Low-Level Radioactive Waste Management Office

...working towards community solutions

2010-2011

Annual Report

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Annual Report

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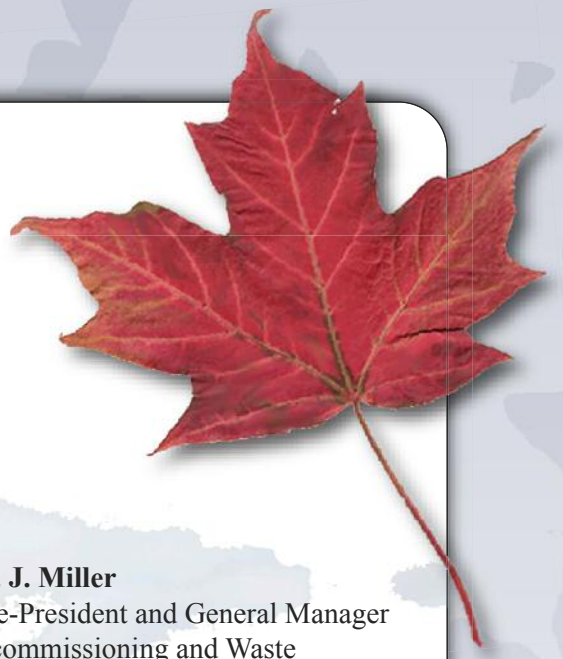

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I am pleased to present the Annual Report of the Low-Level Radioactive Waste Management Office (LLRWMO) for the fiscal year ending 31 March 2011.

This report has been prepared in accordance with Section 5.2 of the Memorandum of Understanding between Natural Resources Canada (formerly Energy, Mines and 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, LLRWMO

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Director's Message

The Low-Level Radioactive Waste Management Office (LLRWMO) continues to provide Canadians with safe and effective management of historic low-level radioactive waste (LLRW) in custody, as well as responsible stewardship and oversight of historic waste sites awaiting remediation.

This year, a significant chapter closed in the Fort Smith, NT community with the final remediation of the area's historic waste. The partnering with the Déline, NT community and leadership in a joint fact finding workshop marked clear progress in joint planning for remediation of sites near Great Bear Lake.

The ongoing Artefact Recovery Program experienced increased activity this year as more radium contaminated artefacts continue to be discovered across Canada. The LLRWMO provides identification, management and technical advice on radium and other radioactive artefacts found on public and private properties throughout Canada.

Internationally, the LLRWMO again made key contributions. We were able to share experiences with ANDRA, France's national radioactive waste management agency, on their visit to Canadian sites in May 2010. One of ANDRA's main interests was in the LLRWMO's successful radium remediation projects in Malvern (Scarborough), Port Hope and in various other locations across Canada. The Waste Management Symposium (WM2011) Conference held in Phoenix, Arizona - March 2011 provided a venue to highlight the success of our long history of operating contamination co-existence programs in Canada while long-term remediation solutions are developed and implemented in communities.

Our support to the new Port Hope Area Initiative Management Office (PHAI MO) continues and the LLRWMO also delivers its longstanding Interim Waste Management (IWM) Program in that community. We eagerly look forward to the final successful remediation of the Port Hope Area as the Initiative advances through its active cleanup phase.

It has been a year of refocusing and continued delivery. I extend to all our staff and our partners my congratulations on another year successfully delivering LLRW management responsibilities and further reducing the historic waste footprint in Canada.

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

1. LLRWMO Overview

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

1.1 LLRWMO PROGRAMS

The LLRWMO delivers the following three major programs:

1) Historic Waste Program - The federal government exercises responsibility for the management of historic LLRW under the Historic Waste Program. The LLRWMO carries out cleanup and long-term management of this waste on behalf of the federal government; as mandated in the 1990 Memorandum of Understanding (MOU) between NRCan and AECL. Historic LLRW contamination has been found at various locations throughout Canada, including Alberta, the Northwest Territories, Ontario and British Columbia. Historic waste artefacts continue to be recovered from numerous sites throughout Canada.

2) Ongoing Waste Program - Producers and owners are responsible for the management of their radioactive waste. Under the Ongoing Waste Program, the LLRWMO supports NRCan in its development and implementation of national policies and strategies for the disposal of this waste. The LLRWMO also assists NRCan in meeting its commitment to international organizations such as the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD).

3) Information Program - The LLRWMO addresses public information needs related to historic LLRW and to the management of LLRW projects. The Office responds to inquiries from individuals and communities across Canada as well as from interested parties worldwide.

What is "Historic" Low-Level Radioactive Waste?

Historic low-level radioactive waste is LLRW that was managed 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 for its long-term management.

Historic LLRW mostly consists of uranium ore contaminated soil and/or contaminated soil mixed with radioactive and chemical process residues. It dates back to the 1930s when radium was mined and refined in Canada. Some of the uranium ore waste was spilled during transportation from the Northwest Territories along the Northern Transportation Route (NTR) to a refinery in Port Hope, Ontario, where the process LLRW waste was generated. Most of the waste is now safely stored at interim storage facilities located at or near the originally contaminated sites.

1.2 LLRWMO SERVICES

In order to carry out its mandate, the LLRWMO provides the following services

- Environmental remediation and management of sites contaminated with historic LLRW
- Strategic planning and technical support, in collaboration, with government departments.
- Identification, technical consultation and management of radioactive artefacts found on public and private properties throughout Canada.
- Sharing of technical expertise and practical experience within the international community through technical papers, presentations and attendance at conferences and meetings.
- Provision of information to the public about historic waste management projects and low-level radioactive waste in general.
- Removal of LLRW from contaminated sites and emplacement in temporary or long-term management facilities.

2. Historic Waste Program

2.1 MANAGEMENT OF HISTORIC WASTE

The goals of the LLRWMO Historic Waste Program are:

- Provide technical assessment and advice to NRCan for the development of government policies for the management of historic waste;
- Perform interim remedial work and ongoing monitoring of contaminated sites, as required, to protect human health and the environment prior to the availability of long-term management facilities;
- Cleanup and manage for the long term, Canada's historic LLRW at various locations in Ontario, Alberta, British Columbia and throughout the Northwest Territories; and,
- Identify and provide technical consultation and management of radioactive artefacts found on public and private properties throughout Canada.

What is Low-Level Radioactive Waste?

In Canada, low-level radioactive waste (LLRW) is defined by exclusion for policy purposes. 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 LLRW. Most of Canada's LLRW consists of soil that became contaminated over the past 70 years, including contaminated soil and related waste resulting from the very early operations of Canada's nuclear industry. The LLRW being produced today is the result of 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 for management purposes:

Ongoing Waste: LLRW that is generated from ongoing activities of organizations that are currently in operation, for example, nuclear electricity generators. Owners 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 for its long-term management.

In 2008, the Canadian Standards Association (CSA: http://www.csa.ca), in collaboration with industry, government and the Canadian Nuclear Safety Commission (CNSC: http://nuclearsafety.gc.ca), developed a more extensive classification of radioactive waste levels, which included LLRW.

2.2 ENVIRONMENTAL REMEDIATION

Since its establishment in 1982, the LLRWMO has successfully developed and completed various historic LLRW remediation projects in a number of communities across Canada. Some of these include:

- Tulita Disposal Project in Tulita (Northwest Territories);
- Malvern Remedial Project in Scarborough, Toronto (Ontario);
- Fort McMurray Remediation and Interim Storage Project in Fort McMurray (Alberta);
- Surrey Disposal Project in Surrey (British Columbia);
- Interim waste consolidation and waste co-existence programs in Port Hope and Malvern (Ontario);
- Peregrine Street Remediation in Fort Smith (Northwest Territories); and,
- Initial development and launch of the Port Hope Area Initiative (PHAI) in Port Hope (Ontario) and continued support services to the PHAI.

2.2.1 NORTHERN TRANSPORTATION ROUTE

Background

In the early 1990s, the LLRWMO identified a number of contaminated sites along the Northern Transportation Route (NTR), a 2,200 km route used in the past to transport uranium ore concentrates from the Northwest Territories (NT) 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 Great Bear, Mackenzie, Slave and Athabasca rivers) south to Fort McMurray, Alberta.

In subsequent years, the LLRWMO has surveyed the historic transfer points along the NTR, and has removed and consolidated contaminated soil at a number of sites along the NTR. Remediation and consolidation activities have occurred at residential properties in Fort Smith and Tulita, NT and from other uranium ore impacted sites in Fort McMurray, Alberta. The LLRWMO is currently developing plans for the remediation of remaining contaminated sites along the NTR.

2.2 ENVIRONMENTAL REMEDIATION

2.2.1 NORTHERN TRANSPORTATION ROUTE ... *continued*

2010-2011 Activities

South Slave Region, NT

Remediation and restoration of a uranium ore-contaminated municipal road site in Fort Smith, NT was completed. Uranium-contaminated soil was excavated from the site and transported to the temporary storage cell at the Fort Smith municipal landfill site. This was a key local milestone as it represented the completion of the final remediation project in the Fort Smith municipal area.

In preparation for future remediation, the LLRWMO provided technical support to the Department of Fisheries and Oceans (DFO) for the characterization of DFO sites at Bell Rock, NT and Fort Fitzgerald, Alberta. Meetings were also held with the Salt River and Smith's Landing First Nation communities regarding remediation planning for these sites in the South Slave region. The LLRWMO continues to work with these communities in planning future remediation activities.


Road Remediation

Sahtu Region, NT

The LLRWMO continues to work jointly with Indian and Northern Affairs Canada (INAC) in support of their initiative to remediate sites in the Sahtu (Great Bear Lake) region of the Northwest Territories, while the LLRWMO continues to advance remediation planning for its other NTR sites.

Consultation and fact finding meetings were held in Déline with Dene leaders, the Déline Land Corporation and the local community. These meetings signify the beginning of community partnering in the region.


LLRWMO Worker Pre-Job Briefing

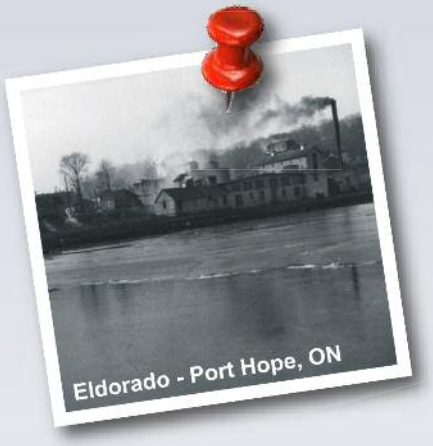
2.2 ENVIRONMENTAL REMEDIATION

2.2.2 PORT HOPE AREA

Background

The Port Hope (Ontario) area contains more than 1.5 million cubic metres of Canada's historic LLRW. The presence of LLRW dates back to the 1930s when radium was extracted from pitchblende ore at the refinery (Eldorado) in the Municipality, mostly for medical and industrial applications. The LLRW is primarily soil contaminated with waste material from the refinery, but can also include other contaminated material.

The initial environmental remediation in the community of Port Hope was conducted by the Federal Provincial Task Force on Radioactivity (FPTFR) between 1977 and 1982. The LLRWMO succeeded the FPTFR to continue this effort and advance the final remediation of the area from 1982 to 2008, when the Port Hope Area Initiative Management Office (PHAI MO) was established to exclusively focus on this project's advancement.



The LLRWMO's continuing responsibilities include maintaining co-existence programs within the Municipality, management and monitoring of interim storage sites, and collaborative activities with the Port Hope Area Initiative Management Office (PHAI MO).

2010-2011 Activities

The LLRWMO provided considerable support to the PHAI MO in the Small-Scale Sites Resurvey and Remediation Trials Cost Assessment (SRCA), a preliminary study to assist in planning for resurvey and future remediation activities in Port Hope. The LLRWMO developed and managed the SRCA, providing management, oversight and technical support to the contractor and its sub-contractors. The trial site remediation was completed by the LLRWMO.

Discussions have commenced with the Municipality of Port Hope regarding the remediation of historic LLRW at the former Port Hope Waterworks site. Remediation is required to allow unimpeded demolition of buildings, underground storage tanks and pipelines prior to the sale of the property.

2.2 ENVIRONMENTAL REMEDIATION

2.2.3 TORONTO AREA

Background

In 1990, contaminated soil was removed from a site in the urban community of Malvern in Toronto, Ontario. In 1995-1996, the LLRWMO undertook a full-scale remediation of development lands and residential property sites in Malvern that contained radium-contaminated soil and artefacts.

2010-2011 Activities

Characterization of radium-contaminated materials at a downtown commercial site in Toronto was completed and some of the waste was removed and placed in the LLRWMO's licensed storage facilities located at the Chalk River Laboratories (CRL) in Chalk River, Ontario. Planning for the remediation of other contaminated materials at the site is underway.


LLRW Characterization

2.3 INTERIM WASTE MANAGEMENT

The LLRWMO's Interim Waste Management Program (IWM) manages, in communities across Canada, contaminated soil and other LLRW prior to a final long-term solution.

This IWM Program has been in operation since the late 1980s. It has helped communities to continue to use, develop or modify land or structures safely and with confidence as planning and remediation of contaminated sites occur. The IWM programs in place today are based on many years of operating experience.

The LLRWMO operates the IWM Program for historic LLRW on behalf of the federal government. The LLRWMO provides regular inspection and ongoing monitoring of IWM sites and any sites that are discovered during routine construction activities.

2.3 INTERIM WASTE MANAGEMENT

The Interim Waste Management Program is delivered through three program components:

1) Construction Monitoring Program

The purpose of the CMP is to minimize the spread of soil contaminated with historic LLRW and to reduce risk to people and the environment that could arise from its presence. Where a property is found to be contaminated by LLRW, the contaminant is removed from the construction footprint allowing development on the property to proceed.

2) Property Compliance Program

The LLRWMO also operates the PCP, which responds to owner inquiries regarding the radiological status of their properties and provides this information to property owners, their real estate agents, or their lawyers. This information may be used to facilitate the sale or purchase of the property or to simply provide radiological information to the property owner.

3) Environmental Monitoring Program

The LLRWMO regularly monitors the environment in the vicinity of its licensed and unlicensed historic LLRW sites through this program. The EMP includes visual inspections, gamma radiation surveying, water sampling and radon monitoring. The monitoring results at LLRWMO-operated licensed sites are reported to the Canadian Nuclear Safety Commission (CNSC) on an annual basis.

Interim Waste Management Components:

CMP - Construction Monitoring Program **PCP** - Property Compliance Program

EMP - Environmental Monitoring Program

Support under these three component programs will continue to be provided by the LLRWMO as required. The Interim Waste Management Program is a key focus within the mandated waste responsibilities handled by the LLRWMO.

2.3 INTERIM WASTE MANAGEMENT

2.3.1 NORTHERN TRANSPORTATION ROUTE

Background

Following the discovery of uranium ore-contamination at various points along the Northern Transportation Route (NTR), including residential properties in Fort Smith and Tulita, Northwest Territories and from sites in Fort McMurray, Alberta, contaminated soil was removed and placed in interim engineered storage mounds established in some local communities. Annual inspections are conducted at these interim storage sites to ensure there is no impact to the environment or to local residents. At other impacted sites along the NTR, inspections and environmental monitoring activities by the LLRWMO continue.

2010-2011 Activities

The annual monitoring of LLRWMO-managed sites along the NTR continued with the inspection and monitoring of the Beacon Hill storage facility, the Fort Smith Landfill cell, and the Bell Rock and Fort Fitzgerald areas ensuring that there is no detrimental effect to the local environment. None of the inspections revealed issues that required attention.

In support of Indian and Northern Affairs Canada (INAC) project activities at Sawmill Bay, the LLRWMO provided historic waste health and safety training to workers and community participants. The training sessions were held in both Sawmill Bay and Déline, NT.

2.3.2 PORT HOPE AREA

Background

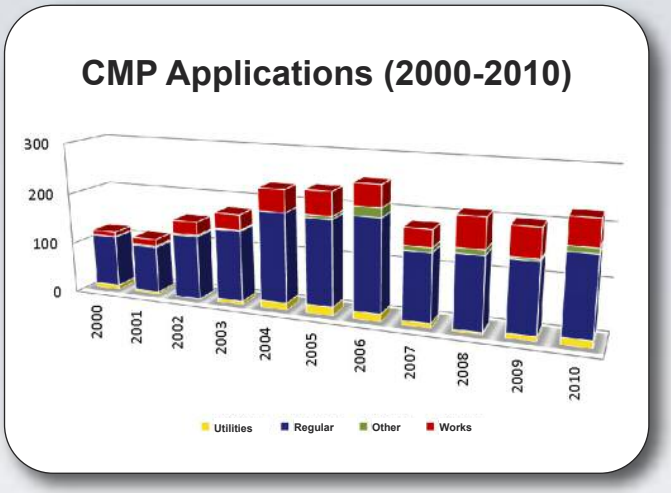
The LLRWMO has a long history of operating co-existence programs with the Municipality of Port Hope, Ontario. Currently, historic low-level radioactive waste is stored at four sites under Canadian Nuclear Safety Commission (CNSC) Waste Nuclear Substance Licenses, one CNSC-licensed facility operated by Cameco Corporation, and several major unlicensed and small-scale sites (private properties). Since 1989, the LLRWMO has overseen the interim management of historic LLRW in the Port Hope area through the IWM Program. Over the 21 years since its inception, the CMP has responded to more than 3,600 applications for construction monitoring services, of which about 1,600 were from the Municipal Public Works Department or utility companies.

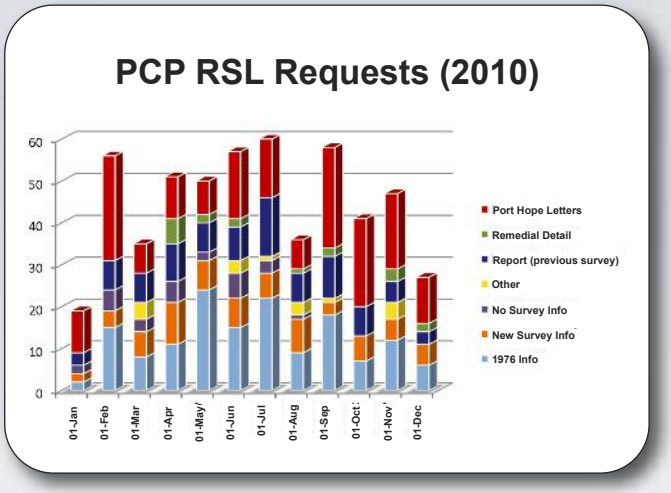
2.3 INTERIM WASTE MANAGEMENT

To meet the IWM Program requirements in Port Hope, as well as the needs of other LLRWMO projects across Canada, the LLRWMO operates a sample preparation and analysis laboratory in Port Hope. Facilities and core capabilities are maintained to conduct radiation surveys, remediation and restoration, waste packaging and transport.

2010-2011 Activities

The importance of the CMP in the local community is reflected in the sustained activity from year to year. The LLRWMO staff responded to 223 requests for CMP services, often related to service line connections, proposed additions, or interruptions of water services. A total of 868 cubic metres of contaminated soil was removed from properties and transported to the licensed Pine Street Extension Temporary Storage Site (PSE TSS) in the Municipality of Port Hope. Most of this contaminated soil (764 cubic metres) arose from the SRCA remediation of a single property. The accumulated volume stored at the PSE TSS is now some 8,000 cubic metres, about two-thirds of the 12,000 cubic metres licensed capacity.





Under the PCP, the LLRWMO issued a total of 579 radiological status letters during the fiscal year. Approximately one-third (185) of these letters dealt with properties outside of Port Hope, mostly in the Greater Toronto Area and other areas in southern Ontario. The LLRWMO also conducted 83 property surveys, mostly exterior gamma radiation surveys with a few interior gamma and radon

2.3 INTERIM WASTE MANAGEMENT

2.3.2 PORT HOPE AREA ... *continued*

surveys. These surveys provide information that can help facilitate both private and commercial development applications and the sale of properties in the Municipality.

Through the EMP, the LLRWMO conducted environmental monitoring at both licensed and unlicensed sites in Port Hope throughout the year. Parameters measured included radon in air, gamma radiation, radium/uranium/arsenic in ground and surface water, and groundwater levels. An annual inspection of the LLRWMO licensed sites was also performed by the Canadian Nuclear Safety Commission (CNSC) to confirm that the sites are being safely operated in compliance with their licences. Minor actions arising from the inspection were appropriately resolved.

Following CNSC review and acceptance of the Environmental Assessments for the Port Hope and Port Granby projects, the CNSC mandated follow-up studies on the biophysical environment in the two communities. The Biophysical Effects Monitoring Program is being carried out by the PHAI MO to meet this CNSC requirement. The LLRWMO provided considerable technical support to the PHAI MO in the operation of this program during the year. This support made extensive use of the LLRWMO's technical advice and Port Hope laboratory, field and analytical services. This support included sampling of water, radon gas, dust, stream sediments and measurements of groundwater levels and water flows. This technical support is ongoing.

2.3.3 TORONTO AREA

Background

Also in the Toronto area, the LLRWMO carries out radiological inspections and assessments on public and private properties, and provides the owners with information, guidance and support if remediation of their property is required.

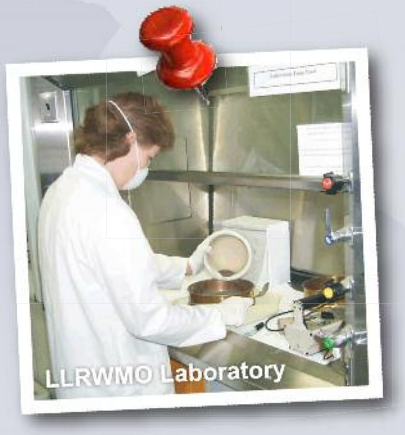
The LLRWMO may, if required, take possession of contaminated materials on a site-specific basis. Often, contamination of these sites resulted from past radium recovery and radioluminescent dial painting activities. If warranted, the costs of waste recovery projects are shared between the LLRWMO and the property owner. Regular inspections of these sites by the CNSC, attended by the LLRWMO, ensure that they are being safely managed and that the property owners continue to be aware of the regulatory role.

Past remedial operations have resulted in the development of two historic waste consolidation mounds in the Toronto area: the Passmore Avenue Temporary Storage Site (an LLRWMO-

2.3 INTERIM WASTE MANAGEMENT

engineered storage mound that contains the marginally contaminated soil from the Malvern Remedial Project) and the Lakeshore Road Consolidation Mound (a facility under the management of the Toronto and Region Conservation Authority).

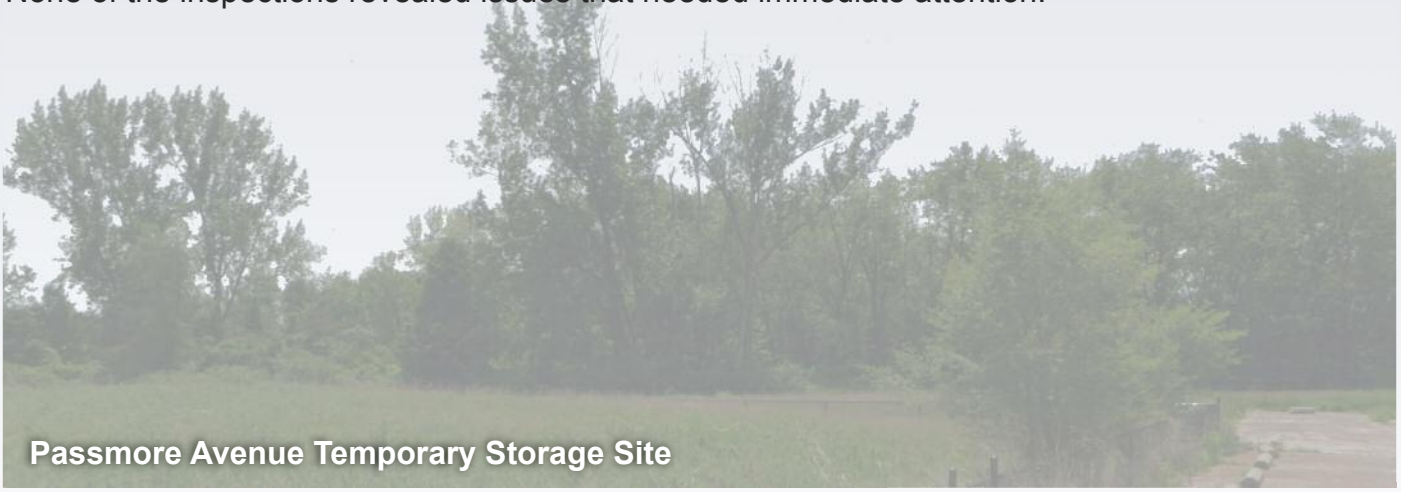
A number of properties in the Greater Toronto Area are currently under licensing exemption by the CNSC. Contact with the owners of these properties and provision of information on their obligations are regularly provided by the CNSC, in accordance with the Canadian Nuclear Safety and Control Act. The property owners have agreed to contact the CNSC and the LLRWMO in the event that they wish to renovate, excavate, or construct in the areas that have been identified to them as contaminated.


LLRWMO Laboratory

2010-2011 Activities

The LLRWMO continued to monitor the Passmore Avenue Temporary Storage Site in Malvern (Toronto), Ontario under a cost recovery program with the Province of Ontario. The “2010 Annual Report - Passmore Site Environmental Monitoring and Malvern Construction Monitoring” was submitted to the Ontario Realty Corporation (ORC) and the CNSC. The monitoring results for 2010-11, included radium and uranium in groundwater, gamma radiation, radon in air and radium in the leachate collection system. These results indicated that the site continues to perform satisfactorily. Environmental monitoring over the last ten years shows no adverse impact of the site on the local environment.

Annual inspections by the CNSC, attended by the LLRWMO, confirm that the licensing exempt properties are being safely managed and that the owners are aware of the regulatory requirements. None of the inspections revealed issues that needed immediate attention.


Passmore Avenue Temporary Storage Site

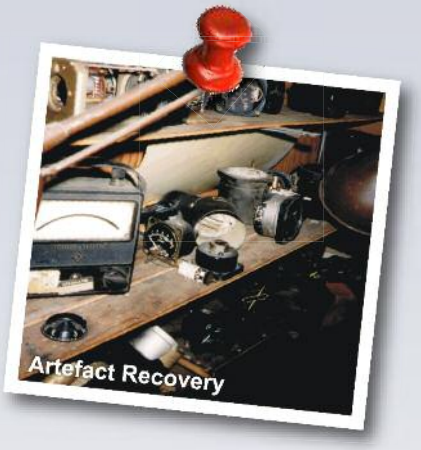
2.4 ARTEFACT RECOVERY

Background

The LLRWMO provides technical advice, identification and management on radium and other radioactive artefacts found on public and private properties throughout Canada. Where necessary, the artefacts are characterized and transported to either temporary or long-term CNSC licensed storage facilities. Radioactive artefacts can include radium-bearing dials, gauges, instruments, static eliminators, smoke detectors, and uranium ore samples.

As the primary point of contact for technical advice, the LLRWMO has responded to inquiries from diverse locations in Canada and internationally.

2010-2011 Activities



Public and commercial inquiries about the LLRWMO's recovery and management of radioactive artefacts continued to increase over past years. The increase is mostly triggered by portal monitors at landfill sites and metal recycling facilities.

In 2010-2011, the LLRWMO assisted in the recovery and management of numerous radioactive artefacts from thirteen different locations across Canada, including locations in Ontario, Quebec, British Columbia and Saskatchewan. The artefacts included a variety of radioluminous dials, instruments such as altimeters and gyroscopes, solidified radium paint, a static elimination bar, a sealed radium source, radium-source smoke detectors, and radioluminous clocks.

Highlights of artefacts recovered or shipped to long-term storage included:

- Approximately 300 radioluminous dial aircraft instruments from the Canadian Museum of Flight in Langley, B.C.
- Twenty-two radioluminous devices from a college in Toronto, Ontario.
- A U.S. Radium Corporation static elimination bar from a scrap metal yard in Regina, Saskatchewan.
- Two vials of solid form radium paint from a private residence in Burnaby, British Columbia.

2.5 QUALITY, SAFETY AND COMPLIANCE

Background

In November 2006, the LLRWMO implemented an integrated Quality, Environment, Health and Safety (QEH&S) Management program. This QEH&S program ensures optimum control of the environmental impacts of LLRWMO activities, while protecting the health and safety of the public and operational staff. It accomplishes this by assisting in the maintenance of regulatory compliance and conformance with AECL's Emergency Preparedness and Response, Radiation Protection, and Radioactive Materials Shipping programs. The program is structured to satisfy the following requirements:

Quality - ISO 9001:2008 **Environment** - ISO 14001:2004

Health and Safety - CSA Z1000:2006

The scope of the LLRWMO ISO 9001 registration initially included:

- the management of historic low-level radioactive waste and the resolution of related issues on behalf of the federal government;
- the assessment of low-level radioactive waste produced by the nuclear industry and medical, industrial and research institutions;
- tracking and reporting on national and international developments pertaining to low-level radioactive waste; and
- advising federal agencies regarding low-level radioactive waste issues, and supporting their efforts internationally on behalf of Canada.

In September 2009, an ISO 9001:2008 recertification audit was performed by the Quality Management Institute, which incorporated the LLRWMO within the scope of the AECL Nuclear Laboratories Division registration. This recertification is valid for three years.

2010-2011 Activities

During the year, the QEH&S program provided quality oversight, environmental monitoring, and operational controls on all routine LLRWMO activities.

A Gap Analysis was performed to assess the compliance of the QEH&S Management program with the requirements of AECL's Environmental Protection Program. This Gap Analysis found that, in general, "the operations of the LLRWMO are consistent with the spirit of ISO 14001 and the AECL EnvP Program." Activities were initiated to address specific gaps to the extent necessary to achieve conformance with ISO 14001. As well, revision of the LLRWMO management system documentation was initiated.

2.6 FACILITIES AND LICENSING

Background

The LLRWMO manages LLRW at a number of historic waste sites located throughout Canada, including locations in Ontario, Alberta and the Northwest Territories. Small volumes of LLRW are transported to the LLRWMO storage buildings at AECL's Chalk River Laboratories (CRL), whereas larger volumes are usually managed at or near their sites of origin.

At some of the historic waste sites, materials have been placed in interim storage pending the development and implementation of long-term management solutions. The LLRWMO conducts ongoing monitoring, inspection and maintenance at these interim storage sites. The historic waste at these sites includes uranium- and/or radium-contaminated soil, building materials and associated contaminated items.

To enable the LLRWMO to carry out its responsibilities for interim management of LLRW and associated technical activities, the Office currently holds four licences issued by the CNSC for various facilities. This is one less than in the previous year, since equipment that formerly required a license was decommissioned. The table below summarizes the current LLRWMO licences and their descriptions:

Facility	Licence # and Type	Description	Expiration Date
Pine Street Extension Temporary Storage Site	WNSL-W1-182.1/2011, Waste Nuclear Substance Licence	Licence for the Pine Street Extension Temporary Storage Site in Port Hope, Ontario	2011 December 31
Port Hope Waste Management Facility	WNSL-W1-344-1.4/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
LLRWMO Environmental Laboratory	20004-7-11.2 Nuclear Substances & Radiation Devices Licence	Licence for the LLRWMO Environmental Laboratory in Port Hope, Ontario	2011 September 30
Historic Waste Remediation Operations	WNSL-W2-2202.1/2016, Waste Nuclear Substance Licence	Historic low-level radioactive waste management at Canadian sites.	2016 November 30

2010-2011 Activities

The sites continue to be maintained and monitored on a regular basis by the LLRWMO to ensure that they are being safely managed. All 2010 annual compliance reports were completed and forwarded to the CNSC.

3. Ongoing Waste Program

Background

Electrical utilities, nuclear research organizations, nuclear fuel manufacturers, and the producers and users of medical and other radioisotopes continue to generate LLRW. These producers are responsible for the waste they produce.

The LLRWMO assists NRCan with the task of developing policies and strategies for the long-term management of this ongoing waste.

The LLRWMO also assists NRCan in meeting its commitments to international organizations such as the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD).

2010-2011 Activities

The LLRWMO has responded to a request from NRCan to increase the frequency of the report "Inventory of Radioactive Waste in Canada", which describes the inventory of all classes of radioactive waste in Canada, from once every five years to once every three years. This will allow the report to better correspond to the triennial International Joint Convention (IJC) meetings in Vienna. Advanced tables containing information for the next report, to be released in 2012, have been forwarded to the IJC.

The LLRWMO also organized and hosted ANDRA's (France's National Radioactive Waste Management Agency) visit to AECL sites in Canada. One of ANDRA's main interests was in the LLRWMO's work in radium remediation in Malvern (Scarborough), Port Hope and in various other locations across Canada as part of the LLRWMO's Artefact Recovery Program. ANDRA toured multiple sites in Toronto, Port Hope, Ottawa and Chalk River (CRL) Ontario. ANDRA hopes to make use of Canada's experience as it sets up a program of small-scale sites remediation in France.

How much radioactive waste is located in Canada?

In 2010, 298 m^3 of nuclear fuel waste, 5,116 m^3 low-level radioactive waste, 208 m^3 intermediate-level radioactive waste and 0.7 million tonnes of uranium mine and mill tailings were produced in Canada. Cumulative inventory until the end of 2010, showed 9,075 m^3 nuclear fuel waste, 2,338,000 m^3 low-level radioactive waste, 32,906 m^3 intermediate-level radioactive waste and 214 million tones uranium mine and mill tailings existing in Canada.

4. Information Program

Background

The LLRWMO provides information about LLRW and its management in Canada. LLRWMO offices in Ottawa and Port Hope, Ontario respond on a daily basis to public inquiries. Many inquires are received through the LLRWMO website, telephone, mail or in person, from across Canada and abroad. The Office also exchanges technical information worldwide through Canadian international organizations and individuals through papers, presentations and attendance at conferences and other meetings.

2010-2011 Activities

During this year, the LLRWMO Annual Report for fiscal year 2009-2010 was completed, published and distributed.

Several initiatives were undertaken to update the role, responsibilities and activities of the LLRWMO. These include a new public informational brochure entitled “What is the Low-Level Radioactive Waste Management Office?”, numerous descriptive posters and displays, various handouts and new external office signage.

Public presentations were also given on request to a number of communities and institutions across Canada.

A paper and a poster entitled “Safe Community Co-existence with Long-Term Low-Level Radioactive Historic Waste Contamination in Canada” were presented at the Waste Management WM2011 Conference in Phoenix, Arizona. The poster received the award for the top poster presented in the session. A joint paper with Natural Resources Canada (NRCan), entitled “Early Progress in Building Confidence and Partnerships with Northern First Nations and Communities in Low-Level Waste Remediation Projects in Canada” was also presented at the WM2011 conference.

The LLRWMO's website received more than 40,000 visits throughout the fiscal year, or well over 100 visits per day. About one-third of these visits originated outside of North America, indicating the level of international interest in the work of the Office.

General information inquiries on LLRW management may be obtained at the LLRWMO’s website *www.llrwmo.org*.

5. Financial Review

LLRWMO is a division of Atomic Energy of Canada Limited (AECL) which is separately funded by Natural Resources Canada (NRCan) through a cost recovery agreement. Supplementary funding in FY 2010-2011 was generated through cost-recovery activities supporting other AECL divisions and external organizations. The LLRWMO's accounts and financial control systems conform to those of AECL.

LLRWMO National Program	Total Expenditure ($ thousands)	
	2009-2010	2010-2011
Historic Waste Program		
Northern Sites Initiatives		
Fort McMurray	39	32
Northern Transportation Route	92	669
Subtotal: Northern Sites Initiatives	**131**	**701**
Other Historic Waste Initiatives		
Toronto (Malvern)	9	11
Historic Waste at Other Locations	85	39
Port Hope Area Interim Waste Management	263	299
Subtotal: Other Historic Waste Initiatives	**357**	**349**
Port Hope Area Initiatives		
Port Hope Area – Long-Term Management Projects	-	-
Port Hope Area – Property Value Protection Program	-	-
Port Hope Area – Transition Phase	-	-
Support to PHAI MO	279	1,269
Subtotal: Port Hope Area Initiative	**279**	**1,269**
Other Mandated Activities		
Ongoing Waste Program	26	38
Information Program	130	249
LLRWMO Facilities	77	170
Management, Administration and Support	1,042	952
Subtotal: Other Mandated Activities	**1,275**	**1,409**
Other Support from LLRWMO		
AECL and Other Sources:	35	-
Total LLRWMO Activities:	**2,077**	**3,728**
Cost Recovery		
Less Cost Recovery from PHAI MO	(279)	(1,269)
Less Cost Recovery from Ontario for Toronto (Malvern)	(9)	(11)
Less Cost Recovery from AECL and Other Sources	(35)	-
Total Cost Recovery:	**(323)**	**(1,280)**
Total expenditures for NRCan funding:	**1,754**	**2,448**

5. Financial Review

In accordance with past practice, the LLRWMO submitted a business plan for FY 2010-2011 to NRCan for approval. The plan described how the LLRWMO planned to carry out NRCan's priorities with the available funding. Each quarter, LLRWMO staff and representatives from NRCan's Uranium and Radioactive Waste Division reviewed and adjusted the plan as necessary.

The financial statements in this annual report detail the LLRWMO's financial performance for the fiscal year ending 2011. The table illustrates how funding provided by NRCan was allocated to the LLRWMO's mandated business activities in 2010-2011. For comparison, funding for 2009-2010 is also provided.

6. Audit Statement

Atomic Energy of Canada Limited is audited annually by the Office of the Auditor General of Canada and KPMG LLP. 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.

Low-Level Radioactive Waste Management Office

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"*The LLRWMO's ongoing success has been its ability to engage the public through consultation and stakeholder involvement, establishing partnerships to resolve LLRW issues within communities across Canada*."

...working towards community solutions