REMEDIATION OF THE SYDNEY TAR PONDS AND COKE OVENS SITES

PROJECT DESCRIPTION

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

The governments of Canada and Nova Scotia propose to remediate the Sydney Tar Ponds and Coke Ovens sites. The Sydney Tar Ponds Agency (a Special Operating Agency of the government of Nova Scotia) will manage and implement the project.

Purpose of the Project Description

The proposed remediation plan will undergo an environmental assessment required by the Canadian Environmental Assessment Act and the Nova Scotia Environment Act. This document, known as the project description, serves two important functions in the federal environmental assessment process: 1) to determine the need for an environmental assessment; and 2) to promote efficient coordination of the environmental assessment.

Background Information

The Coke Ovens is a 68 hectare former industrial property bounded by residential and former industrial lands. It contains several watercourses including Coke Ovens Brook. From 1901 to 1988, various coke production plants operating on the site provided carbon and fuel for a nearby steel mill. Other industrial plants on the property used by-products from the coking operations to manufacture various commercial products. An estimated 560,000 tonnes (280,000 m$^3$) of soil on the Coke Ovens is contaminated with petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and metals. An additional 1,300 tonnes (1,000 m$^3$) of PAH contaminated sediment is present in Coke Ovens Brook and 25,000 (12,500 m$^3$) tonnes of contaminated soil is present in the in-ground tar cell.

For the purposes of the proposed cleanup, the Coke Ovens site also includes the Coke Ovens Brook Connector, a 4.1 hectare corridor containing the portion of Coke Ovens Brook that runs between the Coke Ovens and the South Tar Pond.

The Tar Ponds (consisting of the North Tar Pond and the South Tar Pond) is the common name for Muggah Creek, a tidal estuary that received industrial discharges from upstream industrial activities, including the Coke Ovens. The Tar Ponds cover 31 hectares and contain more than 700,000 tonnes (550,000 m$^3$) of sediments contaminated with PAHs and metals. About five percent of the sediments also contain polychlorinated biphenyls (PCBs) in amounts greater than 50 parts per million.

Proposed Remediation Strategy

Environment Canada and the Sydney Tar Ponds Agency developed the proposed cleanup plan, drawing on hundreds of engineering and scientific studies, and on public consultations carried out since 1996. The remediation strategy consists of several components:

- controlling surface water (at the Tar Ponds and Coke Ovens) and groundwater (at the Coke Ovens);
- removing and destroying selected contaminants from both sites;
- treating in-place selected contaminants at both sites
- containing remaining contaminants at both sites;
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- site surface restoration and landscaping at both sites; and
- developing long-term monitoring and maintenance plans for both sites

Details are provided below (and in the attached figures) of the proposed remediation strategies for the Tar Ponds and Coke Ovens sites.

**Tar Ponds**

Control Water – Watercourse diversion channels will redirect surface water flowing through the Tar Ponds. This will isolate brooks and streams from contaminated Tar Ponds sediments.

Remove and Destroy Selected Contaminants – 120,000 tonnes (92,000 m³) of PCB sediments and surrounding sediments will be excavated or dredged, dewatered, then destroyed in an approved, temporary PCB incinerator that will be set up off-site.

Treat Selected Contaminants In-place – The top 1 to 2 m of remaining sediments will be solidified and stabilized in-place with a binder, such as Portland cement, using augers or grout injection systems.

Contain Residual Contaminants – A containment system will be designed and constructed to reduce human and ecological exposure to contaminants and to prevent the movement of contaminants off-site. The containment system will consist of low permeability barrier walls, installed at various locations around the perimeter of the Tar Ponds, and an engineered cap.

Site Surface Restoration and Landscaping – The site surfaces will be restored and landscaped in a manner compatible with natural surroundings and future site use(s).

Long-term Monitoring and Maintenance Plan – A long-term monitoring and maintenance plan will be developed for the site. Air quality, water quality, sediment, biota, and the performance of the containment system will be monitored for 25 years after completion of the project.

**Coke Ovens**

Control Water – Diversion channels and barrier walls will be installed to reroute groundwater and surface water flowing through the site. This will facilitate the removal and cleanup of contaminated materials, prevent contamination of surface water, and minimize water treatment requirements.

Remove and Destroy Selected Contaminants – 1,300 tonnes (1,000 m³) of PAH contaminated sediment from Coke Ovens Brook and 25,000 tonnes (12,500 m³) of PAH contaminated material from the in-ground tar cell will be removed and destroyed in an approved, temporary incinerator that will be set up off-site.

Treat Selected Contaminants In-place – 253,700 tonnes (128,800 m³) of the remaining surface soils contaminated with petroleum hydrocarbons and PAHs will be treated in-place using landfarming, a form of bioremediation. Landfarming of the top 0.5 m of contaminated soil will be used to promote biological breakdown of contaminants in the surface soils.
Contain Residual Contaminants – A containment system will be designed and constructed to reduce human and ecological exposure to contaminants and to prevent the movement of contaminants off-site. The containment system will consist of low permeability vertical walls installed at various locations around the perimeter of the Coke Ovens and a soil cover designed to facilitate future site use(s).

Site Surface Restoration and Landscaping – Site surfaces will be restored and landscaped in a manner compatible with natural surroundings and future site uses.

Long-term Monitoring and Maintenance Plan – A long-term monitoring and maintenance plan will be developed for the site. Air quality, water quality, soil, and the performance of the containment system will be monitored for 25 years after completion of the project.

Schedule

It is estimated that remediation of both sites will take 10 years to complete. The general schedule for completing the various components of the cleanup is as follows:

- Engineering Design: 2004 to 2006
- Environmental Assessment: 2004 to 2006
- Eliminate PCBs: 2006 to 2010
- Eliminate Tar Cell & Coke Ovens Brook: 2006 to 2010
- Cleanup & Cap Tar Ponds: 2006 to 2013
- Cleanup & Cap Coke Ovens: 2006 to 2013
- Decommission Facilities: 2013
Tar Ponds Proposed Remedial Activities

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Project Components
- Study Area Boundary
- Main areas of PCB material to be excavated and incinerated
- Area to be stabilized, solidified and capped
- Channelization of Wash Brook and Coke Ovens Brook Connector

Sydney Harbour
South Arm
Southeast Shoreline
Area
Coke Ovens
Brook Connector

Radar Brook
Whitney Pier
Cooling Pond
Coke Ovens Site
South Tar Pond
Cagney Brook
Coke Ovens Brook
Whitney Pier Brook
Frederick St. Bk.

Project Components
* Proposed Water Treatment Plant
- Study Area Boundary
  - Coke Ovens Brook Cleanup
  - Proposed Diversion Walls
  - Proposed Re-Routing of Coke Ovens Brook
  - Proposed Cut Off Walls
  - Areas to be landfarmed and/or capped
  - Possible Landfill Location
  - Inground Tar Cell to be excavated and incinerated

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Coke Ovens Proposed Remedial Activities