

Annual Report

2004-2005



Low-Level Radioactive Waste Management Office

*working towards community solutions... working towards community solutions... working towards community solutions... working towards community solutions... working towards community solutions... **working towards community solutions...** working towards community solutions... working towards community solutions... working towards community solutions... working towards community solutions... working towards community solutions...*

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**FOR MORE INFORMATION**

**Port Hope Office**

5 Mill St South  
Port Hope, Ontario  
L1A 2S6  
Phone: (905) 885-9488  
Fax: (905) 885-0273

**Ottawa Office**

1900 City Park Drive  
Suite 200  
Ottawa, Ontario  
K1J 1A3  
Phone: (613) 998-9442  
Fax: (613) 952-0760

[info@llrwmo.org](mailto:info@llrwmo.org)  
[www.llrwmo.org](http://www.llrwmo.org)



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The Low-Level Radioactive Waste Management Office (LLRWMO) was established in 1982 to carry out the responsibilities of the federal government for historic low-level radioactive waste in Canada. The LLRWMO is operated by Atomic Energy of Canada Limited through a cost-recovery agreement with Natural Resources Canada, the federal department that funds and sets national policy for low-level radioactive waste management.

### MANAGEMENT

**Robert L. Zelmer**  
Director

**G. Glenn Case**  
Manager, Projects & Facilities Development

**Gary Vandergaast, Paul Arthurs**  
Manager, Operations and Environmental Services (Acting)

**Bernard Gerestein**  
Manager, Stakeholder Relations & Communications

**Rose Mary T. Rozak**  
Manager, Business Management & Operations

**Mr. T. Wallace**  
Director General  
Electricity Resources Branch  
Natural Resources Canada  
580 Booth Street  
Ottawa, Ontario  
K1A 0E4

**Dr. P. A. Brown**  
Director  
Uranium and Radioactive  
Waste Division  
Electricity Resources Branch  
Natural Resources Canada  
580 Booth Street  
Ottawa, Ontario  
K1A 0E4

**Dr. W. C. Kupferschmidt**  
General Manager  
Decommissioning,  
Waste Management and  
Site Projects  
Atomic Energy  
of Canada Limited  
Chalk River Laboratories  
Chalk River, Ontario  
K0J 1J0

Dear Sirs:

I am pleased to present the Annual Report of the Low-Level Radioactive Waste Management Office for the fiscal year ending March 31, 2005.

This report has been prepared in accordance with Section 5.2 of the Memorandum of Understanding between Energy, Mines and Resources Canada (now Natural Resources Canada) and Atomic Energy of Canada Limited, for the operation of the Low-Level Radioactive Waste Management Office.

Sincerely,



R. L. Zelmer, P.Eng., RPP  
Director

## DIRECTOR'S MESSAGE

This past year has been one of the most eventful in the 23 year history of the Low-Level Radioactive Waste Management Office (LLRWMO). There has been unprecedented progress on major projects, important international contributions and recognition, and organizational change to ensure that we are ready to meet future challenges.

Working closely with our municipal partners in Port Hope and Clarington, Ontario, the LLRWMO



Bob Zelmer presents Mayor Rick Austin, Municipality of Port Hope, with the draft Environmental Assessment Study Report documentation.

completed both draft Environmental Assessment Study Reports (EASRs) for presentation to the host municipalities. This was the highlight of over three years of intensive public consultation and technical and scientific study now expressed in 32 volumes and over 7,000 pages of documentation. Two parallel public processes to identify and assess the preferred project concepts were conducted, ultimately receiving resolutions of concurrence from each municipality on the qualified concepts. The cooperative approach to reaching community-based solutions is continuing to prove to be the way to resolve longstanding environmental problems. The federal review process for each project will now continue under the leadership of the federal responsible authorities under the *Canadian Environmental Assessment Act (CEAA)*.

The LLRWMO has been active internationally supporting Canada's commitment in the area of environmental remediation and radioactive waste management. The LLRWMO continues to contribute to the Environmental Modeling for Radiation Safety (EMRAS) program of the IAEA (Urban Working Group) and to a second IAEA program seeking to establish a comprehensive international waste inventory records keeping system titled the Net Enabled Waste Management Database (NEWMDB). The LLRWMO contributed to the International Atomic Energy Agency's Symposium on Disposal of Low Activity Radioactive Waste in Cordoba Spain in December. Staff from the LLRWMO investigated waste management facilities of ANDRA (France) and ENRESA (Spain) and welcomed international colleagues from Belgium, France, Japan and the United States. I am pleased that the work in the Port Hope area is receiving widespread recognition and affirmation in Canada and abroad and express my thanks to the LLRWMO staff for their hard work and dedication.

Finally, the LLRWMO undertook major organizational initiatives during the year, including relocation of the Ottawa office. All four Branches were restructured and the roles and responsibilities of the Branches were optimized to ensure that the LLRWMO will have the flexibility, the organization and the people to meet our future needs and challenges.

I look forward to continued collaboration with all of our partners and stakeholders as our work continues across Canada. I especially acknowledge the strong participation of Mayor Austin of Port Hope and Mayor Mutton of Clarington and their council colleagues and staff.

A handwritten signature in black ink, appearing to read 'Robert L. Zelmer'.

R.L. Zelmer, P.Eng., RPP

Director



## HISTORIC LOW-LEVEL RADIOACTIVE WASTE: INTRODUCTION

The Low-Level Radioactive Waste Management Office (LLRWMO) was established in 1982 to carry out the responsibilities of the federal government for historic low-level radioactive waste in Canada.

The mandate of the LLRWMO includes:

- *resolving historic low-level radioactive waste problems that are a federal responsibility;*
- *establishing, as required, a user-pay service for the disposal of low-level radioactive waste produced on an ongoing basis; and*
- *addressing public information needs concerning low-level radioactive waste.*

The goals of LLRWMO Historic Wastes Program are:

- *to clean up and manage for the long term, Canada's historic wastes including, but not restricted to, the historic wastes found in Port Hope, and Toronto, Ontario, Fort McMurray, Alberta and at various locations in the Northwest Territories;*
- *to perform interim remedial work as may be required at the aforementioned sites to protect human health and the environment, prior to the availability of permanent disposal facilities;*
- *to provide technical assessments and advice to NRCan for the development of government policies for the management of historic wastes; and*
- *to discharge the long-term residual responsibilities of the federal government for historic waste.*

There are several large historic waste sites as well as numerous smaller sites throughout Canada. At many of the sites, materials have been placed in interim storage pending the development and implementation of a long-term management approach. Ongoing site monitoring, inspection and maintenance are conducted at these sites.

Wastes at some of these sites include contaminated building materials. Other sites contain large volumes of radium-contaminated soils with low levels of radioactivity.

Small volumes of contaminated soils from cleanups at small sites as well as small volumes of contaminated items and building materials from larger sites, are removed to the LLRWMO storage buildings at Atomic Energy of Canada Limited (AECL) Chalk River Laboratories (CRL). Larger volumes of LLRW are managed at or near the source.

### Port Hope Area

The Port Hope, Ontario area contains the vast majority of Canada's historic LLRW, in excess of 90%. The waste dates back to the 1930s when radium was extracted from pitchblende ores for medical applications at a refinery in the municipality. The LLRW is primarily soil contaminated with waste material from the refinery. The LLRWMO is working closely with the municipalities of Port Hope and Clarington on the Port Hope Area Initiative (PHAI). The PHAI is a major \$260 M federally-funded initiative to clean up and safely manage historic LLRW in Port Hope and Clarington for the long term. The PHAI comprises the Port Hope and Port Granby Long-Term Low-Level Radioactive Waste Management Projects (the Projects).

LLRW is located at the Welcome Waste Management Facility (closed in 1955) in the Municipality of Port Hope and the Port Granby Waste Management Facility (closed in 1988) in the neighbouring Municipality of Clarington. Cameco Corporation now owns and maintains these sites which were originally developed by Eldorado Resources Limited, a federal Crown corporation. The waste at both sites is included in the PHAI.

### Other Locations

Historic waste is managed by the LLRWMO at various other locations across Canada including sites in Ontario, Alberta, and the Northwest Territories. The LLRWMO is responsible for the cleanup and the long-term management of the waste at these sites.

## PORT HOPE AREA INITIATIVE: INTERIM WASTE MANAGEMENT PROGRAM

**BACKGROUND**

For over 20 years, the LLRWMO has overseen the interim management of historic LLRW in Port Hope on behalf of the federal government. Currently, within Port Hope, there is LLRW located at four sites licensed by the Canadian Nuclear Safety Commission (CNSC), nine major unlicensed sites and various other properties. Regular inspection and ongoing monitoring is provided by the LLRWMO.

The Interim Waste Management Program in Port Hope comprises the Construction Monitoring Program (CMP), the Property Compliance Program (PCP) and the Environmental Monitoring Program (EMP).

Any project requiring a building permit is automatically referred to the CMP. In cooperation with the Municipality of Port Hope, the LLRWMO operates the CMP to prevent the spread of contaminated soil. Under the CMP, the LLRWMO will test the soil at the proposed construction site and transfer any contaminated soil to its licensed Pine Street Extension Temporary Storage Site.

The LLRWMO also operates the Property Compliance Program (PCP) and responds to requests from the property owner, their real estate agent, or their lawyer to provide information regarding the radiological status of properties. The PCP program ensures:

- *timely production of radiological status letters;*
- *collection of new radiological data to update individual property files; and*
- *cleanup of properties that exceed the criteria for remedial action.*

**2004-2005 ACTIVITIES**

In 2004-2005 the LLRWMO, under the PCP, conducted 143 radon/gamma surveys on properties in Port Hope. The LLRWMO issued 641 radiological status letters. This is the highest number of radiological status letters issued in one fiscal year period since the program began.

Under the CMP, a total of 338 m<sup>3</sup> of contaminated soil was excavated and transported to the licensed Pine Street Extension Temporary Storage Site in the municipality.

The LLRWMO's Port Hope Field Services Office staff conducted radiological investigations on a roadway near the existing Welcome Waste Management Facility and identified the extent of historic low-level radioactive waste material that will need to be addressed under the CMP. Work on this road reconstruction project is anticipated in April 2005.

As part of its ongoing program capital works program, the Municipality of Port Hope is planning roadwork during 2005 at other sites throughout the municipality and the LLRWMO will be working closely with the Municipality's engineering department as these various construction projects take place.

**2004-2005 INTERIM WASTE MANAGEMENT SUMMARY**

PCP-originated Radon & Gamma Surveys...	143
Soil Volume to the Pine Street Extension TSS (m <sup>3</sup> ) .....	338
Radiological Status Letters .....	641

PORT HOPE AREA INITIATIVE: PROJECTS - ENVIRONMENTAL ASSESSMENT

**BACKGROUND**

In July, 2001, Natural Resources Canada (NRCan) designated the LLRWMO as proponent to act on Canada's

behalf to carry out the work required to fulfill its obligations as set out in the Legal Agreement, in which the Government of Canada has committed to the final cleanup of historic wastes in the Port Hope area and the long-term management of these wastes in new facilities to be developed in the local area.

The PHAI began in April 2001 and by the middle of 2003 it became evident that Phase 1, originally expected to be completed in five years, would actually require more time to complete due to extensive consultation with stakeholders. At the close of this fiscal year, Phase 1 was

**The Port Hope Area Initiative (PHAI) comprises the following three phases:**

- Phase 1: Environmental Assessment, Design, Engineering and Regulatory Approval (~ 5 years)**
- Phase 2: Construction (~ 5 years)**
- Phase 3: Long-term Monitoring & Maintenance (Operating Phase)**

approximately 67% complete.

**ORGANIZATION**

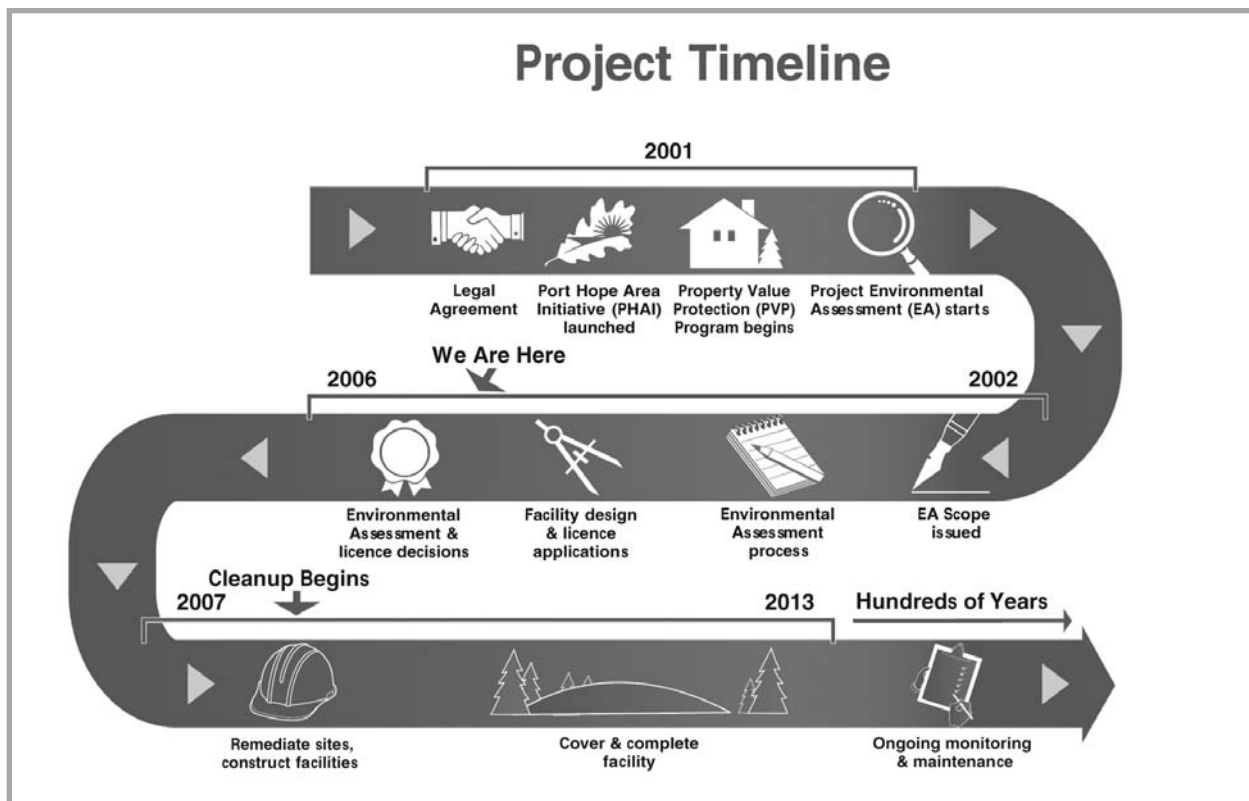
The LLRWMO has organized activities under the PHAI into two separate projects, one for the Municipality of Port Hope (Port Hope Project) and one for the Municipality of Clarington (Port Granby Project).

The recommended approach in Port Hope was to consolidate all the Port Hope historic LLRW into one new facility at the site currently occupied by the Welcome Waste Management Facility and adjacent auto recycling operation.

In Clarington, the recommended approach was to remove the waste from its current location on the shores of Lake Ontario to a new facility on an available neighbouring site about 700 m away from the lake.

**2004-2005 ACTIVITIES**

In the first quarter of FY 2004-2005, the LLRWMO engaged residents in eight public open houses seeking comments on recommended





PORT HOPE AREA INITIATIVE: PROJECTS - ENVIRONMENTAL ASSESSMENT  
CONTINUED

Qualified Concepts. These open houses were integrated with presentations to community groups, roundtable sessions and meetings held by the municipalities and their peer review teams. In total over 400 public comments were received and addressed, either verbally or in writing. Both Port Hope and Clarington Councils concurred with the LLRWMO recommendations, thereby enabling the environmental effects assessment studies to proceed on the projects as described in the Qualified Concept reports.

Under the direction of the LLRWMO, a variety of specialist consultants compiled and evaluated in-depth studies of effects the proposed solutions would have on the environment for both projects. The majority of this year was spent working toward the completion and issuance of the draft Environmental Assessment Study Report (EASR) for each project. These reports included studies, on environmental effects of the proposed projects on aquatic, terrestrial, atmospheric, geology and groundwater, and socio-economic environments as well as a human health effects assessment. Each EASR comprises one main document and fifteen supporting documents. Once again, stakeholder consultation and communications figured prominently in all processes surrounding the technical studies.

Extensive public input was also elicited during the effects assessment studies and preparation of the draft EASRs. Workshops, information sessions and discussion groups were held in October, November and December 2004 regarding socio-economic effects of the proposed projects, cleanup criteria and potential end uses of the closed facilities. Comments received at these and other events were considered by the appropriate specialists and reflected in the effects assessment technical studies presented to the Municipalities and the public in January 2005.

With a wealth of research, technical input and public suggestions and comments, draft EASRs for the Projects were presented by the LLRWMO to the Municipalities in February. Well-publicized public presentations, aboriginal group consultation and municipal peer review sessions on the EASRs followed shortly thereafter. By mid-March the comment period drew to a close and the LLRWMO finalized the draft EASRs to be presented to the respective Municipalities.

This year closed with the LLRWMO reaching a major milestone in the Port Hope Area Initiative, the electronic submission to NRCAN of the draft Port Hope Project EASR. This report is the compilation of over three years of intensive public consultation and technical and scientific study. The production of the formal paper copies and submission to all the Responsible Authorities is scheduled for April 2005.

Due to a request made by Clarington Municipal Council that further studies be conducted, the draft EASR documents for the Port Granby Project will not be released in tandem with the Port Hope project EASR reports. The Clarington Municipal Council, prior to considering the preferred option, requested that further study be conducted on three topics:

- *an additional liner for the proposed facility;*
- *a waste haul underpass at Lakeshore Road connecting the current and proposed waste management sites; and*
- *municipal road upgrades for the routes to be used by construction vehicles.*

The LLRWMO will be conducting investigations into all these subjects and will be reporting the findings to the Municipality in the late summer or early fall of 2005.

## PORT HOPE AREA INITIATIVE: COMMUNICATION AND INFORMATION INITIATIVES

**BACKGROUND**

For over 20 years the LLRWMO has conducted remedial projects in communities across Canada. The PHAI is the largest project ever undertaken by the LLRWMO and the proactive communications and consultation lessons learned from other projects have been applied in the Port Hope and Port Granby Projects.

**2004-2005 ACTIVITIES**

Throughout the preparation of the Environmental Assessment studies for both Projects, proactive communication and consultation with Port Hope and Clarington residents has been encouraged. In addition to hosting workshops, open houses and meetings, knowledgeable LLRWMO employees staffed booths during home shows and fall fairs in order to take the discussion and the information to the broader community. Facility tours were also offered, focusing on the proposed new facilities and remedial activities to be undertaken.

Dialogue with the public is the main function of the Project Information Exchange (PIE) office in Port Hope and a satellite office located for the

first quarter of the fiscal year on the main street of Newcastle Village in Clarington. The Port Hope PIE is also a repository for general and technical information and documents on the Public Registry for the Environmental Assessment of the Port Hope and Port Granby Projects. Awareness of the Projects is also developed through interviews and briefings with key stakeholders such as elected officials, First Nations representatives and nearby residents.

The LLRWMO also recognizes the communication needs of members of the public who are interested in the Projects but less actively engaged. An ever-increasing level of awareness of the Port Hope Area Initiative was made evident in the third wave of public attitude surveys with responses from 600 local residents. This level of awareness was enhanced by quarterly newsletters for both Projects, media releases to appropriate local news organizations, advertising in local media and displays in prominent community locations such as the public libraries.

**What is low-level radioactive waste?**

In Canada, **low-level radioactive waste** is defined by exclusion. If a waste is radioactive, but is neither nuclear fuel waste (also called high-level waste) nor uranium mine and mill tailings, then it is classed as low-level radioactive waste (LLRW). Most of Canada's low-level radioactive waste consists of soil that became contaminated over the past 70 years. It also includes contaminated soils and related wastes resulting from the very early operations of Canada's nuclear industry. Low-level radioactive waste being created today is mainly through activities relating to nuclear energy generation, nuclear research and development, and the production and use of radioisotopes in medicine, education, research, agriculture and industry. LLRW is grouped into two broad categories, as follows:

**Ongoing Waste:** LLRW that is generated from ongoing activities of organizations that are currently in operation, for example, nuclear electricity generators. Owners or producers of ongoing waste are responsible for its management.

**Historic Waste:** LLRW that was managed in the past in a manner no longer considered acceptable but for which the owner cannot reasonably be held responsible and for which the federal government has accepted responsibility.

## PORT HOPE AREA INITIATIVE: PROPERTY VALUE PROTECTION PROGRAM

**BACKGROUND**

During the year, the Property Value Protection (PVP) Program provided information and assistance to property owners, support to the real estate community and processed claims for compensation relative to possible losses on real estate value. The PVP Program experienced increased inquiries and a more prominent role at various Open Houses and community meetings as the public became more familiar with the details of the proposed Projects.

Established through the Legal Agreement, the PVP Program was launched in October 2001 to compensate owners of residential, commercial or industrial properties in designated parts of the municipalities of Port Hope and Clarington if they realize financial loss on the sale or rental of their property or mortgage renewal difficulties as a result of the Initiative. The municipal councils of Port Hope and Clarington consider the PVP Program an important economic mitigation measure.

**Key features of the PVP Program include:**

- A claim process;
- An appeal process; and
- The appointment of independent Compensation Officers to hear appeals

**2004-2005 ACTIVITIES**

From its main street location, the PVP Program provided information and assisted property owners on a one-on-one, confidential basis to resolve issues related to the sale of their property. The area real estate market remained strong throughout the year, showing no evidence of generalized effects related to the Projects. Some site-specific losses were demonstrated in the case of properties located in close proximity to proposed remediation sites or along transportation routes. The PVP Program communicated throughout the year with the real estate sector to keep it up to date on the progress of the Projects. Two brochures prepared by the PVP Program to assist realtors in explaining the projects to their clients were well received.

In addition to presentations to the Port Hope and Durham real estate boards and project Open Houses and community meetings, PVP Program staff participated at home and trade shows and the Port Hope Fall Fair. PVP Program staff also met with the Compensation Officers, who are appointed to hear appeals, to update them on the Projects and to answer questions about the PVP process.

## TORONTO (MALVERN)

**BACKGROUND**

Radium-contaminated soil was discovered in 1980 at the site of a former farm, now part of the urban community of Malvern in Toronto. In 1996 a full-scale cleanup and remediation of land development and residential property sites was undertaken and completed, including the construction of an engineered storage mound.

The licensable material was recovered and transferred to the LLRWMO's licensed storage warehouse facility at CRL. The mildly contaminated soil was placed in the engineered storage mound referred to as the Passmore Avenue Temporary Storage Site. A construction monitoring program, modelled in part after the

Port Hope experience, was established to ensure that future municipal servicing projects or reconstruction in the vicinity of the cleanup sites did not encounter unexpected occurrences of related contamination.

**2004-2005 ACTIVITIES**

The LLRWMO's environmental monitoring at the Passmore Avenue Temporary Storage Site is carried out under a cost recovery arrangement with Ontario. It continues to demonstrate that the site is not impacting the surrounding environment. The LLRWMO's annual monitoring report is sent to the City of Toronto and made available to the public through the Malvern Public Library.

## NORTHERN TRANSPORTATION ROUTE

**BACKGROUND**

In the early 1990s, the LLRWMO identified 20 contaminated sites along the Northern Transportation Route (NTR), a 2 200-km route used in the past to transport uranium and radium ores and concentrates from the Northwest Territories to northern Alberta. The NTR extends from the Port Radium Mine site on Great Bear Lake, via a system of lakes and rivers (including Great Bear and Great Slave Lakes, and the MacKenzie, Slave, and Athabaska Rivers) south to Fort McMurray.

Initial surveys in 1991 of transfer points were complemented by further investigations each year until 1996. During the period of 1993-2003, approximately 47 000 m<sup>3</sup> of uranium-contaminated soil was removed from nine sites in Fort McMurray and consolidated into one engineered storage mound. Other small quantities of waste (200 m<sup>3</sup>) were removed from two sites where

people were living in close proximity to the waste.

In 2003, the LLRWMO supervised remedial work to decontaminate barges in Hay River, and to stabilize contained material in Fort Fitzgerald.

**2004-2005 ACTIVITIES**

The LLRWMO completed a radiological characterization program in the South Slave section of the NTR. The preliminary results of these investigations indicate that historic waste (pitchblende spillage) is present at Fort Fitzgerald, Bell Rock, Fort Smith and along the portage routes. The studies revealed that more definitive subsurface work will be required to better refine estimations of the volume of material and management options. The LLRWMO's work on the compilation of investigation, remediation and ownership information to date along the NTR continues. A draft report is anticipated in the first half of FY 2005-2006.

## FORT McMURRAY

**BACKGROUND**

For a 25 year period between the 1930s and the 1960s, uranium and radium ore was shipped by barge from Great Bear Lake, Northwest Territories, through a system of lakes and rivers to docking sites at Waterways (now Fort McMurray), Alberta where it was then sent by railway to a refinery in Port Hope. Contamination at several sites occurred with the accidental spillage of some materials, primarily at the transfer points.

Remediation work in Fort McMurray first began in 1992 with the LLRWMO investigating sections of this 2 200-km water transport route and discovering elevated levels of radioactivity at several sites. Between 1993 and 1996, the LLRWMO excavated and removed mildly contaminated soil from eight riverside properties.

In 2002, work on the ninth property began with the Waterways project where the last 9 000 m<sup>3</sup> of contaminated soil was removed and placed in the

segregated storage cell at the designated landfill area in Fort McMurray. The final capping of the waste management facility was completed in 2003.

The completion of the Fort McMurray Waterways project in the summer of 2003 marked the resolution of a decade-long endeavour to clean up and safely manage about 43 500 m<sup>3</sup> of marginally contaminated soil from several sites in this northern Alberta city. The Waterways property is now part of the community's public park and trail system.

**2004-2005 ACTIVITIES**

The LLRWMO continues to provide ongoing monitoring including groundwater and leachate collection and analysis, ambient radiation monitoring, and inspections and assessment of the slopes adjacent to the Long-Term Management Facility (LTMF). The LLRWMO also continues to provide monitoring to the adjacent area of the west slope and the northeastern slope above Prairie Creek to ensure there is no erosion or soil instability.

**OTHER HISTORIC WASTE PROGRAM ACTIVITIES**

The LLRWMO performed a variety of inspections and procedures to ensure the ongoing integrity of packaged LLRW currently in two licensed LLRWMO warehouse buildings at CRL. The LLRWMO worked in cooperation with CRL staff from early June through August 2004, and completed the project under budget and ahead of schedule. The project included:

- *inspecting 2 212 steel barrels, a 100 other containers and 370 wooden pallets (all of the contents of both warehouses);*
- *identifying and sequestering 60 deteriorated barrels and 30 inconsistent pallets;*

- *overpacking of the 60 deteriorated barrels and another 30 selected barrels in steel over-packs;*
- *updating the packaged waste inventory; and*
- *consolidating intact barrels on uniform pallets.*

During the year, LLRWMO staff also assessed the level of effort required to remediate radium dial contamination in workspace and storage space in a hangar at a Canadian airport. The work scope was used by the property owner as the basis for a contract to remediate the property.

**CNSC LICENCES HELD BY THE LLRWMO**

The LLRWMO currently holds five licences issued by the Canadian Nuclear Safety Commission for various operations and facilities. The following table summarizes the licensing obligations of the LLRWMO.

Facility*	Licence Number & Type	Description	Expiration Date
Port Hope Field Office Services Laboratory	20004-7-06.0 Nuclear Substances & Radiation Devices Licence	Licence for the LLRWMO Laboratory in Port Hope	Sept 30 /06
Pine Street Extension Temporary Storage Site	WNSL-W1-182.1/2006, Waste Nuclear Substance Licence	Licence for the Pine Street Extension Temporary Storage Site in Port Hope, Ontario	Dec 31 /06
Port Hope Waste Management Facility	WNSL-W1-344-1.2/ind, Waste Nuclear Substance Licence	Licence for the Pine Street Extension Consolidation Site, Strachan Street Consolidation Site & Sewage Treatment Plant Temporary Storage Site in Port Hope, Ontario	Indefinite from date of issue ( Jun 22/02)
Prescribed Substances at Unspecified Locations	WNSL-W2-2202.1/2006, Waste Nuclear Substance Licence	Historic low-level radioactive waste management at Canadian sites.	Nov 30 /06
X-Ray Fluorescence Analysis	20004-15-06.0 Nuclear Substances & Radiation Devices Licence	Licence issues for x-ray fluorescence analyzer used or stored at LLRWMO Field Services Office laboratory in Port Hope, Ontario	Apr 30 /06

\*A further five unlicensed low-level radioactive waste storage mounds are also under LLRWMO oversight. These are: Lakeshore Road Storage Mound and Passmore Avenue Temporary Storage Site, both in Toronto; the Fort McMurray Long-Term Management Facility in Fort McMurray, Alberta; and in the Northwest Territories mounds, the Fort Smith Interim Storage Mound and the Tulita Interim Storage Mound.



ONGOING WASTE PROGRAM

Low-level radioactive waste continues to be generated by electrical utilities, nuclear research organizations, nuclear fuel manufacturers, and the producers and users of medical and other radioisotopes. These producers are responsible for the wastes they produce. The annual accumulation of such wastes in Canada is about 4 000 m<sup>3</sup>.

NRCan often requests technical input from the LLRWMO when it develops policies and strategies for the long-term management of this ongoing waste. The LLRWMO also assists NRCan, on request, in activities with international organizations such as the IAEA and the Nuclear Energy Agency of the Organization for Economic Cooperation and Development.

The LLRWMO continues its commitment as Canada's delegate to the Urban Working Group at the IAEA program on Environmental Modelling for Radiation Safety (EMRAS), in Vienna. The

focus of this group is the release of radionuclides to particular types of environment (e.g. urban and aquatic environments) restoration of sites with radioactive residues and impact of environmental radioactivity on non-human species. In 2004, the LLRWMO attended both the April and November sessions held in Vienna.

The LLRWMO participated at the IAEA Symposium on Disposal of Low Activity Radioactive Waste held in Cordoba, Spain in December 2004; contributed in both the second (April 2004) and third (November 2004) urban remediation working group meetings on "Remediation of Sites with Radioactive Residues" as part of the EMRAS program held by the IAEA; and contributed, on behalf of Canada, to a process to establish a comprehensive international waste inventory records keeping system.

INVENTORY OF RADIOACTIVE WASTE IN CANADA

The LLRWMO updated and, in December 2004, released the "Inventory of Radioactive Waste in Canada." This report presents the inventory of radioactive waste in Canada to the end of 2003. It provides an overall review on the production, accumulation and projections of radioactive waste in Canada. The data presented in this report has been gathered from many sources including regulatory documents, published reports and supplemental information provided by the regulatory agency, waste producers and waste management facilities.

At present, radioactive waste is generated in Canada from uranium mining, milling, refining and conversion; nuclear fuel fabrication; nuclear reactor operations;

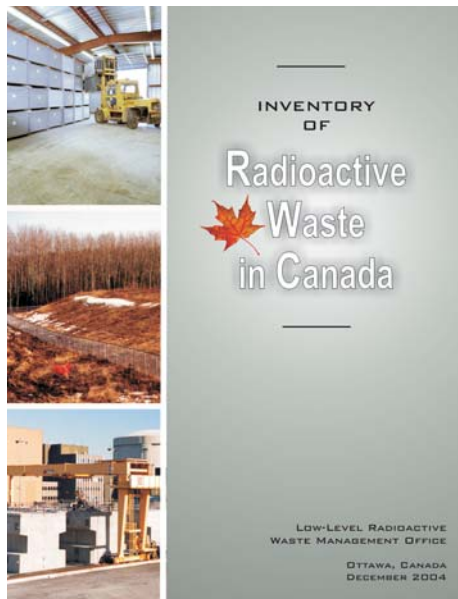
nuclear research; and radioisotope manufacture and use.

Radioactive waste is grouped into three categories: nuclear fuel waste, low-level radioactive waste and uranium mill tailings.

In accordance with the Radioactive Waste Policy Framework, the owners of radioactive waste are responsible for the funding, organization, management and operation of facilities required for their waste. The policy recognizes that arrangements may be different for each of the three waste categories.

Radioactive waste in Canada is currently managed in a safe and environmentally responsible manner by storing the waste in

accordance with the requirements set out by the CNSC.



## INFORMATION PROGRAM

The LLRWMO provides information about LLRW and its management in Canada. Its offices in Port Hope and Ottawa respond to daily public inquiries received by phone, letter, e-mail and in person. The LLRWMO's popular web site received well over 1 400 hits per month in 2004-2005. The Office responded to requests for information from people across Canada, and abroad.

The information program for the PHAI for the past fiscal year included the creation and

publication of a PHAI project specific newsletters that are mailed out to over 14 000 local residents on a quarterly basis.

In order to better serve its primary customer, NRCan, and the public, in July 2004 the Ottawa office relocated to 1900 City Park Drive and the main LLRWMO office was relocated to Port Hope from Ottawa.

The LLRWMO also received international visitors from Belgium, France, Japan, and the United States at its Port Hope location.

### Acronyms

AECL:	Atomic Energy of Canada Limited	LTMF:	Long Term Management Facility
CMP:	Construction Monitoring Program	NRCan:	Natural Resources Canada
CNSC:	Canadian Nuclear Safety Commission	NTR:	Northern Transportation Route
CRL:	Chalk River Laboratories	NTCL:	Northern Transportation Company Limited
EMRAS:	Environmental Modelling for Radiation Safety	PCP:	Property Compliance Program
IAEA:	International Atomic Energy Agency	PHAI:	Port Hope Area Initiative
LLRW:	Low-Level Radioactive Waste	PIE:	Project Information Exchange
LLRWMO:	Low-Level Radioactive Waste Management Office	PVP:	Property Value Protection

## FINANCIAL REVIEW

LLRWMO operations are funded by NRCan through a cost recovery agreement (Memorandum of Understanding) with AECL. The LLRWMO's accounts and financial control systems conform to those of AECL.

Prior to the start of each fiscal year, the LLRWMO submits a business plan to NRCan for approval. The plan describes how the LLRWMO intends to carry out NRCan's priorities with the available funding. Each quarter, LLRWMO staff and

representatives from NRCan's Uranium and Radioactive Waste Division review and adjust the plan as necessary.

The financial statements in this annual report detail the LLRWMO's operating costs for the fiscal year ending March 31, 2005. The table illustrates how funding provided by NRCan was allocated to the LLRWMO's mandated business lines in 2004-2005. For comparison, 2003-2004 is also provided.

## FINANCIAL REVIEW

PROGRAM AREAS	TOTAL EXPENDITURE (\$ THOUSANDS)	
	2003-2004	2004-2005
<b>HISTORIC WASTE PROGRAM</b>		
PORT HOPE AREA INITIATIVE		
Port Hope Area – Long Term Storage Projects	7 558*	6 799*
Port Hope Area – Property Value Protection Program	198	237
Port Hope Interim Waste Management	1 593	896
<b>Subtotal: Port Hope Area Initiative</b>	<b>9 349</b>	<b>7 932</b>
NORTHERN SITES INITIATIVE		
Fort McMurray	718	33
Northern Transportation Route	56	171
<b>Subtotal: Northern Sites Initiative</b>	<b>774</b>	<b>204</b>
OTHER HISTORIC WASTE INITIATIVES		
Toronto (Malvern)	25	30
Historic Waste at Other Locations	53	158
<b>Subtotal: Other Historic Waste Initiative</b>	<b>78</b>	<b>188</b>
OTHER MANDATED ACTIVITIES		
Ongoing Waste Program	69	67
Information Program	121	155
LLRWMO Restructure	0	57
<b>Subtotal: Other Mandated Activities</b>	<b>190</b>	<b>279</b>
Less Cost Recovery from Ontario for Toronto (Malvern)	(25)	(30)
<b>TOTAL EXPENDITURES FOR NRCAN FUNDING</b>	<b>10 366</b>	<b>8 573</b>

\* Includes Payroll variance credit.

## AUDIT STATEMENT

***Atomic Energy of Canada Limited (AECL) is audited annually by the Office of the Auditor General of Canada and Ernst & Young. The audit is conducted in accordance with generally accepted auditing standards. The review of the LLRWMO's financial statements falls within the scope of that audit and the opinions expressed in the AECL audit report are equally applicable to the LLRWMO's financial results.***