UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

FACT SHEET

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

NPDES PERMIT NO.: MA0001511

STATE PERMIT NO.: 385

NAME AND ADDRESS OF APPLICANT:

Raytheon Company - Equipment Division
30 Boston Post Road
Wayland, MA 01778

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Raytheon Company - Equipment Division
30 Boston Post Road
Wayland, MA 01778

RECEIVING WATER: Sudbury River

CLASSIFICATION: Class B

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

The above named applicant has applied to the U.S. Environmental Protection Agency for reissuance of an NPDES permit to discharge into the designated receiving water. The facility is engaged in the development of techniques for the production of printed circuit boards. The discharges are from electroplating process wastewaters, sanitary wastes, non-contact cooling water and boiler blowdown.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters based on self-monitoring reports, EPA and State inspections and permit application information is shown on Attachment A.

EXHIBIT 7

III. Limitations and Conditions.

The effluent limitations of the draft permit and the monitoring requirements may be found on the following attachments:

Attachment B

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

The Equipment Division of Raytheon Company develops techniques and process sequences for the production of printed circuit boards. A pilot printed circuit finishing department is maintained to test and establish new procedures. The plating operation is only a small segment of the work performed at Raytheon Equipment Division. Some 2000 employees are located at the Equipment Division in Wayland, Massachusetts. The plant operates five days per week. Metal plating and finishing process wastewaters are generated from rinse tanks and floor spillage in the printed circuit laboratory. This wastewater, averaging about 8,000 gpd, is treated by a metals precipitation and chromate reduction system, neutralized and then discharged (Outfall 001) to a storm drain which leads to the Class B Sudbury River. Sanitary wastewaters averaging 23,000 gpd are treated by communition, extended aeration, sand filtration and chlorination. The treated sanitary effluent (Outfall 002) discharges to the same stormdrain noted above. During the warm weather months, normally April through September, a recirculating cooling water system is operated for up to 9 hours per day, 7 days per week. The system incorporates two cooling towers which recycle approximately 95,000 gallons of water. An algicide sold under the name of "Microbiocide 300" (EPA Registration Number 31910-2-712) is periodically added to the cooling system to prevent excessive algae growth. Each day, approximately 720 gallons of cooling tower water from both towers are slowly blead off during a 9 hour period to remove dead algae. The two tower discharges are combined (Outfall 003) and then flow to the same stormdrain carrying the effluents from Outfalls 001 and 002 to the Sudbury River.

Two boilers are operated at the Equipment Division. The boilers are blowndown once each day, five days per week. The blowdown effluent (Outfall 004) joins the same storm drain carrying the three other effluents to the Sudbury River.

The Sudbury River has its beginning in the Town of Westborough, flowing from Cedar Swamp eastward to Framingham, then north through the towns of Sudbury, Wayland, Lincoln, and into the Town of Concord, forming the Concord River at its confluence with the Assebet River. The Sudbury River is characterized by three distinct physical sections. Upstream of Framingham, the river is a narrow, rapidly flowing stream dotted with a few small impoundments. In Framingham, the river has two large impoundments: the first is part of the Metropolitan District Commission water supply, and the second is created by the Colonna Dam in Saxonville. The

third and unique section of the river is that which flows through the National Wildlife Refuge meadowlands in the towns of Sudbury, Wayland, Lincoln, and Concord. Through this area (river distance of 12 miles), the river's elevation changes only one foot and the river is akin to an elongated lake.

The Sudbury River is 41 miles long with a drainage area of 169 square miles, 29 of which drain to the MDC reservoirs. This area has been rapidly urbanized with significant population growth over the last 20 years. The Class B Sudbury River has suffered from a summer dissolved oxygen and coliform problem created by urban runoff, septic leachate and primarily by adjoining meadowlands draining organic oxygen demanding material into the main channel of the river. The river receives no municipal wastewater discharges to its main stream above Raytheon. Low flows for the Sudbury River at the Raytheon Equipment Division stormdrain are estimated to be 3.6 cfs at 7Q10 and 22 cfs at 30Q2.

The Clean Water Act (CWA) requires that discharges satisfy both minimum technology and water quality requirements. The technology requirement which is presently applicable is Best Practicable Control Technology Currently Available (BPT)(Section 301 (1)A of the CWA. The CWA further provides in Sections 301 (b)(2)(A) and (E) 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, Fecal Coliform, and Oil and Grease).

Outfall 001

The process wastewaters eminating from Raytheon Equipment Division's metal plating and finishing activities are regulated under 48 FR 137 p. 32462 to 32488, July 15, 1983. The Commonwealth of Massachusetts has also developed effluent regulations for the industry which are in some cases more stringent than the EPA regulations. Also essential in the permit reissue process is the maintenance of prior permit limits where previously achieved at a more stringent level than current state and federal industry wide limits (48 FR 64 p. 14170). Effluent limits based on protection of the freshwater aquatic environment of the receiving stream are evaluated using national Water Quality Criteria (45 FR 231 p. 79318 to 79379, Nov. 28, 1980) and subsequent proposed revisions. The federal, state and water quality requirements for each pollutant are provided in Attachment C.

Flow

The old permit did not limit flow but flow is being limited in the new permit to eliminate the probability of achieving the concentration based limits by dilution. An average daily flow limit of 15,000 gpd and a maximum flow limit of 25,000 gpd is proposed as these flows are within the current operational levels. The maximum daily plant flow allows a dilution ratio of 90 to 1 for 7Q10 low flow for the Sudbury River and a ratio of 570 to 1 for the estimated 30Q2. See Attachment C.

Total Suspended Solids limits were not required in the old permit. Federal effluent regulations now require TSS limits. The new limits are 20 and 30 mg/l (monthly average and daily maximum) based on the more stringent state certification requirements.

Cu

The new permit limits total copper at 0.8 mg/l maximum daily based on water quality requirements. See Attachment C.

Chromium

The new permit limits for hexavalent chromium are continued at the same levels as those of the old permit of .05 and .10 mg/l. Total chromium is being limited to 1.5 and 2.0 mg/l, the equivalent to the prior limits for dissolved chromium.

Tin and Lead

The new limits for total tin are continued at the equivalent levels of the old permit for dissolved tin. Total tin is limited at 2.0 and 3.0 mg/l average and maximum. Lead is limited at .43 and .69 mg/l reflective of BAT Effllluent Guidelines. See Attachment C for details of state, federal and water quality requirements.

Nickel

The new permit limit of 1.8 mg/l average total nickel is based on a State Certification requirement. The new limit of 3.0 mg/l maximum daily is equivalent to the prior dissolved nickel limit.

Fluorides

Fluoric acid compounds are used in metal cleaning and surface preparation for plating. The old limit of 36 mg/l maximum daily is continued in the new permit while the old average daily limit of 18 mg/l is decreased slightly to 17.4 mg/l to comply with federal effluent guidelines.

Oil and Grease

Oil and grease limits were not required in the old permit but these are now required by federal effluent regulations for the metal finishing industry. The new permit limits of 15 mg/l average and maximum are based on state certification requirements.

Total Toxic Organics

TTO's were not limited in the old permit. Subsequently issued federal guidelines require the imposition of a limit of 2.13 mg/l maximum daily. The definition of TTO is given in Attachment B. The permittee will be able to periodically certify the non-use of toxic organic compounds in lieu of monitoring provided a Solvent Management Plan is prepared and submitted to the permitting authority.

pH Range

The new permit is more restrictive than the old permit for pH in that the range is reduced from 6.0 to 9.5 down to 6.0 to 9.0. The new requirements are a result of federal effluent guidelines.

Monitoring

The frequency of monitoring is increased in the new permit from once per month to twice per month based on regional EPA policy for the industry. The requirement for twice per month sampling and analysis is the minimum allowable frequency.

Sample Collection Point

The new permit specifies that samples for Outfalls 001 and 002 must be collected prior to dilution with any other wastewater discharges.

Outfall 002

The new limits for the discharge of treated domestic wastewaters are similar to those of the old permit with four exceptions. Flow, which was not limited in the old permit is now limited to 30,000 gpd average and 65,000 gpd maximum. The latter value is consistent with the design capacity of the treatment system. The average monthly limit is selected based on self-monitoring data. Limits of 17.4 and 36 mg/l fluoride are imposed in the new permit for Outfall 002. These limits are consistent with EPA's Effluent Guidelines for the metal finishing industry. Fluoride at a concentration of 60 mg/l was found in the sample analyzed and reported on in the permit reissue application submitted in 1981. Since the permittee was unaware of the source, the new permit specifies limits and regular monitoring for fluorides. Thirdly, the new permit modifies the prior permit requirement for chlorine residual consistent with revised state certification requirements. The residual must be maintained in the range of 0.5 to 1.5 mg/l after 15 minues of contact time. Finally, the new permit modifies the allowable pH range from 5.5 to 8.0, to 6.0 to 8.5 consistent with state requirements.

Outfall 003

The old permit did not provide for the daily bleed off of recycling cooling water. A maximum daily total of 800 gallons at 85°F is proposed in the new permit. This effluent is allowed to contain a chemical additive presently used to control algae growth in the cooling tower system. Any change in the type of additive used must first be approved by the permitting authority. Although toxicity data on the formulation of algicide used at Raytheon is limited, no negative effects from its present use there are apparent and hense the current practice is being authorized in the new permit. A rough calculation of the maximum instream concentration of the algicide at 7Q10 suggests a concentration of about 4 ppb. A reported LC50 for the active ingredients is on the order

of 40 ppb after 96 hours for Rainbow Trout. Both active ingredients are carbomate compounds. See details in Attachment C. No monitoring of Outfall 003 is specified as the quantity and pollutant concentration is believed to be insufficient to justify regular measurement and reporting by the company.

Outfall 004

The old permit did not provide for the once daily boiler blowdown which is diluted with the other three effluents before the combined wastewaters reach the Sudbury River. The new permit established a maximum daily limit of 30 gallons at 212°F. The permit further requires that this effluent be diluted with the effluents from Outfalls 001 and 002 before being discharged to the Sudbury River. NNo monitoring of Outfall 004 is specified in the new permit as the quanity and pollutant concentration is believed to be insufficient to justify the imposition of regular measurement and reporting by the company.

V. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency 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. VI. Comment

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate 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 the U.S. EPA, Compliance Branch, JFK Federal Building, Boston, Massachusetts 02203. 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 State Agency. 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 Adminsistrator 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. Requests for formal hearings must satisfy the requirements of 40 C.F.R. §124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

VII. 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:

David Cochrane
Compliance Branch, Room 2109
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Telephone: (617) 223-5013

June 5, 1984
Revised July 23, 1984

David A. Fierra, Acting Director
Water Managment Division
Environmental Protection Agency