UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02203

FACT SHEET

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

NPDES PERMIT NO.: MA0022799

NAME AND ADDRESS OF APPLICANT:

ECC Corporation
P.O. Box 176
Jefferson, MA 01522

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

ECC Corporation
156 Princeton Street
Holden, MA 01522

RECEIVING WATER: Asnebumskit Brook to Nashua River; Nashua River Watershed (NASH, Code 81) .

CLASSIFICATION: A

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

The above named applicant has requested the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge into the designated receiving water. The facility manufactures printed circuit boards. It discharges stormwater and contaminated groundwater through outfall 002 to the Asnebumskit Brook. See Attachment C for site location.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent DMR data is shown on Attachment A.

III. Limitations and Conditions

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Permittee manufactures printed circuit boards which are covered under EPA's Electroplating Point Source Category, Subpart H under 40 CFR Part 413.8. However, the process water after pretreatment is discharged into the Upper Blackstone Water Pollution Abatement District. Hence, no limits have been developed for process water. The contaminated groundwater source is from the french foundation drain. The stormwater source is from the parking lots and loading dock area in the rear of the plant. Both discharges through outfall 002.

The Clean Water Act CWA) requires that the effluent of point source discharges satisfy minimum technology and water quality requirements. Section 301(b)(2)(A) and (E) of the CWA provides that by July 1, 1984, industry must meet limitations based on Best Available Technology Economically Achievable (BAT) for toxic pollutants and Best Conventional Pollutant Control Technology (BCT) for conventional pollutants (BOD, TSS, pH, Oil & Grease and Fecal Coliform). Section 301(b)(1(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when technology based limitations are less stringent than to attain or maintain water quality in the receiving water. In the absence of technology-based guidelines, EPA is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402(a)(1) of the CWA.

Recent toxicity tests and chemical analyses of the effluent show that the groundwater contains copper and oil and grease, and the stormwater contains BOD, TSS, oil and grease, copper, lead, cadmium and zinc. A maximum daily limit for copper will continue for the groundwater discharge based on EPA's latest water quality criteria and latest available dilution. See calculation below :

Dilution Factor for Groundwater Discharge :

Asnebumskit Brook does not have a gaging station. D' Amore Associates, a consultant of ECC Corporation, was hired to estimate stream-flow of Asnebumskit Brook. The results of the stream-flow are reported in a memo dated October 25, 2001. ECC discharges groundwater for a maximum of 12 weeks during January - May. EPA is authorizing discharge of groundwater from February - May. There are three gaging stations (Boulder Brook, East Meadow and Nashoba Brook) in the vicinity of Asnebumskit Brook. Long-term monthly averages for the period of interest for these gaging stations are analyzed. From these data, long-term minimum monthly average stream-flow at Asnebumskit Brook are estimated by interpolation for the period February-May. The long-term data which is 5.4 cfs for the month of February represents the lowest steram-flow. The 7Q10 flow is estimated at 3.2 cfs based on 60% of the minimum monthly flow for February- May. The 60% factor is an estimate of the average of the annual 7Q10 as a percent of the annual minimum monthly flow for the gaging stations referenced in the October 25, 2001 memo.

Thus, the available 7Q10 is 3.2 cfs or 2.06 mgd.
Maximum daily flow is 0.0144 mgd and monthly average flow is 0.0072 mgd.
Dilution Factor = (Effluent flow +7Q10) / Effluent flow

Copper Limit for Groundwater Discharge :

The water quality criteria for copper is hardness-dependant. In a report prepared by New England Bioassay dated May 31, 2001, it was reported that the hardness from three separate samples of the Asnebumskit Brook was 28 mg/l, 30 mg/l and 30 mg/l as $CaCo_3$ respectively. EPA used a hardness of 30 mg/l to calculate the copper limitation..

The monthly average and maximum daily limits for copper are calculated based on National Recommended Water Quality Criteria published in the Federal Register on December 10, 1998, with a hardness of 30 mg/l and a dilution factor.

Water Quality Criteria for hardness-dependent metals, see equations below :

Acute Criteria (dissolved) = $\exp\{m_a[\ln(\text{hardness})] + b_a\}$ (CF)

Where: m_a = pollutant-specific coefficient
b_a = pollutant-specific coefficient
h = Hardness = 30 mg/l as $CaCO_3$
1n = natural logarithm
CF = pollutant-specific conversion factor (CF is used to convert total recoverable to dissolved metal)

Chronic Criteria (dissolved) = $\exp\{m_c[\ln(\text{hardness})] + b_c\}$ (CF)

Where: m_c = pollutant-specific coefficient
b_c = pollutant-specific coefficient
h = Hardness = 30 mg/l as $CaCO_3$
1n = natural logarithm
CF = pollutant-specific conversion factor (CF is used to convert total recoverable to dissolved metal)

1. Calculation of acute limit for copper :

$m_a = 0.9422$ $b_a = -1.7$ CF = 0.96

Acute criteria (dissolved) = $\exp\{0.9422[\ln(30)] - 1.7\}$ (.96) = 4.66 ug/l

Dilution Factor = 0.0144 + 2.06 / 0.0144 = 144

<u>Effluent Limitation:</u> = (144)x 4.66 ug/l) = 671 ug/l (dissolved)
Total Recoverable = 671 / CF = 671 / 0.96 = 699 ug/l *

2. Calculation of chronic limit for copper :

$m_c = 0.8545$ $b_c = - 1.702$ CF = 0.96

Chronic criteria (dissolved) = exp{0.8545[ln(30)] - 1.702}(0.96) = 4.03 ug/l

Dilution Factor = 0.0072 + 2.06 / 0.0072 = 287

Effluent limit = 287 x 4.03 ug/l = 1156 ug/l (dissolved)
Total recoverable = 1156 / CF = 1156 / 0.96 = 1205 ug/l*

* Inverse conversion factor is used to determine total recoverable metal. EPA Metals Translator : Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA-823-B-96-007) is used as the basis for using the criteria conversion factor as the default assumption for the in-stream translator.

Maximum daily limit is more stringent than monthly average limit. Therefore the acute (maximum daily) water quality based limitation for Total Recoverable Copper is 699 ug/l.

Other Limits and Monitoring Requirements :

The pH for the groundwater is set at 6.5 to 8.3 s.u. due to the requirement for state certification and state water quality standards.

Monitoring requirements of stormwater for BOD, TSS, Oil and Grease, pH, Copper, Lead, Cadmium and Zinc will continue as in the existing permit. The limits for pH for stormwater have been eliminated in recognition of the low pH of rain water.

The effluent monitoring requirements have been established to yield data representative of the discharge by authority of §Section 308 (a of the CWA in accordance with 40 CFR 122.41(j), 122.44, and 122.48.

Whole Effluent Toxicity :

The Asnebumskit Brook has been classified Class A waterways by the state. The designated uses for Class A water are 1) the protection and propagation of fish, other aquatic life and 2) for primary and secondary contact recreation.

Under Section 301 (b) (c) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA Surface Water Quality Standards require that EPA criteria established pursuant to Section 403 (a) (1) of the CWA be used as guidance for interpretation of the following narrative criteria :

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that industrial wastewater may contain toxic constituents such as metals, chlorinated solvents, aromatic hydrocarbons, and others. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. Furthermore, 40 CFR 122.44(d) requires whole effluent toxicity limits in NPDES permits when the permittee has a "reasonable potential" to cause toxicity. (See, eg., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants". 50 Fed. Reg. 30,784 - July 24, 1985. See also EPA's Technical Support Document for Water Quality-Based Toxics Control EPA/505/2-90-001).

Therefore, based on toxicity and water quality standards, the draft permit will continue to include chronic and acute toxicity testing requirements for groundwater and acute toxicity testing requirement for stormwater as stated in the draft permit. Because the dilution factor is greater than 100, no limit is established for the chronic toxicity test.

As a condition of this permit, the testing requirements may be reduced by a certified letter from the EPA. This permit provision anticipates that the Permittee may wish to request a reduction in WET testing. After four consecutive WET tests, demonstrating compliance with the permit limits for whole effluent toxicity, the Permittee may submit a written request to the EPA seeking a review of the toxicity test results and other pertinent information to make a determination. The frequency of toxicity testing may be reduced to 1/year.

The Permittee is required to continue testing at the frequency and species specified in the permit until the permit is either formally modified or until the Permittee receives a certified letter from the EPA indicating a change in the permit conditions.

The remaining conditions of the permit are based on the NPDES regulations, Parts 122 through 125 and consist primarily of management requirements common to all permits.

V. Storm Water Pollution Prevention Plan (SWPPP)

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), Best Management Practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA. The ECC facility engages in operations which could result in the storm water discharge of pollutants to waters of the United States. These operation include at least one of the following from which there is or could be site runoff: material storage, in-facility transfer, material processing, material handling, or loading and unloading. The permit required this facility to develop a SWPPP plan as outlined in the Attachment B of the draft permit. The Permittee is required to modify the SWPPP to include the current BMP and toxicity reduction plan within three months after the effective date of the permit.

The SWPPP becomes an enforceable element of the permit upon the effective date of the permit. Consequently, the SWPPP is as enforceable as any effluent limits on the discharges.

VI. 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." 16 U.S.C. §1855(b). The Amendments broadly define "essential fish habitat" as: "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 U.S.C. §1802(10). Adversely impact means any impact which reduces the quality and/or quantity of an EFH. 50 CFR §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.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. §1855(b)(1)(A). EFH designations for New England were approved by the United States Department of Commerce on March 3, 1999.

Only Atlantic Salmon is believed to be present during one or more lifestages with the EFH area, which encompasses the existing discharge site. No "habitat of particular concern", as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to adversely affect EFH or its associated species for the following reasons:

1. This is a re-issuance of an existing permit

2. The effluent does not contain toxic chemicals like chlorine, ammonia etc but contains toxic metals like copper, lead, cadmium and zinc. Appropriate limit of copper and other metals monitoring requirements including WET tests are included in the permit to protect water quality standards;

3. The permit will prohibit violations of water quality standards.

Accordingly, EPA has determined that a formal EFH consultation with NMFS is not required. If adverse impact to EFH are detected as a result of this permit action, NMFS will be notified and in EFH consultation will be promptly initiated.

VII. Antidegradation

This draft permit is being reissued with an allowable wasteload identical to the current permit with the same parameter coverage and outfall location. The State of Massachusetts has indicated that there will be no lowering of water quality and no loss of existing water uses and that no additional antidegradation review is warranted.

VIII. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

IX. Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and a supporting material for their arguments in full by the close of the public comment period, to the U.S EPA, Office of Ecosystem Protection, 1 Congress Street, Suite 1100 (CPE), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing to EPA and the States Agency for a pubic hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty 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. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Request for formal hearings must satisfy the requirements of 40 CFR 12474, 48 Fed. Reg. 14279-14280 (April 1, 1983).

X. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Suprokash Sarker
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street - Suite 1100 (CPE)
Boston, MA 02114 - 2033
Telephone: (617) 918 - 1693

DATED: Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachment A - included; No Attachment B; Attachment C - site map not available electronically

Attachment - A ECC Corporation
Effluent Data Summary

Outfall - 002

Groundwater :

Date	Flow(mgd)	pH(s.u.)	Copper(ug/l)	LC - 50		C - NOEC	
				Daphnid	Pimphale	Daphnid	Pimphale
6 / 01	(No Discharge)						
5 / 01	0.0072	6.2 - 7.2	265 - 270	37.9 %	35.5 %	12.5 %	12.5 %
4 / 01 To 4 / 00	(No Discharge)						

Stormwater (Quarterly Test) :

Date	Flow mgd	pH s.u.	BOD mg/l	TSS mg/l	O / G mg/l	Cadmium ug/l	Copper ug/l	Lead ug/l	Zinc ug/l	LC - 50 Daphnid	LC - 50 Pimphale
4 / 01	–	7.5	7.0	200	2.0	5.0	787	101	–	29.2 %	29.2 %
1 / 01	0.37	6.8	2.0	42.0	2.6	5.0	30	12	60	N / A	
11 / 00	0.3	6.6	2.0	5.0	2.2	5.0	108	5.0	100	N / A	