

DOCKET NO. D-2004-039 CP-2

DELAWARE RIVER BASIN COMMISSION

Special Protection Waters

**Bucks County Water and Sewer Authority – New Hope System
Groundwater and Surface Water Withdrawal
New Hope Borough, Bucks County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an Application submitted by Carroll Engineering Corp. on behalf of Bucks County Water and Sewer Authority (BCWSA) to the Delaware River Basin Commission (DRBC or Commission) on September 26, 2014 for renewal of an allocation of groundwater and surface water and review of a groundwater and surface water withdrawal project (Application). The groundwater and surface water withdrawal project was approved by the Pennsylvania Department of Environmental Protection (PADEP) on June 22, 2005 (Permit No. 0905504). An application to the PADEP was submitted on January 28, 2015 for new Well A.

The Application was reviewed for continued inclusion in the Comprehensive Plan and for approval under Section 3.8 of the *Delaware River Basin Compact*. The Bucks County Planning Commission has been notified of pending action on this docket. A public hearing on this project was held by the DRBC on March 10, 2015.

A. DESCRIPTION

1. **Purpose.** The purpose of this project is to approve new Well A for inclusion in the BCWSA New Hope System and to renew the approval of up to 14.78 million gallons per month (mgm) of water to the docket holder's public water supply distribution system from existing Wells Nos. Riverwoods 2C, Riverwoods 3B, Morrissey B, Morrissey C, New Hope Manor C and an intake on the Delaware River. BCWSA is not requesting an increase in groundwater withdrawal allocation.

2. **Location.** The project wells are located in the Rabbit Run and Delaware River Watersheds, within the drainage area to the Lower Delaware Special Protection Waters, in New Hope Borough, Bucks County, Pennsylvania. Rabbit Run near the project site is designated by the PADEP as supporting Trout Stocking Fishes (TSF) and Migratory Fishes (MF). The Delaware River near the project site is designated by the PADEP as supporting Warm Water Fishes (WWF) and Migratory Fishes (MF). The project wells are completed in the Brunswick Formation.

Specific location information has been withheld for security reasons.

3. **Area Served.** The docket holder’s distribution system supplies water to New Hope Borough, Bucks County, Pennsylvania, as shown on the map entitled “Service Area Map Existing and Proposed Sources New Hope Water System” submitted with the Application. For the purpose of defining 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 BCWSA New Hope system currently serves an estimated population of 918 through 507 domestic service connections and an additional 110 commercial connections with an average and maximum water demand of 0.099 million gallons per day (mgd) and 0.149 mgd, respectively. The docket holder projects an average and maximum water demand of 0.269 mgd and 0.404 mgd, respectively, by the year 2025. The allocation of 14.78 mgm should be sufficient to supply the docket holder’s public water supply system.

b. **Facilities.** The docket holder’s existing and proposed wells and intake have the following characteristics:

WELL NO.	DEPTH (FEET)	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY (GPM)	YEAR DRILLED
Riverwoods 2C	550	84’/ 8”	30	1999
Riverwoods 3B	760	60’/ 10”	81	1995
Morrissey B	500	64’/ 10”	110	2003
Morrissey C	462	64’/ 10”	30	2003
New Hope Manor C	393	66’/ 10”	122	2004
Well A	450	60’/ 10”	150	2001

INTAKE NO.	WITHDRAWAL WATER BODY	PUMP CAPACITY (MGD)	7Q10 FLOW AT INTAKE (CFS)	YEAR CONSTRUCTED
Delaware River Intake	Delaware River	0.108	607.565	1986

All water service connections are metered.

All wells are metered.

Prior to entering the distribution system, the water will be treated by disinfection with liquid sodium hypochlorite. Water from the Delaware River Intake will be treated with potassium permanganate, caustic soda, aluminum sulfate and chlorine.

The project wells are above the 100-year flood elevation.

The water system is presently interconnected with the Village II Community Association system for emergency use.

c. **Other.** Wastewater is conveyed to the Lambertville Municipal Utilities Authority sewage treatment facility most recently approved by DRBC Docket No. D-1969-150 CP-2 on July 11, 2012. The New Jersey Department of Environmental Protection (NJDEP) issued its most recent NJPDES Permit No. NJ0020915 on December 13, 2012 for this treatment facility. The treatment facility has adequate capacity to receive wastewater from the proposed project.

d. **Cost.** The overall cost of the proposed Well A is estimated to be \$688,000.

e. **Relationship to the Comprehensive Plan.** The project was previously included in the Comprehensive Plan by the Commission in Docket No. D-2004-039 CP-1, which was approved on September 26, 2005.

B. FINDINGS

48-Hour Pumping Test of Well A

On July 31 through August 2, 2012, a 48-hour continuous-rate pumping test was conducted to assess withdrawal capabilities of Well A. The constant rate 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 A was approximately 200 gallons per minute (gpm). Discharge from the pumping well was directed to a culvert beneath a walking trail on the school property where the well is located. The culvert discharges to a swale that runs parallel to State Route 202, which eventually discharges to Rabbit Run approximately a quarter mile away. Well A was pumped for a total period of 2,925 minutes.

Groundwater response monitoring was conducted in the pumping well (Well A), nine (9) private domestic wells, one (1) irrigation well, two (2) production wells (New Hope Manor C and Morrissey B) and one stream piezometer within Rabbit Run. The pumping well was monitored manually and with an electronic datalogger; the monitoring wells were monitored manually, except for New Hope Manor C and Morrissey B which were read from the displays inside the pump houses. Monitoring wells ranged in distance to the pumping well from approximately 520 feet (School Bus Yard Well) to approximately 3,330 feet (a.k.a. Salon well).

Prior to the start of the pumping test, Well A had a static water level of 74.85 feet below top of casing. Maximum drawdown observed at the pumping well, after approximately 48 hours of pumping was 42.24 feet (water level of 117.09 feet). Drawdown from the pumping at Well A was observed in the School Bus Yard Well and BCWSA exploratory well B, the estimated drawdown was 4.0 feet and 2.0 feet, respectively. During the long-term pumping tests of Morrissey Wells C and B, the School Bus Yard Well experienced 1.19 feet of drawdown. The

Morrissey wells were in operation during the pumping test of well A. Therefore the magnitude of drawdown which occurred at the School Bus Yard Well was likely a combination of the effects of pumping both the Morrissey wells and Well A.

The observed drawdown in Well A was used to calculate aquifer parameters to characterize the underlying aquifer. The estimated average transmissivity value for the Well A test data was 5,333 gpd/ft. and 7,652 gpd/ft. (drawdown and recovery, respectively) at the test rate of 200 gpm. An average Storativity of 3.92×10^{-5} was calculated from the drawdown data observed at the School Bus Yard Well and BCWSA exploratory well B monitored during the pumping test.

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

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 BCWSA New Hope system 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. Accordingly, Special Condition II.w has been included in the Decision section of this docket.

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 docket holder shall pay for surface water in accordance with the provisions of *Administrative Manual Part III Basin Regulations – Water 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.

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. BCWSA submitted their most recent Water Audit on July 7, 2014.

C. DECISION

- I. Effective on the approval date for Docket No. D-2004-039 CP-2 below:
 - a. The projects described in Docket No. D-2004-039 CP-1 is removed from the Comprehensive Plan to the extent that they are not included in Docket No. D-2004-039 CP-2; and
 - b. Docket No. 2004-039 CP-1 is terminated and replaced by Docket No. D-2004-039 CP-2.
 - c. The project and the appurtenant facilities described in the Section A “Physical features” shall be added to the Comprehensive Plan.
- II. The project and appurtenant facilities as described in the Section A “Physical features” 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, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. The wells and operational records shall be available at all times for inspection by the DRBC.

b. The wells, surface water intake 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 and intake sources shall not exceed 14.78 million gallons. No well or intake shall be pumped above the maximum instantaneous rate and monthly allocation as indicated below:

WELL NO.	MAXIMUM INSTANTANEOUS RATE	MONTHLY ALLOCATION
Riverwoods 2C	30	0.93
Riverwoods 3B	81	2.48
Morrissey B	110	3.1
Morrissey C	30	1.30
New Hope Manor C	122	5.37
Well A	170	5.37
Delaware River Intake	75	1.55

e. The wells shall be equipped with readily accessible capped ports and minimum ½ inch inner diameter (ID) drop pipes so that water levels may be measured under all conditions. Existing wells are to be similarly equipped, where possible, with readily accessible ports and ½ inch ID drop pipes as repairs or modifications are made at each existing well.

f. The docket holder shall pay for surface water use in accordance with *Administrative Manual – Part III Basin Regulations – Water Supply Charges*.

g. 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 annually by March 31, to the PADEP. Withdrawal records shall be available at any time to the Commission if requested by the Executive Director.

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

i. The docket holder shall continue to implement its Water Conservation Plan as approved by PADEP, and shall report to the PADEP on the actions taken pursuant to this program and the impact of those actions as requested by the PADEP.

j. 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.

k. 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.

l. A long-term monitoring program is required to obtain data on ground water and surface water hydrologic conditions in the project area. The docket holder shall continue to implement the long-term monitoring program as submitted in reports dated December 6, 1995 (Well No. 3B); February 24, 2000 (Well No. 2C); September 2003 (Well No. New Hope Manor C) and November 2003 (Wells Nos. Morrissey B and Morrissey C). This program will include the following:

1. **Ground Water Level Monitoring** – Nineteen (19) monitoring wells shall be measured to estimate annual ground water fluctuations caused by seasonal changes and/or production well pumping, and detect water level declines that may affect the performance of public and private wells in the respective areas surrounding the BCWSA production wells.
2. **Reports** - All monitoring data, including records required in Conditions “g.” and “l.” herein shall be submitted to the Commission annually, due by April 1. The docket holder is encouraged to submit the annual report electronically. The report shall be prepared by a hydrogeologist and shall assess the effects of well withdrawals on hydrologic conditions in the area. This report shall include an evaluation of the monitoring data required by this docket approval and such information as deemed appropriate by the hydrogeologist or required by the Executive Director.

3. The Executive Director may modify the monitoring program or temporarily suspend or modify this docket at any time if review of the hydrologic data and/or any other information indicates such action is necessary or appropriate.

m. 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.

n. The docket holder shall implement to the satisfaction of the PADEP, a 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.

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 area served by this project is limited to the service area as described above. Any expansion beyond this area is subject to review in accordance with Section 3.8 of the *Compact*.

q. 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 (a) 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; (b) report the project’s final construction cost as such cost is defined by the project review fee schedule in effect at the time application was made; and (c) 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 applicant to calculate the DRBC project review fee, the statement must also include (d) the amount of any outstanding balance owed for DRBC review. Such 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.

r. This approval of the construction related to Well A as described in paragraph A.4.a of this docket shall expire three years from date below unless prior thereto the docket holder has commenced operation of the subject project or has provided the Executive Director with written notification that is has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval.

s. 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.

t. 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 right 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.

u. 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 wells or surface water supplies, or if the docket holder receives a complaint by any user of wells or surface water supplies within the zone of influence of the withdrawal, the docket holder shall immediately notify the Executive Director of any complaints by users of wells or surface water supplies within the zone of influence of the withdrawal, and unless excused by the Executive Director, shall investigate such complaints. Any well or surface water supply which is substantially adversely affected, or rendered dry or otherwise unusable as a result of the docket holder's project withdrawal, shall be repaired, replaced or otherwise mitigated at the expense of the docket holder in accordance with Section 10B of the *GWPAR*. 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. The Executive Director may modify or suspend this docket approval, or require mitigating measures, pending additional review.

v. 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.

w. Prior to allowing connections from any new service areas or any new developments, the docket holder shall either submit and have approved by the Executive Director of the DRBC a Non-Point Source Pollution Control Plan (NPSPCP) in accordance with Section 3.10.3.A.2.e, or receive written confirmation from the Executive Director of the DRBC that the new service area is in compliance with a DRBC approved NPSPCP.

x. 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.

y. 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: March 11, 2015

EXPIRATION DATE: March 11, 2025