

DOCKET NO. D-1986-028 CP-3

DELAWARE RIVER BASIN COMMISSION

**City of Reading
Wastewater Treatment Plant Upgrade
City of Reading, Berks County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Rummel, Klepper, & Kahl, LLP (RK&K) on behalf of the City of Reading on June 9, 2014 (Application) for review of modifications to the docket holder's existing wastewater treatment plant (WWTP). The Pennsylvania Department of Environmental Protection (PADEP) issued National Pollutant Discharge Elimination System (NPDES) Permit No. PA0026549 for the project WWTP on November 25, 2013. A Water Quality Management (Part II) Permit application for the proposed WWTP upgrade project was submitted to PADEP on June 30, 2014, and is pending approval.

The Application was reviewed for inclusion of the project in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Berks County Planning Commission 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 approve an upgrade of the docket holder's existing 20.5 million gallons per day (mgd) Fritz Island WWTP. The proposed upgrade consists of: replacing the existing trickling filter treatment system with four (4) new biological reactors in a step feed configuration with fine bubble aeration; constructing four (4) new clarifiers; performing improvements to the solids handling train (including sludge thickening and dewatering); and appurtenant improvements.

2. **Location.** The project WWTP is located off of Morgantown Road on Fritz Island in the City of Reading, Berks County, Pennsylvania and will continue to discharge to the Schuylkill River, at River Mile 92.47 – 72.8 (Delaware River – Schuylkill River).

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

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
001	40° 15' 34"	75° 17' 20"

3. **Area Served**. The project WWTP currently serves the City of Reading, the Townships of Alsace, Lower Alsace, Cumru, Bern, Muhlenberg, Robeson, and Spring, and the Boroughs of Kenhorst, Laureldale, Mohnton, Mount Penn, Shillington, and Wyomissing in Berks County, Pennsylvania.

For the purpose of defining the Area Served, the Application is incorporated herein by reference consistent with conditions contained in the DECISION section of this docket.

4. **Physical features**.

a. **Design criteria**. The existing WWTP is designed to treat an average annual flow of up to 20.5 mgd via a two-stage trickling filter, and fixed film aeration treatment processes. The WWTP is designed to treat a monthly average design flow of up to 27.8 mgd. The proposed upgrade includes replacing the existing trickling filter treatment system with a biological reactor treatment system. No modifications to the design capacity are proposed.

b. **Facilities**. The existing WWTP facilities consist of a grit chamber, a primary clarifier distribution box, four (4) primary clarifiers, three (3) primary trickling filters, three (3) intermediate clarifiers, two (2) secondary trickling filters with a submerged/attached growth system, three (3) tertiary clarifiers, a submerged fixed film aeration tank, four (4) final clarifiers, disinfection via chlorination, and sulfur dioxide dechlorination. Sludge handling facilities include three (3) primary anaerobic digesters (Digester Nos. 1, 2, and 3), two (2) secondary anaerobic digesters (Digester Nos. 4 and 5), two (2) gravity belt thickeners, and belt filter presses.

DRBC Docket No. D-1986-028 CP-2, approved on June 11, 2014, approved the project to convert existing Digester Nos. 4 and 5 from secondary anaerobic digesters to operate as primary or secondary anaerobic digesters.

The proposed upgrades to the existing facilities will be handled in two (2) phases, the liquids treatment system phase and the solids handling system phase. The liquids treatment system upgrades are being performed in order to meet future ammonia limits from the PADEP and to eliminate existing hydraulic restrictions at the WWTP. The solids handling system upgrades are being performed in order to increase solids handling capacity, rehabilitate existing solids handling facilities, and improve the dewatering process.

The liquids system upgrades consist of: a new influent junction box and primary clarifier distribution system; rehabilitation/repair of the four (4) existing primary clarifiers; four (4) new biological reactors in a step feed configuration with fine bubble/disc diffuser aeration to replace the existing trickling filter treatment system; four (4) new clarifiers; a new return

activated sludge (RAS) system, including pumping, piping, and controls; conversion of the existing tertiary tanks into chlorine contact / post aeration tanks; and a new effluent structure to allow for step cascade aeration prior to discharge through the existing outfall into the Schuylkill River. Existing liquids treatment system facilities that will not be used in the new system will be demolished or abandoned.

The solids handling system upgrades consist of: a new blend tank for storage of primary sludge and waste activated sludge (WAS); rehabilitation of the two (2) existing gravity belt thickeners; rehabilitation of the three (3) existing primary anaerobic digesters (Digester Nos. 1, 2, and 3), including pumping, covers, and mixing system; improvements to the two (2) existing secondary anaerobic digesters (Digester Nos. 4 and 5, currently being upgraded as described above), including flow metering and controls, a new digested sludge holding tank; two (2) new centrifuges; and rehabilitation/replacement of the existing odor control system. The overall upgrade project also features appurtenant improvements including upgrading the administrative, laboratory, and maintenance facilities.

Several of the existing WWTP facilities are located in flood fringe portion of the 100-year flood hazard area. The proposed facilities located in the flood zone are protected from the 100-year flood since the tops of the tanks will be above the flood protection elevation (one foot above the 100-year flood elevation). None of the proposed treatment facilities are located in the floodway.

Wasted sludge (biosolids) 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 provided by a surface water intake owned and operated by Reading Area Water Authority (RAWA). RAWA's surface water withdrawal from the Lake Ontelaunee Reservoir is described in detail in Docket No. D-2000-059 CP-2, which was approved by the DRBC on May 11, 2011.

d. NPDES Permit / DRBC Docket. PADEP issued NPDES Permit No. PA0026549 for the WWTP on November 25, 2013, which includes final effluent limitations for an annual average flow of 20.5 mgd to surface waters classified by the PADEP as Warm Water Fishery (WWF) and Migratory Fishery (MF). The following average monthly effluent limits are among those listed in the NPDES permit and meet or are more stringent than the effluent requirements of the DRBC.

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

OUTFALL 001 (Schuylkill River)		
PARAMETER	LIMIT	MONITORING
pH (Standard Units)	6 to 9	As required by NPDES permit
Total Suspended Solids	30 mg/l	As required by NPDES permit
CBOD (5-Day at 20° C) (5-1 to 10-31)	19 mg/l (85% minimum removal*)	As required by NPDES permit
(11-1 to 4-30)	24 mg/l (85% minimum removal*)	
Ammonia Nitrogen (5-1 to 10-31)	6.5 mg/l	As required by NPDES permit
(11-1 to 4-30)	19 mg/l	

OUTFALL 001 (Schuylkill River)		
PARAMETER	LIMIT	MONITORING
Fecal Coliform (5-1 to 9-30) (10-1 to 4-30)	200 col. / 100 ml as a geo. avg. 2,000 col. / 100 ml as a geo. avg.	As required by NPDES permit
Total Dissolved Solids**	1,000 mg/l	As required by NPDES permit
Color (Pt.-Co.)	186 Units***	As required by NPDES permit

* Per the NPDES permit, 85% minimum removal of CBOD₅ or BOD₅

** See DECISION Condition II.t.

*** See FINDINGS section

e. **Cost.** The overall cost of this project is estimated to be \$111,600,000.00

f. **Relationship to the Comprehensive Plan.** The existing Fritz Island WWTP was included in the Comprehensive Plan by Resolution No. 62-14 on July 25, 1962. Upgrades to the WWTP were approved via Docket Nos. D-1967-053 CP-1, D-1986-028 CP-1, and D-1986-028 CP-2, on May 24, 1967, September 17, 1986, and June 11, 2014, respectively. This docket (D-1986-028 CP-3) approves an upgrade of the WWTP.

B. **FINDINGS**

The purpose of this docket is to approve an upgrade of the docket holder's existing 20.5 mgd Fritz Island WWTP. The upgrade consists of replacing the existing trickling filter treatment system with four (4) new biological reactors, constructing four (4) new clarifiers, performing solids handling improvements, and performing appurtenant improvements. The proposed upgrades will be handled in two (2) phases, the liquids treatment system phase and the solids handling system phase. No modifications to the design capacity are proposed.

Color Determination

DRBC approved a color determination of 186 units on the Platinum Cobalt (Pt-Co) scale for the Fritz Island WWTP via letter from the Executive Director on October 19, 1998. Section 4.30.5 of the Commission's Water Quality Regulations (WQR) states that WWTP effluent "shall not exhibit more than a true color of 100 units on the platinum cobalt scale, or its equivalent, or the natural color of the receiving waters, whichever is greater." Section 4.30.5.c. allows for a variance of the 100-unit effluent limit, which was granted via the October 19, 1998 letter. This color determination of 186 Pt. Co. units is continued via this docket.

Just upstream of the project discharge location, the Schuylkill River at the USGS Schuylkill River at Reading Gage (USGS Gage No. 01471510) has an estimated seven-day low flow with a recurrence interval of ten years (Q7-10) of 145 mgd (224 cfs). The ratio of this low flow to the hydraulic design wastewater discharge rate (27.8 mgd) from the WWTP is approximately 5 to 1.

The nearest surface water intake of record for public water supply downstream of the project discharge is operated by the City of Pottstown, and is located on the Schuylkill River approximately 16 miles downstream of the project 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 WQR of the DRBC.

C. DECISION

I. Effective on the approval date for Docket No. D-1986-028 CP-3 below:

a. The project described in Docket No. D-1986-028 CP-2 is removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-1986-028 CP-3; and

b. Docket No. D-1986-028 CP-2 is terminated and replaced by Docket No. D-1986-028 CP-3.

c. The project and the appurtenant facilities described in the Section A “Physical Features” of this docket shall be added to the Comprehensive Plan.

II. The project and appurtenant facilities as described in the 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 Part II permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission’s. Commission approval of the project upgrade is contingent upon PADEP’s approval of the Part II permit.

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 of the DRBC.

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. Sound practices of excavation, backfill and reseedling shall be followed to minimize erosion and deposition of sediment in streams.

i. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

j. Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement (“Statement”) signed by the docket holder’s professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project’s final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the docket holder to calculate the DRBC project review fee, the statement must also include (4) the amount of any outstanding balance owed for DRBC review. The outstanding balance will equal the difference between the fee paid to the Commission and the fee calculated on the basis of the project’s final cost, using the formula and definition of “project cost” set forth in the DRBC’s project review fee schedule in effect at the time application was made.

k. The WWTP modifications shall be completed by the expiration date of this docket (November 30, 2018) or the docket holder shall demonstrate to the Executive Director that it has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval. If the modifications have not been completed by the expiration date

of this docket and the docket holder does not submit a cost analysis demonstrating substantial funds have been expended, Commission approval of the modifications to the existing WWTP shall expire. If the docket expires under this condition, the docket holder shall file a new application with the Commission and receive Commission approval prior to initiating construction of any modifications.

l. 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.

m. 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.

n. 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).

o. 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.

p. 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.

q. 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.

r. 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.

s. 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.

t. 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.

u. 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.

BY THE COMMISSION

DATE APPROVED: September 10, 2014

EXPIRATION DATE: November 30, 2018