

Near Surface Disposal Facility (NSDF) Quick Facts

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What is it for?

- It is the crucial first step in the transformation of Chalk River Laboratories site into a centre for world class science and technology innovation.
- The revitalization of Chalk River Laboratories involves the decommissioning of more than 100 buildings that have reached the end of their useful lives – the NSDF will provide safe disposal for the demolition waste.
- It will provide safe and permanent disposal of waste from more than 65 years of operations, which is now in interim storage. As well, it will provide safe and permanent disposal for small quantities of waste from other Government of Canada nuclear decommissioning activities, and from ongoing management of waste from Canadian sources, such as hospitals and universities.
- The NSDF will enable CNL to meet its obligation, as licensee, to responsibly manage the waste liabilities arising from its activities and to reduce risks to workers, the public and the environment.

What exactly is it?

- The NSDF is an engineered containment mound built at the Chalk River Laboratories site to safely dispose of mostly solid, low level radioactive waste.
- The mound will hold 1,000,000 cubic metres of waste and feature 10 waste disposal cells to be built in two phases: six cells in Phase 1; four cells in Phase 2.
- The mound will feature a multi-layer base liner and cover system, with the waste placed in between the liner and the cover system. The waste is covered as each disposal cell is filled.
- The NSDF will also feature a waste water treatment plant to remove contaminants from precipitation that drains through the waste placed in the mound before the cover is installed, as well as waste water from operational activities.

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What is the timeline?

- March 2017 – CNL submitted the draft Environmental Impact Statement (EIS) for the NSDF to the Canadian Nuclear Safety Commission (CNSC)
- May 17, 2017 – last date for the public and Indigenous groups to submit comments on the EIS to the CNSC
- January, 2017 – anticipated timing for CNSC’s Environmental Assessment (EA) public hearing

Pending regulatory approvals:

- 2018 – construction begins on Phase 1, to build the first six waste cells
- 2020 – facility operation begins and waste disposal starts
- 2040 – construction begins on Phase 2, to build four additional waste cells
- 2070 – facility operation (waste disposal) end, and monitoring and surveillance period begins
- 2100 – monitoring and surveillance period begins
- 2100 – monitoring and surveillance period ends and 300-year institutional control period begins

What will it look like?

- While in operation the NSDF will physically resemble a municipal landfill with one active waste cell in operation at a time within the engineered containment mound.
- Following its closure, the mound will resemble a grassy outcrop built into an existing hillside, which will be approximately 18 metres tall and the mound will occupy a 16-hectare footprint on the 4,000 hectare CRL site.
- The mound will not be visible from the CRL main campus or the Ottawa River.
- While in operation, the NSDF will have a waste water treatment plant and several support facilities such as an office, change room, weigh scales and a truck wash facility. These will be decommissioned and removed following the end of operations. The site will be permanently fenced and feature roads, utilities and surface water management ponds.

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What will go in it?

- **95%** is CNL-managed waste which is owned by Atomic Energy of Canada Limited.
- Of this, **90%** is radioactive waste which is already stored, or which will be produced out of activities at the Chalk River site. This includes waste resulting from:
 - Building decommissioning and demolition debris including concrete rubble, masonry, structural steel, rebar, wooden supports and structures. By far, building and demolition debris is the largest single source of waste.
 - Remediation of impacted soils and related structures.
 - Legacy waste from 65 years of past operation that is now in interim storage on site.
 - Less than **5%** is radioactive waste originating from decommissioning projects including the Whiteshell Laboratories project, in Manitoba and other AECL sites, such as the prototype reactors (Douglas Point and Gentilly-1).
- Less than **5%** of the total waste is from Canadian hospitals, universities, research entities and industry clients; this activity is aligned with existing commercial arrangements that have been in effect for decades.

What are the Waste Acceptance Criteria (WAC)?

- The WAC are specifications for which waste is acceptable for disposal in the NSDF. The specifications set limits on the physical, chemical and radiological characteristics of the waste, for example:
 - Building demolition debris size and weight will be limited.
 - The WAC will limit the waste form to solid waste; waste with free-flowing liquids will not be permitted.
 - Ozone depleting substances, explosive materials, compressed gases, and biomedical, infectious and pathogenic materials will be prohibited.
 - The WAC will limit the radioactivity and chemical hazards of waste disposed in the NSDF.
 - Limits will be set on the level of radiation on both the package and the waste itself to assure operational worker safety and long term safety performance.
- Waste that doesn't meet the WAC for the NSDF will be managed in interim storage until a final treatment or disposal solution has been established.
- Waste generators must characterize their waste in accordance with CNL requirements as part of the acceptance process for the NSDF. Through a series of tests, the physical, radiological and chemical characteristics of the waste are determined.
- Waste offered for disposal at the NSDF will be assessed against the WAC prior to being accepted for disposal in the NSDF. After waste is accepted and then transferred to the NSDF, a final operations check is made before actual disposal.

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How are we ensuring the safety of workers, the public and the environment?

- The NSDF will be built to protect people and the environment using our decades of waste management experience combined with international best practices.
- The engineered containment mound includes base liner and cover systems that will fully contain the waste and prevent the release of contaminants to the environment.
- The multi-layer base liners, cover system and monitoring are key safety features of the engineered containment mound:
 - The base liner system will be approximately 1.5 metres thick.
 - The cover system (cap) will be approximately two metres thick.
 - The design also includes features to enable inspection of the system performance and to allow for repairs if necessary.
 - Surrounding the NSDF will be an array of environmental monitoring systems that will sample air, water and groundwater quality.
 - The water discharged from the waste water treatment plant will meet discharge criteria and protect the environment, including Chalk River wetlands and the Ottawa River.
- Every step of the process will be overseen by the CNSC.

Who are we talking with about this?

- CNL has held regular briefings with local municipal councils and with CNL's Environmental Stewardship Council (an advisory group of stakeholders and local communities) to provide updates and answer questions on the NSDF project.
- As the project has been ramping up in the last year, CNL is regularly reaching out to the broader community. A series of public information sessions were held in the summer and fall of 2016 to give the public an opportunity to learn more about the NSDF and to gather comments on CNL's plans. Additional public information sessions are planned for spring 2017.
- CNL is also engaging Indigenous communities to discuss the project and is assessing the significance of potential adverse impacts and taking into account asserted rights, historical or traditional practices and land claims.

How can I learn more?

- www.cnl.ca/NSDF
- Ask us: communications@CNL.ca or [>Communications](#)

How do I get involved?

- Participate in the Environmental Assessment process by sharing your thoughts: www.cnl.ca/NSDF-eis
- Join us at one of our Public Information Sessions:

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