

DOCKET NO. D-2003-013 CP-7

DELAWARE RIVER BASIN COMMISSION

Ground Water Protected Area

**Buckingham Township
Groundwater Withdrawal
Buckingham Township, Bucks County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an Application submitted by Castle Valley Consultants on behalf of Buckingham Township to the Delaware River Basin Commission (DRBC or Commission) on June 9, 2014 (Application), for a renewal and approval of an allocation of groundwater and review of a groundwater withdrawal project in the Ground Water Protected Area of Southeastern Pennsylvania. The prior docket was approved by the Commission on March 6, 2013. 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) as follows:

WELL NO.	PADEP PERMIT NO.	PADEP APPROVAL DATE
BV-1 and BV-2, CS-1 to CS-3, F-1 to F-4, FS-1 and FS-2	0988511	9/8/1989
F-4 and F-5	0904503	8/9/2004
F-6 and F-7	0905505	7/20/2005
FG-1 and FG-2	0906505	12/5/2006
CS-5	0905508	12/21/2005
F-8	0908510	1/30/2009
F-9	0908507	4/10/2009
CS-4	0912534	7/15/2013

The application was reviewed for continuation of the project in the Comprehensive Plan and approval under Section 3.8 and for a withdrawal permit under Section 10.3 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 September 9, 2014.

A. DESCRIPTION

1. Purpose. The purpose of this project is to renew the approval to withdraw up to 43.4 million gallons per month (mgm) of groundwater for the docket holder’s public water supply distribution system from existing Wells Nos. BV-1, BV-2, CS-1 through CS-5, F-1 through F-9, FS-1, FS-2, L-1, L-2, FG-1 and FG-2. Buckingham Township is not requesting an increase in groundwater withdrawal allocation.

2. Location. The project wells are located in the Pine Run, Neshaminy Creek, Mill Creek, Lahaska Creek, Watson Creek and Robin Run Watersheds in Buckingham Township, Bucks County, Pennsylvania. The Buckingham Township wells are located in the Stockton, Brunswick and Lockatong Formations, except for Well No. F-8 which is located in the Limeport Formation (limestone) and Well No. F-9 located in the Leithsville Formation (dolomite) as shown in the table below in Section A.4.b.

The creeks near the project site are designated by the PADEP as supporting the following:

CREEK	PADEP DESIGNATION
Pine Run	Warm Water Fishes, Migratory Fishes (WWF, MF)
Neshaminy Creek	Warm Water Fishes, Migratory Fishes (WWF, MF)
Mill Creek	Warm Water Fishes, Migratory Fishes (WWF, MF)
Lahaska Creek	Cold Water Fishes, Migratory Fishes (CWF, MF)
Watson Creek	Cold Water Fishes, Migratory Fishes (CWF, MF)
Robin Run	Warm Water Fishes, Migratory Fishes (WWF, MF)

Specific location information has been withheld for security reasons.

3. Area Served. The docket holder’s water distribution system serves portions of Buckingham Township as shown on a map entitled “Water Supply Production & Monitoring Well Locations” and “Furlong Water System”, submitted with the Application.

4. Physical features.

a. Design criteria. Buckingham Township’s water distribution system consists of six separate systems located throughout the township: the Buckingham Village, Cold Spring, Furlong, Fieldstone, Lahaska and Mill Creek (formerly known as Forest Grove) systems (their wells are labeled BV, CS, F, FS, L and FG respectively). The wells that comprise those systems are owned by the docket holder except wells in the Lahaska system (Well Nos. L-1 and L-2), the Mill Creek System (Well Nos. FG-1 and FG-2) and wells in the Furlong system (Well Nos. F-1 through F-7). The wells in the Lahaska system are owned by the Peddlers Village Partnership. The Mill Creek wells are owned by Toll Brothers. The Furlong wells are partly owned by Orleans Homebuilders, Inc. and partly by Toll Brothers. However, the docket holder has written agreements to operate the Furlong and Mill Creek wells. These are contractual agreements that grant the docket holder, at their discretion, the option for future ownership of Well Nos. F-1

through F-7 and FG-1 and FG-2 which may occur later this year. The Lahaska wells are operated currently by Peddler’s Village, Buckingham Township has a contractual agreement with Peddler’s Village to acquire Wells Nos. L-1 and L-2.

Buckingham Township currently serves an estimated population of 8,435 through 3,184 domestic service connections and an additional 39 commercial connections and 9 irrigation connections with an average and maximum water demand of 0.637 million gallons per day (mgd) and 1.348 mgd, respectively. The docket holder projects an average and maximum water demand of 0.864 mgd and 1.756 mgd, respectively, with an increase in population to 8,490 on 3,204 domestic connections 45 commercial connections and 9 irrigation connections by the year 2024.

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

WELL NO.	DEPTH	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY	FORMATION	YEAR DRILLED
BV-1	240’	141’/8”	52 gpm	Stockton	1988
BV-2	240’	142’/8”	52 gpm	Stockton	1988
CS-1	405’	75’/8”	120 gpm	Stockton	1986
CS-2	555’	83’/8”	400 gpm	Stockton	1989
CS-3	400’	116’/8”	210 gpm	Stockton	1981
CS-4	400’	98’/12”	200 gpm	Stockton	2001
CS-5	480’	21’/15” and 52’/10”	75 gpm	Stockton	2004
F-1	365’	60’/10”	175 gpm	Brunswick	1996
F-2	497’	42’/8”	83 gpm	Brunswick/Lockatong	1996
F-3	400’	82’/10”	75 gpm	Lockatong	1999
F-4	450’	40’/10”	104 gpm	Brunswick	2001
F-5	505’	60’/8”	50 gpm	Brunswick	2001
F-6	625’	50’/6”	30 gpm	Lockatong	2002
F-7	500’	50’/10”	50 gpm	Lockatong	2002
F-8	86’	40’/6”	200 gpm	Limeport	1988
F-9	120’	28’/6”	100 gpm	Leithsville	1988
FS-1	335’	30’/8”	85 gpm	Stockton	1981
FS-2	250’	30’/8”	85 gpm	Stockton	1981
L-1	250’	70’/8”	75 gpm	Stockton	1966
L-2	567’	140’/8”	55 gpm	Stockton	1996
FG-1	603’	103’/8”	70 gpm	Brunswick	2002
FG-2	603’	106’/8”	45 gpm	Brunswick	2005

All wells and all water service connections are metered.

Well water is treated by chlorination prior to entering the distribution system. Water from existing Wells Nos. F-1, F-2, and F-3 are treated for manganese and iron. Water from Wells Nos. L-1 and L-3 are treated with soda ash and BV-1, BV-2, FS-1 and FS-2 are treated with caustic soda all for pH adjustment. Wells Nos. FG-1 and FG-2 are treated for arsenic.

Wells Nos. F-8 and F-9 also have UV disinfection and a pre-filtration unit with a 5 micron filter cartridge followed by a second filtration unit with three to five filters in parallel utilizing 1 micron absolute filter cartridges.

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

The Cold Spring water system currently has an emergency interconnection with the Fieldstone system.

System storage facilities have the following capacities:

LOCATION	CAPACITY (MG)
Cold Spring	0.815
Furlong	1.015
Buckingham Village	0.313
Lahaska	0.300
Mill Creek	0.183
TOTAL:	2.626

c. **Other.** Wastewater from the Buckingham Village and Lahaska service areas is conveyed to the Buckingham Village sewage treatment facility which operates in series with the Furlong sewage treatment facility, discharging to the Furlong spray field approximately six months per year. This facility received approval most recently under Section 3.8 of the *Compact* by DRBC Docket No. D-98-49 CP on August 8, 1999. The PADEP issued its most recent NPDES Permit No. PA0052353 on December 16, 2010 for this treatment facility. Wastewater from the Furlong service area is conveyed to the Furlong sewage treatment facility which received approval most recently under Section 3.8 of the *Compact* by DRBC Docket No. D-2004-015 CP-2 on May, 11, 2011. The PADEP issued its most recent WQ Part II Permit No. 0903418 on November 8, 2004 for this treatment facility. The treatment facility has adequate capacity to receive wastewater from the project.

Wastewater from the Cold Spring and Fieldstone service areas is discharged to three separate systems: the Fieldstone, Cold Spring, and Chalfont-New Britain sewage treatment facilities, which received approval most recently under Section 3.8 of the *Compact* by DRBC Dockets Nos. D-1995-043 CP on October 25, 1995, D-1993-082 CP on August 10, 1994, and D-1999-063 CP-2 on July 11, 2012, respectively. The PADEP issued its most recent WQM Permits Nos. 0995418 and 0996405 and NPDES Permit No. PA0025917 for the treatment facilities on June 15, 2011, June 27, 1994 and February 1, 2012, respectively. All three treatment facilities have adequate capacity to receive waste water from the proposed projects.

Wastewater from the Mill Creek service area will be discharged to the proposed Mill Creek sewage treatment facility to be constructed within the residential development with a design capacity of 23,000 gallons per day. The capacity of this proposed treatment plant is below the Commission's review threshold. The PADEP issued its most recent WQM Permit No. 0906404 in August 2012. The treatment facility has adequate capacity to receive wastewater from the project.

e. **Relationship to the Comprehensive Plan.** The docket holder's wells were previously included in the Comprehensive Plan by Docket Nos. D-1991-087 CP, D-1992-002 CP, D-1997-049 CP, D-2000-038 CP, D-2003-013 CP-1, D-2003-013 CP-2, D-2003-013 CP-3, D-2003-013 CP-4, D-2003-013 CP-5 and D-2003-013 CP-6. Issuance of this docket will continue the public water supply distribution system in the Comprehensive Plan.

B. FINDINGS

The project is located within the Southeastern Pennsylvania Ground Water Protected Area delineated by the DRBC pursuant to *Compact* Section 10.2. Tests conducted by the docket holder indicate the operation of this project will not create a local water shortage. The project is designed to conform to the requirements of the *Water Code*, *Water Quality Regulations* and *Ground Water Protected Area Regulations (GWPAR)* of the DRBC.

Review and analysis of the application pursuant to Section 6.D. of the *GWPAR* result in the following:

1. The withdrawal is consistent with the Commission's Comprehensive Plan and the policies and purposes of these regulations.
2. Opportunities to satisfy water requirements on a timely basis from existing available supplies and facilities have been explored and found infeasible.
3. The withdrawal, in conjunction with other withdrawals in the applicable ground water basin, should not exceed withdrawal limits of the ground water basin, aquifer or aquifer system.
4. The withdrawal should not significantly impair or reduce the flow of perennial streams in the area.
5. Existing ground and surface water withdrawals should not be adversely impacted, or will be otherwise assured of adequate supplies in accordance with the requirements of Section 10 of the *GWPAR*.
6. The withdrawal should not cause substantial, permanent adverse impact to the overlying environment.

7. The docket holder adopted and will implement conservation and management programs as required by Section 7 of the *GWPAR*.

Pond Interference

Wells Nos. F-4 and F-5 were temporarily restricted to 2.678 mgm in Docket No. D-2003-013 CP-5 until a mitigation plan was approved by the Executive Director and the property owner at 3929 Upper Mountain Road, Buckingham, PA. The mitigation plan was required in response to a pond interference complaint located at 3929 Upper Mountain Road. With the approval of the mitigation plan, the temporary allocation restrictions on Wells Nos. F-4 and F-5 were removed. The Township is required to continue operating the mitigation plan that was approved by DRBC after consultation with the owner of the pond in 2010. Under the approved mitigation plan, during the months of June through November 1, the Township pumps water from a well located on a remote property into an unnamed creek that feeds the subject pond. Buckingham Township has been submitting pumping data to indicate they are pumping in accordance with the mitigation plan (See Condition II.f. in the Decision Section).

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. 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. Buckingham Township submitted its most recent Water Audit on March 20, 2014.

Buckingham Township's service area and its proposed and existing wells are located in three of the GWPA subbasins defined in the *GWPAR*. Wells Nos. BV-1, BV-2, F-1 through F-5, F-8, F-9, FG-1, FG-2, L-1 and L-2 are located in the Mill Creek subbasin, where total net annual groundwater withdrawal (333.71 mgy) is below the withdrawal limit set in Section 6.I of the *GWPAR* (1,565 mgy). The proposed withdrawal from the existing wells, in conjunction with other withdrawals in the subbasin, is in accordance with the requirements of Section 6.I of the *GWPAR*.

Existing Wells Nos. CS-1, CS-2, CS-3, CS-4 and CS-5 are located in the Pine Run subbasin, where total net annual ground water withdrawal (481.59 mgy) is below the withdrawal limit set in Section 6.I of the *GWPAR* (791 mgy). The proposed withdrawal from the existing wells and proposed well, in conjunction with other withdrawals in the subbasin, is in accordance with the requirements of Section 6.I of the *GWPAR*.

Existing Wells Nos. F-6, F-7, FS-1 and FS-2 are located in the Warwick Neshaminy Creek subbasin, where total net annual groundwater withdrawal (214.07 mgy) is below the withdrawal limit set in Section 6.I of the *GWPAR* (1,181 mgy). The proposed withdrawal from these existing wells, in conjunction with other withdrawals in the subbasin, is in accordance with the requirements of Section 6.I of the *GWPAR*.

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

The DRBC 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*.

C. DECISION

I. Effective on the approval date for Docket No. D-2003-013 CP-7 below:

a. The project described in Docket No. D-2003-013 CP-6 is removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-2003-013 CP-7; and

b. Docket No. D-2003-013 CP-6 is terminated and replaced by Docket No. D-2003-013 CP-7; and

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 as described in the Section A “Physical features” is approved pursuant to Section 3.8 of the *Compact* and is granted this withdrawal permit pursuant to Section 10.3 of the *Compact* and *GWPAR*, 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 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 43.4 mgm or 520.8 mgy. No well shall be pumped above the maximum instantaneous rate and monthly allocation as indicated below:

WELL NO.	INSTANTANEOUS ALLOCATION (GPM)	MONTHLY ALLOCATION (MILLION GALLONS)
BV-1	65	1.653
BV-2	65	1.653
CS-1	190	5.353
CS-2	520	17.773
CS-3	210	6.200
CS-4	250	8.928
CS-5	75	3.348
FS-1	120	0.930
FS-2	120	0.930
L-1	95	3.307
L-2	70	2.455
FG-1	90	1.033
FG-2	70	1.033
F-1	242	4.857
F-2	83	1.199
F-3	75	1.643
F-4	104	3.565
F-5	50	1.788
F-6	30	0.670
F-7	50	2.232
F-8	200	8.928
F-9	100	2.544

In addition, the total withdrawal from Wells Nos. CS-1 through CS-5 shall not exceed 19.22 mgm. The total withdrawal from Wells Nos. L-1 and L-2 shall not exceed 3.307 mgm. The total withdrawal from Wells Nos. FG-1 and FG-2 shall not exceed 1.033 mgm.

e. The wells shall be equipped with readily accessible capped ports and 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 drop pipes as repairs or modifications are made at each existing well.

f. The docket holder shall continue to follow the mitigation plan required from the Settlement Agreement dated June 22, 2009. The mitigation plan is explained in correspondence from the Commission dated September 24, 2010. The mitigation plan requires the docket holder to pump groundwater from a well located on a remote property at a rate of 8 to 10 gallons per minute for 12 hours at night per day, into an unnamed creek that feeds the subject pond during the months of June through November 1.

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 Bureau of Watershed Management, 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. 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).

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

l. 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.

m. 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.

n. 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 by the docket holder

entitled “Township of Buckingham/ Water Supply – Well Monitoring Program” dated March 21, 2005, and revised August 17, 2005. In addition, the docket holder shall continue to monitor wells that have been impacted from the continued use of the docket holder’s production wells. The docket holder will also monitor the Hearthstone pond well and the domestic well located at 4747 Cold Spring Creamery Road, as recommended in the Hydrogeologic Report of Well No. CS-4 and the Zimmerman well which was monitored during the long-term pumping test of Well F-8. This program will include the following:

1. **Ground Water Level Monitoring** – Thirty-seven (38) 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 Buckingham Township production wells.
2. **Reports** - All monitoring data, including records required in Conditions “g.” and “n.” 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.
 - o. 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.
 - p. 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.
 - q. 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.

r. 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* and the *GWPAR*.

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 docket holder shall notify the Commission in writing of any changes in ownership status of the contractually operated wells in the Lahaska, Forest Grove or Furlong operating systems.

u. 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.

v. 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.

w. 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.

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: September 10, 2014

EXPIRATION DATE: September 10, 2024