



# Port Hope Harbour Area of Concern Status of Beneficial Use Impairments September 2010

The Port Hope Harbour Area of Concern is located in the Municipality of Port Hope at the mouth of the Ganaraska River on the north shore of Lake Ontario, 100 km east of Toronto. The Area of Concern includes the harbour basin and extends 300 m from the lower Ganaraska River to the confluence area bounded by breakwalls. The harbour is used as a receiving water body for cooling waters from a uranium conversion facility. In the past, Port Hope Harbour was a major Great Lakes port. It now serves as a recreational boat mooring area.

Environmental concerns in the Port Hope Harbour Area of Concern focus on the contamination of the harbour sediments as a result of past waste management practices in the refining and processing of uranium and radium at a facility located beside the harbour. From the 1940s until the late 1980s, the facility was owned and operated by Eldorado Nuclear Limited, a federal Crown corporation. An estimated 110 000 m<sup>3</sup> of sediments in the turning basin and west slip areas of Port Hope Harbour are contaminated with uranium- and thorium-series radionuclides, heavy metals, and PCBs.<sup>1</sup> Most of the contamination occurred between 1933 and 1953, when low-level radioactive waste was stockpiled on the plant site or disposed of in ravines and vacant lots throughout Port Hope. It is likely that surface runoff led to the contamination of the harbour.



<sup>1</sup> Polychlorinated biphenyls (PCBs) are synthetic chemicals that have wide industrial applications. The manufacturing and importing of PCBs were banned in North America in 1977. PCBs are very persistent (long-lasting) in the environment and can be transported over long distances.

# PARTNERSHIPS IN ENVIRONMENTAL PROTECTION

Port Hope Harbour was designated an Area of Concern in 1987 under the Canada–United States Great Lakes Water Quality Agreement. Areas of Concern are sites on the Great Lakes system where environmental quality is significantly degraded and beneficial uses are impaired. Currently, there are 9 such designated areas on the Canadian side of the Great Lakes, 25 in the United States, and 5 that are shared by both countries. In each Area of Concern, government, community and industry partners are undertaking a coordinated effort to restore environmental quality and beneficial uses through a remedial action plan.

## Remedial Action Plan Partners

The development and implementation of the remedial action plan for the Port Hope Harbour Area of Concern is a cooperative effort involving the federal, provincial and municipal governments and industry. Cameco Corporation, the current owner of the uranium conversion facility, has developed additional plans to clean up low-level radioactive waste from the Cameco facility site over the coming years.

## Remedial Action Plan Process

The Great Lakes Water Quality Agreement requires that remedial action plans be developed and implemented in three stages:

### Stage 1: Identifying the Environmental Challenges

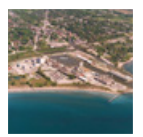
In Stage 1, the governments of Canada and Ontario, working with community stakeholders, undertook an extensive program of research and monitoring to assess environmental quality and identify the causes of degradation in the Area of Concern. The *Stage 1 Remedial Action Plan Report*, summarizing the outcome of these efforts, was completed in 1990. The report concluded that the only environmental challenge, known as *beneficial use impairment* in the remedial action plan process, is the restriction of dredging activities. Maintenance dredging in the harbour cannot be undertaken until the contaminated sediments are removed. The current status of the beneficial use impairment is described below in **Progress on Environmental Challenges**.

### Stage 2: Planning and Implementing Remedial Actions

In Stage 2, the governments of Canada and Ontario, working with community stakeholders, undertake a review of potential remedial actions to restore the beneficial use impairments identified in Stage 1. The *Stage 2 Remedial Action Plan Report* for the Port Hope Harbour Area of Concern has not yet been prepared as this is a unique situation as described below.

### Stage 3: Monitoring Actions and Delisting of the Area of Concern

The *Stage 3 Remedial Action Plan Report* will be completed when monitoring confirms that the environmental challenge has been addressed successfully through the remedial actions. As of September 2010, there is no estimate of when Port Hope Harbour will be delisted as an Area of Concern.



## PROGRESS ON ENVIRONMENTAL CHALLENGES

The Port Hope Harbour Remedial Action Plan is following a unique process, as long-term progress towards delisting of the Area of Concern is contingent upon the establishment of a facility for managing low-level radioactive waste. A priority for the immediate future is completion of construction of the new facility in the Municipality of Port Hope. That step will allow the remediation of contaminated sites to begin as early as 2012 in different locations within the municipality, including the Port Hope Harbour.

More specifically, this unique process includes the implementation of two concurrent initiatives to address the radioactive waste in the Port Hope area:

1. The first initiative is a federal government undertaking, the *Port Hope Area Initiative*, launched in 2001, which is focusing on cleaning up and managing the low-level radioactive waste from a number of sites, including the Port Hope Harbour. Natural Resources Canada is leading the initiative, which is being carried out in four phases:
  - The first two phases required site characterization and environmental assessment of the project and subsequent regulatory review. The environmental assessment was completed in 2007. It concluded that the project is not likely to cause significant adverse environmental effects. In 2009, Atomic Energy Canada Limited was granted a five-year license by the Canadian Nuclear Safety Commission to commence the design and construction phase of the project. Sediment studies have been conducted in the harbour to characterize the contaminated sediments and develop clean-up criteria. Studies also have been completed to assess the physical condition of the harbour perimeter and determine potential impacts to crib and wall support structures resulting from the presence of the historic contaminated sediment.
  - The third phase involves constructing one new long-term waste management facility and then cleaning up the waste. Once the facility is ready, it is expected that cleaning up the harbour will take about 18 months. Hydraulic suction dredging has been identified as the most appropriate means of remediating the contaminated sediments in the harbour. The harbour basin will be isolated during remediation by wave reduction and silt curtain systems.
  - The final phase provides for maintenance and long-term monitoring to ensure that the facility operates safely and effectively into the future.
2. The second initiative, called *Vision 2010*, has been proposed by Cameco Corporation, which now owns the former Eldorado property. Cameco is proposing the removal and long-term storage of 150 000 m<sup>3</sup> of contaminated soil and waste material from its property adjacent to the harbour at the new long-term waste management facility. In addition, Cameco plans to remove two thirds of the site's 30 buildings. Cameco Corporation expects to be able to select its preferred option and submit its environmental assessment to the Minister of the Environment by the end of 2010.

### Status of Beneficial Use Impairments

The table below summarizes, for the one beneficial use impairment in the Port Hope Harbour Area of Concern, its status as of September 2010; key actions taken by various partner agencies and organizations under the remedial action plan; and future key actions planned by the partners as they work towards the full restoration of environmental quality and eventual delisting of the Area of Concern.



## Restrictions on Dredging Activities

Status: *Impaired*

The presence of an estimated 110 000 m<sup>3</sup> of contaminated sediments in the harbour severely restricts maintenance dredging.

### KEY ACTIONS

#### COMPLETED

- Launched *Port Hope Area Initiative* to clean up and manage the low-level radioactive waste
- Completed environmental assessment, regulatory review and licensing of long-term waste management facility and began detailed design
- Initiated environmental assessment of *Vision 2010* project to address removal and long-term storage of contaminated soil and waste material from site of existing uranium conversion facility

#### REMAINING

- Commence construction of a long-term low-level radioactive waste management facility in the municipality of Port Hope
- Begin cleaning up the contaminated sites in different locations within the municipality, including the harbour sediments
- Complete the environmental assessment of the Cameco plan to clean up the property site

## FOR MORE INFORMATION

Port Hope Area Initiative:

[www.phai.ca](http://www.phai.ca)

ISBN: 978-1-100-18031-1  
 Cat. No.: En164-22/3-2011E-PDF  
 PIBS: 8220e

Published by Environment Canada and the Ontario Ministry of the Environment

For information regarding reproduction rights, please contact Public Works and Government Services Canada at 613-996-6886 or at [droitdauteur.copyright@tpsgc-pwgsc.gc.ca](mailto:droitdauteur.copyright@tpsgc-pwgsc.gc.ca)

Photos and map: © Atomic Energy of Canada Limited, Environment Canada

© Her Majesty the Queen in Right of Canada,  
 represented by the Minister of the Environment, 2011

© Queen's Printer for Ontario, 2011

Aussi disponible en français