State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
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BOB MARTIN
Commissioner

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7008 1140 0000 1424 8721
December 21, 2011

Michael Massaro
Site Vice President
Oyster Creek Generating Station
Exelon Generation Company
P.O. Box 388
Forked River, NJ 08731-0388

Re: Final Surface Water Renewal Permit Action
Category: B -Industrial Wastewater
NJPDES Permit No. NJ0005550
Oyster Creek Generating Station
Lacey Twp, Ocean County

Dear Mr. Massaro:

Enclosed is a **final** New Jersey Pollutant Discharge Elimination System (NJPDES) permit action identified above which has been issued in accordance with N.J.A.C. 7:14A. This final permit renewal continues to authorize the intake of water from Forked River as well as the discharge of wastewater through seven outfalls to both Forked River and Oyster Creek. This permit also incorporates the conditions of the December 9, 2010 Administrative Consent Order including the determination that cooling towers are not best technology available given the permittee's commitment to terminate operations prior to December 31, 2019.

A summary of the significant and relevant comments received on the draft action during the public comment period, the Department's responses, and an explanation of any changes from the draft action have been included in the Response to Comments document attached hereto as per N.J.A.C. 7:14A-15.16.

Any requests for an adjudicatory hearing shall be submitted in writing by certified mail, or by other means which provide verification of the date of delivery to the Department, within 30 days of receipt of this Surface Water Renewal Permit Action in accordance with N.J.A.C. 7:14A-17.2. You may also request a stay of any contested permit condition, which must be justified as per N.J.A.C. 7:14A-17.6 et seq. The adjudicatory hearing request must be accompanied by a completed Adjudicatory Hearing Request Form; the stay request must be accompanied by a completed Stay Request Form. Copies of these forms can be downloaded from the Department's website at http://www.nj.gov/dep/dwq.

As per N.J.A.C. 7:14A-4.2(e)3, any person planning to continue discharging after the expiration date of an existing NJPDES permit shall file an application for renewal at least 180 calendar days prior to the expiration of the existing permit.

All monitoring shall be conducted in accordance with 1) the Department's "Field Sampling Procedures Manual" applicable at the time of sampling (N.J.A.C. 7:14A-6.5(b)4), and/or 2) the method approved by the Department in Part IV of the permit. The Field Sampling Procedures Manual is available at http://www.nj.gov/dep/srp/guidance/fspm/.

As a result of this permit action, your monitoring report forms (MRFs) have been changed and will be mailed to your current MRF recipient. Beginning the effective date of this permit action, please use the new forms. If these revised forms are not received within 2 weeks, please contact the Office of Permit Management at (609) 984-4428 for copies.

Questions or comments regarding the final action should be addressed to Susan Rosenwinkel at (609) 292-4860.

Sincerely,

Pilar Patterson, Chief
Bureau of Surface Water Permitting

Enclosures

cc: Permit Distribution List
Masterfile #: 15856; PI #: 46400

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This permit package contains the following items:

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water Permitting

RESPONSE TO COMMENTS

Comments were received on the New Jersey Pollutant Discharge Elimination System (NJPDES) draft Surface Water Renewal Permit Action No. NJ0005550 issued on June 1, 2011. The comment period began on June 1, 2011 and the Public Notice was published in the *Asbury Park Press* as well as the DEP Bulletin. The Department held one public hearing (an afternoon and an evening session) at the Lacey Township Municipal Building on July 7, 2011. The public comment period ended on August 1, 2011.

During the public comment period, the Department accepted written comments from numerous parties and individuals. The Department also accepted oral testimony as comments since the public hearings were stenographically recorded and transcribed. The Administrative Record is available for review by contacting Susan Rosenwinkel of the Bureau of Surface Water Permitting at (609) 292-4860. The Administrative Record includes, but is not limited to, copies of all written comments, testimony given at the public hearings, and any documents identified in this Response to Comments document consistent with N.J.A.C. 7:14A-15.17.

The Department has summarized the written comments and public testimony received on the draft NJPDES permit. Pursuant to N.J.A.C. 7:14A-15.16(a)3, the Department has addressed all comments that are relevant to the scope of the NJPDES permit. To the best extent practicable, the Department has grouped the comments according to various issues. The Department has identified the commentors by their respective commentor numbers. If a person submitted written comments as well as testimony at the public hearing under the same affiliation, then that person was assigned one commentor number. The Department has provided responses to these comments as well as an explanation of any changes from the draft action.

Testimony at Public Hearing on July 7, 2011		
Afternoon Session		
Person Commenting	**Affiliation / Title**	**Commentor Number**
Sara Bluhm	New Jersey Business and Industry Association	1
Jim Schmidling	Resident - Sunrise Beach, Forked River	2
Jack Nosti	Lacey Township Republican Municipal Chairman	3
Brad Fewell	Vice President, Deputy General Counsel, Exelon	4
Bill Wolfe	NJ Public Employees for Environmental Responsibility	5
Jeff Tittel	Director, New Jersey Chapter Sierra Club	6
Marie Krieger	Resident – Forked River	7
Heather Suffert	Staff Scientist, Clean Ocean Action	8
Neil Marine	Self	9
Bob Dunlap	Fish Hawks Fishing Club	10
Steve Burak	Resident – Barnegat	11
Peter Geronimo	Self	12
Joseph Lachawiec	Mayor, Waretown	13

Person Commenting	Affiliation / Title	Commentor Number
Mike Sowa	Resident – Sunrise Beach, Forked River	14
Dave Pringle	Campaign Director, New Jersey Environmental Federation	15
Helen Henderson	Policy Advocate, American Littoral Society	16
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Mark Dykoff	Deputy Mayor, Lacey Township	18
Bob Marshall	Executive Director, New Jersey Energy Coalition	19
Edward Stroup	President and Business Manager, Local Union 1289	20
Regina Discenza	Self	21
Eugene Creamer	Self	22

Written Comments

Person Commenting	Affiliation / Title	Commentor Number
Jeffrey Gratz	Chief, Clean Water Regulatory Branch United States Environmental Protection Agency – Region 2	23
J. Eric Davis	Supervisor, New Jersey Field Office United States Fish and Wildlife Service	24
Peter D. Colosi	Assistant Regional Administrator, Habitat Conservation Division United States Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service	25
L. Stanton Hales, Jr., Ph.D.	Program Director, Barnegat Bay Partnership	26
Jeff Tittel	Director, New Jersey Chapter, Sierra Club	6
William J. Schulte, Esq. (Eastern Environmental Law Center) Sean Dixon (Coastal Policy Attorney - Clean Ocean Action)	Eastern Environmental Law Center Submitted on behalf of Clean Ocean Action, American Littoral Society, Food & Water Watch, Sierra Club – New Jersey Chapter, Environment New Jersey, New Jersey Environmental Federation, Pinelands Preservation Alliance, Save Barnegat Bay and GRAMMES	27
William J. Donohue	Associate General Counsel – Environmental, Health & Safety, Exelon Business Services Company	28

Comment 1

Several commentors express support for the June 1, 2011 draft NJPDES permit (hereafter "2011 permit"). Some commentors state that Oyster Creek Generating Station's continued operation is vital to maintaining a business climate in New Jersey and in ensuring that power is accessible, reliable and affordable. Commentor 17 states that the draft permit, in conjunction with the Christie Administration's 10 point plan to restore Barnegat Bay, recognizes the numerous and complex factors impacting the bay.

Several commentors express support for the Administrative Consent Order (ACO). Commentor 17 states that the ACO is a compromise that allows nearly a decade of continued operations thereby ensuring a reliable supply of electricity for New Jersey until replacement power can be developed. This continued operation assists in the transitioning of the local needs of employees, the community, and New Jersey. Commentor 19 commends the action of both government and industry working together to build confidence during the time of transition. The leadership actions of the Christie Administration, the Department and Exelon brings balance as this closure will affect the economy, energy supply and the fragile environment.

Commentor 4 states that they opposed the requirement of the January 9, 2010 draft NJPDES permit (hereafter "2010 permit") regarding the installation of cooling towers forcing the early closure of Oyster Creek Generating Station prior to the end of its operating license. As a result, the future of the plant was in doubt which recreated a great deal of risk and uncertainty for the employees, for the suppliers, the community, the energy-consuming public, and the company itself. If forced to close under those circumstances, the timing of the station's closure would have been unpredictable, disorderly, and highly disruptive to the stakeholders. To avoid that unpredictability, the parties worked out a mutually beneficial agreement through the ACO that provides operating certainty through 2019 for Oyster Creek Generating Station and ensures the continuation of a reliable supply of electricity for New Jersey during this period. It allows the impacted stakeholders the opportunity to plan ahead and delays immediate impact on Lacey Township. At the same time, the draft permit represents the Department's exercise of its best professional judgment to minimize the adverse impacts to Barnegat Bay.

(Commentors 1, 2, 4, 17, 19, 20)

Response 1

On December 9, 2010, Governor Christie announced a comprehensive action plan to address the health of Barnegat Bay which is available at www.state.nj.us/dep/barnegatbay/. Because the ecological health of Barnegat Bay is in decline, the Christie Administration has made addressing the degradation of Barnegat Bay, including resolution of the issue of the cooling system at Oyster Creek Generating Station, one of its top environmental priorities. As part of this commitment, the Department negotiated and entered into an agreement with Exelon to cease electric generation operations at the Oyster Creek Generating Station by December 31, 2019. This agreement was set forth in the December 9, 2010 ACO.

The purpose of the December 9, 2010 ACO is clearly stated on pages 5 and 6 of the ACO as follows:

> The Department and the Permittee, in order to resolve disputes between them concerning the terms of a renewed NJPDES permit for the facility with respect to a federal Clean Water Act Section 316(b) determination and in order to facilitate issuance of a new draft and final NJPDES permit for the facility, have determined to enter into this Administrative Consent Order wherein the Permittee agrees to Terminate Operations no later than December

> 31, 2019, and the Department agrees to propose a new draft permit which incorporates the Department's best technology available determination…

The June 1, 2011 draft permit was issued in accordance with the December 9, 2010 ACO and is hereby being finalized in this final permit action. The Department agrees that the ACO provides for operating certainty which can contribute to better transitioning of the closure of this facility. Additional information regarding the Department's best professional judgment determination is included in **Response 10**.

Comment 2

Several commentors express support for the draft NJPDES permit issued on January 7, 2010 which required cooling towers. Commentor 6 and Commentor 8 express support for the July 19, 2005 draft NJPDES permit (hereafter "2005 permit") and 2010 permit since both required the equivalent of a closed loop system or cooling towers. Commentor 15 says that the only change of consequence between the 2010 permit and the 2011 permit is the decision of Exelon to shut down Oyster Creek Generating Station in 2019 which should be made very clear in the permit. Other commentors state that they would support the 2011 permit if it were significantly improved prior to finalization. Commentor 8 says it would support the 2011 permit if further environmental protections are provided for and that the once-through cooling impacts are indeed eliminated.

Commentor 15 expresses disappointment that the plant is going to operate for nine more years but says this is less disappointing than if the plant were getting the twenty years allowable by the Nuclear Regulatory Commission. Commentor 15 believes a better deal would be seven years but agrees with the strategy of bringing Exelon, a bad actor, to the table. Commentor 15 states that a legally enforceable iron clad ACO with a fully functioning review record is the best deal available.

Commentor 27 asserts that there are no facts or evidence in the record, and therefore no analysis thereof, to support the Department's determination in the 2011 draft permit that allows Oyster Creek Generating Station to operate in a "business as usual" scenario and represents best technology available for minimizing impacts. The draft permit as proposed does nothing to address Oyster Creek Generating Station's impacts during the period leading up to the proposed closure.

(Commentors 6, 8, 15, 16, 27)

Response 2

In order to respond fully to this comment, it is essential to provide background information as to the rationale for issuance of the 2005, 2010 and 2011 draft permits. The permittee applied for a NJPDES Surface Water Renewal Permit Action through an application dated May 28, 1999. Until such time as this subject renewal permit is finalized, the October 21, 1994 NJPDES permit (herafter 1994 permit) remained in full force and effect pursuant to N.J.A.C. 7:14A-2.8.

As part of the process to renew the 1994 permit, the Department issued a draft NJPDES permit on July 19, 2005. The 2005 permit required one of two alternatives for the best technology available determination. Specifically, the Department stated that its preferred alternative was to reduce the intake capacity to a level commensurate with the use of a closed-cycle, recirculating cooling system. If the permittee demonstrated that this alternative was unavailable to the facility, a second alternative could be pursued. This 2005 draft permit incorporated conditions consistent with the then effective final Section 316(b) regulations issued by the United States Environmental Protection Agency (EPA) for Phase II facilities for which this facility met

the eligibility criteria. These federal regulations served to guide implementation of the 316(b) statute and became effective on September 7, 2004.

On July 9, 2007 EPA "suspended" the Phase II regulations through the July 9, 2007 Federal Register notice. This suspension was a result of the fact that the Second U.S. Circuit Court of Appeals issued its decision in the litigation over the Phase II regulation. See Riverkeeper, Inc., v. EPA, No. 04-6692, (2d Cir. January 25, 2007). The court's decision remanded several provisions of the Rule on various grounds. Once the Phase II Rule was suspended, EPA directed States and permitting authorities to issue permits in accordance with Best Professional Judgment (BPJ) pursuant to 40 CFR 401.14. Given the reliance of the July 19, 2005 draft permit on those suspended regulations, the Department was required to redraft the NJPDES permit for those conditions consistent with N.J.A.C. 7:14A-15.14. In sum, it would be inconsistent with current Section 316(b) regulatory authority for the Department to pursue finalization of the 2005 permit.

On January 7, 2010 the Department issued a redrafted NJPDES permit that superseded the July 19, 2005 draft permit. In the 2010 permit, the Department determined that closed-cycle cooling (i.e. cooling towers) constitutes best technology available (BTA) for the Oyster Creek Generating Station in accordance with best professional judgment (BPJ). The Department's determination was based, among other things, on Exelon's plan to operate the facility until the expiration of its United States Nuclear Regulatory Commission (USNRC) operating license in 2029.

On December 9, 2010 Exelon entered into an ACO with the Department. As part of this ACO, Exelon agreed that it would permanently cease power generation operations at the facility no later than December 31, 2019 rather than operate the facility until the expiration of its USNRC operating license in 2029. Exelon's commitment to terminate operations on or before December 31, 2019 is a material change to the analysis in the proposed January 7, 2010 determination. Due to these changed circumstances, the Department determined that it is appropriate to propose a new draft permit pursuant to N.J.A.C. 7:14A-15 which was issued on June 1, 2011. This subject renewal permit serves to finalize the 2011 draft permit.

The Termination date of December 31, 2019 is the cornerstone of the best technology available determination and is a requirement of this NJPDES permit. The Department has determined that shutdown of the facility ten years ahead of the scheduled expiration date of the USNRC license is best technology available for the purposes of the Section 316(b) determination. Please refer to **Response 3** for additional information on the best technology available determination. Please refer to **Response 16** regarding impacts and **Response 26** regarding mitigation efforts.

With respect to the assertion that Exelon is a bad actor and the execution of the ACO, it is important to note that the ACO was not executed in order to resolve compliance issues. Please refer to **Response 1** above regarding the purpose of the ACO.

Comment 3

Several commentors do not support the ACO and claim that it does not meet the intent of the Clean Water Act. Commentor 5 states that there was a political agreement that formed the foundation of the ACO which then formed the foundation of the permit. This commentor claims that it's transparent that the politics and political considerations drove the determination, not the law and the science which require the exercise of best professional judgment by Department professionals. This commentor further claims that there are standards, factors and criteria from the Section 316(b) regulations, statute and court decisions that the

Department did not consider such as technology, engineering, environmental science, and real economics. Commentor 27 states that the permit violates the spirit and intent of the Clean Water Act, violates administrative law principles, and arbitrarily grants Oyster Creek Generating Station immunity from the Clean Water Act.

Other commentors question or claim inconsistency of this permit decision with the new federal regulations for Section 316(b) of the Clean Water Act. One commentor states that this permit is not consistent with the impingement requirements in the rule since the rule gives the State even more powers to deal with impingement issues. Commentor 6 further states that because the rule gives states more powers to deal with cooling towers at existing sites and prohibits cost considerations, the Department should be moving forward with requiring cooling towers. Commentor 6 states that the permit is not consistent with the new federal regulations for Section 316(b) of the Clean Water Act since the impacts to the bay must be examined without a financial analysis. Commentor 27 states that the permit is inconsistent with relevant proposed and existing EPA Regulations.

(Commentors 5, 6, 26, 27)

Response 3

Section 316(b) of the Clean Water Act states the following:

> Any standards established pursuant to section 301 or section 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

The construction of Oyster Creek Generating Station was completed in 1969, which predated the enactment of the Clean Water Act in 1972.

The Department maintains that the 2011 renewal permit and the ACO are consistent with Section 316(b) of the Clean Water Act. Currently there are no final federal regulations for implementing Section 316(b) of the Clean Water Act and state's are required to issue permits in accordance with best professional judgment pursuant to 40 CFR 401.14. As noted in the 2011 renewal permit:

> …the Department has determined that the best technology available determination in accordance with best professional judgment is as follows:
>
> - Pursuant to the December 9, 2010 Administrative Consent Order ("ACO"), Exelon is legally required to **Terminate Operations**, as that term is defined in the December 9, 2010 ACO, no later than **December 31, 2019**. As a direct result of this requirement, the Department has determined that **closed cycle cooling is not the best technology available** given the length of time that would be required to retrofit from the existing once-through cooling system to a closed-cycle cooling system and the limited life span of the facility after implementation of the closed-cycle cooling system. The facility has physical limitations which constrain the location and types of closed-cycle cooling systems that could be installed. As stated in the January 7, 2010 draft permit, the length of time required to design, permit and construct closed-cycle cooling technology at the facility would likely be at least seven years and would involve significant costs.
>
> - In consideration of the required Termination date, the Department has determined, in its best professional judgment, that the Station's existing once-through cooling system, which is equipped with a number of existing measures to reduce impingement mortality and entrainment losses, including a system of Ristroph-

type screens and fish handling mechanisms, is the best technology available for the facility's cooling water intake through Termination and with respect to Post-Termination activities as defined in paragraph I of the Findings of the December 9, 2010 ACO.

- If this permit is administratively extended and remains in effect as of January 1, 2020, beginning on that day the permittee shall no longer be authorized to withdraw up to 662.4 million gallons per day (MGD) of non-contact cooling water through the Circulating Water Intake and up to 748.8 MGD of water through the Dilution Water Intake. Rather, on and after January 1, 2020, the Permittee shall reduce its surface water intake to the greater of 40,000 gallons per minute or the flow commensurate with that achievable using closed-cycle cooling.

As noted above, the best technology available determination considers environmental, economic, and scientific factors. Certainly the cessation of operations by 2019 greatly minimizes the withdrawal of water that will occur which has a commensurate reduction on impingement and entrainment. Also, the retrofit of an existing power plant with cooling towers represents a complex construction project which would be prohibitively expensive and require an extensive time frame. Please refer to **Response 10** for additional information.

The Department recognizes that the EPA issued draft regulations at 40 CFR Parts 122 and 125, National Pollutant Discharge Elimination System – Cooling Water Intake Structures Existing Facilities and Phase 1 Facilities for Cooling Water Intake Structures at Existing Facilities. These regulations were issued draft on April 20, 2011 and the Department agrees that Oyster Creek Generating Station meets the eligibility criteria under these regulations as an existing power generating facility. The Department is well aware of these regulations and provided comments on such during the public comment period. Until such time as these regulations are finalized, which is required by consent decree by July 2012, states are directed to issue permits in accordance with best professional judgment.

The Department does not agree that the proposed rule gives the states more powers to deal with impingement. Rather, the proposed rule sets a national impingement standard for existing facilities as noted on page 22197 of the April 20, 2011 Federal Register "…EPA is proposing the use of modified traveling screens with a fish handling and return system or reduced intake velocity as best technology available for impingement mortality…" As per the proposed rule, facilities have up to eight years to install this technology; however, Oyster Creek Generating Station has had this technology in place for many years.

With respect to the state's role in establishing entrainment requirements, the Department agrees with the comment that the proposed regulation allows states or permitting authorities to establish entrainment controls. As stated on page 22207 of the April 20, 2011 Federal Register:

> …EPA has determined that closed cycle cooling is not the "best technology available" for this proposal. After considering all of the relevant factors, EPA proposes that it should not establish a uniform BTA entrainment standard based on closed-cycle cooling for existing facilities other than for new units. Instead, …EPA is proposing that the permitting authority should establish BTA entrainment mortality controls on a site-specific basis..

However, the Department disagrees with the comment that asserts that the proposed regulation do not allow the consideration of costs. As stated on page 22212, "…As noted, the permit writer may reject an otherwise available entrainment technology as best technology available (or not require any best technology available controls) if the costs of the controls are not justified by the benefits." Furthermore, the consideration of site-specific factors in the best technology available determination contained in the 2011 permit, such as useful

remaining plant life and costs, are completely in line with the proposed EPA regulation as stated on page 22207:

> Four factors, in particular, led EPA, for this proposal, to reject a uniform standard based on closed-cycle cooling and illustrate why site-specific standard setting is the proper approach here. These factors are energy reliability, air emissions permits, land availability, and remaining useful plant life…

As a backdrop to this proposed regulation, a cost-benefit analysis was one element of the Second Circuit U.S. Court of Appeals decision in the litigation over the EPA Phase II Section 316(b) regulation. See Riverkeeper, Inc., v. EPA, No. 04-6692, (2d Cir. January 25, 2007). The issue of cost-benefit analysis was then brought before the Supreme Court after the decision of the Second Circuit U.S. Court of Appeals. Specifically, the question presented was "Whether 316(b) of the Clean Water Act, 33 U.S.C. 1326(b), authorizes the EPA to compare costs with benefits when determining the "best technology available for minimizing adverse environmental impacts" at cooling water intake structures?" On April 1, 2009, the Supreme Court issued a decision regarding the validity of cost/benefit determinations for Phase II facilities. The Supreme Court determined that the EPA permissibly relied on cost-benefit analysis in providing for cost-benefit variances from those standards as part of the Phase II regulations.

Finally, with respect to the question of consistency with the proposed EPA regulations with respect to impact analysis, please note that the proposed regulations specify a number of biological studies that are required after finalization of the rule. The majority of these studies concern facility related impacts, namely impingement and entrainment effects at the facility. The proposed regulation does not require an assessment of impacts to the biological population in the receiving waterbody (i.e. impacts to the bay) as suggested by this commentor.

In sum, the Department maintains that the 2011 renewal permit and the ACO are completely in line with current Section 316(b) requirements and are also consistent with the proposed 316(b) regulation.

Comment 4

Some commentors question the staying power of the ACO. Commentor 6 claims that in nine years PJM could exercise its power by declaring this a facility of need thereby allowing the plant to stay open particularly if New Jersey doesn't build other sources of power. Also, Exelon could pull out of this deal, based on the 20 year license, and the NRC would gladly go along with it since they want these plants to stay open and federal law trumps state law. Commentor 16 states that if the ACO isn't followed through, you still have a permit that allows enough water withdrawal for the plant to continue operating for its full extent that NRC has licensed. Commentor 6 states that if Exelon reneges on the ACO and decides to keep the plant open with cooling towers, they have a permit that authorizes a sufficient amount of water to do so. Finally, Commentor 6 states that this agreement was written by a governor who basically won't be in office at that time.

(Commentors 6, 16)

Response 4

The Department disagrees that the requirement in the ACO and in the 2011 permit can be reversed. Both the ACO and the NJPDES permit, both of which are legally enforceable documents, contain concrete steps leading up to Termination of Operations no later than December 31, 2019. These steps are as follows:

- By December 31, 2013, Exelon shall certify in writing to the Department's Bureau of Surface Water Permitting that the fuel parameters and planning for the 2014 plant outages are to be based on a five-year period of operation ending on December 31, 2019, and not the standard six-year period;

- By December 31, 2014, Exelon shall take into account the Termination in the calculation of the anticipated decommissioning cost and earnings estimates for the Station, which shall be included in the biennial or annual reports regarding decommissioning funding assurance submitted to the USNRC;

- By December 31, 2014, Exelon shall include in the next biennial or annual report to the USNRC regarding decommissioning funding assurance the fact that Exelon intends to Terminate Operations on or before December 31, 2019, and shall have the anticipated decommissioning cost and earnings estimates reflect that date;

- By December 31, 2014, Exelon shall certify in writing to the Department's Bureau of Surface Water Permitting that the Station's five-year outage schedule lists the 2018 outage as the final scheduled refueling outage;

- By May 31, 2016, Exelon shall certify in writing to the Department's Bureau of Surface Water Permitting that the Station's output was not bid into the PJM capacity market auction for delivery after December 31, 2019;

- By December 31, 2018, Exelon shall submit the Post-Shutdown Decommissioning Activities Report ("PSDAR") to the USNRC based on the December 31, 2019 Termination, in accordance with 10 CFR 50.82(a)(4)(i).

Please refer to **Response 9** regarding concerns for continued water withdrawal after 2019.

Comment 5

Many commentors express concern about energy and the closure of Oyster Creek Generating Station. Commentor 9 states that the tax revenue on the electricity that is generated from the plant will go away when the plant is closed. Commentor 19 states that the plant is a vital part of the energy picture and the economy of the region since it employs nearly 700 workers and provides electricity for 600,000 New Jersey homes. Commentor 11 states that the infrastructure for power generation is not very good and there will be a need for continuing energy given the growing population down the coastline. Commentor 17 states that it is crucial that we begin work immediately on upgrading our energy distribution infrastructure while developing clean, affordable sources of generation to replace Oyster Creek Generating Station's output.

Commentor 21 states that because Oyster Creek Generating Station only produces one percent of power towards the electrical grid that when Oyster Creek Generating Station goes off-line no one notices. Oyster Creek Generating Station has had several, if not many, unplanned outages due to various problems that are associated with the aging process.

Several commentors express concern about replacement power for Oyster Creek Generating Station after its closure. Commentor 9 questions if Oyster Creek Generating Station's 619 Megawatts of energy will be

replaced by a coal fired plant in Ohio at a more expensive rate. Commentor 14 states that nuclear is the safest way of generating electricity.

(Commentors 9, 11, 13, 14, 17, 19, 21)

Response 5

The Department recognizes that Oyster Creek Generating Station is rated to produce 670 Megawatts electric (MWe) which is enough energy for 600,000 average American homes. The Department also recognizes that this power will need to be replaced once the plant stops producing energy where replacement power could come from sources of energy other than nuclear. However, issues relating to energy production and transmission are not relevant to the issuance of the NJPDES permit and are rather controlled by PJM. The PJM Interconnection is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of thirteen states (including New Jersey) and the District of Columbia. Additional information regarding PJM can be found at www.pjm.com.

The Department also recognizes that the closure of this plant will affect employment in the region and may impact the tax revenue to Lacey Township. Again, these issues are outside the scope of the NJPDES permit.

Comment 6

Several commentors state that Oyster Creek Generating Station is safe and reliable and express support for its employees. Some commentors state that Exelon's skilled and dedicated employees take great pride in the operation of Oyster Creek Generating Station and operate it to the highest standards of safety and efficiency.

Many commentors state that Oyster Creek Generating Station is a good and responsible neighbor. Other commentors state that Oyster Creek Generating Station provides jobs. Commentor 3 states that Oyster Creek Generating Station has been great for Lacey Township and great for all the people that have lived here all these years. Commentor 12 stated that Oyster Creek Generating Station allows people to sustain a life here enabling them to boat on Barnegat Bay. Commentor 3 stated that he'd like them to stay until the end of the relicensing period in 2029. Commentor 18 urges NJDEP to allow Oyster Creek Generating Station to continue to operate as they are a part of the history of Lacey Township as evidenced by the township seal.

Other commentors describe efforts by Exelon with respect to community service. Commentors 10 and 13 state that Exelon helped the Fish Hawks fishing club sponsor a recent event to help teach underprivileged and military children to fish. Commentors 18 and 20 state that Oyster Creek Generating Station donated funds to allow the continued tradition of fireworks on the fourth of July. Commentor 20 states that Exelon has donated money to the school system for computers and that Exelon is a top supporter for the Ocean County United Way.

(Commentors 3, 4, 7, 9, 10, 12, 13, 14, 18, 19, 20)

Response 6

Issues relating to assertions that Oyster Creek Generating Station is a good and responsible neighbor; the skill and dedication level of its employees; and its contributions to the community are outside the scope of the NJPDES permit.

Comment 7

Some commentors state that Exelon is a bad neighbor. Commentor 21 states that Exelon exhibits corporate sociopathic behavior and has no conscience. This commentor claims that Exelon continues to purchase their welcome to Lacey and questions the coincident timing of a donation of $900 to a local school district for computers with the timing of the public hearing. Commentor 15 states that Exelon is a bad neighbor as evidenced by the tritium in Lacey's waters.

(Commentors 15, 21)

Response 7

As noted above in **Response 6**, issues relating to assertions that Oyster Creek Generating Station is a bad neighbor are outside the scope of the NJPDES permit. Please refer to **Response 35** concerning issues related to tritium.

Comment 8

Several commentors express concern about the continued water withdrawal of 57.6 MGD that is permissible under the ACO after closure of the plant in 2019. Commentor 6 says that after 2020 the plant is not required to be shut down but rather the plant must meet the amount of water withdrawal as if there were cooling towers. Commentors 26 and 27 state that this withdrawal of cooling water for the reactor will result in continued impingement and entrainment impacts to the local biota for several years after the plant closes yet there is no requirement for this impact to be assessed through biological monitoring.

Several commentors question whether or not this water withdrawal allowance will result in a new plant being located on this site. Commentor 6 states that because the permit does not stipulate that the water can only be used for decommissioning, this site can be used for a natural gas plant, a nuclear plant or even a rebuilt factory so long as there are cooling towers. Commentor 6 states that 57.6 MGD is about the same amount of water that Hope Creek uses for cooling and Hope Creek is 1268 Megawatts as compared to 629 Megawatts for Oyster Creek Generating Station.

Commentor 27 calls upon the Department to explicitly state in the final NJPDES permit that if the permit is administratively extended or modified for operations beyond Termination, than any cooling water intake can only be used for decommissioning and for SAFESTOR operations and activities.

(Commentors 6, 11, 16, 26, 27)

Response 8

As noted in this comment, both the ACO and NJPDES permit do allow continued water withdrawal after closure of the plant. Specifically, as stated in the ACO, "… Rather, on and after January 1, 2020, the Permittee shall reduce its surface water intake to the greater of 40,000 gallons per minute or the flow commensurate with that achievable using closed-cycle cooling." The purpose of this language is to ensure that the plant can meet its cooling needs after power generation has ceased. These cooling needs would not be associated with power generation through use of the reactor but would be utilized for other activities such as cooling needs for the spent fuel pool. This restriction of 40,000 gallons per minute is equivalent to 4% of

Oyster Creek Generating Station's current flow through the circulating water intake structure and dilution water system. Therefore, this restriction results in a **96% reduction** as compared to current operations.

The Department intentionally limited this withdrawal allowance to that of a flow commensurate with closed-cycle cooling. This ensures that the waterbody is assured the same environmental benefits as a reduction in withdrawal attained with closed-cycle cooling. Entrainment impacts of cooling water intake structures are closely linked to the amount of water passing through the intake structure because the eggs and larvae of some aquatic species are free-floating and may be drawn with the flow of cooling water into an intake structure. With respect to impingement impacts, swim speeds of affected species as well as intake velocity must be taken into account to predict rates of impingement in relation to flow in order to account for the ability of juvenile and adult life stages of species to avoid impingement. Considering both of these effects, a reduction in flow after January 1, 2020 will result in a vast reduction in impingement and entrainment. However, because a withdrawal will still occur, there will still be some impingement and entrainment effects. Please refer to **Response 16** for additional information regarding impacts.

As noted in this comment, the volumes of water associated with the Hope Creek facility's closed cycle cooling system are relatively low, approximately 103 cubic feet per second (66.8 million gallons per day) during normal operations. Because of this flow volume the number of organisms susceptible to entrainment and impingement is relatively low as compared to a once through cooling system.

The Department can not predict whether or not this water withdrawal would result in the site being used for alternate means. However, development of a new site on this property would require extensive permitting and other approvals for which there would be a regulatory public review process.

The Department's NJPDES regulatory authority concerns the control of impacts on the environment as a result of water withdrawal and discharge. The Department has set a restriction of 40,000 gallons per minute (57.6 MGD) to control impingement and entrainment impacts after 2019 as best technology available for the purposes of the Section 316(b) determination. The Department does not agree that it has the regulatory authority to control business practices at the site by dictating that continued water withdrawal after Termination must be exclusively for the purposes of decommissioning and for SAFESTOR operations and activities.

Comment 9

Commentor 27 expresses concern with how the Department will calculate the "flow commensurate with that achievable using closed-cycle cooling technology." On page 21 of the draft permit Fact Sheet, the Department states that the potential intake of the conceptual closed cycle cooling mechanism at the plant would be 403 million gallons per day and the discharge will be 288 million gallons per day. Commentor 27 questions if this is the figure the Department will be using and, if so, does this mean that Oyster Creek Generating Station will potentially be permitted to withdraw up to 403 million gallons per day post-Termination. Commentor 27 asks if the Department is anticipating requiring closed-cycle cooling at that time (or technologies that achieve that level of water use), what Clean Water Act reason does the Department have for not immediately requiring that level of water use?

(Commentor 27)

Response 9

The Department is not authorizing Oyster Creek Generating Station to withdraw up to 403 MGD post-Termination nor is the Department anticipating a closed-cycle cooling requirement for this existing facility at a future date in time. Rather, the Department is limiting Oyster Creek Generating Station to 40,000 gallons per minute or 57.6 MGD intake post-Termination. The figure of 403 MGD as noted in this comment originates from the chart that was included on page 21 of the 2011 Fact Sheet which is excerpted as follows:

> The Department has completed its review of the March 4, 2006 "Determination of Cooling Tower Availability". To summarize the findings of this report, the difference in flows between the closed-cycle cooling system and current once through system is as follows:

	Current Once-Through Cooling	**Conceptual Closed-Cycle Cooling**	**Percent Change from Current System**
Intake Flow			
Circulating Water System Dilution Pumps Cooling Tower Make-up	662 748 N/A	N/A 374* 29	
Total Intake Flow	1410	403	-71%
Effluent Flow			
Circulating Water System Dilution Pump Cooling Tower Blowdown	662 748 N/A	N/A 374* 14	
Total Effluent Flow	1410	388	-72%

* It is contended in this report that operation of a dilution pump is necessary. This summary of flow reductions assumes that this contention is accurate.

In other words, the permittee estimates that if cooling towers are constructed at Oyster Creek Generating Station, a continued intake flow of 403 MGD would still be required and an effluent flow of 388 MGD would still occur. This results in an intake reduction of 71% and an effluent reduction of 72% as compared to the current system.

However, based on the ACO, the permittee is limited to an intake flow of 40,000 gallons per minute or 57.6 MGD after December 31, 2019. This is a reduction in intake flow of 96%. This is far less than the estimated reduction in flow if cooling towers were built as noted in the report. Additional information regarding cooling towers is included in **Response 10.**

Comment 10 - Support for cooling towers

Many commentors state that cooling towers are best technology available. Other commentors state that cooling towers are not cost prohibitive and question the basis of the cost findings of $800 million.

Commentor 25 states that they have repeatedly commented on past draft permit actions as well as actions relating to NRC relicensing that closed-cycle cooling constitutes the best technology available for Oyster Creek Generating Station. Closed-cycle cooling is the most appropriate and effective means to reduce adverse effects to NOAA trust resources and the ecology of Barnegat Bay.

Commentor 5 says that the permittee has played games to change the underlying economics to make it appear that cooling towers are economically impracticable. Commentor 5 also states that there have been no changes to the technology, the state of the bay, or the science of aquatic impacts so the only change is that the Department based its new best professional judgment on the closure required in the ACO. This changes the payback period for cooling towers from 10 to 20 years. The Department's economic analysis is flawed since cost considerations should not be used in determining best technology available.

Other commentors state that the timeframe to install cooling towers is not prohibitive. Some commentors contend that there is enough space for cooling towers at Oyster Creek Generating Station. Commentor 13 suggests that Exelon be given a license to operate for another 20, 30 or 40 years to stretch the costs of cooling towers out.

Commentor 6 contends that the Department's analysis which determined cooling towers are not best available technology used inappropriate and misleading financial claims. The economic factors of cooling towers are not supposed to overweigh the other economic factors which is the death of the bay; the impact to a hundred million dollars worth of real estate along the bay; and the $4 billion tourism industry. Commentor 6 contends that when this is factored in, the economics are out of skew in favor of the cooling tower, not Exelon's profits. The permit is more about public relations than public policy and more about political science than sound science. The sound science is for a cooling tower.

Commentor 27 questions whether Exelon's information on the costs and construction schedule for cooling tower installation is legitimate or can cooling towers be built quicker and cheaper. Commentor 27 questions whether the ecological benefits to the bay are outweighed by the true, independent, verifiable estimates of the cost of cooling towers.

(Commentor 5, 6, 8, 13, 24, 25, 27)

Response 10

The Department agrees that closed-cycle cooling is a technology which minimizes the withdrawal of cooling water as compared to a once-through cooling system. However, cooling towers have numerous environmental impacts such as:

- The height and visual obtrusion of the towers
- The impingement and entrainment impacts relating to the withdrawal of water for cooling tower make-up water
- The effects of the cooling tower blowdown on marine biota and populations
- Tower vapor plume effects due to size, frequency, or trajectory, including icing and fogging effects
- Impacts to traffic visibility on nearby roads and highways
- Salt drift from the towers on the nearby community
- Noise impacts on neighbors
- Impacts of particulate emissions on air quality including potential impact on soils, vegetation and visibility.

As noted in **Response 8**, this site will receive the same benefits of a closed-cycle cooling system with respect to withdrawal volume after December 31, 2019 yet will not be subjected to any of the above environmental impacts of cooling towers.

As described extensively in the June 1, 2011 draft permit, the Department carefully considered the retrofit of this existing facility with closed-cycle cooling tower technology. Retrofitting an existing station involves a complicated and wide-scale construction project involving substantial costs. The facility has physical constraints which limit the location and types of closed-cycle systems that could be installed. Relocation of major water piping systems and the security perimeter would be required due to the size of the area affected. Because this facility is a nuclear station, the lifespan of the facility must also be considered.

In reliance upon Exelon's commitment to terminate operations no later than December 31, 2019, the Department determined that closed-cycle cooling is not the best technology available given the length of time that would be required to retrofit from the existing once-through cooling system to a closed-cycle cooling system and the limited life span of the facility after implementation of the closed-cycle cooling system. As stated in the 2011 permit, the length of time required to design, permit, and construct closed-cycle cooling technology at the facility would likely be at least seven years and would involve significant costs. The willingness for Exelon to shorten its lifespan dramatically changes the economical viability of retrofitting Oyster Creek Generating Station with cooling towers. The Department disagrees with the contention that it is not permitted to consider costs as part of the Section 316(b) determination as discussed at length in **Response 3.**

With respect to the issue of costs, URS, on behalf of the permittee, submitted a report entitled "Determination of Cooling Tower Availability" (hereafter "report") dated March 4, 2006. As detailed in this report, it is estimated that the cost of a hybrid dry cooling tower is between 705 million dollars and 801 million dollars over a ten year period. Costs include (in descending order): 1) construction (material and labor); 2) lost energy revenue; 3) lost energy during outage; 4) risk factor; 5) added real estate taxes; 6) maintenance/chemicals; 7) added security personnel; 8) added operators; 9) lost capacity revenue; 10) lost capacity during outage; 11) environmental/public relations; 12) dislocation of master plan; 13) added insurance. It is conceivable that the estimated costs of a cooling tower retrofit could be comparable to or exceed the original capital cost of the plant.

In sum, the Department and Exelon entered in an ACO which requires Exelon to terminate operations no later than December 31, 2019. This determination was based on numerous factors including costs, feasibility, time, and environmental impacts. The Department maintains that the early closure of Oyster Creek Generating Station is a major win for the long-term health of Barnegat Bay.

Comment 11

Some commentors compare the costs of cooling towers at Oyster Creek Generating Station to other facilities. Commentor 13 says that two brand new cooling towers for the Brayton Point plant in Massachusetts were built in about a year and hundreds of people were employed in building them. According to the construction and zoning department at Somerset, Massachusetts the cost of the cooling towers was $100 million so it is unclear how Exelon estimated $800 million. Commentor 6 states that similar sized facilities have been able to install cooling towers for $100 to $150 million.

(Commentors 6, 13)

Response 11

This comment refers to the Dominion Brayton Point Power Station located in Somerset, Massachusetts. This facility is in the process of retrofitting its once-through cooling system to a closed-cycle cooling system with cooling towers as noted in this comment. Brayton Point is a coal-fired facility that generates a total of 1538 megawatts making it New England's largest fossil-fueled generating facility. According to the website at http://www.dom.com/about/stations/fossil/brayton-point-power-station.jsp, the cost of cooling towers for this facility was $500 million. Unlike nuclear facilities such as Oyster Creek Generating Station, fossil-fueled generating facilities do not have a finite operating license. This significantly impacts the payback period for any capital improvements.

Establishing costs for retrofit of a once-through cooling system to a closed-cycle cooling system is very dependent on site-specific factors. Nonetheless, the Department is unaware of any other facilities, with the exception of Brayton Point, that are in the process of a retrofit so a cost comparison is not possible.

Commentor 12

Some commentors express support for the 2011 permit since it does not require cooling towers. Commentor 1 states that cooling towers would hinder the efforts at this time to provide the reliable power that this plant does generate.

(Commentors 1, 4)

Response 12

As noted in this comment, the Department did not require cooling towers in the 2011 permit. Please refer to **Response 1** for additional information.

Comment 13

Commentor 8 questions the Department's finding with respect to the water reduction for cooling towers. Commentor 8 states that the potential for a 95 to 98 percent reduction in water use by two closed-cycle cooling systems was not mentioned in the 2011 permit and only an older study was cited.

Commentor 22 questions information released by Exelon pertaining to potential problems with air pollution associated with the installation of cooling towers. This commentor contends that there is no such thing as an air pollution problem with induced draft and natural draft cooling towers and it is always a water quality problem. While the introduction of salt water in a cooling system will result in salt draft, this argument has no merit considering the abundance of fresh water in this area of the state.

(Commentors 8, 22)

Response 13

The Department did not make a finding that a retrofit with a closed-cycle cooling system at Oyster Creek Generating Station would result in a 95 to 98 percent reduction in intake water withdrawal in the 2011 or 2010 draft permits. Rather, the Department summarized the results of the March 4, 2006 "Determination of

Cooling Tower Availability" study submitted by URS on behalf of the permittee. As noted on page 21 of the 2011 Fact Sheet and summarized in **Response 9**, the percent change in intake flow was estimated at 71%.

The Department maintains that there would be air emissions from any cooling tower at Oyster Creek Generating Station. Because the intake water is saline, salt drift would be an issue. While New Jersey may have an abundance of fresh water, this water is not readily available in the vicinity of the cooling water intake structure where Oyster Creek Generating Station is located.

Comment 14

Commentor 6 expresses concern that this permit undermines the ability to require cooling towers at other power plants in New Jersey such as Salem. Commentor 6 further states that this permit will undermine attempts for installing cooling towers at other industrial facilities and generation plants in the state, as 7 of the 14 facilities monitored under this program have expired permits.

Commentor 13 suggests that a new nuclear plant with cooling towers be constructed in Waretown.

(Commentors 6, 13)

Response 14

The Department does not necessarily agree that this permit sets precedence for Section 316(b) determinations for other power generating facilities in New Jersey. A best technology available determination is a site-specific determination that is based on a variety of site-specific factors such as location, design, construction and capacity. Also, EPA is in the process of issuing final regulations for implementation of Section 316(b) which will dictate the requirements for Section 316(b) as discussed above in **Response 3**.

As noted in this comment there are other existing power generating facilities and industrial facilities with once-through cooling systems in New Jersey. However, the number of facilities is greater than fourteen. Please refer to http://datamine2.state.nj.us/dep/DEP_OPRA/ for the status of specific NJPDES permits.

With respect to the suggestion that a new nuclear plant be constructed in Waretown, this issue is outside the scope of the NJPDES permit.

Comment 15

Commentor 27 questions whether the Department reviewed other potential available technologies including a cost/benefit assessment and asks that this information be made publicly available.

(Commentor 27)

Response 15

The Department considered other available intake protection technologies from historical studies as described at length in the 2011 Fact Sheet. These studies were identified in the Contents of Administrative Record included in the draft permit and have been available for public review through the Department's Open Public Records Act (OPRA) process. In addition, as noted in **Response 10**, the Department carefully considered cooling towers as an available intake protection technology and URS submitted a report entitled

"Determination of Cooling Tower Availability" on March 4, 2006. This study was also identified in the Contents of the Administrative Record and has been available for public review.

Comment 16

Many commentors contend that Oyster Creek Generating Station is a significant contributor to impacts on Barnegat Bay. Commentor 8 states that the plant's impacts are contributing to the decline of Barnegat Bay through thermal pollution, discharges of chlorine, groundwater contamination, and organic nutrient loading from the plant. Commentor 6 says that the plant is a major cause of the serious problems of the bay including the presence of sea nettles in May and June, nitrification, and algae blooms even in cold months. Commentor 6 states that this permit allows for the continued destruction of the bay which jeopardizes the $4 billion tourism industry where 100,000 people can be boating on the bay on a summer week-end.

Commentor 24 states that, while they appreciate closure of the facility, the daily withdrawal of nearly 1.4 billion gallons of water remains ecologically significant resulting in an estimated annual death of over two million pounds of aquatic biota from Barnegat Bay. Should the plant remain operational until 2019, it is expected that nearly 20 million pounds of aquatic biota (or an estimated 10 billion organisms) will be killed by the plant.

Some commentors contend that the ACO and the permit do not provide an adequate assessment of the continued impacts to the bay associated with the operation of the plant up until closure in 2019. Commentor 24 states that the NJPDES permit review process does not adequately address the expected significant losses to the aquatic environment and a more robust public interest review process should be conducted. Commentor 26 states that the impingement and entrainment impacts for the remaining operational life of the facility may be substantial and significant but have been inconsistently monitored and poorly assessed. Commentor 6 suggests that the Department assess the impacts to the bay of operating this plant for another twenty years with cooling towers versus implementing this permit and allowing Oyster Creek Generating Station to operate over the next ten years.

Commentor 27 calls on the Department to compare the actual impacts on the Bay's ecosystem of the plant's continued once through cooling operation (through 2019) against the benefits through immediate plant closure (NJPDES permit denial) or cooling tower construction over the next eight years through the end of the operating license.

(Commentor 6, 8, 16, 24, 25, 26, 27)

Response 16

The Department agrees that there are a variety of impacts to Barnegat Bay and that Oyster Creek Generating Station is a contributor. On December 9, 2010, Governor Christie announced a comprehensive action plan to address the health of Barnegat Bay as one of its top priorities including the resolution of the issue of a cooling system at Oyster Creek Generating Station. The comprehensive action plan is available at www.state.nj.us/dep/barnegatbay/ and is summarized in **Response 18**. The Department maintains that closure of Oyster Creek Generating Station is the most effective alternative in minimizing impacts from the facility as discussed at length in **Response 10**.

Please refer to **Response 19** for further information on impingement and entrainment impacts. Please refer to **Response 23** regarding thermal effects. Please refer to **Response 30** regarding chlorine effects. Please refer to **Response 35** regarding groundwater issues.

Comment 17

Many commentors call for mitigation for the impacts of the plant's continued operation. Commentor 25 states that considering that Oyster Creek Generating Station has operated since the late 1960s without requisite compensation for these aquatic losses, the long term effects on the aquatic resources of Barnegat Bay have been and remain significant.

Commentor 24 makes note of the PSEG-Salem nuclear power generation facility which was required by the Department to develop and implement a 20,000 acre tidal restoration project in the Delaware Bay. The Salem facility requires over 4 billion gallons of water daily to be withdrawn from the bay and has similar entrainment and impingement impacts on the aquatic environment as does Oyster Creek Generating Station. This commentor questions why the Department would treat the two power generation facilities so differently when the ecological impacts are similar and requests that the Department require commensurate compensation as was done for PSEG. Commentor 24 states that if the Department fails to require commensurate compensation and mitigation for the annual loss of two million pounds of the Bay's aquatic resources, it is unclear how the Department can claim continued ability to implement the Clean Water Act through the federally delegated Clean Water Act Program.

(Commentor 6, 24, 25, 26, 27)

Response 17

The PSEG-Salem facility is a power generating facility in Salem County which has a once-through cooling water system and an intake flow limitation of 3.024 billion gallons per day. The commentor is correct in that the Department included an extensive restoration requirement in PSEG-Salem's 1994 and 2001 NJPDES permits. However, the Department did not designate the wetlands restoration program and fish ladder requirements as best technology available under Section 316(b). Rather, the Department incorporated this plan, after it was voluntarily proposed by PSEG outside of what was required under Section 316(b), as a special condition to the permit because of its environmental benefits and because it will continue to help minimize the potential for adverse impacts from the cooling water intake structure even after the useful life of the plant has expired.

Moreover, it should be noted that USEPA has issued other permit decisions that have required mitigation measures. See, e.g., In the Matter of Crystal River Power Plant Units 1, 2 and 3 (Florida Power Corporation), National Pollutant Discharge Elimination System (NPDES) Permit No. FL00000159 (revised Findings and Tentative Determinations Pursuant to 33 U.S.C. Section 1326, September 1, 1988) (hereafter "Crystal River Determination") and Tennessee Valley Authority (John Sevier Steam Plant) NPDES No. TN0005436 (USEPA 1986). In Crystal River, the USEPA determined that the costs of retrofitting the Crystal River Power Plant with closed cycle cooling were wholly disproportionate to the environmental benefits to be gained and, further, that construction of a fish hatchery, which was proposed by the permittee, would help minimize the environmental impacts of the cooling water intake structure and should be included in the plant's permit. In the John Sevier matter, EPA required a continuous fish stocking program among other

requirements after finding that the costs of removal of a detention dam would be wholly disproportionate to the environmental benefits to be conferred.

However, both the PSEG-Salem NJPDES decisions and the above referenced court cases predate the finding by the Second U.S. Circuit Court of Appeals which is described in **Response 3**. Specifically, the Second U.S. Circuit Court of Appeals issued its decision in the litigation over the Phase II regulation. See Riverkeeper, Inc., v. EPA, No. 04-6692, (2d Cir. January 25, 2007). The court's decision remanded several provisions of the Rule on various grounds including, but not limited to the following:

- EPA's determination of the Best Technology Available under section 316(b);
- The Rule's performance standard ranges;
- The Cost-cost and cost-benefit compliance alternatives;
- The Technology Installation and Operation Plan provision and;
- The restoration provisions.

As a result of this remand, EPA suspended the Phase II Section 316(b) regulations as articulated in the July 9, 2007 Federal Register. EPA directed States and permitting authorities to issue permits in accordance with Best Professional Judgment (BPJ) pursuant to 40 CFR 401.14.

With respect to the rejection of the use of restoration measures for the purposes of implementing Section 316(b) in the Phase II regulation, the Second U.S.Circuit Court of Appeals stated the following:

> "…restoration measures contradict the unambiguous language of section 316(b)..."
>
> "…Accordingly, the EPA impermissibly construed the statute by allowing compliance with section 316(b) via restoration measures, and we remand that aspect of the Rule…"

Following the suspension and in an effort to promulgate Section 316(b) regulations, EPA issued draft regulations again in March 2011 as described in **Response 3**. These proposed regulations do not include restoration as a tool that can be used to comply with the best technology available determination as part of the Section 316(b) regulations.

The cornerstone of the best technology available determination for Oyster Creek Generating Station is the closure of the facility in 2019 as discussed in **Response 1**. Nonetheless, there are mitigation measures that are outside of the best technology available determination at Oyster Creek Generating Station as discussed in **Response 26.**

Comment 18

Several commentors contend that impacts to Barnegat Bay are caused by stressors other than Oyster Creek Generating Station. Commentors 9 and 10 contend that ChemLawn and other lawn products are the cause of problems for Barnegat Bay. Commentor 10 states that the reason that there are jellyfish in the lagoons of Barnegat Bay is because of nitrogen that is contained in fertilizers then discharged to storm drains through stormwater runoff. Commentor 14 states that it is overpopulation and fertilizer runoff that is hurting the bay. Commentor 15 states that if Oyster Creek Generating Station were to shutdown today the bay would still be on a death spiral.

Commentor 27 states that the most serious threat to the ecological integrity of the estuary are those that can adversely effect the structure and function of the entire system. This includes contamination from runoff from human development, escalating algal blooms, impacted essential habitat (e.g., seagrass and shellfish beds), finfish species decline, loss of fisheries (e.g. hard clams, *Mercenaria mercenaria)*, invasion of deleterious organisms (e.g. sea nettles, *Chrysaora quinquecirrha*), decreased biodiversity, low dissolved oxygen levels, and other changes

Some commentors state that fishing around the nuclear plant is fantastic. Commentor 10 states that you can only catch fish around the nuclear plant and not in other areas such as Toms River. Commentor 9 states that fish migrating up the east coast make a left turn at the inlet since the water by the plant is a little bit warmer, a little bit more livable, and because there are bait fish in abundance.

(Commentors 9, 10, 14, 15, 27)

Response 18

The Department agrees that Barnegat Bay is subject to a variety of stressors and that its health is in ecological decline. To address these impacts, the Christie Administration's comprehensive action plan for Barnegat Bay includes the following actions:

1. **Close Oyster Creek Nuclear Power Plant** - The State has negotiated and entered into an agreement with Exelon Corporation to cease electric generation operations at the Oyster Creek Generating Station within nine years.

2. **Fund Stormwater Runoff Mitigation Projects** - The State has identified and prioritized funding for projects designed to address nutrient pollution of Barnegat Bay from stormwater basins.

3. **Reduce Nutrient Pollution from Fertilizer** - On January 5, 2011, Governor Chris Christie signed legislation that established the most restrictive standards in the nation for nitrogen content in fertilizer and application rates for use.

4. **Require Post-Construction Soil Restoration** - On January 5, 2011, Governor Chris Christie signed into law a measure that requires the Secretary of Agriculture and the Commissioner of Environmental Protection, through the State Soil Conservation Committee, to propose modifications to the exiting soil erosion and sediment control standards.

5. **Acquire Land in the Watershed** - Acquiring available, ecologically sensitive lands along the Barnegat Bay and its tributaries is a cost-effective and critical measure to prevent development activities that could further degrade the Bay's water and ecological quality.

6. **Establish a Special Area Management Plan** - A Special Area Management Plan (SAMP) will be developed in collaboration with members of the Barnegat Bay Partnership and other planning authorities in the region.

7. **Adopt More Rigorous Water Quality Standards** - After adopting narrative nutrient criteria for coastal waters on December 21, 2010, the DEP and its partners launched a new comprehensive ambient water quality monitoring network in the Barnegat Bay watershed on June 6, 2011.

8. **Educate the Public** - The DEP is developing a strategy that leverages the media, environmental advocates, and the Barnegat Bay community to educate the public on the impacts of their actions.

9. **Fill in the Gaps on Research** - The NJDEP Office of Science has been working with the Science Advisory Board, state universities, the U.S. Geological Survey, the U.S. Environmental Protection Agency, and the Barnegat Bay Partnership to develop and fund additional research projects that will address filling in the data gaps, help address how we improve water quality and advance habitat restoration on the Bay, and establish baseline conditions of the Bay.

10. **Reduce Water Craft Impacts** - Boats and personal water craft can harm the Bay by damaging submerged aquatic vegetation and disrupting aquatic habitats. Designation of a Conservation Zone, similar to the one at Island Beach State Park, can reduce such impacts.

While the majority of these items are outside the scope of the NJPDES permit for Oyster Creek Generating Station, the Department maintains that these efforts will address many of the impacts noted in this comment.

With respect to the issue of recreational fishing around the plant, this issue is outside the scope of the NJPDES permit.

Comment 19

Many commentors express specific concern about the impingement and entrainment losses to aquatic life as a result of Oyster Creek Generating Station. Commentor 5 states that the Department's own data shows that the plant is slaughtering life in the bay. Commentor 6 states that because the plant's four pumps can take 165.6 million gallons of water from the Bay every day, which amounts to 2.8 percent of the total volume of the Bay, this kills millions of pounds of biota. This includes the impingement of billions of fish larvae, fish eggs and a variety of aquatic species from bay anchovies to grass shrimp. Cooling towers would be the best way to limit impingement effects.

Commentor 8 contends that problems identified with Exelon's survival study in the 2008 characterization report were not addressed. (Commentor 8)

(Commentor 5, 6, 8, 24, 27)

Response 19

The Department agrees that impingement and entrainment losses at the plant are significant. These losses are documented in great detail on pages 12 through 19 of the 2011 draft permit. Again, the Department has determined that the Termination date of December 31, 2019 is the cornerstone of the best technology available determination and hence a requirement of this permit. This significant requirement is the best way to minimize impacts from the facility and the environmental benefits of such are far greater than cooling towers. Again, the intake flow will be reduced by 96% from current operations after 2019.

The Department is unclear as to the assertion that there were problems identified with Exelon's survival study in the 2008 characterization report. Nonetheless, the Department did revise some of this information between the 2010 and 2011 draft permits to better represent the study data.

Comment 20

Several commentors express concern regarding impacts to threatened and endangered species, particularly turtles. Commentor 8 states that the 2011 draft permit must include updated information on the impingement impacts to the endangered and threatened species since the plant's impingement impacts to species, notably sea turtles, are not even mentioned. Commentor 8 further asserts that plant records show that 60 sea turtles have been impinged since 1993 resulting in 20 mortalities where 45 of these were Kemp Ridley Sea Turtles with 17 mortalities. Commentor 8 states that the Kemp Ridley is the most endangered of the world's sea turtle species and the plant should be held accountable for the loss of threatened and endangered species.

(Commentors 8, 27)

Response 20

The lead agency regarding the incidental take of threatened and endangered species is the National Marine Fisheries Service (NMFS). Specifically, NMFS is responsible for regulating the incidental take of threatened and endangered species in accordance with Section 7 of the Endangered Species Act of 1973, as amended. The USNRC has integrated the requirements of the NMFS Section 7 determination into the Facility Operating License. Oyster Creek Generating Station is required to notify NMFS of any capture of sea turtles as well as the Department and the USNRC. Station personnel handle the release of the animal with a veterinarian and turtles that are healthy are released. While these issues are outside the scope of NJPDES authority, the Department has prepared a summary of some recent relevant information as well as available data in order to ensure a complete response to this comment.

The following is a summary of incidental take data assembled in the NMFS Biological Opinion dated November 21, 2006:

Date Found	Time Found	Species of Sea Turtle	Status when found	Cause of death, if known
7/22/2001	5:44 p.m.	Juvenile Kemp's ridley	Dead	Not available
10/26/1992	3:00 a.m.	Kemp's ridley	Alive	
10/17/1993	12:00 p.m.	Kemp's ridley	Dead	Drowning as likely cause
7/1/1994	10:00 a.m.	Kemp's ridley	Dead	Not available
7/12/1994	9:40 p.m.	Kemp's ridley	Dead	Not available
9/4/1997	3:18 a.m.	Kemp's ridley	Dead	Not stated
9/23/1999	3:10 a.m.	Kemp's ridley	Alive	
7/2/2000	3:00 p.m.	Kemp's ridley	Dead	Not available
8/28/2000	1:12 a.m.	Kemp's ridley	Alive	
8/14/2001	3:34 a.m.	Kemp's ridley	Dead	High intake canal turbidity?
6/29/2002	2:00 a.m.	Kemp's ridley	Alive	
7/3/2002	7:55 a.m.	Kemp's ridley	Alive	

Date Found	Time Found	Species of Sea Turtle	Status when found	Cause of death, if known
9/24/2003	2:55 p.m.	Kemp's ridley	Alive	
7/4/2004	12:15 p.m.	Kemp's ridley	Dead	Possible suffocation
7/11/2004	2:22 p.m.	Kemp's ridley	Alive	
7/16/2004	11:00 a.m.	Kemp's ridley	Alive	
7/20/2004	12:13 p.m.	Kemp's ridley	Dead	Not available
8/7/2004	9:00 a.m.	Kemp's ridley	Alive	
9/11/2004	10:10 a.m.	Kemp's ridley	Dead	Not available
9/12/2004	10:29 p.m.	Kemp's ridley	Alive	
9/23/2004	9:45 p.m.	Kemp's ridley	Alive	
7/4/2005	9:05 a.m.	Kemp's ridley	Dead	Not available
8/5/2005	5:00 a.m.	Kemp's ridley	Alive	
6/30/2006	11:00 a.m.	Kemp's ridley	Alive	
7/17/2006	9:35 a.m.	Kemp's ridley	Alive	
7/19/2006	9:30 p.m.	Kemp's ridley	Alive	
7/25/2006	4:25 a.m.	Kemp's ridley	Dead	Not available
6/25/1992	12:50 p.m.	Loggerhead	Dead	Boat propeller wounds
9/9/1992	6:00 p.m.	Loggerhead	Alive	
9/11/1992	2:00 p.m.	Loggerhead	Alive	
6/19/1993	1:30 p.m.	Loggerhead	Alive	
7/6/1994	6:40 a.m.	Loggerhead	Dead	Dead on arrival, most likely long term illness
8/18/1998	9:59 a.m.	Loggerhead	Alive	
6/23/2000	1:20 a.m.	Loggerhead	Alive	
9/18/2000	1:10 p.m.	Loggerhead	Alive	
8/1/2006	5:07 a.m.	Loggerhead	Alive	
10/5/2006	9:40 a.m.	Loggerhead	Alive	
10/23/1999	2:00 a.m.	Green	Dead	Not available
8/3/2000	3:25 p.m.	Green	Alive	
7/8/2001	2:30 p.m.	Juvenile Green	Alive	
10/24/2003	8:50 a.m.	Juvenile Green	Alive	

In sum, the total incidental take of sea turtles from 1992 to 2006 was 41; 26 of these turtles were alive and released; 15 turtles were dead where these deaths could be from a variety of causes. NMFS also requires Oyster Creek Generating Station to follow reasonable and prudent measures to minimize impacts of incidental take of endangered and threatened sea turtles. This includes implementation of a NMFS approved program to prevent, monitor, minimize and mitigate the incidental take of sea turtles and the circulating water intake structure and dilution water intake structure. It is also worth noting that Oyster Creek Generating Station provides veterinary care for injured turtles, where many of these injuries are unrelated to the operations of the facility.

The Department recognizes that NMFS establishes an Incidental Take exemptions to allow for mortality to endangered species. While the Incidental Take Statement allows for the loss of a limited number of

individuals belonging to threatened and endangered species, NMFS has determined that this loss will not jeopardize the continued existence of endangered Kemp's ridley, green, or threatened loggerhead sea turtles.

Comment 21

Some commentors question Oyster Creek Generating Station's current technology for impingement. Commentor 6 challenges the permit's assertion that the facility's current system for dealing with impingement is the best available technology. Commentor 11 questions whether Exelon has considered that a screening system be placed along the intake canal similar to a screening system that is used onboard ships. This technology could potentially diminish impingement effects, improve the cooling efficiency and reduce discharge temperatures.

(Commentors 6, 11)

Response 21

The Department maintains that the Ristroph traveling screens are a proven and effective technology to minimize impingement mortality. Constant screen rotation and low pressure washes serve to reduce impingement mortality by assisting organisms into the fish return system. The fish return system is designed in a manner that minimizes stresses as it was constructed with a gentle slope with various quiet pools to allow the fish to orient themselves in the current. The fish return system does not divert these organisms to the heated discharge but rather to the dilution pump discharge, which is not heated or chlorinated. As noted in **Response 3**, Ristroph traveling screens were proposed by EPA as best technology avaialble for impingement mortality as a national standard in the proposed Section 316(b) regulations.

The following chart, which was included in the 2011 Fact Sheet, details impingement survivability by species for initial survival at the circulating water intake structure as follows:

Circulating Water Intake – Impingement Survivability				
	Year 1		**Year 2**	
Representative Species Taxa	**Percent survival**	**Number (n)**	**Percent survival**	**Number (n)**
Atlantic croaker	85%	933	81%	69
Atlantic menhaden	43%	258	96%	2,109
Atlantic silverside	91%	471	91%	566
Bay anchovy	30%	270	45%	237
Blue crab	94%	6,056	96%	5,075
Blueback herring	83%	24	84%	32
Grass shrimp	91%	4,205	94%	4,031
Northern pipefish	97%	229	79%	136
Sand shrimp	93%	2,932	97%	6,166
Summer flounder	100%	10	100%	29
Weakfish	83%	23	88%	394
Winter flounder	96%	45	96%	70

For Representative Species impinged at the circulating water intake structure, initial survival ranged from 30 to 40 percent for bay anchovy to 100 percent for summer flounder. In summary, with respect to the circulating water system and those species present in greatest number in Year Two, data for sand shrimp shows 97% survivability, grass shrimp shows 94% survivability and blue crab shows 96% survivability.

Based on this data, the Department maintains that Ristroph traveling screens are effective in minimizing impingement survivability.

Comment 22

Commentor 27 contends that the Department should require the facility to install protective mechanisms such as Ristroph traveling screens on the dilution water intake structure. This structure withdraws up to 748.8 MGD and currently employs no technology whatsoever to reduce impingement and entrainment losses. Further, the Department has no data to estimate entrainment losses at the dilution intake – it concluded that "recent entrainment data was insufficient at the dilution pumps to estimate annual passage at this location." (*Id.*). The Department also stated "[l]oss data is helpful in assessing what technologies may be available to reduce losses. However, the Department maintains that it is unnecessary to have to prove that an impact to a population must be demonstrated in order to trigger Section 316(b)…Available data shows that impingement and entrainment losses are documented and must be minimized consistent with the goal of the Section 316(b) statute." (Draft Permit Fact Sheet, page 10). However, the Department has done nothing to attempt to minimize entrainment losses, which are great, at the dilution water intake structure.

Commentor 27 asserts that the Department relies on a report compiled by Versar, Inc. (the "1989 Versar Report") in doing nothing about the aquatic organism losses at the dilution water intake structure. Versar identified technologies that had the greatest potential to reduce impingement and entrainment losses, and one of them was to install traveling screens or other technology at the dilution water intake. But Versar did not recommend installing Ristroph style screens since they questioned the benefit of traveling screens based on a difficulty in quantifying the benefits versus the impacts of potentially increased impingement losses. However, that report was written 22 years ago. In the 2006 "Determination of Cooling Water Tower Availability for Oyster Creek Generating Station - Final Report," URS Corporation concluded that if closed-cycle cooling towers could not be built, then "the facility should optimize the existing system to achieve the greatest efficacy as practicable by implementing operational controls/flow reduction at the dilution pumps and performing habitat restoration."

Commentor 27 further states that the Department concluded that a majority of organisms that are considered representative species survive impingement on the modified Ristroph traveling screens. Recent entrainment data was insufficient at the dilution pumps to estimate entrainment losses. But, as noted above, the Department believes that it is unnecessary to have to prove an impact to a population in order to require a minimization of impingement and entrainment losses consistent with the goal of the Section 316(b) statute. Therefore, we call upon the Department to fulfill its Clean Water Act Section 316(b) mandate by requiring Oyster Creek Generating Station to install modified Ristroph screens or some other type of technology on the dilution water intake structure.

(Commentor 27)

Response 22

By way of background, the dilution water system intake is located on the west bank of the Intake Canal, across from the cooling water intake. Three low speed (180 revolutions per minute) axial flow pumps with 7 foot impellers with a design capacity of 260,000 gpm each provide water for the dilution water system. Normally two dilution pumps are used during "winter" and "summer" water conditions (as defined in a 1978 stipulation). The dilution water system intake has two trash racks for each of these three pumps. Because there are no screens for the dilution water system, all organisms are "entrained" meaning that they pass

through the system. The dilution water intake was designed with few and widely spaced impellers, low rotation speed, and other organism-friendly features as described in the June 29, 2005 Proposal for Information Collection submitted by the permittee.

Closure of the facility in 2019 will eliminate the need for the dilution water system and, as a result, this significant water withdrawal will cease. This was considered as part of the best technology available determination under Section 316(b). Since the time that the ACO and 2011 permits were issued, EPA has released draft regulations for Section 316(b). It is stated on page 22190 in these proposed regulations that:

> Given the diversity of industrial processes across the U.S., there are many other industrial uses of water not intended to be addressed by today's proposed rule…Other water uses might include service water and dilution water…Examples of dilution water are using water to reduce the concentration of a pollutant for biological treatment purposes, or to reduce the temperature of an effluent.

Based on these proposed regulations, the dilution water system is not considered under the purview of Section 316(b).

Nonetheless, the Department did include detailed survivability data for impingeable-size organisms that passed through the dilution water intake in the 2011 Fact Sheet. This table is excerpted below:

Dilution Water Intake System – Survivability of Impingeable-size Representative Species Year 1 and Year 2		
Representative Species Taxa	**Percent survival**	**Number (n)**
Atlantic croaker	31%	45
Atlantic menhaden	30%	394
Atlantic silverside	83%	379
Bay anchovy	35%	586
Blue crab	95%	1,593
Blueback herring	79%	48
Grass shrimp	86%	901
Northern pipefish	72%	36
Sand shrimp	89%	1,363
Summer flounder	67%	6
Weakfish	21%	19
Winter flounder	94%	18

As noted correctly in this comment, data was insufficient to calculate initial survival for entrainable-size organisms through the circulating water intake system and dilution water intake system. A separate study assessed the mortality of impingeable-size organisms that pass through the dilution water intake system by using tagged juvenile striped bass. Initial survival for the tagged striped bass was 88 percent. Therefore, the commentor is correct in that there are data gaps for the dilution water system.

In sum, the Department maintains that the Section 316(b) best technology available determination considers the operation of the dilution water system. Although there will continue to be entrainment impacts from this system from now until the end of 2019, the Department maintains that survivability data shows good survival for impingeable-size representative species, particularly for those species present in the greatest number such as blue crab and sand shrimp.

Comment 23

Several commentors express concern regarding thermal impacts. Some commentors express concern about the continued thermal discharge for at least nine more years. Commentor 21 contends that Exelon violates the Clean Water Act on a daily basis by warming the bay and, if this continues for the next ten years, the bay will be dead.

Commentor 6 states that the thermal pollution coming from the plant must be addressed through the installation of cooling towers yet this permit allows the continued discharge of superheated waters into the Bay. Commentor 6 states that the water temperature measured four feet below the surface at the Route 9 bridge, which is hundreds of yards away from the discharge point, can reach 97 degrees which is the equivalent of a hot tub. Commentor 6 suggests that alternate measures be required to mitigate the thermal discharge such as the creation of settling ponds.

Commentor 6 states that the dilution system for the discharge does not do an adequate job in dropping the temperature of water or diluting pollutants before it enters the Bay and must be addressed through the installation of cooling towers. The dilution system uses an additional 748.8 million gallons of water a day and this would be reduced with a closed loop system. (Commentor 6)

Finally, Commentor 6 notes an electrical outage at the facility which resulted in a pump failure which led to a major fish kill. This would have been avoided if cooling towers were installed.

(Commentors 6, 16, 21, 24)

Response 23

Thermal impacts from the circulating water system are controlled through a variety of regulatory controls. As noted in the 2011 Fact Sheet, DSN 001A typically discharges 592 MGD of once-through cooling water from the circulating and service water systems. Under normal operating conditions an effluent temperature limit of 41.4 degrees Celsius applies to DSN 001A. The permittee also transfers water from the intake canal to the discharge canal via dilution pumps to DSN 005A at an average rate of 732 MGD. Dilution pump water is not heated nor is it chlorinated. In addition to effluent temperature limits at DSN 001A, the permittee is subject to a temperature difference limit between the intake and the discharge and a net rate of addition heat limit. Finally, the permittee is required to monitor temperature downstream at the Route 9 bridge. The temperature reading at this point dictates how many dilution pumps must be put into operation to mitigate thermal effects.

The Department maintains that the environmental benefits of the conditions in the ACO and this permit far outweigh the benefits of cooling towers where these environmental benefits extend to thermal impacts as well as impacts from the cooling water intake structure. As described in **Response 9**, the closure of the facility after 2019 will result in a 96% reduction in effluent flow from the facility. However, if cooling towers were installed, a thermal discharge would still occur and the discharge volume would be reduced by 72%. Specifically, a thermal discharge would occur via cooling tower blowdown which often contains concentrated biocides and other additives that are necessary to preserve the integrity of the cooling water system.

The Department acknowledges that there have been documented fish kills associated with thermal shock. These instances were the result of non-compliance with effluent limits and conditions and, given compliance with permit conditions, it is expected that fish kills will not occur.

The Department is unclear as to the suggestion of installing settling ponds. Given the volume and velocity for the once-through system, settling ponds would be infeasible.

Please refer to **Response 25** for additional information regarding the regulatory requirements for Section 316(a) of the Clean Water Act which focuses on thermal effects.

Comment 24

The state of New Jersey has allowed superheated water to cause thermal pollution in the Bay, a major reason for algae blooms and loss of dissolved oxygen. We have seen dissolved oxygen levels drop throughout the Bay and serious impairment of the Bay. The DEP only recognizes the Northern portions of the Bay as impaired but the entire water body should be listed. The Barnegat Bay is currently the second most eutrophic Bay in America, and not requiring cooling towers for Oyster Creek Generating Station will lead to the continued destruction of the Bay.

(Commentor 6)

Response 24

There are many factors that contribute to the health of Barnegat Bay as described in **Response 18**. To best understand the effects from Oyster Creek with respect to dissolved oxygen, it is most appropriate to look at the discharge canal. However, the Department is not aware of dangerously low dissolved oxygen concentrations in the discharge canal as referenced in this comment. The Department would be willing to review any site-specific data or a technical source of information that supports this comment.

Comment 25

Commentor 23 states that Section 316(a) of the Clean Water Act permits variances from state water quality temperature standards if the variance will "…assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made." As noted in the draft permit Fact Sheet:

"With respect to existing dischargers, 40 CFR 125.73(c) states the following:

(1) Existing discharges may base their demonstration upon the absence of prior appreciable harm in lieu of predictive studies. Any such demonstrations shall show:
    a. That no appreciable harm has resulted from the normal component of the discharge taking into account the interaction of such thermal component with other pollutants and the additive effect of other thermal sources to a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge has been made; or
    b. That despite the occurrence of such previous harm, the desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made."

While EPA notes that the Department has included additional details on the permit conditions to mitigate the thermal discharge such as ambient temperature monitoring and shutdown periods, changes to the receiving water may have occurred in the time since 1994 when the original study was performed. The test outlined in the regulations cited above has not been met to approve a Variance from water quality standards. Permitting authorities must reevaluate the 316(a) variance decision at each permit renewal and document the basis in the Fact Sheet, as the decision is based on biological communities in the receiving water, which may have changed since the time of the last decision and the time of the previous studies in 1994. These requirements are clarified in the EPA Headquarters Memorandum for 316(a) Review at NPDES Permit Renewals (Memorandum signed by Jim Hanlon, October 28, 2008 "Implementation of Clean Water Act 316(a) Thermal Variances in NPDES Permits (Review of Existing Requirements))".

At minimum, the Department must require that the applicant submit enough information during this permit cycle to enable a thorough review and 316(a) Determination at the time of the next permit renewal, not withstanding the closure plans for this facility. Such information must include water quality data and biological study results demonstrating that there exists a balanced, indigenous population that would be present in the absence of the thermal discharge.

(Commentor 23)

Response 25

The Department agrees that information regarding Section 316(a) relies largely on historical information. As noted in the 2011 Fact Sheet, the last permit issued to this facility expired in 1999. The Department has attempted several times to renew this permit, namely 2005, 2010 and most recently in 2011. Unfortunately the uncertain nature of the federal Section 316(b) regulations has contributed to this delay in permit renewal.

This commentor is correct in that recent thermal studies have not been provided by the permittee nor were new studies required. An excerpt of pertinent Section 316(a) information from the 2011 Fact Sheet is as follows:

> In evaluating the renewal of the Section 316(a) variance for the purposes of the July 19, 2005 and January 7, 2010 draft permits, the Department evaluated discharge monitoring report data with respect to flow and temperature. Based on this review, the Department determined that the operating characteristics are at or near the bounds of previous years' data since 1994 which is when the last thermal variance was finalized. As a result, the Department determined that operating characteristics which served as a basis for the 1994 decision were similar to current operating conditions. As a result, in the January 7, 2010 and July 19, 2005 draft NJPDES permits, the Department proposed to grant a thermal variance for the existing once-through cooling system.
>
> As noted previously, pursuant to the December 9, 2010 Administrative Consent Order ("ACO"), Exelon is legally required to **Terminate Operations**, as that term is defined in the December 9, 2010 ACO, no later than **December 31, 2019**. After December 31, 2019 the thermal discharge from the Station will be significantly reduced both in flow volume and in heat content. As a result, the Department is hereby granting a Section 316(a) variance for the facility's cooling water discharge for the once-through cooling system until the facility is required to Terminate Operations in 2019. This determination is based on the Department's findings that: (1) the thermal discharge from the station will be significantly reduced both in flow volume and in heat content; (2) the facility's operations have not changed appreciably since the time that the 1994 NJPDES permit was issued; (3) cooling water flow rates have remained relatively constant.

> While the once-through cooling system is operational and up until December 31, 2019, the Department retains all the Section 316(a) conditions. This includes the conditions for planned winter shutdown and temperature monitoring at the Route 9 bridge. In addition, effluent limitations for effluent temperature, temperature difference between intake and discharge, and net rate of addition of heat under two scenarios that are identified in this permit as Option 1 and Option 2 limits have been retained…

The Department maintains that the Section 316(a) determination is in accordance with applicable regulations. While the determination relied largely on historical information, that data was comprehensive. As discussed in the 2011 permit, a review was conducted of the extent of the thermal plume based on dye plume mapping, thermal plume mapping, recirculation studies and hydrothermal modeling. In addition to this information, the 1977 Section 316(a) demonstration, while dated, contains a comprehensive summary of information. This summary includes an appreciable harm demonstration and a Representative Important Species (RIS) Demonstration. Hydrothermal considerations include temperature distribution in Oyster Creek and Barnegat Bay, thermal plume distributions, thermal plume modeling results, and a recirculation analysis. The RIS Demonstration explored aspects of each species that include life history, distribution in relation to water temperature, analysis of experimental data, and a predicted response to the Oyster Creek thermal plume. Other biothermal assessments include temperature avoidance, heat shock and cold shock studies for some of the RIS. Again, reliance on historical data in the course of a section 316(a) renewal request is in accordance with applicable federal regulations and is thereby in accordance with the Clean Water Act.

Given the impending closure of the facility in 2019, the Department did not see value in requiring comprehensive thermal modeling to predict long range effects.

Comment 26

Several commentors comment on the requirement for Exelon to pay $100,000 per year to a Department account to conduct research and programs for the restoration of the bay's ecosystem. Commentor 17 thanks Exelon for this pledge for research and preservation programs for the Bay area. Commentor 4 states that the Christie administration's ten-point plan to restore Barnegat Bay recognizes the many complex factors impacting the bay.

(Commentors 4, 17)

Response 26

As noted in the ACO:

> Exelon shall make an annual payment of $100,000 into a dedicated account to be established by the Department for Barnegat Bay to conduct research and programs for the protection of the Barnegat Bay ecosystem. The first payment shall be due within 30 days of the date when a final permit is issued…

The Department maintains that this is a worthwhile requirement and will aid toward restoration of Barnegat Bay.

Comment 27

Some commentors question the Barnegat Bay Fund. Commentor 5 states that there's a quid pro quo that the payment only occurs if the permit is finalized. If the Department had good faith or any desire to act in the public interest, that money would not be conditioned upon receiving final permit approval.

(Commentors 5, 17)

Response 27

While it is correct that the Barnegat Bay Fund payments are conditional on issuance of a final permit, the issuance of this final permit resolves the issue and the payment will now occur. The Department maintains that this permit was issued in a timely fashion.

Comment 28

Some commentors express concern that the Biological Monitoring Program and the Plant Related Impingement and Entrainment Monitoring, as required in the 2010 draft permit, has been removed in the 2011 permit. Commentor 26 states that it is reasonable to expect Oyster Creek Generating Station, who is a user of the resource, to assess what impacts the plant will continue to have under both full and reduced operational levels. This information would help guide the decision making regarding the bay's recovery. Commentor 26 states that given the Governor's ten-point comprehensive plan scientific studies are a main component for research and monitoring yet baywide studies have been removed from the permit. Commentor 27 states that biological monitoring could be essential to understanding and shaping policy regarding the overall restoration of the bay. Commentor 27 states that the Department has offered no explanation as to why biological monitoring is being eliminated. One commentor states that the ACO limits the ability of the Department to require Exelon to undertake any studies of Barnegat Bay.

Commentor 24 suggests that Oyster Creek Generating Station be required to contribute towards performing some of the recommendations and extesnvie management plan of the Barnegat Bay Partnership which is a consortium of Federal, State, County, local government agencies, numerous non-government organizations and the Department.

Commentor 27 asserts that over the history of Oyster Creek Generating Station's operation, annual impingement and entrainment surveys have been conducted during 1975-1980, 1984-1985, 2005-2006, and 2006-2007. However, concurrent population surveys were only conducted in the estuary during the 1975-1977 impingement and entrainment study period at Oyster Creek Generating Station and not thereafter.
(Commentor 8, 16, 26, 27)

Commentor 27 asserts that the 2011 draft permit potentially leaves the door open for the facility to continue to withdraw over 400 million gallons of water per day from the Barnegat Bay after Termination of Operations, for an indefinite period of time. In light of this fact, Commentor 27 states that the Department must require the applicant to engage in robust biological monitoring of the bay, as required by the 2010 draft permit.

Commentor 27 states that the facility has been permitted to operate on the Barnegat Bay for over 40 years without ever being required to properly investigate their impacts on this important public resource. However, the monitoring requirements in the 2010 draft permit were limited to shallow water seining in the bay. This would not result in a complete and accurate assessment of marine populations within the bay and is not likely to sample many of the organisms impacted by the plant, including winter flounder, summer flounder, and several other important species. A proper bay-wide assessment must employ multiple sampling methods including mid and bottom trawls, plankton tows and benthic grabs. In this regard, we again urge the Department to require the applicant to implement a monitoring plan similar to that proposed by Dr. Michael

Kennish of Rutgers University's Institute of Marine and Coastal Sciences, entitled "Barnegat Bay Biological Monitoring Plan" which would more accurately assess the impacts of Oyster Creek Generating Station on Barnegat Bay fish and invertebrate populations, as well as the effects of continued withdrawal of water after the Termination of Operations.

(Commentors 26, 27)

Response 28

The Department agrees that biological data is useful in monitoring the health of the estuary. As discussed in **Response 18**, biological monitoring of Barnegat Bay is an important component of Governor Christie's comprehensive action plan as described in **Response 18**. However, because the Department is requiring closure of Oyster Creek Generating Station, the Department did not require biological monitoring or continued impingement and entrainment monitoring as a component of the permit. The purpose of plant related impingement and entrainment data is to serve as a tool in defining best technology available. Because best technology available has been defined as closure of the facility, these requirements are not warranted.

By way of background, prior to the release of the Section 316(b) regulations in 2004 then proposed in 2011, a study of biological populations was a focal point of the document entitled Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500 (U.S. EPA, 1977). In contrast, the proposed Section 316(b) rule uses a reduction in impingement and entrainment as the metric for complying with national performance standards and impacts to populations are not considered. In other words, the newly proposed Section 316(b) regulation does not require biological monitoring but rather focuses on plant related (i.e. impingement and entrainment) data. Similarly, additional plant related impingement and entrainment monitoring was not required based on the closure of the facility.

For the purposes of a Section 316(b) determination, it can be difficult to draw a nexus between biological population studies and defining a best technology available. This is due to the fact that results of biological population studies and modeling can be very subjective because it is difficult to identify, measure, and attribute the impact of each of the many variables (e.g. fishery regulations, climate effects) affecting populations of each of the impacted species. Rather than engage in this kind of biological debate, time and resources would be better spent focusing on the magnitude of the impingement and entrainment losses in relation to the costs and benefits of implementing various technologies to avoid or minimize the impact. Again, closure of the facility has been defined as best technology available for Oyster Creek Generating Station.

Comment 29

Some commentors request clarification of the current status of the Department's December 28, 2007 "Federal Consistency Determination" that supports the current NRC operating license. Other commentors state that the permit is not in compliance with the Coastal Zone Management Act (CZMA) Certificate.

The various mitigation measures proposed by Oyster Creek Generating Station in order to offset the environmental impact of the plant's operation (e.g., public access improvements at Finninger Farm property, hard clam bed restoration, oyster bed restoration, tidal wetland restoration) do not appear to have been undertaken at this time. Thus it is not clear if the conditions of the Federal Consistency Determination, and by extension the NRC operating license, have been met. (Commentor 26)

Commentor 24 states that the continued operation of Oyster Creek Generating Station requires a valid Coastal Zone Management Act Certification. On December 28, 2007 the Department issued a Certificate that authorized Oyster Creek Generating Station to continue its plant operations subject to the implementation of several environmental enhancement/mitigation activities. To date it appears that the applicant has not fulfilled its regulatory obligations to implement these mitigation activities. The application should be notified that a valid CZMA Certificate is necessary for their existing NRC license to remain current.

Another commentor contends that the NJPDES permittee is not consistent with the coastal zone management plan. Commentor 27 states that the permit does not require the permittee to come into compliance with the CZMA requirements and that this permit should be made conditional on compliance with the CZMA certification including tidal wetlands restoration, hard clam bed restoration, and oyster bed restoration. While we maintain our position that, in accordance with *Riverkeeper vs*. EPA, 474 F.3d 83, 108-110 (2d Cir. 2007), restoration measures may not be considered or used to meet a facility's Clean Water Act 316(b) obligations, permitting agencies are still free to condition permits with restoration and research targets and mandates.

To date it appears that Oyster Creek Generating Station has not fulfilled any of the obligations associated with its CZMA Certification. Given that the Department has time and again acknowledged the devastating impacts that this facility has on Barnegat Bay, we are extremely concerned with Department's apparent complete lack of enforcement of these requirements. Furthermore, the law required compliance with these conditions for CZMA certification. We therefore urge the Department to make the issuance of the final NJPDES permit contingent on Oyster Creek Generating Station's compliance with its CZMA Certification obligations.

(Commentors 6, 24, 27)

Response 29

This comment concerns issues related to the Federal Consistency Determination pursuant to Section 307 of the federal Coastal Zone Management Act of 1972 (P.L. 92-583), as amended. The Department conducted a CZMA review based on the applicant's request to relicense the facility for a period of twenty years. However, these issues are outside the scope of the NJPDES permit regulatory document. As a result, the Department is not in a position to make issuance of this permit conditional on such.

Please refer to **Response 17** for additional information regarding mitigation efforts.

Comment 30

Some commentors express concern about the discharge of chlorine and its by products and the effects of such on the bay. Commentor 26 requests that Oyster Creek Generating Station assess the effect of chlorine produced oxidants (CPO), created as part of the plant's chlorination process, on nitrogen cycling and their role in the eutrophication of the bay. The ultimate fate of these compounds after discharge to the bay is unknown and should be addressed by plant operators as a permit requirement. Several components of the State's Action Plan for Barnegat Bay (which commits public funds) address water quality issues; moreover, requirements on the Oyster Creek Generating Station operations should be consistent with the commitment of public funds to protect and restore the bay.

(Commentors 6, 26, 27)

Response 30

As described in the draft permit, Oyster Creek Generating Station does chlorinate its circulating water system (i.e. DSN 001A) to protect the heat exchanger tubes from marine and organic fouling. This is done on a year round basis where the amount of chlorine used is consistent throughout the year. The main condenser consists of six sections among which the flow is equally divided. The chlorine injection system is designed so that each condenser section is separately chlorinated. Only one section is chlorinated at a time so that the sections are consecutively chlorinated for twenty minutes each during the daily cycle for a maximum of two hours per day of chlorination. Chlorine is typically injected in the morning hours and sampling is also conducted in the morning. Therefore any measured amount of chlorine, for the purposes of compliance with the NJPDES permit, is likely an overestimate of the amount of chlorine discharged throughout the day. In other words, given the routine time of sampling, compliance data is worst case and likely not representative of values discharged during the remainder of the day. CPO also dissipates rapidly and, after some time transpires, CPO levels in the discharge canal are likely not comparable to the levels at the point of discharge.

The Department imposed a technology based effluent limit for DSN 001A (circulating water system) of 0.2 mg/L as a daily maximum paralleled with a permit condition that states that the permittee can not chlorinate more than two hours per day. This permit limit and permit condition are based on the Steam Electric Effluent Limitation Guidelines (ELGs) at 40 CFR 423.13(b)(1). The Department uses the New Jersey Surface Water Quality Standards (NJSWQS) in evaluating water quality based effluent limitations (WQBELs) for CPO. CPO is the parameter used to regulate chlorine as CPO is a more appropriate name for what the total residual chlorine analytical test method measures. NJSWQS are the standards promulgated by the Department to ensure protection against acute and chronic effects for aquatic life as well as human health effects. Oyster Creek is classified as SE-1 and dilution credit is considered in evaluating a WQBEL for CPO. Because any technology-based limit is coupled with the operational condition limiting the permittee to chlorination during only two hours per day, the technology-based limit is more stringent than any WQBEL since the WQBEL allows continuous chlorination. As noted in the permit Fact Sheet, available data shows CPO present at an average of 0.1 mg/L (8.9 kg/day) and a maximum of 0.2 mg/L (33.43 kg/day). The Department recognizes that chlorine use should be minimized to the best extent practicable and the Department maintains that CPO is a controlled parameter.

In addition to CPO limits, the permittee is also required to conduct acute whole effluent toxicity (WET) testing at DSN 001A where species utilized for these tests would likely be susceptible to residual chlorine. WET is a measure of the aggregate effect of toxicity on test organisms and is intended to simulate the effects of the discharge on test species. All acute WET tests (19 data points) conducted from January 1995 through October 2010 have been greater than 100% (i.e. a perfect result). All chronic WET tests conducted in 1995 (8 tests using two species) were also greater than 100%. Please refer to **Response to Exelon Comment 1** for further information.

The Department maintains that CPO is adequately regulated at Oyster Creek Generating Station. The Department does monitor waterbodies for impairment and Oyster Creek is not currently impaired for chlorine.

Comment 31

Commentor 25 states that Federal ELGs for the Steam Electric Point Sources Category are found at 40 CFR Part 423. The Fact Sheet for the above referenced permit includes these effluent limitation guidelines as one of the bases for permit limitations. Some of the requirements of 40 CFR 423.12 (requirements based on best practicable control technology (BPT)) and 40 CFR Part 423.13 (requirements based on best available control technology economically achievable (BAT)) have been incorporated into the permit. However, certain provisions of these regulations are not included in the permit, nor discussed in the Fact Sheet. As NJDEP notes within the Fact Sheet for this permit, federal ELGs represent minimum technology based requirements applicable on a nationwide basis.

a. 40 CFR 423.13(d)(1) requires that there be no detectable amount of any of the 126 priority pollutants in discharges of cooling tower blowdown, with the exception of chromium and zinc (limited as discussed below). The discharger must either monitor for the 126 priority pollutants, or demonstrate that these are not detectable through engineering calculations (423.13(d)(3)). The draft permit must include this limitation and monitoring requirement, or discuss in the Fact Sheet why it is believed that these pollutants are not present in detectable amounts.
b. 40 CFR 423.13(d)(1) establishes limitations for total chromium and total zinc in cooling tower blowdown. These requirements are expressed as concentrations in the regulation that should be multiplied by the anticipated flow for each blowdown event, and expressed as a mass-based limitation as both a daily maximum level and a monthly average. Alternatively, these could be included as concentration based limitations on a grab sample of the blowdown, if it were discussed in the Fact Sheet as to why this would be more appropriate. These limitations must be included in the permit for cooling tower blowdown. The sampling location should be an internal monitoring point prior to dilution with the large flow of once-through cooling water.
c. 40 CFR 423.13(d)(5) establishes limitations for metal cleaning wastes, which are defined at 423.11 as "any wastewater resulting from cleaning [with or without chemical cleaning compounds] any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning". EPA believes that power generating stations engage in metal cleaning of process unit parts, and there is likely to be an internal wastestream that includes such wastes. The permit must include the limitations for TSS, oil and grease, total copper, and total iron at an appropriate internal or external monitoring location to assess compliance, or discuss in the Fact Sheet or administrative record why this was not included. EPA notes that the limitations for total petroleum hydrocarbons, TSS, and pH included in the permit may be sufficient. NJDEP should respond in the administrative record as to how such limitations are as protective as the ELG requirements.

Response 31

NJDEP agrees that the Federal ELGs for the Steam Electric Point Sources Category are applicable to this site as referenced in the Fact Sheet. However, NJDEP does not agree that all aspects of this regulation are applicable at this time. Specific components are addressed below:

a. The Department agrees that 40 CFR 423.13(d)(1) stipulates that there shall be no detectable amount of any of the 126 priority pollutants in discharges of cooling tower blowdown, with the exception of chromium and zinc. The Department also agrees that the discharger must either monitor for the 126 priority pollutants, or demonstrate that these are not detectable through engineering calculations (423.13(d)(3)). However, this facility does not currently have cooling

towers nor are cooling towers required in the NJPDES permit. Because cooling tower blowdown does not currently exist at this site, the Department determined that this requirement does not apply. Also, because the discharge does not exist it is not possible to monitor for the 126 priority pollutants or do engineering calculations.

b. Similarly, the Department agrees that 40 CFR 423.13(d)(1) establishes limitations for total chromium and total zinc in cooling tower blowdown. Because a cooling tower blowdown wastestream does not exist at this site, the Department determined that this requirement does not apply.

c. "Metal cleaning wastes", as defined at 423.11, do not currently exist at this site. A full description of all wastestreams is included in the Fact Sheet where none of these wastestreams meet this definition. As a result, the Department did not impose limitations for metal cleaning wastewater.

Comment 32

Commentor 2 states that the Army Corps of Engineers reconstructed jetties down at Barnegat Light where the length of the jetties have impacted the tides. Commentor 2 asserts that there used to be about a four foot rise in tides depending on the wind but now there may be at most a six inch rise and fall of the tides. Oyster Creek Generating Station helps offset this problem by keeping the water circulating at the end of the bay. Once the water stops flowing in and out of the power plant the end of the bay is literally going to die.

(Commentor 2)

Response 32

The Department acknowledges that the closure of Oyster Creek Generating Station will change the circulation patterns in Oyster Creek and Barnegat Bay. As noted above in **Response 8** there will still be a discharge after 2019; however, the flow volume will be significantly reduced. Nonetheless, the Department maintains that there will be a net overall benefit to Barnegat Bay.

Comment 33

Commentor 22 states that the permit is not a water use permit but is simply a permit of intake and discharge and questions why the permittee does not have to compensate for water that they use. This commentor further requests that the Department perform a jurisdictional determination as to the applicability of N.J.A.C 7:19 regarding the diversion and use of water at the plant since there's fresh water that's diverted and used. Because of this fresh water diversion and use of water, there isn't the quality that's important for different marine species especially those in the juvenile stages where brackish water plays an important role.

(Commentor 22)

Response 33

As described in the June 1, 2011 Fact Sheet, intake water is used for two systems; namely the circulating water system and the dilution water system. The circulating water system has a full capacity of 662.4 MGD and functions to cool the condensers. The dilution water system consists of three pumps that are used to mitigate the thermal effects in the discharge canal. The use of dilution pumps is governed by the temperature requirements contained in Part IV of the permit.

By issuing a NJPDES permit that is in compliance with Section 316(b) of the Clean Water Act, the Department is authorizing the use of intake water for the circulating water pumps and the dilution pumps. Therefore it is the NJPDES permit that authorizes the intake and discharge in accordance with the Clean Water Act. Section 316(b) of the Clean Water Act addresses impacts via impingement and entrainment and the permittee has been required to comply with such since its enactment in 1972.

The NJPDES permit issued to OCNGS authorizes the intake of water for use as once through cooling water as well as the discharge through permitted outfalls. Oyster Creek Generating Station is required to comply with the conditions of this permit and in doing such is not discharging nor withdrawing waters illegally.

Comment 34

Commentor 15 states that this plant has 1950s technology, was built in the 1960s, and was banned in the 1970s yet still continues to operate in a post Fukushima world. Even if the chances of a catastrophe are remote, the catastrophe is so great it isn't worth it. While we don't have the earthquake and tidal wave threat that Japan did, the population density around this plant in a ten-mile radius and 20-mile radius is greater than Fukushima. And the density of the spent fuel rod pool is three to nine times the density of Fukushima. Unlike Fukushima that reprocesses their fuel, that isn't done at Oyster Creek Generating Station and the fuel stays on site. Oyster Creek Generating Station is not nearly protected well enough given the threats from hurricanes and flooding and the population density around Oyster Creek Generating Station.

Commentor 15 asserts that a key provision in this whole affair has been the creation of a safety review board including an independent expert. That safety review board is critical to help ensure that the chances of a catastrophe are significantly less yet the board isn't up and running yet.

(Commentor 15)

Response 34

Issues relating to nuclear safety and operations are subject to the jurisdiction of the USNRC where the Department's Bureau of Nuclear Engineering performs an oversight function for the USNRC. For additional information regarding the USNRC, please refer to their web site at www.nrc.gov. Additional information regarding the Bureau of Nuclear Engineering can be obtained at http://www.state.nj.us/dep/rpp/bne/index.htm.

With respect to the issue of an Oyster Creek Safety Review panel, this panel was established on May 6, 2011 as established in an Administrative Order signed by Commissioner Bob Martin which is available at www.nj.gov/dep/docs/ao201106.pdf. This panel was established to supplement ongoing Department safety inspections and oversight at the plant and consists of a nuclear plant safety expert from DEP, an independent consultant expert in nuclear plant safety, and a homeland security expert. The panel will review plant operations, issue safety reports, and hold annual public hearings. The Request for Proposal for the appointment of the panel's independent expert is available for review at www.state.nj.us/dep/barnegatbay/docs/ocsap.rfp.pdf.

Comment 35

Commentor 13 contends that 200,000 gallons of tritium, which is radioactive water, is threatening the wells in Lacey Township. This commentor asserts that this water would be diluted through the plant and sent down to Waretown to save the wells in Lacey Township. Commentor 13 states that the tritium never posed a threat to humans at the plant or in Lacey but was told that the tritium had to be removed in order to save the wells in Lacey.

Commentor 15 states that Exelon is a bad neighbor given the tritium in Lacey's waters. Exelon does not own the ground water underneath their plant to the core of the earth.

(Commentors 13, 15)

Response 35

Issues relating to tritium are subject to the jurisdiction of the USNRC where the Department's Bureau of Nuclear Engineering performs an oversight function for the USNRC. For specific information regarding the tritium issue, please refer to the Department's website at http://www.nj.gov/dep/newsrel/tritium.html.

Comment 36

Commentor 22 notes that the entire area as represented by the map in the draft permit is within the Federal Pinelands National Reserve. In 1978 Congress designated this area because of 17 trillion gallons of fresh water which is sufficient to sustain the entire United States for one half year. It is important to designate the resources that this permit has an impact on.

(Commentor 22)

Response 36

The Department concurs that the Oyster Creek Generating Station facility lies within the boundaries of the Federal Pinelands National Reserve and under the specific Pinelands Management Area category of "Rural Development Area". The Department also understands the environmental significance of this designation.

Comment 37

Commentor 22 notes that on the table of contents of the draft permit it says "This package contains the items checked below"; however, nothing was checked but all those items were included in the permit. Commentor 22 suggests that the word checked be deleted. Commentor 22 further asserts that on page 42 of the draft permit there is a reference to the South Branch of the Forked River but Forked River was not capitalized.

(Commentor 22)

Response 37

The commentor is correct in that the table of contents of the draft permit erroneously included the word "checked". This change has been made in the final permit. The commentor is also correct in that Forked

River should have been capitalized. While the map is not a component of the final NJPDES permit, this error is hereby noted for the purposes of the Administrative Record.

Exelon Comments and Department's Responses

The remaining comments were all submitted by Exelon (Commentor 28) and pertain to specific sections of the draft permit. Any changes to language are depicted with strikethrough for deletion and underline for additions.

Exelon Comment 1 – Acute Toxicity Monitoring (Part II, Pages 2, 4 and 7 of 12)

Exelon requests that the Acute Toxicity Monitoring ("ATM") requirements for Outfall 001A, Outfall 002A and Outfall 004A be removed.

Each of these outfalls has been subject to ATM since the 1994 permit. The 1994 permit required the facility to conduct both Acute and Chronic Toxicity Monitoring at these three outfalls. After several years of monitoring, all of which demonstrated the absence of toxicity, Oyster Creek Generating Station petitioned the Department to reduce the monitoring frequency in 1996. In response, the Department modified the 1994 permit to eliminate the requirement for Chronic Toxicity Monitoring, and reduce the frequency of ATM to annual monitoring. In the seventeen years during which ATM data have been collected, the effluent from these outfalls has shown no evidence of acute toxicity. In fact, ATM has demonstrated LC50 values in excess of 100% which reflect the lowest possible levels of toxicity. The table below summarizes the results of the Whole Effluent Toxicity ("WET") testing conducted since 1995. Because the values from all outfalls were the same, the table does not differentiate between outfalls.

Date	**Acute WET** *Mysid* LC50 (%effluent)	**Chronic WET** *Sheepshead Minnow* NOEC (%effluent)	**Chronic WET** *Sheepshead Minnow* LOEC (%effluent)
1995 Q1	>100	100	>100
1995 Q2	>100	100	>100
1995 Q3	>100	100	>100
1995 Q4	>100	100	>100
1996	>100	Not Required	Not Required
1997	>100	Not Required	Not Required
1998	>100	Not Required	Not Required
1999	>100	Not Required	Not Required
2000	>100	Not Required	Not Required
2001	>100	Not Required	Not Required
2002	>100	Not Required	Not Required
2003	>100	Not Required	Not Required
2004	>100	Not Required	Not Required
2005	>100	Not Required	Not Required
2006	>100	Not Required	Not Required
2007	>100	Not Required	Not Required
2008	>100	Not Required	Not Required
2009	>100	Not Required	Not Required
2010	>100	Not Required	Not Required

There have been no material changes to the content or volume of the discharges from these outfalls that would alter the toxicity of the effluent. Accordingly, there is no reasonable basis to continue ATM as a permit requirement. Additionally, NJPDES permit renewal requirements include in NJPDES application Form C (equivalent to the USEPA Form 2-C), Item 12, the requirements for completion of at least one Acute and one Chronic toxicity test on each outfall for the permit renewal process. Since permit renewal applications must be submitted within a 5 year permit renewal cycle, toxicity monitoring requirements for Outfalls 001A, 002A, and 004A should be removed from the permit, and toxicity tests will be completed as part of the permit renewal process.

ATM requirements at Outfall 002A and Outfall 004A are not consistent with the Department's justification for requiring an annual monitoring frequency due to "the volume of this discharge." The monthly average flow at Outfall 002A of approximately 3.5 MGD is less then 1% of the circulating water flow and less then 0.2% of the entire facility discharge flow. The monthly average flow at Outfall 004A of approximately 0.06 MGD is miniscule compared to the comingled circulating water flow and the facility discharge flow. ATM requirements at these outfalls are not justified from a regulatory, scientific, or technical basis, and monitoring requirements for these low volume discharge points should be removed from the Draft Permit.

Response to Exelon Comment 1

The Department agrees that available data for ATM is >100% for all outfalls for the time period specified above. Nonetheless, given the substantial volume of the discharge, the Department maintains that a minimum frequency of annual is required at outfall 001A. A continued WET monitoring requirement also serves to assess any toxic effects from the permittee's use of chlorine as discussed in **Response 30**.

With respect to DSNs 002A and 004A, DSN 002A consists of non-contact cooling water (3.5 MGD) and DSN 004A consists of non-contact cooling water, stormwater and floor drain wastewater (0.06 MGD). While the flow volumes at these outfalls may be smaller in comparison to DSN 001A, these flow volumes are still significant relevant to other surface water discharges in New Jersey and WET monitoring is therefore warranted. In addition, both discharges are chlorinated; therefore, WET serves to assess any toxic effects from chlorine.

In sum, the Department maintains that acute WET is appropriate and necessary. No change to the permit has been made as a result of this comment.

Response to Exelon Comment 2 – Intake Velocity Measurement (Part III, Page 3 of 12)

Exelon requests that the "Sample Type" for the Velocity of the Intake on Table III-A-1 be corrected from "Measured" to "Calculated" consistent with the Fact Sheet at page 30 of 42 and the Permit Summary Table at page 36 of 42.

If the Department believes this is not an administrative error and intended to require measurement for this parameter, Exelon requests that the Department restore the Sample Type to Calculated. This will reflect current NJPDES requirements that were based on historic velocity measurements and negotiations between Jersey Central Light and Power Company (previous owner of Oyster Creek Generating Station), the EPA, and the Department in 1977, 1978 and 1981, and will be consistent with the statements in the Fact Sheet (page 30 of 42). The plant operations and intake velocity have not changed in substance since the measurements to confirm these calculations were completed, and Oyster Creek Generating Station has no procedures in place or available to reduce intake velocity without de-rating the plant. Intake velocity is a

design condition based on the intake screens and the number of pumps operating. Without modification to the intake screens or replacement of the intake pumps with pumps of a higher capacity, the intake velocity will not increase. The measurement of intake velocity would require substantial modification to the intake structure and operating procedures. The Fact Sheet (page 36 of 42) shows that the maximum intake velocity calculated was 1.6 feet per second, significantly below the proposed limitation, and the proposed sample type as "calculated," consistent with the current permit. Changing this requirement would place undue regulatory burden on Oyster Creek Generating Station and the requirement should be revised consistent with the Fact Sheet to reflect a calculated sample type.

In the alternative, Exelon requests that intake velocity monitoring conditions be deleted, and a condition be added to Part IV to require Oyster Creek Generating Station to report to the Department prior to: (1) replacement of the intake screens with a different design; (2) replacement of the intake pumps with pumps of a higher capacity, or (3) installation of additional intake pumps. Exelon notes that the NJPDES permits for Salem and Hope Creek nuclear generating facilities do not impose an intake velocity limit nor require reporting of intake velocities, much less actual measurement of this parameter.

Response to Exelon Comment 2

The Department agrees that the Fact Sheet and Part III of the draft 2011 permit are contradictory in that the sample type for Intake Velocity in the Permit Summary Table on page 30 of the Fact Sheet is "Calculated" whereas in Part III it is "Measured". The Department's intent was to maintain the sample type from the existing permit which is "Calculated" as specified in the Permit Summary Table.

Page 3 of Part III has been revised to correct this error.

Exelon Comment 3 – Temperature Units at Outfalls 002A and 004A (Part III, Pages 5 and 7 of 12)

The Draft Permit includes temperature limits with units of degrees Celsius, whereas the 1994 Permit includes temperature limits in degrees Celsius and the equivalent temperature limits in degrees Fahrenheit. Existing equipment controls, and procedures are based on temperature units of F and can not be readily replaced with units of C. Note that the DSN 001A Permit Summary Table on page 36 of 42 of the Fact Sheet includes temperature limitations in both F and C. Additionally, per Exelon's previous request regarding the 2010 Draft Permit, Table III-A-1 in this Draft Permit (pages 2 and 3 of 12) had been modified to reflect temperature units in F for Outfall 001A. Exelon requests that the temperature limit units for Outfalls 002A and 004A be revised in a similar fashion to indicate limits in degrees Fahrenheit.

Response to Exelon Comment 3

The Department does not object to imposing equivalent effluent limits in units of Fahrenheit at DSN 002A and 004A as opposed to units of Celsius and has incorporated this change.

Pages 5 and 7 of Part III have been revised to reflect this change.

Exelon Comment 4 – Petroleum Hydrocarbons at Outfalls 004A and 007A (Part III, Page 8 of 12)

Exelon requests that the "Petroleum Hydrocarbons" parameter be revised to "Total Hydrocarbons" because the n-Hexane extraction method required in the Draft Permit does not differentiate between petroleum hydrocarbons and organic hydrocarbons. The discharge limits for Petroleum Hydrocarbons included in the

current permit were put in place for the Freon-extraction method, which is no longer a permissible analytical protocol. In the alternative, Exelon requests that Part IV, Section A.1 be modified to state that, where petroleum hydrocarbon monitoring is required, the results of the total hydrocarbon analysis using the n-Hexane method shall be reported. Exelon also requests a conforming change to the Fact Sheet (page 32 of 42 ¶5).

Response to Exelon Comment 4

The Department agrees with the issues raised in the permittee's comment with respect to current analytical requirements. However, despite these analytical changes, the Department continues to impose "Total Petroleum Hydrocarbons" as a parameter in NJPDES permits. The Department does not require that a particular sampling method be used as long as the permittee uses an approved analytical method with a certified lab.

No change to the permit is necessary as a result of this comment.

Exelon Comment 5 – Total Organic Carbon (TOC) at Outfall 004A (Part III, Page 8 of 12)

Exelon requests that the "Sample Point" for the Maximum Daily Limit for TOC be revised from "Effluent Gross Value" to "Effluent Net Value". The proposed language would be similar to the current limitations for Petroleum Hydrocarbons. The source water for this discharge is also the receiving stream (intake canal) and those limitations should therefore be set on a "net" basis.

Response to Exelon Comment 5

In accordance with N.J.A.C. 7:14A-13.4(k), the discharger must demonstrate that net limits are warranted by demonstrating that the pollutant is present in the intake water. The Department does not have information at this time demonstrating such so the regulatory criteria can not be met. The Department would be willing to evaluate intake data and revisit this request and potentially issue a major modification to the permit in accordance with N.J.A.C. 7:14A-16.4

It is also worth noting that, even without compensating for pollutants in the intake water, effluent data for TOC is well under the effluent limits of 50 mg/L where discharge data from January 2009 through November 2010 shows an average value of 6.8 mg/L.

No change to the permit is necessary as a result of this comment.

Exelon Comment 6 – Annual and Semi-Annual Wastewater Testing (Part IV, Page 1 of 11)

Paragraph IV.A.1.g of the Draft Permit requires: "Annual and semi-annual wastewater testing shall be conducted in a different quarter of each year so that tests are conducted during any month of the permit quarters." If mercury and boron monitoring are retained in the final permit, Exelon requests that this requirement be modified to utilize calendar quarters instead of permit quarters to coordinate scheduling within the Oyster Creek Generating Station work management system.

Response to Exelon Comment 6

The Department recognizes that coordination with calendar quarters is advantageous for scheduling purposes. Because the effective date of this final permit coincides with a calendar quarter (April 1, 2012), this issue is moot.

Exelon Comment 7 – pH Limitations (Part IV.A.1, Page 2 of 11)

Because the pH of discharge is a function of the pH of intake water, the pH of the discharge is influenced by factors beyond Exelon's control. For example, the surface water streams draining into the Oyster Creek Generating Station intake and discharge canals typically contain low pH waters due to naturally-occurring high organic content and tannic acids from upstream woodlands. Also, these streams can contain low pH water during periods of high storm water runoff. Accordingly, the Department has historically authorized Exelon to discharge effluent outside the permit pH range when intake water is also outside that range.

However, the Draft Permit would permit the discharge of effluent below the authorized pH range only if the effluent pH is *below the pH of the intake canal*. The Draft Permit does not authorize the discharge of effluent below the pH range, but above the intake water pH. Under the Draft permit, if Exelon lowered the already too-low pH, it would be excused from a violation, but if it raised the low pH closer to the authorized pH range, Exelon would commit a violation. Given this illogical consequence, Exelon believes this language was included in error, and proposes revisions to bring this authorization in line with the parallel authorization for discharges having pH above the pH range.

As a result, Exelon is requesting the following changes:

- Exelon requests that paragraph IV.A.1.j be modified from: "However, if the intake pH is less than 6.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than the intake pH" to "However, if the intake pH is less than 6.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is *less than* 6.5 S.U." (Change in italics.)

- Exelon requests that the second paragraph under IV.A.1.j be revised from: "However, if the intake pH is less than 6.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than the intake pH" to "However, if the intake pH is less than 6.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is *less than 6.0 S.U.*" (Change in italics.)

- Exelon requests that the pH requirements for DSN 007A be deleted based on the low volume of the waste stream.

Response to Exelon Comment 7

The intent of this language was to ensure that Exelon did not have a permit exceedance due to low intake pH or, while less likely, high intake pH. The permittee is correct in that the language needs to be clarified since it erroneously allows the permittee to discharge at a value below any intake pH reading. For example, if the intake pH is 5.8 S.U., the current language deems that a value of 5.5 S.U. is not a violation. However, the suggested language provided by Exelon does not impose any limitation anytime the intake pH is below the minimum limit. As an alternative, the Department has modified the language as follows which meets the Department's original intent:

pH: For DSN 001A and 002A - the effluent pH shall be in the range of 6.5 standard units (S.U.) to 8.5 S.U. However, if the intake pH is less than 6.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than 6.5 S.U. but greater than the intake pH. Likewise, if the intake pH is greater than 8.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is greater than 8.5 S.U but less than the intake pH.

For DSN 004A - the effluent pH shall be in the range of 6.0 to 9.0 S.U. However, if the intake pH is less than 6.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than 6.5 S.U. but greater than the intake pH. Likewise, if the intake pH is greater than 9.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is greater than 9.0 S.U but less than the intake pH.

When reporting of the intake water pH is required, it shall be reported as the intake pH on the Monitoring Report Form.

This change affects page 2 of Part IV of the final permit.

With respect to the request that pH requirements be deleted from DSN 007A, the Department maintains that a pH effluent in the range of 6.0 S.U. and 9.0 S.U. is required for this surface water outfall despite its size. Note that the Department did not require routine monitoring for compliance for this outfall. No change to the permit is necessary as a result of this comment.

Exelon Comment 8 – Visible Sheen (Part IV.e.1.d., Page 4 of 11)

Exelon requests that the language regarding visible sheen in the discharge be modified from "The discharge shall not exhibit a visible sheen" to "The discharge shall not exhibit a visible sheen *unless the sheen is due to a naturally-occurring material or other condition in the source water."* (Changes in italics.) It is common in the area for certain types of bacteria to create an organic visible sheen, which is naturally-occurring and not due to the presence of petroleum products. Also, on some occasions, petroleum products discharged upstream, from sources such as a nearby marina, have been drawn into the facility's intake and caused visible sheen on the facility's discharge. The proposed modification accounts for these causes of visible sheen that are not related to Oyster Creek Generating Station's operations.

Response to Exelon Comment 8

As noted in this comment, Part IV e.1.d. states:

> The discharge shall not exhibit a visible sheen.

The visible sheen is based on N.J.A.C. 7:14A-12.8(c)1 which states:

(c) Direct discharges to surface water shall limit the oil and grease effluent content so that such effluent does not:
1. exhibit a visible sheen.

This condition is routinely imposed in all NJPDES Surface Water Permits as part of standard boilerplate based on regulation. As such, it can not be modified.

As noted in this comment, the Department agrees that there may be circumstances where a visible sheen is naturally occurring. If that is the case and a violation is issued, the permittee can raise that defense as part of the affirmative defense criteria at N.J.A.C. 7:14A-6.11 and 40 CFR 122.41(m) and (n).

No change the permit is necessary as a result of this comment.

Exelon Comment 9 – Corrosion Inhibitors (Part IV.e.1.f., Page 4 of 11 and Fact Sheet Page 35 of 42)

The Department has approved sodium hypochlorite as a biocide for Outfall 001A and Outfall 004A, among other approved biocides. While the Department has approved Chlorine gas as a biocide for Outfall 002A, Exelon is currently evaluating a possible modification to Outfall 002A that would permit the use of sodium hypochlorite as the biocide for this effluent as well. In connection with the 1994 permit, the Department has approved the use of biocides, and the resulting discharge of Chloride Produced Oxidants (CPO), on a 24-hour a day basis at Outfall 002A and Outfall 004A.

Part IV.E.1.f. of the Draft Permit incorporates a restriction on CPO discharges from "any single generating unit" based on the Stream Electric Guidelines in 40 CFR 423.13. The first sentence of this paragraph provides: "Chlorine Produced Oxidants (CPO) shall not be discharged from any single generating unit for more then two hours per day." There is only one generating unit at Oyster Creek Generating Station, and the discharge from that unit is directed to Outfall 001A. However, other wastewater streams also discharge through Outfall 001A that are not subject to this restriction. In order to remove any ambiguity, Exelon proposes that the phrase "from any single generating unit" be replaced with "from the Main Condenser Discharge."

Finally, an additional phrase must be added to this provision to make the permit requirement consistent with 40 CFR 423.13(b)(2). Therefore, for clarity and consistency with relevant regulations, Exelon proposes that the first sentence of paragraph IV.E.1.f. be revised to read as follows: "Chlorine Produced Oxidants (CPO) shall not be discharged from *the main Condenser Discharge* for more then two hours per day *unless Exelon demonstrates to DEP that discharge for more than two hours is required for macroinvertebrate control."* (Change in italics.)

Response to Exelon Comment 9

Regarding DSN 002A, because sodium hypochlorite and chlorine gas both result in the discharge of chlorine produced oxidants, the Department does not object to the inclusion of sodium hypochlorite at DSN 002A. Therefore, this language has been modified as follows:

> The permittee is authorized to use the following corrosion inhibitors, biocides, or other cooling water additives: DSN 001A - Sodium hypochlorite; DSN 002A - Chlorine gas, Sodium hypochlorite; DSN 004A - Sodium Hypochlorite, bioguard Tabguard Pucks (trichloro-s-triazinetrione).

With respect to clarification that the term "from any single generating unit" be replaced with the "Main Condenser Discharge", the Department does not object to this clarification as it meets the intent of 40 CFR 423.13.

With respect to the assertion that the language as written is not consistent with 40 CFR 423.13(b)(2), please note that 40 CFR 423.13(b)(2) is specified as follows:

(2) Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

The Department agrees that the 2011 draft permit language is not currently consistent with this intent. However, the Department prefers that this language be clarified to ensure that it is clear that the permitting authority must approve any deviation from the two hour restriction in writing. In sum, this language has been modified to address both issues as follows:

> Chlorine Produced Oxidants (CPO) shall not be discharged from ~~any single generating unit~~ the Main Condenser Discharge for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control and the permitting authority approves such in writing. Samples for CPO shall be taken once during each two hour period of chlorination. Option 1 CPO limits apply to DSN 001A during normal operations. Option 2 CPO limits apply to DSN 001A during periods of chlorination of the turbine building closed CW heat exchanger.

Page 4 of Part IV has been revised to reflect these changes.

Exelon Comment 10 – Boron and Mercury Monitoring Requirements for Outfall 001A (Part III, Table III-A-1, Pages 2 and 3 of 12), Boron Monitoring Requirement for Outfall 002A (Part III, Table III-B-1, Page 5 of 12) and 004A (Part III, Table III-C-1, Page 8 of 12)

Exelon's operations do not contribute mercury or boron to its effluents, and therefore could not cause the receiving water to exceed surface water quality standards. Indeed, New Jersey has not established a water quality standard for boron. Exelon requests that the monitoring requirements for mercury and boron be deleted.

The Fact Sheet (page 30) states that monitoring for mercury and boron at Outfall 001A has been included based on EPA Region 2's request. The Fact Sheet (ages 32 and 33) states that monitoring boron at Outfalls 002A and 004A has been included based on EPA Region 2's request and "considering the permittee's operations." Exelon believes that EPA Region 2 did not recognize that Oyster Creek is a nuclear powered boiling water reactor when making its request, since these parameters could be more appropriate in effluents from a fossil-fueled electric generating station or pressurized water reactor (*see* paragraph (c) below, for further information on these reactor types).

In support of its request, EPA Region 2 cites 40 C.F.R 122.44(d)(1)(i) which provides: "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." EPA Region 2 states its understanding that the Department requires a minimum of ten analytical tests to perform the "reasonable potential" analysis, and discounts the obligation of the Director to make the determinations without such information. However, neither EPA Region 2 nor the Department point to information that could support a finding that either mercury or boron is present in the facility's discharge at levels that could "Cause, have the reasonable potential to cause, or contribute to" a water quality violation. The Department does not even identify the Oyster Creek Generating Station operations that could cause a discharge of mercury or boron, or otherwise contradict the verified statements by Exelon in its application that the facility is not believed to contribute these pollutants to the effluent. This unique reading of 40 C.F.R 122.44(d)(1) would lead to the conclusion that a minimum of ten analyses are required for every pollutant for which a water quality standard exists, without considering the permittee's operations and the effluent quality information contained in permit application forms.

In addition, Exelon requests that mercury monitoring requirements be deleted from the permit based on the following:

- The Effluent Characterization Study ("ECS") was performed on the influent and on an internal waste stream designated as the 1-5 Sump (the 1-5 sump discharge was subsequently terminated). Based on the permittee's operation, the Department did not require monitoring for mercury at the outfalls in the 1994 permit. Nuclear facilities are required to maintain a stringent chemical control program, restricting the chemicals that can be brought on to the facility and the locations in which approved chemicals can be located. Mercury is severely controlled due to the potential for metals' adverse impact at operational pressures and temperatures. The very limited mercury at Oyster Creek Generating Station is contained in identified components and can not enter wastewater. Contrary to providing a basis for requiring mercury monitoring, the ECS and the permittee's operations confirm that there is no basis for a "reasonable potential" analysis for mercury or for requiring any mercury monitoring.

Exelon requests that boron monitoring requirements be deleted from the permit based on the following:

- Exelon believes EPA Region 2 misunderstood the different types of nuclear plant designs and the way nuclear power plants are constructed. EPA Region 2 is correct that some types of nuclear power plants use boron to control the reactor process. However, Oyster Creek Generating Station is a boiling water reactor ("BWR") design that does not use boric acid in the primary coolant system to control the nuclear reaction as is common in pressurized water reactor ("PWR") design plants. The BWR design uses boron in reactor control rods, solid components contained within the reactor vessel, inside the drywell, and inside the containment building. This use does not have the potential to cause a release of boron from the facility's wastewater discharge.

- Boron is ubiquitous in the environment. Boron concentrations of approximately 4.5 mg/L are normal in sea water. (*See* Quality Criteria for Water, EPA 440/5-86-001, May 1, 1986.). Boron is commonly found in products that can enter the near-shore environment in surface runoff and sewage treatment effluents (*e.g.* detergents and pesticides). Because Oyster Creek Generating Station's effluent comes entirely from its seawater intake, it is overwhelmingly likely that boron will be found in the facility's effluent. However, as discussed above, any boron in the facility's wastewater cannot result from the facility's operations, and must necessarily be from background concentrations in the intake water.

- There is no New Jersey or federal water quality standard for boron. *See* USEPA. National Recommended Water Quality Criteria, Office of Science and Technology (4304T) (2004); New Jersey Surface Water Quality Standards ("SWQS"), N.J.A.C. 7:9B. Therefore, there can necessarily be no violation of a water quality standard for boron caused by the discharge from Oyster Creek Generating Station. The authority cited by EPA Region 2 for its request, 40 C.F.R. 122.44(d)(1), does not apply. It is arbitrary and capricious for the Department to require monitoring of boron in these circumstances, especially when neither the state nor federal water quality standards suggest such a requirement for boron concentrations.

For all the foregoing reasons, Exelon requests that the mercury and boron monitoring requirements be deleted from the permit. Alternatively, if the Department provides a basis for mercury or boron monitoring and retains these requirements in the final permit, Exelon requests monitoring be performed once per quarter

for four consecutive quarters to characterize the effluent. If statistically significant net mercury or boron concentrations are not detected in the effluent, the monitoring requirements should automatically terminate.

Response to Exelon Comment 10

The Department recognizes Exelon's opposition to the monitoring requirements at DSN 001A on a semi-annual basis for mercury and an annual basis for boron; and an annual basis for boron at DSNs 002A and 004A. As correctly noted in this comment, these requirements were included based on comments submitted by US EPA Region 2 on the January 7, 2010 permit. These comments were as follows:

4. **Mercury monitoring requirement**

The permit does not include monitoring for mercury, nor is there a reasonable potential determination included in the permit Fact Sheet. Federal regulations at 40 CFR § 122.44(d)(1)(i) require tht limitations must control all pollutants or pollutant parameters that are, or may be, discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard (WQS). It is our understanding that NJDEP requires ten test results to make a reasonable potential determination. The permit must ensure that monitoring for mercury provides a representative dataset to assess potential to cause or contribute to an exceedance of New Jersey's water quality standards in the receiving water. If limits are deemed necessary the analytical method must be sufficiently sensitive to assess compliance. EPA believes that the only analytical methods sufficiently sensitive to determine reasonable potential and assess compliance with permit limitations are EPA Method 1631AE and 254.7. EPA recommends inclusion of Method 1631E as this is the most sensitive method for mercury monitoring available under 40 CFR Part 136.

1. Monitoring for Boron

Nuclear generating stations utilize boron in the process to control the nuclear reaction. Monitoring for boron should be required in this permit for the radioactive wastestreams and for steam generator blowdown.

The Department agrees with US EPA comments in that monitoring for mercury and boron is appropriate given the absence of recent information.

The Department also notes that boron may be present in sea water; therefore, the permittee is welcome to voluntarily monitor their intake at the time of effluent sampling.

The Department agrees that an Effluent Characterization Study was performed in 1995; however, these results are very dated and are over 16 years old. It is worth noting that these frequencies are not burdensome where semi-annual monitoring is required for mercury and annual monitoring is required for boron.

No change to the permit is necessary as a result of this comment.

Exelon Comment 11 – Dilution Pump Operations (Part IV.G.2.d.v., Page 7 of 11)

Exelon requests that this paragraph be modified to allow Oyster Creek to operate for a period of up to thirty (30) days if a sufficient number of dilution pumps is not available to meet the requirements of Part IV.G.2.d.ii or iii, provided at least one pump is available for operation. This request is based on the following:

- The Oyster Creek dilution pumps are unique, specialty pumps specifically designed to move relatively large volumes of water with minimal impact to aquatic organisms. The original pump manufacturer is located in Germany, and replacement parts and components for the pumps are difficult to obtain, even under an accelerated schedule. Repairs and/or emergency maintenance activities on the pumps also require specialized expertise and equipment.

- Exelon provides extensive routine maintenance on the dilution pumps, which is planned and scheduled to maintain continued operation and keep the pumps in optimal condition. These scheduled maintenance activities are conducted to the extent possible during periods of moderate water temperatures when dilution pump operation is not required by the permit.

- Exelon provides extensive routine maintenance on the dilution pumps, which is planned and scheduled to maintain contained operation and keep the pumps in optimal condition. These scheduled maintenance activities are conducted to the extent possible during periods of moderate water temperatures when dilution pump operation is not required by the permit.

- However, unplanned or emergent maintenance on these pumps may be required during periods when the pumps are required to operate per the permit. Because the dilution pumps were custom designed by a German manufacturer for this application, any such unplanned maintenance activities must be conducted by one of a very few specialty vendors qualified to conduct such repairs. Some replacement parts for these pumps require labor-intensive reverse engineering and fabrication by specialty vendors. Also, extensive repairs or maintenance to the dilution pumps may require the use of divers and/or large cranes. Therefore, unplanned maintenance on the dilution pumps may require several weeks to complete.

Based on these factors, Exelon requests that Part IV.G.2.d.v. be reworded to read as follows: "During periods of dilution pump component maintenance, a sufficient number of dilution pumps may not be available to meet the requirements of ii or iii above. In that event, the Station may be operated for a period not to exceed *thirty (30) days* in order to make necessary repairs, provided at least one dilution pump is available for operation. As soon as the second dilution pump is available for operation, it shall be placed into service as required under ii or iii. When the Station has operated under this paragraph for *thirty (30) days* and continues to lack sufficient pumps to comply with ii or iii, the Station shall become subject to vi below instead of this paragraph." (Changes in italics)

Likewise, Exelon requests that Part IV.G.2.d.vi would also be reworded to read as follows: "If two dilution pump operation is required under ii, iii, *or* iv, and if one pump operation under v above continues *for thirty (30) days*, remedial action will be taken within 24 hours to bring the Station into compliance with ii, iii, *or* iv. If the remedial action taken involved reduction of Station power output, power will be reduced as necessary to achieve the same effects as operating with one dilution pump." (Changes in italics.)

Finally, Exelon requests that Part IV.G.2.d.iv be changed where it currently reads, "If two dilution pump operation is required under ii and iii above…". However, dilution pump operation can only satisfy the conditions of either ii *or* iii at any given time, but not both conditions simultaneously. Therefore, this phrase should be revised to read as follows: "If two dilution pump operation is required under ii *or* iii above…" (Changes in italics.)

Response to Exelon Comment 11

Exelon is requesting that language that limits the repair of a dilution pump be changed from 14 days to 30 days. The 14 day condition is stipulated in the 1994 permit and was retained in the 2011 draft permit.

The Department recognizes that there may be delays associated with repair of a dilution pump. However, while the permit requires operation of one or two dilutions pumps, there is a third dilution pump that is held in reserve. As long as the third dilution pump is in good working order, the issue of a repair should not be an issue if one dilution pump is out. Again, if circumstances arise that the permittee can not comply with the 14 day condition due to factors outside their control and a violation is issued, these circumstances can provide justification for affirmative defense in accordance with N.J.A.C. 7:14A-6.11 and 40 CFR 122.41(m) and (n).

No change to the permit has been made as a result of this comment.

With respect to the second part of this comment, the Department agrees that item ii and iii can not apply simultaneously; therefore, this language has been modified as follows: "If two dilution pump operation is required under ii ~~and~~ or iii above…"

This change affects item G.2.d.iv on page 7 of Part IV.

Exelon Comment 12 – Section 316(b) Determination (Part IV.G.3.a.ii, Page 9 of 11)

The phrase at the end of this paragraph, "through Termination and with respect to Post-Termination activities as defined in Paragraph I of the Findings of the December 9, 2010 ACO" should be modified to read: through Termination and with respect to *post*-Termination activities as *described* in Paragraph I of the Findings of the December 9, 2010 ACO" (changes in italics). Paragraph I of the ACO contains a definition of "Termination" but does not define "Post-Termination" or "Post-Termination Activities." Paragraph 1 does describe a number of examples of activities that will occur at Oyster Creek after Termination, and so does "describe" rather than "define" "post-Termination" activities. However, "post" should not be capitalized to indicate a defined term.

Response to Exelon Comment 12

The Department agrees that these wording suggestions better describe the language in the ACO. As a result, this language has been changed as follows: "…is the best technology available for the facility's cooling water intake through Termination and with respect to ~~Post~~ post -Termination activities as ~~defined~~ described in Paragraph I of the Findings of the December 9, 2010 ACO.

This change affects item G.3.a.ii. on page 9 of Part IV.

Exelon Comment 13 – Temperature Changes on Termination (Part IV.G.3.a.iv, Page 9 of 11)

This section provides that "Upon Termination, the permittee shall lower reactor power slowly so that the rate of change in the discharge canal water temperature is approximately 1.7 degrees Fahrenheit per hour." Oyster Creek can only control the rate at which reactor power is decreased. However, while the reactor power is being decreased, other external environmental factors will affect the discharge canal water temperature and these factors are not under the control of Oyster Creek. Therefore, Oyster Creek will plan to

conduct power reduction upon Termination at a rate which would result in a discharge canal water temperature decrease of less than 1.7 degrees Fahrenheit per hour absent such external environmental factors.

Response to Exelon Comment 13

This language is directly from the December 9, 2010 ACO and the Department is not in a position to modify it through this permit. However, the Department recognizes that there could be external factors which could contribute to an excursion. Provided a notice of violation is issued, any such external environmental factors should be raised as part of an affirmative defense in accordance with N.J.A.C. 7:14A-6.11 and 40 CFR 122.41(m) and (n).

No change to the permit has been made as a result of this comment.

Exelon Comment 14 – DSN 007A Dilution Pump Seal Water Oil/Water Separator (Fact Sheet Pages 33 and 29 of 42)

The Dilution Pump Seal Water Oil/Water Separator is a small restaurant-style gravity oil/water separator designed for a low volume throughput of only a few gallons per day. The effluent treated by this oil/water separator is a minor flow of freshwater used to cool the dilution pump seals. The daily discharge from this outfall varies but is typically less than 40 gallons per day ("GPD"). The units of flow for this discharge are incorrectly identified as millions of gallons per day ("MGD") on pages 33 of 42 and 39 of 42 of the Fact Sheet. Note that the monthly average flow for the wastewater data summarized in the Permit Summary Table for DSN 007A on Page 39 of 42 is only 22 GPD.

Paragraph 2 on Page 33 of 42 of the Fact Sheet should be deleted because this is a discussion of pH, which is not a monitored parameter for this outfall.

Response to Exelon Comment 14

The Department agrees that given the typical flow of 40 GPD at DSN 007A this parameter should be monitored in units of gallons per day as opposed to million gallons per day. Page 10 of Part III correctly specifies units of gallons per day in the 2011 draft permit as well as in this final permit.

Exelon is correct in that the Fact Sheet and Permit Summary Table need to be corrected; however, these portions of the draft permit are not part of the final permit. Nonetheless, the Department acknowledges these changes for the purposes of the Administrative Record by including the affected language below. Changes to page 33 are as follows:

DSN 007A – Miscellaneous Wastewater (30 ~~MGD~~ GPD**)**

Changes to the Permit Summary Table for DSN 007A on page 39 are as follows:

DSN 007A – Dilution Pump Seal Water

PARAMETER (1)	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/09 – 11/10	EXISTING LIMITS	FINAL LIMITS	MONITORING	
						Frequency	Sample Type
Flow	~~MGD~~ GPD	Monthly Avg. Daily Max. # detected # No Discharge	22 757 2 21	MR MR	MR MR	Continuous	Calculated
Petroleum Hydrocarbons	Mg/L	Monthly Avg. Daily Max.	No Discharge No Discharge	10 15	10 15	1/Month	Grab

The second portion of this comment concerns the inclusion of language for pH limits at DSN 007A. The Department agrees that pH is not a monitored parameter for DSN 007A; however, effluent limits still apply. The information included in the Fact Sheet was to provide background information for this narrative condition and the inclusion of such is appropriate. No change to the permit is necessary.

Exelon Comment 15 – Incorrect Cross References

Footnote 3 (Fact Sheet, Page 37 of 42) - The reference to item C.2.i of Part IV for additional information on CPO limits is incorrect. The phrase "as identified in G.2.i of Part IV" should be revised to read "as identified in *G.2.j* of Part IV." (Changes in italics.)

(Part III, Page 1 of 12) - The last two sentences of the Location Description paragraph for DSN 001A incorrectly references a certain section of Part IV containing additional information on pH, CPO and heat and temperature limits, and should be corrected to read as follows: "Please refer to items *A.1.j. and G.2.j* of Part IV for additional information on pH and CPO limits. Please refer to items *G.2.h and G.2.i* for additional information on heat and temperature limits." (Changes in italics.)

(Part IV.G.2.b.ii(a), Page 6 of 11) - The cross-reference to "Maximum Emergency Generation event as defined in G.2.g" is incorrect. This cross-reference should be replaced with "*Emergency Conditions as described in Part IV.G.2.i.iii.*" (Changes in italics.)

(Part IV.G.2.ii.ii., Page 8 of 11) - The description of Option 2 Limits incorrectly references the location of the description of emergency Conditions. Therefore, this section should be revised to read as follows: "Option 2 Limits shall be applicable when fewer than four circulating water pumps are operating, during periods of condenser backwash, during intake components maintenance or during a PJM Emergency Condition *as described in item G.2.i.iii.*" (Changes in italics)

(Part IV G.5.b.iv, Page 10 of 11) - The cross-reference to "the intake flow conditions set forth in G.5.a above" is incorrect. The correct reference is to "the intake flow conditions set forth in item G.5.a above" is incorrect. The correct reference is to "the intake flow conditions set forth in item G.3.iii above.) (Changes in italics.)

Response to Exelon Comment 15

Footnote 3 (Fact Sheet, Page 37 of 42)

The reference to Part IV as contained in the draft permit is incorrect. As a result, Footnote (3) has been changed as follows: "Consistent with the existing permit, the Department has continued effluent limitations for CPO under two scenarios that are identified in this permit as Option 1 and Option 2 limits as identified in G.2.~~i.~~ j. of Part IV."

The Fact Sheet is not part of the final permit; therefore, these changes are hereby incorporated into the Administrative Record.

(Part III, Page 1 of 12)

The Department agrees that these cross references are incorrect. As a result, the last two sentences of the Location Description paragraph for DSN 001A have been changed as follows: "Please refer to items A.1.j. and ~~G.2.h.~~ G.2.j. of Part IV for additional information on pH and CPO limits. Please refer to items ~~G.2.g.,~~ G.2.h. and G.2.i. for additional information on heat and temperature limits."

This change affects page 1 of Part III.

(Part IV.G.2.b.ii(a), Page 6 of 11)

The Department agrees that use of the term Maximum Emergency Generation event is incorrect. As a result this description has been changed to "…implementation of the alternate effluent limitations in accordance with ~~a Maximum Emergency Generation event as defined in G.2.g.;~~ Emergency Conditions as described in G.2.i.iii…".

This change affects page 6 of Part IV.

(Part IV.G.2.ii.ii., Page 8 of 11)

The Department agrees that this cross reference is incorrect. As a result, this description has been changed to: "Option 2 limits shall be applicable when fewer than four circulating water pumps are operating, during periods of condenser backwash, during intake component maintenance, or during a ~~Emergency Condition as defined in item G.2.g.~~ PJM Emergency Condition as described in item G.2.i.iii."

This change affects page 8 of Part IV.

(Part IV G.5.b.iv, Page 10 of 11)

The Department agrees that the cross reference is incorrect. As a result, this description has been changed to "…the intake flow conditions set forth in G.3.iii. ~~G.5.a~~ above."

This change affects page 10 of Part IV.

Exelon Comment 16 – Other Errata

(Part II.B.6.a, Page 2 of 3) - The General Requirements section of the permit, Part II, state that "…every wastewater system not exempt pursuant to N.J.A.C. 7:10A-1.1(b) requires a licensed operator." This appears to be an incorrect regulatory citation and this section of the permit should be corrected to read as follows:

"…every wastewater system not exempt pursuant to *N.J.A.C. 7:10A-1.10(c)* requires a licensed operator." (Changes in italics).

(Part II.B.7.a, Page 2 of 3) - Typographical error in last sentence should be corrected; "condition" is spelled incorrectly.

(Fact Sheet, Page 36 of 42) - The Wastewater Data 01/09-11/10 column of the Permit Summary Table contains several values that appear to have been transposed in the data fields for Temperature Difference Between Intake and Discharge (Option 1), as well as in the loading (kg/d) data fields for Chlorine Produced Oxidants – Normal Plant Operations (Option 1) and Chlorine Produced Oxidants – During chlorination of the turbine building closed cooling water heat exchanger (Option 2). Note that there is no existing or final limit for CPO Option 2; therefore, this correction has also been made to the table. The correct Wastewater Data 01/09 – 11/10 data for these data fields is as follows:

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/09 – 11/10	EXISTING LIMITS	FINAL LIMITS	MONITORING	
						Frequency	Sample Type
Temperature Difference Between Intake and Discharge (Option 1) (2)	°C (°F)	Monthly Avg. Instant Max. Instant Max.	9.71 12.8 --	MR 12.8 (23)	MR 12.8 (23)	1/Day	Calculated
Chlorine Produced Oxidants – Normal Operations (Option 1) (3)	kg/d	Monthly Avg. Daily Max.	10.72 25.07	MR 41.7	MR 41.7	1/Day	Grab
Chlorine Produced Oxidants – During operation of the turbine building closed cooling water heat exchanger (Option 2) (3)	kg/d	Monthly Avg. Daily Max.	0.22 0.55	MR MR	MR MR	1/Day	Grab

Response to Exelon Comment 16

(Part II.B.6.a, Page 2 of 3)

The permittee is correct in that N.J.A.C. 7:10A-1.10(c) lists the exemptions for a licensed operator. This language has been changed as follows: "Pursuant to N.J.A.C. 7:10A-1.1 et seq. every wastewater system not exempt pursuant to N.J.A.C. 7:10A-1.10 ~~(b)~~ (c) requires a licensed operator…"

This change affects page 2 of Part II.

(Part II.B.7.a, Page 2 of 3)

The Department has corrected this error so language now reads: "(b)…any discharge to the waters of the state or any standing or ponded ~~condtion~~ condition for water or waste, except as specifically authorized by a valid NJPDES permit."

This change affects page 2 of Part II.

(Fact Sheet, Page 36 of 42)

The Department has confirmed that these numbers were incorrectly transposed and that these changes are appropriate. The Department has copied the table again below with strikeout to show those portions deleted:

PARAMETER	UNITS	AVERAGING PERIOD	WASTEWATER DATA 1/09 – 11/10	EXISTING LIMITS	FINAL LIMITS	MONITORING	
						Frequency	Sample Type
Temperature Difference Between Intake and Discharge (Option 1) (2)	°C (°F)	Monthly Avg. Instant Max. Instant Max.	9.71 12.8 ~~13.9~~ --	MR 12.8 (23)	MR 12.8 (23)	1/Day	Calculated
Chlorine Produced Oxidants – Normal Operations (Option 1) (3)	kg/d	Monthly Avg. Daily Max.	10.72 ~~0.72~~ 25.07 ~~16.71~~	MR 41.7	MR 41.7	1/Day	Grab
Chlorine Produced Oxidants – During operation of the turbine building closed cooling water heat exchanger (Option 2) (3)	kg/d	Monthly Avg. Daily Max.	0.22 ~~10.44~~ 0.55 ~~25.07~~	MR MR	MR MR ~~0.2~~	1/Day	Grab

The Fact Sheet is not part of the final permit; therefore, these changes are hereby incorporated into the Administrative Record.

NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM

The New Jersey Department of Environmental Protection hereby grants you a NJPDES permit for the facility/activity named in this document. This permit is the regulatory mechanism used by the Department to help ensure your discharge will not harm the environment. By complying with the terms and conditions specified, you are assuming an important role in protecting New Jersey's valuable water resources. Your acceptance of this permit is an agreement to conform with all of its provisions when constructing, installing, modifying, or operating any facility for the collection, treatment, or discharge of pollutants to waters of the state. If you have any questions about this document, please feel free to contact the Department representative listed in the permit cover letter. Your cooperation in helping us protect and safeguard our state's environment is appreciated.

Permit Number: NJ0005550

Final: Surface Water Renewal Permit Action

Permittee:
Exelon Generation Co.
PO Box 388 – Oyster Creek Generating Station
Forked River, NJ 08731-0388

Co-Permittee:

Property Owner:
Exelon Generation Co. LLC
PO Box 388 – Oyster Creek Generating Station
Forked River, NJ 08731-0388

Location Of Activity:
Oyster Creek Generating Station
Route 9 South
Lacey Township, NJ 08731-0388

Authorization(s) Covered Under This Approval	Issuance Date	Effective Date	Expiration Date
B -Industrial Wastewater	12/20/2011	04/01/2012	03/31/2017

By Authority of:
Commissioner's Office

DEP AUTHORIZATION
Pilar Patterson, Chief
Bureau of Surface Water Permitting
Water Pollution Management Element
Division of Water Quality

(Terms, conditions and provisions attached hereto)

PART I
GENERAL REQUIREMENTS:
NJPDES

A. General Requirements of all NJPDES Permits

1. Requirements Incorporated by Reference

a. The permittee shall comply with all conditions set forth in this permit and with all the applicable requirements incorporated into this permit by reference. The permittee is required to comply with the regulations, including those cited in paragraphs b. through e. following, which are in effect as of the effective date of the final permit.

b. General Conditions

Penalties for Violations	N.J.A.C. 7:14-8.1 et seq.
Incorporation by Reference	N.J.A.C. 7:14A-2.3
Toxic Pollutants	N.J.A.C. 7:14A-6.2(a)4i
Duty to Comply	N.J.A.C. 7:14A-6.2(a)1 & 4
Duty to Mitigate	N.J.A.C. 7:14A-6.2(a)5 & 11
Inspection and Entry	N.J.A.C. 7:14A-2.11(e)
Enforcement Action	N.J.A.C. 7:14A-2.9
Duty to Reapply	N.J.A.C. 7:14A-4.2(e)3
Signatory Requirements for Applications and Reports	N.J.A.C. 7:14A-4.9
Effect of Permit/Other Laws	N.J.A.C. 7:14A-6.2(a)6 & 7 & 2.9(c)
Severability	N.J.A.C. 7:14A-2.2
Administrative Continuation of Permits	N.J.A.C. 7:14A-2.8
Permit Actions	N.J.A.C. 7:14A-2.7(c)
Reopener Clause	N.J.A.C. 7:14A-6.2(a)10
Permit Duration and Renewal	N.J.A.C. 7:14A-2.7(a) & (b)
Consolidation of Permit Process	N.J.A.C. 7:14A-15.5
Confidentiality	N.J.A.C. 7:14A-18.2 & 2.11(g)
Fee Schedule	N.J.A.C. 7:14A-3.1
Treatment Works Approval	N.J.A.C. 7:14A-22 & 23

c. Operation And Maintenance

Need to Halt or Reduce not a Defense	N.J.A.C. 7:14A-2.9(b)
Proper Operation and Maintenance	N.J.A.C. 7:14A-6.12

d. Monitoring And Records

Monitoring	N.J.A.C. 7:14A-6.5
Recordkeeping	N.J.A.C. 7:14A-6.6
Signatory Requirements for Monitoring Reports	N.J.A.C. 7:14A-6.9

e. Reporting Requirements

Planned Changes	N.J.A.C. 7:14A-6.7
Reporting of Monitoring Results	N.J.A.C. 7:14A-6.8
Noncompliance Reporting	N.J.A.C. 7:14A-6.10 & 6.8(h)
Hotline/Two Hour & Twenty-four Hour Reporting	N.J.A.C. 7:14A-6.10(c) & (d)
Written Reporting	N.J.A.C. 7:14A-6.10(e) &(f) & 6.8(h)
Duty to Provide Information	N.J.A.C. 7:14A-2.11, 6.2(a)14 & 18.1
Schedules of Compliance	N.J.A.C. 7:14A-6.4
Transfer	N.J.A.C. 7:14A-6.2(a)8 & 16.2

PART II

GENERAL REQUIREMENTS: DISCHARGE CATEGORIES

A. Additional Requirements Incorporated By Reference

1. Requirements for Discharges to Surface Waters

a. In addition to conditions in Part I of this permit, the conditions in this section are applicable to activities at the permitted location and are incorporated by reference. The permittee is required to comply with the regulations which are in effect as of the effective date of the final permit.

i. Surface Water Quality Standards N.J.A.C. 7:9B-1

ii. Water Quality Management Planning Regulations N.J.A.C. 7:15

B. General Conditions

1. Scope

a. The issuance of this permit shall not be considered as a waiver of any applicable federal, state, and local rules, regulations and ordinances.

2. Permit Renewal Requirement

a. Permit conditions remain in effect and enforceable until and unless the permit is modified, renewed or revoked by the Department.

b. Submit a complete permit renewal application: 180 days before the Expiration Date.

3. Notification of Non-Compliance

a. The permittee shall notify the Department of all non-compliance when required in accordance with N.J.A.C. 7:14A-6.10 by contacting the DEP HOTLINE at 1-877-WARNDEP (1-877-927-6337).

b. The permittee shall submit a written report as required by N.J.A.C. 7:14A-6.10 within five days.

4. Notification of Changes

a. The permittee shall give written notification to the Department of any planned physical or operational alterations or additions to the permitted facility when the alteration is expected to result in a significant change in the permittee's discharge and/or residuals use or disposal practices including the cessation of discharge in accordance with N.J.A.C. 7:14A-6.7.

b. Prior to any change in ownership, the current permittee shall comply with the requirements of N.J.A.C. 7:14A-16.2, pertaining to the notification of change in ownership.

5. Access to Information

a. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to enter upon a person's premises, for purposes of inspection, and to access / copy any records that must be kept under the conditions of this permit.

6. Operator Certification

a. Pursuant to N.J.A.C. 7:10A-1.1 et seq. every wastewater system not exempt pursuant to N.J.A.C. 7:10A-1.10(c) requires a licensed operator. The operator of a system shall meet the Department's requirements pursuant to N.J.A.C. 7:10A-1.1 and any amendments. The name of the proposed operator, where required shall be submitted to the Department at the address below, in order that his/her qualifications may be determined prior to initiating operation of the treatment works.

i. Notifications shall be submitted to:
NJDEP
Examination and Licensing Unit
P.O. Box 417
Trenton, New Jersey 08625
(609)777-1012.

b. The permittee shall notify the Department of any changes in licensed operator within two weeks of the change.

7. Operation Restrictions

a. The operation of a waste treatment or disposal facility shall at no time create: (a) a discharge, except as authorized by the Department in the manner and location specified in Part III of this permit; (b) any discharge to the waters of the state or any standing or ponded condition for water or waste, except as specifically authorized by a valid NJPDES permit.

8. Residuals Management

a. The permittee shall comply with land-based sludge management criteria and shall conform with the requirements for the management of residuals and grit and screenings under N.J.A.C. 7:14A-6.15(a), which includes:

i. Standards for the Use or Disposal of Residual, N.J.A.C. 7:14A-20;

ii. Section 405 of the Federal Act governing the disposal of sludge from treatment works treating domestic sewage;

iii. The Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and the Solid Waste Management Rules, N.J.A.C. 7:26;

iv. The Sludge Quality Assurance Regulations, N.J.A.C. 7:14C;

v. The Statewide Sludge Management Plan promulgated pursuant to the Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq., and the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.; and

vi. The provisions concerning disposal of sewage sludge and septage in sanitary landfills set forth at N.J.S.A. 13:1E-42 and the Statewide Sludge Management Plan.

vii. Residual that is disposed in a municipal solid waste landfill unit shall meet the requirements in 40 CFR Part 258 and/or N.J.A.C. 7:26 concerning the quality of residual disposed in a municipal solid waste landfill unit. (That is, passes the Toxicity Characteristic Leaching Procedure and does not contain "free liquids" as defined at N.J.A.C. 7:14A-1.2.)

b. If any applicable standard for residual use or disposal is promulgated under section 405(d)of the Federal Act and Sections 4 and 6 of the State Act and that standard is more stringent than any limitation on the pollutant or practice in the permit, the Department may modify or revoke and reissue the permit to conform to the standard for residual use or disposal.

c. The permittee shall make provisions for storage, or some other approved alternative management strategy, for anticipated downtimes at a primary residual management alternative. The permittee shall not be permitted to store residual beyond the capacity of the structural treatment and storage components of the treatment works. N.J.A.C. 7:14A-20.8(a) and N.J.A.C. 7:26 provide for the temporary storage of residuals for periods not exceeding six months, provided such storage does not cause pollutants to enter surface or ground waters of the State. The storage of residual for more than six months is not authorized under this permit. However, this prohibition does not apply to residual that remains on the land for longer than six months when the person who prepares the residual demonstrates that the land on which the residual remains is not a surface disposal site or landfill. The demonstration shall explain why residual must remain on the land for longer than six months prior to final use or disposal, discuss the approximate time period during which the residual shall be used or disposed and provide documentation of ultimate residual management arrangements. Said demonstration shall be in writing, be kept on file by the person who prepares residual, and submitted to the Department upon request.

d. The permittee shall comply with the appropriate adopted District Solid Waste or Sludge Management Plan (which by definition in N.J.A.C. 7:14A-1.2 includes Generator Sludge Management Plans), unless otherwise specifically exempted by the Department.

e. The preparer must notify and provide information necessary to comply with the N.J.A.C. 7:14A-20 land application requirements to the person who applies bulk residual to the land. This shall include, but not be limited to, the applicable recordkeeping requirements and certification statements of 40 CFR 503.17 as referenced at N.J.A.C 7:14A-20.7(j).

f. The preparer who provides biosolids to another person who further prepares the biosolids for application to the land must provide this person with notification and information necessary to comply with the N.J.A.C. 7:14A-20 land application requirements.

g. Any person who prepares bulk residual in New Jersey that is applied to land in a State other than New Jersey shall comply with the requirement at N.J.A.C. 7:14A-20.7(b)1.ix and/or 20.7(b)1.x, as applicable, to provide written notice to the Department and to the permitting authority for the State in which the bulk residual is proposed to be applied.

PART III
LIMITS AND MONITORING REQUIREMENTS

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
001A NCCW Main Condenser	Oyster Creek Discharge Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling for all parameters shall be taken at the discharge into the discharge canal or at the discharge tunnel east of the chlorine monitoring shed. Discharge occurs at lat. 39d 48' 40.2" and long. 74d 12' 00.0". Please refer to items A.1.j and G.2.j of Part IV for additional information on pH and CPO limits. Please refer to items G.2.h and G.2.i for additional information on heat and temperature limits.

Contributing Waste Types

Non-contact Cooling Water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Comments:

Monitoring for all parameters is not required when there is no flow and/or heat load across the Station's main condenser (i.e. plant is not generating power). Effluent temperature monitoring shall be conducted via 15 minute averages per calculation. EPA method 1631E shall be used for mercury monitoring.

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Intake	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	Continuous	Calculated
January thru December	QL	***	***		***	***	***			
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	Continuous	Calculated
January thru December	QL	***	***		***	***	***			
pH	Effluent Gross Value	*****	*****	*****	6.5 Monthly Minimum	*****	8.5 Monthly Maximum	SU	2/Week	Grab
January thru December	QL	***	***		***	***	***			
pH	Intake From Stream	*****	*****	*****	REPORT Monthly Minimum	*****	REPORT Monthly Maximum	SU	2/Week	Grab
January thru December	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Comments:

Monitoring for all parameters is not required when there is no flow and/or heat load across the Station's main condenser (i.e. plant is not generating power). Effluent temperature monitoring shall be conducted via 15 minute averages per calculation. EPA method 1631E shall be used for mercury monitoring.

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
LC50 Statre 96hr Acu Mysid Bahia	Effluent Gross Value	*****	*****	*****	REPORT Report Per Minimum	*****	*****	PERCENT	1/Year	Composite
January thru December	QL	***	***		***	***	***			
Chlorine Produced Oxidants Option 1	Effluent Gross Value	REPORT Monthly Average	41.7 Daily Maximum	KG/DAY	*****	REPORT Monthly Average	0.2 Daily Maximum	MG/L	1/Day	Grab
January thru December	RQL	***	***		***	***	0.1			
Chlorine Produced Oxidants Option 2	Effluent Gross Value	REPORT Daily Avg Minimum	REPORT Daily Maximum	KG/DAY	*****	REPORT Monthly Average	0.2 Daily Maximum	MG/L	1/Day	Grab
January thru December	RQL	***	***		***	***	0.1			
Temperature, oF Option 1	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	106 Daily Maximum	DEG.F	Continuous	Grab
January thru December	QL	***	***		***	***	***			
Temperature, oF Option 2	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	110 Daily Maximum	DEG.F	Continuous	Grab
January thru December	QL	***	***		***	***	***			
Temperature, oF	Intake From Stream	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	DEG.F	Continuous	Grab
January thru December	QL	***	***		***	***	***			
Boron, Total (as B)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	UG/L	1/Year	Grab
January thru December	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: within twenty-five days after the end of every month beginning from the effective date of the permit (EDP).

Comments:

Monitoring for all parameters is not required when there is no flow and/or heat load across the Station's main condenser (i.e. plant is not generating power). Effluent temperature monitoring shall be conducted via 15 minute averages per calculation. EPA method 1631E shall be used for mercury monitoring.

Table III - A - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Net Rate of Addition of Heat Option 1	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	5420 Daily Maximum	MBTU/HR	1/Day	Calculated
January thru December	QL	***	***		***	***	***			
Net Rate of Addition of Heat Option 2	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	5700 Daily Maximum	MBTU/HR	1/Day	Calculated
January thru December	QL	***	***		***	***	***			
Temp. Diff. between Intake and Discharge Option 1	Effluent Net Value	*****	*****	*****	*****	REPORT Monthly Average	23 Daily Maximum	DEG.F	1/Day	Calculated
January thru December	QL	***	***		***	***	***			
Temp. Diff. between Intake and Discharge Option 2	Effluent Net Value	*****	*****	*****	*****	REPORT Monthly Average	33 Daily Maximum	DEG.F	1/Day	Calculated
January thru December	QL	***	***		***	***	***			
Velocity of Intake	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	2.2 Daily Maximum	FPS	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Mercury, Total (as Hg)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	UG/L	1/6 Months	Grab
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
002A NCCW from Rad. System	Forked River Intake Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling shall take place at the discharge to the intake canal or alternatively at the Radwaste Heat Exchanger Room. Discharge is to the intake canal at Latitude 39d 48' 52.9" and Longitude 74d 12' 28.2". Please refer to item A.1.j. of Part IV for additional information on pH. Please refer to item G.2.h. for additional information on temperature limits.

Contributing Waste Types

Non-contact Cooling Water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - B - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	2/Month	Calculated
January thru December	QL	***	***		***	***	***			
pH	Effluent Gross Value	*****	*****	*****	6.5 Report Per Minimum	*****	8.5 Report Per Maximum	SU	2/Week	Grab
January thru December	QL	***	***		***	***	***			
pH	Intake From Stream	*****	*****	*****	REPORT Daily Minimum	*****	REPORT Daily Maximum	SU	2/Week	Grab
January thru December	QL	***	***		***	***	***			
LC50 Statre 96hr Acu Mysid Bahia	Effluent Gross Value	*****	*****	*****	REPORT Daily Minimum	*****	*****	PERCENT	1/Year	Composite
January thru December	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - B - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Chlorine Produced Oxidants	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	0.2 Daily Maximum	MG/L	2/Month	Grab
January thru December	MDL	***	***		***	0.1	0.1			
Temperature, oF	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	113 Daily Maximum	DEG.F	2/Month	Grab
January thru December	QL	***	***		***	***	***			
Temperature, oF	Intake From Stream	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	DEG.F	2/Month	Grab
January thru December	QL	***	***		***	***	***			
Boron, Total (as B)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	UG/L	1/Year	Grab
January thru December	QL	***	***		***	***	***			
Net Rate of Addition of Heat	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	790 Daily Maximum	MBTU/HR	2/Month	Calculated
January thru December	QL	***	***		***	***	***			
Temp. Diff. between Intake and Discharge	Effluent Net Value	*****	*****	*****	*****	REPORT Monthly Average	33 Daily Maximum	DEG.F	2/Month	Calculated
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
004A Combined Wastewater	Oyster Creek Discharge Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling shall take place at the sample pipe located inside the fence near the terminus of the 30 inch header or at the outfall of DSN 004A depending upon on-site conditions. Effluent net flow values shall be used for calculating loading values. Net flow is equal to effluent flow - heat exchanger flow. Heat exchanger flow shall be reported as "internal monitoring". Please refer to item A.1.j. and G.2.h. for addtional information on pH and temperature, respectively.

Contributing Waste Types

Process Water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - C - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Internal Monitoring	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Flow, In Conduit or Thru Treatment Plant	Effluent Net Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
pH	Effluent Gross Value	*****	*****	*****	6.0 Daily Minimum	*****	9.0 Daily Maximum	SU	1/Week	Grab
January thru December	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - C - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
pH	Intake From Stream	*****	*****	*****	REPORT Daily Minimum	*****	REPORT Daily Maximum	SU	1/Week	Grab
January thru December	QL	***	***		***	***	***			
Solids, Total Suspended	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			
Solids, Total Suspended	Effluent Net Value	REPORT Monthly Average	22.7 Daily Maximum	KG/DAY	*****	30 Monthly Average	100 Daily Maximum	MG/L	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Solids, Total Suspended	Intake From Stream	REPORT Monthly Average	REPORT Daily Maximum	KG/DAY	*****	REPORT Monthly Average	REPORT Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			
LC50 Statre 96hr Acu Mysid Bahia	Effluent Gross Value	*****	*****	*****	REPORT Daily Minimum	*****	*****	PERCENT	1/Year	Composite
January thru December	QL	***	***		***	***	***			
Chlorine Produced Oxidants	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	0.2 Daily Maximum	MG/L	1/Month	Grab
January thru December	MDL	***	***		***	0.1	0.1			
Temperature, oF	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	99 Daily Maximum	DEG.F	1/Month	Grab
January thru December	QL	***	***		***	***	***			

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - C - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Petroleum Hydrocarbons	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			
Petroleum Hydrocarbons	Effluent Net Value	REPORT Monthly Average	4.54 Daily Maximum	KG/DAY	*****	10 Monthly Average	15 Daily Maximum	MG/L	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Petroleum Hydrocarbons	Intake From Stream	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			
Carbon, Tot Organic (TOC)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	50 Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			
Boron, Total (as B)	Effluent Gross Value	*****	*****	*****	*****	REPORT Monthly Average	REPORT Daily Maximum	UG/L	1/Year	Grab
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
005A Dilution Pump Discharge	Oyster Creek Discharge Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Outfall discharges into the discharge canal at Latitude 39d 48' 48.9" and Longitude 74d 12' 28.2"

Contributing Waste Types

Process Water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - D - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	Continuous	Calculated
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
007A Dilution Pump Seal Water	Oyster Creek Intake Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling shall take place at the north side of the dilution pump structure at Latitude 39d 48' 50.9" and Longitude 74d 12' 55.1".

Contributing Waste Types

Process Water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - E - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	GPD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			
Petroleum Hydrocarbons	Effluent Gross Value	*****	*****	*****	*****	10 Monthly Average	15 Daily Maximum	MG/L	1/Month	Grab
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
008A Screen Water Discharge	Oyster Creek Discharge Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling shall take place at the outfall of DSN 008A at Latitude 39d 48' 48.8" and Longitude 74d 12' 27.5".

Contributing Waste Types

Unprocessed water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - F - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			

MONITORED LOCATION:	RECEIVING STREAM:	STREAM CLASSIFICATION:	DISCHARGE CATEGORY(IES):
009A Fish Sampling Pool Disch.	Forked River Intake Canal	SE1(C2)	B - Industrial Wastewater

Location Description

Sampling shall take place at the outfall of DSN 009A at Latitude 39d 48' 48.6" and Longitude 74d 12' 27.9".

Contributing Waste Types

Unprocessed water

Surface Water DMR Reporting Requirements:

Submit a Monthly DMR: Within twenty-five days after the end of every month beginning from the effective date of the permit (EDP)..

Table III - G - 1: Surface Water DMR Limits and Monitoring Requirements

PHASE: Final **PHASE Start Date:** 04/01/2012 **PHASE End Date:**

Parameter	Sample Point	Limit	Limit	Units	Limit	Limit	Limit	Units	Frequency	Sample Type
Flow, In Conduit or Thru Treatment Plant	Effluent Gross Value	REPORT Monthly Average	REPORT Daily Maximum	MGD	*****	*****	*****	*****	1/Month	Calculated
January thru December	QL	***	***		***	***	***			

PART IV

SPECIFIC REQUIREMENTS: NARRATIVE

Industrial Wastewater

A. MONITORING REQUIREMENTS

1. Standard Monitoring Requirements

a. Each analysis required by this permit shall be performed by a New Jersey Certified Laboratory that is certified to perform that analysis.

b. The Permittee shall perform all water/wastewater analyses in accordance with the analytical test procedures specified in 40 CFR 136 unless other test procedures have been approved by the Department in writing or as otherwise specified in the permit.

c. The permittee shall utilize analytical methods that will ensure compliance with the Quantification Levels (QLs) listed in PART III. QLs include, but are not limited to, Recommended Quantification Levels (RQLs) and Method Detection Levels (MDLs). If the permittee and/or contract laboratory determines that the QLs achieved for any pollutant(s) generally will not be as sensitive as the QLs specified in PART III, the permittee must submit a justification of such to the Bureau of Surface Water Permitting. For limited parameters with no QL specified, the sample analysis shall use a detection level at least as sensitive as the effluent limit.

d. All sampling shall be conducted in accordance with the Department's Field Sampling Procedures Manual, or an alternate method approved by the Department in writing.

e. All monitoring shall be conducted as specified in Part III.

f. All sample frequencies expressed in Part III are minimum requirements. Any additional samples taken consistent with the monitoring and reporting requirements contained herein shall be reported on the Monitoring Report Forms.

g. Annual and semi-annual wastewater testing shall be conducted in a different quarter of each year so that tests are conducted in each of the four permit quarters of the permit cycle. Testing may be conducted during any month of the permit quarters.

h. The permittee shall perform all residual analyses in accordance with the analytical test procedures specified in 40 CFR 503.8 and the Sludge Quality Assurance Regulations (N.J.A.C. 7:14C) unless other test procedures have been approved by the Department in writing or as otherwise specified in the permit.

i. Flow shall be measured using a calculated sample type for all outfalls.

j. pH: For DSN 001A and 002A - the effluent pH shall be in the range of 6.5 standard units (S.U.) to 8.5 S.U. However, if the intake pH is less than 6.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than 6.5 S.U. but greater than the intake pH. Likewise, if the intake pH is greater than 8.5 S.U., the pH of the effluent shall not be considered a violation of the permit if it is greater than 8.5 S.U but less than the intake pH.

For DSN 004A - the effluent pH shall be in the range of 6.0 to 9.0 S.U. However, if the intake pH is less than 6.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is less than 6.5 S.U. but greater than the intake pH. Likewise, if the intake pH is greater than 9.0 S.U., the pH of the effluent shall not be considered a violation of the permit if it is greater than 9.0 S.U. but less than the intake pH.

When reporting of the intake water pH is required, it shall be reported as the intake pH on the Monitoring Report Form.

For DSN 007A: the pH of the effluent shall not be less than 6.0 S.U. nor greater than 9.0 S.U.; or, during periods when the pH of the intake water is less than 6.0, the pH of the effluent shall not be less than that of the intake; or, during periods when the pH of the intake water is greater than 9.0, the pH shall not be greater than that of the intake. However, no monitoring or reporting for pH is required at this time.

k. The net amount of heat per unit time shall be calculated by multiplying heat capacity, discharge flow, and discharge-intake temperature difference.

l. Net values shall be calculated by using the following formula: [(gross effluent concentration)*(gross effluent flow) - (intake concentration)*(intake flow)] / [gross effluent flow].

m. Monitoring for temperature shall only be conducted when cooling water is discharged during the monitoring period (i.e. the facility is generating power).

n. There shall be no discharge of polychlorinated biphenyls (PCBs) at any outfalls (using conventional analytical methods) such as those which are commonly used for transformer fluid.

B. RECORDKEEPING

1. Standard Recordkeeping Requirements

a. The permittee shall retain records of all monitoring information, including 1) all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation (if applicable), 2) copies of all reports required by this NJPDES permit, 3) all data used to complete the application for a NJPDES permit, and 4) monitoring information required by the permit related to the permittee's residual use and/or disposal practices, for a period of at least 5 years, or longer as required by N.J.A.C. 7:14A-20, from the date of the sample, measurement, report, application or record.

b. Records of monitoring information shall include 1) the date, locations, and time of sampling or measurements, 2) the individual(s) who performed the sampling or measurements, 3) the date(s) the analyses were performed, 4) the individual(s) who performed the analyses, 5) the analytical techniques or methods used, and 6) the results of such analyses.

C. REPORTING

1. Standard Reporting Requirements

a. The permittee shall submit all required monitoring results to the Department on the forms provided to them. The Monitoring Report Forms (MRFs) may be provided to the permittee in either a paper format or in an electronic file format. Unless otherwise noted, all requirements below pertain to both paper and electronic formats.

b. Any MRFs in paper format shall be submitted to the following addresses:

   i. NJDEP
   Division of Water Quality
   Bureau of Permit Management
   P.O. Box 029
   Trenton, New Jersey 08625-0029

   ii. (if requested by the Water Compliance and Enforcement Bureau)
   NJDEP: Central Bureau of Water Compliance and Enforcement
   P.O. Box 407
   Trenton, New Jersey 08625-0407

c. Any electronic data submission shall be in accordance with the guidelines and provisions outlined in the Department's Electronic Data Interchange (EDI) agreement with the permittee. Paper copies must be available for on-site inspection by DEP personnel or provided to the DEP upon written request.

d. All monitoring report forms shall be certified by the highest ranking official having day-to-day managerial and operational responsibilities for the discharging facility.

e. The highest ranking official may delegate responsibility to certify the monitoring report forms in his or her absence. Authorizations for other individuals to sign shall be made in accordance with N.J.A.C. 7:14A-4.9(b).

f. Monitoring results shall be submitted in accordance with the current Discharge Monitoring Report Manual and any updates thereof.

g. If monitoring for a parameter is not required in a monitoring period, the permittee must report "CODE=N" for that parameter.

h. For intermittent discharges, the permittee shall obtain a sample during at least one of the discharge events occurring during a monitoring period.

i. If there are no discharge events during an entire monitoring period, the permittee must notify the Department when submitting the monitoring results. This is accomplished by placing a check mark in the "No Discharge this monitoring period" box on the paper or electronic version of the monitoring report submittal form.

D. SUBMITTALS

1. Standard Submittal Requirements

a. The permittee shall amend the Operation & Maintenance Manual whenever there is a change in the treatment works design, construction, operations or maintenance which substantially changes the treatment works operations and maintenance procedures.

E. FACILITY MANAGEMENT

1. Discharge Requirements

a. The permittee shall discharge at the location(s) specified in PART III of this permit.

b. The permittee shall not discharge foam or cause foaming of the receiving water that: 1) Forms objectionable deposits on the receiving water, 2) Forms floating masses producing a nuisance, or 3) Interferes with a designated use of the waterbody. Foaming of the receiving waterbody caused by natural conditions shall not be considered a violation of this standard.

c. The permittee's discharge shall not produce objectionable color or odor in the receiving stream.

d. The discharge shall not exhibit a visible sheen.

e. When quantification levels (QL) and effluent limits are both specified for a given parameter in Part III, and the QL is less stringent than the effluent limit, effluent compliance will be determined by comparing the reported value against the QL.

f. The Permittee is authorized to use the following corrosion inhibitors, biocides, or other cooling water additives: DSN 001A - Sodium hypochlorite; DSN 002A - Chlorine gas, Sodium hypochlorite; DSN 004A Sodium hypochlorite, Bioguard Tabguard Pucks (trichloro-s-triazinetrione).

Chlorine Produced Oxidants (CPO) shall not be discharged from the Main Condenser Discharge (i.e. DSN 001A) for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control and the permitting authority approves such in writing. Samples for CPO shall be taken once during each two hour period of chlorination. Option 1 CPO limits apply to DSN 001A during normal operations. Option 2 CPO limits apply to DSN 001A during periods of chlorination of the turbine building closed CW heat exchanger.

If the permittee decides to begin using any additional additives in the future, the permittee must notify the Bureau of Surface Water Permitting at least 180 days prior to use so that the permit may be reopened to incorporate any additional limitations deemed necessary.

2. Applicability of Discharge Limitations and Effective Dates

a. Surface Water Discharge Monitoring Report (DMR) Form Requirements

i. The final effluent limitations and monitoring conditions contained in PART III apply for the full term of this permit action.

3. Toxicity Testing Requirements - Acute Whole Effluent Toxicity (DSNs 001A, 002A and 004A)

a. The permittee shall conduct toxicity tests on its wastewater discharge in accordance with the provisions in this section. Such testing will determine if appropriately selected effluent concentrations adversely affect the test species.

b. Acute toxicity tests shall be conducted using the test species and method identified in Part III of this permit.

c. Any test that does not meet the specifications of N.J.A.C. 7:18, laboratory certification regulations, must be repeated within 30 days of the completion of the initial test. The repeat test shall not replace subsequent testing required in Part III.

d. The permittee shall resubmit an Acute Methodology Questionnaire within 60 days of any change in laboratory.

e. Submit an acute whole effluent toxicity test report: within twenty-five days after the end of every 12 month monitoring period beginning from the effective date of the permit (EDP). The permittee shall submit toxicity test results on appropriate forms.

f. Test reports shall be submitted to:

i. New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Surface Water Permitting
P.O. Box 029
Trenton, New Jersey 08625.

F. CONDITIONS FOR MODIFICATION

1. Notification requirements

a. The permittee may request a minor modification for a reduction in monitoring frequency for a non-limited parameter when four consecutive test results of "not detected" have occurred using the specified QL.

2. Causes for modification

a. The Department may modify or revoke and reissue any permit to incorporate 1) any applicable effluent standard or any effluent limitation, including any effluent standards or effluent limitations to control the discharge of toxic pollutants or pollutant parameters such as acute or chronic whole effluent toxicity and chemical specific toxic parameters, 2) toxicity reduction requirements, or 3) the implementation of a TMDL or watershed management plan adopted in accordance with N.J.A.C. 7:15-7.

b. The permittee may request a minor modification to eliminate the monitoring requirements associated with a discharge authorized by this permit when the discharge ceases due to changes at the facility.

G. Custom Requirement

1. Section 316(a) Determination

a. The Department is hereby granting a Section 316(a) variance for the facility's cooling water discharge (once through cooling water system). This determination is based on the Department's findings that: (1) the facility's operations have not changed appreciably since the time that the 1994 NJPDES permit was issued; (2) cooling water flow rates have remained relatively constant; and (3) the Department has not received information that would cause the Department to reconsider the variance at this time.

2. Requirements to Monitor and/or Minimize Thermal Effects while the Once-Through Cooling System is Operational

a. Temperature Monitoring in Oyster Creek - The permittee shall continuously measure the temperature four (4) feet below the surface of Oyster Creek at the Route 9 bridge. Any results have a bearing on whether or not the permittee has to perform an Effluent Temperature Evaluation Study (ETES) as described in b. below.

b. Criteria for Having to Conduct an Effluent Temperature Evaluation Study (ETES).

i. Except as provided in ii below, the permittee shall conduct an ETES if any maximum daily temperature readings at the Route 9 bridge monitoring location exceed the temperature action level of 97 degrees Fahrenheit. The ETES is intended to determine what caused the exceedances and to identify mitigation measures for meeting the action level for effluent water temperature within Oyster Creek at the Route 9 bridge.

ii. When an exceedance occurs, the permittee shall:

a) Evaluate whether the exceedance of the temperature action level occured solely as a result of any, or a combination of, the following factors: unusually high intake temperature (i.e. any intake temperature in excess of 85 degrees Fahrenheit); operation of the dilution pumps in accordance with item d. below; implementation of the alternate effluent limitations in accordance with Emergency Conditions as described in G.2.i.iii.; during condenser backwashing; during intake components maintenance; or when fewer than four circulating water pumps are operating.

b) If the evaluation shows that any of the above factors caused the exceedance, the permittee is not required to conduct an ETES. However, the permittee shall submit a report to the Department within ten business days of the exceedance, which specifies the relationship of the exceedance to items noted in a) above. The report shall be submitted to the following address:

Mailcode 401-02B
NJDEP - Division of Water Quality
Bureau of Surface Water Permitting
401 East State Street, P.O. Box 420
Trenton, NJ 08625

c) When the temperature monitoring action level exceedance occurs and the cause cannot be attributed to the factors described in a) above, then the permittee shall conduct an ETES where the conditions are defined in c) below.

c. Effluent Temperature Evaluation Study (ETES).

i. The permittee shall evaluate the relationship of the following factors to the exceedance of the temperature action level of 97 degrees Fahrenheit: circulating water pump operation, dilution pump operation, plant power levels, heat rejection, effluent temperature at DSN 001A, temperature at the Route 9 bridge, and the temperature differential across the main condenser for the date of the exceedance of the temperature action level as well as relevant periods prior to and following the exceedance.

ii. A written report shall be prepared documenting the evaluation conducted in accordance with Part IV G.2.c.i. The report shall include tabular and graphical presentation of daily maximum and average intake temperatures, effluent temperatures at DSN 001A, Route 9 bridge monitoring location temperatures, and the temperature differential across the main condenser. The report shall include an analysis and discussion of the cause of the exceedance and shall include recommended mitigation measures.

iii. If mitigation measures are identified that can be implemented while maintaining compliance with all other permit conditions, then the permittee is not required to obtain Department approval prior to implementation. Otherwise, Department approval will be required prior to implementation of mitigation measures or modification of the permit.

iv. Two copies of all written submissions required above shall be sent to:

Mailcode 401-02B
NJDEP - Division of Water Quality
Bureau of Surface Water Permitting
401 East State Street, P.O. Box 420
Trenton, NJ 08625
.

d. Dilution Pump Operations.

i. When the intake water temperature is at or above 60 degrees Fahrenheit and the temperature as measured four feet below the surface at the Route 9 bridge over Oyster Creek is at or less than 87 degrees Fahrenheit, no dilution pump operation is required.

ii. When the temperature in Oyster Creek exceeds 87 degrees Fahrenheit, as measured four feet below the surface at the Route 9 bridge over Oyster Creek, one dilution pump will be put into operation. If, after one dilution pump has been in operation for at least two hours, the temperature measured at such point continues to exceed 87 degrees Fahrenheit, a second dilution pump will be put into operation.

iii. When the intake water temperature is less than 60 degrees Fahrenheit, two dilution pumps will be put into operation.

iv. If two dilution pump operation is required under ii. or iii. above, and one of the operating dilution pumps becomes inoperable, then a second dilution pump shall be put into operation within 60 minutes (except during dilution pump maintenance when a sufficient number of pumps may not be available).

v. During periods of dilution pump and/or dilution pump component maintenance, a sufficient number of dilution pumps may not be available to meet the requirements of ii. or iii. above. In that event, the Station may be operated for a period not to exceed fourteen (14) days in order to make necessary repairs, provided at least one dilution pump is available for operation. As soon as a second dilution pump is available for operation, it shall be placed into service as required under ii. or iii. When the Station has operated under this paragraph for 14 days and continues to lack sufficient pumps to comply with ii. or iii., the Station shall become subject to vi. below instead of this paragraph.

vi. If dilution pump operation is required under ii., iii., and iv., and if one pump operation under v. above continues for 14 days, remedial action will be taken within 24 hours to bring the plant into compliance with ii., iii., and iv. If the remedial action taken involves reduction of Station power output, power will be reduced as necessary to achieve the same effects as operating the proper number of dilution pumps as required by paragraphs ii., iii., and iv.

vii. Paragraphs ii. through vi. above do not apply during Station shutdowns. Any dilution pump(s) will be operated, however, in a manner that will minimize the adverse impact of Station shutdown on marine and estuarine life in Oyster Creek and Barnegat Bay.

viii. Paragraphs ii. through vi. do not apply in the event of a hazardous substance spill into the intake or discharge canals. In such cases, the dilution pumps will be operated in a manner which will minimize the environmental impact of the spill, while taking into consideration the need to minimize the possibility of thermal shock mortality of organisms residing in the discharge canal.

e. Thermal Discharge.

i. The rate of temperature change from the Station shall not cause mortality to fish or shellfish.

f. Plant Outages During Operation of Once-through Cooling System.

i. The permittee shall not schedule routine outages during the months of December, January, February, and/or March.

g. The permittee shall not schedule routine intake component (e.g. circulating water pumps and appurtenant equipment, traveling screens and appurtenant equipment, intake ports, etc.) maintenance which may cause violation of thermal limitations or intake velocity limitations during the months of June, July, August, and/or September. The Department acknowledges that the NJPDES Regulations require the permittee to maintain its plant in good working order and efficient operation and, therefore, some intake component maintenance may be required.

h. Temperature Limits - For the purposes of the Administrative Record, the Department recognizes that the following temperature limits apply to the facility in units of both Celsius and Fahrenheit:.

i. DSN 001A
Temperature Difference between Intake and Discharge (Option 1) - 12.8 degrees Celsius (23 degrees Fahrenheit)
Temperature Difference between Intake and Discharge (Option 2) - 18.3 degrees Celsius (33 degrees Fahrenheit)
Effluent Temperature (Option 1) - 41.1 degrees Celsius (106 degrees Fahrenheit)
Effluent Temperature (Option 2) - 43.3 degrees Celsius (110 degrees Fahrenheit).

ii. DSN 002A
Temperature Difference between Intake and Discharge - 18.3 degrees Celsius (33 degrees Fahrenheit)
Effluent Temperature - 45 degrees Celsius (113 degrees Fahrenheit).

iii. DSN 004A
Effluent Temperature - 37.2 degrees Celsius (99 degrees Fahrenheit).

i. Option 1 and Option 2 Heat and Temperature Limits - The Department has specified effluent limitations for effluent temperature, temperature difference between intake and discharge, and net rate of addition of heat under two scenarios that are identified in this permit as Option 1 and Option 2 limits. These limits are applicable as follows:.

i. Option 1 limits are applicable when four circulating water pumps are operating for condenser cooling.

ii. Option 2 limits shall be applicable when fewer than four circulating water pumps are operating, during periods of condenser backwash, during intake component maintenance, or during a PJM Emergency Condition as described in G.2.i.iii.

iii. The permittee shall comply with "Option 2 Limits" for outfall DSN 001A during an Emergency Condition as declared by the PJM Interconnection Office of Information Dispatcher, including Capacity, Weather/Environmental, Sabotage/Terrorism, and Transmission Security Emergencies as such terms are defined in the PJM Interconnection Emergency Operations Manual M-13, Emergency Operations, Revision 41, effective October 1, 2010, provided that the number of days per year when such Emergency Conditions apply shall not exceed 20. Within eight hours of the permittee being advised by PJM that Emergency Operations are required, the permitttee shall notify DEP's Central Bureau of Water Compliance and Enforcement by telephone that the Station has invoked the use of the alternate thermal limits of the permit.

j. Chlorine Produced Oxidants Limits at DSN 001A - Option 1 CPO limits are applicable during normal operations. Option 2 CPO limits are applicable during periods of chlorination of the turbine building closed CW heat exchanger.

3. Section 316(b) Determination

a. Based upon the following factors, the Department has determined that the best technology available determination for this facility in accordance with best professional judgment is as follows:
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i. Pursuant to the December 9, 2010 Administrative Consent Order ("ACO"), Exelon is legally required to Terminate Operations, as that term is defined in the December 9, 2010 ACO, no later than December 31, 2019. As a direct result of this requirement, the Department has determined that closed cycle cooling is not the best technology available given the length of time that would be required to retrofit from the existing once-through cooling system to a closed-cycle cooling system and the limited life span of the facility after implementation of the closed-cycle cooling system. The facility has physical limitations which constrain the location and types of closed-cycle cooling systems that could be installed. As stated in the January 7, 2010 draft permit, the length of time required to design, permit and construct closed-cycle cooling technology at the facility would likely be at least seven years and would involve significant costs.

ii. In consideration of the required Termination date, the Department has determined, in its best professional judgment, that the Station's existing once-through cooling system, which is equipped with a number of existing measures to reduce impingement mortality and entrainment losses, including a system of Ristroph-type screens and fish handling mechanisms, is the best technology available for the facility's cooling water intake through Termination and with respect to post-Termination activities as described in Paragraph I of the Findings of the December 9, 2010 ACO.

iii. If this permit is administratively extended and remains in effect as of January 1, 2020, beginning on that day the permittee shall no longer be authorized to withdraw up to 662.4 million gallons per day (MGD) of non-contact cooling water through the Circulating Water Intake and up to 748.8 MGD of water through the Dilution Water Intake. Rather, on and after January 1, 2020, the permittee shall reduce its surface water intake to the greater of 40,000 gallons per minute or the flow commensurate with that achievable using closed-cycle cooling.

iv. Upon Termination the permittee shall lower reactor power slowly so that the rate of change in the discharge canal water temperature is approximately 1.7 degrees Fahrenheit per hour. If thermal shock nevertheless results in harm to aquatic life, the permittee shall have an affirmative defense with respect to any liability resulting from same.

4. Requirements to Minimize Impingement and Entrainment Effects While the Once-Through Cooling System is Operational

a. Intake Velocity.

i. When one circulating water pump is in operation, or when one circulating water pump is in operation in each half of the intake structure, or when there is no flow through the main condenser, the permittee is not required to report intake velocity.

ii. The intake velocity shall not exceed 2.2 feet per second (fps) averaged over one minute at any point at the midplane of each port and the average of the readings taken at 5 foot intervals from the top to the bottom of the water column of the individual port shall not exceed 1 fps during 6 port, 6 screen operation. In the event that any screen must be removed from service due to intake component maintenance, then the 1 fps limitation shall apply as an average over the effective intake face.

5. Section 316(b) Conditions as per the December 9, 2010 Administrative Consent Order

a. Implementation Schedule - Given that the Termination date of December 31, 2019 is the cornerstone of the BTA determination and hence a requirement of this NJPDES permit, the Permittee shall take the following steps, within the time set forth in the below implementation schedule, consistent with a process to Terminate Operations no later than December 31, 2019;.

i. By December 31, 2013, Exelon shall certify to the Department's Bureau of Surface Water Permitting that the fuel parameters and planning for the 2014 plant outages are to be based on a five-year period of operation ending on December 31, 2019, and not the standard six-year period;.

ii. By December 31, 2014, Exelon shall take into account the Termination in the calculation of the anticipated decommissioning cost and earnings estimates for the Station, which shall be included in the biennial or annual reports regarding decommissioning funding assurance submitted to the USNRC;.

iii. By December 31, 2014, Exelon shall include in the next biennial or annual report to the USNRC regarding decommissioning funding assurance the fact that Exelon intends to Terminate Operations on or before December 31, 2019, and shall have the anticipated decommissioning cost and earnings estimates reflect that date;.

iv. By December 31, 2014, Exelon shall certify to the Department's Bureau of Surface Water Permitting that the Station's five-year outage schedule lists the 2018 outage as the final scheduled refueling outage;.

v. By May 31, 2016, Exelon shall certify to the Department's Bureau of Surface Water Permitting that the Station's output was not bid into the PJM capacity market auction for delivery after December 31, 2019;.

vi. By December 31, 2018, Exelon shall submit the Post-Shutdown Decommissioning Activities Report ("PSDAR") to the USNRC based on the December 31, 2019 Termination, in accordance with 10 CFR 50.82(a)(4)(i).

b. Operating Conditions.

i. The permittee shall maintain the facility throughout its period of operation in a manner that ensures operation is fully in accord with its permits and consistent with the operating license issued by the USNRC;.

ii. The permittee shall not sell or otherwise transfer the facility to another entity for use as a facility for generation of electric power except as provided in the ACO.

iii. The permittee shall apply for a renewal permit which also provides for the required Termination date of December 31, 2019 at least 180 days prior to the expiration of the final permit in accordance with N.J.A.C. 7:14A-4.2(e)3;.

iv. The permittee shall not seek a modification of the NJPDES permit for operations beyond Termination, unless it can meet the intake flow conditions set forth in item G.3.a.iii. above.

c. Progress Reports.

i. Submit a progress report: within one year from the effective date of this document to outline progress toward Termination.

ii. Submit a progress report: within 24 months from the effective date of this document to outline progress toward Termination.

iii. Submit a progress report: within 36 months from the effective date of the permit (EDP) to outline progress toward Termination.

iv. Submit a progress report: within 48 months from the effective date of the permit (EDP) to outline progress toward Termination.

v. Progress reports shall continue to be submitted within 60 months of the EDP and annually thereafter for any period that the permit is administratively extended.