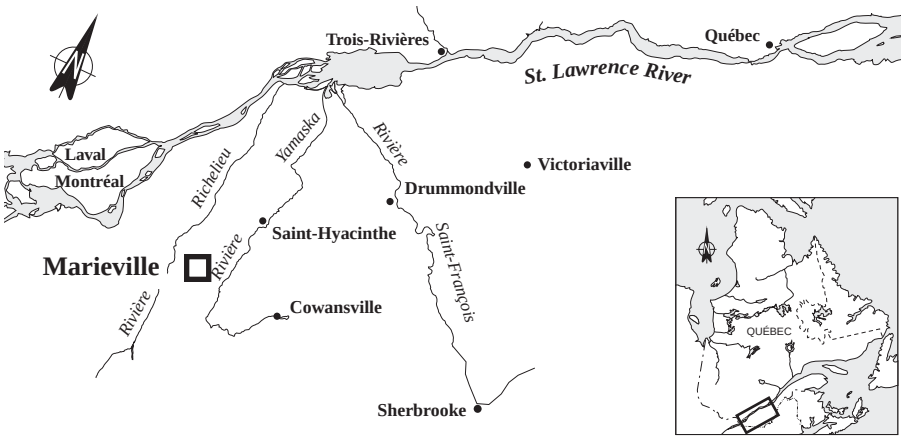
FACT SHEET 78

Sivaco Quebec, division of Ivaco Inc.

800 Ouellette Street
Marieville, Quebec
J3M 1P5



***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 SIVACO QUEBEC, DIVISION OF IVACO INC. works in Marieville is in Group 2, comprising plants that have already implemented treatment programs but whose effluent may contain toxic substances.

The objective for Group 2 is maximum reduction of toxic effluent of targeted plants.

INDUSTRIAL PLANT

Metal fabricating plant

The SIVACO QUEBEC, DIVISION OF IVACO INC. works produces steel wire, nails (galvanized and ungalvanized) and wire mesh. The drawing stock is first cleaned mechanically or in an acid bath (sulphuric or hydrochloric acid) to remove surface oxide. Once cleaned, the wire coils are coated with lubricating film (lubricating soap, lime, phosphate or borax). The wire is rough drawn through dies to obtain the desired diameter, following which it can be sold as is or galvanized, made into nails or wire mesh or heat treated. Annual production capacity of the plant is about 180 000 t. In 1995, the plant employs a work force of 459.

PRODUCTION

PRINCIPAL RAW MATERIALS

- Various grades of steel (wire coils)
- Lead and zinc ingots
- Powdered zinc
- Chemicals

FINISHED PRODUCTS

- Steel wire
- Galvanized wire
- Nails
- Galvanized nails
- Wire mesh

TREATMENT MEASURES

INITIAL EFFLUENT VALUES

Low loads

Based on company data, in 1993 the wastewater treatment system discharged 327 m^3/d of effluent containing notably:

- 5.25 kg/d of suspended solids (ss)
- 0.77 kg/d of iron
- 0.1 kg/d of zinc
- 0.02 kg/d of total lead

RESOURCES AND USES TO PRESERVE

Farming area

Wastewater from SIVACO QUEBEC, DIVISION OF IVACO INC. flows into Barré creek, which is in turn a tributary of Saint-Louis creek, which flows into the des Hurons River. This river joins the Richelieu on its right bank at Chambly Basin. Herds of livestock drink from the Saint-Louis and Barré creeks. These two small streams probably contain minnows. There is also a promising habitat for northern pike and perch at the mouth of the des Hurons River. The drainage basin of the des Hurons River drains an area of intensive farming. There is a campground on the right bank of the river. Near the Chambly bassin, the Richelieu is used for fishing, wind-surfing and other water activities. The first drinking water intake is in the Chambly bassin near the left bank of the Richelieu. The nearby filtration plant serves Goyer, Lièvres and Demers islands.

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. Environmental discharge objectives for SIVACO QUEBEC, DIVISION OF IVACO INC. will be available by 1997.

EFFLUENT TREATMENT

Physico-chemical treatment

Industrial wastewater undergoes physico-chemical treatment. The system includes a pre-neutralization tank, a primary neutralization tank, a coagulation and flocculation tank, and a sedimentation tank. Sludge is thickened before going through two filter presses. Domestic sewage is discharged into the Marieville sanitary sewerage system and treated with activated sludge at the municipal sewage treatment plant.

PREVENTION AND CLEANUP MEASURES IMPLEMENTED

Water treatment since 1982

SIVACO QUEBEC, DIVISON OF IVACO INC. has carried out work under a water cleanup program (PAE) signed on July 8, 1981, and a cleanup agreement signed on January 16, 1984. The work, which included installation of a wastewater treatment system, began in July 1981 and was completed in July 1992.

REGULATORY COMPLIANCE - WATER COMPONENT

Standards met

The SIVACO QUEBEC, DIVISION OF IVACO INC. works in Marieville is subject to the discharge standards set by the certificate of authorization issued on January 27, 1987, for the installation of a wastewater treatment system. The company meets the standards to which it is subject.

POLLUTION ABATEMENT

CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

Characterization planned for 1996

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 and determine the toxic contribution of each pollutant (Table 1).

Since there has been no exhaustive effluent characterization for the SIVACO QUEBEC, DIVISION OF IVACO INC. works under SLV 2000, there are not enough data to calculate the Chimiotox index. Effluent characterization is planned for 1996.

Table 1 ***Chimiotox Index - Sivaco Quebec, division of Ivaco Inc.***

Substance	Load (kg/d)	Toxic Weighting Factor	Chimiotox Units (CU)
Since there has been no exhaustive characterization of effluent from the SIVACO QUEBEC, DIVISION OF IVACO INC. plant, there are not enough data to calculate the Chimiotox index. Effluent characterization is planned for 1996; results can be used to calculate the Chimiotox index.			
CHIMIOTOX INDEX			**N/A**

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.

The 1996 characterization will show whether the effluent contains any persistent toxic substances.

PEEP TOXICITY REDUCTION

Bioassays in 1996

The Potential Ecotoxic Effects Probe (PEEP) combines the results of six standardized bioassays measuring the toxic effects of effluent. Results are expressed on a logarithmic scale (1 to 10) of increasing toxicity and are used to monitor discharge trends over the years. A series of bioassays of effluent from the SIVACO QUEBEC, DIVISION OF IVACO INC. works are to be conducted in conjunction with the SLV 2000 characterization planned for 1996.

REDUCTION IN SUBSTANCES MONITORED

Load reduction

According to company data, in 1995 the plant discharged 376 m^3/d of effluent containing notably:

- 1.25 kg/d of suspended solids (SS)
- 0.20 kg/d of iron
- 0.049 kg/d of zinc
- 0.004 kg/d of total lead

From 1993 to 1995, lead load decreased by 80%, suspended solids by 76%, iron by 74%, and zinc by 51%.

KEY POINTS

- **The plant meets discharge standards in the certificate of authorization signed January 27, 1987, for installation of a wastewater treatment system**

Based on December 1995 inventory

ADDITIONAL INFORMATION

Chimiotox Index and PEEP:
Gilles Legault, Environment Canada
(514) 283-3452

Environmental discharge objectives:
Francine Richard, MEF (418) 521-3820

Records officer at the Ministère de l'Environnement et de la Faune du Québec (MEF):
Luc St-Martin (514) 928-7607

Environment officer at SIVACO QUEBEC, DIVISION OF IVACO INC.:
Denis Charbonneau (514) 658-8741

Production team:
Environment Canada
Isabelle Bouchard Thérèse Drapeau
Gilles Legault Lucie Olivier
Sylvie Roberge Marc Villeneuve

Ministère de l'Environnement et de la Faune du Québec
Francine Richard
François Rocheleau

Somer
François Thériault

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