UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND REGION
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

PUBLIC NOTICE START/FINISH DATE:

PUBLIC NOTICE NUMBER:

NPDES PERMIT NO.: NH0001023

NAME AND ADDRESS OF APPLICANT:
PCC Structurals, Inc.
P.O. Box 188
Tilton, New Hampshire 03276-0188

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:
PCC Structurals, Inc.
24 Granite Street
Northfield, New Hampshire 03276-1632

RECEIVING WATER: Winnipesaukee River

CLASSIFICATION: Class B

SIC CODE: 3365

Table of Contents

I. Proposed Action, Type of Facility and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for the reissuance of its NPDES permit to discharge non-contact cooling water (NCCW) into the designated receiving water (Winnipesaukee River). The applicant owns and operates a facility which manufactures principally aluminum cast products through a lost wax process.

In July 2000 PCC Structurals (formerly Wyman-Gordon Investment Castings, Inc.) began to discharge all of the facility's treated process wastewater, with the exception of NCCW, to the Winnipesaukee River Basin Publicly Owned Treatment Works (POTW). Since then, the only effluent components discharged by PCC Structurals directly to the Winnipesaukee River which require regulation by a NPDES permit are NCCW and storm water. NCCW is water employed to reduce or control the temperature of a manufacturing process. This cooling water does not come in direct contact with any raw material, intermediate product, waste product (other than heat) or finished product. The discharge of NCCW to surface waters of the United States requires a NPDES permit.

PCC Structurals' existing permit became effective on July 23, 2001, and expired on July 21, 2006. The expired permit (hereafter referred to as the "existing permit") has been administratively extended as the applicant filed an application to reissue the permit within the prescribed time period as per Title 40 Code of Federal Regulations (CFR) §122.6.

The location of PCC Structurals, the facility's NCCW intake and outfall, and the receiving water are shown in Attachment A.

II. Description of Discharge.

A quantitative summary of monitoring results for those effluent parameters limited and monitored in the existing permit for the 69-month period January 2002 through September 2007 is presented in Attachment B. The data was compiled from quarterly Discharge Monitoring Report (DMR) data submitted by the facility to the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) and the EPA. PCC Structurals submitted quantitative data with their reapplication submissions (FORMs 1 and 2C) along with the DMR data; all of which are on file at the EPA Boston Office.

Since obtaining a permission to discharge all of its process waste waters except NCCW to the Winnipesaukee River Basin POTW and, as a result, eliminating the direct discharge of these process waste waters to the Winnipesaukee River, the permittee is seeking authorization to discharge NCCW from Outfall 001 rather than from Outfall 003. Outfall 003 was not included in the permit reapplication because PCC Structurals has reconfigured its facility's NCCW piping. This reconfiguration eliminated the discharge of NCCW from Outfall 003. The draft permit contains Outfall 001 effluent limits for NCCW flow, temperature, and pH as well as a requirement for a Whole Effluent Toxicity (WET) Test.

Since the piping reconfiguration, Outfall 003 discharges only storm water from roof drains, and this discharge is covered by a separate NPDES permit, the NPDES Storm Water Multi-Sector General Permit for Industrial Activities. PCC Structurals is involved with the manufacture of aluminum casting (Standard Industrial Classification code No. 3365 - Aluminum Foundries). Storm water discharged from facilities with this classification is classified as a Storm Water Discharge Associated with Industrial Activity within the meaning of 40 CFR §122.26(b)(14)(ii). The discharge of storm water from Outfall 003 is now being regulated by the NPDES Storm Water Multi-Sector General Permit for Industrial Activities. The permittee filed a Notice of Intent (NOI) for the Storm Water Multi-Sector General Permit, and EPA certified that filing on June 11, 2001 under tracking number NHR05A672. The permittee, by filing a NOI for coverage under the Storm Water Multi-Sector General Permit, accepts responsibility for preventing any source of pollution from coming in contact with storm water.

III. Limitations and Conditions.

Effluent limitations and monitoring requirements are found in PART I of the draft NPDES permit. The basis for each limit and

condition is discussed in sections IV.C. through IV.G. of this Fact Sheet.

IV. Permit Basis and Explanation of Effluent Limitations Derivation

A. General Statutory and Regulatory Background

Congress enacted the Clean Water Act (“CWA” or “Act”), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the Act, one of which is Section 402. See CWA §§ 301(a), 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System or NPDES. Under this section of the Act, EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants" in accordance with certain conditions. See CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. See CWA § 402(a)(1),(2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" limitations and "water quality-based" limitations. See CWA §§ 301, 303, 304(b); 40 C.F.R. Parts 122, 125 and 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. See CWA § 301(b).

Water quality-based effluent limits, on the other hand, are designed to ensure that state water quality standards are met regardless of the decision made with respect to technology and economics in establishing technology-based limitations. In particular, Section 301(b)(1)(C) requires achievement of, "any more stringent limitation, including those necessary to meet water quality standards...established pursuant to any State law or regulation..." See 40 C.F.R. §§ 122.4(d), 122.44(d)(1) (providing that a permit must contain effluent limits as necessary to protect state water quality standards, “including State narrative criteria for water quality”) (emphasis added) and 122.44(d)(5) (providing in part that a permit incorporate any more stringent limits required by Section 301(b)(1)(C) of the CWA).

The CWA requires that states develop water quality standards for all water bodies within the state. (See CWA § 303.) These standards have three parts: (1) one or more "designated uses" for each water body or water body segment in the state; (2) water quality "criteria," consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. (See CWA § 303(c)(2)(A); 40 C.F.R. § 131.12.) The limits and conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards.

The applicable New Hampshire water quality standards can be found in Surface Water Quality Regulations, Chapter Env-Wq 1700 et seq. See generally, Title L, Water Management and Protection, Chapter 485-A, Water Pollution and Waste Disposal Section.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from the state's water quality standards to develop permit limits, both the acute and chronic aquatic life criteria are used and expressed in terms of maximum allowable in stream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits.

Where a State has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use”; on a “case-by-case basis” using CWA Section 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an “indicator parameter.” 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

All statutory deadlines for meeting various technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued

permit becomes effective. See 40 C.F.R. § 125.3(a)(1). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, 125 and 136.

B. Development of Water Quality-Based Limits

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality standard, including narrative water quality criteria. (See 40 C.F.R. § 122.44(d)(1).) An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

Reasonable Potential

In determining reasonable potential, EPA considers: (1) existing controls on point and nonpoint sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit application, monthly DMRs and State and Federal water quality reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in *Technical Support Document for Water Quality-based Toxics Controls,* March 1991, EPA/505/2-90-001 in Section 3; and, where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire regulations (RSA 485-A:8,VI, Env-Wq 1705.02), available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water. Furthermore, 10 percent (%) of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01.

Anti-Backsliding

Section 402(o) of the CWA generally provides that the effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the previous permit. EPA has also promulgated anti-backsliding regulations, which are found at 40 C.F.R. § 122.44(l). Unless applicable anti-backsliding exceptions apply, the limits and

conditions in the reissued permit must be at least as stringent as those in the previous permit.

State Certification

Section 401(a)(1) of the CWA requires all NPDES permit applicants to obtain a certification from the appropriate state agency stating that the permit will comply with all applicable federal effluent limitations and state water quality standards. See CWA § 401(a)(1). The regulatory provisions pertaining to state certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further provide that, "when certification is required....no final permit shall be issued...unless the final permit incorporates the requirements specified in the certification under § 124.53(e)." 40 C.F.R. § 124.55(a)(2). Section 124.53(e) in turn provides that the State certification shall include "any conditions more stringent than those in the draft permit which the State finds necessary" to assure compliance with, among other things, state water quality standards, See 40 C.F.R. § 124.53(e)(2), and shall also include, "[a] statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law, including water quality standards," 40 C.F.R.§ 124.53(e)(3).

However, when EPA reasonably believes that a state water quality standard requires a more stringent permit limitation than that reflected in a state certification, it has an independent duty under CWA § 301(b)(1)(C) to include more stringent permit limitations. See 40 C.F.R. §§ 122.44(d)(1) and (5). It should be noted that under CWA § 401, EPA's duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by state law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 C.F.R. § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." Id. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4(d) and 40 C.F.R. § 122.44(d).

C. Flow

The maximum daily flow limit for NCCW remains at 0.22 millions of gallons per day (MGD). Carry-over of this limit from the existing

permit to the draft permit is in accordance with the antibacksliding requirements found in 40 CFR §122.44. In the existing permit, NCCW is discharged from Outfall 003. As reflected in its permit application, PCC Structurals has reconfigured their facilities NCCW piping, and the draft permit authorizes the discharge or up to 0.22 MGD of NCCW from Outfall 001. A condition has been added to the draft permit that does not allow further discharge of NCCW from Outfall 003.

D. Conventional Pollutants

pH

The draft permits contain a pH limitation of 6.5-8.0 Standard Units (S.U.).

As previously explained, NCCW does not come in direct contact with any raw material, intermediate product, waste product (other than heat) or finished product. If the effluent discharged by the PCC Structurals facility is not treated, it can be surmised that the pH of the effluent will be nearly the same, allowing for sampling accuracy, as the pH of the intake water.

The NH Standards, Env-Wq 1703.18(b), requires the pH of effluent discharging to Class B waters to be in the range of 6.5 to 8.0. Effluent pH can be outside this range if it is due to natural causes. Since PCC Structurals does not treat or add chemicals to its NCCW, the facility’s discharge does not have the means to alter the receiving water’s naturally occurring pH. The converse of this situation also applies. The receiving water’s naturally occurring pH, if outside the permissible range of 6.5 to 8.0, can result in a pH violation of the facility’s effluent. In order to eliminate pH violations of this sort, the pH differential is reported by the permittee to demonstrate the pH of the NCCW has not been altered by the industrial process. What the reported pH differential demonstrates is the naturally occurring pH of the water body lies outside of the States pH Water Quality effluent limitations.

When monitoring for pH differential is required, the pH sampling needs to be coordinated to consider the travel time between the cooling water intake and outfall. This is done in order to measure essentially the same slug or volume of water. The draft permit prohibits the addition of chemicals to the non-contact cooling water. The draft permit further requires the permittee to contact both the EPA and the NHDES-WD if a need arises to add chemicals to the NCCW. Addition of chemicals to the cooling water will likely require a permit modification.

The monthly maximum and minimum values for pH provided by PCC Structurals from January 2002 through August 2007 have never violated the State's Water Quality limits for pH. Accordingly, the required sampling for pH has been reduced to once per week from once per day.

E. Non-Conventional and Toxic Pollutants

Temperature

The Winnipesaukee River in the Tilton, NH area is classified as a cold water fishery by the New Hampshire Fish and Game Department (NHFG). NHFG recommends that maximum daily temperature not exceed 68°F for effluent discharged to a cold water fishery. During the summer months the intake water's higher temperatures and the facility's heat load will result in NCCW effluent temperatures above 68°F.

PCC Structurals' permit reapplication requested to maintain the maximum daily effluent discharge temperature limit of 90°F. For the development of the existing permit, a heat balance analysis was conducted between the receiving water acting as a thermal sink and the heat load generated by the PCC Structurals facility. The results of that analysis, done for the existing permit, demonstrated that PCC Structurals NCCW discharge would have to be raised hundreds of degrees to cause a one degree raise in the Winnipesauke River's temperature.

As a confirmation that the heated discharge from PCC Structurals continues not to pose any threat to the Winnipesauke River's ecosystem or otherwise violate state water quality standards, another heat balance analysis was conducted. The heat balance analysis approach for the draft permit applied parameters representing an adverse case scenario. In this scenario the Winnipesauke River is flowing at the river's 7Q10 flow (the lowest seven days flow expected to occur at a ten years frequency), the river's temperature is 68°F (maximum temperature for a cold water fishery), and the PCC Structurals NCCW effluent discharge temperate is at its present permit limit of 90°F. As calculated, PCC Structurals NCCW effluent discharge under these conditions would raise the Winnipesauke River temperature in the vicinity of the outfall an imperceptible 0.07°F. (Refer to Attachment C for the heat balance analysis)

This imperceptible effect of PCC Structurals' NCCW discharge on the Winnipesaukee River meets the requirements of NH Statue RSA 485-A:8 II. This Statue requires that "Any stream temperature increase associated with the discharge of ... cooling water ... shall not be such to appreciably interfere with the uses assigned to this class." Further, the heat balance calculation demonstrates that PCC Structurals' NCCW discharge will not interfere with the Class B classification of this portion of the Winnipesaukee River.

The NH Fish & Game Department has reviewed the heat balance calculation and the effects of PCC Structural heated discharge to the Winnipesaukee River's cold water fishery. In a May 1, 2008, email from the NH Fish & Game Department to the EPA, the Department determined the 90°F temperature limit for NCCW at the volume of heated water that is limited by the permit posed no threat to the Winnipesaukee River cold water fishery. Accordingly, in the draft permit EPA is retaining the existing permit's daily maximum thermal limit of 90°F for the NCCW discharge, together with the daily maximum flow limit of 0.22 MGD.

EPA and NHDES have reviewed the basis of this analysis. The agencies consider that the analysis results are valid and that, for this permit, the 90°F NCCW thermal limit, coupled with the draft permit's discharge flow limit, meets applicable state water quality standards.

Whole Effluent Toxicity

EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. EPA New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. These approaches are designed to protect aquatic life and human health. Whole Effluent Toxicity (WET) evaluates the interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. WET also measures the "Additive" and/or "Antagonistic" effects of individual chemical pollutants. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

New Hampshire law states that, "...all waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans,

or aquatic life;...." (N.H. Surface Water Quality Regulations, PART Env-Wq 1703.21(a)). The federal NPDES regulations, 40 CFR §122.44(d)(1)(v), require whole effluent toxicity limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity.

A one time WET test is required in the draft permit as a means to insure that the facility's NCCW is not potentially harmful to the environment. As part of the WET test, both the LC50 and C-NOEC will be measured. LC50 is the concentration of NCCW (effluent) causing mortality to 50 percent (%) of the test organisms. C-NOEC (Chronic-No Observed Effect Concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life-cycle or partial life-cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing (except for a bimodal data set where the lowest C-NOEC must be reported).

If, upon review of the toxicity test, EPA determines that the results indicate toxicity, a monitoring schedule and testing requirements, e.g., a Toxicity Reduction Evaluation, may be imposed. The permit may also be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements or chemical specific limits. These actions will occur if the EPA determines the NH Standards are not adequately met and/or uses of the waterways are not adequately protected during the remaining life of the permit. Results of these toxicity tests are considered "new information not available at permit development"; therefore, the permitting authority is allowed to use said information to modify an issued permit under authority in 40 CFR §122.62(a)(2).

F. Cooling Water Intake Structures.

Background

The basis for cooling water intake structure (CWIS) requirements is found in the Clean Water Act (CWA) in Section 316(b), 33 U.S.C. Section 1326(b). Section 316(b) governs requirements related to cooling water intake structures (CWISs) and requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." The operation of CWISs can cause or contribute to a variety of adverse environmental effects, such as killing or injuring fish larvae and eggs by entraining them in the water withdrawn from a water body and sent

through the facility's cooling system, or by killing or injuring fish and other organisms by impinging them against the intake structure's screens, racks, or other structures. CWA § 316(b) applies if the permit applicant seeks to withdraw cooling water from a water of the United States. CWA § 316(b) applies to this permit due to the presence and operation of a CWIS at the PCC Structurals facility.

In the absence of applicable regulations, for many years EPA has made Section 316(b) best technology available (BTA) determinations on a case-by-case basis, based on best professional judgment (BPJ), for both new and existing facilities with regulated CWISs. EPA has promulgated Section 316(b) regulations applicable to certain power plants, to *new* non-power plant facilities with a capacity of more than 2 million gallons per day (MGD), and to offshore oil and gas extraction facilities. PCC Structurals, though, is neither a power plant nor an oil or gas extraction facility, and is not new. Consequently, no regulations provide specific compliance standards applicable to a Section 316(b) BTA determination at PCC Structurals. In the absence of applicable compliance standards, Section 316(b) permit requirements for smaller, existing facilities with CWISs, such as PCC Structurals, continue to be established on a BPJ basis.

State legal requirements, including state water quality standards, also may apply to the development of permit conditions for cooling water intake structures. State water quality standards set designated uses for water bodies within the State and specify narrative and numeric criteria that the water bodies must satisfy. The limits in EPA-issued NPDES permits that address cooling water intake structures must satisfy both CWA § 316(b) and any applicable State requirements, such as appropriate water quality standards [See CWA §§ 301(b)(1)(C), 401(a)(1) and (d), and 510; 40 CFR §§ 122.4(d), 122.44(d), 125.84(e), and 125.94(e); NH Env-Wq §§ 1701.02(b), 1703.19]. The NH-DES has primary responsibility for determining what permit limits are necessary to achieve compliance with State law requirements. Since the NPDES permit that EPA expects to issue to PCC Structurals will be subject to State Certification under CWA § 401, the permit will also need to satisfy any NH-DES conditions of such a certification (See also 40 CFR §§ 124.53 and 124.55). EPA anticipates that the NH-DES will provide this certification before the issuance of the final permit.

Again, Section 316(b) of the CWA addresses the adverse environmental impact of CWISs at facilities requiring NPDES permits. EPA has assessed how the location, design, construction, and capacity of this facility's CWIS reflect the best technology

available (BTA) for minimizing adverse environmental impact. In making a BPJ determination of BTA for this facility, EPA considered site-specific information regarding the CWIS at this facility, as well as certain general technical information that EPA developed in support of its regulations under CWA § 316(b) for new facilities with CWISs (the “Phase I rule”).

Cooling Water Intake Structure Description

PCC Structurals CWIS is located on the eastern bank of the Winnipesauke River in a segment of the river which is just outside of downtown Tilton, NH. The CWIS currently consists of two 10-inch (inside diameter)cast iron pipes that form a “V” as they extend approximately 10 to 12 feet in a westerly direction from an 8-foot by 8-foot concrete block house which is located on the eastern bank of the Winnipesauke River. One intake pipes is orientated approximately 25° upstream from a line perpendicular to the river’s bank. The other pipe is orientated approximately 60° downstream from a line perpendicular to the river’s bank. Presently, the open ends of the two intake pipes do not have screening to restrict fish or debris movement into the pipes.

The direction of river flow is in the southerly direction. The relative velocity of the river in this segment is considered as slow to moderate during most of the year. The average river width along an east-west transect at PCC Structurals' location is approximately 300 feet. Opposite the northern end of PCC Structurals’ property, a small island is located in the Winnipesauke River. This island divides the river into two channels, the channel flowing by PCC Structurals being the slightly narrower channel, with a width of approximately 100 feet. The intake pipe that is orientated in the upstream direction lies in this channel. The other intake pipe that is orientated in the downstream direction lies in the main channel, downstream of where the two “island channels” rejoins.

The ends of the intake pipes are approximately 0.1 to 0.5 feet off the river bottom, depending on how river flow affects bottom sediments. The top of the pipe inlets are situated in the river at a depth of approximately 18 inches at river low flow conditions. While the ends of the intake pipes are generally visible from the shore or the concrete block house, a detailed visual inspection of the inlet pipes is not possible. A reliable inspection of the pipe suctions is prevented because there is little contrast between the pipe’s color and the river’s bottom. In addition, surface currents along this reach of the river usually distort or diminish the water’s clarity.

PCC Structurals' average intake of river water was 111,472 gallons per day (GPD) based on the years 2001-2006. For the 2001-2006 summer months, June-September, PCC Structurals' water intake was slightly more than the yearly average, at 142,852 GPD. Comparing PCC Structurals' higher summer water withdrawal of 142,852 GPD (0.22 ft^3/sec) to the average river flow of 711 ft^3/sec, the facility takes in and average of about 0.03% of the average flow of the Winnipesauke River. The average Winnipesauke River flow of 711 ft^3/sec was calculated from data taken from the years 1980-2005 as measured at the Tilton USGS gauge station, No. 01070002, located approximately 750 feet downstream of the facility. When PCC Structurals' higher summer intake average of 142,852 GPD (0.22 ft^3/sec) is compared to the Winnipesauke River's 7Q10 flow (104.7 ft^3/sec) for this section of the river, the facility takes in 0.21% of the river flow. Even the design intake of 250,000 MGD would represent only 0.37% of the Winnipesauke River's 7Q10 flow (104.7 ft^3/sec) for this section of the river. Thus, PCC Structurals withdraws only a small percentage (less that 0.4%) of the Winnipesauke River, even during conditions of maximum intake and low river flow.

PCC Structurals has a design intake water flow from the Winnipesauke River for use as NCCW and process water of 250,000 GPD. Using the data from the years 2001-2006, PCC Structurals takes in a yearly average of 111,472 GPD, and a summer intake average of 142,852 GPD. Based on the three scenarios (design, yearly average and summer average) of water intake from the Winnipesauke River, three "through screen" velocities can be calculated for PCC Structurals intake pipes.

Scenario	Intake Flow (GPD)	Through Screen Velocities (ft/sec)
Design	250,000	0.355
Summer Average	142,852	0.203
Yearly Average	111,472	0.158

This calculation assumes that the open ends of the intake pipes are free of accumulated river sediment or debris.

As mentioned previously, each of the two intake pipes connect to an 8-foot by 8-foot building with a concrete block foundation. The building's foundation acts as a sump for the facility's NCCW. The sump is covered by a wooden shed, and can be accessed and viewed by opening a door to the shed. Water is drawn from the sump through a 4-inch copper pipe that runs 32-feet to a structure that houses PCC

Structurals' NCCW pumps. Neither the discharge openings of the two 10-inch intake pipes nor the suction end of the 4-inch copper pipe are currently fitted with screens to prevent removal of trash or aquatic organisms. The NCCW is drawn through two 15 horse power pumps that operate at 3600 rpm and have a maximum pumping capacity of 200 GPM. The two pumps are controlled by variable frequency drive that maintains a system pressure of 70 pounds per square inch by using a pressure transducer. By employing variable drive pumps, PCC Structurals adjusts the NCCW pumping rates depending on the cooling demand of the facility's industrial processes. Normally, PCC Structurals maintains NCCW flow by using only one pump.

Assessment of Current Ecological Conditions and Potential Impact of CWIS Operation

The Winnipesaukee River is a 10.5 mile-long river that connects Lake Winnipesaukee with the Pemigewasset and Merrimack Rivers in Franklin, New Hampshire. The river is located in the Lakes Region of central New Hampshire. The total drainage area of the river is approximately 488 square miles. The lower section of the river begins at the natural outlet of Silver Lake, on the boundary between Belmont and Tilton, New Hampshire. The river passes through the center of the twin towns of Tilton and Northfield, and then descends through a narrow valley to Franklin where small dams use the river's power. From Tilton to Franklin, the river has a drop of up to 90 feet per mile. The Winnipesaukee River joins the Pemigewasset River just downstream from the center of Franklin, forming the Merrimack River.

Historically, this reach of the Winnipesaukee River system had been degraded by municipal waste water discharges. Over the past 25 years, however, the operation of comprehensive wastewater collection and treatment facilities have markedly improved water quality in the river. The river has been identified as a cold water fishery by the NHFG and provides acceptable spawning or nursery habitat for fish species.

Resident Freshwater Species

A site-specific fish survey has not been conducted by the permittee in the vicinity of the intake structure. However, based on general information for the Upper Merrimack River and cold water river reaches in New Hampshire, this section of the Winnipesaukee River likely supports resident cold water species such as brook trout, rainbow trout, brown trout and whitefish. These fish, for the most part, engage in nest building or deposit eggs within the gravel of the benthic substrate. Larval

development generally takes place associated with the gravel, as well. The free swimming fry emerge from the gravel substrate, ready to search for food. Large numbers of eggs and larvae of these species would not be expected to be dispersed as free floating organisms in the water column of this channel of the Winnipesaukee River, some 10-12 feet from the shore, where the facility CWIS intakes are located. In addition, the very small percentage of water withdrawn by the facility, relative to the expected river flow, also minimizes the potential for drifting organisms to be pulled into the CWIS in any appreciable number. Based on an assessment of the characteristics of these life stages and the location and capacity of the intakes in the river, the potential for entrainment of these life stages by the PCC Structurals' CWIS is low.

Juvenile and adult life stages of these species also tend to prefer habitat associated with the river bank. This habitat is characterized by diminished river flow and the presence of underwater structure. If resident species do encounter the intake pipes, some 10-12 feet away from the river banks, the low approach velocity of the intake (approximately 0.2 ft/sec) can be resisted by these species. Based on an assessment of the characteristics of these life stages and the design of the intakes in the Winnipesaukee River, the potential for impingement of these life stages by the PCC Structurals CWIS is low.

Anadromous Fish Species

Anadromous fish species, which spend their adult life in a marine environment and travel upstream into freshwater rivers to spawn and develop, are not likely to navigate past the many man-made obstructions to fish passage to access the Winnipesaukee River.

Based on this assessment, there is a low probability that naturally spawning anadromous fish would currently come in contact with the PCC Structurals CWIS. Any migrating adult anadromous fish that may be able to reach the Winnipesaukee would likely be able to overcome the relatively small intake velocity (approximately 0.2 ft/sec) of the facility's CWIS.

Atlantic salmon, American Shad and River Herring

A multi-agency plan is in place to restore anadromous species to the entire Merrimack River Basin (see *The Strategic Plan for the Restoration of Anadromous Species to the Merrimack River*). The plan is administered by the U.S. Fish & Wildlife Service (USFWQ) with the EPA, NHDES, NHFG and the Massachusetts Department of

Environmental Protection (MassDEP) participating. River herring (alewife and blueback herring) American shad, and Atlantic salmon have been stocked in accordance with this effort. Therefore, even though anadromous species are not likely to migrate upstream to the Winnipesaukee River, a more complete evaluation is warranted in the event that stocking efforts and anadromous fish return activity become more successful in the future.

Salmon fry have been stocked in the vicinity of the CWIS in the past and may be stocked again in the future. Juvenile alewives have also been stocked in Silver Lake, upstream from this facility. If stocking efforts continue in the vicinity of the Winnipesaukee River, young-of-year shad, herring or Atlantic salmon would likely be present in the waterbody. However, based on the characteristics of the CWIS detailed in this document, juvenile or adult life stages of the anadromous fish species that may swim near the facility will likely experience minimal impingement potential due to the CWIS's low design capacity, low capacity compared with low river flow, and low intake velocity. The components of BTA that will minimize the adverse effects of the CWIS are described in the following section.

Components of BTA for CWIS at PCC Structurals

In making this § 316(b) determination, EPA considered the adverse environmental effects from operation of the facility's CWIS and technology options for minimizing these adverse effects by evaluating the CWIS' location, design, construction, and capacity. This site-specific determination of BTA for the PCC Structurals Draft Permit is based on BPJ. This BPJ determination of BTA evaluated the following components:

Location

PCC Structurals' two intake pipes are elevated above the bottom of the Winnipesauke River. This decreases the potential of the CWIS to negatively impact benthic or near benthic organisms.

The location of the two intake pipes of the CWIS away from the river bank and benthic habitat of the river is considered a component of BTA. The draft permit requires PCC Structurals to ensure sediment does not accumulate in the intake pipes causing the through screen velocity to increase above the design standard of 0.5 ft/sec. This will ensure that BTA to minimize adverse impacts to benthic organisms is maintained.

Capacity

The design flow capacity of the PCC Structurals' non-contact cooling water system is 0.25 MGD (0.39 cfs). (It is noted that even though the design flow for the non-contact cooling water system is 0.25 MGD, the draft permit's discharge daily maximum flow limit remains 0.22 MGD.) PCC Structurals employs two intake pipes, and, assuming equal intake from each pipe, each pipe has a maximum capacity of 0.125 MGD (0.19 cfs). This total maximum withdrawal by PCC Structurals' CWIS represents less than 0.055% of the average annual flow of the Winnipesauke River at Tilton, NH under normal conditions (average flow rate is 711 cfs for the period of 1980 through 2005; USGS Data). For comparison, the Phase I Rule, which is not applicable to this permit, uses a value of 5% of the mean annual flow as the upper limit allowed for the location of a new facility CWIS in a freshwater river. See 40 C.F.R. 125.84(b)(3)(i). This maximum withdrawal is also considerably lower that the 7Q10 of the Merrimack River at Tilton, NH, which is 104.7 cfs. The 7Q10 flow of a freshwater river is one method to characterize a low flow condition in a river. The 7Q10 flow is defined as the lowest average seven consecutive day low flow with an average frequency of one in 10 years, determined hydrologic ally. The maximum withdrawal of 0.39 cfs is approximately 0.37% of the 7Q10 of the river.

Generally, limiting flow capacity is the single most effective operational measure to minimize the adverse environmental impacts of entrainment and impingement. Thus, as a component of BTA for this facility to minimize adverse environmental effects, CWIS capacity is limited to the design capacity of 0.25 MGD. This 0.25 MGD intake limit represents a low intake flow both in absolute terms and as compared to river flow, even under historic low flow conditions. In addition, PCC Structuals employs a variable speed pump to withdraw NCCW, and operates its variable speed pump such that only the minimum required amount of cooling water is pumped to meet the facility's cooling demands. This further reduction in CWIS capacity also is a component of BTA.

Design

The velocity of water entering a cooling water intake structure exerts a direct physical force against which fish and other organisms must act to avoid impingement or entrainment. As velocity increases at a CWIS, so does the potential for impingement and entrainment. EPA considers velocity to be one of the more important factors that can be controlled to minimize adverse environmental impacts at CWISs. See 65 FR 49060, 49087 (Aug. 10,

2000). EPA has identified a “through screen” velocity threshold of 0.5 fps as protective to minimize impingement of most species of adult and juvenile fish. This determination is fully discussed at 65 FR 49060, 49087-88.

The intake velocity at the intake pipes of the CWISs is calculated to range from the maximum through screen velocity of 0.355 feet per second (ft/sec) for the design river water intake of 250,000 GPD to a design flow velocity of 0.158 ft/sec through screen velocity for the historical average yearly river water intake of 111,472 GPD. As noted above, since velocities of 0.5 ft/s and below are considered sufficiently low enough to allow fish to avoid being impinged at the CWIS, PCC Structurals’ maximum design through-screen velocity of 0.355 ft/s is considered one component of BTA to minimize impingement. In fact, based on actual recorded flow rates, the through screen velocities of each of PCC Structurals’ intake pipes range from 0.158 to 0.203 ft/sec.

The CWIS intake pipes currently do not have screens or bars to restrict the movement of fish into the pipes. Based on the low intake velocity, it is likely that fish entering the pipes to seek cover would be able to swim back into the river without being drawn into the facility.

BTA Determination

Based on current CWIS operations, information available at this time, and the location, design, capacity and construction of the CWIS, EPA has determined the adverse environmental impacts of the CWIS at PCC Structurals are low. In order to minimize adverse environmental impacts EPA is requiring several components of BTA in the draft permit.

First, regarding CWIS capacity, to minimize entrainment and impingement, the CWIS capacity is limited to 0.25 MGD. In addition, the permittee shall operate its variable speed pump to withdraw NCCW such that only the minimum required amount of cooling water is pumped to meet the facility’s cooling demands.

Second, regarding CWIS design, one potential adverse impact is that fish entering the CWIS may become disoriented or swim far into the pipe and not return to the river. For this reason, open intake pipes are not considered the best available design to minimize adverse impacts to fish. Therefore, as another component of BTA, the permittee is required to install screens at the discharge end of the two 10-inch river water intake pipes so that the screens extend into the sump and can be visually inspected for impinged

fish from above. These may be “drum shaped” or “barrel shaped” screens. The mesh size of the screen barrier will be sized to preclude the passage of adult and juvenile fish and not to increase the through screen velocity above 0.5 ft/sec. Typically, this can be achieved with a mesh size of 3/8 inch or less. The design of these screens shall allow for their removal and visual inspection. Periodic inspection of these baskets and return of live fish to the river is required as part of the permit.

Third, regarding CWIS location, the location of the two intake pipes of the CWIS away from the river bank and benthic habitat of the river are considered components of BTA. Further, the permittee is required to ensure sediment does not accumulate in the intake pipes causing the through screen velocity to increase above the design standard of 0.5 ft/sec.

After installation of the screens in the non-contact cooling water pipes, EPA regards the location, design, capacity and construction of the existing CWIS, as operated under condition Part I.D of the draft permit, as BTA for this specific facility.

Impingement Monitoring

While the preceding factors provide a sufficient basis for this BTA determination, EPA recognizes that no impingement or entrainment data has been collected by PCC Structurals in support of their permit application. Monitoring of the intake structure from within the facility to detect impingement is precluded due to lack of available access. Monitoring at end of the intake pipes in the river also is restricted by access. The location of the CWIS, 10-12 feet from the bank of the river, is obscured because there is little contrast between the pipe’s color and the river’s bottom. In addition, surface currents usually distort or diminish the water’s clarity.

As previously described, each of the intake pipes connect to an 8-foot by 8-foot building with a concrete block foundation. The building’s foundation acts as a sump for the facility’s NCCW. The sump is covered by a wooden shed, and the sump can be accessed and viewed by opening a door to the shed. As previously described and as a component of BTA for this facility, the permittee is required to install removable screens at the discharge end of the two 10-inch river water intake pipes so that the screens extend into the sump and can be visually inspected for impinged fish from above. In addition to requiring the installation of these screens, the draft permit further requires PCC Structurals to establish a biological monitoring program. The permittee is required to

inspect all areas where adult and juvenile fish may become trapped or impinged at least three times a week. All live fish observed must be returned to the Winnipesauke River. A log book must be kept to document the date and time of the inspection, the name of the individual performing the inspection, the species of fish impinged (if any), the total length of the fish, the condition of the fish (alive, injured, dead), and the treatment of the fish (released or discarded). The log book shall be made available to EPA and/or the State upon inspection or request.

As stated in the Assessment of Current Ecological Conditions and Potential Impact of CWIS Operation section of this fact sheet, EPA considers the potential to be very low for fish eggs and larvae to be entrained by the PCC Structurals' CWIS. No entrainment monitoring is included in the draft permit.

G. Essential Fish Habitat and Endangered Species

Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.(1998)), EPA is required to consult with NMFS if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." See 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See 16 U.S.C. § 1802(10). Adversely impact means any impact which reduces the quality and/or quantity of essential fish habitat (EFH). See 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. See 16 U.S.C. § 1855(b)(1)(A). The U.S. Department of Commerce approved EFH designations for New England on March 3, 1999. The Magnuson-Stevens Act requires all federal agencies to consult with NMFS on all actions, proposed actions, permitted, funded, undertaken by the agency, that "may adversely affect any essential fish habitat." The Winnipesauke River is designated EFH for Atlantic salmon, (Salmo salar).

Based on the New Hampshire Fish and Game Department Fish Stocking Reports for 2005, 2006 and 2007, The Winnipesaukee River has been stocked with Atlantic salmon. PCC Structurals, like all facilities that withdraw water from a natural water body, can impact aquatic resources in three major ways: (A) by the entrainment of small organisms into and through the intake system; (B) by the impingement of larger organisms on intake screens; and (C) by creating adverse conditions in the receiving waters from the discharge of the effluent. The following discusses these three potential impacts.

Entrainment

Section F of this document, which discusses the cooling water intake structure (CWIS) at this facility, contains detailed information regarding the proposed impacts of the CWIS on all fish species, as well as information on Atlantic salmon in the Upper Merrimack River and the Winnipesaukee River. Portions of that section are repeated here in order to fully address EFH concerns in the vicinity of the facility.

As specified in Section F, natural spawning of Atlantic salmon is not thought to occur in the Winnipesaukee River. Stocking efforts are under way to help restore this species to its historical range in the river. *The Strategic Plan for the Restoration of Anadromous Species to the Merrimack River* contains detailed information about these efforts.

Atlantic salmon eggs are fertilized, hatched and reared under controlled conditions at a hatchery. The resulting fry are placed in the upper Merrimack River and its tributaries, including the Winnipesaukee River. If any limited natural spawning of Atlantic salmon did take place in the vicinity of the CWIS, eggs from such spawning would stay buried in the nest created by the female until they hatch. These eggs do not characteristically rise into the water column and drift downstream. Once the eggs hatch, fry generally live near the bottom of the water column and do not travel any appreciable distances. Therefore, any small number of naturally occurring eggs and larvae potentially found in the Upper Merrimack or suitable upstream tributaries to the Upper Merrimack would not be expected to be found close enough to CWIS of the facility to become entrained. Therefore, salmon eggs and larvae vulnerable to entrainment are either reared outside of the Basin, or are likely present in benthic spawning habitat that keeps them from coming in contact with the CWIS.

Impingement

The objective of the stocking program in the Upper Merrimack River Basin is for the fry to establish territories in the upstream waters of the river, where they remain for 2-3 years. After 2-3 years, upon maturation into smolts, the salmon begin their migration downriver towards the ocean. Since stocking locations may be in the vicinity of the CWIS in the Winnipesaukee River, the smolts would likely pass by the facility on their way downstream and could be vulnerable to impingement. Any smolts that do swim in the vicinity of the CWIS are likely to be able to resist being impinged on the screening of the intake, given its relatively low intake velocities (approximately 0.2 ft/sec). Also, the low relative capacity of the CWIS, compared to the river flow, further reduces the potential for impingement. Both the low intake velocity and capacity of the CWIS are discussed in Section F.

The EPA considers that the draft permit conditions and limitations will protect the most sensitive aquatic species, including the Atlantic salmon.

Effluent Discharge

The following summary information regarding the discharge from PCC Structurals is discussed in detail in this Fact Sheet, specifically in Section E, Non-Conventional and Toxic Pollutants, Temperature.

PCC Structurals discharges only non-contact cooling water. By definition, this effluent does not come in direct contact with any raw material, intermediate product, a waste product (other than heat) or finished product. The temperature limit section of this document provides a detailed analysis to support the assessment that the maximum daily effluent discharge temperature limit of 90°F has an imperceptible thermal effect on the Winnipesaukee River. See Section IV.E.

EPA's Opinion of all Potential Impacts to EFH species

EPA believes that the impacts associated with this facility to EFH species, their habitats and forage, have been minimized to the extent that no significant impacts are expected. Therefore, additional mitigation is not warranted. Monitoring proposed in the draft permit will provide contemporary, site-specific water quality data to further support this position. If adverse impacts to EFH do occur as a result of this permit action, or if new information becomes available that changes the basis for this determination,

then NMFS will be notified and consultation will be promptly initiated.

Endangered Species

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (“listed species”) and habitat of such species that has been designated as critical (a “critical habitat”). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWQ) typically administers Section 7 consultations for bird, terrestrial, and freshwater aquatic species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

Based on previous discussions with USFWQ and NMFS, EPA has determined that no species of concern are known to occur in the vicinity of PCC Structurals and the Winnipesaukee River. Consultation with NMFS and USFWQ under Section 7 of the ESA is not required. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWQ.

H. Additional Requirements and Conditions

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 CFR § 122.41(j), 122.44(i) and 122.48. The remaining conditions of the permit are based on the NPDES regulations 40 CFR Parts 122 through 125 and consist primarily of management requirements common to all permits.

A one-time Whole Effluent Toxicity Test is required in the draft permit as an additional means to insure the facility’s NCCW is not potentially harmful to the environment.

Sampling in compliance with the draft permits monitoring requirements shall be taken at a location that provides a representative analysis of the effluent just prior to the receiving water. If the NCCW effluent is commingled with another permitted discharge, the cooling water must be sampled prior to the commingling.

Parameter	Existing Permit		Draft Permit	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow	1/Week	Recorder	1/Week	Recorder
Temperature	3/Week	Grab	3/Week	Grab
pH	1/Day	Grab	1/Week	Grab
WET	1/Permit Cycle	24hr Composite	1/Permit Cycle	24hr Composite

V. Antdegradation

This draft permit is being reissued with an allowable heat load identical to the existing permit. Since the State of New Hampshire has indicated there will be no lowering of water quality and no loss of existing uses, no additional antidegradation review is warranted.

VI. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate NH Standards or waives its right to certify as set forth in 40 CFR §124.53.

Upon public noticing of the draft permit, EPA is formally requesting that the State's certifying authority make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

The NHDES-WD is the certifying authority. EPA has discussed this draft permit with the Staff of the Wastewater Engineering Bureau and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and 124.55.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the Clean Water Act Sections 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public noticing. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the CWA or State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is the sludge conditions/requirements implementing Section 405(d) of the CWA are not subject to the Section 401 State Certification requirements. Review and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 CFR Part 124.

It should be noted that under CWA § 401, EPA’s duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by state law. Therefore, “[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition.” 40 CFR §124.55(c). In such an instance, the regulation provides that, “The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification.” Id. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.4 (d) and 40 CFR §122.44(d).

VII. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who wish to comment on any condition of the draft permit must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to:

Mr. John Paul King, Environmental Scientist
U.S. Environmental Protection Agency
1 Congress Street
Suite 1100 (Mailcode CPE)
Boston, Massachusetts 02114-2023
Telephone: (617) 918-1295
FAX No.: (617) 918-1505

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the NHDES. Such requests shall state the nature of the issue proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR §124.19.

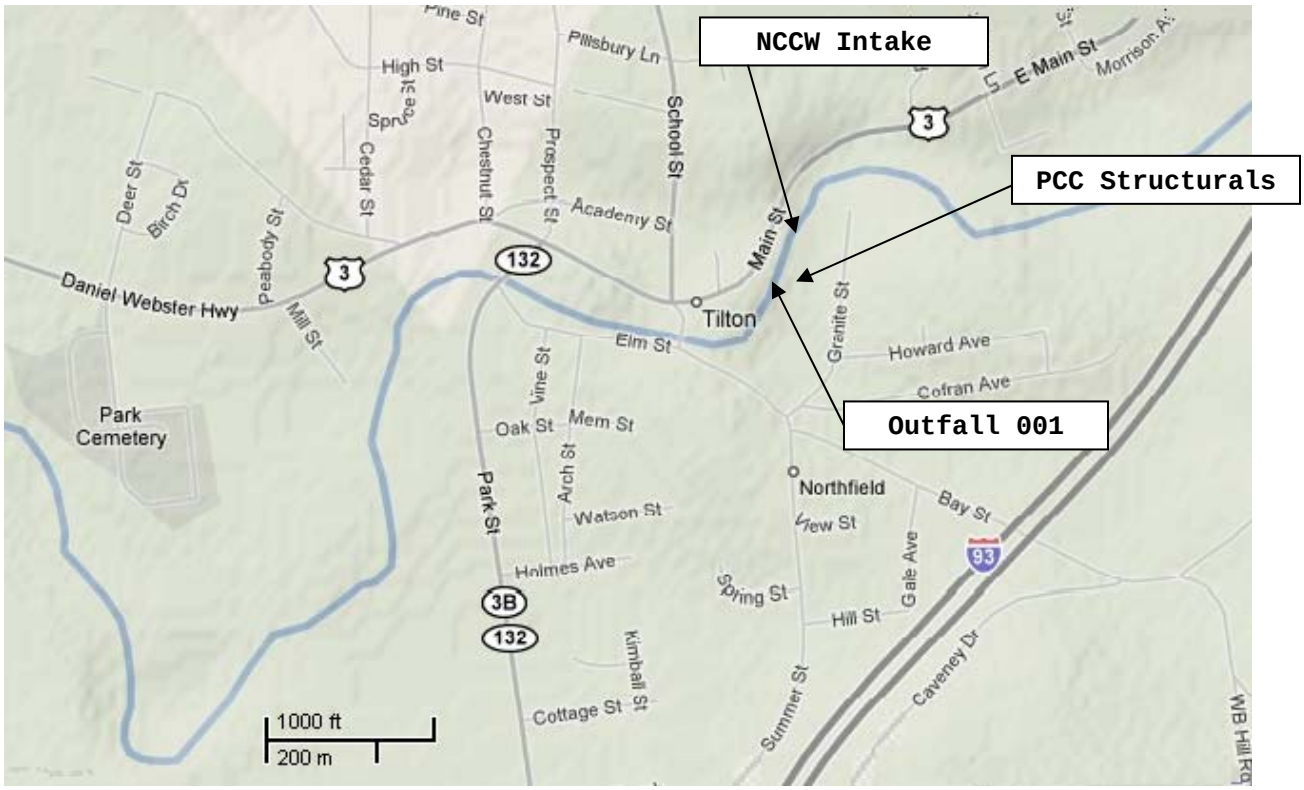
Information concerning the draft permit may be obtained from the contact person named above between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays.

_____
Date

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

ATTACHMENT A

Location of PCC Structurals, NCCW Intake, and Outfall 001



ATTACHMENT B

TABLE I
EFFLUENT CHARACTERISTICS AT OUTFALLS 001

The following effluent characteristics were derived from analysis of discharge monitoring data collected from Outfall 001 during the 57-month period, January 2002 through September 2007. This data was extracted from the monthly Discharge Monitoring Reports submitted by PCC Structurals. These effluent values characterize the non-contact cooling water discharged from this facility.

TABLE I

Effluent Characteristic	Average of Average Monthly	Maximum of Maximum Daily[1]
Flow (MGD)	0.09	0.19, 0.18, 0.17
pH (Standard Units)	--	6.1 to 8.0[2]
Temperature (°F)	67.2	90, 89.96, 89.96

1. More than one number represents the second and third highest values.
2. Numbers listed are minimum and maximum daily readings experience over the reporting period.

TABLE II

WHOLE EFFLUENT TOXICITY TESTING

Effluent Test[1]		Minimums of Maximum Test Result	
LC50[2] (Per Cent Effluent)			
Ceriodaphnia dubia		80.4	>100
Pimephales promelas		>100	>100
C-NOEC[3] (Per Cent Effluent)			
Ceriodaphnia dubia	Survival	50.0	100
	Reproduction	<6.25	100
Pimephales promelas	Survival	50.0	100
	Growth	50.0	100

1. Ceriodaphnia dubia and Pimephales promelas WET tests were conducted in February 12-20, 2002 and March 22-29, 2002.

2. This test involves preparing a series of effluent concentrations by diluting the effluent with control water. Groups of test organisms, i.e. Ceriodaphnia dubia and Pimephales promelas, are exposed to each effluent concentration and a control for a specific period. The mortality data for each concentration can be used to calculate (by regression) the medium lethal concentration or LC-50. LC-50 is defined as the concentration which kills half the test organisms. Samples with a high LC-50 value are less likely to impact an organism's survival.

3. This test measures the sublethal effects by exposing test organisms to effluent samples during a sensitive period in their life cycle. Chronic daphnid (Ceriodaphnia dubia) tests measure juvenile production and survival; chronic minnow (Pimephales promelas) tests measure growth (weight) and survival during the seven-day test. Using Analysis of Variance techniques to evaluate data, it is possible to determine the highest concentration of effluent where no effect (C-NOEC) was observed.

ATTACHMENT C

HEAT BALANCE CALCULATION

Assuming no heat loss to the ambient; the energy; i.e. heat, gained by the Winnipesaukee River equals the energy given up by the effluent. Since heat load is a function of both mass flow rates and temperature, the following formula expresses the energy balance between the River and PCC Structurals' effluent:

$$Q_{River} = Q_{Effluent}$$

This equation can be rewritten as:

$$\left(M_{River} x C_p x \Delta T_{River}\right) = \left(M_{Effluent} x C_p x \Delta T_{Effluent}\right)$$

Rewriting the energy balance equation:

$$\Delta T_{River} = \frac{\left(M_{Effluent} x C_p\right)}{\left(M_{River} x C_p\right)} \Delta T_{Effluent}$$

Solving for this equation where;

C_p	=	1.0 Btu/lb°F	Specific Heat of water at constant pressure
M_{River}	=	67.6 MGD (5.64×10^8 lbs/day)	7Q10 flow of the Winnipesaukee River (104.7 cfs) as measured at the USGS Station, No. 01081000, Tilton, NH
$M_{Effluent}$	=	0.22 MGD (1.84×10^6 lbs/day)	PCC Structurals' draft NPDES Permit maximum combined effluent discharge
ΔT_{River}		Unknown; to be determined based on specified criteria	Difference between the Winnipesaukee River temperature and a reference temperature (68°F; maximum temperature allowed for cold water fishery)
$\Delta T_{Effluent}$	=	22°F	Temperature difference between PCC Structurals' effluent temperature limit (90°F) and the specified reference temperature (68°F)

.

$$\Delta T_{River} = \frac{1.8x10^{6}\ lbs/day\ \ x\,1.0\,Btu/lb^{o}F}{5.6x10^{8}\ lbs/day\ \ x\,1.0\,Btu/lb^{o}F}\ x\ \ 22^{o}F$$

$$\Delta T_{River} = \ 0.07^{o}F$$

This calculation applies parameters representing a worst case scenario. In this scenario the Winnipesauke River is flowing at the river's 7Q10 flow (the lowest seven days flow for the past ten years), the river's temperature (68°F) is the maximum temperature for a cold water fisher, and the PCC Structurals NCCW effluent discharge temperate is at its present permit limit of 90°F. As calculated, PCC Structurals NCCW effluent discharge would raise the Winnipesauke River temperature in the vicinity of the outfall an imperceptible 0.07°F.

.