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Presentation from the Canadian Nuclear Laboratories

Présentation des Laboratoires Nucléaires Canadiens

In the Matter of the

À l'égard de

Canadian Nuclear Laboratories (CNL)

Laboratoires Nucléaires Canadiens (LNC)

**Progress Update for CNL's Prototype
Waste Facilities, Whiteshell Laboratories
and the Port Hope Area Initiative**

**Rapport d'étape sur les installations
prototypes de gestion des déchets, les
Laboratoires de Whiteshell et l'Initiative dans
la region de Port Hope des LNC**

Commission Meeting

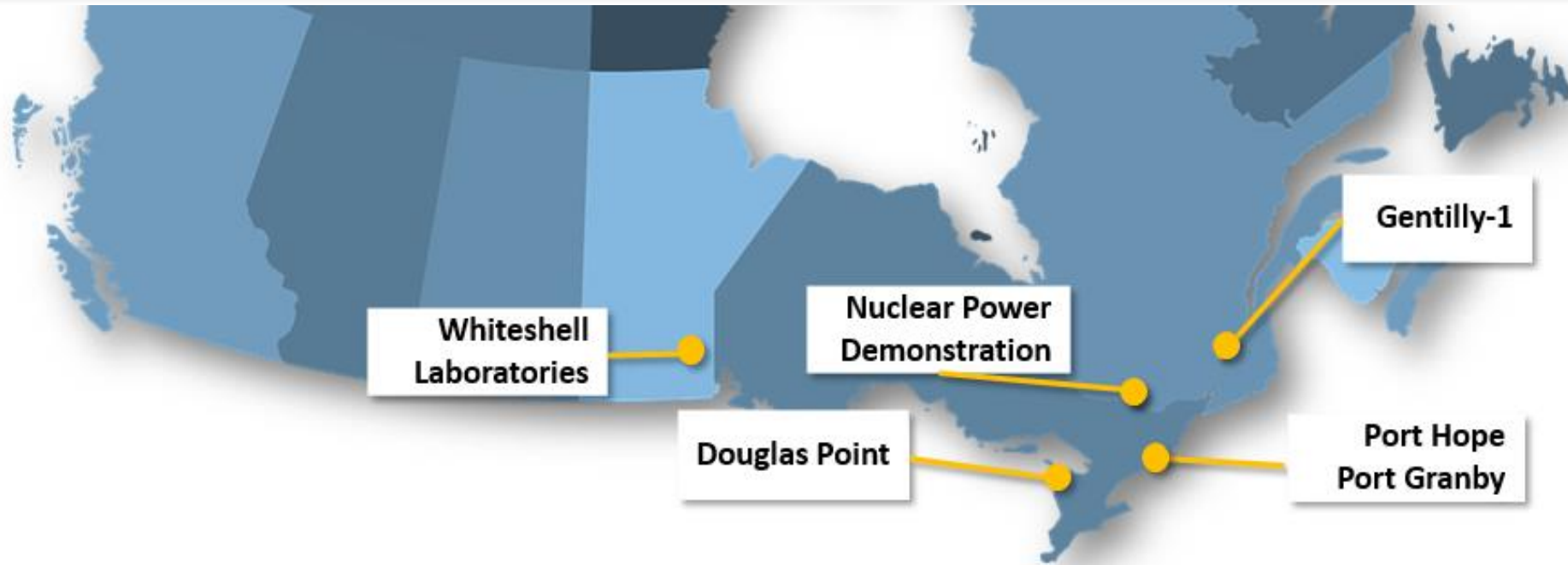
Réunion de la Commission

August 22, 2018

Le 22 août 2018

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Canadian Nuclear Laboratories Progress Update for the Prototype Waste Facilities, Whiteshell Laboratories and the Port Hope Area Initiative

Kurt Kehler

Vice-President, Decommissioning & Waste Management

August 22, 2018



Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Presentation Outline

Introduction

CNL Decommissioning and Waste Management (D&WM) Mandate and Scope
Government-owned, Contractor-operated Model
D&WM Safety Performance

Progress Update

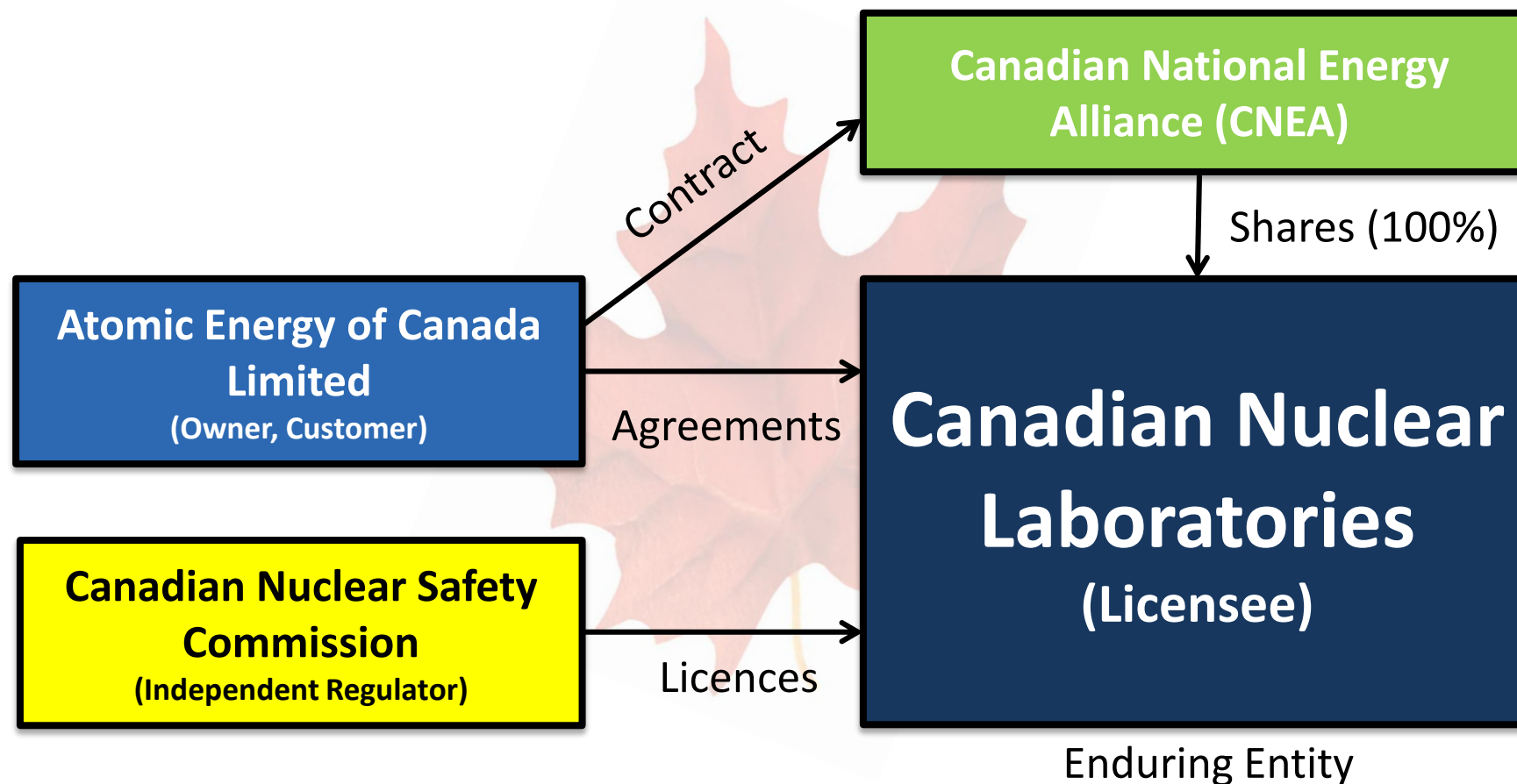
Prototype Reactors - Douglas Point, Gentilly-1, Nuclear Power Demonstration
Whiteshell Laboratories
Port Hope Area Initiative

Closing Remarks



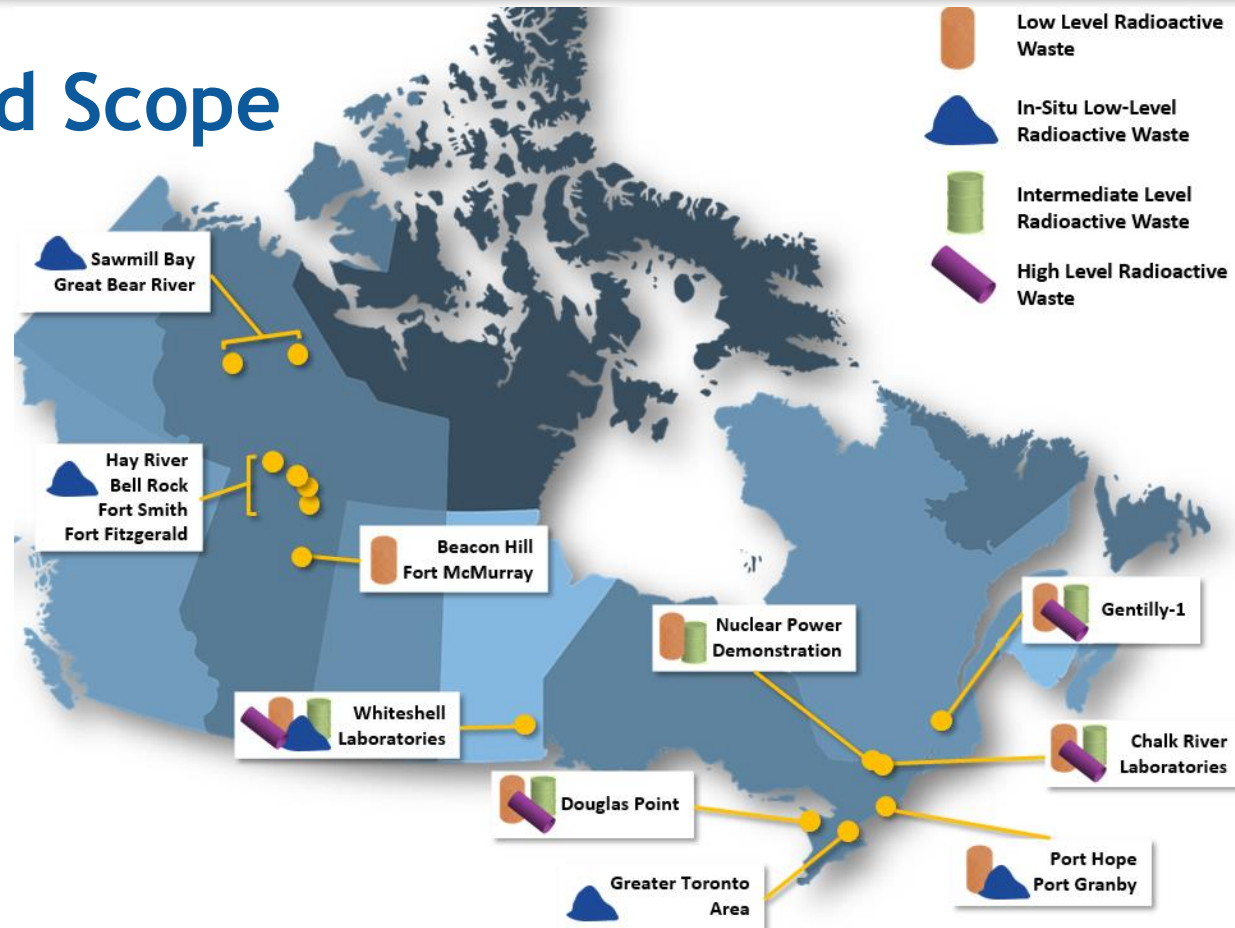
Government-owned, Contractor-operated Management Model

Operation of Canada's National Nuclear Laboratory



D&WM Mandate and Scope

- Decommissioning
- Environmental Remediation
- Management of radiological and hazardous waste
- Clean-up of historical low level waste sites



D&WM Mandate:
Safely Accelerate Reduction of Canada's Nuclear Liabilities
Prepare Chalk River Site for Revitalization



D&WM Health, Safety, Security, Environment Performance

2016 - Present Summary of Performance

- ✓ Safety and Control Areas implemented using mature programs
- ✓ All off-site radiological releases within regulatory limits
- ✓ All off-site non-radiological hazardous releases within regulatory limits
- ✓ All worker doses below regulatory limits and one minor action level exceedance
- ✓ No serious worker injury

Results available at:

<http://www.cnl.ca/en/home/environmental-stewardship/performance-report/default.aspx>

<http://www.phai.ca/en/home/environmental-monitoring/default.aspx>





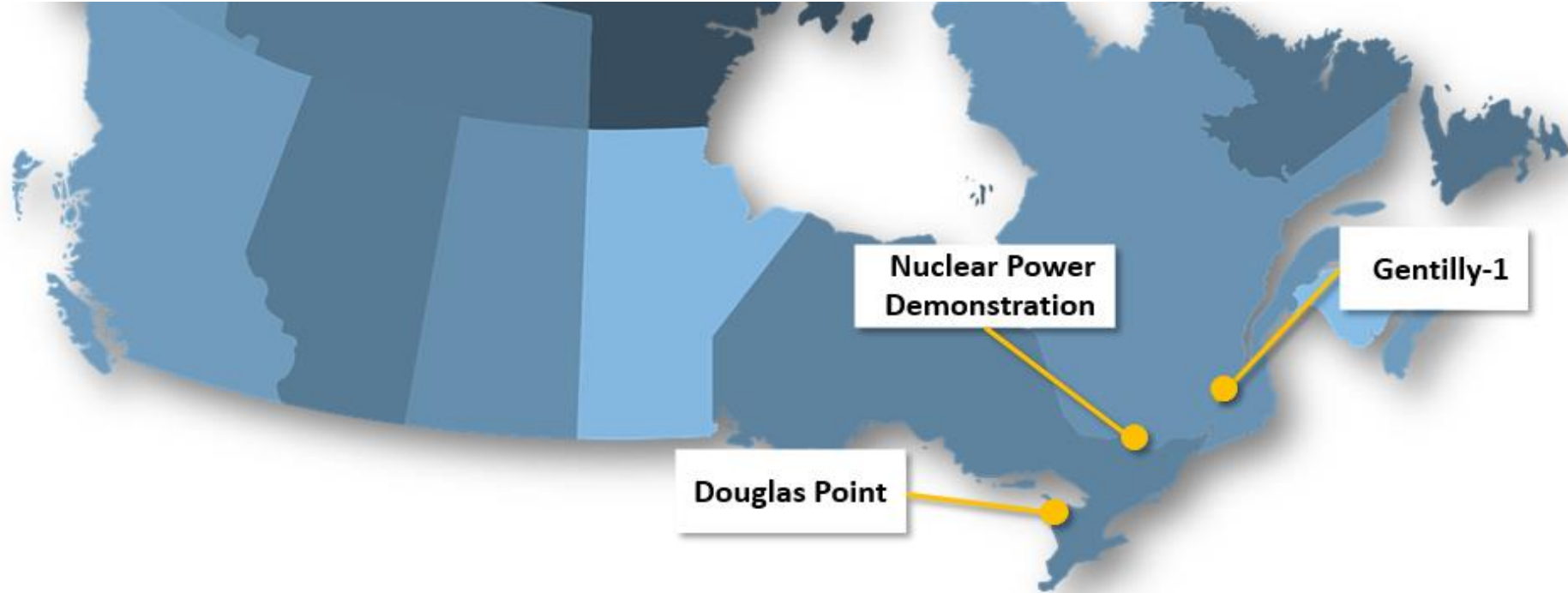
CNL Public Information Program

- Build public awareness and trust, and to encourage proactive communication
- Provides accurate, timely and consistent information to the public
- Social media campaigns
- Newsletters distributed to homes
- Nuclear education program with local schools
- CNL Environmental Stewardship Council, Whiteshell Public Liaison Committee, Port Hope Area Initiative Citizen Liaison Group



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Prototype Reactors Decommissioning

Meggan Vickerd

Manager, NPD Decommissioning





Douglas Point Waste Facility

Bruce County, Ontario



Douglas Point Waste Facility

Hazard Reduction Achievements

Guard House



Machine Shop and Plate Shop



Douglas Point Waste Facility

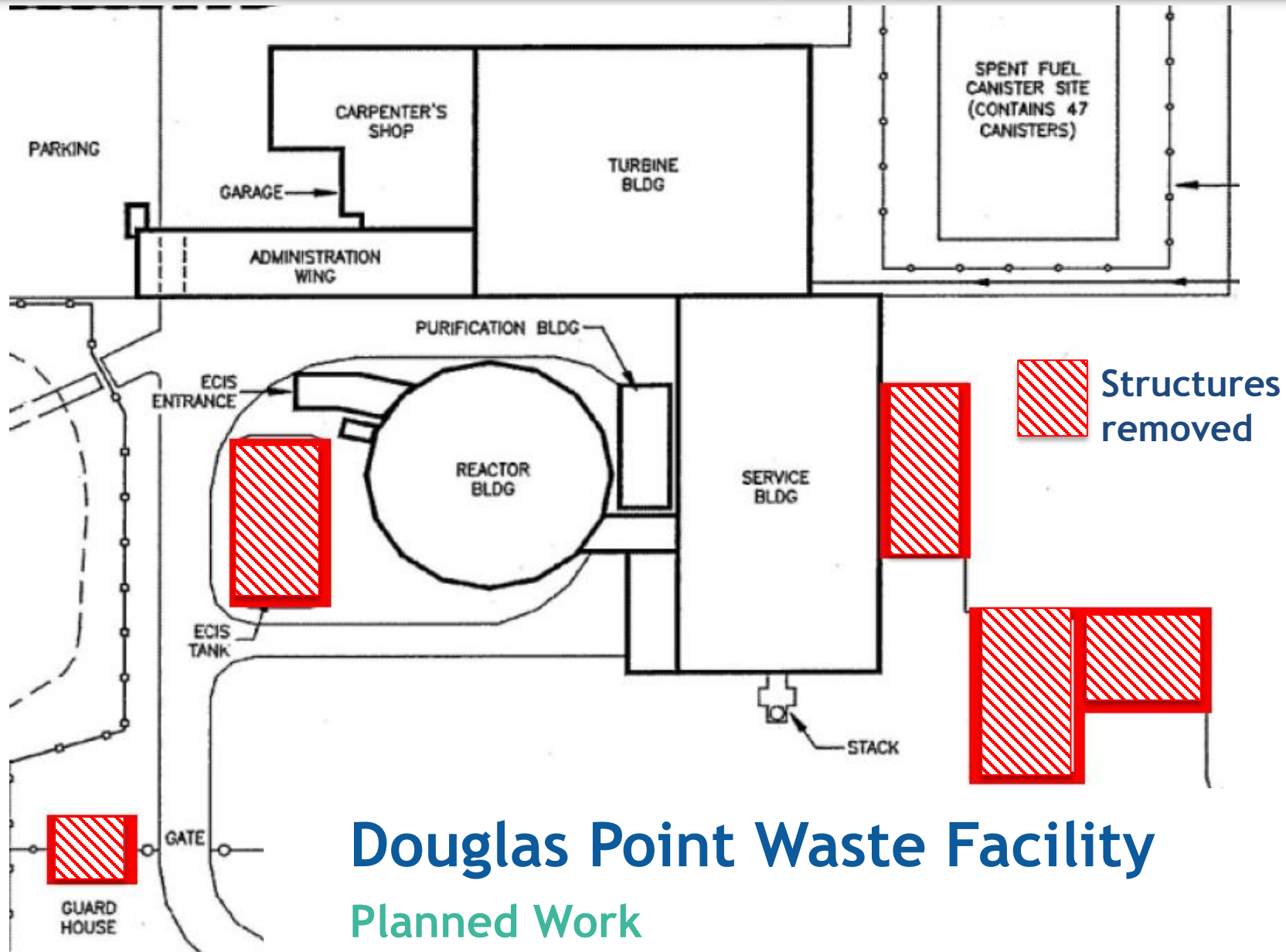
Hazard Reduction Achievements

Tool Crib



Emergency Coolant Injection System Tank





Douglas Point Waste Facility

Planned Work





Gentilly-1 Waste Facility

Bécancour, County of Nicolet, Québec



Gentilly-1 Waste Facility

Hazard Reduction Achievements



Resin Retrieval



Gentilly-1 Waste Facility

Hazard Reduction Achievements



Turbine Characterization



Asbestos Abatement



Gentilly-1 Waste Facility

Planned Work





Nuclear Power Demonstration (NPD) Closure Project





NPD Waste Facility

Renfrew County, Ontario



NPD Waste Facility

Hazard Reduction Achievements



Asbestos Abatement in Boiler Room



Proposed In-Situ Decommissioning of NPD

Undergoing Federal Environmental Assessment



Preferred site closure option

- Based on sound scientific and engineering principles
- Successfully demonstrated technology



Robust engineered safety barriers

- Reactor systems will be isolated and contained
- Eliminates transportation and temporary storage



Sustainable & responsible management of liabilities

- Safe for the environment and future generations

Web link to video: <https://www.youtube.com/watch?v=9EIIHQKr1YY>



NPD Environmental Impact Statement (EIS)

Update

- The public comment period for the draft EIS was open from November 2017 to February 2018
- Received submissions from the public and Indigenous groups, and government departments and agencies on the draft EIS
- Completing additional studies to address comments and respond to all submissions
- CNL will request a licence hearing date following submittal of a revised EIS



NPD Public Engagement (October 2015 to present)

- 25 Public information sessions
- 9 Environmental Stewardship Council meetings including tours of NPD
- 7 Employee information sessions
- 4 Public and Industry open houses
- 1 Interactive webinar
- 13 Presentations to regional municipalities in Ontario and Quebec
- 4 Project updates to federal and provincial officials
- 7 NGO site visits (Northwatch, CELA, CCRC etc.)
- 2 Technical meetings and site visits with CNL Alumni and other stakeholders
- Hosted 10 National chimney swift roost counts (public attendance)
- 2 NPD school tours
- 125 project documents released in support of public review of project
- 2017 Open House - CNL wide and NPD specific
- Presentations, meetings, site visits upon request
- National radio interviews/ media coverage and engagement





NPD Indigenous Engagement

- Engaged with 15 First Nation and Métis communities
- Actively working on separate Memorandum of Understandings with the Algonquins of Ontario and the Métis Nation of Ontario
- Site tours, meetings and public information sessions for First Nation and Métis communities
- Participation in Aboriginal community events
- Regular updates to CNSC staff



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Proposed End State





Whiteshell Laboratories (WL) Closure Project Update

Dan Coyne

Head of WL Closure Project





WL Decommissioning Progress

- Facilities and Buildings
- Waste Management Areas
- Whiteshell Reactor No. 1 (WR-1)
- Stakeholder and Indigenous Engagement



WL Main Campus - September 2015



WL Main Campus - March 2018



WL Facilities and Buildings Decommissioning

Building 300



Stages 4 & 7 - Pre-demolition



Demolition in Progress

- Whiteshell's largest nuclear radiochemical laboratory
- 8600 m² portion safely demolished and remediated



Stages 4 & 7 Demolition Complete



WL Facilities and Buildings Decommissioning

Building 200 - Active Liquid Waste Treatment Centre



- Pipe cutting of sampling station on shielding station in progress



- Removing lead shot from shielding tank with an in-house fabricated hopper to control collection into a waste container



WL WMA Decommissioning

Legacy Waste Packaging and Shipping Campaign

- CNL has been safely generating and transporting waste for over fifty years



- 106 shipments of Low-Level Waste (>2,000 m³) from WL to CRL completed since 2016
 - 5 shipments of Intermediate-Level Waste since 2016
 - 216,000 km travelled
 - Zero incidents/accidents and zero non-conformances
- CNL proposes to consolidate the majority of WL's current and future-generated radioactive waste at CRL for long-term storage and/or disposal



WL WMA Decommissioning

Fuel in Concrete Canisters



WL WMA Decommissioning

Standpipes and ILW Bunkers Waste Retrieval



WL WMA Decommissioning

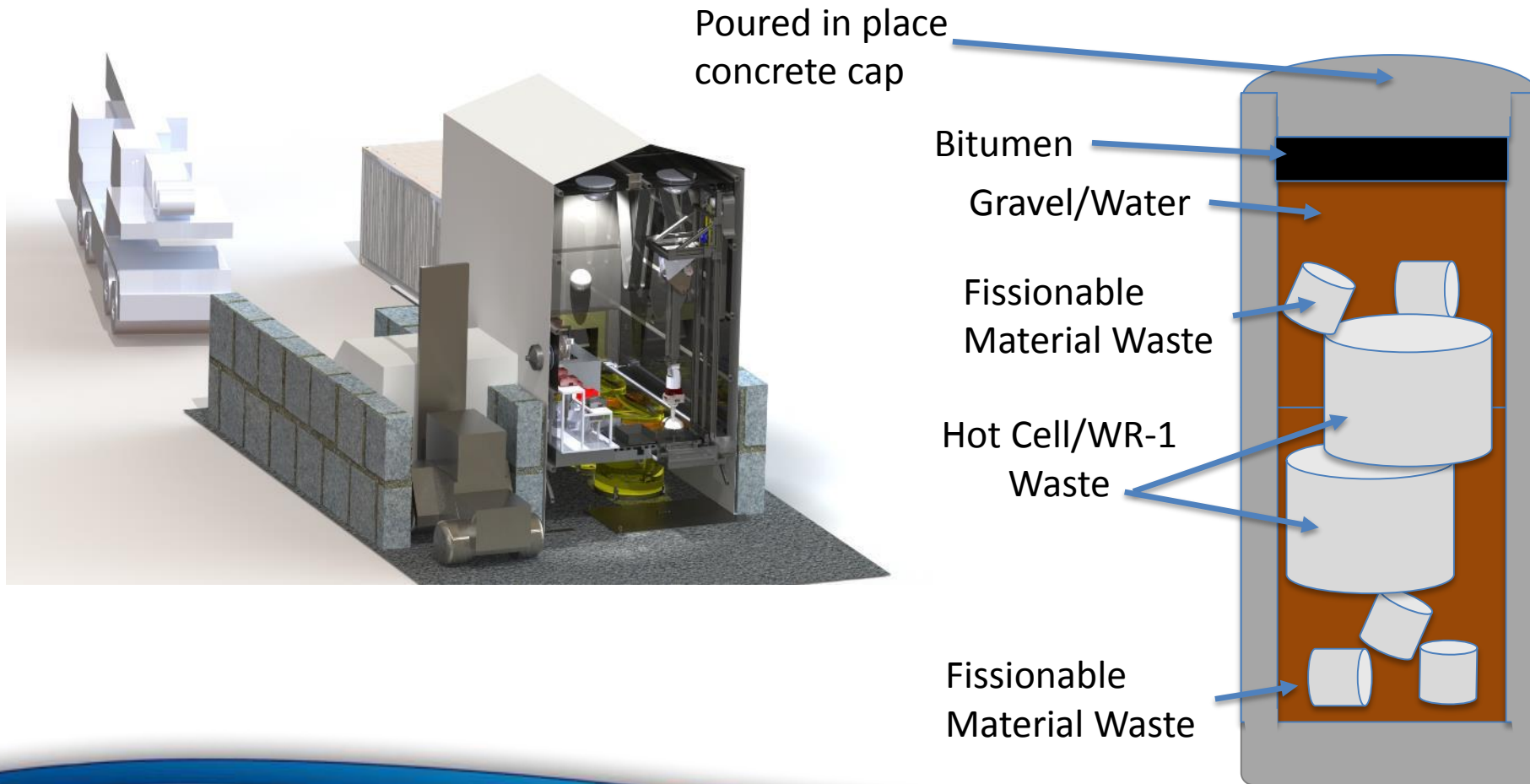
ILW Bunkers Waste Retrieval

- More than 4500 packages
- Package types include plastic bags, paint cans, garbage cans, drums, wooden boxes
- Waste packages expected to be degraded due to some bunkers being flooded



WL WMA Decommissioning

Standpipes Waste Retrieval



Proposed In-Situ Decommissioning of WR-1

Undergoing Federal Environmental Assessment



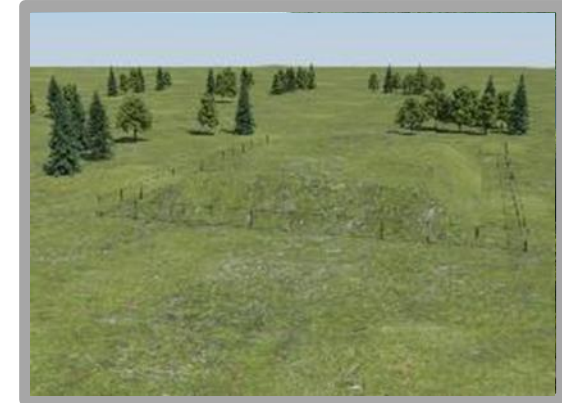
Preferred site closure option

- Based on sound scientific and engineering principles
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Robust engineered safety barriers

- Reactor systems will be isolated and contained
- Reduces transportation and temporary storage



Sustainable & responsible management of liabilities

- Safe for the environment and future generations

Web link to video: https://www.youtube.com/watch?v=_sR61wu3_zY



WR-1 Environmental Impact Statement (EIS)

Update

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- Completing additional studies to address comments and respond to all submissions
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WL Public Engagement

- Fifteen regional public information sessions and two public webinars
- Participation in community events (Lac du Bonnet Trade Fair)
- Site tours and engagement with local municipalities, province, public and media
- Regional economic regeneration funding and support
- CNL/AECL retiree and alumni technical workshop
- Annual newsletter mailed out across the region
- Public Liaison Committee





WL Indigenous Engagement

- Engaged with six First Nation and Métis communities
- Site tours, meetings and project community visits / open houses
- Aboriginal Industry Day held at nearest First Nation community
- Participation in community events (Manitoba Métis Federation Annual General Assembly)
- First Nation community specific newsletter
- Visit to Hallam, Nebraska - April 2018 to benchmark entombed reactor



WL Main Campus FINAL END-STATE Target 2024





Port Hope Area Initiative

Scott Parnell

General Manager, Historic Waste Program



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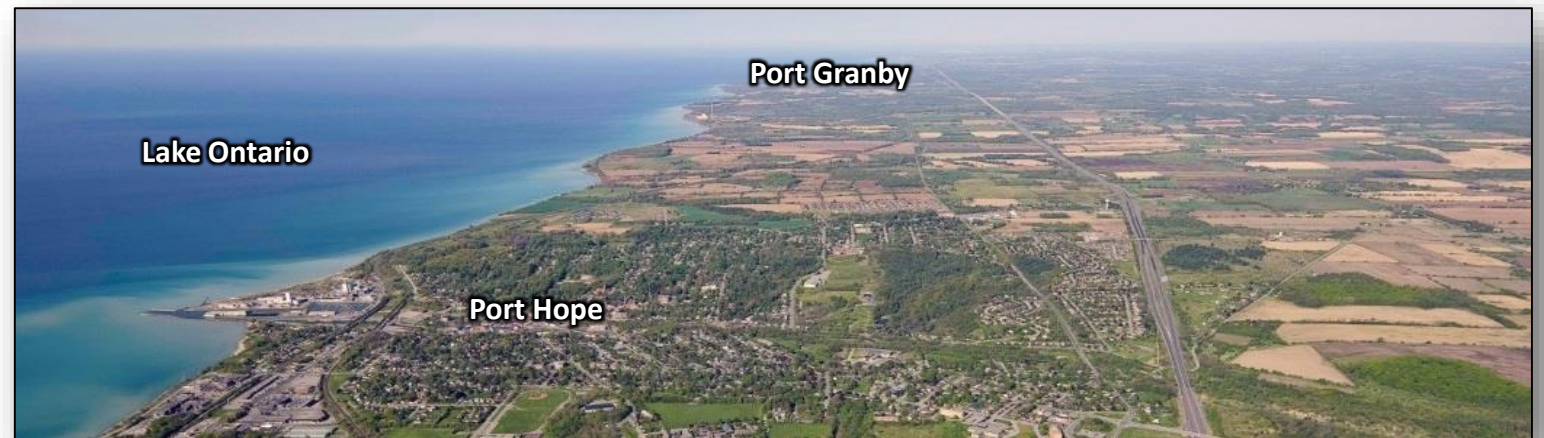
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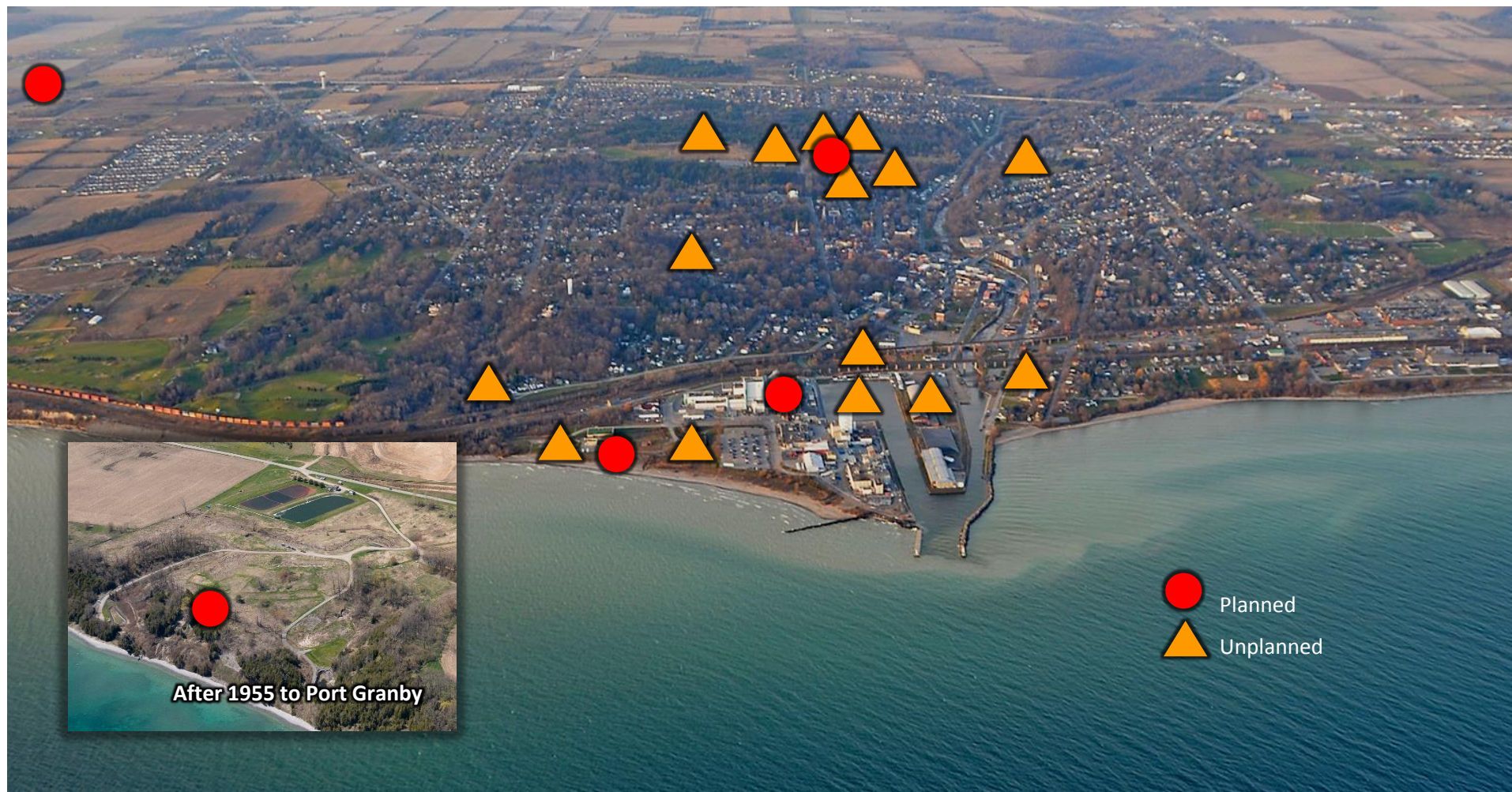
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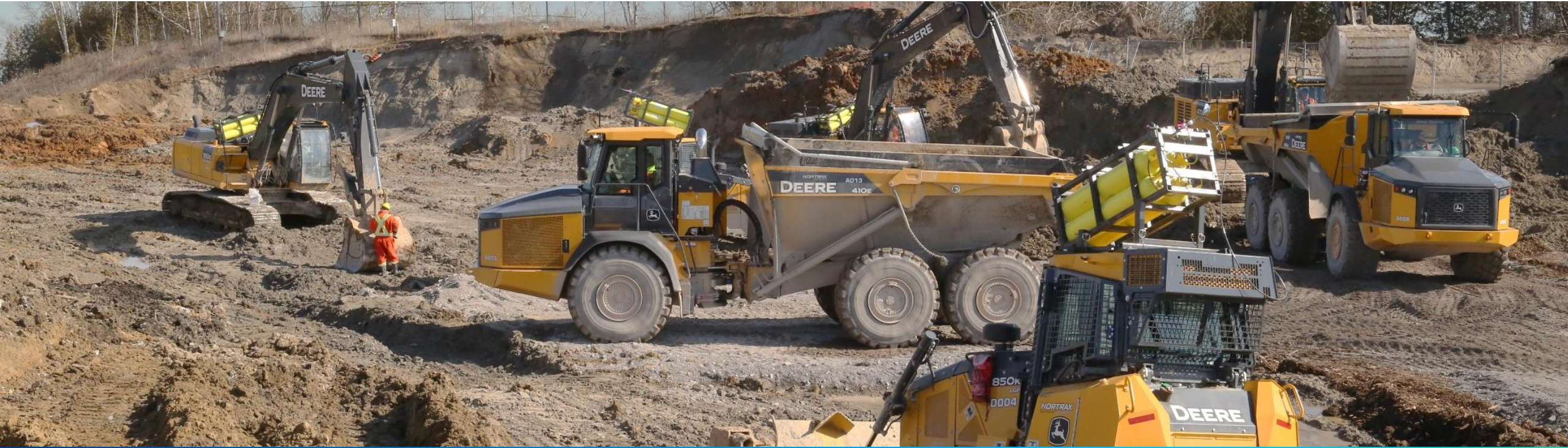
Port Hope Area Initiative (PHAI)

- Canada's commitment to clean up and safely manage historic low-level radioactive waste from former Canadian Crown corporation, Eldorado Nuclear Limited (1933-88) while minimizing impact on communities
- 2001 Legal Agreement - between Government of Canada and municipalities of Port Hope and Clarington
- One initiative - two projects: Port Hope Project and Port Granby Project
- Federal funding of \$1.28 billion
- Significant environmental benefits
- Safety of public, workers and the environment - number one priority



Historic Waste Locations



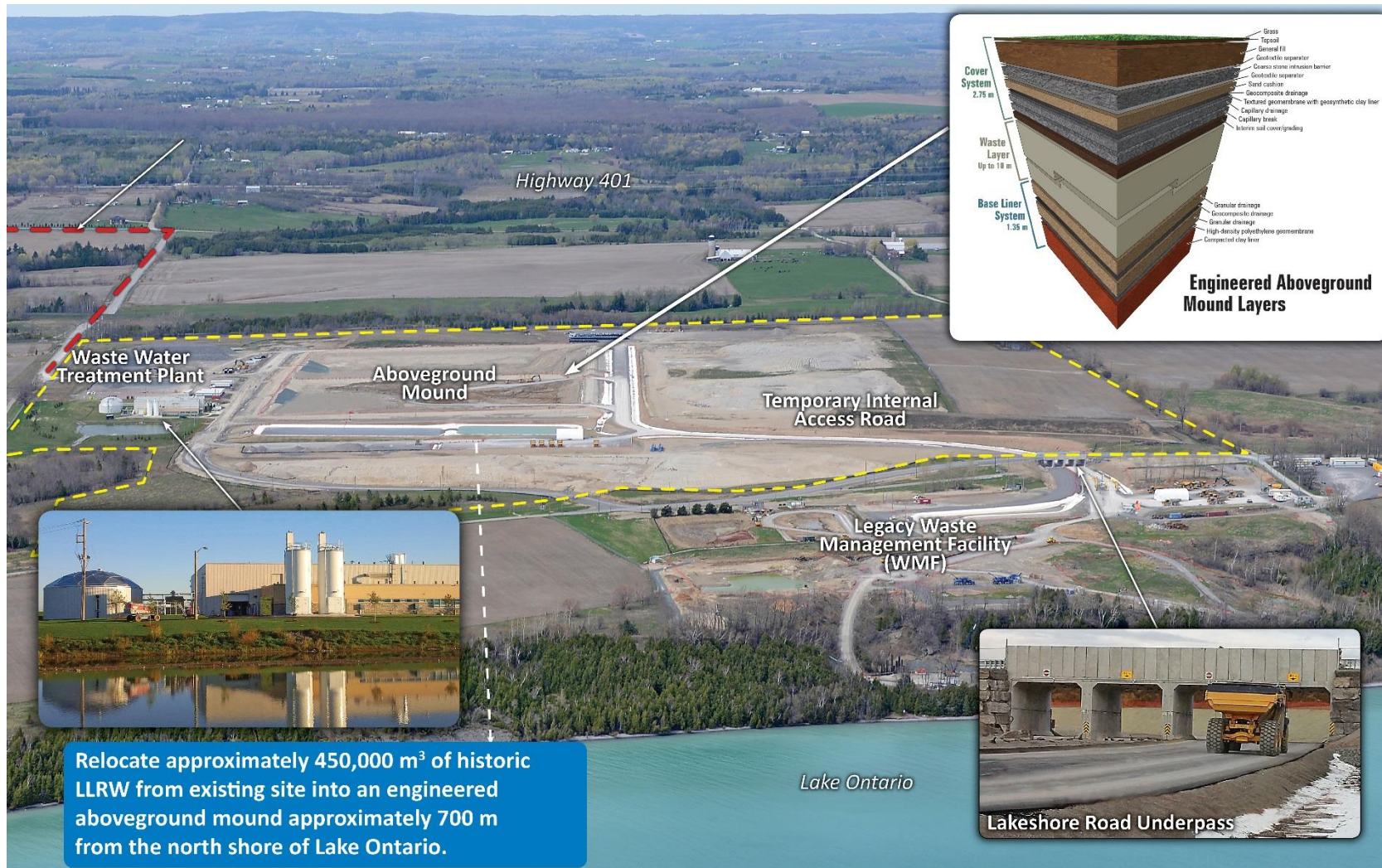


Port Granby Project

Municipality of Clarington



Port Granby Long-Term Waste Management Facility



Relocate approximately 450,000 m³ of historic LLRW from existing site into an engineered aboveground mound approximately 700 m from the north shore of Lake Ontario.



Port Granby Project Current Work



Waste Water Treatment Plant



Phase 5 complete



Remediation verification



Port Granby Project Site Progress (2010-2018)



Port Granby Project Site Progress (2010-2018)



Port Granby Project Site Progress (2010-2018)



Port Granby Project Site Progress

(2010-2018)



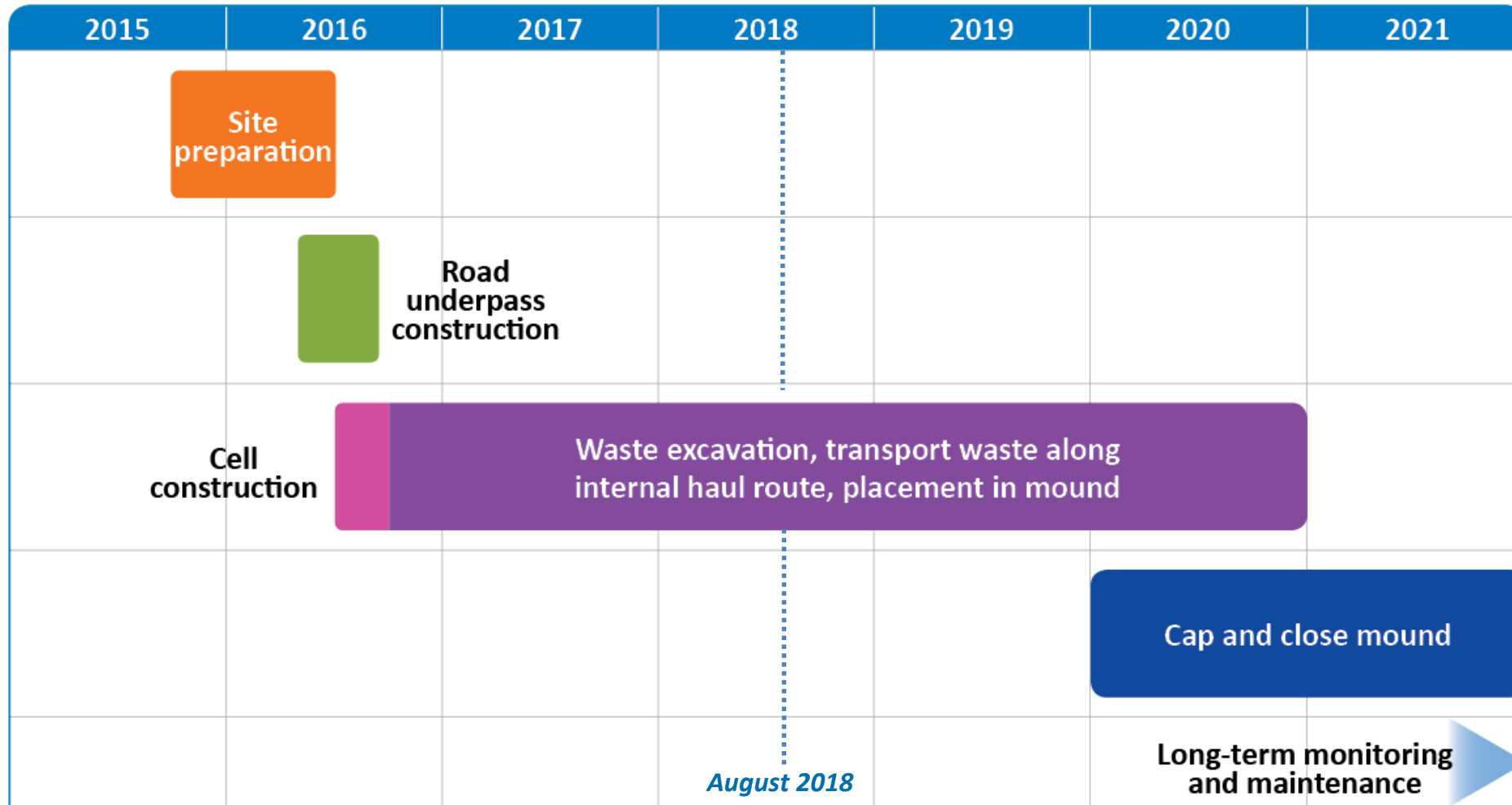
Water Management

Corrective Actions & Improvements

- Updated contingency management plan
- Additional water-storage capacity (lake tanks, baker tanks for emergency use)
- Diversion berms constructed to redirect clean storm water away from remediation areas
- Use of portable water treatment system



Port Granby Project Timeline (2015-2021)





Port Hope Project

Municipality of Port Hope

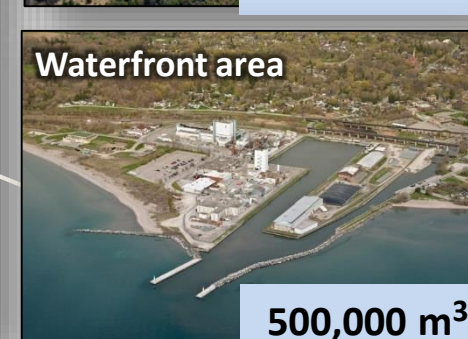


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Port Hope Project



Port Hope Project Long-Term Waste Management Facility



Port Hope Project Long-Term Waste Management Facility

Completed Work



Port Hope Project Long-Term Waste Management Facility



Port Hope Project Long-Term Waste Management Facility



Port Hope Project Long-Term Waste Management Facility



Port Hope Project Long-Term Waste Management Facility



Port Hope Project

2018 Progress

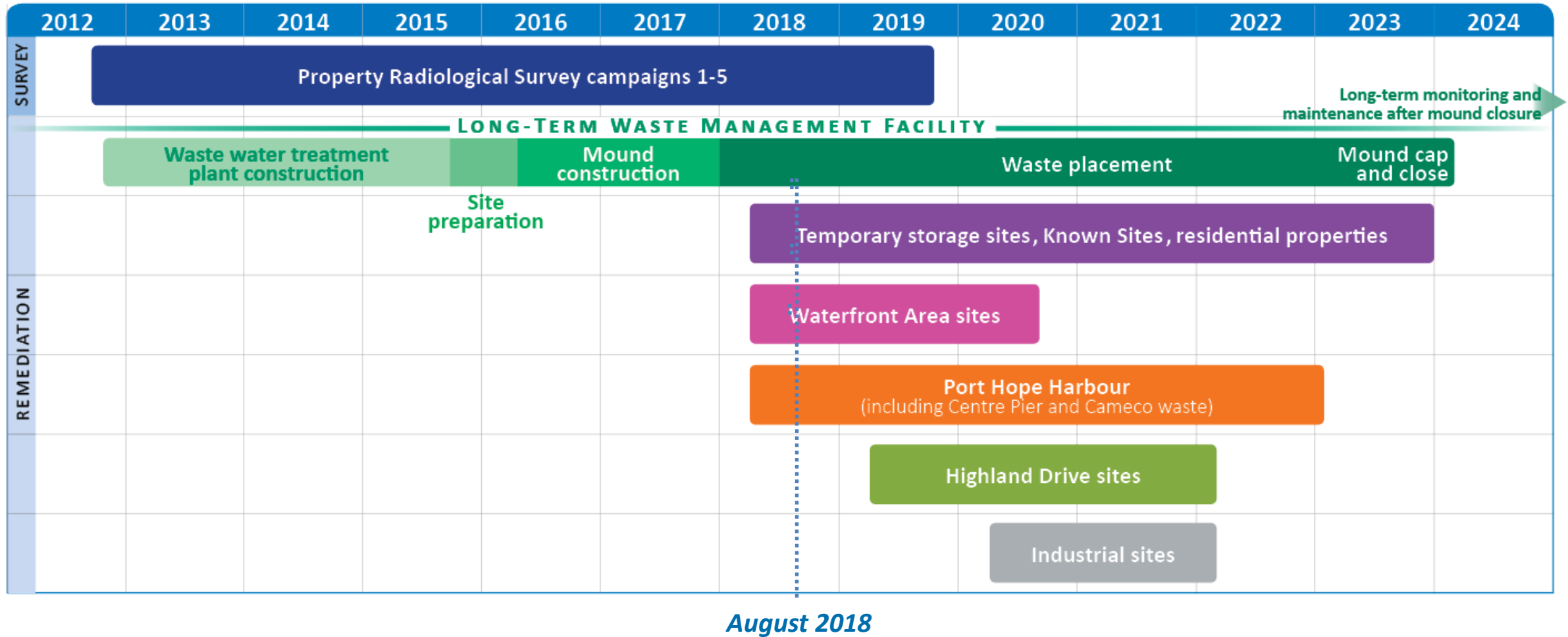
- Temporary Storage Sites – underway
- Harbour - underway
- Small-scale Sites – prep work underway, followed by remediation
- Waterfront Sites – begins in fall



Small-scale Sites: Radiological Survey



Port Hope Project Schedule





PHAI

Health, Safety, Security, Environment & Quality



PHAI Health & Safety, Security & Quality



Health & Safety Programs

- Worker/contractor safety programs
- Public safety programs
- First Responder training/drills
- Site safety programs



Security Programs

- CNL security clearance - all employees/contractors at all times
- Site-specific security plan - contractors: site access control, security program, procedures to inform CNL of any security issues



Quality Assurance Programs

- Support licensing requirements
- Review & Approval on process and timing expectations
- Promote continuous improvement



Environmental Monitoring & Protection

- Compliance with federal and provincial requirements:
 - Species at Risk survey being conducted at Major Sites
 - Vegetation removal prior to April (Migratory Birds Act)
 - Nest surveys by qualified biologists and protection during construction activities
- Robust sediment/erosion control and fuels/lubricants management measures
- Four-tier dust management program
- CNL environmental and EA follow-up monitoring program
- On-site CNL Environmental Compliance officers

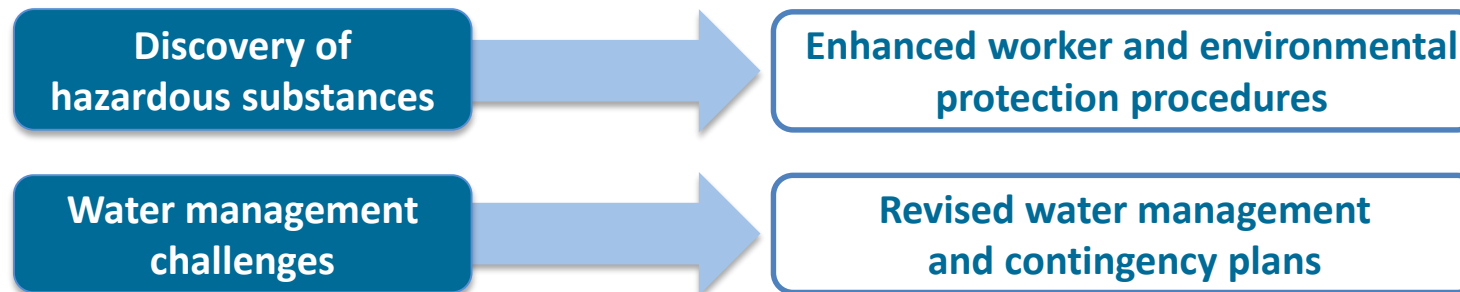


PHAI Performance

Operations and project activities managed according to parameters of CNSC licences:

- ✓ Radiation exposures remain below regulatory dose limits
- ✓ No lost time injuries
- ✓ EA follow up/operational monitoring - no areas of concern
- ✓ No emergency events affecting the PHAI

Reporting in accordance with CNSC licences/applicable regulations:



Agency Interface

Federal

- Canadian Nuclear Safety Commission
- Environment & Climate Change
- Fisheries & Oceans
- Employment & Social Development

Provincial

- Ministry of Environment, Conservation & Parks
- Ministry of Labour
- Ministry of Natural Resources & Forestry
- Ministry of Transportation

Regional

- Municipality of Port Hope
- Municipality of Clarington
- Ganaraska Regional Conservation Authority
- Northumberland County
- Haliburton, Kawartha, Pine Ridge District Health Unit
- Durham Region



Clarington



Ontario

Canada

Community First Responders

- Durham Regional Police
- Durham Region EMS
- Lakeridge Health
- Clarington Emergency & Fire Services
- Ontario Provincial Police
- Port Hope Police
- Northumberland Paramedics
- Port Hope Fire Services
- Northumberland Hills Hospital



PHAI Public Information Program

- Commitment under Legal Agreement, Environmental Assessments and CNSC licences
- Provides accurate, timely and consistent information to the public
- Promotes awareness, understanding and confidence



PHAI Indigenous Engagement

- Annual full-day project update/site tour
- Invitations to PHAI events
- Newsletters



Concluding Remarks

- CNL is meeting its obligations under:
 - Canadian Nuclear Safety Commission Licences
 - Provincial and Federal Agencies
 - Environmental Assessments
- Significant progress in safely accelerating the reduction of Canada's Nuclear Liabilities
 - Proposed closure of the WL and NPD sites brought forward by several decades
 - Early hazard reduction at Douglas Point and Gentilly-1
 - PHAI remediation efforts well underway with 2024 completion date
- CNL committed to continue working with the public, Indigenous groups and other stakeholders



Thank you.
Questions?

