DOCKET NO. D-1974-189-2

DELAWARE RIVER BASIN COMMISSION

Special Protection Waters
Lower Delaware

Lafarge North America, Whitehall Plant
Groundwater and Surface Water Withdrawal
Whitehall Township, Lehigh County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an Application submitted by Lafarge North America (LNA) to the Delaware River Basin Commission (DRBC or Commission) on March 3, 2010, for an allocation of groundwater and surface water and review of a groundwater and surface water withdrawal project (Application). The project mining operation was approved by the Pennsylvania Department of Environmental Protection (PADEP) on June 13, 1977 and reissued on February 2, 1996 and February 23, 1999 (Permit No. 7875SM2C).

The Application was reviewed for inclusion in the Comprehensive Plan and for approval under Section 3.8 of the *Delaware River Basin Compact*. The Lehigh Valley Planning Commission has been notified of pending action on this docket. A public hearing on this project was held by the DRBC on May 10, 2012.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve an existing groundwater withdrawal and surface water withdrawal project to supply up to 70.68 million gallons per month (mgm) of water to the docket holder's cement manufacturing plant from existing Wells Nos. 1 and 2, and an existing surface water intake on the Lehigh River (Intake No.1).

2. Location. The project is located in the Coplay Creek and Lehigh River Watersheds in Whitehall Township, Lehigh County, Pennsylvania within the drainage area of the section of the non-tidal Delaware River known as the Lower Delaware, which is designated as Special Protection Waters. The LNA surface water intake on the Lehigh River is located at River Mile (R.M.) 183.6 - 23.7 (Delaware River – Lehigh River). The project wells and quarry are completed in the Jacksonburg Formation.

Specific well location information has been withheld for security reasons.

3. Area Served. The project withdrawals only serve the LNA Whitehall cement plant. 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 LNA Whitehall Plant manufactures cement and is operated 24 hours a day, 7 days a week. Withdrawn water is used primarily for non-contact cooling. Some of this water is used for processing cement. Non-contact cooling water is mainly withdrawn from the nearby Lehigh River and is augmented with groundwater from one of two deep groundwater wells located near the Cementon Quarry. LNA draws surface water from an intake on the Lehigh River adjacent to the Plant, just upstream of the Northampton Dam (owned by the docket holder) and approximately 0.12 miles downstream of the Route 329 Bridge. LNA pumps groundwater from their operating quarry for dewatering operations and to assist in meeting effluent temperature requirements at the discharge outfall. Cement plant processing equipment includes two rotary kilns, 2 finishing mills and 2 raw mills.

The plant records an existing average and maximum water demand of 1.23 million gallons per day (mgd) and 1.42 mgd, respectively. Based on maximum plant processing capacity, LNA projects the maximum water demand could increase to 2.77 mgd. Based on available historic water use data, the combined system allocation of 70.68 mgm should be sufficient to meet the future demands of the LNA Whitehall plant.

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

WELL/ INTAKE NO.	WELL DEPTH	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY	YEAR DRILLED
Well No.1	500’	140’ / 10”	648 gpm	1974
Well No. 2	600’	314’ / 8”	160 gpm	2004
Lehigh River Intake No.1	n/a	n/a	1,200 gpm	n/a
Cementon Quarry Intake No. 2	n/a	n/a	500 gpm	n/a

All wells and intakes are metered.

The withdrawn water from the Lehigh River source (Intake No. 1) is pressure filtered through a gravel bed at the plant site to remove debris prior to entering the

processing plant. Filter back-flush water is directed to a sedimentation basin at the plant site. Supernatant fluids from the pond are pumped to discharge Outfalls Nos. 001 and 002.

The water system is not interconnected with any other water supply system.

c. **Other.** Non-contact cooling water and quarry dewatering water is conveyed to discharge Outfalls Nos. 001 and 002 most recently approved by DRBC Docket No. D-1975-115-2 on September 12, 2011. The PADEP issued its most recent NPDES Permit No. PA0012505 on July 24, 2003 for this treatment facility. This permit expired on July 23, 2008. PADEP is currently reviewing the LNA NPDES renewal application submitted on January 23, 2008. The treatment facility has adequate capacity to receive non-contact cooling water and quarry dewatering water from the existing project.

d. **Cost.** This is an existing water withdrawal. There are no costs associated with this project.

B. FINDINGS

Background

The LNA quarry and cement operation in Whitehall has been in existence for decades and LNA has regularly submitted quarterly surface water usage reports and fees to the DRBC. The project withdrawals were previously recognized by Docket No. D-1975-115, approved on August 27, 1975. The docket was issued specifically for the non-contact cooling water discharge and contained no specific water withdrawal allocation. The water withdrawals and discharges will be covered in two separate distinct Commission approvals. This docket provides for the water withdrawal allocation from the Lehigh River Intake No. 1 and Well Nos. 1 and 2. Docket No. D-1975-115-2 will provide for the wastewater discharge through Outfalls 001 and 002.

The project withdrawals are used primarily for non-contact cooling as part of their cement manufacturing process. The industrial process consumes an annual average of 1.1 to 3.5 percent of the withdrawn water from Intake No. 1 and Wells Nos. 1 and 2. Consumptive use occurs at water spray systems located in two kilns and two finish mills. The water spray systems are used to control exhaust gas temperatures when necessary to comply with air emission limits and to condition clinker, gypsum, and other additives during the cement milling process. The total water consumed in these processes is metered. Non-contact cooling water is discharged back to the Lehigh River through 2 outfalls (designated 001 & 002) located on the Lehigh River. LNA is authorized to discharge by the PADEP under NPDES Permit PA-0012505 and a 316(a) Thermal Variance to discharge non-contact cooling water and filtered stormwater through Outfalls 001 and 002 to the adjacent Lehigh River. LNA is also authorized by the DRBC to discharge through Outfalls Nos. 001 and 002 under DRBC Docket No. D-1975-115-2. Quarry dewatering water is conveyed to discharge Outfalls Nos. 001 and 002. Water pumped from the

quarry serves to dewater the quarry and to assist in meeting temperature requirements at the two outfalls.

The Cementon quarry on the LNA plant site is an active quarry. The quarry covers 72.5 acres. LNA currently mines approximately 500 tons of rock per year from this quarry. The quarry is mostly filled with water and has a small dewatering pump located at the north side of the quarry pit. This pump runs continuously from approximately April to October every year, pumping from 0 to 15.4 mgm out of the Cementon quarry depending on dewatering and temperature regulation need. The water is pumped from the quarry to a small pit located near a wetland area. From there, a portion (approximately 30%) is directed into a wetland area. The diversion to the wetland is meant to augment the natural flow to the wetland that has been reduced by quarry dewatering in the area around the site. LNA is responsible for submitting a semi-annual wetland report to the PADEP regarding these actions. The remaining quarry water is discharged to a settling pond and then pumped to the two discharge outfalls. The quarry withdrawal is continuously metered and weekly flow meter readings are collected to determine the weekly volume of water pumped from the quarry to the settling ponds. The quarry dewatering withdrawal is regulated by the PADEP in accordance with the Non-Coal Surface Mining Permit No. 7875SM2C issued for the Lafarge facility and is not subject to review or approval from the DRBC in accordance with the August 19, 1976 Administrative Agreement between the DRBC and the PADEP.

The primary source of cooling water for the cement plant is withdrawn from the Lehigh River. The water intake for the plant is located upstream from the Northampton dam in the Lehigh River which is located at river mile 23.7, about 0.12 miles downstream of the Route 329 bridge adjacent to the Plant. Water from Intake No.1 is diverted to a pump house, which pumps the river water to a reservoir located in the Power House on the Plant site. The temperature of the water is recorded at the water reservoir and is representative of the Lehigh River water temperature for reporting purposes. From the inlet reservoir, water is distributed to various locations within the cement plant for use as non-contact cooling water. The typical flow rate for water pumped from Intake No.1 is between 6.6 and 40.9 mgm.

Water from Wells Nos. 1 and 2 supplements and in the future may replace water pumped from the Lehigh River. The amount of water withdrawn from Well No. 1 ranges from 2.0 mgm to 27.3 mgm. The amount of water withdrawn from Well No. 2 ranges from 0.0 mgm to 6.0 mgm. Withdrawals from both wells are monitored by flow meters.

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/surface water intakes providing water supply to the docket holder are located within in the drainage area to the Special Protection Waters. Since this existing project does not entail additional construction and expansion of facilities and no new or increased non-point source loads, the non-point source pollution control plan requirement is not applicable at this time. Accordingly, Condition C.v. has been included in the Decision section of this docket.

Pass-by Flow

The maximum day consumptive use recorded at the Lafarge facility for the period from January 2009 to December 2010 was 9.4 percent. The average consumptive use over the period of record was 2.3 percent of the total water withdrawn. Yearly consumptive use at the Lafarge facility has averaged from 1.1 to 3.5 percent of the total water withdrawn since consumptive use has been metered at the facility. Considering the withdrawal allocation of 70.68 mgm (2.28 mgd), the average consumptive use for an equivalent withdrawal would be 0.0798 mgd, or 0.123 cfs. This is approximately 0.06 percent of the $Q_{7\text{-}10}$ flow in the Lehigh River at the point of withdrawal. Furthermore, the surface water withdrawal is augmented with withdrawals of groundwater from Wells 1 and 2 and the Cementon Quarry. Withdrawn surface water and groundwater (less the consumptive use) is discharged to outfalls located 150 feet (Outfall 001) and 500 feet (Outfall 002) downstream of the Intake No.1. Daily metering data suggests that the return flow of withdrawn groundwater and surface water back to the Lehigh River is in all but a few instances greater than the amount of water withdrawn from the Lehigh River. On average, the amount of water discharged back to the Lehigh River is equivalent to 166 percent of the quantity withdrawn from surface water. Additionally, Lafarge's reliance on groundwater withdrawals increases as flows in the Lehigh River decrease.

Considering this withdrawal/discharge relationship, a restriction on surface water withdrawal during low flows in the Lehigh River has not been included in the docket. However, during periods when flow in the Lehigh River as measured at the USGS gage No. 01451000 (Lehigh River at Walnutport, PA) is less than or equal to 202 cfs, the docket holder shall assure that the combined discharge to the Lehigh River from Outfalls 001 and 002 is equal to or exceeds the quantity of water withdrawn from the Lehigh River via Intake No. 1. During periods

of any declared "drought warning" or "drought emergency" condition applicable to the Lehigh River or the Delaware Basin, or when flow in the Lehigh River as measured at the Walnutport, PA USGS gage is less than 404 cfs, the docket holder shall report to the DRBC on a monthly basis, the following data:

1) The quantity of water withdrawn each day from the Lehigh River, Wells Nos. 1 and 2 and the quarry.

2) The total daily quantity of water consumptively used at the kilns and finishing mills.

3) The total daily calculated amount of return flow discharged to the Lehigh River

This requirement is included as Condition C.g. in the Decision section of this docket.

Northampton Dam

At the Lehigh River surface water withdrawal location, the docket holder's Northampton Dam has been identified as an inhibitor to fish passage upstream of the dam, particularly for American shad, due to the lack of any kind of fish passage device. The Northampton Dam is located at R.M. 183.6 - 23.7. There are three dams located downstream of the Northampton Dam on the Lehigh River: Easton Dam (R.M. 183.6 - 0.1), Chain Dam (R.M. 183.6 - 3.2) and the Hamilton St. Dam (R.M. 183.6 – 17.0). These three lower dams currently have conventional design slotted fish ladders in place that were targeted to facilitate the passage of anadromous fish (primarily American Shad). The Hamilton Street fishway was constructed in 1983, and the fishways at the Easton and Chain dams were built in 1993.

The Delaware Basin Fish and Wildlife Management Cooperative (DBFWMC) published "A Review and Recommendations Relating to Fishways within the Delaware Basin" in August 1985 (The Review). The DBFWMC consists of representatives from all of the Basin states and the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The Review recommended the following three streams receive priority consideration for fishway development: the Brandywine Creek, Schuylkill River and Lehigh River. The Northampton Dam is listed as the fourth of 6 dams on the Lehigh River which are located within historic anadromous fish spawning areas (American Shad). By addressing fish passage at the Northampton Dam, approximately 54 miles of additional Lehigh River habitat will be accessible for anadromous fish. However, monitoring data conducted by the Pennsylvania Fish & Boat Commission (PFBC) suggests that few American Shad reach the Northampton Dam. Monitoring of fish passage at the lower dams indicate that the conventional fish ladders at Easton Dam and Chain Dam are not effective in providing for attracting and passage of American Shad, and efforts to improve passage efficiency for shad have proven unsuccessful. A recent Request for Proposal (RFP) from Wildlands Conservancy and PFBC characterizes the existing Chain and Easton Dams as insufficient to support restoration of American Shad in the Lehigh River. The RFP also reported that all engineering and operational options for improving fishways at those two dams have been exhausted and suggests that other alternatives should be evaluated. In recent years, fish passage monitoring has not been conducted at the Hamilton Street Dam, and its

effectiveness in passing American Shad has not be evaluated, although that dam has the same type of conventional slotted fish ladder as located at Easton and Chain Dams.

During recent discussions with Lafarge, PFBC, and Wildlands Conservancy, the PFBC indicated that while the fishways at the Easton and Chain Dams have not resulted in the restoration of American Shad in the Lehigh River upstream of the dams, fishways generally improve the habitat for resident species of fish by allowing passage upstream of the dam. The PFBC explained that total or partial dam removal can improve habitat for resident fish, promote recreational paddling opportunities, improve water quality from a temperature perspective, and improve safety at low-head dams by removing the low-head hazard. PFBC indicated that addressing fish passage at the Northampton Dam whether by fish ladders, rock ramps, or partial or total dam removal can provide benefits beyond that of improving American Shad or other anadromous fish migration. Therefore the PFBC requested that a study of the feasibility of fish passage be conducted for the Northampton Dam regardless of the success or failure of the fishway structures installed at the lower Lehigh River dams. While options to enhance or restore fish passage should be conducted at the Northampton Dam, it is also recognized that the potential impacts on water supply to Lafarge, and Northampton Borough Municipal Authority (NBMA) also need to be evaluated.

PFBC indicated that dam removal would be the preferred solution to fish passage at the Northampton Dam and that state funding assistance may be available to cover most if not all of the direct costs associated with removal of the Northampton Dam. PFBC also indicated that PADEP provides a permit waiver for restoration projects involving complete dam removal. Such funding assistance, however, is not applicable to the costs associated with providing for replacement intakes or adjusting outfall structures associated with complement dam removal. Compared to just the cost of physical dam removal, other adjustments to dams, such as rock ramps, partial dam removal, and fish ladders would likely be more costly, require extensive studies, permitting, etc. Therefore, Commission staff recommend that a study related to the costs and impacts associated with removal of the Northampton Dam should be the first step in evaluating fish passage.

Within 60 months of the docket approval date (May 10, 2017), the docket holder will provide to the Commission, PADEP, PFBC and NBMA a proposed detailed plan of study to evaluate the potential technical and financial feasibility of removal of the Northampton Dam. The plan of study should identify the study components and sequence of tasks, including potential interim decision points, together with a schedule for performing such study components, and the estimated final completion date. The plan of study will also include the effects of dam removal on the docket holder's intake and outfall structures and the potential need to modify those structures as necessary to accommodate dam removal and to continue operations. The plan of study should include the actions that will be undertaken to involve other stakeholders (such as NBMA), who may be impacted by the potential dam removal, and for identifying additional studies (including studies that may need to be undertaken by others) to evaluate impacts and costs associated with dam removal and any modification of upstream intakes and other structures necessary as a result of dam removal. The plan of study shall also identify the evaluation criteria (technical, cost, affordability, water supply relocation, etc.) that will be used to determine technical and economic feasibility. After the receipt of the written

approval of the Executive Director, the docket holder shall commence the study within 6 months of the Executive Director's approval and shall complete the study in accordance with the approved plan. The results of the study shall be detailed in a written report (Study Report) submitted to PADEP, PFBC, NBMA and the Executive Director. The scope of the plan of study and resulting Study Report will be subject to review, comment, and approval by the Executive Director. The Study Report shall also have incorporated into its findings the results of any study completed by the NBMA concerning the potential impacts of removal of Northampton Dam on NBMA's water supply intake. If the Executive Director determines that the removal of the Northampton Dam is feasible in accordance with the aforementioned evaluation criteria, environmentally sound, and consistent with the Delaware River Basin Comprehensive Plan:

(1) The Executive Director shall provide written notice of such determination to the docket holder and to other stakeholders identified in the studies as likely to be impacted by removal of the dam; and such Executive Director determination shall be subject to review in accordance with *Article 6 of the DRBC Administrative Manual, Rules of Practice and Procedure*;

(2) within 180 calendar days of the receipt of the Executive Director's determination (or if the Executive Director's determination is appealed, within 180 calendar days of such determination having been upheld), the docket holder shall prepare a scope of work and a schedule to design and implement the dam removal and necessary changes to the docket holder's intakes, water supply system, and discharge outfalls to accommodate such dam removal, and submit such scope of work and schedule to the PADEP, PFBC, NBMA and the Executive Director. Such scope of work and schedule should detail the sequence of actions and governmental approvals required for such actions in order to implement and accommodate the dam removal and any associated necessary facility improvements or operational changes to assure adequate and reliable water supplies. Upon the receipt of all required government approvals by the docket holder for such necessary actions, the docket holder will proceed to implement the sequence of actions related to dam removal and any associated necessary facility improvements or operational changes related to the docket holder's facilities to assure adequate and reliable water supplies and wastewater discharge assimilation in accordance with the schedule set forth in the plan.

If the Executive Directors determines that the removal of the Northampton Dam does not meet the aforementioned evaluation criteria:

(1) the Executive Director will provide written notice of such determination to the docket holder and to other stakeholders. and such Executive Director determination shall be subject to review in accordance with *Article 6 of the DRBC Administrative Manual, Rules of Practice and Procedure;*

(2) the docket holder will submit within 180 days of the Executive Director's determination a scope of work and schedule to conduct further studies to evaluate other alternatives for fish passage at the dam These studies, which may be conducted in steps, shall include:

(a) An analysis of the technical feasibility, financial feasibility, affordability, cost-effectiveness, and environmental and other impacts of installing a rock ramp structure along essentially the entire length of the Northampton Dam to accommodate fish passage; and

(b) If a full-length rock ramp structure is not technically feasible, financially feasible, affordable, or cost-effective, or involves unacceptable environmental or other impacts, an analysis of the technical feasibility, financial feasibility, affordability, cost-effectiveness, environmental and other impacts of other fish passage alternatives at Northampton Dam, which may include (i) a partial rock ramp, partial dam removal, or (ii) a conventional fish ladder. Such evaluations may include an evaluation of the presence and distribution of fish species in the area approaching and in the immediate vicinity downstream of the Northampton Dam.

If the Executive Director determines that installation of fish passage facilities at the Northampton Dam is feasible according to the aforementioned evaluation criteria, the docket holder will prepare a scope of work and a schedule to design and implement such passage facilities, and submit such scope of work and schedule to the PADEP, PFBC, and the Executive Director within 180 days of the executive directors determination. Such scope of work and schedule should detail the sequence of actions and governmental approvals required for fish passage facility implementation. Upon the receipt of all required government approvals by the docket holder, the docket holder will proceed to implement such fish passage facilities in accordance with the schedule set forth in the plan.

The details of these proposed studies and any final study reports will be submitted to PADEP, PFBC, and the Executive Director of the DRBC. The scope of the proposed studies and resulting reports will be subject to review, comment, and approval by the Executive Director. These requirements are included in Condition C.x & y. in the Decision Section of this docket.

Drought Management and Contingency Plans (DMCPs)

Section 2.3.5.1 C. of the Commission's *Rules of Practice and Procedure* (*RPP*), requires industrial and commercial water withdrawals in excess of one million gallons per day to develop a contingency plan including emergency conservation measures to be instituted in the event of a Commission declared drought or other water shortage. Resolution No. 83-14 amended the Commission's *Water Code* (Section 2.1.4) to include the conservation goal of a 15 percent reduction in depletive use during drought conditions. Hereafter referred to as drought management and contingency plans (DMCPs), DMCPs must contain the following: source of water supply; the average daily and monthly peak water withdrawal; average daily and peak monthly consumptive use (difference between quantity withdrawn and quantity returned to the ground or surface waters of the basin); description of recycling and conservation measures; point of discharge (where water is returned or discharged); types of products produced; normal employment levels (numbers); and estimated employment (numbers) and economic impact for curtailment of water usage for the following levels of curtailment: 10%; 25%; 35%; 50% and 100%. The DMCP shall be submitted to the Commission within 6 months (November 10, 2012) of the docket approval date. The Executive Director shall review the DMCP and either require

modifications or provide approval in writing if the DMCP is found to be in accordance with the Commission requirements. The docket holder shall implement the DMCP upon direction by the Executive Director. (see Condition C.l.).

Other Findings

In its Application, LNA requested a system allocation of 84.16 mgm (2.77 mgd) based on the cement plant operating at maximum capacity and producing 965,000 tons of cement per year. The metered water use data from 2005 to 2009 shows that maximum annual water usage at the plant including quarry withdrawals averaged 43.2 mgm over the most productive period of record (2005). However, water use data from 1994 through 2004 indicates that LNA withdrew a maximum average of 70.68 mgm (1999) over the period of record. The Commission generally bases water allocations on ten-year projected maximum use estimates that are projected from actual water use data. The Commission also does not grant water allocations based solely on design capacity as this does not sufficiently demonstrate actual water need or justify the apportionment. As the LNA historic water use data supports a potential water demand 70.68 mgm, the allocation of 70.68 mgm granted herein should be sufficient to meet the future demands of the LNA Whitehall plant. Individual source allocations are included in Condition C.II.d.

LNA estimates that the project withdrawals, used for the purpose of non-contact cooling water and cement processing result in a consumptive use of 1.1 to 3.5 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 has been in operation for several decades with no reported adverse effects to nearby wells or on the water resources of the basin.

The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

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.

C. DECISION

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 in its Noncoal Surface Mining permit, and such conditions,

requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. The docket holder shall register with and report to the PADEP all surface and ground water 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 withdrawal from all well and the Lehigh River surface water source shall not exceed a combined total of 70.68 million gallons. The withdrawal from the individual groundwater and surface water sources shall not exceed the following maximum instantaneous rates and monthly allocations.

WELL/ INTAKE NO.	MAXIMUM INSTANTANEOUS RATE	MAXIMUM MONTHLY ALLOCATION
Well No.1	648 gpm	30 mgm
Well No. 2	300 gpm	13 mgm
Intake No. 1	1,200 gpm	50 mgm

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 continue to pay for surface water use in accordance with the provisions of Resolution No. 74-6, as amended.

g. During periods when flow in the Lehigh River as measured at the USGS gage No. 01451000 (Lehigh River at Walnutport, PA) is less than or equal to 202 cfs, the docket holder shall assure that the combined discharge to the Lehigh River from Outfalls 001 and 002 is equal to or exceeds the quantity of water withdrawn from the Lehigh River via Intake No. 1. During periods of any declared "drought warning" or "drought emergency" condition applicable to the Lehigh River or the Delaware Basin, or when flow in the Lehigh River as measured at the Walnutport, PA USGS gage is less than 404 cfs, the docket holder shall report to the DRBC on a monthly basis, the following data:

1) The quantity of water withdrawn each day from the Lehigh River, Wells Nos. 1 and 2 and the quarry.

2) The total daily quantity of water consumptively used at the kilns and finishing mills.

3) The total daily calculated amount of return flow discharged to the Lehigh River.

h. 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 31st to the PADEP and shall be available at any time to the Commission if requested by the Executive Director.

i. In accordance with DRBC Resolution No. 87-6 (Revised), 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 unaccounted-for 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.

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. The docket holder shall continue 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.

l. The docket holder shall prepare and submit a DMCP to the Commission within 6 months (November 10, 2012) of docket approval. The Executive Director shall review the DMCP and either require modifications or provide approval in writing if the DMCP is found to be in accordance with the Commission requirements. The docket holder shall implement the DMCP upon direction by the Executive Director.

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

n. Sound practices of excavation, backfill and reseeding shall be followed to minimize erosion and deposition of sediment in streams from any new facilities or repair related construction.

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. A complete application for the renewal of this docket, or a notice of intent to cease the operations (withdrawal, discharge, etc.) approved by this docket by the expiration date, must be submitted to the DRBC at least 12 months prior to the expiration date below (unless permission has been granted by the DRBC for submission at a later date), using the appropriate DRBC application form. 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, the terms and conditions of this 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. 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.

w. 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.

x. Within 60 months of the docket approval date (May 10, 2017), the docket holder will provide to the Commission, PADEP, PFBC and NBMA a proposed detailed plan of study to evaluate the potential technical and financial feasibility of removal of the Northampton Dam. The plan of study should identify the study components and sequence of tasks, including potential interim decision points, together with a schedule for performing such study components, and the estimated final completion date. The plan of study will also include the effects of dam removal on the docket holder's intake and outfall structures and the potential need to modify those structures as necessary to accommodate dam removal and to continue operations. The plan of study should include the actions that will be undertaken to involve other stakeholders (such as NBMA), who may be impacted by the potential dam removal, and for identifying additional studies (including studies that may need to be undertaken by others) to evaluate impacts and costs associated with dam removal and any modification of upstream intakes and other structures necessary as a result of dam removal. The plan of study will also identify the evaluation criteria (technical, cost, affordability, water supply relocation, etc.) that will be used to determine technical and economic feasibility. After the receipt of the written approval of the Executive Director, the docket holder will commence the study within 6 months of the Executive Director's approval and will complete the study in accordance with the approved plan. The results of the study will be detailed in a written report (Study Report) submitted to PADEP, PFBC, NBMA and the Executive Director. The scope of the plan of study and resulting Study Report will be subject to review, comment, and approval by the Executive Director. The Study Report will also have incorporated into its findings the results of any study completed by the NBMA concerning the potential impacts of removal of Northampton Dam on NBMA's water supply intake. If the Executive Director determines that the removal of the Northampton Dam is feasible in accordance with the aforementioned evaluation criteria, environmentally sound, and consistent with the Delaware River Basin Comprehensive Plan:

(1) The Executive Director will provide written notice of such determination to the docket holder and to other stakeholders identified in the studies as likely to be impacted by removal of the dam; and such Executive Director determination shall be subject to review in accordance with *Article 6 of the DRBC Administrative Manual, Rules of Practice and Procedure:*

(2) Within 180 calendar days of the receipt of the Executive Director's determination (or if the Executive Director's determination is appealed, within 180 calendar days of such determination having been upheld), the docket holder will prepare a scope of work and a schedule to design and implement the dam removal and necessary changes to the docket holder's intakes, water supply system, and discharge outfalls to accommodate such dam removal, and submit such scope of work and schedule to the PADEP, PFBC, NBMA and the Executive Director. Such scope of work and schedule should detail the sequence of actions and governmental approvals required for such actions in order to implement and accommodate the dam removal and any associated necessary facility improvements or operational changes to assure adequate and reliable water supplies. Upon the receipt of all required government approvals by the docket holder for such necessary actions, the docket holder will proceed to implement the sequence of actions related to dam removal and any associated necessary facility improvements or operational changes related to the docket holder's facilities to assure adequate and reliable water supplies and wastewater discharge assimilation in accordance with the schedule set forth in the plan.

y. If the Executive Directors determines that the removal of the Northampton Dam does not meet the aforementioned evaluation criteria:

(1) The Executive Director will provide written notice of such determination to the docket holder and to other stakeholders. and such Executive Director determination shall be subject to review in accordance with *Article 6 of the DRBC Administrative Manual, Rules of Practice and Procedure :*

(2) The docket holder will submit within 180 days of the Executive Director's determination a scope of work and schedule to conduct further studies to evaluate other alternatives for fish passage at the dam. These studies, which may be conducted in steps, will include:

(a) An analysis of the technical feasibility, financial feasibility, affordability, cost-effectiveness, and environmental and other impacts of installing a rock ramp structure along essentially the entire length of the Northampton Dam to accommodate fish passage; and

(b) If a full-length rock ramp structure is not technically feasible, financially feasible, affordable, or cost-effective, or involves unacceptable environmental or other impacts, an analysis of the technical feasibility, financial feasibility, affordability, cost-effectiveness, environmental and other impacts of other fish passage alternatives at Northampton Dam, which may include (i) a partial rock ramp, partial dam removal, or (ii) a conventional fish ladder. Such evaluations may include an evaluation of the presence and distribution of fish species in the area approaching and in the immediate vicinity downstream of the Northampton Dam.

If the Executive Director determines that installation of fish passage facilities at the Northampton Dam is feasible according to the aforementioned evaluation criteria, the docket holder will prepare a scope of work and a schedule to design and implement such passage facilities, and submit such scope of work and schedule to the PADEP, PFBC, and the Executive Director within 180 days of the executive directors determination. Such scope of work and schedule should detail the sequence of actions and governmental approvals required for fish passage facility implementation. Upon the receipt of all required government approvals by the docket holder, the docket holder will proceed to implement such fish passage facilities in accordance with the schedule set forth in the plan. The details of these proposed studies and any final study reports shall be submitted to PADEP, PFBC, and the Executive Director of the DRBC. The scope of the proposed studies and resulting reports will be subject to review, comment, and approval by the Executive Director.

BY THE COMMISSION

APPROVAL DATE: May 10, 2012

EXPIRATION DATE: May 10, 2022