

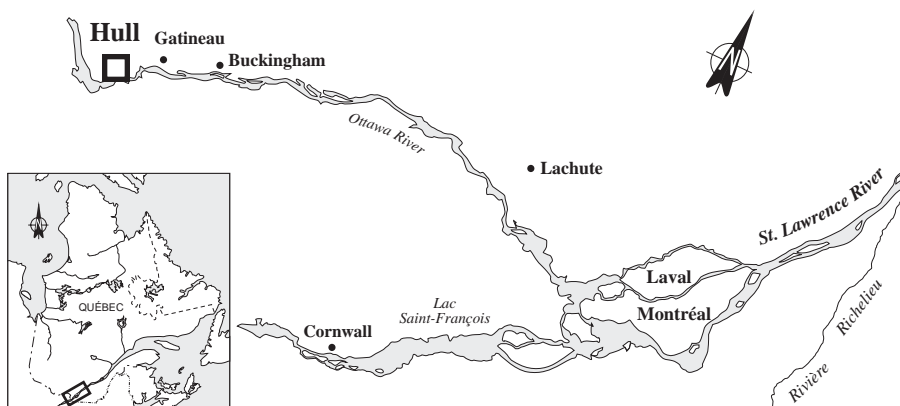
FACT SHEET 105

E.B. Eddy Forest Products Ltd.

3 Eddy Street

Hull, Quebec

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A list of 106 industrial plants has been established under St. Lawrence Vision 2000 (SLV 2000), the second phase of the St. Lawrence Action Plan, launched in 1988. The general objective is to reduce toxic effluent and virtually eliminate discharges of persistent toxic substances.

The 106 industrial plants designated under SLV 2000 are divided into four groups, each with a specific objective. The E.B. EDDY FOREST PRODUCTS LTD. mill in Hull is in Group 3, which comprises regulated industrial plants.

The objective for Group 3 is to check toxic discharges of regulated plants against environmental objectives and to establish corrective measures for maximum reduction of deleterious effects on the receiving environment.

INDUSTRIAL PLANT

Manufactures several types of paper

The E.B. EDDY FOREST PRODUCTS LTD. mill in Hull manufactures fine paper, coated paper and specialty papers. The pulp is obtained from virgin pulp, de-inked market pulp and recycled pulp (from old papers). The mill does no de-inking. The paper is coated with starch or coating slurry by a size press when it leaves the paper machine and then reeled and shipped out. Annual production capacity of the mill is 158 700 t of paper and 54 750 t of secondary fibre. In 1995 the mill operates at 46% design capacity and employs a work force of 435.

PRODUCTION

PRINCIPAL RAW MATERIALS

- Virgin pulp (softwood and hardwood)
- De-inked pulp
- Recycled pulp (from old paper)
- Clay, kaolin, calcium carbonate and glues

FINISHED PRODUCTS

- Fine paper
- Photocopy paper
- Printing paper (bibles, encyclopaedias, forms)
- Sugar bag paper
- Emery paper backs
- Coated paper
- Other specialty papers

TREATMENT MEASURES

INITIAL EFFLUENT VALUES

Biochemical oxygen demand and suspended solids

According to company data, in 1993 the mill discharged 32 696 m³/d of effluent containing notably:

- 971 kg/d of biochemical oxygen demand (BOD₅)
- 464 kg/d of suspended solids (ss)

RESOURCES AND USES TO PRESERVE

Biological diversity

The E.B. EDDY FOREST PRODUCTS LTD. mill in Hull empties treated effluent into the Ottawa River. Downstream of the discharge point, the river is biologically very rich. There are 10 spawning grounds - one for lake sturgeon and nine for northern pike and brown bullhead. The river is used for fishing, swimming, canoeing, and pleasure boating. Two parks border this stretch of the Ottawa River, Laurier and Jacques-Cartier parks. In addition, the Ottawa valley between Hull and Carillon is used by many species of birds - more than thirty-five during the nesting season. The first water intakes affected by mill effluent discharges are at Lac des Deux Montagnes.

ENVIRONMENTAL DISCHARGE OBJECTIVES

Environmental protection

Environmental discharge objectives are established to preserve local resources and uses. Expressed as maximum permissible loads and concentrations for effluent released into the environment, these guidelines are used to select treatment methods which best promote environmental protection. Environmental discharge objectives for E. B. EDDY FOREST PRODUCTS LTD. will be available by 1997.

EFFLUENT TREATMENT

Biofiltration and settling

In 1993, the mill treated effluent from SCOTT PAPER LIMITED in addition to its own effluent. Since 1995, industrial effluent from the E.B. EDDY FOREST PRODUCTS LTD. mill in Ottawa has been added to the effluent from the Hull mill. Effluent from both E.B. EDDY FOREST PRODUCTS LTD. mills is subjected to secondary treatment using a biofilter. Settling completes the secondary treatment and clarifies the waters of the SCOTT PAPER LIMITED mill. The sludge is dewatered in a belt filter. The purified effluent is continuously sampled (flowrate, pH and conductivity are measured) before it is discharged into the river. Most of the domestic sewage is treated in the city's wastewater treatment plant. In addition, a biotreatment system is used in a building far from the municipal system.

PREVENTION AND CLEANUP MEASURES IMPLEMENTED

Secondary treatment

Measures have been taken since 1993 to reduce water use, in particular to recirculate white water and control the temperature of water coming from the vacuum pumps. In 1995, secondary treatment with an Acticontact biofilter was introduced. This system treats effluent from the E.B. EDDY FOREST PRODUCTS LTD. mills in Hull and Ottawa. The secondary treatment will allow a reduction of the chemical and biochemical oxygen demand as well as effluent toxicity. \$4 million were spent on these improvements.

REGULATORY COMPLIANCE - WATER COMPONENT

Effluent meets standards

The E.B. EDDY FOREST PRODUCTS LTD. mill in Hull is subject to federal and provincial pulp and paper regulations. With the implementation of the environmental measures, the company has complied with the latest provincial standards, which came into force on September 30, 1995.

POLLUTION ABATEMENT

CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

Important decrease in Chimiotox index

The Chimiotox index gauges the load of all toxic substances in industrial effluent using toxicity factors assigned to each contaminant. It is used, among other things, to monitor discharge trends over the years (Figure 1) and to determine the toxic contribution of each pollutant (Table 1).

Table 1 shows monthly data for the last quarter of 1995 along with the Chimiotox values calculated from them assuming a flowrate of 32 267 m³/d (exceptionally, metal loads are from company data for October and November 1995 and January 1996). According to these data, supplied by the company in compliance with the provincial pulp and paper regulation, copper dominates the treated effluent, accounting for 44% of the Chimiotox index, followed by total aluminum (42% of the Chimiotox index).

Figure 1 is based on characterization data collected in November 1991 for the industrial effluent abatement program (PRRI) and company monthly data for the last quarter of 1995 (except for metals). The Chimiotox index calculated from abatement program data was applied for 1993 and 1994. Projections for 1996 to 1998 are based on company data for the last quarter of 1995 (except for metals). The 94% decrease in effluent toxicity is due mainly to the secondary treatment system introduced in 1995.

Table 1 *Chimiotox Index (1995) - E.B. Eddy Forest Products Ltd.**

Substance	Load (kg/d)	Toxic Weighting Factor	Chimiotox Units (CU)
Total copper	0.509	451	229
Total aluminum	20.3	11	223
2,3,7,8-T ₄ CDD equivalent	4.28 x 10 ⁻¹⁰	71 428 571	31
Stearic acid	1.157	19	22
Total zinc	1.340	9.4	13
Dehydroabietic acid	0.060	77	5
Oleic acid	0.068	19	1
Abietic acid	0.047	19	1
CHIMIOTOX INDEX			525

* Assuming an effluent flowrate of 32 267 m³/d

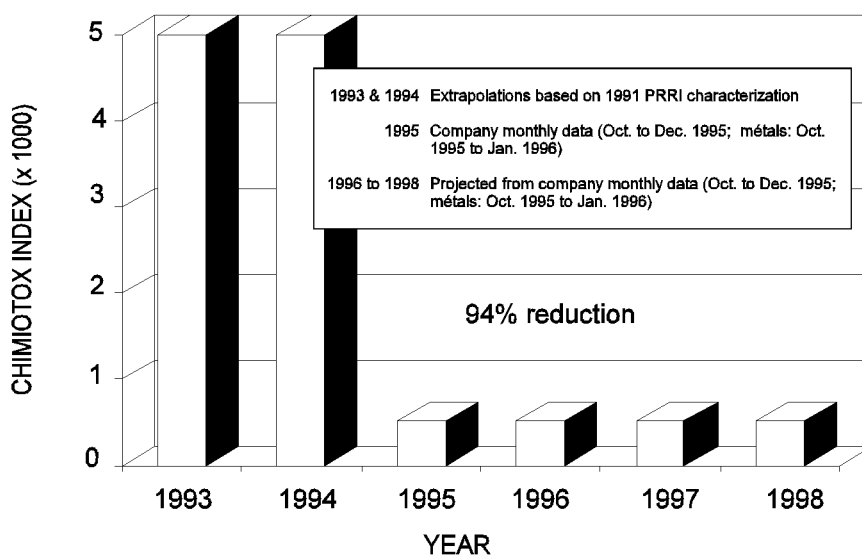


Figure 1 *Chimiotox Index Trends (1993 to 1998)
E.B. Eddy Forest Products Ltd.*

VIRTUAL ELIMINATION OF PERSISTENT TOXIC SUBSTANCES

One long-range objective of SLV 2000 is the virtual elimination of eleven persistent and bioaccumulative toxic substances from effluent of the 106 targeted plants along the St. Lawrence and its tributaries. The targeted substances are those designated by the International Joint Commission in August 1993: PCBs, DDT, dieldrin, toxaphene, dioxins, furans, mirex, mercury, lead alkyls, benzo(a)pyrene and hexachlorobenzene. To reach this objective, Protection has fixed the environmental discharge objectives set for applicable substances as its target by the end of SLV 2000 in 1998, thereby ensuring that all uses of the receiving environment are protected.

According to data from the self-regulating effluent monitoring program for the last quarter of 1995, two of the eleven targeted persistent toxic substances were detected: dioxins and furans. The environmental discharge objective for dioxins and furans will be available soon.

EFFLUENT TOXICITY

Non-toxic effluent

Since September 30, 1995, it has been illegal under the Quebec pulp and paper regulation to release into the environment or a storm sewer a final effluent that is acutely lethal to rainbow trout, as demonstrated by bioassays. The new cleanup measures implemented at the E.B. EDDY FOREST PRODUCTS LTD. mill have helped to reduce effluent toxicity. Company data for the last quarter of 1995 indicate that final effluent is not toxic.

REDUCTION IN SUBSTANCES MONITORED

Reductions to come

According to company data for the last quarter of 1995, the mill discharged 30 131 m³/d of effluent, containing notably:

- 1367 kg/d of biochemical oxygen demand (BOD₅)
- 767 kg/d of suspended solids (ss)

Biochemical oxygen demand and suspended solids loads increased appreciably between 1993 and 1995 for two reasons: a higher proportion of secondary fibres was used; effluent from the E.B. EDDY FOREST PRODUCTS LTD. mill in Ottawa was added. Loads dropped in 1996 after the secondary biofiltration treatment was introduced.

KEY POINTS

- A 94% drop in Chimiotox index
- A secondary biofiltration treatment and water recirculation measures introduced in 1995 at a cost of \$4 million
- Non-toxic effluent

Based on December 1995 inventory

ADDITIONAL INFORMATION

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