

**DELAWARE RIVERKEEPER NETWORK ~ NEW JERSEY SIERRA CLUB
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: Salem NJPDES Renewal Permit Application

Dear Commissioner Martin:

Please accept this letter on behalf of Delaware Riverkeeper Network, New Jersey Sierra Club, Eastern Environmental Law Center, New Jersey Environmental Federation, Delaware Audubon Society, Delaware Sierra Club, Coalition for Peace and Justice, and American Littoral Society (“Environmental Groups”). We write with regard to the New Jersey Pollutant Discharge Elimination System (“NJPDES”) permit for the Salem Nuclear Generating Station (“Salem”).

New Jersey Department of Environmental Protection (“NJDEP”) should expeditiously issue a draft NJPDES permit that requires the installation of closed-cycle recirculating cooling systems (“CCRS”) for the two nuclear reactors at Salem. In our ongoing dialogue with NJDEP regarding this matter, Environmental Groups have been advised that NJDEP is deferring addressing Salem’s permit application until the United States Environmental Protection Agency (“EPA”) issues its final rule on Cooling Water Intake Structures (“CWIS”) for existing facilities. However, Salem has been operating under an expired and environmentally destructive NJPDES permit for over six years. NJDEP must address Salem’s permit now because:

- Environmental impacts of Salem’s current once through cooling (“OTC”) system are extremely destructive to the Delaware Estuary—a vital ecosystem, which supports an abundance of aquatic resources in a variety of habitats;
- Salem has been operating under an expired permit for over six years—longer than an individual NJPDES permit is even valid for; and
- Other facilities are currently being issued permits requiring CCRS, regardless of the ongoing rulemaking process.

Unless prompt action on this matter is taken, environmental groups will pursue all available

options to protect the Delaware River ecosystem, including, as appropriate, litigation.

I. FACTUAL BACKGROUND

A. *The Delaware Estuary is an Environmental and Recreational Resource of National Significance*

As you are aware, Salem is located on the Delaware Estuary, a major outlet of the Delaware River shared by New Jersey and Delaware. The Estuary is approximately 60 miles long from the point that the river significantly widens to where it meets the Atlantic Ocean. At the outer ends of the Estuary are Cape Henlopen on the Delaware side and Cape May on the New Jersey side. The Delaware Estuary is a valuable public resource, important to the community for its beauty, wildlife, and recreational activities.

The Delaware Estuary is a vital ecosystem and supports an abundance of aquatic resources in a variety of habitats. The Estuary contains extensive areas of “subtidal sands, mud, oyster reefs, beaches and salt and freshwater marshes [that] support more than 200 species of migrant and resident finfish and shellfish, including oysters, blue crabs, striped bass, shad, [clams,] and bluefish.”¹ The largest population of spawning horseshoe crabs in the world can be found in the Delaware Bay as it is the principal breeding location for horseshoe crabs on the east coast.² The Estuary is also habitat for 15 different species of waterfowl. It has the second largest concentration of migrating shorebirds in North America, including the red knot, a New Jersey endangered species that relies on horseshoe crab eggs for a critical portion of its diet.³

In describing the importance of the Delaware Estuary, the National Marine Fisheries Service (“NMFS”) stated in a January 10, 2011 letter to the Nuclear Regulatory Commission (“NRC”):

The Delaware Bay, Estuary, and River make up an ecologically and hydrologically complex system that supports many fish species. Most estuarine fish species have complex life cycles and are present in the estuary at various life stages; thus, they may play several ecological roles during their lives. Changes in the abundance of these species can have far-reaching effects, both within the bay and beyond, including effects on commercial fisheries. [The] system provides an important migratory pathway as well as critical spawning, nursery and forage habitat for many anadromous fishes and is of significant concern for the NMFS.⁴

¹ American Littoral Society et al., *Protecting the Delaware Bay Environment: An Analysis of Existing Programs and Protections to Identify Opportunities for Ecosystem Based Management* ii (2010), *available at* <http://www.shore11.org/delawarebayreport>.

² Delaware River Basin Commission, *Delaware River: State of the Basin Report 2008*, 54 (2008) [hereinafter DRBC Report] *available at* <http://www.state.nj.us/drbc/library/documents/SOTB/livingresources.pdf>.

³ *Id.* at 54-55.

⁴ Letter from Stanley W. Gorski, Field Offices Supervisor, National Marine Fisheries Service, to Bo Pham, Chief of Projects Branch 1 - Division of License Renewal, U.S. Nuclear Regulatory Commission (Jan. 10, 2011) (on file with author).

According to the NRC, the area of the Delaware Estuary surrounding Salem is designated as essential fish habitat for various life stages of many species of fish including red hake, winter flounder, windowpane flounder, bluefish, Atlantic butterfish, scup, summer flounder, black sea bass, king mackerel, Spanish mackerel, cobia, little skate, winter skate, and clearnose skate.⁵ The Estuary also provides habitat for several federally listed threatened and endangered species.⁶

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 population.⁷ According to the Delaware River Basin Commission's 2008 State of the Basin Report, total population numbers for the Atlantic sturgeon are now "estimated to be less than 1,000 and probably less than 100 across the Estuary."⁸ The fact that the Delaware River population of Atlantic sturgeon is not only genetically unique but also may have a population of fewer than 100 fish should make protection of this distinct population segment a high priority.

B. Salem's Once-through Cooling System Causes Severe and Unnecessary Damage to the Delaware Estuary

Salem creates one of the largest impacts on the Delaware Estuary. There are numerous water users along the tidal portion of the Delaware River, including 22 industrial facilities and 14 power plants in Delaware, New Jersey, and Pennsylvania. But according to the Nuclear Regulatory Commission, "Salem uses by far the largest volume of water in the tidal portion of the river with a withdrawal volume that exceeds the combined total withdrawal for all other industrial, power, and public water supply purposes."⁹ The volume of water withdrawn by Salem is nothing short of astonishing – the plant sucks in more than 3 billion gallons of water from the estuary each day, which is more than 2 million gallons each and every minute. Salem's intake structures are so powerful, they can drain an Olympic-sized swimming pool in 20 seconds. The current OTC system at Salem withdraws such an extraordinarily large amount of water from the Delaware River that adverse impacts are felt along the full spectrum of organisms in the Delaware ecosystem at all stages of life, either through impingement or entrainment. Impingement occurs when fish and other organisms are trapped against screens when water is drawn into facility's cooling system, circulating through the cooling system and expelled back into the Estuary. Entrainment occurs when fish eggs, larvae, and other organisms are taken into the cooling system.

The impacts of massive water withdrawals from OTC cooling systems like Salem's

⁵ U.S. Nuclear Regulatory Commission, Essential Fish Habitat Assessment for the Proposed License Renewal for the Salem Nuclear Generating Station and Hope Creek Generating Station 16-17 (2011) [hereinafter Fish Habitat Assessment], available at pbadupws.nrc.gov/docs/ML1103/ML110320664.pdf.

⁶ Gorski letter, *supra* note 4.

⁷ 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).

⁸ DRBC Report, *supra* note 2, at 59.

⁹ Fish Habitat Assessment, *supra* note 5, at 36.

include, but are not limited to impingement and entrainment, the taking of endangered and threatened species, fish population declines, depressed commercial and recreational fishing yields, aquatic community and ecosystem impacts, reduced ecological resilience, thermal discharges, chemical discharges, cumulative impacts, habitat loss and altered flow patterns in source and receiving waters. The volume of water withdrawn at the cooling water intake structure is directly related to the number of organisms entrained, and “might . . . change the physical character of the affected reach of the river and availability of suitable habitat, potentially affecting the environmental or ecological value to the aquatic organisms.”¹⁰

Without CCRS Salem will continue to kill over 800 million Delaware River fish *each* year including: 375,000 white perch, 281,746 herrings (alewife & blueback), 305,000 spot, 61,100 Atlantic croaker, 3,239 striped bass, 842,000,000 bay anchovy and 1,120,000 weakfish annually – four times as many bay anchovy and weakfish each year than are commercially caught in the Delaware Estuary.¹¹

In addition, the outdated OTC system at Salem affects five aquatic species that are federally listed as endangered or threatened by the U.S. Fish & Wildlife Service: the shortnose sturgeon; the Kemp’s ridley sea turtle; the leatherback sea turtle; and the green sea turtle are listed as “endangered,” while the loggerhead sea turtle is listed as “threatened.”¹² Salem’s cooling water intake system also affects the Delaware Estuary’s population of recently listed Atlantic Sturgeon. The Nuclear Regulatory Commission has identified the Atlantic Sturgeon as a species that is present in the Estuary in the vicinity of Salem.¹³

In 2012, the Delaware Department of Natural Resources and Environmental Control (DNREC) issued a draft NPDES permit for the Delaware City Refinery (the “Refinery”), an industrial facility with a cooling water intake located close to Salem. In the process, DNREC’s Division of Fish and Wildlife completed a cumulative impacts analysis that looked extensively at

¹⁰ National Pollutant Discharge Elimination System: Regulations Addressing Cooling Water Intake Structures for New Facilities, 66 Fed. Reg. 65,256, 65,277 (Dec. 18, 2001); *see also* discussions of “Environmental Impact(s) Associated with Cooling Water Intake Structures” in 65 Fed. Reg. 49,060, 49,071-75 (col. 3) (Aug. 10, 2000) (National Pollution Discharge Elimination System—Regulations Addressing Cooling Water Intake Structures for New Facilities); 66 Fed. Reg. at 65,262 (col. 3); 67 Fed. Reg. 17,122, 17,136-40 (col. 1) (Apr. 9, 2002) (National Pollution Discharge Elimination System—Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities); 69 Fed. Reg. at 41,586-90 (col. 1); 69 Fed. Reg. 68,444, 68,461-66 (col. 2) (Nov. 24, 2004) (National Pollution Discharge Elimination System—Proposed Regulations To Establish Requirements for Cooling Water Intake Structures at Phase III Facilities); 71 Fed. Reg. 35,006, 35,012-14 (col. 3) (June 16, 2006) (National Pollutant Discharge Elimination System—Final Regulations To Establish Requirements for Cooling Water Intake Structures at Phase III Facilities).

¹¹ Versar, *Technical Review and Evaluation of Thermal Effects Studies and Cooling Water Intake Structure Demonstration of Impact for the Salem Nuclear Generating Station* at § VI-4 (Revised Final Report) (1989) (reported on an “equivalent adult” basis). Thirty (30) million pounds of bay anchovy and weakfish are lost each year due to entrainment and impingement at Salem compared to 6.8 million pounds of yearly commercial landings between 1975-1980.

¹² Endangered and Threatened Wildlife and Plants, 50 C.F.R. § 17.11 (2012). All of these species are present in the Delaware Estuary. James R. Spotila et al., *Sea Turtles of Delaware Bay* (2007) *available at* http://www.delawareestuary.org/scienceandresearch/science_conf/Conference_Presentations/DESC07_No58_Spotila58.pdf.

¹³ Nuclear Regulatory Commission, Biological Assessment for License Renewal of Salem Nuclear Generating Station Units 1 and 2; Hope Creek Generating Station Unit 1, Dockets 50-272; 50-311; 50-354 (Dec. 2010).

the combined impact of the Refinery and its nearby neighbor, Salem, using more recent data than were provided by PSEG in its previous reports to NJDEP. DNREC's updated analysis concludes that the combined impact of the cooling water intake for the Refinery and Salem affects Delaware River water quality and has a very large and direct winnowing of fish populations.¹⁴

Salem kills approximately 17% of weakfish in the Delaware Estuary annually.¹⁵ DNREC warns that weakfish mortality "is of special concern, since weakfish have declined throughout their range coastwide. The Delaware Bay stock has seen one of the earliest and steepest declines."¹⁶ According to National Marine Fisheries Service estimates, the recreational catch of weakfish has declined *by two orders of magnitude* in the past decade. For now, DNREC believes that the number of juvenile weakfish killed by cooling water intakes will not decline in the near term, even as the adult stock plummets, because "available data indicates that the production of young-of-year weakfish has not declined. Rather survival to catchable sizes has declined dramatically."¹⁷ Thus, the significance of Salem's kill of healthy juveniles will only increase in coming years relative to a shrinking adult population.

Salem also kills an estimated 48% of striped bass annually in the entire Delaware Estuary.¹⁸ The harvest foregone because of Salem greatly exceeds the actual harvest of striped bass by fishermen. And using available data for both Salem and the Refinery, DNREC concludes that, at least as far back as 1998, the combined kill for both facilities already exceeded the number of surviving striped bass produced by the Delaware Estuary ecosystem. Like the weakfish, striped bass harvest levels in the Delaware Estuary have been declining over time.¹⁹

After disrupting numerous species through the intake process, the water and entrained organisms are cycled through Salem's cooling system once and discharged back into the Delaware Estuary. Salem discharges approximately 3.2 billion gallons of heated water per day into the Delaware Estuary.²⁰ This heated water dumps up to 30.6 billion BTUs of heat hourly into the Delaware Estuary.²¹ This unnaturally warm water harms the sensitive ecosystem of the Estuary. Salem increases the temperature of the surrounding portions of the Estuary by 8 to 10 degrees Fahrenheit on average, and the increase can be as high as 15 degrees Fahrenheit at times.²² As the Second Circuit found in *Riverkeeper v. U.S. E.P.A.* in 2004 ("*Riverkeeper I*"), "disrupting the natural thermal stratification [of a River habitat] also affects the balance of nutrients and oxygen, which, in turn, can affect fish migration and spawning."²³ This thermal pollution creates a barrier, which alters the aquatic balance, dramatically changes the habitat for aquatic organisms, and causes fatal heat shock in billions of passing fish.

¹⁴ DNREC, "Fact Sheet, Attachment A BTA Determination – NPDES Permit Requirements For Cooling Water Intake and Discharges at Delaware City Refinery and Power Plant (DCR)" at 54 (2012).

¹⁵ *Id.* at 44.

¹⁶ *Id.* at 47.

¹⁷ *Id.*

¹⁸ *Id.* at 44.

¹⁹ *Id.* at 11, 44, and 47.

²⁰ Fish Habitat Assessment, *supra* note 5, at 10.

²¹ Div. Water Quality, Dep't Env'tl. Prot., Fact Sheet for a Draft NJPDES Permit Including Section 316(a) Variance Determination and Section 316(b) Decision: NJPDES Permit No. NJ0005622, at 20 (Dec. 8, 2000).

²² Fish Habitat Assessment, *supra* note 5, at 10.

²³ *Riverkeeper, Inc. v. U.S. Env'tl. Prot. Agency*, 358 F.3d 174, 200 (2d Cir. 2004) [hereinafter *Riverkeeper I*] (internal citations omitted).

C. Regulation of Cooling Water in Salem's Prior NJPDES Permits

Salem's permit history demonstrates the absolute need for action and the devastating impact this facility's cooling towers have had and continue to have on the surrounding ecosystem. The Clean Water Act ("CWA") requires a permit for any discharge of a pollutant from a point source.²⁴ Section 316(b) requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts."²⁵

Salem is currently operating under an expired 2001 permit that has been administratively extended for over six years. Salem first applied for a permit to discharge pollutants in 1970. Five years later, in 1975, EPA granted Salem its first National Pollution Discharge Elimination System permit, which imposed a schedule for compliance with technology-based effluent limitations for thermal discharges. Salem submitted its first demonstration regarding thermal discharges to NJDEP in 1984.²⁶

However, technical review by Versar, Inc, a contractor for NJDEP, concluded in part that Salem's OTC system had the potential for long-term adverse impacts on the environment and aquatic life of the Delaware Estuary.²⁷

In response to such findings, NJDEP issued a draft permit denying the thermal variance and requiring discharge limits that could not have been met with the existing OTC system and would have required PSEG (the "Company") to install a CCRS system. In 1993, the Company filed a Permit Renewal Application Supplement that proposed that the Company engage in certain "Special Conditions" in lieu of retrofitting the two reactors with CCRS systems. The Special Conditions included a wetlands restoration program, intake flow limitations, modifications to intake screens, the construction of fish ladders, and a biological monitoring program.²⁸

In 1993, NJDEP backed away from its original draft permit and instead issued a draft permit allowing accepting Salem proposal to engage in Special Conditions and continue to operate with an OTC system. Shortly thereafter, in 1994, NJDEP issued a final permit that included a requirement that the Company attempt to restore 8,000 acres of wetlands and 6,000 acres of upland buffers. This project was called the Estuary Enhancement Program ("EEP") and, as discussed below, had questionable results.²⁹ As the Company has acknowledged, "the EEP was an integral part of NJDEP's 1994 Permit determinations."³⁰ In March 1999, the Company submitted an application for renewal of the 1994 permit, asserting that it had complied

²⁴ 33 U.S.C. § 1311.

²⁵ 33 U.S.C. § 1326(b).

²⁶ PSEG Nuclear, Salem NJPDES Permit Renewal Application, Permit No. NJ0005622, Section 1, at 8-10 (2006).

²⁷ *Id.* at 10.

²⁸ *Id.* at 10-11.

²⁹ *Id.* at 11-14.

³⁰ Supplemental Brief of Petitioners PSEG Fossil LLC and PSEG Nuclear LLC in Support of Restoration Provisions of Final Rule, Case No. 04-6692-ag(L), U.S. Court of Appeals for the Second Circuit, at 13.

with the existing permit. On December 8, 2000, NJDEP issued a draft permit providing for continued restoration efforts and expanded biological monitoring. On June 29, 2001 NJDEP issued a final permit that showed no significant difference from the draft permit.³¹

The June 2001 permit expired on July 31, 2006. However, NJDEP considers the permit administratively extended because the Company submitted a permit renewal application at least 180 days before expiration of the June 2001 permit. This allows Salem to continue to operate under the conditions of the expired permit. However, a significant legal decision in 2004 has disallowed the use of many of the Company's "Special Conditions" in order to comply with the CWA.³² After over six years of delay and legal developments, NJDEP is legally obligated to take immediate action to approve or deny Salem's permit expeditiously and, if it decides to approve the permit, should require a CCRS system be implemented.

II. REGULATORY BACKGROUND

The CWA requires a permit for any discharge of a pollutant from a point source.³³ A permit's validity may not exceed five years.³⁴ The limited duration of a permit and the anti-backsliding requirement³⁵ are designed to achieve gradual, iterative, but continual progress towards restoring the Nation's waters. As the D.C. Circuit has explained, "[the essential purpose of this series of progressively more demanding technology-based standards was not only to stimulate but to press development of new, more efficient and effective technologies."³⁶ As pollution control technologies improve, higher standards are incorporated into the NPDES permits of existing facilities upon renewal. This makes timely renewal of NPDES permits a linchpin of the Clean Water Act.

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 environmental impacts."³⁷ However, regulations to implement this requirement have yet to be promulgated. EPA's effort to promulgate regulations to implement Section 316(b) has been a long, drawn-out process and is likely to face further legal challenges potentially delaying a final rule even further. EPA first attempted to promulgate regulations in 1976. After a legal challenge, the U.S. Court of Appeals for the Fourth Circuit remanded these regulations to EPA. EPA withdrew them, leaving in place a provision directing permitting authorities to determine Best Technology Available ("BTA") for each facility on a case-by-case basis.³⁸

Unhappy with this piecemeal result, environmental groups entered into a consent decree with EPA in 1995 establishing a schedule for implementing Section 316 regulations through

³¹ *Id.* at 14-18.

³² *Riverkeeper I*, 358 F.3d at 189.

³³ 33 U.S.C. § 1311.

³⁴ 33 U.S.C. § 1342(b)(1)(B).

³⁵ 33 U.S.C. § 1342(o)(1).

³⁶ *NRDC v. EPA*, 822 F.2d 104, 124 (D.C. Cir. 1987).

³⁷ 33 U.S.C. § 1326(b).

³⁸ See 40 C.F.R. § 401.14.

three phases of rulemaking.³⁹ EPA issued Phase I regulations applicable to new facilities in 2001, which were challenged by environmental groups, but generally upheld by courts.

In 2004, EPA published a Phase II rule applicable to *existing* power plants with a design intake flow equal to or greater than 50 million gallons per day, which includes Salem. Following legal challenges, however, the Second Circuit remanded numerous aspects of the rule to the EPA.⁴⁰ (“*Riverkeeper II*”). The U.S. Supreme Court reviewed *Riverkeeper II* on the limited issue of whether Section 316(b) authorizes EPA to balance costs and benefits.⁴¹ The Supreme Court denied certiorari with respect to other aspects of the *Riverkeeper II* decision (including, specifically, the issue of restoration measures); thus, *Riverkeeper II* remains the law with respect to those issues.⁴²

Notably, in both *Riverkeeper I* and *II*, the Second Circuit rejected provisions allowing restoration to be used to meet the requirements of Section 316(b) such as the EEP Salem implements as part of its previous permits.⁴³ In *Riverkeeper I*, the Second Circuit explained that substituting restoration efforts in lieu of reducing impingement and entrainment in the first place “is plainly inconsistent with the statute’s text and Congress’s intent in passing the 1972 amendments.”⁴⁴ In *Riverkeeper II*, the Second Circuit again held that restoration and mitigation efforts are no longer allowed as substitutes to the installation of the best technology available to minimize adverse environmental impacts of cooling systems, this time in the context of existing power plants:

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 water intake structure technology at all, in contravention of the Act’s clear language as well as its technology-forcing principle.⁴⁵

In its review of *Riverkeeper II*, by denying the petitions for certiorari filed by PSEG and others with respect to the restoration issue, the Supreme Court held intact the Second Circuit’s conclusion that after-the-fact restoration measures do not constitute a technology for minimizing the adverse environmental impacts of cooling water intake structures. Thus, restoration is no longer available to Salem in order to meet the requirements of Section 316(b) of the CWA. Significantly, New Jersey was one of the six state petitioners, who argued to the Second Circuit that restoration measures are forbidden by Section 316(b) and who opposed the certiorari

³⁹ See Settlement Agreement Among the United States Environmental Protection Agency, Plaintiffs in *Cronin, et al. v. Reilly*, 93 Civ. 314 (LTS) (SDNY), and Plaintiffs in *Riverkeeper, et al. v. EPA*, 06 CIV. 12987 (PKC) (SDNY) at 1-2, available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/phase2/upload/316bsettlement.pdf>.

⁴⁰ *Riverkeeper Inc. v. U.S. Env’tl. Prot. Agency*, 475 F.3d 83 (2d Cir. 2007) [hereinafter *Riverkeeper II*]

⁴¹ *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009).

⁴² The Supreme Court held that cost-benefit analysis was not precluded in determining the best technology available. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. at 220 (concluding “that the phrase ‘best technology available,’ even with the added specification ‘for minimizing adverse environmental impact,’ does not unambiguously preclude cost-benefit analysis).

⁴³ See, e.g., *Riverkeeper I*, 358 F.3d at 188.

⁴⁴ *Id.*

⁴⁵ *Riverkeeper II*, 475 F.3d at 110 (holding that restoration measures are plainly inconsistent with the text of the CWA).

petition.

Subsequent to the Supreme Court's decision in *Riverkeeper II*, EPA proposed a new Section 316(b) rule for existing facilities on April 20, 2011.⁴⁶ However, this rule has not been finalized and EPA does not expect to issue a final rule until mid 2013. At which time, it is almost certain that the rule will be challenged in federal court, as all the prior Section 316(b) rules have been.

The CWIS Proposed Rule requires impingement technology at all facilities, but allows the permitting agency to determine entrainment controls on a case-by-case basis using its best professional judgment.⁴⁷ In the new proposed rule, EPA reanalyzed BTA options, including new data gathered at over fifty new site and

. . . reached several conclusions. The first is that closed-cycle cooling reduces impingement and entrainment mortality to the greatest extent. The second is that screen technologies are significantly less effective, particularly in comparison with closed-cycle cooling, in reducing entrainment mortality than EPA had concluded in 2004.⁴⁸

III. ARGUMENT

A. NJDEP Cannot Lawfully Delay Renewal of the Salem NJPDES Permit While it Awaits Further EPA Rulemaking

NJDEP asserts that it plans to delay addressing Salem's permit application until EPA issues a final rule implementing Section 316(b) for existing facilities like Salem. But EPA's new rule will function as a floor, not a ceiling, for minimizing the harmful environmental effects of CWIS.⁴⁹ And, significantly, EPA has explicitly and repeatedly instructed NJDEP and other state agencies that they cannot lawfully delay permit renewals and decisions under 316(b) of the CWA while waiting for EPA to finalize its rules.

For example, in December 2000 the EPA sent an implementation guidance memorandum to all state NPDES directors "identify[ing] as a priority" the issuance of NPDES permits for

⁴⁶ National Pollutant Discharge Elimination System—Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22,174 (Apr. 20, 2011) (to be codified at 40 C.F.R. pts. 122, 125) [hereinafter, "CWIS Proposed Rule"]. Although that proposal is occasionally referred to as a new Phase II rule, the CWIS Proposed Rule covers Phase II facilities as well as the existing manufacturing facilities that were in Phase III, and also proposes revisions to the Phase I rule to eliminate the restoration measures provisions in light of *Riverkeeper I*.

⁴⁷ EPA also published a Notice of Data Availability on June 11, 2012, presenting new data and information received since the proposed rule was published related to the performance of impingement mortality control technologies. National Pollutant Discharge Elimination System--Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities; Notice of Data Availability Related to Impingement Mortality Control Requirements, 77 Fed. Reg. 34,315 (June 11, 2012).

⁴⁸ CWIS Proposed Rule, *supra* note 38, at 22,187.

⁴⁹ See, e.g., *U.S. Steel Corp. v. Train*, 556 F.2d 822, 838-39 (7th Cir. 1977), abandoned on other grounds by *City of West Chicago, Ill. v. U.S. Nuclear Regulatory Comm'n*, 701 F.2d 632, 644 (7th Cir. 1983); 33 U.S.C § 1370.

existing major point sources subject to the requirements of Section 316(b) on a best professional judgment basis.⁵⁰ In December 2001, EPA’s final Phase I rule reminded states that “Permit writers should continue to apply best professional judgment in making case-by-case section 316(b) determinations for existing facilities, based on existing guidance and other legal authorities.”⁵¹ In February 2003 EPA sent another memorandum to state NPDES directors, which, while noting the concern “that some permitting authorities are reluctant to address section 316(b) requirements in major permits issued to existing facilities due to the potential for conflicts with the forthcoming regulations for existing facilities” directed New Jersey and other states to proceed with Section 316(b) on a Best Professional Judgment basis “follow[ing] the recommendations for permit oversight and reissuance in the December 2000 implementation guidance.” In order to ensure that state NPDES directors and EPA’s regional offices (which oversee them) were well aware of which permits were coming up or overdue for renewal, EPA headquarters provided with the 2003 memorandum a list of existing facilities and their permit expiration date, including the Salem nuclear plant – NJPDES No. 0005622, with an expiration date of July 31, 2006.⁵² Thus, more than three years before the Salem permit expired, EPA told NJDEP to proceed with re-permitting Salem and the other plants in New Jersey on a Best Professional Judgment basis using existing guidance, and to not hold up those permits until EPA’s existing facility regulations were issued.

In August 2004, EPA issued a “316(b) Phase II Implementation Question and Answer Document” which made clear that even when the Phase II rule was in effect, states were supposed to issue permits on a Best Professional Judgment basis in several circumstances such as where a permit renewal application had been pending prior to the rule’s issuance.⁵³ On March 20, 2007, following the *Riverkeeper II* decision, EPA issued another memorandum in which the agency stated that, with so many provisions of the Phase II rule remanded by the court, EPA was provisionally suspending the rule and, “[i]n the meantime, all permits for Phase II facilities should include conditions under section 316(b) of the CWA developed on a Best Professional Judgment basis.”⁵⁴ EPA followed up on that memo with a July 9, 2007 *Federal Register* notice that formally suspended the Phase II rule and stated in no uncertain terms that states must go forward with Section 316(b) permitting on a Best Professional Judgment basis, explaining:

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. This provision directs permitting

⁵⁰ EPA, Memorandum from Michael B. Cook, Director of Wastewater Management, Dec. 28, 2000, re: “Implementation of Section 316(b) in National Pollutant Discharge Elimination System Permits.”

⁵¹ National Pollutant Discharge Elimination System: Regulations Addressing Cooling Water Intake Structures for New Facilities, 66 Fed. Reg. 65,256, 65,277 (Dec. 18, 2001)..

⁵² EPA, Memorandum from James A. Hanlon, Director, Office of Wastewater Management, and Geoffrey H. Grubbs, Director, Office of Science and Technology, Feb. 27, 2003, re: “Implementation of Section 316(b) in NPDES Permits.”

⁵³ See http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/phase2/upload/2006_10_26_316b_phase2_phase2-q-and-a.pdf (last visited April 22, 2013); see also 69 Fed. Reg. at 41,687.

⁵⁴ EPA, Memorandum from Benjamin Grumbles, Assistant Administrator for Water, Mar. 20, 2007, re: “Implementation of the Decision in *Riverkeeper, Inc. v. EPA*, Remanding the Cooling Water Intake Structures Phase II Regulation,” citing 40 C.F.R. § 401.14.

authorities to establish section 316(b) requirements on a BPJ basis for existing facilities not subject to categorical section 316(b) regulations. Establishing requirements in this manner is consistent with the CWA, case law, and the March 20, 2007 memorandum's direction to do so. Phase II facilities are not subject to categorical requirements under Subpart J while this suspension is in effect, and therefore this provision applies in lieu of those requirements.⁵⁵

As EPA's 2007 memorandum and *Federal Register* notice explain, there are not one but two federal regulations in effect covering existing facilities with a cooling water intake structure. The first, 40 C.F.R. § 401.14, provides:

The location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact, in accordance with the provisions of part 402 of this chapter.

The second, 40 C.F.R. § 125.90(b), provides:

b) Existing facilities that are not subject to requirements under this or another subpart of this part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.⁵⁶

Accordingly, NJDEP has no basis on which to contend that it can await EPA's promulgation of new federal regulations before taking action on Salem's pending application. Notably, other NPDES permitting agencies in neighboring states (e.g., Delaware, New York) and elsewhere (e.g., EPA Region 1, which issues permits for Massachusetts and New Hampshire) have been issuing permits for power plants with cooling water intake structures, while New Jersey has been shirking its obligation under the CWA.

NJDEP's inaction on the Salem permit renewal application and six-year continuance of the existing permit violate the CWA's explicit requirement that NPDES permits be issued for terms no longer than five years.⁵⁷ NJDEP's failure to act also violates the implicit 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.⁵⁸ As "the cornerstone of the CWA's pollution control scheme,"⁵⁹ every element of the federal NPDES

⁵⁵ 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).

⁵⁶ See also 40 CFR 125.3(c)(2) (NPDES permit requirements must be established "[o]n a case-by-case basis under section 402(a)(1) of the Act, to the extent that EPA-promulgated effluent limitations are inapplicable").

⁵⁷ See 33 U.S.C. § 1342(b)(1)(B) (requiring that state-issued NPDES permits be issued for fixed terms not exceeding five years).

⁵⁸ See 33 U.S.C. § 1251(a).

⁵⁹ *Nat. Res. Defense Council v. U.S. Envtl. Prot. Agency*, 822 F.2d 104, 108 (D.C. Cir. 1987).

program – including the permit’s five-year expiration and renewal requirement – is designed to achieve gradual, iterative, but continual progress towards restoring the Nation’s waters.

NJDEP cannot lawfully delay the reissuance and updating of NPDES permits for years at a time. The First Circuit has recently reaffirmed that agencies cannot “delay issuance of a new permit indefinitely . . . in regular intervals, the Act requires reevaluation of the relevant factors, and allows for the tightening of discharge conditions. The Act’s goal of ‘eliminat[ing]’ the discharge of pollutants by 1985 underscores the importance of making progress on the available data.”⁶⁰ And at least one noted federal jurist has concluded that by failing to renew a permit for many years after its expiration, a state agency unlawfully “usurp[s] the power of the Congress and the federal government to establish the term of an NPDES Permit.”⁶¹

In the absence of federal regulations, states must exercise their best professional judgment to issue permits that comply with the CWA. “Where there are no applicable [guidelines], the determination of [Best Technology Available] for a source is done on a case-by-case basis using Best Professional Judgment. . . .”⁶² The drawn out nature of EPA’s promulgation of CWIS rules mandates that NJDEP take action now on Salem’s permit regardless of EPA’s rulemaking. Environmental groups plan to pursue avenues, including litigation if necessary, to ensure that this permit is addressed expeditiously.

B. In Renewing the Salem Permit, NJDEP Must Demand Performance Equivalent to a CCRS Because Restoration Is No Longer Allowed Under Federal Law as a Substitute for Cooling Systems that Use the Best Technology Available

As described above, in *Riverkeeper I* and *II*, the Second Circuit held that restoration and mitigation efforts are no longer allowed as substitutes for the installation of the best technology available to minimize adverse environmental impacts of cooling systems.⁶³ This renders the existing, administratively continued Salem permit unlawful.

Additionally, the required restoration work of the expired 2001 permit produced questionable results. The area of supposed restoration has become overrun with *Phragmites*, an invasive species of reed that crowds out the growth of other plants that naturally occur in the wetlands of the Delaware Estuary. To combat the *Phragmites* population, the operators of Salem have dumped over 22,000 pounds of herbicides into the Delaware Estuary, resulting in additional pollution to an already threatened water body. Furthermore, it is clear that the restoration plan fails to come close to offsetting the damage resulting from billions of fish and aquatic organisms destroyed by the power plant each year.⁶⁴

⁶⁰ *Upper Blackstone Water Pollution Abatement Dist. v. U.S. Env'tl. Prot. Agency*, 690 F.3d 9, 22 (1st Cir. 2012).

⁶¹ *ONRC Action v. Columbia Plywood, Inc.*, 286 F.3d 1137, 1146 (9th Cir. 2002) (J. Reinhardt, dissenting).

⁶² *In re Dominion Energy Brayton Point, L.L.C.*, 12 E.A.D. 490 (EAB 2006) 2006 WL 3361084 *1.

⁶³ *Riverkeeper I*, 358 F.3d at 189; *Riverkeeper II*, 475 F.3d at 110.

⁶⁴ Delaware Riverkeeper Network, Report of NJPDES Special Conditions, *available at* http://www.delawariverkeeper.org/resources/Factsheets/Report_on_NJPDES_Special_Conditions.pdf. This Report is based on the Report “Evaluation of Special Conditions Contained in Salem Nuclear Generating Station NJPDES Permit to Restore Wetlands, Install Fish Ladders, and Increase Biological Abundance Within the Delaware Estuary” Prepared by Carpenter Environmental Associates for Delaware Riverkeeper Network, December 2003.

Since restoration is no longer available to comply with the CWA and Salem's EEP had questionable results, NJDEP may not allow Salem to continue to use EEP in order to comply with an NJPDES permit.

C. A cost benefit analysis is not required, but when all costs are considered, such analysis must take into account the true value of the Delaware Estuary resources

NJDEP need not conduct a cost-benefit analysis in determining that CCRS is required.⁶⁵ It is clear that CCRS is the only option that would properly protect the important resources of the Delaware Estuary. However, should NJDEP conduct a cost-benefit analysis in reviewing the permit renewal application for Salem, NJDEP should apply the "not wholly disproportionate" standard, which CCRS meets.⁶⁶ Furthermore, a cost benefit analysis must take into consideration the full value of the Delaware Estuary—a task that is not easily accomplished.

As mentioned previously, the Delaware Estuary provides enormous environmental benefits and is an important natural resource. Economic data clearly show that it is in New Jersey's best interest to keep the Estuary's natural resources healthy and productive. In June 2011, researchers at the University of Delaware's Institute for Public Administration (Water Resources Agency) released a report titled "Economic Value of the Delaware Estuary Watershed," which monetizes the environmental benefits of the Delaware Estuary. This report focuses on many factors that contribute to the economic vitality of the Delaware Estuary watershed including: ecosystem services (the benefits of natural processes on, e.g., drinking water supplies, air quality, and flood prevention); industrial water supply; increased property values; industries such as hunting, fishing, agriculture, and recreation; carbon sequestration; and energy conservation. The report found that "[t]he watershed is a jobs engine that supports over 500,000 direct and indirect jobs with \$10 billion in annual wages in the coastal, farm, ecotourism, water/wastewater, recreation, and port industries."⁶⁷ The report also determined that the value of ecosystem goods and services (natural capital) is \$12 billion per year in 2010 dollars with a net present value of \$392 billion over a period of 100 years [discount rate of 3%].⁶⁸

Further, the Company's previous cost-benefit analysis had questionable credibility. In 2006, NJDEP hired experts ESSA Technologies to review PSEG's permit application and to draft a report (the "ESSA Report") summarizing its review of the permit application. ESSA Technologies found that the Company's assertions in the permit application were not credible and were not backed by the Company's own data and studies contained in the permit application. According to the ESSA report, PSEG "underestimated biomass lost from the ecosystem by perhaps greater than 2-fold."⁶⁹ The 154-page review of PSEG's permit application documented

⁶⁵ See *In re Dominion*, 2006 WL 3361084 *40.

⁶⁶ *Id.*

⁶⁷ In June 2011, researchers at the University of Delaware's Institute for Public Administration (Water Resources Agency) released a report called "Economic Value of the Delaware Estuary Watershed" ("Economic Value" at 6).

⁶⁸ *Id.* at 1.

⁶⁹ ESSA Technologies. Ltd., Review of Portions of New Jersey Pollution Discharge Elimination System (NJPDES) Renewal Application for the Public Service Electric & Gas' (PSE&G) Salem Generation Station, ix (June 14,

ongoing problems with PSEG's assertions and findings, including misleading conclusions, data gaps, inaccuracies, and misrepresentations of their findings of environmental damage. Specifically, the ESSA report found that PSEG's "conclusions of the analyses generally overextended the data or results."⁷⁰ The Report also states: "Inconsistency in use of terminology, poorly defined terms, and a tendency to draw conclusions that are not supported by the information presented detract from the rigor of this section and raises skepticism about the results."⁷¹

In light of the significant value of the Delaware Estuary, the Company's previous misrepresentation of significant cost-benefit information, and the proven benefits established by CCRS, NJDEP should require Salem to implement CCRS immediately.⁷²

D. Other Plants Similar to Salem Are Undergoing CCRS Retrofits

Environmental permitting agencies, including NJDEP, have recognized the devastating effects that OTC systems have on natural resources and required CCRS to be implemented. For example, Hope Creek Nuclear Generating Facility, also operated by PSEG and located alongside Salem in the Delaware Estuary, uses a closed cycle cooling system and relies on a natural draft-cooling tower to cool the circulating water through evaporation.⁷³

Salem is substantially similar to Hope Creek and to a number of other facilities for which permitting agencies have concluded that CCRS constituted the appropriate performance standard for compliance with CWA-mandated reductions in impingement and entrainment.⁷⁴

Like Brayton Point in Fall River, Massachusetts, for which EPA Region 1 required installation of cooling towers pursuant to 316(b), Salem is located in relatively shallow estuarine

2000).

⁷⁰ *Id.*

⁷¹ *Id.*, at 77.

⁷² Jonston, Robert, Memorandum on Economic Benefits Associated with Reductions of Entrainment and Impingement Losses in Cooling Water Intake Structures and Implications for Oyster Creek Generating Station (March 10, 2010) (on file with author).

⁷³ PSEG letter to Dennis Hart, Director Division of Water Quality, NJDEP (Nov. 17, 1999), *available at* <http://pbadupws.nrc.gov/docs/ML0221/ML022100199.pdf>.

⁷⁴ See, e.g., 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) (N.Y.S. D.E.C. Apr. 2, 2010) (denying water quality certification on grounds that implementation of closed-cycle cooling was necessary to comply with Section 316(b)); SPDES Fact Sheet Narrative, National Grid – E.F. Barrett Power Station (Oct. 2009) (setting forth New York Department of Environmental Conservation's determination that closed-cycle cooling is BTA for E.F. Barrett Power Station); NJDEP, Draft NPDES Permit for Oyster Creek Generating Station (Jan. 7, 2010) (concluding as BPJ that closed-cycle cooling was BTA under § 316(b) for Oyster Creek), [this requirement was modified in the December 21, 2011 final NPDES permit following a December 9, 2010 administrative consent order requiring shutdown of the plant by December 31, 2019.]; see also EPA, Merrimack Station draft NPDES permit and fact sheet (proposing requirement of closed-cycle cooling as BTA under § 316(b)), *available at* <http://www.epa.gov/region1/npdes/merrimackstation/>; EPA, Mirant Canal Station, Authorization to Discharge Under the National Pollutant Discharge Elimination System at 16 (issued by EPA Region 1 on Aug. 1, 2008) (requiring reductions in entrainment to levels commensurate with closed-cycle cooling).

waters.⁷⁵ And like Oyster Creek, Indian Point, and other nuclear plants where regulators have determined that a CCRS retrofit is required, Salem uses billions of gallons of waters daily and impinges millions and entrains billions of aquatic organisms every year.

Most notably, Salem is larger and even more destructive than the Oyster Creek Generating Station, on Barnegat Bay, where NJDEP already determined that CCRS would be appropriate if the plant were to stay open beyond 2019. Oyster Creek withdraws up to 663 million gallons of cooling water daily, less than a quarter the draw of Salem. In 1989, NJDEP's consultant, Versar Inc., used different models to estimate population losses in Barnegat Bay attributable to Oyster Creek of 3% to 12% of bay anchovy, 2% to 8% of opossum shrimp, 16% of sand shrimp, as well as losses in the 1% to 3% range for winter flounder and hard clams, and 0.4% of the blue crab population. Salem's impacts on representative species such as striped bass, weakfish, and bay anchovies are considerably more harmful.⁷⁶

Salem is also considerably larger and more environmentally destructive than the Delaware City Refinery, its close neighbor. As noted in DNREC's cumulative impact analysis, Salem withdraws almost nine times more cooling water than the Refinery, and kills many times more fish.⁷⁷ DNREC has determined that a CCRS retrofit at the Refinery is cost-effective, affordable, and necessary in order to protect the Estuary. Perforce, the same conclusion applies to Salem.

IV. CONCLUSION

We respectfully request that NJDEP issue a draft NJPDES permit that requires the installation of CCRS towers at Salem Nuclear Generating Station. PSEG has long enjoyed the benefits of being grandfathered into the EPA's Phase II regulations for existing power plants, and should stop its practice of disrupting the ecosystem, killing billions of fish annually, and wasting ecologically and economically precious environmental resources. We ask that the NJDEP block PSEG from continuing its prolonged practice of generating energy at the expense of the Delaware Estuary ecosystem. We propose that the new draft permit embrace the community's need for effective environmental regulation, because the current fish protection technologies - traveling screens, fish ladders, etc. - and the EEP are incapable of protecting essential fish habitats. A cost-benefit analysis of the factors unique to Salem should consider the true social costs of the OTC system, such as the drop in populations of estuarine species, habitat disruption, and impacts on local river-dependent businesses, recreation and tourism.

When PSEG argues that the installation of cooling towers would not be feasible due to prohibitive costs, we ask that NJDEP keep in mind that PSEG is already planning to install a brand new nuclear generating station, which would itself cost many times the price of cooling towers. We are confident that, in light of PSEG's financial strength and the impacts of Salem's OTC system on New Jersey's natural resources, a cost-benefit analysis would reveal that cost

⁷⁵ See *In re Dominion*, 2006 WL 3361084 *5.

⁷⁶ NJDEP, Fact Sheet for Draft NPDES Permit for Oyster Creek Generating Station (June 1, 2011) at 11-12.

⁷⁷ Fact Sheet, Attachment A BTA Determination, *supra* note 14, at 11 and 44.

dollar value is not significantly greater than benefit dollar value, and that the best technology available for minimizing Salem's adverse environmental impacts is the installation of CCRS towers.

Respectfully submitted,

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