DOCKET NO. D-1996-009 CP-2

DELAWARE RIVER BASIN COMMISSION

Special Protection Waters

Pennsylvania American Water Company – Fernwood System
Groundwater Withdrawal
Middle Smithfield Township, Monroe County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an Application submitted by Pennsylvania American Water Company (PAWC) to the Delaware River Basin Commission (DRBC or Commission) on November 22, 2013 (Application), for a renewal and approval of an existing allocation of groundwater and review of a groundwater withdrawal project. This docket was previously approved by the Commission on December 7, 2005. The project wells were reviewed under the Pennsylvania Safe Drinking Water Act for public water supply permits and approved by the Pennsylvania Department of Environmental Protection (PADEP) on May 2, 2000 (PADEP Permit No. 2450134).

The Application was reviewed for continuation in the Comprehensive Plan and for approval under Section 3.8 of the *Delaware River Basin Compact*. The Monroe County Planning Commission has been notified of pending action on this docket. A public hearing on this project was held by the DRBC on June 10, 2014.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve the renewal of an existing supply of groundwater to the docket holder's public water supply system from existing Wells Nos. 3, 6 and 9 and to approve an increase in withdrawal allocation from 19.01 million gallons per month (mgm) to 24.8 mgm.

2. Location. The project wells are located in the Bushkill Watershed, within the drainage area to the Middle Delaware Special Protection Waters, in Middle Smithfield Township, Monroe County, Pennsylvania. Wells Nos. 3 and 6 are completed in the Buttermilk Falls/Esopus Formation. Well No. 9 is completed in Quaternary sands and gravels. The Bushkill near the project site is designated by the Pennsylvania Department of Environmental Protection (PADEP) as High Quality – Trout Stocking Fishes (HQ-TSF) and Migratory Fishes (MF).

Specific location information has been withheld for security reasons.

3. Area Served. The docket holder's water distribution system serves the Fernwood Hotel and commercial area, Tree Tops timeshares development, Fairway Villas shared ownership development and Resorts USA corporate office as well as several private residences as shown on a map entitled "Fernwood Water System", submitted with the Application.

4. Physical features.

a. Design criteria. PAWC supplies water to an estimated population of 3,000 via 690 connections. The average and maximum groundwater demand for this project are 0.212 million gallons per day (mgd) and 0.641 mgd, respectively. The docket holder estimates an increase in average and maximum demand over the next ten years. The projected average and maximum demand is estimated to be 0.266 mgd and 0.800 mgd, respectively. The allocation of 24.8 mgm should be sufficient to meet the future demands of the PAWC system.

b. Facilities. The existing project wells have the following characteristics:

WELL NO.	DEPTH (FEET)	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY (GPM)	YEAR DRILLED
3	195	5'/ 10"	100	1960
6	185	5'/ 8"	60	1960
9	101	60'/ 12"	500	1994

All wells and water service connections are metered.

Prior to entering the distribution system, all groundwater is treated with liquid sodium-hypochlorite for disinfection. The groundwater is also treated for elevated manganese levels via pressure filtration and for general corrosion control.

The project wellheads are located above the 100-year flood elevation.

The water system is presently not interconnected with any other distribution system.

Storage facilities consist of one 0.519 mg storage tank, which is approximately 2.5 days' supply.

c. Other. Wastewater is conveyed to the Middle Smithfield Township Municipal Authority sewage treatment facility most recently approved by DRBC Docket No. D-1990-080 CP-3 on September 12, 2012. The PADEP issued its most recent NPDES Permit No.

PA0060089 on September 3, 2013 for this treatment facility. The treatment facility has adequate capacity to receive wastewater from this project.

d. Relationship to the Comprehensive Plan. The PAWC Wells Nos. 1 through 5 were included in the Comprehensive Plan via DRBC Docket No. D-1991-023 CP issued on August 14, 1991. Docket No. D-1996-009 CP terminated Wells Nos. 1, 2, 4 and 5 and approved Wells Nos. 6 and 9. Docket No. D-1996-009 CP was transferred from resorts USA, Inc. to PAWC on March 18, 2013. Issuance of this docket will continue the groundwater withdrawal project in the Comprehensive Plan.

B. FINDINGS

Special Protection Waters

In 1992, the DRBC adopted Special Protection Waters requirements, as part of the DRBC *Water Quality Regulations (WQR)*, designed to protect existing high water quality in applicable areas of the Delaware River Basin. One hundred twenty miles of the Delaware River from Hancock, New York downstream to the Delaware Water Gap were classified by the DRBC as SPW. This stretch includes the sections of the river federally designated as "Wild and Scenic" in 1978 -- the Upper Delaware Scenic and Recreational River and the Delaware Water Gap National Recreation Area -- as well as an eight-mile reach between Milrift and Milford, Pennsylvania which is not federally designated. The SPW regulations apply to this 120-mile stretch of the river and its drainage area.

On July 16, 2008, the DRBC approved amendments to its *Water Quality Regulations* that provide increased protection for waters that the Commission classifies as Special Protection Waters. The portion of the Delaware River and its tributaries within the boundary of the Lower Delaware River Management Plan Area was approved for Special Protection Waters designation and clarity on definitions and terms were updated for the entire program.

Article 3.10.3A.2.e.1). and 2). of the Water Quality Regulations, Administrative Manual - Part III, states that projects subject to review under Section 3.8 of the Compact that are located in the drainage area of Special Protection Waters must submit for approval a Non-Point Source Pollution Control Plan that controls the new or increased non-point source loads generated within the portion of the docket holder's service area which is also located within the drainage area of Special Protection Waters. The wells providing water supply to the PAWC are located within in the drainage area to the Special Protection Waters. Since this project does not entail additional construction and expansion of facilities or service areas (i.e., there aren't any new or increased non-point source loads associated with this approval), the non-point source pollution control plan requirement is not applicable at this time. The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

The docket holder estimates that the project withdrawals, used for the purpose of public water supply, result in a consumptive use of 10 percent of the total water use. The DRBC

definition of consumptive use is defined in Article 5.5.1.D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges*.

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.

Fernwood Resorts (not PAWC) utilizes on-site surface water sources (ponds) from Fernwood Lake for snow-making and golf course irrigation. Over the past three years (2010-2012) Fernwood Resorts has withdrawn an average of approximately 17.0 million gallons per year (mgy) (6.2 mgy for golf course irrigation and 10.8 mgy for snow-making) for these purposes. This averages approximately 1.42 mgm which is below the Commission's threshold for surface water withdrawals in the Basin. The surface water system is not interconnected with the groundwater system which provides potable water described in this docket.

72-Hour Pumping Test of Well No. 9

On July 8 through 11, 2013, a 72-hour constant rate pumping test was conducted to assess withdrawal capabilities of existing Well No. 9. The pumping test was also conducted to assess the underlying aquifer characteristics, and potential impacts to the local hydrologic system. The average pumping rate of the test on Well No. 9 was 500 gallons per minute (gpm). Discharge from the pumping well was directed away from the pumping well (approximately 350 feet), outside of the estimated area where recharge effects might be expected. Well No. 9 was pumped for a total period of 4,350 minutes.

Groundwater response monitoring was conducted in the pumping well (Well No. 9), Monitoring Well No. OBS-01 and two piezometers PZ-01 and PZ-02. Surface water response monitoring was also conducted using USGS Stream Gage No. 01439500 on the Bush Kill. Distances of the monitoring well and piezometers from the pumping well range from approximately 25 feet (PZ-01) to 750 feet (OBS-01). Piezometer PZ-01 was installed four feet deep approximately two feet inland from the edge of the nearby pond, directly in line with Well No. 9. Piezometer PZ-02 was installed two feet deep at the edge of the nearest wetland, approximately 75 feet north of well No. 9.

Prior to the start of the pumping test, Well No. 9 had a static water level of 5.97 feet below top of casing. Maximum drawdown observed at the pumping well after the first 72 hours was at 30.7 feet. The water level stabilized in Well No. 9 within 10 minutes of the start of the test, with less than 0.5 feet of additional drawdown through the conclusion of the test. Of the monitoring well and piezometers, PZ-01 exhibited the greatest amount of drawdown (approximately 0.65 feet). Water levels in PZ-01, PZ-02 and the Bush Kill exhibited a steady overall decline during the background phase due to a lack of precipitation. Water levels in PZ-01 also exhibited a response to Well No. 9 pumping cycles, dropping approximately 0.1 feet each time the pump was started and fully recovered when the pump was shut down. PZ-02 did not exhibit any obvious response to the pumping at Well No. 9. No adverse impacts to the wetlands are expected to occur due to pumping from Well No. 9.

Groundwater hydraulics of the highly transmissive sand and gravel aquifer dictate that most flow to the well is horizontal. Due to there being 75 feet vertically separating the pond bottom from the well screen, recharge to the well is primarily from below the pond elevation and any impact to the shallow pond would be minimal. Any aquifer recharge from the pond induced by a change in head due to the pumping would be minimized by the low permeability silt/organic layer lining the pond, and Well No. 9 water quality sampling supports this by showing that surface water was not drawn into the well during the test. In addition, conservative water balance calculations indicate that there is sufficient groundwater available in the Well No. 9 recharge zone to replenish any or all water removed during the operation of Well No. 9 without inducing flow directly from the pond.

No other monitoring location showed any influence by the pumping of Well No. 9 during the pumping test.

The recovery phase of the pumping test began on July 11, 2013, immediately following the conclusion of the pumping test. The hydrograph indicated that the pumping well recovered 95% of drawdown within 5 minutes of the conclusion of the test. Piezometer PZ-01 returned to pre-test conditions within two days of the conclusion of the pumping test.

The observed drawdown in Well No. 9 was used to calculate aquifer parameters to characterize the underlying aquifer. The estimated average aquifer transmissivity (based on Time-Drawdown and Time-Recovery) for the Well No. 9 test data was 51,765 gpd/ft.(based on Time-drawdown), 57,642 gpd/ft. (based on Time-Recovery), respectively for the test rate of 500 gpm. Based on the saturated thickness of the aquifer (approximately 95 feet), hydraulic conductivity was calculated to range from 72.8 to 81.1 feet per day (ft./d).

The Commission has reviewed the hydrogeological report for the pumping test of Well No. 9. No adverse impacts are expected to occur to the local hydrologic system due to pumping from Well No. 9.

Water Audits for Public Water Supply Systems Serving Greater than 100,000 gpd

Section 2.1.8 of the Water Code states that it is the policy of the Commission to establish a standardized water audit methodology for owners of water supply systems serving the public to ensure accountability in the management of water resources. Voluntary Water Audits were encouraged for public water supply systems through December 31, 2011 (Section 2.1.8.B.). Effective January 1, 2012, the owners of each public water supply system are required to implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance (Section 2.1.8.C). Water audits shall be submitted annually to the Commission by March 31.

C. DECISION

I. Effective on the approval date for Docket No. D-1996-009 CP-2 below:

a. The project described in Docket No. D-1996-009 CP-1 is removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-1996-009 CP-2; and

b. Docket No. D-1996-009 CP-1 is rescinded and replaced by Docket No. D-1996-009 CP-2.

c. The project and the appurtenant facilities described in the Section entitled "Physical features" above shall be added to the Comprehensive Plan.

II. The project as described in the Section entitled "Physical features" above is approved pursuant to Section 3.8 of the *Compact* and is granted this withdrawal permit pursuant to Section 10.3 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. Within 60 days (August 11, 2014), the docket holder shall provide written confirmation to the Commission that it has registered and will report with PADEP all surface and groundwater sources described in this docket in accordance with the Pennsylvania Regulations (Title 25 - Environmental Protection, [25 PA. CODE CH. 110], Water Resources Planning).

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

c. The wells shall be operated at all times to comply with the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

d. During any month, the combined withdrawal from all well sources shall not exceed 24.8 mgm or 297.6 mgy. No well shall be pumped above the maximum instantaneous rate and monthly allocation as indicated below:

WELL NO.	MAXIMUM INSTANTANEOUS RATE (GPM)	MONTHY ALLOCATION (MGM)
3	100	4.464
6	60	2.678
9	500	22.32

e. The wells shall be equipped with a readily accessible capped port and drop pipe so that water levels may be measured under all conditions.

f. The project withdrawals shall be metered with an automatic continuous recording device that measures to within 5 percent of actual flow. An exception to the 5 percent

performance standard, but no greater than 10 percent, may be granted if maintenance of the 5 percent performance is not technically feasible or economically practicable. A record of daily withdrawals shall be maintained, and monthly totals shall be reported to the PADEP annually and shall be available at any time to the Commission if requested by the Executive Director.

g. Each new water service connection shall include a water meter in accordance with the DRBC's Resolution No. 87-7 (Revised).

h. In accordance with DRBC Resolutions No. 87-6 (Revised) and No. 2009-1, the docket holder shall continue to implement to the satisfaction of the PADEP, the systematic program to monitor and control leakage within the water supply system. The program shall at a minimum include: periodic surveys to monitor leakage, enumerate non-revenue water and determine the current status of system infrastructure; recommendations to monitor and control leakage; and a schedule for the implementation of such recommendations. The docket holder shall proceed expeditiously to correct leakages and unnecessary usage identified by the program.

i. In accordance with DRBC Resolution No. 2009-1 and Section 2.1.8 of the Water Code, the docket holder shall implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding guidance. Water audits shall be submitted annually to the Commission by March 31 every year.

j. The docket holder shall implement to the satisfaction of the PADEP, the continuous program to encourage water conservation in all types of use within the facilities served by this docket approval. The docket holder will report to the PADEP on the actions taken pursuant to this program and the impact of those actions as requested by the PADEP.

k. No water 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. The docket holder shall implement its Water Conservation Plan as approved by PADEP, and shall report to the PADEP on actions taken pursuant to this program and the impact of those actions as requested by the PADEP.

m. The docket holder shall implement to the satisfaction of the PADEP, a drought or other water supply emergency plan.

n. No new water service connections shall be made to premises connected to sewerage systems which are not in compliance with all applicable effluent limits contained in State permits and the *Water Quality Regulations* of the Commission.

o. 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.

p. The docket holder is permitted to provide the water approved in this docket to the areas included in Section A.3. Area Served of this docket. Any expansion beyond those included in Section A.3. Area Served is subject to DRBC review and approval in accordance with Section 3.8 of the *Compact*.

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 issuance of this docket approval shall not create any private or proprietary rights in the water of the Basin, and the Commission reserves the rights to amend, alter or rescind any actions taken hereunder in order to insure the proper control, use and management of the water resources of the Basin.

s. If the monitoring required herein, or any other data or information demonstrates that the operation of this project significantly affects or interferes with any domestic or other existing uses of ground or surface water, or if the docket holder receives a complaint by any existing ground or surface water users within the zone of influence of the withdrawal, the docket holder shall immediately notify the Executive Director of any complaints by any ground or surface users within the zone of influence of the withdrawal, and unless excused by the Executive Director, shall investigate such complaints. The docket holder should direct phone call notifications of potential well or surface water interference or complaints of interference to the DRBC Project Review Section at 609-883-9500, extension 216. Oral notification must always be followed up in writing directed to the Executive Director. In addition, the docket holder shall provide written notification to all potentially impacted users of wells or surface water supplies of the docket holder's responsibilities under this condition. Any ground or surface water user which is substantially adversely affected, rendered dry or otherwise diminished as a result of the docket holder's project withdrawal, shall be repaired, replaced or otherwise mitigated at the expense of the docket holder. A report of investigation and/or mitigation plan prepared by a hydrologist shall be submitted to the Executive Director as soon as practicable. The Executive Director shall make the final determination regarding the validity of such complaints, the scope or sufficiency of such investigations, and the extent of appropriate mitigation measures, if required.

t. 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.

u. For the duration of any drought emergency declared by either Pennsylvania or the Commission, water service or use by the docket holder pursuant to this approval shall be subject to the prohibition of those nonessential uses specified by the Governor of Pennsylvania, the Pennsylvania Emergency Management Council, PADEP, or the Commonwealth Drought Coordinator to the extent that they may be applicable, and to any other emergency resolutions or orders adopted hereafter by the Commission.

v. 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.

BY THE COMMISSION

APPROVAL DATE: June 11, 2014

EXPIRATION DATE: June 12, 2024