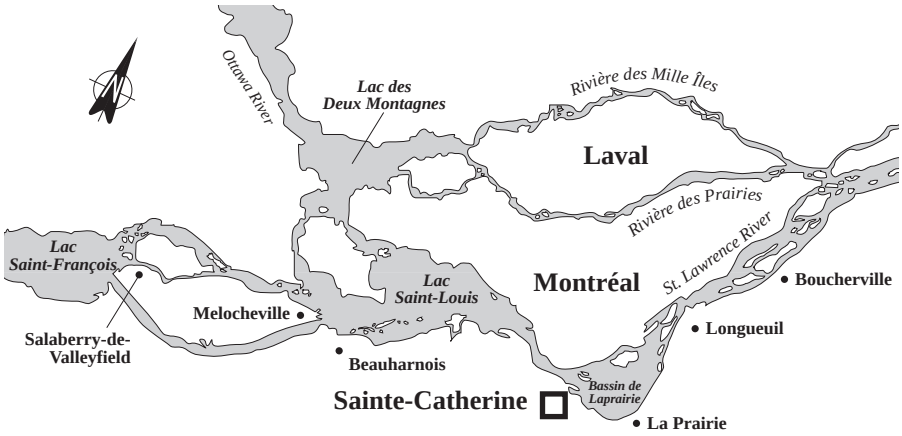
*FACT SHEET 76*

# Nova PB Inc.

*1200 Garnier St.*
*Sainte-Catherine, Quebec*
*J0L 1E0*




***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 NOVA PB INC. plant in Sainte-Catherine is part of 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

*Refined metallic lead production*

The NOVA PB INC. plant in Sainte-Catherine produces different grades of refined lead in a three-stage process that includes shredding of used batteries, melting and refining. Lead-bearing material is melted and reduced in a rotary furnace and requires the addition of substances such as coke, iron filings and sodium carbonate. The refinery has eight 100-t crucibles. The various grades of refined lead are cast in 30-kg or 1-t blocks. Production capacity of the plant is 100 000 t/yr of refined lead. In 1998, the plant operates at 45% capacity and employs a work force of 135.

## PRODUCTION

### PRINCIPAL RAW MATERIALS

- Old lead-acid batteries
- Lead-bearing materials
- Sodium carbonate
- Iron filings
- Alloy metals
- Waste oil
- Oil filters
- Paint pigments

### FINISHED PRODUCTS

- Refined metallic lead
- Recycled polypropylene

# TREATMENT MEASURES

## INITIAL EFFLUENT VALUES

*Mainly sulphates*

Based on company data, in 1993 the plant had an effluent discharge of 243 $m^3$/d, containing notably:

- 4617 kg/d of sulphates
- 0.049 kg/d of lead
- 0.041 kg/d of zinc

## 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. There are no environmental discharge objectives for NOVA PB INC. as the company aims to eliminate industrial effluent from the plant.

## EFFLUENT TREATMENT

*Two-stage treatment*

Industrial wastewater is first neutralized using sodium carbonate; suspended lead is recovered in a thickener and a drum filter and then re-used. The neutralized water and drainage water from the land around the plant are treated in the plant sewage treatment system, which includes a settling tank, a retention tank, a neutralization tank, a flocculation tank and a clarifier. Depending on the volume of water treated, some or all of the treated water is used in the conditioning chambers located downstream of the rotary kilns. The settling tank is drained once a year and the sludge recycled into the plant. Domestic sewage is discharged into the public sewer system connected to the sewage treatment plant of the Régie régionale du bassin de La Prairie, where it is treated using activated sludge.

## PREVENTION AND CLEANUP MEASURES IMPLEMENTED

*Changes to the treatment system and «zero discharge» objective*

In 1995, NOVA PB INC. modified its plant wastewater system to improve performance. Flocculants were replaced, a second neutralization unit was added, and the control system and analysis methods were improved. Beginning in 1998, a second rotary kiln became operational to better re-use water from the wastewater treatment unit. In 1999, the company also plans to implement a new process to recover sulphates from battery electrolyte water. As a result, this water would no longer be channelled to the treatment unit, which should enable the conpany to reach its “zero discharge” objective.

## REGULATORY COMPLIANCE - WATER COMPONENT

*Compliance with standards*

The NOVA PB INC. plant in Sainte-Catherine is governed by the standards of an authorization issued on September 16, 1985, for the water treatment system and the standards of the certificate of authorization issued on July 17, 1992. The company complies with the standards to which it is subject.

# POLLUTION ABATEMENT

## CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

*No characterization*

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 and determine the toxic contribution of each pollutant.

Starting in 1999 NOVA PB INC. will discharge no further effluent in the normal course of its operations, no characterization has been carried out during SLV 2000.

*Table 1* ***Chimiotox Index - Nova PB Inc.***

| Substance | Load (kg/d) | Toxic Weighting Factor | Chimiotox Units (CU) |
|---|---|---|---|
| *There will be no exhaustive effluent characterization for the NOVA PB INC. plant in Sainte-Catherine, since the company will discharge no further industrial effluent starting in 1999.* | | | |
| **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 priority 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.

No characterization has been conducted during SLV 2000. The company plans to eliminate liquid effluent from the plant in 1999. Only domestic sewage will be discharged into the municipal sewer system.

## PEEP TOXICITY REDUCTION

*No PEEP*

The Potential Ecotoxic Effects Probe, or PEEP, combines the results of six standardized bioassays measuring the toxic effects of effluent. The results are expressed on a logarithmic scale of increasing toxicity ranging from 1 to 10 and are used to monitor discharge trends over the years. In the case of the NOVA PB INC. plant, PEEP was not measured.

## REDUCTION IN SUBSTANCES MONITORED

*Sulphates discharge increased*

Based on company data, in 1997 the plant discharges 230 $m^3$/d of effluent, containing notably:

- 7130 kg/d of sulphates
- 0.039 kg/d of zinc
- 0.039 kg/d of lead

From 1993 to 1997, sulphate discharge increased while other discharges remained relatively stable. The plant aims to completely eliminate liquid effluent discharges in 1999.

## KEY POINTS

- **Modifications to the wastewater treatment in 1995**
- **"Zero discharge" objective in 1999**

Information revised January 1998

## ADDITIONAL INFORMATION

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

**Environmental discharge objectives:**
Francine Richard, MEF (418) 521-3820 #4767

**Records officer at the Ministère de l'Environnement et de la Faune (MEF):**
Jean Latulipe (514) 928-7607 ext. 276

**Environment officer at NOVA PB INC.:**
Roger D. Laporte (514) 632-9910

**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

**Internet address:**
**http://www.slv2000.qc.ec.gc.ca**

Published by authority of the Minister of the Environment

Catalogue No. En153-6/73-1998E
ISBN 0-662-26544-0
(Aussi disponible en français sous le titre *Établissements industriels : faits saillants*)