Run Fossil Plant

In the current (expired but administratively extended) NPDES permit for Bull Run Fossil Plant, TDEC and EPA both acknowledge that selenium levels at Outfall 001 “exceeded the most stringent water quality criteria.”⁷¹ Yet in this permit renewal, TDEC has proposed allowing TVA to conduct only (annual/monthly) monitoring for selenium on a report only basis, even after EPA urged TDEC to set effluent limits based on the chronic water quality criteria for selenium.⁷²

⁶⁷ U.S. Department of Homeland Security, *National Information Management System* (December 2008), available at http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf (last visited Apr. 9, 2010).

⁶⁸ Anne Paine, *Spill, seepage cause TVA problems*, THE TENNESSEAN, (Jan. 13, 2010).

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ TDEC, TVA-Bull Run Fossil Plant, NPDES Permit No. TN 0005410 (rationale), R-9 (Mar 31, 2005).

⁷² TDEC, Ms. Souraya Fathi, TDEC, TVA-Bull Run Fossil Plant, NPDES Permit No. TN 0005410 (Addendum to Rationale), 1 (April 4, 2005).

Several years ago, TVA proposed meeting NPDES selenium limits by utilizing technologies to remove selenium. For example, TVA suggested:

Technologies that can be utilized to remove selenium include sorption/adsorption, chemical treatment and precipitation, ion exchange, membrane separation, biological removal, and evaporation. Fixed-bed adsorption with granular ferric oxyhydroxide media utilizes highly adsorptive, single-use media that needs no pretreatment, suffers few interferences, and results in a small spent-media residual that is land fillable. Biological anaerobic treatment has been successful in treating mining operation wastewaters containing selenium (USEPA, 2001b). Single-use activated alumina adsorption has also been shown effective at removing selenite. If any of these technologies were needed, an appropriate environmental review would be conducted prior to implementation (EPRI, 1996 and 2004).⁷³

In this permit cycle, TDEC should ensure that selenium levels are properly controlled in effluent from Bull Run Fossil Plant. Treatment technologies and methods of reducing selenium levels in CCW effluent should be utilized if necessary.

III. Outfall-Specific Comments

1) Outfall 001

Bull Run Fossil Plant discharges much of its CCW pollutants through Outfall 001, including ash pond effluent, ash sluice water, fly ash runoff, and FGD runoff. TDEC should impose stringent monitoring requirements and numeric effluent limits at this Outfall to protect the Clinch River and other nearby surface waters.

a) TDEC Must Prevent Backsliding in the Bull Run Permit and Require Manganese and Chromium Monitoring in the Final Permit

When a renewal permit is less stringent than a prior NPDES permit, this trend is often called “backsliding” and the CWA contains “anti-backsliding” measures to ensure that States do not weaken permit renewals by removing permit conditions, or effluent limits that control the discharge of pollutants. The CWA anti-backsliding provision states:

When a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit

⁷³ TVA, Environmental Assessment for FGD System, *supra* note 3.

was issued and would constitute cause for permit modification or revocation and reissuance under 40 C.F.R. § 122.62).

TDEC removed pollutants and pollutant monitoring requirements, perhaps inadvertently, for manganese and chromium in the effluent limitations chart for Outfall 001. To avoid backsliding, TDEC should continue to require that Bull Run Fossil Plant control its discharge of manganese and chromium. At a minimum, TDEC should require monthly monitoring for both pollutants, but TDEC may find, after performing reasonable potential analysis for manganese and chromium, that effluent limits are also necessary.

b) TDEC Must Impose WQBELs for CCW Pollutants at Outfall 001

Commenters request that TDEC establish numeric effluent limits for the pollutants listed in the NPDES permit for Outfall 001, including aluminum, arsenic, cadmium, copper, iron, lead, mercury, nickel, selenium, silver, thallium and cyanide. In addition, TDEC should require monitoring and effluent limits for the additional pollutants EPA identified in CCW wastewaters, including antimony, barium, beryllium, boron, calcium, chromium, cobalt, magnesium, manganese, molybdenum, tin, titanium, vanadium, yttrium, and zinc⁷⁴ at Outfall 001.

Although TDEC calculated WQBELs for some pollutants discharged from Bull Run CCW Outfall 001 (e.g., mercury and arsenic), it did not actually place these limits in Bull Run’s NPDES permit. Water quality criteria are usually not enforceable at the end of pipe unless they are incorporated into a permit. Commenters urge TDEC to calculate WQBELs for the Bull Run Fossil Plant and place these numeric effluent limits in the permit. Water sampling data from TVA shows that levels of aluminum, mercury, iron, cyanide, antimony, and manganese currently exceed state and/or EPA water quality criteria.⁷⁵

In addition, Bull Run discharges pollutants at levels that exceed state or federal WQC, and should be investigated and controlled by TDEC.

Pollutant	Bull Run Outfall 001	U.S. EPA Water Quality Criteria (2009) ⁷⁶	Tennessee Water Quality Criteria (2008) ⁷⁷
Antimony	9.9 µg/l ⁷⁸	<ul style="list-style-type: none"> ● 5.6 µg/l (Human Health for Consumption of Water + Organism) 	<ul style="list-style-type: none"> ● 5.6 µg/l (Recreation Use, Water + Organism). ● 6 µg/l (Domestic Water Use)
Arsenic	11 µg/l ⁷⁹	<ul style="list-style-type: none"> ● .018 µg/l (Human Health for Consumption of Water + Organism) ● .14 µg/l (Human Health for Consumption of Organism) 	<ul style="list-style-type: none"> ● 10 µg/l (Domestic Water Use)

⁷⁴ See U.S. EPA, Steam Electric Report, *supra* note 24 at 3-34; see also U.S. EPA, *Notice of Final 2008 Effluent Guidelines*, *supra* note 25.

⁷⁵ See e.g., spreadsheet, *supra* note 35.

⁷⁶ U.S. EPA, National Recommended Water Quality Criteria, *supra* note 38.

⁷⁷ Tennessee Water Quality Criteria, Tenn. Comp. R. & Regs 1200-4-3.

⁷⁸ TVA Bull Run Fossil Plant NPDES Permit Renewal Application, *supra* note 2 at V-3.

⁷⁹ *Id.*

Cadmium	.68 µg/l ⁸⁰	<ul style="list-style-type: none"> • .25 µg/l (Freshwater Criterion Continuous Concentration) 	<ul style="list-style-type: none"> • .25 µg/l (Fish and Aquatic Life, Freshwater Criterion Continuous Concentration)
Selenium	15 µg/l ⁸¹ 23 µg/l ⁸²	<ul style="list-style-type: none"> • 5 µg/l (Freshwater Criterion Continuous Concentration) 	<ul style="list-style-type: none"> • 5 µg/l (Fish and Aquatic Life, Freshwater Criterion Continuous Concentration) • 20 µg/l (Fish and Aquatic Life, Criterion Maximum Concentration).
Thallium	1.4 µg/l ⁸³	<ul style="list-style-type: none"> • .24 µg/l (Human Health for Consumption of Water + Organism) • .47 µg/l (Human Health for Consumption of Organism) 	<ul style="list-style-type: none"> • .24 µg/l (Recreation Use, Water + Organism). • 47 µg/l (Recreation Use, Organism Only) • 2 µg/l (Domestic Water Use)

2) Outfall 002

The Bull Run Fossil Plant operates a condenser cooling water system that absorbs heat from its boilers and discharges this “once-through” cooling water (“OTCW”) from Outfall 002 into the Clinch River at elevated temperatures. For example the Bull Run draft permit allows discharges from Outfall 002 up to temperatures of 31°C (87°F). OTCW systems require massive amounts of water,⁸⁴ and virtually all flow from Outfall 002, approximately 565 MGD, is comprised of OTCW.

As discussed below, OTCW discharges are regulated by the CWA, and TDEC must include all CWA effluent limits for OTCW in the Bull Run Fossil Plant NPDES permit. In addition, due to the presence of the Clinch River on Tennessee’s 303(d) list, TDEC must take steps to control thermal pollution. TDEC should therefore seek to reduce or eliminate this detrimental impact by establishing grounds for a thermal variance as EPA has requested, or discarding the thermal variance in favor of thermal pollution limits and monitoring requirements that are protective of the Clinch River.

a) TDEC Must Place Clean Water Act Effluent Limits and Monitoring Requirements for OTCW in the NPDES Permit for Bull Run Fossil Plant at Outfall 002

Clean Water Act regulations set effluent limits for Free Available Chlorine and Total Residual Chlorine in OTCW. TDEC should require Bull Run Fossil Plant to use the best practicable control technology currently available (“BPT”) to limit the discharge of free available

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² TVA Bull Run Fossil Plant Discharge Monitoring Report (“DMR”) (1/7/2008).

⁸³ TVA Bull Run Fossil Plant NPDES Permit Renewal Application, *supra* note 2 at V-3.

⁸⁴ See, J.F. Kenny, et al., 2009, *Estimated use of water in the United States in 2005*: U.S. Geological Survey Circular 1344, 38 (2009), available at <http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf> (noting that power plants withdrew an estimated 201 billion gallons of water per day in 2005); see also, U.S. EPA, Steam Electric Report, *supra* note 24 at 3-19 (Once-through cooling water is the largest volume wastewater discharge at coal-fired power plants).

chlorine (“FAC”) from OTCW units. These BPT effluent limits apply to an individual generating unit at the discharge point of the individual generating unit, prior to combination with the OTCW from other units.

Current Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category – Once Through Cooling Water (OTCW)		
Best practicable control technology currently available (BPT) ⁸⁵	Best available technology economically achievable (BAT) ⁸⁶	New source performance standards (NSPS) ⁸⁷
Free Available Chlorine: 0.5 mg/L; 0.2 mg/L	Total Residual Chlorine: If > 25 MW: 0.20 mg/L instantaneous maximum	Total Residual Chlorine: If > 25 MW: 0.20 mg/L instantaneous maximum

TDEC should choose the most stringent limit for FAC and TRC, and provide clear rationale for the decision, including reasoning to explain why TVA is not legally required to meet CWA standards.⁸⁸

b) TDEC Must Impose Monitoring and Effluent Limits at Outfall 002

As discussed previously in Section II, TDEC should set BAT-based effluent limits where EPA has not set ELGs for CCW pollutants from steam electric power generators such as the Bull Run Fossil Plant. At Outfall 002, Bull Run discharges aluminum, arsenic, barium, chromium, copper, iron, magnesium, manganese, nickel, selenium, titanium, and other pollutants into the Clinch River.⁸⁹ In addition, EPA noted in the 2009 Steam Electric Power Generating Point Source Category Report that OTCW:

may contain the following pollutants . . . chlorine, iron, copper, nickel, aluminum, boron, chlorinated organic compounds, suspended solids, brominated compounds, and nonoxidizing biocides. Although the pollutants present in cooling water-related wastewaters are often at low concentrations, the overall pollutant mass discharge may be significant due to the large flow rates of cooling water discharges at steam electric power plants.⁹⁰

Given the large flow rate of discharges from Bull Run Outfall 002 and the possibility that overall pollutant mass discharge could be significant, TDEC should set effluent limits and monitoring requirements in the draft NPDES permit for Bull Run Outfall 002.

⁸⁵ 40 C.F.R. § 423.12(b)(6).

⁸⁶ 40 C.F.R. § 423.13(b)(1).

⁸⁷ 40 C.F.R. § 423.15(h)(1).

⁸⁸ See U.S. EPA, *Technical Support Document*, *supra* note 15 at 110 (“The fact sheet and supporting documentation accompanying the permit must clearly explain the basis and the rationale for the permit limits. When the permit is in the draft stage, the supporting documentation will serve to explain the rationale and assumptions used in deriving the limits to the permittee and the general public in order to allow public comment on the draft permit”).

⁸⁹ See TVA, Bull Run NPDES Permit Renewal Application, *supra* note 2.

⁹⁰ See U.S. EPA, Steam Electric Report, *supra* note 24.

c) Thermal Pollution from Outfall 002 and Tennessee's 303(d) List

The 31°C (87°F) limit in the Bull Run draft NPDES permit is higher than the river temperature limit set in Tennessee's General Water Quality Criteria of 30.5° Celsius (86.9° F).⁹¹ The draft permit's proposed effluent temperature of 31°C (87°F) violates Tennessee's own water quality criteria, and poses risks to aquatic life, specifically fish eggs and larvae.

Although TVA was granted a CWA §316(a) thermal variance, the Clinch River is on the States 303(d) list for thermal pollution, and TDEC must investigate how to better control thermal pollution from Bull Run Fossil Plant in this permit renewal. For example, the cold water from the Norris Dam mixed with the hot water from Bull Run Fossil Plant may have a unique impact on aquatic life around the Bull Run Plant. The Bull Run Fossil Plant also pulls in, and discharges via once through cooling water, a significant portion of the river flow. Bull Run's use of vast quantities of water for cooling purposes should be examined more closely by TDEC, and controlled, if possible, in the final NPDES permit.

EPA has objected to TDEC's continued use of a thermal variance at other TVA Fossil Plants, and has stated that studies, for example at Johnsonville Fossil Plant, are inadequate. After reviewing other TVA permits, EPA stated, "The CWA 316(a) Demonstration lacks detail, and in its current form is not likely to generate information sufficient to support a Section 316(a) variance determination for the next permit cycle."⁹² This EPA objection may be applied to the similar situation at Bull Run Fossil Plant. Specifically, EPA stated:

After examining the record of prior 316(a) variance determinations for the Johnsonville Plant, EPA has concerns regarding the need for a more thorough examination and definition of the Balanced Indigenous Population ("BIP"), the identification of Representative Important Species ("RISs"), and a closer examination of whether the variance is protective. Given the thinness of the available record for prior variance determinations, EPA believes a more focused study is needed.⁹³

TDEC should examine TVA's ability to reduce thermal pollution at Bull Run, and examine the overall impacts of cooling waters on aquatic life near Bull Run. Specifically, TDEC should require TVA to provide a plan for reducing thermal pollution, and to address the concerns raised in EPA's letter of June 30, 2009 *before* TDEC issues the final NPDES permit for Bull Run Fossil Plant.

⁹¹ See Rule 1200-04-3-.03(3)(e).

⁹² Letter from James Giattina, EPA Region IV, Director, Water Protection Division, to Paul E. Davis, TDEC, Director, Division of Water Pollution Control, Subject: Draft Permit Review, Tennessee Valley Authority (TVA) Johnsonville Fossil Power Plant, NPDES Permit No. TN 0005444 (June 30, 2009).

⁹³ *Id.*

3) Outfall 005 (Metal Cleaning Wastes)

Metal cleaning wastes, discharged from Bull Run Fossil Plant Outfall 005, are generated infrequently and can often contain high pollutant concentrations.⁹⁴ Metal Cleaning wastes are subject to ELGs, yet TDEC has failed to include some BPT effluent limitations in the draft permit for Outfall 005:

Current Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category – Metal Cleaning Wastes⁹⁵		
Pollutant	Maximum for any 1 day (mg/L)	Average of daily values for 30 consecutive days shall not exceed (mg/L)
Total Suspended Solids (TSS)	100.0	30.0
Oil and grease	20.0	15.0
Copper, total	1.0	1.0
Iron, total	1.0	1.0

TDEC should require TVA to monitor for TSS and oil and grease in addition to flow, pH, total copper, and total iron. TVA must demonstrate monitor in accordance with ELGs, and demonstrate compliance with Metal Cleaning Waste ELGs at Internal Outfall 005.

IV. Miscellaneous Comments

Commenters have several additional concerns, as follows:

- TDEC should clearly define the geographic boundaries of the mixing zone, if any, applicable to the discharges authorized pursuant to this permit. The 90% stream allocation and the mass balance equation that TDEC has used in this draft permit appear to assume the existence of a mixing zone. Without a clear description of the boundaries of the mixing zone, it is difficult to determine precisely where full compliance with WQC is required. TDEC should provide a reasoned justification for this mixing zone.
- TDEC should explain why it is using a very simplified mass balance equation rather than a more precise CORMIX (or equivalent) model given that the Bull Run Fossil Plant discharges very significant amounts of CCW pollutants.
- Several commenters have received complaints that TVA is discharging ash and other CCW into the Clinch River and Bull Run Creek. TDEC should investigate leakage, or dumping activities to ensure the protection of the Clinch River, and nearby communities.
- Several commenters have received complaints that TVA sometimes discharges leaking turbine lubrication and seal oil at its fossil plants. At other TVA facilities, this oil is reportedly discharged to the ash pond, and is sometimes pumped back to the cooling

⁹⁴ See U.S. EPA, Steam Electric Report, *supra* note 24 at 3-21.

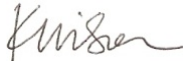
⁹⁵ 40 C.F.R. §423.12(b)(5), 423.13(e).

water intake, and then discharged without being reported. TDEC should explain how such oil leaks should be handled at the Bull Run plant, and describe the reporting requirements for such leaks.

V. Conclusion

For the foregoing reasons, commenters respectfully request that TDEC revise the draft NPDES permit for Bull Run Fossil Plant to meet all requirements of the CWA and to protect the Clinch River by establishing stringent permit effluent limits and increased permit monitoring requirements.

Sincerely,



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