DOCKET NO. D-1990-016 CP-2

DELAWARE RIVER BASIN COMMISSION

City of Burlington
Wastewater Treatment Plant
City of Burlington, Burlington County, New Jersey

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Pennoni Associates on behalf of the City of Burlington on April 7, 2011 (Application), for renewal of the docket holder's existing wastewater treatment plant (WWTP) and its related discharge. New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0024660 for this facility was issued by the New Jersey Department of Environmental Protections (NJDEP) on April 8, 2011.

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 Burlington County Planning Board 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 2.7 million gallons per day (mgd) WWTP. There are no modifications to the WWTP proposed.

2. Location. The project is located at the intersection of Broad Street and Uhler Avenue in the City of Burlington, Burlington County, New Jersey. The WWTP will continue to discharge treated effluent directly to Water Quality Zone 2 of the Delaware River at River Mile 117.5.

The project outfall is located in the Delaware River Watershed as follows:

LATITUDE (N)	LONGITUDE (W)
40° 04' 46.2"	74° 52' 20.4"

3. **Area Served**. The docket holder's WWTP will continue to receive wastewater flows from the City of Burlington and portions of Burlington Township in Burlington County, New Jersey.

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's existing 2.7 mgd WWTP will continue to utilize a trickling filter treatment system which includes primary and secondary clarification, chlorine contact disinfection, and post-aeration.

b. **Facilities**. The existing WWTP facilities consist of a bar screen, a rotary grit chamber, two (2) primary clarifiers, two (2) trickling filters with plastic media, two (2) secondary clarifiers, a chlorine contact tank, a dechlorination chamber, and a mechanical aerator. The WWTP also features sludge handling in the form of sludge thickeners and a belt press dewatering system.

DRBC Docket No. D-1990-016 CP-1, approved by the DRBC on June 27, 1990, approved modifications to the WWTP including constructing a 54-inch diameter pipe outfall to the main stem Delaware River. The previous outfall was located on an unnamed tributary (UNT) to the Delaware River, approximately 0.2 miles upstream of its confluence with the Delaware River, and thus the discharge location of the WWTP was moved from the UNT to the Delaware River to the main stem Delaware River. This existing 54-inch diameter outfall is shared with the existing Burlington Township Central Avenue WWTP, and therefore treated effluent from Burlington Township Central Avenue WWTP combines with Burlington City WWTP treated effluent prior to discharge from the outfall. The Burlington City WWTP will continue to discharge to the Delaware River via this existing shared outfall and monitor its effluent prior to combining and discharging at the outfall. The docket holder owns and operates the combined outfall. The existing outfall features a reducer/nozzle in order to increase the dispersion of effluent with the receiving water body, resulting in better mixing.

No modifications to the existing WWTP are proposed.

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

Several of the project facilities are located in the 100-year floodplain. The Commission's *Flood Plain Regulations* (FPR) has requirements for treatment facilities in the flood plain; however, the FPR only apply in the non-tidal portion of the Delaware River Basin. Since the project WWTP is located in the tidal portion of the basin, the FPR do not apply to the project WWTP.

c. Water withdrawals. The potable water supply in the project service area is provided from a surface water intake which is owned and operated by the City of Burlington and located on the Delaware River,. The most recent docket approval for the surface water withdrawal is described in detail in DRBC Docket No. D-1973-046 CP-2, which was approved on July 14, 2010.

d. NJPDES Permit / DRBC Docket. NJPDES Permit No. NJ0024660, issued by the NJDEP on April 8, 2011, includes effluent limitations for the existing project discharge of 2.7 mgd to surface waters classified by the NJDEP as Delaware River Water Quality Zone 2. The sampling point for compliance (DSN002A) is located at the end of the Burlington City WWTP treatment system, prior to combining with flow from the Burlington Township Central Avenue WWTP, with which the Burlington City WWTP shares an outfall. The following average monthly effluent limits are among those listed in the NJPDES permit and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-1: DRBC parameters included in NJPDES permit

Monitoring Point # DSN002A (WWTP effluent)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NJPDES permit
Total Suspended Solids	30 mg/l (85% minimum removal)	As required by NJPDES permit
BOD (5-Day at 20° C)*	30 mg/l (88.5% minimum removal) 162 kg/day	As required by NJPDES permit
Ammonia Nitrogen (5/1 – 10/31) 11/1-4/30)	 6.7 mg/l 17 mg/l	As required by NJPDES permit
Fecal Coliform	200 colonies per 100 ml	As required by NJPDES permit
PCBs	Monitor & Report	As required by NJPDES Permit
Acute WET LC50 Stat 96 hr (Pimephales)	Monitor & Report	As required by NJPDES permit
Chronic WET IC25 Stat 7 day (Ceriodaphnia)	Monitor & Report	As required by NJPDES permit

EFFLUENT TABLE A-2: DRBC parameters not included in NJPDES permit

Monitoring Point # DSN002A (WWTP effluent)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids*	Monitor & Report	Quarterly
CBOD (20-Day at 20° C)**	Monitor & Report	**

* See Condition II.q. in the Decision Section

** See "$CBOD_{20}$ Monitoring" in Findings Section

e. Relationship to the Comprehensive Plan. The original WWTP was included in the DRBC Comprehensive Plan by Addendum No. 1 on July 25, 1962. The Commission approved a $CBOD_{20}$ allocation for the WWTP on April 10, 1969 via Resolution/Docket No. A-69-12. A project to upgrade the WWTP was approved by Docket No. D-1990-016 CP-1 on June 27, 1990.

FINDINGS

The purpose of this docket is to renew the approval of the docket holder's existing 2.7 mgd WWTP and its discharge and to update the approval to reflect the current facility description. No modifications to the WWTP are proposed.

The WWTP currently discharge treated wastewater effluent to Delaware Water Quality Zone 2. DRBC Water Quality Regulations (WQR) include stream quality objectives for Zone 2, including criteria to protect the taste and odor of ingested water and fish (Table 4 of WQR), to protect aquatic life (Table 5), and to protect human health (Tables 6 & 7). Toxicity in effluent is measured as Whole Effluent Toxicity (WET), and results from both acute and chronic exposures. The acute toxicity stream quality objective for Zone 2 is 0.3 Toxic Units (TUa = 0.3). The chronic toxicity stream quality objective for Zone 2 is 1.0 Toxic Units (TUc = 1.0).

Acute Whole Effluent Toxicity Dilution Factor

The docket holder performed an analysis of their discharge for compliance with applicable acute stream quality objectives in the report entitled "Dilution Study of the Burlington City Outfall to the Delaware River" by HydroQual, Inc., dated November 23, 1993, with addendum dated December 21, 1998 (Dilution Report). NJPDES Permit No. NJ0024660 indicates that NJDEP re-evaluated the analysis in 2002, and determined that a dilution factor of 14.3 to 1 (13.3 parts ambient and 1 part wastewater) is achieved by the existing outfall at the edge of the regulatory mixing zone (RMZ). However, the mixing zone dimensions are not defined in the permit. This docket requires the docket holder to perform acute toxicity monitoring in accordance with the NJPDES permit. Upon next docket renewal, based on the results of that monitoring, the docket holder may be required to calculate the RMZ dimensions and re-evaluate the dilution factor associated with the RMZ for the project discharge.

$CBOD_{20}$ Wasteload Allocation

The Commission's *Water Quality Regulations* (*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 *WQR*, 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 $CBOD_{20}$ Wasteload Allocations* (Revised October 1, 2000). The WWTP is located in Zone 2 at River Mile 117.0 – 0.2 (Delaware River – UNT Delaware River). Zone 2 is allocated at 26,964 lbs/day of $CBOD_{20}$ and has a minimum percent removal requirement of $CBOD_{20}$ of 88.50%. The Commission approved a $CBOD_{20}$ allocation for the WWTP of 510 lbs/day on April 10, 1969 via Resolution/Docket No. A-69-12. This docket continues the approval to discharge up to 510 lbs/day of $CBOD_{20}$ for the existing facility.

$CBOD_{20}$ Monitoring

The docket holder performed BOD_5, $CBOD_5$, and $CBOD_{20}$ monitoring as part of an Estuary-wide two-year nutrient monitoring program implemented by the Commission. NJPDES Permit No. NJ004660 requires the docket holder to meet a BOD_5 effluent load limit of 162 kg/day (or 356 lbs/day). The BOD_5 effluent load limit was determined by calculating the BOD_5 effluent load by the $CBOD_{20}/BOD_5$ ratio of 1.43:1. Based on the results of the monitoring performed as part of the nutrient monitoring program, the Executive Director may establish a revised $CBOD_{20}/BOD_5$ ratio. The revised ratio will be used by the DRBC to make recommendations to NJDEP during the renewal process of the docket holder's NJPDES permit.

PCBs

The docket holder is required to monitor for 209 PCB congeners using Method 1668A two (2) times per year during dry weather at Monitoring Point No. DSN002A and implement Pollution Minimization Plans (PMPs) for PCBs as required in the NJPDES Permit. See Conditions II.t. in the DECISION section of this docket).

Total Dissolved Solids

The Commission reserves the right, in accordance with the WQR and the Rules of Practice and Procedure, to apply the Basinwide TDS requirements in Zone 2 when and where it determines that the requirements are necessary to protect water uses in Zone 2. EFFLUENT TABLE A-2 in Section A.4.d of this docket includes quarterly effluent monitoring and reporting of TDS.

The Delaware River is tidal at the point of the WWTP discharge. The nearest surface water intakes of record for public water supply upstream of the project discharge are operated by 1) Burlington City Water Department, located 1.4 miles upstream of the WWTP discharge on the Delaware River; and 2) Aqua, Pennsylvania, located 1.7 miles upstream of the WWTP discharge on the Delaware River. The nearest downstream surface water intake of record for public water supply is the City of Philadelphia's Torresdale Intake, located approximately 7.1 miles downstream of the WWTP discharge on the Delaware River.

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 limits in the NJPDES Permit for the existing discharge 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 *Water Quality Regulations (WQR)* of the DRBC.

C. DECISION

I. Effective on the approval date for Docket No. D-1990-016 CP-2 below:

a. The projects described in Docket Nos. A-69-12 and D-1990-016 CP-1 are removed from the Comprehensive Plan to the extent that they are not included in Docket No. D-1990-016 CP-2; and

b. Docket Nos. A-69-12 and D-1990-016 CP-1 are terminated and replaced by Docket No. D-1990-016 CP-2.

c. The project and the appurtenant facilities described in the 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 NJDEP in its NJPDES 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 *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. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

g. 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.

h. 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.

i. The docket holder is permitted to treat and discharge the categories of wastewaters defined in the "Area Served" section of this docket.

j. 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.

k. 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).

l. 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.

m. 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.

n. 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.

o. 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.

p. 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.

q. 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.

r. 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.

s. 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 NJPDES Permit.

BY THE COMMISSION

DATE APPROVED: September 10, 2014

EXPIRATION DATE: June 30, 2021