

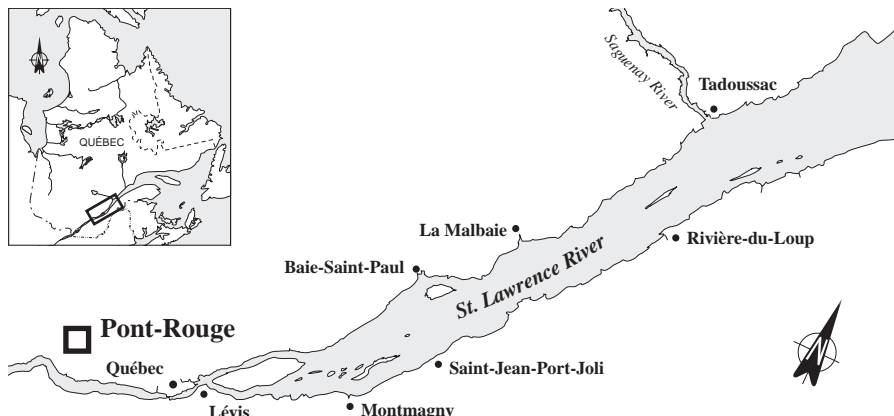
## FACT SHEET 97

# BPCO, Division of EMCO Ltd.

420 Dupont St. W.

Pont-Rouge, Quebec

G0A 2X0



*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 overall 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 BPCO, DIVISION OF EMCO LTD. mill in Pont-Rouge is part of Group 3, comprising regulated industrial plants.*

*The objectives for Group 3 are to assess the toxic waste of regulated plants in terms of environmental objectives and establish corrective measures for optimum reduction of any harmful impact on the receiving environment.*

## INDUSTRIAL PLANT

### *Diversified production*

The BPCO, DIVISION OF EMCO LTD. plant in Pont-Rouge produces decorative ceiling tiles, insulation panels for walls and roofs and felt board from shaving debris, sawdust and recycled fibres. The raw materials are first steamed and defibrated in refiners. A cylinder machine produces the felt board, while a fourdrinier machine makes the panels. The panels are pressed, dried, cut to standard dimensions, and, in certain cases, waterproofed. The ceiling tiles are later coated and treated to soften the surface or imprint a design. After receiving a coat of paint, the tiles are cut to commercial sizes. Additives are used to make the products water-resistant. The production capacity of the plant is 91 000 t/yr. of finished products. In 1995, the plant works at 82% capacity and employs 205 people.

## PRODUCTION

### PRINCIPAL RAW MATERIALS

- Recycled paper
- Shaving residue
- Sawdust
- Wax emulsion
- Polyaluminum sulphate silicate
- Starch

### FINISHED PRODUCTS

- Decorative ceiling tiles
- Interior and exterior wall coverings
- Insulation for walls and roofs
- Backer board
- Felt board

# TREATMENT MEASURES

## INITIAL EFFLUENT VALUES

### *SS and BOD<sub>5</sub>*

Based on company data, in 1993 the plant had an effluent discharge of 4497 m<sup>3</sup>/d, containing notably:

- 2429 kg/d of biochemical oxygen demand (BOD<sub>5</sub>)
- 1059 kg/d of suspended solids (ss)

## RESOURCES AND USES TO PRESERVE

### *Salmon fish pass*

The BPCO, DIVISION OF EMCO LTD. plant is located in Pont-Rouge, on the lower Jacques-Cartier river, in the heart of a rapidly growing tourist and recreation area. Wastewater from the plant is discharged into the Jacques-Cartier. Considerable development work has been done in recent years on the natural environment and heritage of the city of Pont-Rouge. Historic sites on the river banks, such as the Moulin Marcoux and Maison Déry, have been restored and are now open to tourists. Sport fishing is also increasingly popular. The Jacques-Cartier contains a number of fish species, in particular speckled trout, which is the most sought-after. The installation of a fish ladder at the foot of the Cascades Energy dam in 1985 allows salmon access to the McDougall site. When this dam was built in 1913, 2 km from the confluence with the St. Lawrence, this spelled an end to salmon migration in the Jacques-Cartier. From 1981 to 1991, the Ministère du Loisir, de la Chasse et de la Pêche (MLCP) stocked the river with over 1 230 000 young salmon. During the same period, a total of 3705 salmon swam up the river. By the end of the stocking program, the annual spawning run should involve approximately 3500 salmon.

## ENVIRONMENTAL DISCHARGE OBJECTIVES

### *Environmental protection*

Environmental discharge objectives are established to preserve local resources and uses. These guidelines, expressed as maximum permissible loads and concentrations for effluent released into the environment, are used in choosing treatment methods which best promote environmental protection. The water quality based objectives for BPCO, DIVISION OF EMCO LTD. have been calculated.

## EFFLUENT TREATMENT

### *Secondary treatment*

A secondary system was introduced in September 1995 to treat all the wastewater from the plant. The water flows into an underground storage tank and is then pumped into the secondary treatment system. The treatment involves a primary clarifier, an activated-sludge reactor and a secondary clarifier. A tank is also available for emergencies. From the primary clarifier, 50% of the water is recirculated in the process, while the other half goes through the secondary treatment and is then discharged into the Jacques Cartier river. Rainwater is discharged untreated into the Jacques-Cartier, while domestic sewage goes to the Pont-Rouge sewage treatment plant (aerated lagoons).

## PREVENTION AND CLEANUP MEASURES IMPLEMENTED

### *A \$5 million investment*

On April 6, 1994, the Ministère de l'Environnement et de la Faune du Québec (MEF) granted the plant a certificate of authorization to rationalize the use of process water and separate out domestic sewage. Rationalizing the use of process water was intended to reduce the flow of effluent to be treated. The operation was in three stages: separate out clean water, recirculate clean water and recycle industrial wastewater. The second component of the program was to separate domestic sewage from industrial wastewater to discharge it to the Pont-Rouge sewage treatment plant. The cost of cleanup operations totalled \$1 million.

The MEF delivered a certificate of authorization on April 5, 1995 for installation of a secondary activated-sludge treatment system. This system required an investment of \$4 million and has been in operation since September 1995.

## REGULATORY COMPLIANCE - WATER COMPONENT

### *Compliance with standards*

The BPCO, DIVISION OF EMCO LTD. plant in Pont-Rouge is subject to the provincial regulation on pulp and paper mills and the federal regulation on pulp and paper mill effluent. Cleanup measures have enabled BPCO, DIVISION OF EMCO LTD. to satisfy the new standards of the provincial regulation that came into effect on September 30, 1995.

# POLLUTION ABATEMENT

## CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

### *Significant decrease in Chimiotox Index*

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

Table 1 shows monthly data for the last three months of 1995, supplied by the company under the provincial regulation governing pulp and paper mills, and Chimiotox values estimated using these figures, assuming an effluent flowrate of 2503 m<sup>3</sup>/d. Based on these data, mineral oil and grease predominate in the treated water, representing 97% of the value of the Chimiotox index.

Figure 1 is based on 1993 industrial effluent abatement program (PRRI) characterization data, along with monthly company data for October to December 1995. The Chimiotox index for 1994 was obtained by extrapolating PRRI characterization data. The projected Chimiotox index for 1996, 1997 and 1998 is based on company data for the last three months of 1995. The 97% decrease in the Chimiotox index is due to the efficiency of the secondary treatment system and the cleanup measures implemented.

Table 1 *Chimiotox Index (1995) - BPCO, Division of EMCO Ltd.\**

Substance	Load (kg/d)	Toxic Weighting Factor	Chimiotox Units (CU)
Mineral oil and grease	5.228	100	523
Total aluminum	1.123	11	12
Stearic acid	0.159	19	3
Oleic acid	0.071	19	1
<b>CHIMIOTOX INDEX</b>			<b>539</b>

\* For an effluent discharge of 2503 m<sup>3</sup>/d.

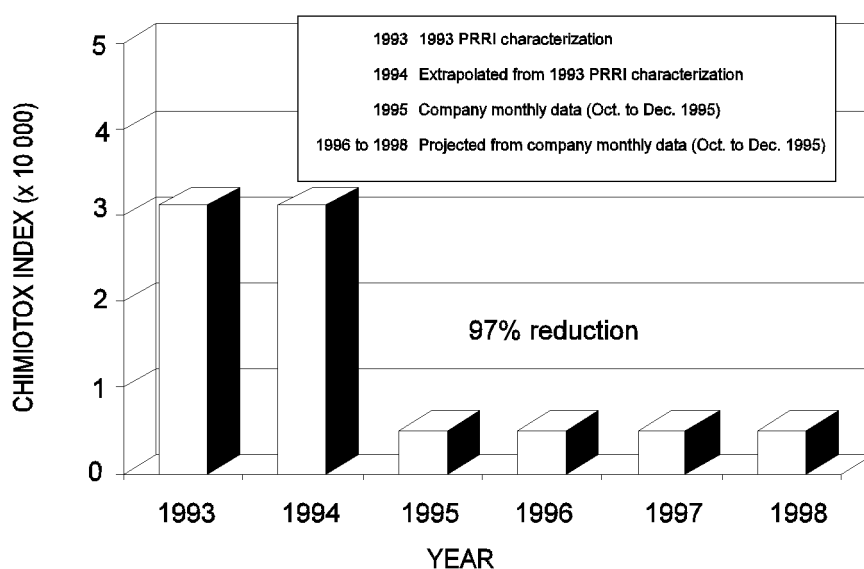


Figure 1 *Chimiotox Index Trends, 1993 to 1998  
BPCO, Division of EMCO Ltd.*

## 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 the 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.

Based on data from the self-regulating effluent monitoring program for the last three months of 1995, none of the eleven persistent and bioaccumulative toxic substances were detected in the company's effluent.

## 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. For BPCO, DIVISION OF EMCO LTD., the implementation of new cleanup measures has reduced effluent toxicity. Company data for October to December 1995 indicate that final effluent is not toxic.

## REDUCTION IN SUBSTANCES MONITORED

### *Reduction in loads and discharge rate*

Based on company data for the last four months of 1995, the plant had a mean effluent discharge of 2543 m<sup>3</sup>/d, containing notably:

- 646 kg/d of suspended solids (ss)
- 621 kg/d of biochemical oxygen demand (BOD<sub>5</sub>)

From 1993 to 1995, biochemical oxygen demand decreased by 74%, while the suspended solids load decreased 39%. Effluent discharge decreased by 43%. The reductions are mainly due to the cleanup measures implemented.

## KEY POINTS

- **Chimiotox index down 97%**
- **Rationalization of industrial wastewater and separation of domestic sewage; an investment of \$1 million**
- **Secondary treatment of effluent with activated sludge implemented in 1995 at a cost of \$4 million**
- **Non-toxic effluent**

Based on December 1995 inventory

## ADDITIONAL INFORMATION

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