DOCKET NO. D-1992-066 CP-2

DELAWARE RIVER BASIN COMMISSION

Exelon Generation Company, LLC
Eddystone Generating Station
Industrial Wastewater Treatment Plant & Non-Contact Cooling Water Discharge
Eddystone Borough, Delaware County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Exelon Generation Company, LLC (Exelon or docket holder) on December 30, 2013 (Application), for renewal of the docket holder's existing Eddystone Generating Station (EGS) industrial wastewater treatment plant (IWTP) and its comingled discharge with non-contact cooling water (NCCW) from the EGS. National Pollutant Discharge Elimination System (NPDES) Permit No. PA0013714 for this facility was issued by the Pennsylvania Department of Environmental Protection (PADEP) on February 26, 2008, effective March 1, 2008. Renewal of the NPDES Permit is expected shortly.

The Application was reviewed for continuation of the project in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Delaware County Planning Department has been notified of pending action. A public hearing on this project was held by the DRBC on September 9, 2014.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to renew approval of the docket holder's existing 3.744 million gallons per day (mgd) IWTP and its comingled discharge with up to 831.336 mgd of NCCW. The PADEP requires monitoring of the IWTP discharge at internal monitoring point (MP) No. 108 and the comingled effluent at Outfall No. 008.

2. Location. The IWTP will continue to discharge treated effluent with comingled NCCW to the Delaware River at River Mile 84.8 via Outfall No. 008, within Water Quality Zone 4, in the Borough of Eddystone, Delaware County, Pennsylvania as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
008	39° 51' 23"	75° 19' 27"

3. **Area Served**. Energy produced by the EGS supplies the Pennsylvania-Jersey-Maryland (PJM) grid. Outfall No. 008 receives treated industrial wastewater, NCCW, and traveling screen backwash from the EGS. For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Physical Features**.

a. **Design Criteria**. The docket holder will continue to operate its existing 3.744 mgd IWTP. In 2013 the docket holder decommissioned Electric Generating Units Nos. 1 and 2. Treated industrial wastewater will continue to comingle with NCCW from Electric Generating Units Nos. 3 and 4 prior to discharge from Outfall No. 008.

b. **Facilities**. The EGS now consists of two oil or natural gas fired steam electric generating units (Units 3 and 4) with combustion turbines that supply up to 790 megawatts (MW) of electricity to the PJM grid daily.

The IWTP consists of an oil separator, two (2) equalization tanks, three (3) clarifiers, a chemical feed system, and two (2) pH adjustment tanks.

The project facilities are located in the 100-year floodplain. The Commission's *Flood Plain Regulations* (*FPR*) do not apply to tidal sections of the basin and therefore the docket holder has not been required to conform with any requirements at this time.

Wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at a state-approved facility.

c. **Water withdrawals**. The potable water supply in the project service area is supplied by Aqua Pennsylvania.

Process and cooling water is supplied by the docket holder. The Commission approved Docket No. D-2008-038 CP-1 for this withdrawal on July 15, 2009. Docket No. D-2008-038 CP-2 is also being heard at the September 9, 2014 Commission Public Hearing and will replace Docket No. D-2008-038 CP-1 upon approval.

d. **NPDES Permit / DRBC Docket**. NPDES Permit No. PA0013714 was issued by the PADEP on February 26, 2008 (effective March 1, 2008) and includes final effluent limitations for the project discharge of 3.744 mgd from MP No. 108 to surface waters classified by the PADEP as a warm water fishery (WWF). Renewal of the NPDES Permit is expected shortly. The following average monthly effluent limits are among those listed in the NPDES Permit for MP No. 108 and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES Permit

MP 108 (IWTP)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	Monitor & Report	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
PCBs *	Monitor & Report	As required by NPDES Permit

* See DECISION Condition II.r.

The requirements in EFFLUENT TABLE A-2 are not listed in the NPDES Permit, but are Commission basin-wide or estuary specific parameters that must be met as a condition of this docket approval for MP No. 108. Commission staff have requested PADEP include these parameters in their renewed Permit. Monitoring shall begin October 1, 2014 for each parameter (See DECISION Condition II.d.).

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NPDES Permit

MP 108 (IWTP)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids **	1,000 mg/l	Monthly
$CBOD_{20}$ (1/1/18 – 12/31/18)	Monitor & Report	Monthly

** See DECISION Condition II.p.

The following average monthly effluent limits are among those listed in the NPDES Permit for Outfall No. 008 and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-3: DRBC Parameters Included in NPDES Permit

OUTFALL 008 (Comingled NCCW & Treated Industrial Wastewater)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l (net reporting value)	As required by NPDES Permit
Ammonia Nitrogen	Monitor & Report	As required by NPDES Permit

The requirement in EFFLUENT TABLE A-4 is not listed in the NPDES Permit, but is a Commission Water Quality Zone 4 specific parameter that must be met as a condition of this docket approval for Outfall No. 008. Commission staff have requested PADEP include this parameter in their renewed Permit. Monitoring of the influent and effluent shall begin October 1, 2014 for this parameter (See DECISION Condition II.d.).

EFFLUENT TABLE A-4: DRBC Parameters Not Included in NPDES Permit

Outfall 008 (Comingled NCCW & Treated Industrial Wastewater)		
PARAMETER	**LIMIT**	**MONITORING**
Temperature	21 ^{o}F Rise from Intake No. 2 to Outfall No. 008 ***	Weekly ***

*** See DECISION Conditions II.g.

e. Cost. There are no construction costs associated with this comingled IWTP and NCCW discharge renewal.

f. Relationship to the Comprehensive Plan. The EGS was incorporated into the Comprehensive Plan upon issuance of Docket No. D-2008-038 CP-1 on July 15, 2009. Issuance of this docket will continue approval of the discharge and electric generating facilities associated with the EGS in the Comprehensive Plan (See DECISION Condition I.c.).

B. FINDINGS

The purpose of this docket is to renew approval of the docket holder's existing 3.744 mgd IWTP and its comingled discharge with up to 831.336 mgd of NCCW. The PADEP monitors the IWTP discharge at MP No. 108 and the comingled effluent at Outfall No. 008.

Polychlorinated Biphenyl (PCBs)

The docket holder is required to monitor for 209 PCB congeners using Method 1668A one time per year during dry weather at MP No. 108 and implement Pollution Minimization Plans (PMPs) for PCBs as required in the NPDES Permit (See DECISION Condition II.r.).

Total Dissolved Solids (TDS)

The Commission's basin-wide TDS effluent limit is 1,000 mg/l [Section 3.10.4D.2. of the Commission's *Water Quality Regulations* (*WQR*)] and is to be monitored at the end of pipe. In addition, the Commission's basin-wide in-stream TDS requirements provide the analysis of the in-stream conditions after the introduction of the project's effluent discharge demonstrate that 1) the receiving stream's resultant TDS concentration be less than 133% of the background (Section 3.10.3B.1.b. of the Commission's *WQR*) and the receiving stream's resultant TDS concentration be less than 500 mg/l (Section 3.10.3B.2. of the Commission's *WQR*).

The 133% of the background TDS requirement is for the protection of aquatic life. The 500 mg/l TDS requirement is to protect the use of the receiving stream as a drinking water source. The EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l.

Water Quality Zone 4 stream quality objectives do not include the designated use of water for public drinking water supplies and therefore the 500 mg/l in-stream TDS requirement is not typically applied in Water Quality Zone 4. The Commission reserves the right, in accordance with the *WQR* and the *Rules of Practice and Procedure*, to apply the 500 mg/l in-stream basin-wide TDS requirement in Water Quality Zone 4 when and where it determines that the requirements are necessary to protect water uses. Commission staff have determined that for this discharge the 500 mg/l in-stream TDS requirement will not be applied.

Docket No. D-92-66 required the docket holder meet a 700 mg/l average monthly effluent limit for TDS from both Outfalls Nos. 007 and 008. Additionally, the PADEP has required the docket holder meet a 15,000 mg/l TDS effluent limit at MPs Nos. 107 and 108. Outfall No. 007 and

MP No. 107 once served electric generating units 1 and 2 as well as some treated industrial wastewater at the EGS, but now MP 107 is no longer in existence and Outfall No. 007 is a stormwater outfall that is no longer regulated by the Commission. Furthermore, the Commission's basin-wide effluent limit is 1,000 mg/l at the end of pipe and therefore this docket modifies the effluent limit for Outfall No. 008 from 700 mg/l to 1,000 mg/l for TDS. Commission staff have determined that since the NCCW that comingles with the treated industrial wastewater contains no additional TDS as a result of the process that the docket holder may monitor TDS at MP No. 108 as a surrogate. Therefore, a limit of 1,000 mg/l of TDS has been included in EFFLUENT TABLE A-2 above.

As per the Commission's standard practice, since the docket holder is able to meet the 1,000 mg/l end of pipe limit at Outfall No. 008 an in-stream analysis was not performed to ensure that the 133% above background requirement is met.

$CBOD_{20}$ Wasteload Allocation

The Commission's *WQR* provide for the allocation of the stream assimilative capacity where waste discharges would otherwise result in exceeding such capacity. It was determined in the late 1960's that discharges to the Delaware Estuary be limited to a total of 322,000 lbs/day of carbonaceous biochemical (first stage) oxygen demand ($CBOD_{20}$). In accordance with the Regulations, the assimilative capacity of each Delaware Estuary zone minus a reserve was originally allocated in 1968 among the individual dischargers based upon the concept of uniform reduction of raw waste in a zone (Zones 2, 3, 4 and 5). The totals and percent reduction for each zone are given in Table 1 of the Commission's *Status of CBOD20 Wasteload Allocations* (Revised October 1, 2000). The docket holder's IWTP discharges to Water Quality Zone 4 of the Delaware River at River Mile 84.8. Water Quality Zone 4 has a reserve capacity of 22,817 lbs/day of $CBOD_{20}$.

$CBOD_{20}$ Allocation History & Determination

The docket holder's IWTP has never been assigned a $CBOD_{20}$ wasteload allocation. Commission staff required estuary dischargers perform nutrient monitoring between 2011 and 2013. Results from that sampling effort support that BOD5 and CBOD5 are undetectable. The results also showed that CBOD20 was never more than 28 mg/l. EFFLUENT TABLE A-2 above requires the docket holder to sample $CBOD_{20}$ once per month at MP No. 108 for the year 2018 to re-affirm the loading and ensure that the facility continues not to have an effect on CBOD20 loadings as a result of its discharge to Water Quality Zone 4. These samples shall be included in the yearly monitoring report required by DECISION Condition II.d. of this docket.

Heat Dissipation Area

Section 4.30.6.C. of the Commission's *WQR* require that discharges to Zone 4 shall not result in an induced temperature increase of $5^{o}F$ ($2.8^{o}C$) above the average 24-hour temperature gradient displayed during the 1961-1966 period, or a maximum of $86^{o}F$ ($30.0^{o}C$), whichever is less. The $5^{o}F$ increase is the more stringent parameter for the docket holder's discharge.

Section 4.30.6F.3. of the Commission's *WQR* allows for heat dissipation areas up to 3,500 feet in length, two-thirds the surface width, and a maximum cross section up to one-quarter of the cross-sectional area of the stream in Zone 4. The Delaware River is approximately 6,000 feet wide at the point of discharge. Therefore, the maximum allowable heat dissipation area would be 3,500 feet x 1,500 feet.

Docket No. D-92-66 established a Heat Dissipation Area of 400 feet in width and 1,200 feet both upstream and downstream (2,400 feet x 400 feet) of Outfalls Nos. 007 and 008 when all four power generating units were in operation with maximum flow (1,439.11 mgd) and temperature (110 ^{o}F). With the decommissioning of Units 1 and 2, Commission staff requested the docket holder perform a new CORMIX model for the discharge to establish what size heat dissipation area is now required.

The docket holder's engineer, Environmental Resources Management (ERM), performed a CORMIX Modeling Study (Study) that determined that the heat dissipation area required during maximum flow (835.08 mgd) and a temperature rise of 21 ^{o}F from Intake No. 2 to Outfall No. 008 is 420 feet by 400 feet. Commission staff agree and therefore the heat dissipation area has been modified to match this area (See DECISION Condition II.g.). The docket holder shall monitor influent temperature at Intake No. 2 concurrently with effluent temperature at Outfall No. 008 weekly to ensure the temperature rise and by default the heat dissipation area are met.

Other

At the project discharge site, the Delaware River is tidal and its flow is regulated by upstream reservoir releases. The Trenton low flow target is 2,500 cfs (1.62 billion gallons per day). The addition of the tidal tributaries upstream of the discharge location at their Q7-10 flow and the low flow Trenton target results in a low-flow of approximately 3,973 cfs (2.57 billion gallons per day) for the Delaware River at the discharge location (River Mile 84.8).

There are no public water supply intakes within five miles of the tidally influenced discharge.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The effluent limits in the NPDES Permit are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's *WQR*.

C. DECISION

I. Effective on the approval date for Docket No. D-1992-066 CP-2 below:

a. Docket No. D-92-66 is terminated and replaced by Docket No. D-1992-066 CP-2; and

b. The project and the appurtenant facilities described in Section A "Physical Features" of this docket shall be continued in the Comprehensive Plan.

II. The project and appurtenant facilities as described in Section A "Physical Features" of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP in its NPDES Permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the Commission's *WQR*.

d. The docket holder shall comply with the requirements contained in the EFFLUENT TABLES in Section A.4.d. of this docket. The docket holder shall submit the required monitoring results electronically to the DRBC Project Review Section via email **aemr@drbc.state.nj.us** on the **Annual Effluent Monitoring Report Form** located at this web address: http://www.state.nj.us/drbc/programs/project/application/index.html. The monitoring results shall be submitted annually, absent any observed limit violations, by January 31. If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

e. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

f. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

g. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F above the average 24-hour temperature gradient displayed during the 1961-1966 period, nor shall such discharge result in stream temperatures exceeding 86°F, except within an assigned heat dissipation area consisting of 210 feet both upstream and downstream (420 feet total) and 400 feet laterally away from Outfall No. 008.

h. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Sections B (Type of Discharge) and D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

i. The docket holder shall discharge wastewater in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

j. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

k. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

l. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

m. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

n. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

o. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

p. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review,

the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

q. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

r. The docket holder shall continue to submit PCB monitoring data and PMP Annual Reports to the Commission's Modeling, Monitoring and Assessment Branch as required in the existing/proposed NPDES Permit.

BY THE COMMISSION

DATE APPROVED: September 10, 2014

EXPIRATION DATE: August 31, 2019