

**NEW JERSEY SIERRA CLUB ~ DELAWARE RIVERKEEPER NETWORK
EASTERN ENVIRONMENTAL LAW CENTER
NEW JERSEY ENVIRONMENTAL FEDERATION
DELAWARE AUDUBON SOCIETY ~ DELAWARE SIERRA CLUB
COALITION FOR PEACE AND JUSTICE ~ AMERICAN LITTORAL SOCIETY**

May 16, 2013

Via U.S. Mail and Email

Bob Martin, Commissioner
New Jersey Department of Environmental Protection
401 East State Street
7th Floor, East Wing
P.O. Box 402
Trenton, New Jersey 08625-0402

**Re: NJDEP's Failure to Act on PSEG's 2011 Application to Renew the
Mercer Generating Station's NJPDES Permit**

Dear Commissioner Martin:

We, the New Jersey Sierra Club, Delaware Riverkeeper Network, Eastern Environmental Law Center, New Jersey Environmental Federation, Delaware Audubon Society, Delaware Sierra Club, Coalition for Peace and Justice, and American Littoral Society, are writing with regard to the New Jersey Pollutant Discharge Elimination System ("NJPDES") permit for the PSEG Mercer Generating Station ("Mercer"), located on the Delaware River just south of Trenton.

Our chief concern is that the antiquated once-through cooling system for Mercer's electricity-generating turbines draws between 620 and 690 million gallons of water per day ("MGD") out of the Delaware River. Along with all of this water, the once-through cooling system also collects and kills around 70 million organisms every year. The system crushes larger fish and other animals against the intake structure (impingement) and sucks smaller organisms through the cooling water intake system (entrainment). It then discharges heated, chemically treated water that further harms fish and other organisms in the Delaware River. According to PSEG's own studies, more than 30 species of fish are killed at Mercer, including at least two endangered species: the shortnose and Atlantic sturgeons.¹ This harm is unacceptable and

¹ See PSEG Services Corp., *PSEG Fossil LLC Comprehensive Demonstration Study (CDS) For Mercer Generating Station, NJPDES Permit No.: NJ0004995*, at 19 (impingement of shortnose sturgeon), *see also id.* at Table III-6 (impingement of Atlantic sturgeon) ("CDS"). The New York Bight distinct population segment of Atlantic sturgeon, which includes fish originating from the Delaware and Hudson Rivers, was listed as endangered in 2012. See *Endangered and Threatened Wildlife and Plants; Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region*, 77 Fed. Reg. 5,880, 5883 (Feb. 6, 2012) ("Endangerment Finding").

unnecessary – NJDEP should require PSEG to convert Mercer to a closed-cycle cooling system that will virtually eliminate these problems.

Background: The Delaware Estuary is an Environmental and Recreational Resource of National Significance

The Delaware River is one of America’s most iconic waterways. The river stretches approximately 330 miles in length, running from New York through Pennsylvania, New Jersey, and Delaware before emptying into the Atlantic Ocean at Delaware Bay. Mercer is more than 100 miles upriver from Delaware Bay, located in the uppermost part of the Delaware Estuary.

“Since the Estuary is close to saline and brackish water, the biological community found at Mercer is plentiful with species ranging from freshwater to estuarine.”² In addition to its aquatic residents, the Estuary also provides habitat for 15 different species of waterfowl. It has the second largest concentration of migrating shorebirds in North America.³ All of these species rely on the biological productivity of the estuary, including the bounty of eggs, larvae, and young fish found in the many miles of the Estuary, from the ocean to the falls north of Trenton. Furthermore, on February 6, 2012, the NMFS issued a final rule listing five distinct population segments of the Atlantic sturgeon as threatened or endangered under the Endangered Species Act. The Delaware River is one of the remaining two breeding locations for the endangered New York Bight distinct population segment of sturgeon.⁴

The portion of the Delaware Estuary in which Mercer is located is designated by the Delaware River Basin Commission to support a variety of human and ecological needs, including: habitat for aquatic life, public water supply, primary and secondary recreation, and fish consumption.⁵ The Delaware River supplies drinking and industrial cooling water for approximately 15 million people, or about 5% of the U.S. population.⁶ Unless carefully managed, the stresses from human uses of the river – including the billions of fish killed by outdated cooling water intakes along the length of the Estuary – will diminish or extinguish the river’s immense economic and ecological benefits.

Despite serving vital ecological and human functions, however, the portion of the Delaware near Mercer is in poor health. New Jersey has already listed this stretch of the

² NJDEP, Mercer Generating Station Draft NJPDES Permit No. NJ0004995, Fact Sheet at p. 7 of 42 (July 21, 2006) (Hereinafter “2006 Draft Permit” and “Fact Sheet”).

³ Delaware River Basin Commission, *Delaware River: State of the Basin Report 2008*, 54-55 (2008), available at <http://www.state.nj.us/drbc/library/documents/SOTB/livingresources.pdf>.

⁴ Endangered and Threatened Wildlife and Plants; Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 77 Fed. Reg. 5,880, 5883 (Feb. 6, 2012) (to be codified at 50 C.F.R. pts. 223-24).

⁵ See Delaware River Basin Commission, Administrative Manual—Part III Water Quality Regulations with Amendments Through December 8, 2010, § 3.30.2(B) (“DRBC Water Quality Regulations”); see also Delaware River Basin Commission, *2012 Delaware River and Bay Water Quality Assessment*, 8 (Table 3) (2012), available at <http://www.nj.gov/drbc> (“2012 Assessment”).

⁶ DRBC, *2012 Assessment* at 2.

Delaware as impaired by the presence of pesticides, mercury, and PCBs released from a number of sources, including industrial point source discharges such as Mercer.⁷ And in 2012, the Delaware River Basin Commission concluded that this stretch of the river does not support its designated uses as aquatic habitat, as a source of clean drinking water, or as a source of fish that are safe to eat.⁸

Regulation of Cooling Water Intakes in Mercer's Prior NJPDES Permits

Mercer operates under NJPDES permit NJ0004995. The permit was last issued in September 2006; the five-year permit term expired in 2011.⁹ PSEG submitted a permit renewal application in May 2011. The expired NJPDES permit has been administratively continued for nearly two years.

The 2006 Permit failed to require Mercer to minimize the significant adverse environmental impacts of its cooling water intake structure on the aquatic communities in the Delaware River. In 2006, Mercer's once-through cooling system operated with traveling screens that lacked a fish recovery system – animals were washed off the screens and disposed of as solid waste.¹⁰ As noted above, the plant kills more than 70 million organisms annually, including at least two endangered species. NJDEP correctly determined that these screens were not adequate to protect aquatic life in the Delaware River.

Instead, DEP settled on an interim solution: it allowed PSEG to choose between a modified screen system, possibly with a fish recovery system, or implementing basic restoration measures while continuing to submit additional engineering and biological studies related to the cooling water intakes.¹¹ PSEG opted for a combination of further study and restoration measures. Shortly after Mercer's permit was issued in 2006, the Second Circuit held that restoration and mitigation efforts are not legitimate substitutes for the use of protective technologies at cooling water intakes under the Clean Water Act.¹²

⁷ See NJDEP, *New Jersey 2012 Integrated Water Quality Monitoring and Assessment Report Assessment Unit Summary List*, AU Name Delaware River 2 (2012) available at http://www.state.nj.us/dep/wms/bwqsa/2012_draft_integrated_list.pdf

⁸ DRBC, *2012 Assessment* at 45. The Delaware River Basin Commission assesses uses under Section 305 of the Clean Water Act, but does not formally designate impairments under Section 303(d). Instead, the Commission assesses each portion of the Delaware River to determine whether it is sustaining all of its designated uses and provides this information to the States of New York, Pennsylvania, New Jersey and Delaware for use in their own formal designations.

⁹ See NPDES Permit issued to PSEG Fossil LLC for Mercer Generating Station, Permit Number: NJ0004995 (as modified May 21, 2008) ("2006 NPDES Permit").

¹⁰ See 2006 Draft Permit, Response to Comments p. 5 of 10; see also *id.*, Fact Sheet p. 8 of 42.

¹¹ See 2006 NPDES Permit Part IV, p.8 and 9.

¹² *Riverkeeper Inc. v. U.S. Env't'l Protection Agency*, 475 F.3d 83, 110 (2d Cir. 2007) ("Restoration measures are not part of the location, design, construction, or capacity of cooling water intake structures, and a rule permitting complaints with [the Clean Water Act] through restoration measures allows facilities to avoid adopting any cooling

Regulatory Background Underlying the Mercer NJPDES Permit

In enacting the Clean Water Act (the “CWA” or simply “the Act”), Congress established as a national goal the elimination of all discharges of pollution into navigable waters.¹³ In passing its own water pollution laws to implement the Clean Water Act and its National Pollutant Discharge Elimination System (NPDES), the New Jersey Legislature declared it “the policy of this State to restore, enhance and maintain the chemical, physical, and biological integrity of its waters, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial and other uses of water.”¹⁴

In furtherance of the goal of eliminating all discharges into waters of the United States, the CWA provides that no pollutant may be discharged from any point source without a NPDES permit. Any failure to comply with a permit “constitutes a violation of the Clean Water Act.”¹⁵ The NPDES permit program is thus an integral part of the CWA’s plan to eliminate pollution discharges, and to restore and maintain the health and integrity of the nation’s waters.¹⁶ In New Jersey, the NPDES program is administered by DEP.

The CWA requires that NPDES permits include effluent limits based on the performance achievable through the use of statutorily-prescribed levels of technology that “will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants.”¹⁷ Technology-based effluent limitations (“TBELs”) constitute a minimum level of controls that must be included in a NPDES permit “regardless of a discharge’s effect on water quality.”¹⁸ For sources constructed prior to the passage of the Federal Water Pollution Control Act of 1972 such as Mercer, discharges of pollutants must be eliminated or controlled through application of Best Available Technology (“BAT”).¹⁹ In accordance with the CWA’s goal to eliminate all discharges of pollutants, BAT 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”²⁰

Section 316(b) of the CWA requires that the “location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse

water intake structure technology at all, in contravention of the Act’s clear language as well as its technology-forcing principle.”).

¹³ See 33 U.S.C. § 1251(a)(1).

¹⁴ N.J.S.A. 58:10A-2.

¹⁵ 40 C.F.R. § 122.41(a).

¹⁶ See 33 U.S.C. § 1342 (establishing permit program requirements).

¹⁷ 33 U.S.C. § 1311(b)(2)(A)(i), see also id. § 1311(b)(1)(A); N.J.S.A. § 58:10A-6(f) (“ A permit issued by the department . . . shall require the permittee . . . to achieve effluent limitations based upon guidelines or standards established pursuant to the Federal Act.”).

¹⁸ *Am. Petroleum Inst. v. EPA*, 661 F.2d 340, 344 (5th Cir. 1981).

¹⁹ See 33 U.S.C. § 1311(b)(2)(A).

²⁰ 33 U.S.C. § 1311(b)(2)(A).

environmental impact.”²¹ As with all technology based standards, dischargers must comply with Section 316(b)’s technology-based effluent limitations immediately, meaning that Mercer should have been brought into compliance long ago. The Plant now must be brought into compliance with Section 316(b) “as soon as possible,” and, in the interim, must be subject to “interim requirements and dates for their achievement.”²²

After application of the most stringent treatment technologies and cooling water intake controls available under the BAT and BTA standards, if a discharge causes or contributes, or has the reasonable potential to cause or contribute, to a violation of water quality standards, the permitting agency must also include any limits in the NPDES permits necessary to ensure that water quality standards are maintained and not violated.²³ This obligation includes compliance with both narrative and numeric water quality standards.²⁴

Water quality standards consist of both “designated ‘uses’ for a body of water (e.g., public water supply, recreation, agriculture) and a set of ‘criteria’ specifying the maximum concentration of pollutants that may be present in the water without impairing its suitability for designated uses.”²⁵ Because the Delaware River is an interstate water, discharges to the Delaware are subject to water quality regulations set by Delaware River Basin Commission.²⁶ The designated uses of the Delaware River in the vicinity of Mercer include: public water supplies after reasonable treatment, industrial water supplies after reasonable treatment, agricultural water supplies; maintenance and propagation of resident fish and other aquatic life, passage of anadromous fish, wildlife, recreation, and navigation.²⁷

The U.S. EPA acknowledges that “thermal pollution has long been recognized to cause harm to the structure and function of aquatic ecosystems.”²⁸ Accordingly, both the Clean Water Act and New Jersey law define the waste heat discharged by Mercer’s once-through cooling

²¹ 33 U.S.C. § 1326(b).

²² 40 C.F.R. § 122.47(a). *See also* 33 U.S.C. § 1311(b).

²³ 40 C.F.R. § 122.44(d). These limits are generally referred to as Water Quality Based Effluent Limits (“WQBELs”). “[T]he permit must contain effluent limits” for any pollutant for which the state determines there is a reasonable potential for the pollutant to cause or contribute to a violation. *Id.* § 122.44(d)(1)(iii); *see also Am. Paper Inst. v. EPA*, 996 F.2d 346, 350 (D.C. Cir. 1993); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d. Cir. 2005). New Jersey has incorporated this federal requirement into state law. *See* N.J.S.A. § 58:10A-6(f) (“A permit issued by the department . . . shall require the permittee . . . such further discharge restrictions and safeguards against unauthorized discharge as may be necessary to meet water quality standards. . .”).

²⁴ 40 C.F.R. § 122.44(d)(1).

²⁵ *American Paper Inst. v. EPA*, 996 F.2d 346, 349 (D.C. Cir. 1993); *see* 33 U.S.C. § 1313(c)(2)(A).

²⁶ *See* N.J.A.C. 7:9B-1.15(a) (“Interstate waters of the mainstem Delaware River are under the jurisdiction of the DRBC and designations are contained in the DRBC Water Quality Regulations.”); *see also* 18 C.F.R. 410 (“Work, services, activities and facilities affecting the conservation, utilization, control, development or management of water resources within the Delaware River Basin are subject to regulations contained within the Delaware River Basin Water Code with Amendments Through December 8, 2010 and the Administrative Manual—Part III Water Quality Regulations with Amendments Through December 8, 2010.”).

²⁷ Delaware River Basin Commission, Administrative Manual—Part III Water Quality Regulations with Amendments Through December 8, 2010, § 3.30.2(B) (“DRBC Water Quality Regulations”).

²⁸ 76 Fed. Reg. 22,246.

system as a pollutant.²⁹ DEP is required to determine whether technology-based thermal controls are insufficient “to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife” in and upon the Delaware, and impose more stringent “total maximum daily thermal loads” and water quality-based effluent limitations for heat in order to ensure that the Delaware water meets water quality criteria.³⁰ Conversely, the Clean Water Act also authorizes state permitting agencies to lower the default technology-based thermal discharge limits in NPDES permits, but only if the owner or operator of a source is able to demonstrate that the proposed technology-based thermal effluent limitation is more stringent than necessary to protect a balanced, indigenous population of shellfish, fish and wildlife.³¹

NJDEP is violating its clear legal obligation to act on PSEG’s application to renew the Mercer NJPDES permit.

PSEG applied to renew Mercer’s NJPDES permit three years ago. New Jersey Department of Environmental Protection (“NJDEP”) should have acted on that renewal application in 2011, when the current permit expired, as required by the federal Clean Water Act and the New Jersey Water Pollution Control Act. For now, Mercer operates on an expired, administratively continued NPDES permit that is inadequate to control the water pollution caused by this power plant.

NJDEP’s failure to act on PSEG’s permit application violates the Clean Water Act’s explicit requirement that NJPDES permits be issued for terms no longer than five years³² and the legislative policy behind the CWA and the New Jersey Water Pollution Control Act: that permittees will be required to continually, gradually reduce their environmental impact through periodic permit renewals in order to end the discharge of pollution and restore America’s waters.³³

NJDEP must either deny the renewal application and terminate Mercer’s authorization to pollute the Delaware River, or expeditiously issue a draft renewal NJPDES permit. And if it renews this permit, NJDEP should require Mercer to install a closed-cycle cooling system and correct other deficiencies of the existing permit.

²⁹ See 33 U.S.C. §§ 1362(6) (defining “pollutant” to include heat); see also N.J.S.A. 58:10A-3(n) (defining “pollutant” to include “thermal waste”).

³⁰ 33 U.S.C. § 1313(d) (requiring states to identify bodies of water for which technology-based thermal controls are insufficiently stringent and to impose “total maximum daily thermal loads” to protect these waters); see also id. § 1312 (requiring imposition of water quality-based effluent limitations on the discharge of pollutants when necessary to meet water quality standards);

³¹ See 33 U.S.C. § 1326(a).

³² See 33 U.S.C. § 1342(b)(1)(B) (requiring that state-issued permits be issued for fixed terms not exceeding five years).

³³ See 33 U.S.C. § 1251(a).

If NJDEP renews the permit, it should require Mercer to convert to a closed-cycle cooling system.

Federal law requires NJDEP to issue a NJPDES permit that reduces the harm to aquatic life – and particularly to endangered species – to levels commensurate with the performance of the best technology available at Mercer.³⁴ A number of permitting authorities have already determined that a closed-cycle cooling system is the best technology available for facilities like Mercer. EPA has empowered NJDEP to use its Best Professional Judgment to identify and mandate BTA for fulfilling the requirements of Section 316(b); that EPA has not yet issued final regulations for implementing 316(b) to existing facilities is not an excuse for failing to act.³⁵

NJDEP has long been aware that closed-cycle cooling is technically feasible at Mercer and would protect the Delaware River’s aquatic ecosystem to a far greater degree than any other technology. In the Department’s own words, “closed cycle cooling is considered by the Department to be the best technology” for reducing impingement and entrainment at Mercer.³⁶ NJDEP reached the same conclusion at Oyster Creek in 2010, where it issued a draft permit finding that closed-cycle cooling was the best technology available at that plant.³⁷ Other regulators, including the U.S. EPA, agree that closed-cycle cooling is the most protective technology and have required closed-cycle cooling retrofits at plants that are similar to Mercer.³⁸

³⁴ See 33 U.S.C. § 1326(b) (requiring that “the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.”); see also Endangered Species Act, 16 U.S.C. § 1539 (requiring that private entities whose actions are deemed lawful but nonetheless kill members of an endangered species must be required to act to the maximum extent practicable to reduce harm to the species).

³⁵ See EPA, National Pollutant Discharge Elimination System—Suspension of Regulations Establishing Requirements for Cooling Water Intake Structures at Phase II Existing Facilities; Suspension of Final Rule, 72 Fed. Reg. 37,107, 37,108 (July 9, 2007) (“This action suspends the requirements for cooling water intake structures at Phase II existing facilities, pending further rulemaking . . . Permit requirements for cooling water intake structures at Phase II facilities should be established on a case-by-case best professional judgment (BPJ) basis. . . . Notably, EPA by this action is not suspending 40 CFR 125.90(b). This retains the requirement that permitting authorities develop BPJ controls for existing facility cooling water intake structures that reflect the best technology available for minimizing adverse environmental impact.”).

³⁶ 2006 Draft Permit Fact Sheet at p. 11 of 42.

³⁷ See NJDEP, *Oyster Creek Generating Station Draft NJPDES Permit No. NJ0005550*, p.10 of 42 (Jan. 7, 2010) (“Oyster Creek Draft Permit”).

³⁸ See *In re Dominion Energy Brayton Point, L.L.C.*, Case No. NPDES 03-12, 12 E.A.D. 490, 496 (E.A.B. Feb. 1, 2006) (upholding a permit provision for the Brayton Point power plant in Massachusetts that “would essentially require closed-cycle cooling for the entire station” as BTA). See also, e.g., N.Y. Dep’t of Env’tl. Conservation, *Notice Of Denial: Joint Application For CWA § 401 Water Quality Certification; NRC License Renewal – Entergy Nuclear Indian Point Units 2 And 3*, NYS DEC Nos.: 3-5522-00011/00030 (IP2) & 3-5522-00105/00031 (IP3) (Apr. 2, 2010) (denying water quality certification on grounds that implementation of closed-cycle cooling was necessary to comply with Section 316(b)); N.Y. Dep’t of Env’tl. Conservation, E.F. Barrett Power Station SPDES Permit No. NY0005908, fact sheet (Oct. 2009) (setting forth determination that closed-cycle cooling is BTA for E.F. Barrett Power Station); EPA, Merrimack Station NPDES Draft Permit No. NH0001465, draft permit and fact sheet with “Attachment D” related to cooling water intake and thermal discharge limits (proposing requirement of closed-cycle cooling as BTA under § 316(b)), available at <http://www.epa.gov/region1/npdes/merrimackstation/> (“Merrimack Draft Permit” and “Merrimack Attachment D”); EPA, Authorization To Discharge Under The

But at Mercer, upon the last permit renewal in 2006, the Department argued that while closed-cycle cooling is the “best technology” at Mercer, it is not “available” because the investment in protecting fish and other animals in the Delaware River is not cost justified. In NJDEP’s view, “the costs are significantly greater than the benefits.”³⁹ The Department therefore approved the use of travelling screens, restoration measures, and further studies at Mercer as an interim control technology for compliance with the Clean Water Act. But travelling screens cannot address entrainment at all, and the Second Circuit has since held that restoration and mitigation efforts are not legitimate substitutes for the installation of the best technology available to minimize adverse environmental impacts of cooling systems at existing facilities.⁴⁰ And studies, similar to restoration measures, fail to include action on cooling water intake structures so as to minimize impingement and entrainment impacts and therefore cannot be said to fulfill the requirements of the law. This renders NJDEPs’ interim approach to regulating Mercer’s cooling water intakes clearly unlawful.

NJDEP should recognize that its historic view of the costs and benefits of closed-cycle cooling at Mercer has been based on inaccurate and misleading information. In the past, NJDEP relied on PSEG to calculate the costs and the benefits of closed-cycle cooling. PSEG’s cost estimates include every possible expense, but its benefits estimates zero out the value of all non-commercial and endangered species of fish and ignore the value that the public places on an intact and healthy Delaware ecosystem. The studies submitted by PSEG look only at “market benefits” – the market value of fish killed at Mercer that would have direct commercial value if they were caught by fishermen instead.⁴¹ But the U.S. EPA estimates that less than 3 percent of the fish saved by closed-cycle cooling systems have commercial or sport fishing value.⁴²

The economic value of the rest of the animals that die at Mercer consists of “non-market benefits,” that is, the value we place on their role as important members of a functioning, healthy, and productive ecosystem in one of America’s most iconic, historic, and frequently visited waterways. Such non-market benefits are much harder to estimate, but economic studies routinely find that they are very large. PSEG’s estimates compare 100% of the costs of building a cooling system against a very small fraction of the total benefits.

National Pollutant Discharge Elimination System, Mirant Canal Station Permit No. MA0004928, at p. 16 of 21 (Aug. 1, 2008) (requiring reductions in entrainment to levels commensurate with closed-cycle cooling).

³⁹ See 2006 Draft Permit Fact Sheet, p.11 of 42.

⁴⁰ See *Riverkeeper, Inc. v. U.S. Env'tl. Prot. Agency*, 358 F.3d 174, 188 (2d Cir. 2004) (prohibiting restoration as an alternative to a BTA determination for new facilities); *Riverkeeper Inc. v. U.S. Env'tl. Prot. Agency*, 475 F.3d 83, 110 (2d Cir. 2007) (same holding applies to existing facilities like Mercer).

⁴¹ See, e.g., CDS at 44 (estimating only the market benefits of commercially fished species killed at Mercer, and arguing that non-use benefits should be monetized only when there is substantial harm to threatened and endangered species or other major ecological impacts).

⁴² See EPA, *Environmental and Economic Benefits Analysis of the Proposed Section 316(b) Existing Facilities Regulation*, at 4-6 (2011), available at: <http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/environbenefits.pdf>

To overcome this kind of biased analysis, U.S. EPA conducted a national economic study to estimate “non-market benefits” in 2011 and released the initial results in the summer of 2012.⁴³ Analysis of EPA’s data shows that the monetized benefits of closed-cycle cooling greatly exceed its costs by a large margin across the United States. On a national basis, the net environmental benefits from modernizing cooling systems at older power plants like Mercer would be at least \$5 to \$7 billion annually, even under a series of highly conservative and unrealistic assumptions.⁴⁴ Frank Ackerman, a noted environmental economist, concluded that the benefits are more likely in the range of \$13 to \$18 billion per year.⁴⁵

In addition to the large economic and environmental benefits, DEP also should require installation of closed-cycle cooling to ensure “the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on” the Delaware River near Mercer, as is required by Section 316(a) of the Clean Water Act.⁴⁶ Currently, Mercer operates under a Section 316(a) variance that allows it to avoid meeting otherwise applicable technology based limits on its thermal discharge and to avoid meeting the thermal water quality standards that have been established for the Delaware River. This variance is unjustifiable.

In particular, the variance from use of the best available technology to control thermal discharge is not justified because Mercer’s existing cooling water system kills endangered species of fish. By definition, this means that the existing cooling water intake and thermal discharge system does not protect a balanced indigenous population of fish, and thus the plant’s 316(a) variance cannot be renewed.

Between April 24 and May 2, 2006, during a PSEG study, Mercer killed four shortnose sturgeon and collected a fifth while conducting background sampling in the river.⁴⁷ In other sampling conducted that year, Mercer impinged an Atlantic sturgeon as well,⁴⁸ and PSEG’s analysts extrapolated from that impingement to calculate that Mercer likely impinged eight Atlantic sturgeon annually (the number of Atlantic sturgeon that the plant entrains is unknown).⁴⁹

At the time, the Atlantic sturgeon was not recognized as an endangered species; however, it is now. In 2007, Mercer sought an incidental take permit under the Endangered Species Act

⁴³ See EPA, *National Pollutant Discharge Elimination System—Proposed Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities; Notice of Data Availability Related to EPA’s Stated Preference Survey*, 77 Fed. Reg. 34927 (June 12, 2012); see also Memorandum from Erik Helm, EPA, to Section 316(b) Existing Facilities Rule Record, regarding 316(b) Stated Preference (SP) Survey – Survey Methods and Model Results (June 5, 2012).

⁴⁴ See Comments on EPA’s Section 316(b) Stated Preference Survey, Dr. Frank Ackerman, Stockholm Environment Institute-US Center, Tufts University, July 10, 2012, available at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2008-0667-3021>.

⁴⁵ *Id.*

⁴⁶ 33 U.S.C. §1326(a).

⁴⁷ See *id.* at p.19.

⁴⁸ See *id.* at Table III-6.

⁴⁹ See *id.* at Table III-9.

for killing shortnose sturgeon.⁵⁰ Now that the Atlantic sturgeon is listed as well, PSEG is strictly prohibited from killing, harming, or destroying the critical habitat of Atlantic sturgeon under Section 9 of the Endangered Species Act, unless it receives an incidental take permit allowing carefully limited harm to that species too.⁵¹ In order to receive an incidental take permit, PSEG must submit a plan that minimizes and mitigates the loss of sturgeon “to the maximum extent practicable” and “will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.”⁵² The burden is on PSEG to comply with Section 9 of the Endangered Species Act, and to prove that it is doing its utmost to protect sturgeon.⁵³

The Delaware River is one of only two remaining breeding locations for the endangered New York Bight distinct population segment of Atlantic sturgeon.⁵⁴ Even within the New York Bight DPS, however, there are far fewer Atlantic sturgeon originating from the Delaware River than from the Hudson River.

It is commonly acknowledged there were once 180,000 spawning female Atlantic sturgeon in the Delaware River. NMFS’ latest population estimate based on fisheries’ bycatch data⁵⁵ is that there is a mean of 87 spawning adult Atlantic sturgeon annually in the Delaware River. (NOAA Fisheries Presentation on Distribution of Fishing Effort and Sturgeon Takes, “Effort by gear type and mesh size, with NEFOP and ASM sturgeon records,” Ad Hoc Atlantic Sturgeon Committee March 19, 2012). This number is even lower than the ASSRT’s previous estimate of 300 spawning adults⁵⁶, and highlights the absolute imperative of preventing any further diminution of this tiny population. With a population so low, it is difficult to see how Mercer’s impingement of eight sturgeon per year is acceptable and does not jeopardize the sturgeon’s continued existence.

The most viable measure to protect both shortnose and Atlantic sturgeon is to convert Mercer to a closed-cycle cooling system. Closed-cycle cooling is technically and economically feasible. And short of a complete plant shutdown, there is no other option that will offer as much protection to these species. Closed-cycle cooling system is the only viable alternative that reduces sturgeon mortality “to the maximum extent practicable.”

⁵⁰ *See id.* at p.19.

⁵¹ *See* 16 U.S.C. §§ 1538-39.

⁵² 16 U.S.C. § 1539(a)(2).

⁵³ *See* 16 U.S.C. § 1539(g)(burden of proof resides with applicant for an incidental take permit).

⁵⁴ *See* Endangerment Finding, 77 Fed. Reg. at 5883.

⁵⁵ Erickson et al. (2011) observe that the “use of fishery-dependent data (including research fishing) typically underestimates the extent of the habitats occupied by fishes . . . which will ultimately underestimate impacts of potential threats (e.g. fishing) to Atlantic Sturgeon stocks.”

⁵⁶ Brown and Murphy (2010) note that the ASSRT’s estimate of a spawning adult population of 300 in the Delaware was not based on any empirical data but was speculation based on the size of the river system compared to those of the Hudson and Altamaha rivers for which approximate population sizes of spawning adults were available.

For its part, NJDEP cannot authorize PSEG to continue to operate a once-through cooling system that takes endangered species.⁵⁷ As a corollary, NJDEP also cannot renew a 316(a) variance for PSEG's Mercer plant. Therefore, NJDEP must renew the Mercer NPDES permit without a 316(a) variance and, acting in consultation and coordination with the National Marine Fisheries Service, require PSEG to install a closed-cycle cooling system at Mercer in order to comply with both the Clean Water Act and the Endangered Species Act.

Any renewal permit must also include technology and water quality-based effluent limits that are missing from the expired permit.

If it renews this permit, NJDEP must address the mercury, selenium, and other toxic metals presently discharged from Mercer's wastewater treatment plant (WTP). Mercer's expired NPDES permit imposes effluent limitations for nitrogen and ammonia (total N), petroleum hydrocarbons, and chemical oxygen demand.⁵⁸ Additionally, batch sampling for copper, iron, nickel, and zinc is required "during the discharge of chemical/metal cleaning wastewater."⁵⁹ These existing limits do not address many of the toxic metals discharged from the WTP and are not good proxies for dissolved metals in the WTP discharge. Wastewater characterization samples taken from the Mercer WTP in 2007 indicate that, even after treatment, the discharge still contains approximately 0.5 ug/L mercury, 7 ug/L selenium, and other metals.⁶⁰

The Clean Water Act requires that the discharge of pollutants at Mercer be eliminated or controlled through technology-based effluent limitations based on the performance of the Best Available Technology ("BAT").⁶¹ EPA intends to define BAT limits for metals and other toxic pollutants found in coal combustion waste at the national level, but this will take several more years.⁶² In the meantime, the Clean Water Act requires NJDEP to stand in the shoes of EPA and

⁵⁷ See *Strahan v. Coxe*, 127 F.3d 155, 163 (1st Cir. 1997) (state government violates ESA if actor authorized by government takes listed species).

⁵⁸ See NJDEP, *NPDES Permit issued to PSEG Fossil LLC for Mercer Generating Station, Permit Number: NJ0004995*, Part III (issued 2006 and modified May 21, 2008) ("2006 NPDES Permit"). Historically, the WTP discharge was routed to an ash pond for settling, and then to the Delaware River. A total suspended solids effluent limitation applies to the discharge from the ash pond, outfall 441C. See *id.* In recent years, however, Mercer has reported no discharge at outfall 441C.

⁵⁹ *Id.* at p.97 (Part IV.G.2.d).

⁶⁰ Average of four mercury samples taken in 2007: 1/4/07 - .58 ug/L; 3/22/07 - .84 ug/L; 6/15/07 - .33 ug/L; and 9/13/07 - .22 ug/L. Average of four selenium samples taken in 2007: 1/4/07 - 7.9 ug/L; 3/22/07 - 7.6 ug/L; 6/15/07 - 8.4 ug/L; and 9/13/07 - <6.2 ug/L. See Division of Water Quality, NJDEP, "NPDES Database - Reports Available on the OPRA Website", <http://www.nj.gov/dep/dwq/database.htm> (select "NPDES WCR Data by NPDES Permit Number" and customize the parameters on the following screen).

⁶¹ See 33 U.S.C. § 1311(b)(2)(A).

⁶² U.S. EPA, News Release, *EPA Proposes to Reduce Toxic Pollutants Discharged into Waterways by Power Plants* (Apr. 19, 2013) (announcing that draft regulations will be formally published in the Federal Register shortly), available at <http://yosemite.epa.gov/opa/admpress.nsf/0/8F5EF6C6955F6D2085257B52006DD32F>.

use its best professional judgment to set case-by-case technology based effluent limitations (TBELs) for these pollutants in NJPDES permits.⁶³

Better treatment for the toxic and dissolved metals discharged from Mercer's WTP is certainly available. For example, New York State has determined that every mercury discharger can readily meet an effluent limitation of 50 ng/L (i.e. 0.05 ug/L), ten times lower than the mercury discharge at the WTP.⁶⁴ And some coal fired power plants, such as the Dunkirk facility on Lake Erie, routinely achieve mercury discharges below 10 ng/L (0.01 ug/L).⁶⁵ With respect to selenium, EPA reports that "seven power plants in the U.S. are operating or constructing treatment systems that follow physical/chemical treatment with a biological treatment stage to supplement the metals removals with substantial additional reductions of nitrogen compounds and/or selenium."⁶⁶ EPA also has inspected several power plants that eliminated wastewater discharge by recycling wastewater and using other techniques, or by installing a vapor-compression evaporation system.⁶⁷

The current Mercer NJPDES permit also is unlawful because it was issued without water quality based effluent limits. After application of the most stringent treatment technologies available under the BAT standard, if a discharge causes or contributes, or has the reasonable potential to cause or contribute, to a violation of water quality standards, NJDEP must also include any limits in the Mercer NPJDES permit necessary to ensure that the State Water Quality Standards are maintained and not violated.⁶⁸ This obligation includes compliance with both narrative and numeric water quality standards.⁶⁹

⁶³ See 33 U.S.C. §§ 1311(b)(2)(A), 1342 (a)(1)(B) (requirement to include technology based effluent limitations even in the absence of ELGs); 40 C.F.R. § 125.3(c),(d) (procedures for using best professional judgment); *see also* *NRDC v. EPA*, 863 F.2d 1420, 1425 (9th Cir. 1988).

⁶⁴ See N.Y. Dep't of Envtl. Conservation, *Technical and Operational Guidance Series 1.3.10, Mercury – SPDES Permitting, Multiple Discharge Variance, and Water Quality Monitoring*, at 7, available at <http://www.dec.ny.gov/regulations/2652.html>.

⁶⁵ Discharge data for the Dunkirk Facility, NPDES permit # NY0002321, is available through EPA's ECHO website: <http://www.epa-echo.gov/echo/>.

⁶⁶ See Memorandum from James A. Hanlon, Director, EPA Office of Wastewater Management to Water Division Directors, EPA Regions 1-10 regarding National Pollutant Discharge Elimination System (SPDES) Permitting of Wastewater Discharges from Flue Gas Desulfurization (FGD) and Coal Combustion Residuals (CCR) Impoundments at Steam Electric Power Plants (June 7, 2010), Attachment A, p.4. Available at <http://www.epa.gov/SPDES/pubs/hanlonccrmemo.pdf>

⁶⁷ See EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report*, at 4-33, 4-36, EPA 821-R-09-008 (Oct. 2009). Available at http://water.epa.gov/lawsregs/guidance/cwa/304m/archive/upload/2009_10_26_guide_steam_finalreport.pdf

⁶⁸ See 40 C.F.R. § 122.44(d). "[T]he permit must contain effluent limits" for any pollutant for which the state determines there is a reasonable potential for the pollutant to cause or contribute to a violation. *Id.* § 122.44(d)(1)(iii); *see also* *Am. Paper Inst. v. EPA*, 996 F.2d 346, 350 (D.C. Cir. 1993); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005). New Jersey has incorporated this federal requirement into state law. *See* N.J.S.A. § 58:10A-6(f) ("A permit issued by the department . . . shall require [of] the permittee . . . such further discharge restrictions and safeguards against unauthorized discharge as may be necessary to meet water quality standards. . .").

⁶⁹ *See* 40 C.F.R. § 122.44(d)(1).

But NJDEP issued Mercer's last NJPDES permit without reviewing water quality data or conducting any reasonable potential analyses. In 2006, NJDEP explained that it lacked the water quality monitoring data needed to set these limits, and therefore it issued Mercer a NJPDES permit that did not directly consider water quality concerns or draw on the results of reasonable potential analyses.⁷⁰ This is patently illegal. NJDEP must replace the existing permit with a permit that contains WQBELs as quickly as possible.

Conclusion

NJDEP must act as soon as possible on PSEG's long-delayed application to renew the Mercer NPDES permit. Since the last NJPDES permit was issued for Mercer in 2006, PSEG has made substantial investments in air pollution control technology that prove its intent to operate this old, coal-fired power plant for many more decades. It cannot do so on an expired permit, particularly not one that is unlawful, that lacks necessary technology-based and water-quality based effluent limits, and that allows Mercer to rely on restoration measures in lieu of reducing the number of fish and other organisms that it kills.

For the reasons above, NJDEP should immediately issue a draft NJPDES permit for Mercer that fully complies with all requirements of the Clean Water Act and requires a reduction of cooling water intake flows and thermal discharges to a level consistent with the use of a closed-cycle cooling system.

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⁷⁰ See 2006 Draft Permit Fact Sheet, p. 34 of 43.

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