ONTARIO POWER GENERATION

1908 Colonel Sam Drive, Oshawa, ON L1H 8P7

OPG Proprietary

December 18, 2025

CD# W-CORR-00531-02073 P

Ms. C. Salmon
Commission Registrar
Canadian Nuclear Safety Commission
P.O. Box 1046
280 Slater Street
Ottawa, Ontario, K1P 5S9

Dear Ms. Salmon:

Renewal Application for Western Waste Management Facility Waste Facility Operating Licence

The purpose of this letter is to submit to the Canadian Nuclear Safety Commission (CNSC) Ontario Power Generation Inc.'s (OPG's) application for renewal of the Western Waste Management Facility (WWMF) Waste Facility Operating Licence (WFOL), WFOL-W4-314.00/2027, as per the Notice of Intent provided in Reference 1. The current licence expires on May 31, 2027.

OPG requests a 10-year licence renewal from June 1, 2027, to May 31, 2037.

OPG is an Ontario-based electricity generation company with its head office located at 1908 Colonel Sam Drive, Oshawa, Ontario, L1H 8P7. The WWMF is located on the Bruce nuclear site within the Municipality of Kincardine in south-western Ontario, on the treaty and traditional territory of the Saugeen Ojibway Nation.

The WWMF is licensed by the Canadian Nuclear Safety Commission (CNSC) under section 24(2) of the *Nuclear Safety and Control Act* (NSCA) to provide for the safe handling, transfer, use, packaging, processing, management and interim storage of radioactive wastes.

As a company and with the WWMF, OPG remains committed to fostering positive and mutually beneficial relationships with Indigenous Nations and communities across Ontario.

OPG continues to prioritize and make regular efforts to engage and collaborate with Rightsholders on ongoing operations, as well as proposed initiatives at the WWMF.

OPG also continues to engage with Indigenous Nations and communities proximate to the WWMF that assert Aboriginal and/or treaty rights and express interest in the WWMF operations. Implementation of a site-wide Indigenous Engagement Plan, informed by input from Indigenous Nations and communities, is ongoing and supports a holistic, comprehensive and coordinated approach to engagement, inclusive of this renewal application. OPG shared an early draft of the WFOL licence renewal application and a memo that provided a summary of the WFOL renewal application with Saugeen Ojibway Nation, the Rightsholders, in November 2025.

Electricity generated by nuclear power comes with the by-product of radioactive waste. OPG is committed to the responsible and comprehensive management of all its radioactive waste and WWMF will continue to provide safe, interim storage for radioactive waste generated by the operation of Ontario's nuclear power plants under their current and any future respective operating licences.

The WWMF is a Class IB nuclear facility dedicated to the management, processing, and interim storage of Low and Intermediate Level Waste (L&ILW) resulting from the operations of Ontario's nuclear generating stations and other facilities currently or previously operated by OPG and the interim storage of used fuel from Bruce Power.

The management and control of operation of the WWMF, including radioactive materials transportation, are the overall responsibility of Mr. Kapil Aggarwal, Vice President of Nuclear Sustainability Services (NSS), as described in N-CORR-00531-24720, *OPG – Person Authorized to Act on Behalf of OPG in Dealings with the CNSC and Senior Leadership Positions with Responsibility for Safety*.

The licence renewal application has been prepared in accordance with the requirements of the NSCA and its associated Regulations, and CNSC staff's expectations as provided in Reference 2. The information provided within this application demonstrates that OPG is qualified to carry on the licensed activities to operate a Class IB nuclear facility while meeting the requirements in the Act and Regulations and continuing to protect the environment, the health, safety, and security of persons, and maintaining measure required to implement international Safeguards obligations.

In Reference 2, CNSC staff also requested, for identified Canadian Standards Association (CSA) standards and CNSC regulatory documents (REGDOCs), that OPG provide implementation plans or justification for the CSA standards or REGDOCs to be used in the WWMF Licence Conditions Handbook. OPG has provided this information in Reference 3.

For ease of use, Attachment 1 provides a "Licence Renewal Application Matrix", to assist CNSC staff in locating specific information within the application.

Attachment 2 provides the "Western Waste Management Facility Waste Facility Operating Licence Renewal Application" describing the 14 Safety and Control Areas, facility-specific information, additional matters of regulatory interest, OPG's programs, facility performance during the current licence period, and planned activities for the WWMF. OPG is proud of the strong performance, long standing safety record and the many significant achievements during the current licence term. Our track record reflects the exceptional high standards upheld by OPG and our dedicated staff to provide safe and reliable operation of the WWMF.

OPG plans to submit supplemental information to this application to include a Predictive Environmental Risk Assessment, Environmental Risk Assessment, and updates on performance data and information that is pending at time of this submission. OPG plans to submit a supplemental Commission Member Document as per the schedule that will be provided by the CNSC.

Attachment 3 provides the copy of Land Ownership.

OPG is committed to the safe and reliable operation of the WWMF, safeguarding the health, safety, and security of individuals and the environment. OPG will continue to meet the requirements of the *Nuclear Safety and Control Act* and the associated Regulations. OPG is confident in our ability to reliably and safely execute the requested licensed activities through 2037.

Should you require any further information, please contact Mohammadreza Baghbanan, Senior Manager Regulatory Affairs, at mohammadreza.baghbanan@opg.com.

Sincerely,

Kapil Aggarwal
Vice President Nuclear Sustainability Services
Ontario Power Generation Inc.

Attach

cc: K. Ross
N. Chan
T. Kalindjian
S. Watt
forms-formulaires@cnsc-ccsn.gc.ca

Reference:

1. OPG Letter, K. Aggarwal to N. Greenhorn, " Western Waste Management Facility - Notice of Intent to Renew Waste Facility Operating Licence WFOL-W4-314.00/2027", December 20, 2024, CD# 01098-CORR-00531-54210.

2. CNSC Letter, N. Greenhorn to K. Aggarwal, "CNSC staff expectations for the licence application for the renewal of the Western Waste Management Facility Operating Licence WFOL-W4-314.00/2027", February 10, 2025, CD# 01098-CORR-00531-54258, e-Doc: 7455005.

3 OPG Letter, K. Aggarwal to S. Watt, “Western Waste Management Facility - Implementation of CSA Standards and CNSC REGDOCs”, December 18, 2025, CD#01098-CORR-00531-54285

ATTACHMENT 1

OPG letter, K. Aggarwal to Ms. C. Salmon, “Renewal Application for Western Waste Management Facility Waste Facility Operating Licence”

CD# W-CORR-00531-02073 P

Licence Renewal Application Matrix

(7 pages)

Attachment 1

Licence Renewal Application Matrix

Table 1: Licence Renewal Application Matrix – Applicable Regulations

NOTE: Unless otherwise specified, all sections cross-referenced below refer to Attachment 2.

Section	Regulatory Requirement	Location in Submission
General Nuclear Safety and Control Regulations		
LICNECES – General Application Requirements		
3 (1)	An application for a licence shall contain the following information: a) the applicant's name and business address;	Cover letter
	b) the activity to be licensed and its purpose;	Section 1.0
	c) the name, maximum quantity and form of any nuclear substance to be encompassed by the licence;	Appendix C
	d) a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence;	Section 2.12
	e) the proposed measures to ensure compliance with the Radiation Protection Regulations and the Nuclear Security Regulations;	Section 2.7 and 2.12
	f) any proposed action level for the purpose of section 6 of the Radiation Protection Regulations;	Section 2.7 and 2.9
	g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;	Section 2.12
	h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment or prescribed information;	Section 2.12 and 2.13
	i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	Section 2.4
	j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	Section 2.11, Appendix C and Appendix D

Section	Regulatory Requirement	Location in Submission
	k) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the Act and the regulations made under the Act, including the internal allocation of functions, responsibilities and authority;	Section 2.1
	l) a description of any proposed financial guarantee relating to the activity to be licensed; and	Section 3.1
	m) any other information required by the Act or the regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence.	Throughout
3 (1.1)	The Commission or a designated officer authorized under paragraph 37(2)(c) of the Act, may require any other information that is necessary to enable the Commission or the designated officer to determine whether the applicant a) is qualified to carry on the activity to be licensed; or	See Table 2 in this Attachment 1.
	b) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.	Sections 2.7, 2.8, 2.9, 2.10, 2.12, and 2.13
LICENCES – Application for Renewal of Licence		
5	An application for the renewal of a licence shall contain a) the information required to be contained in an application for that licence by the applicable regulations made under the Act; and	Throughout
	b) a statement identifying the changes in the information that was previously submitted.	Throughout
OBLIGATIONS – Representatives of Applicants and Licensees		
15	Every applicant for a licence and every licensee shall notify the Commission of a) the persons who have authority to act for them in their dealings with the Commission;	OPG Letter "OPG – Persons Authorized to Act on Behalf of OPG in Dealings with the CNSC and Senior Leadership Positions with Responsibility for Safety", October 6, 2025, N-CORR-00531-24720

Section	Regulatory Requirement	Location in Submission
	b) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment, or prescribed information encompassed by the licence; and	Cover letter and OPG Letter "OPG – Persons Authorized to Act on Behalf of OPG in Dealings with the CNSC and Senior Leadership Positions with Responsibility for Safety", October 6, 2025, N-CORR-00531-24720
	c) any change in the information referred to in paragraphs (a) and (b), within 15 days after the change occurs.	OPG will continue to provide the required information.
Class I Nuclear Facilities Regulations		
LICENCE APPLICATIONS – General Requirements		
3	An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*: a) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;	Section 1
	b) (b) plans showing the location, perimeter, areas, structures and systems of the nuclear facility;	Section 1.1
	c) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;	Attachment 3
	d) the proposed quality assurance program for the activity to be licensed;	Section 2.1 and 2.5
	e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;	Appendix D
	f) the proposed worker health and safety policies and procedures;	Section 2.8
	g) the proposed environmental protection policies and procedures;	Section 2.9
	h) the proposed effluent and environmental monitoring programs;	Section 2.9
	i) if the application is in respect of a nuclear facility referred to in a paragraph 2(b) of the *Nuclear Security Regulations*, the information required by section 3 of those Regulations;	Section 2.12

Section	Regulatory Requirement	Location in Submission
	j) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and	Section 1.7
	k) the proposed plan for the decommissioning of the nuclear facility or of the site	Section 2.11.5
LICENCE APPLICATIONS – Licence to Operate		
6	An application for a licence to operate a Class I nuclear facility shall contain the following information in addition to the information required by section 3: a) a description of the structures at the nuclear facility, including their design and their design operating conditions;	Sections 1.1 and 2.5
	b) a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;	Section 2.5
	c) a final safety analysis report demonstrating the adequacy of the design of the nuclear facility;	Section 2.4
	d) the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility;	Section 2.3 and 2.6
	e) the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances;	Sections 2.3, 2.7, 2.11, and 2.14
	f) the proposed measures to facilitate Canada's compliance with any applicable safeguards agreement;	Section 2.13
	g) the proposed commissioning program for the systems and equipment that will be used at the nuclear facility;	Sections 2.1 and 2.5
	h) the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;	Sections 2.7, 2.8, 2.9, and 2.11
	i) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;	Section 2.9

Section	Regulatory Requirement	Location in Submission
	j) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;	Section 2.9
	k) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to (i) assist off-site authorities in planning and preparing to limit the effects of an accidental release, (ii) notify off-site authorities of an accidental release or the imminence of an accidental release, (iii) report information to off-site authorities during and after an accidental release, (iv) assist off-site authorities in dealing with the effects of an accidental release, and (v) test the implementation of the measures to prevent or mitigate the effects of an accidental release;	Sections 2.9, 2.10 and 2.14
	l) the proposed measures to prevent acts of sabotage or attempted sabotage at the nuclear facility, including measures to alert the licensee to such acts;	Section 2.12
	m) the proposed responsibilities of and qualification requirements and training program for workers, including the procedures for the requalification of workers; and	Section 2.2
	n) the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.	Sections 2.1 and 2.2
Nuclear Substances and Radiation Devices Regulations		
LICENCE APPLICATIONS – General Requirements		
3	(1) An application for a licence in respect of a nuclear substance or a radiation device, other than a licence to service a radiation device, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*: (a) – (o)	OPG holds several licences under the Nuclear Substances and Radiation Devices Regulations, as listed in Attachment 3, Sections 2.7 and 2.12. However, OPG is not applying for these activities under this licence application.
Nuclear Security Regulations		

Section	Regulatory Requirement	Location in Submission
Part 2 SECURITY OF NUCLEAR FACILITIES LISTED IN SCHEDULE 2 – LICENCE APPLICATIONS		
41	An application for a licence in respect of a nuclear facility shall contain, in addition to the information required by sections 3 to 8 of the *Class I Nuclear Facilities Regulations*, a description of the physical protection measures to be taken to ensure compliance with sections 42 to 48.	WWMF is not a facility listed in Schedule 2 of the *Nuclear Security Regulations,* however, physical protection measures are listed in Section 2.12.

Table 2: Licence Application Matrix – Other Information Identified by CNSC Pursuant to subsection 3(1.1) of the *General nuclear safety and Control Regulations*

Item	Location in Submission
1) Summary of programs and supporting documentation (i.e. OPG governance documents and governance support documents) needed to support the licence application organized under each SCA, including other matters of regulatory interest (see Attachment 1 of e-Doc 7455005). The programs and supporting documentation should be sufficiently detailed to describe the safety and control measures that will be implemented at WWMF for each SCA.	Throughout
2) Description of WWMF's approach to safety, including reference to corporate and facility specific documents which enunciate the safety policies and standards to which WWMF must adhere.	Section 2.1
3) Documents describing the organizational structure, roles and responsibilities of organizational units and management; including documents governing the day to day operation and conduct of the organization.	Section 2.1 and 2.3
4) Information on WWMF's performance for each SCA during the current licence period, relative to OPG's expectations, including any trends.	Sections 2.1 to 2.14
5) Assessment of existing and future safety challenges, along with a safety improvement plan to address these challenges during the next licence period.	Sections 2.1 to 2.14
6) Describe opportunities for improvements and any safety improvement plans to address identified safety challenges	Sections 2.1 to 2.14
7) A description of the proposed operating plan for the next licensing period	Sections 1 and 2.3
8) Information on significant activities envisaged beyond the end of the next licensing period, if any	Sections 2.1 to 2.14
9) Provide a list of federal, provincial, municipal or other regulations, other than the regulations pursuant to the NSCA, which WWMF must abide by	Appendix B
10) Provide a description of any obligations for municipal, provincial or other federal authorities and any obligations for public and/or private organizations.	Appendix B

Item	Location in Submission
11) Provide a list of any permits, certificates and licences issued by authorities other than the CNSC	Appendix B
12) Provide updated Derived Release Limits and Operating Release Limit reports for the facility	Section 2.9
13) Provide OPG's plans and schedule, including dates, with respect to complying with each of the standards, codes and CNSC regulatory documents found in Attachment 2 of e-Doc 7455005 (unless recommended to be included under recommendations and guidance), including transition measures as appropriate.	Reference 3
14) Summary of the current status of all open actions items, as well as issues and requests that were discussed during the last WWMF Commission hearings or meetings, including a plan and date for resolution.	Appendix B
15) Provide justification to ensure that any proposed action level for the purpose of section 6 of the *Radiation Protection Regulations* will provide timely warning of any potential or actual loss of control of part of the radiation protection program.	Section 2.7
16) Provide a self-assessment to determine if the licence applications could have any new adverse impacts on Indigenous or treaty rights and therefore raise the duty to consult and trigger the requirements of REGDOC-3.2.2, *Indigenous Engagement*. REGDOC-3.2.2 also outlines what to consider when conducting this activity.	Section 1.6.2
17) Provide a description of outreach activities to engage Indigenous groups and members of the public with respect to licence renewal.	Section 1.6 and 1.7

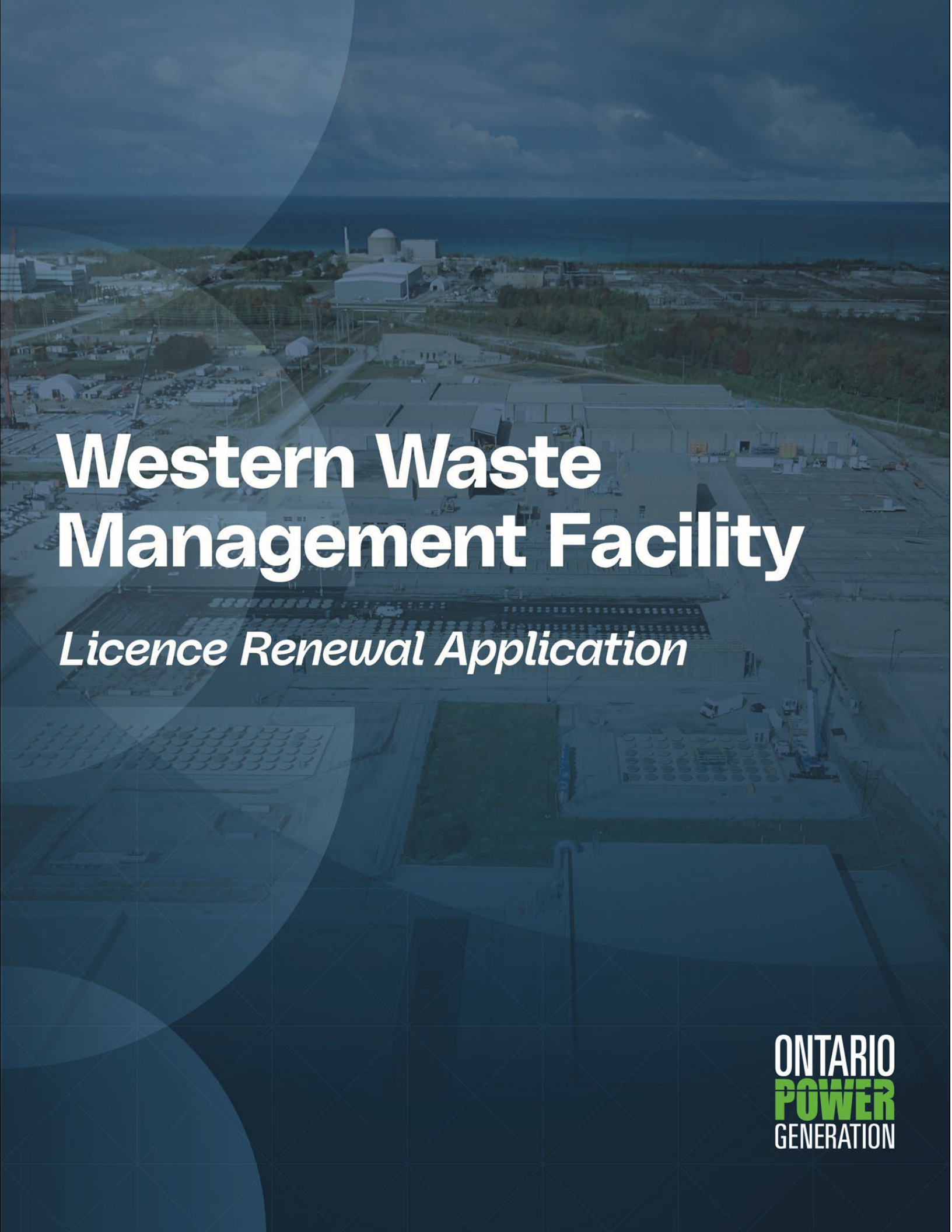
ATTACHMENT 2

OPG letter, K. Aggarwal to Ms. C. Salmon, “Renewal Application for Western Waste Management Facility Waste Facility Operating Licence”

CD# W-CORR-00531-02073 P

Western Waste Management Facility Waste Facility Operating Licence Renewal Application

(210 pages)



Western Waste Management Facility

Licence Renewal Application

ONTARIO POWER GENERATION

Land Acknowledgement

Ontario Power Generation (OPG) acknowledges that the Western Waste Management Facility is located on the traditional territory of the Chippewas of Saugeen First Nation and the Chippewas of Nawash Unceded First Nation, collectively known as the Saugeen Ojibway Nation, and are the traditional keepers of the land.

The area is also home to many diverse First Nations, Inuit, and Métis peoples and as a company, we remain committed to fostering positive and mutually beneficial relationships with Indigenous people and communities across Ontario.

Executive Summary

OPG requests authorization from the Canadian Nuclear Safety Commission (CNSC) for a 10-year renewal of its Waste Facility Operating Licence (WFOL) W4-314.00/2027 for the Western Waste Management Facility (WMMF), located at the Bruce Nuclear site in the Municipality of Kincardine, Ontario. The current WFOL expires on May 31, 2027 and OPG is requesting renewal of the WFOL for a 10-year licence term from June 1, 2027 to May 31, 2037.

The WWMF is a Class IB nuclear facility that safely manages low and intermediate level radioactive waste (L&ILW) resulting from the operations of OPG owned Power Generating Stations and facilities, as well as used fuel from the Bruce Power Generating Stations. The WWMF operates under OPG's Nuclear Sustainability Services (NSS) division, which is responsible for the safe, secure, and environmentally responsible management of nuclear waste production across OPG owned Power Generating Stations.

Licence Renewal Scope

Upon renewal, OPG requests the licence include authorization for all activities authorized under the current licence. OPG requests a change to the facilities listed in Appendix C of the current licence associated with total structures authorized under paragraph (v) of section IV. Authorization is requested for site preparation, construction, or construction modifications for two additional Used Fuel Storage Structures, in addition to the structures already authorized in the current licence.

The WWMF has been operating safely since it was established in 1974. The additional buildings and structures will not alter the fundamental purpose and activities associated with the WWMF. The ongoing operation of the WWMF will enable the nuclear generating stations in Ontario to operate as planned under their current and potential future respective operating licences.

Safety and Control Areas

This licence renewal application provides the information required to demonstrate that OPG meets all applicable requirements of the *Nuclear Safety and Control Act* (NSCA) and the associated Regulations. This application presents information on the performance of WWMF in accordance with the CNSC's fourteen Safety and Control Areas (SCAs).

During the current licence period, the WWMF has operated safely and reliably to protect the public, the workers and the environment. OPG is proud of its excellent record in conventional and radiological worker safety and is well positioned for the continued operation of WWMF.

This application highlights strengths and achievements in each SCA and includes updated information since OPG's last WWMF licence application, including improvements made or planned, to support operation through the end of the requested licence term.

Safety and Reliability

During the current licence term, the WWMF continued to demonstrate strong safety performance. OPG is committed to innovative and responsible solutions for managing radioactive materials safely, efficiently and cost effectively, and to making investments for the continued safe operation of the WWMF. OPG has built a healthy safety culture that permeates the organization and demonstrates a focus to improve organizational effectiveness through the use of best practices, enhanced behaviours and learning.

Commitment to Reconciliation and Indigenous Engagement

Corporately, through its Reconciliation Action Plan, OPG delivered $428 million in benefits (2022–2024) and placed 233 Indigenous hires through the Indigenous Opportunities Network program, since 2018. Proximate to the WWMF, OPG actively engages with Saugeen Ojibway Nation (rightsholders), Métis Nation of Ontario Region 7 Georgian Bay Traditional Territory Consultation Committee and Historic Saugeen Métis (asserted rights). Engagement activities include tours, site visits, meetings (virtual and in-person), and written communications.

Public Engagement and Communications

Aligned with CNSC REGDOC-3.2.1, *Public Information and Disclosure* OPG's outreach efforts throughout our current licence period have been focused on transparency, clear communication, and stakeholder engagement, including:

- 242 facility tours
- 18 publications
- 469 community outreach initiatives supported through OPG's Power for Change project
- 264 public inquiries.

Conclusion

OPG's application reflects its commitment to safety, environmental stewardship, Indigenous reconciliation, and operational excellence. The proposed licence renewal and the addition of new storage structures and processing activities are essential to support Ontario's nuclear operations over the next decade.

This licence renewal application includes information to demonstrate that OPG meets all the requirements of the NSCA and associated Regulations and demonstrates that OPG:

- Is qualified to carry on the activities to be licensed; and,
- Will, in carrying on those activities, continue to ensure the health and safety of persons, protection of the environment and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

OPG has demonstrated strong safety and operational performance at the WWMF during the current licence term. With the improvements and future activities planned as outlined in this application, OPG is confident in its ability to safely and reliably execute the requested licensed activities through 2037.

OPG therefore requests the CNSC to authorize the renewal of the WWMF WFOL for a 10-year term from June 1, 2027 to May 31, 2037, authorizing the licensed activities requested in this application.

Table of Contents

LAND ACKNOWLEDGEMENT II

EXECUTIVE SUMMARY III

TABLE OF CONTENTS VI

LIST OF FIGURES IX

LIST OF TABLES X

1.0 INTRODUCTION 1

1.1 Site Description and Ownership 4
1.2 Performance – Achievements/Initiatives 7
1.3 Our People 8
1.4 Innovation at OPG 9
1.5 Improvement Plans and Significant Future Activities 11
1.6 Indigenous Engagement 14
1.6.1 Commitment to Reconciliation 15
1.6.2 Preliminary Assessment of Impacts 16
1.6.3 Identified Nations and Communities 17
1.6.4 Engagement Framework and Approach 19
1.6.5 Summary of Engagement Efforts and Activities to Date 20
1.6.6 Summary of Issues and Interests 27
1.6.7 Planned Engagement 28
1.6.8 Schedule of Reporting 29
1.7 Public Information and Disclosure Program 30
1.7.1 Communication Methods 31
1.7.2 Facility Reporting 33
1.7.3 Environmental Partnerships and Programs 33
1.7.4 Planned Improvements 34

2.0 SAFETY AND CONTROL AREAS 36

2.1 Management System 36
2.1.1 General Considerations 36
2.1.2 Management System 37
2.1.3 Organization 38
2.1.4 Performance Assessment, Improvement, and Organizational Effectiveness 42
2.1.5 Operating Experience, Problem Identification and Resolution 44
2.1.6 Configuration Management and Change Control 45
2.1.7 Nuclear Safety and Security Culture 47
2.1.8 Records Management 51
2.1.9 Business Continuity 52
2.1.10 Management of Contractors 52
2.2 Human Performance Management 54
2.2.1 General Considerations 54
2.2.2 Human Performance Program 54
2.2.3 Planned Improvements 57
2.2.4 Personnel Training 58

2.2.5 Current Learning Culture and Use of Technology *60*
2.2.6 Future Plans and Improvements *60*
2.2.7 Work Organization and Job Design *60*
2.2.8 Fitness for Duty *61*
2.3 Operating Performance 63
2.3.1 Conduct of Licensed Activity *63*
2.3.2 Procedures *74*
2.3.3 Reporting and Trending *74*
2.4 Safety Analysis 76
2.4.1 General Considerations *76*
2.4.2 Results *77*
2.4.3 Safety Assessment Results for WWMF Structures *77*
2.4.4 Safety Report *78*
2.5 Physical Design 80
2.5.1 Design Governance *80*
2.5.2 Site Characterization and Facility Design *83*
2.5.3 Structure Design *83*
2.5.4 Pressure Boundary *98*
2.6 Fitness for Service 99
2.6.1 Equipment Reliability *99*
2.6.2 Maintenance *100*
2.6.3 Aging Management and Structural Integrity *101*
2.6.4 Dry Storage Container Aging Management Program *102*
2.6.5 DSC Transfer Clamps Aging Management Program *103*
2.6.6 Low & Intermediate Level Waste Storage Structures and Containers *103*
2.6.7 Planned Activities *104*
2.7 Radiation Protection 105
2.7.1 Radiation Protection Program *105*
2.7.2 Current Operations and Results *108*
2.7.3 WWMF Perimeter Dose Monitoring (non-NEW and Public) *112*
2.7.4 Future Plans and Improvements *115*
2.8 Conventional Health and Safety 116
2.8.1 Employee Health and Safety Policy *116*
2.8.2 Program and Objectives *117*
2.8.3 Health and Safety Management Practices and Awareness *117*
2.8.4 Current Operations and Results *119*
2.8.5 Safety Enhancements *124*
2.9 Environmental Protection 126
2.9.1 Environmental Managed Systems *127*
2.9.2 Environmental Risk Assessment *130*
2.9.3 Assessment and Monitoring *131*
2.9.4 Effluent and Emissions Control *136*
2.9.5 Protection of the Public *143*
2.10 Emergency Management and Fire Protection 145
2.10.1 General considerations *145*
2.10.2 Nuclear Emergency Preparedness and Response *146*
2.10.3 Conventional Emergency Preparedness and Response *147*
2.10.4 Fire Emergency Preparedness and Response *147*
2.11 Waste Management 153
2.11.1 General Considerations *153*

2.11.2 Waste Characterization *154*
2.11.3 Waste Minimization *155*
2.11.4 Waste Management Practices *155*
2.11.5 Decommissioning Plan *156*
2.12 SECURITY 158
2.12.1 Facilities and Equipment *160*
2.12.2 Response Arrangements *162*
2.12.3 Cyber Security *163*
2.13 SAFEGUARDS AND NON-PROLIFERATION 165
2.13.1 Nuclear Material Accountancy and Control *167*
2.13.2 Access and Assistance to IAEA *168*
2.13.3 Operational and Design Information *168*
2.13.4 Safeguards Equipment, Containment, and Surveillance *170*
2.13.5 Import and Export *172*
2.14 PACKAGING AND TRANSPORT 173
2.14.1 Packaging and Transport Overview *173*
2.14.2 Package Design and Maintenance *173*
2.14.3 Packaging and Transport Program *174*
2.14.4 Registration for Use *174*
2.15 FACILITY SPECIFIC 176
2.15.1 Construction Plans *176*
2.15.2 Commissioning Report *176*
2.15.3 Import and Export of Nuclear Substances *177*

3.0 ADDITIONAL MATTERS OF REGULATORY INTEREST 178

3.1 FINANCIAL GUARANTEES, NUCLEAR LIABILITY INSURANCE, AND COST RECOVERY 179
3.1.1 Financial Guarantees *179*
3.1.2 Nuclear Liability Insurance *180*
3.1.3 Cost Recovery *180*

4.0 REFERENCES 182

APPENDIX A: COMMONLY USED ACRONYMS 183

APPENDIX B ADDITIONAL INFORMATION REQUESTED BY CNSC 189

APPENDIX C: ACTIVITIES AND NUCLEAR SUBSTANCES TO BE ENCOMPASSED BY THE LICENCE 192

APPENDIX D: LIST OF HAZARDOUS SUBSTANCES 195

List of Figures

Figure 1: Western Waste Management Facility Licensed Area 3
Figure 2: Location of WWMF on Bruce Nuclear Site 5
Figure 3: Western Waste Management Facility 5
Figure 4: Layout of WWMF 7
Figure 5: Nuclear Sustainability Services Organization Chart 40
Figure 6: Nuclear Management System 46
Figure 7: OPG's Traits of a Healthy Nuclear Safety and Security Culture 48
Figure 8: Policy, Charter and Program Connection 49
Figure 9: Four Core Event Prevention Tools 58
Figure 10: Management of L&ILW and Used Fuel 66
Figure 11: Volume of L&ILW Received and Processed Each Year 68
Figure 12: Dry Storage Container (DSC) 71
Figure 13: Used Fuel Dry Storage Process 72
Figure 14: Low Level Storage Building 88
Figure 15: Cutaway of an LLSB 88
Figure 16: Typical LLSB Layout 89
Figure 17: Retube Waste Container Storage at WWMF 90
Figure 18: Multi-Purpose Storage Building 90
Figure 19: Steam Generators inside MPSB 91
Figure 20: In-Ground Containers (foreground) and Quadricells (background) 92
Figure 21: Main Design Features of the IC Series of Structures 94
Figure 22: Trench Design 96
Figure 23: Integrated Aging Management Process 102
Figure 24: Average and Maximum Doses at WWMF 110
Figure 25: Thermoluminescent Dosimeter Locations around the WWMF 113
Figure 26: Thermoluminescent Dosimeter Locations around Dry Fuel Storage Building 5 & 6 114
Figure 27: All Injury Rate/Total Recordable Injury Frequency 121
Figure 28: WWMF Actual Performance from 2020 to 2024 122
Figure 29: Number of HMRPH events at WWMF from 2016 to 2024 123
Figure 30: 2024 WWMF Shallow Groundwater Contour Map 134
Figure 31: 2024 WWMF Middle Sand Aquifer Groundwater Contour Map 135
Figure 32: 2024 WWMF Bedrock Groundwater Contour Map 136
Figure 33: Radiological Emissions to Air 140
Figure 34: Bruce Nuclear Site Annual Public Dose Trend 143
Figure 35: Laser Mapping Container Verification (LMCV) 171
Figure 36: Nuclear Liability of Insurance – Marsh – Certificate of Insurance 180

List of Tables

Table 1: Authorization for Additional Structures at WWMF 2
Table 2: Buildings and Structures Construction Plans 12
Table 3: Additional Storage Structures 13
Table 4: Identified Indigenous Nations and Communities with Established Aboriginal and/or Treaty Rights 18
Table 5: Identified Indigenous Nations and Communities with Asserted Aboriginal and/or Treaty Rights 18
Table 6: Identified Indigenous Nations and Communities Expressing an Interest 19
Table 7: Saugeen Ojibway Nation – Rightsholders – Summary of Engagement 20
Table 8: Identified Indigenous Communities with Asserted Aboriginal and/or Treaty Rights – Summary of Engagement 24
Table 9: Identified Indigenous Communities Expressing an Interest – Summary of Engagement 27
Table 10: Summary of Interests and Concerns 28
Table 11: Planned Engagement Activities 28
Table 12: LC G4 - Public Information and Disclosure 30
Table 13: SCA 1 – WWMF Management System 37
Table 14: Management of Contractors 52
Table 15: SCA 2 – WWMF Human Performance 54
Table 16: Site Event Free Day Resets (SEFDR) 57
Table 17: SCA 2 – WWMF Human Performance 59
Table 18: SCA 3 – WWMF Operating Performance 63
Table 19: Number of DSCs Received at WWMF this Licence period 73
Table 20: SCA 4 – WWMF Safety Analysis 76
Table 21: SCA 5 - Physical Design 80
Table 22: Chronology of Development for L&ILW at WWMF 83
Table 23: Chronology of Development for Used Fuel at WWMF 85
Table 24: SCA 6 - Fitness for Service 99
Table 25: SCA 7 – WWMF Radiation Protection 105
Table 26: Radiological Action Levels for the WWMF. 108
Table 27: Key Dose Statistics for WWMF 111
Table 28: SCA 8 - Conventional Health and Safety 116
Table 29: SCA 9 – Environmental Protection 126
Table 30: WWMF - Derived Release Limits 138
Table 31: WWMF – Action Levels for (EAL) for Environmental Releases 139
Table 32: Incinerator Source Testing Results 142
Table 33: Emergency Management and Fire Protection 145
Table 34: SCA 10 - Emergency Management and Fire Protection 147
Table 35: SCA 11 – Waste Management 153
Table 36: SCA 12 - Security 158

Table 37: SCA 13 - Safeguards and Non-Proliferation 166
Table 38: SCA 14 – Packaging and Transport 173
Table 39: SCA 15 – Import and Export of Nuclear Substances 177
Table 40: Other Legislation (Non-CNSC) That WWMF Abides By 189
Table 41: Maximum Quantity of Radioactive Waste (Nuclear Substances) at WWMF 193
Table 42: List of Hazardous Substances 195
Table 43: Hazardous Substances used for Environmental Sampling of Effluent 195
Table 44: List of Hazardous Material 196

1.0

Western Waste Management Facility Licence Renewal – Introduction

1.0 Introduction

Ontario Power Generation (OPG) supplies roughly 50% of Ontario's electricity and operates two nuclear power stations within the province. While nuclear energy is a significant source of power, it also generates radioactive waste. OPG's Nuclear Sustainability Services (NSS) focuses on the safe handling and management of the nuclear waste produced by Ontario's power generating stations, while planning for the province's future fleet of generating stations, plant refurbishments, and decommissioning projects. With decades of operational experience and expertise managing the waste in our care, OPG ensures the secure interim storage of all radioactive materials at its waste management facilities, including the Western Waste Management Facility (WWMF) located at the Bruce nuclear site in the Municipality of Kincardine, Ontario. OPG takes full responsibility for the entire lifecycle of the waste, from interim storage, to planning for its effective long-term management, to safe disposal of nuclear waste.

OPG is applying to the Canadian Nuclear Safety Commission (CNSC) for renewal of the WWMF Waste Facility Operating Licence WFOL-W4-314.00/2027 which expires on May 31, 2027. OPG is requesting a 10-year licence term of the WWMF WFOL from June 1, 2027 to May 31, 2037. This licence renewal application has been prepared in accordance with the requirements of the NSCA and its associated Regulations. OPG will continue to carry on the licensed activities and make adequate provisions to protect the health, safety and security of persons and the environment, and maintain national security and measures required to fulfill international obligations.

The WWMF is licensed by the CNSC under section 24(2) of the *Nuclear Safety and Control Act*. It is a Class IB nuclear facility as defined in the *Class 1 Nuclear Facilities Regulations* to provide for the safe handling, management, processing and the interim storage of radioactive wastes, including low and intermediate level radioactive waste (L&ILW) from nuclear generating stations and other facilities currently or previously operated by OPG, or its predecessor Ontario Hydro, and used fuel from the Bruce Power Nuclear Generating Stations (NGS).

The WWMF has been operating safely since it was established in 1974. We remain focused on proactively preventing waste, safely managing our responsibilities, and harnessing innovation to support a safer, more sustainable future. Guided by the NSS strategic initiatives, we are dedicated to advancing solutions that continue to protect our communities and environment.

We are prepared to safely manage low and intermediate level waste, isotope waste, and used fuel bundles at the WWMF. The storage requirements for ongoing nuclear operations over the next 30 years have already been anticipated and incorporated into the current WFOL. This proactive planning ensures that the WWMF remains ready and equipped to support the long-term operations of Ontario's nuclear

generating stations, while upholding our commitment to safety, environmental protection, and responsible stewardship.

Upon renewal, OPG requests the licence include authorization for all activities authorized under the current Licence, and for the site preparation, construction or construction modifications for the additional structures listed in table 1 to support the evolving operations at WWMF.

Table 1: Authorization for Additional Structures at WWMF

Structures	Approved but not yet built, carried over to next Licence	New Structures for next Licence
Used Fuel Storage Structures	2	2
Storage buildings for low- and intermediate- level waste	10	0
In-ground storage containers (IC-18)	216	0
In-ground containers for heat exchangers (IC-HX)	30	0
Large Object Processing Building	1	0
Waste Sorting Facility	1	0

These buildings and structures are described in more detail in Section 2.5 Physical Design. New buildings and structures will be designed in accordance with OPG's rigorous existing processes and requirements set out in the WFOL, ensuring each facility is suitable for its intended purpose while minimizing environmental and physical footprints.

Project design requirements, an environmental management plan, and a construction verification plan will be submitted to the CNSC in accordance with the WWMF WFOL Licence Condition 15.1 – *Construction Plans* prior to the start of construction. Consistent with OPG's practice, OPG will construct any new facilities on an as-needed basis. Any additional buildings or structures will be constructed within the licensed area.

Figure 1 shows the existing licensed area including areas that have been assessed for future construction. Additional storage capacity at the WWMF is essential for supporting the ongoing and future operations of Ontario's nuclear generating stations. As these stations continue to produce clean electricity, they also generate low and intermediate level radioactive waste and used nuclear fuel. By expanding storage capacity at the WWMF, OPG ensures there is sufficient, safe, and secure space to manage and store this material, enabling the stations to operate without interruption. This proactive planning supports regulatory compliance, maintains operational flexibility, and upholds commitments to safety and environmental protection.

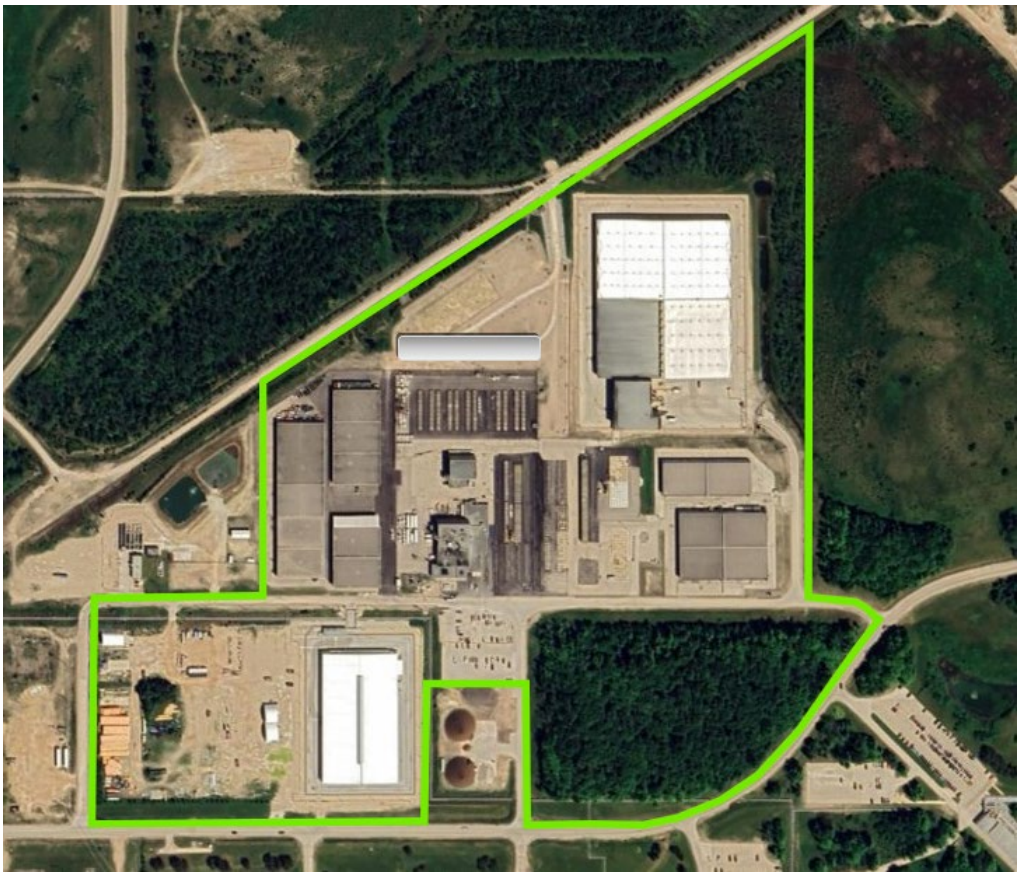


Figure 1: Western Waste Management Facility Licensed Area

OPG is committed to working with Indigenous Nations and communities, proximate to its present and future operations, to foster positive and mutually beneficial relationships that will create social and economic benefits through partnership and collaboration. Our relationships are developed on a foundation of respect for the rights of Indigenous Nations and communities and our goal is to build and foster openness, transparency, and trust in our engagement efforts. OPG's relationship with Indigenous Nations and communities has evolved over the last 10 years. As a

continuous learning and growing organization, OPG has been adaptive and flexible to be responsive to the Truth and Reconciliation Commission's Calls to Action and ongoing feedback from the Indigenous Nations and communities OPG works with. OPG remains committed to strengthening relationships with Indigenous Nations and communities and facilitating continued engagement at the WWMF through the licence renewal application process and going forward into the future.

OPG also believes in open and transparent communication in a timely manner to maintain positive and supportive relationships, and the confidence of Indigenous peoples, key stakeholders and the local community who have an interest in the operation and management of the WWMF site.

1.1 Site Description and Ownership

OPG's WWMF is located on the Bruce Nuclear site which is located on the traditional territory of Saugeen Ojibway Nation, on the west shore of Lake Huron within the Township of Kincardine in the province of Ontario (figure 2 and figure 3). The WWMF, established in 1974, is a Class IB nuclear facility as defined in the *Class 1 Nuclear Facilities Regulations* for the management, processing, and interim storage of L&ILW received from power generating stations and other facilities currently or previously operated by OPG or its predecessor Ontario Hydro, and the interim storage of used fuel from the Bruce Power NGS.

Figure 2: Location of WWMF on Bruce Nuclear Site

Figure 3: Western Waste Management Facility

The WWMF has undergone development in stages since 1974. Consistent with industry best practice, additional storage buildings and structures are constructed

when required. The description of site structures and chronology of construction is provided in Section 2.5.

Figure 4 shows the current layout of the WWMF. This area includes 17 above-ground storage structures for low and intermediate level waste. Fourteen of these low level storage buildings (LLSB 1 to 14) are used to accommodate low level waste, one for steam generators, and two for retube components. In addition, the WWMF has an administration building, a Waste Volume Reduction Building (WVRB), a Transportation Package Maintenance Building (TPMB), quadricells, in-ground containers, trenches, and tile holes.

The used fuel dry storage areas are security-protected areas consisting of a DSC processing building and six DSC storage buildings.

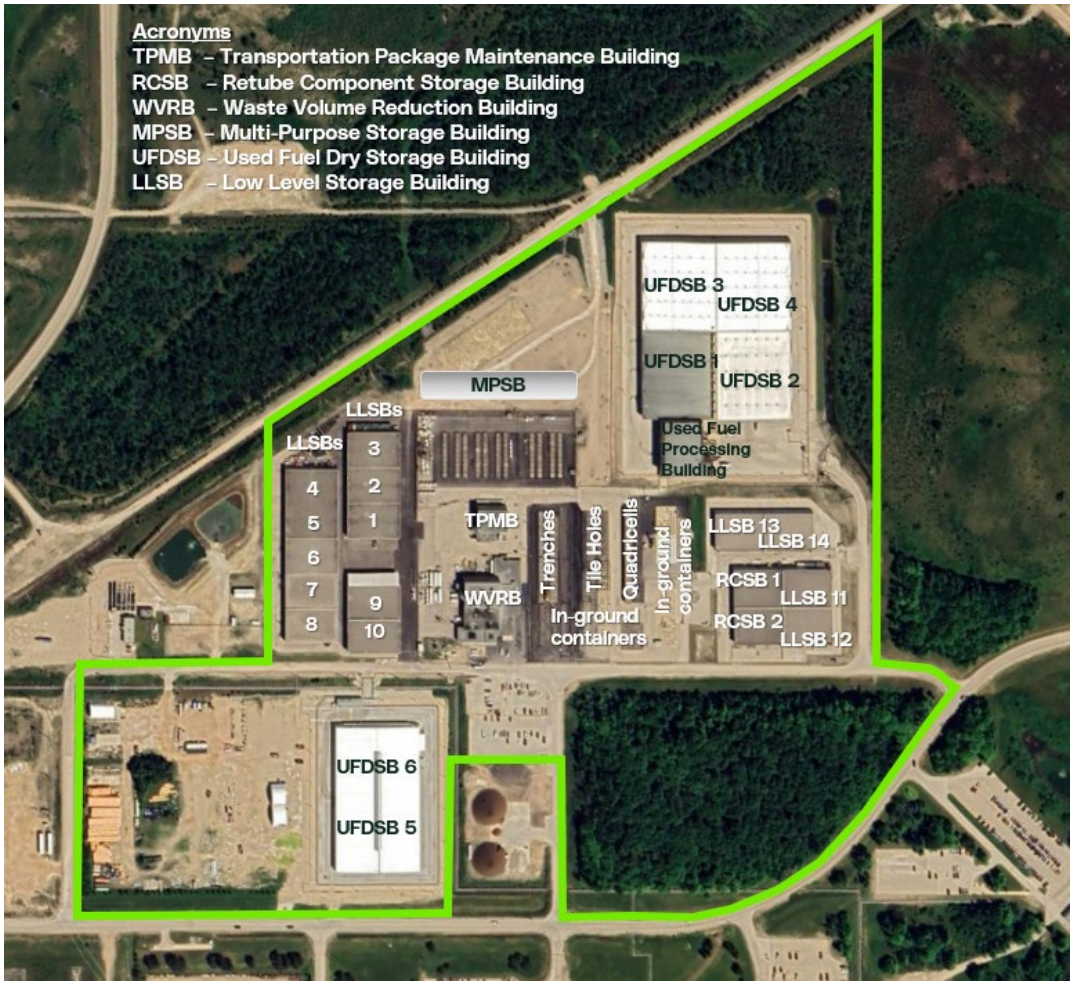


Figure 4: Layout of WWMF

1.2 Performance – Achievements/Initiatives

In 2024, OPG celebrated 50 years of excellence at the WWMF. Since commissioning in 1974, the teams at the WWMF have been instrumental in processing and securely storing radioactive waste from OPG's stations and Bruce Power.

The WWMF has demonstrated strong safety performance with no lost time injuries since 2011. Throughout the licence period, a strong focus on building and maintaining a healthy nuclear safety culture has been demonstrated with improvements in facility conditions for staff, improvements in the Nuclear Safety and Security Culture Monitoring Panels and investments in equipment reliability. OPG continues to safely and reliably transfer, process and store all levels of radioactive waste at the WWMF. There have been more than 2,200 DSCs transferred and processed safely at the WWMF site, with over 890 DSCs transferred since June 2017.

As a result of the cancellation of OPG's Deep Geological Repository for Low and Intermediate Level Wastes in early 2020, OPG established a new strategic plan with a focus on maximizing waste minimization to optimize infrastructure investments. As part of this strategy, pilot projects that were previously conducted on waste sorting were expanded and results from the pilot projects were used to create the Western Clean-Energy Sorting and Recycling Facility (WCSR). This facility has its own separate licence and is not located on the WWMF. However, the purpose of the facility is to sort and segregate legacy and some operational waste to maximize volume reduction. Legacy waste stored at the WWMF is transferred to the WCSR facility where specialized equipment and personnel sort the waste. Waste is sorted into incinerable, compactable, potential free release, other processing and non-processible streams. This allows OPG to take advantage of improved technology, radioactive decay and optimization of the WWMF's existing processing facilities. Through the work of the WCSR, which began in 2023, OPG has seen a volume reduction of about 50% and an environmental footprint reduction of over 2,000 m^3. The practice of sorting and segregating legacy waste contributed to the identification of an area of good performance for Canada at the International Atomic Energy Agency (IAEA) Joint Convention for the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management in 2025.

OPG continues to look for innovative opportunities to minimize the footprint of nuclear waste at the WWMF site. Through the systematic review and evaluation of waste management efficiencies from a strategic perspective, OPG is able to determine the best approaches to minimize waste.

1.3 Our People

Ontario Power Generation (OPG) is committed to equity, diversity, and inclusion (ED&I) in its workplace, ensuring fair and respectful treatment for all employees, contractors, and business partners. OPG's 10-year ED&I Strategy, launched in 2021, outlined nearly 100 initiatives and 15 strategic priorities, with substantial completion of all actions by December 31, 2024. As a result, OPG was recognized as one of Canada's Best Diversity Employers in 2023.

To maintain momentum, OPG has identified new ED&I actions for 2025–2027, with a renewed focus on building a diverse workforce that represents our communities and creating a culture of inclusion. In 2024, OPG also refreshed its Reconciliation Action Plan (RAP), adding new actions, and continues to hold a Gold Designation from the Canadian Council for Indigenous Business for best practices in Indigenous Relations.

OPG will continue updating its ED&I Strategy, focusing on diversity education, expanding community partnerships, and advancing employment equity.

1.4 Innovation at OPG

OPG's advancements in innovation are driven by initiatives supported through OPG's Monitoring & Diagnostics (M&D) Centre, X-LAB, benchmarking, and innovations in training.

Nuclear Sustainability Services at OPG undertakes many innovative initiatives, including the innovation of loading 6-year-old fuel at the Pickering Waste Management Facility to support the Pickering Units 5-8 Refurbishment project. OPG continues to demonstrate that safe operation is the highest priority by implementing the storage of minimum 6-year cooled fuel based on a robust safety case and proven engineering methods. OPG continues to look for innovations that provide efficiencies in waste management while maintaining safety.

Over the past decade, NSS has systematically adopted advanced technologies to enhance communication, collaboration, and operational efficiency in support of our mandate. NSS has developed a virtual reality (VR) digital twin of the WWMF, which is routinely utilized for preliminary system walkdowns, public engagement activities (including interactive outreach events and "Take Your Kid to Work Day") and as a measurement tool for areas that are difficult to physically access. This VR platform supports both operational readiness and stakeholder transparency.

Additionally, NSS has integrated OPG Street View Technology across all waste management facilities. This initiative enables remote, desktop-based walkthrough of the facilities, which significantly reduces the need for vendor site visits, enhances the quality and preparedness of pre-job discussions, and contributes to improved safety and minimized radiation dose by limiting unnecessary on-site presence.

NSS has also deployed 3D printing technology to further communication and design objectives. Custom scale models of waste structures, systems, and components are produced to facilitate clear communication with the public and stakeholders. Rapid prototyping using 3D printing has enhanced the quality of design reviews by enabling tangible evaluation of proposed modifications. Furthermore, 3D printing has been employed to fabricate simple, fit-for-purpose components, such as spacers for sensor alignment and camera mounts to support aging management inspections of DSCs, thereby supporting operational effectiveness and continuous improvement.

These technological advancements demonstrate NSS's commitment to innovation, safety stakeholder engagement, and operational excellence in the management of nuclear waste.

OPG's Innovation Department (X-Lab)

OPG's innovation department, coined the "X-Lab", was also established in 2017. The X-Lab is dedicated to transforming perspectives, fostering creativity, and

implementing cutting-edge technologies and processes. These initiatives have brought value and efficiency to OPG's daily operations, while advancing OPG towards its net-zero climate goals. The X-Lab Innovation team spearheads innovation in the utility sector with a mission to redefine standards. The team's vision is to drive enhancements in equipment reliability, safety, and employee efficiency while nurturing an innovation culture.

In 2023, the Electric Power Research Institute Global Innovation Effectiveness Cohort reviewed OPG's innovation practices and processes and recognized the X-Lab Innovation Team for industry-leading practices. Global Innovation Effectiveness aims to provide insights into the effectiveness of innovation by examining how utilities strategize, structure, and cultivate an innovative culture.

Through the X-Lab, OPG also demonstrates industry leadership in robotic utilization through the adoption of the Spot Robotics Platform by Boston Dynamics. This platform drives efficiency while maintaining OPG's high level of executional excellence and safety. The Spot robot has enabled OPG to perform tasks online, and in harsh environments that would otherwise require a unit outage to perform safely by a human. Extensive use of robotics for investigations of high dose rate areas reduces personnel entries into containment areas which results in reduced volume of personal protective equipment (PPE) waste generated. Additionally, the X-Lab supported the implementation of micro-drones for operation, enabling lightweight drones to be utilized by staff. This allows for visual inspections to be performed more efficiently.

Innovative Strategies for Training

OPG's Training strategies have innovation embedded in its program through use of simulators:

- Radiation Protection (RP) training has improved RP technician performance by incorporating a Simulated Radiological Source Generator into their continuing training. A radio frequency simulated source eliminates actual live radiological sources. Technicians are demonstrating greater radiological risk mitigation proficiency while eliminating any exposure to radiological sources. The simulation equipment includes portable wireless dosimeters, survey meters, gamma sources and scenarios that mimic conditions that were unachievable in previous training conditions.
- Micro-learning through Video Learning-On-Demand library with 550 videos is available to refresh skills.

1.5 Improvement Plans and Significant Future Activities

An overview of OPG's planned improvements and significant future activities concerning the Western Waste Management Facility during the requested 10-year licence term is discussed below, with further details provided in Section 2.5.

Additional storage buildings and structures

Table 2 summarizes the proposed additional buildings and structures plans for the WWMF. The middle two columns show what structures are included in the current WFOL, separated into what was built up to September 2025, and what is approved under the current licence but not yet constructed and being carried over into the next licence period. The last column on the right shows the additional buildings that are requested for the next licence period, to support the refurbishment and continued operation of the Darlington, Pickering and Bruce Power NGSs. The new structures will provide additional storage capacity for used fuel as well as processes to manage low and intermediate level waste. These activities will not alter the basic purpose and activities associated with the WWMF.

Where known, the planned in-service dates are shown in table 2 in brackets for each of the buildings and structures to be constructed over the next ten years. These dates will coincide with and be determined by business decisions.

Table 2: Buildings and Structures Construction Plans

Storage Buildings/ Structures at WWMF	Current Licence		Proposed for the Next Licence
	Constructed between 2017-2025	Approved but not yet built, carried over to next Licence	New Projects to be included in the 2027-2037 Licence Period
Storage structures for used fuel	SB 5 (Apr 2022) SB 6 (Apr 2022)	2 Storage Structures for Used Fuel: SB 7 (2029) SB 8 (2029)	2 Storage Structures for used fuel: SB 9 (2038) SB 10 (2038)
Storage buildings for L&ILW	Multi-Purpose Storage Building (MPSB) (2025)	10 L&ILW (To be determined)	0
In-ground containers (IC-18s)	Batch 6 54 IC-18 (2022)	Batches 7-10 216 IC-18s (Batch 7, 2027)	0
In-ground containers (IC-HX)	0	30 IC-HX (To be determined)	0
Other		Large Object Processing Building; Sorting Facility	0

OPG is requesting a renewal of the WWMF WFOL for another ten-year term from June 1, 2027 to May 31, 2037. Upon renewal, OPG requests a change to the facilities listed in Appendix A associated with Section IV v) of the current licence for site preparation, construction or construction modifications at the facility to include, as shown in table 3, authorization for:

- 4 storage structures for used fuel dry storage;
- 10 storage buildings for low or intermediate level radioactive waste;
- 216 in-ground storage containers (IC-18s) for intermediate level radioactive waste;
- 30 in-ground containers for heat exchangers (IC-HXs);
- 1 Large Object Processing Building; and
- 1 Waste Sorting Facility.

Table 3: Additional Storage Structures

Buildings/Structures	Number Carried Over from WFOL-W4-314.00/2027	Number of New Structures Requested	Total
Storage Buildings/Structures for used fuel	2	2	4
Storage Buildings for L&ILW	10	0	10
In-Ground Containers (IC-18s)	216	0	216
In-Ground Containers (IC_HXs)	30	0	30
Large Object Processing Building	1	0	1
Waste Sorting Facility	1	0	1

OPG's waste forecasts are updated on a routine basis and the timing of the commencement of waste storage construction is adjusted based on ongoing projections of the volume and type of waste that is expected to be generated. As noted in Sections 1.2, 2.3 and 2.11, OPG has taken various initiatives to improve waste minimization and volume reduction. As a result, OPG has been able to defer construction on some Low and Intermediate Level Storage Buildings that were anticipated to be required following the commitment not to proceed with the L&ILW Deep Geologic Repository referenced in the previous application, upon confirmation from the Saugeen Ojibway Nation that the community was not supportive to proceed. As business assumptions are verified, initiative results are validated and forecasts are updated, OPG makes decisions on planning for and proceeding with construction only as required.

Large Object Processing

OPG is considering the construction and operation of a Large Object Processing Building for the processing of large metallic components such as steam generators or large heat exchangers. The Large Object Processing Building would be a single-story

structure with a robust floor capable of supporting a rail-mounted gantry crane. Operations within the building would include segmenting activities such as cutting and grinding as well as packaging activities.

The primary function of the large object processing building would be to safely process the steam generators and other large components into segments in preparation for final disposal. The processing of the large components would also enable OPG to remove and recycle elements of these components that are not radiologically contaminated. The remaining segments will be required to meet the disposal facility's waste acceptance criteria. The potential location for the new Large Object Processing Building is inside the current licensed area of the WWMF.

Waste Sorting Building

The existing WWMF licence allows for the retrieval and reprocessing of L&ILW, including sorting, processing and/or diversion to conventional disposal or free release, subject to meeting the established clearance level. OPG is considering constructing and operating a building specifically for this purpose in order to lower the volume of L&ILW stored on site. The potential location of the new Waste Sorting Building is inside of the current licensed area.

Storage of Isotope Waste

Radioactive waste is generated as a result of isotope production. OPG is considering providing interim storage at the WWMF for waste streams generated from isotope production, including isotope production by third-party vendors such as those associated with the production of Lu-177.

All waste stored at the WWMF must comply with the Waste Acceptance Criteria (WAC) outlined in procedure W-PROC-WM-0025. The waste streams would be stored in infrastructure already authorized under the WWMF licence.

1.6 Indigenous Engagement

OPG respects Aboriginal and Treaty rights and is committed to developing positive relationships with Indigenous Nations and communities. OPG's Indigenous Relations Policy, OPG-POL-0027, provides a framework for engagement with Indigenous Nations and communities and provides support of community programs and initiatives. As part of its Indigenous Relations Policy, OPG maintains an Indigenous Relations program for its nuclear operations with the goals of:

- Keeping Indigenous Nations and communities with established and/or asserted treaty and/or Aboriginal rights and those that have expressed interest

informed of nuclear station and WWMF operations, emerging projects and facility environmental performance;
- Seeking the input and worldviews of Indigenous Nations and community representatives about OPG's ongoing nuclear operations and projects, and;
- Addressing any identified concerns, as appropriate.

OPG is committed to engaging with Indigenous Nations and communities regarding nuclear operations as well as proposed future initiatives at WWMF.

As recommended in CNSC REGDOC-3.2.2, *Indigenous Engagement*, this section contains:

- An initial review to consider whether the activities described in this licence application could result in potential impacts on established and/or asserted Aboriginal and/or treaty rights;
- An overview of OPG's efforts to identify and create an initial list of Indigenous groups whose potential or established Aboriginal and/or treaty rights may be adversely affected by the proposed activities in the licence application;
- A summary of Indigenous engagement activities conducted to date;
- A description of proposed and planned Indigenous engagement activities through the licensing process; and
- A proposed schedule for interim reporting to the CNSC on Indigenous Engagement through the licensing process.

1.6.1 Commitment to Reconciliation

OPG has a long history of developing respectful and collaborative relationships and is committed to taking concrete and measurable actions to advance reconciliation with Indigenous peoples and to report regularly on OPG's activities and progress in achieving established goals.

OPG launched its Reconciliation Action Plan (RAP) in the fall of 2021, which outlines OPG's commitment to advancing reconciliation with Indigenous peoples under the focus areas of leadership, relationships, people, economic empowerment, and environmental stewardship. The RAP is a public document that serves as a roadmap to reconciliation, and the 2021 edition included 38 specific actions and commitments with clear deliverables and timelines spanning between 2022 and 2031. Some key highlights and achievements since the 2021 RAP were developed include:

- From 2022 through the end of 2024, OPG has delivered $428 million toward our $1-billion RAP economic commitment to Indigenous communities - $370 million through procurement and $58 million via equity partnerships.
- Programs offered to Indigenous employees to promote their career path development.

- Developing and initiating an Indigenous Relations training program to build Indigenous relations awareness and cultural competence across the organization.
- Overall, in 2024, OPG invested a total of over $700,000 in Indigenous initiatives including a sponsorship of the Little Native Hockey League's 51st Annual Tournament, and two bursaries for youth pursuing energy related education.
- In September 2024, OPG was recertified with the Gold Designation from the Canadian Council for Indigenous Business through its Partnership Accreditation in Indigenous Relations Program.
- The Indigenous Opportunities Network program began in 2018 with the goal of placing Indigenous candidates into trades and non-trades roles within OPG and vendors and unions in the energy sector. As of September, ION has placed 233 Indigenous candidates.

OPG has come far as a company, while also recognizing that there is still so much more to do to advance reconciliation. In the spirit of driving change across the industry and holding firm on our commitment to advancing reconciliation, OPG refreshed the RAP in July 2024. The refreshed RAP includes a recap of OPG's progress on its goals from 2021 through to 2023 and the addition of 20 new commitments that were developed through internal discussions and input from Indigenous Nations, communities and businesses.

1.6.2 Preliminary Assessment of Impacts

OPG has undertaken an initial assessment to determine whether the continued operations for which OPG is seeking authorization in this licence application may give rise to novel impacts on established and/or asserted Aboriginal and/or treaty rights. In undertaking this initial assessment, OPG considered potential impacts on Aboriginal and/or treaty rights that may result from:

- Contaminants (radiological and conventional) and physical stressors from ongoing operations (continued operations of the WWMF, which includes approved structures under the current licence not yet constructed, and Bruce Power operations).
- Dust, noise and particulate emissions from site preparation and construction activities (continued operations).

With respect to continued operations included in the application, OPG's assessment that these activities are not anticipated to give rise to novel impacts on established and/or asserted Aboriginal and/or treaty rights is based on:

- Results from environmental protection programs in place at the WWMF that assess potential human health and ecological risks from radiological

contaminants, conventional contaminants, and physical stressors confirm that the WWMF operates in a manner that is protective of the health of the public and the environment.

    - These environmental protection programs include Environmental Risk Assessment (every five years), Environmental Monitoring Program (annual), and Groundwater Protection and Monitoring Program (annual).

- The locations of continued operations are within a previously developed area of the WWMF site, a site that is already heavily disturbed and inaccessible.
- Potential impacts to the environment from site preparation and construction activities will be mitigated through implementation of an environmental management plan, outlining procedures related to air (dust) and water management, noise control, and contaminated and excess soil management.
- Potential impacts to surface water quality from construction activities will be mitigated through stormwater management plans and spill management protocols for site preparation, construction and post development.

Potential impacts that may result from proposed expansion activities (Used Fuel Dry Storage Buildings 9 and 10, and interim storage of isotope waste) are being considered through a Predictive Environmental Risk Assessment (PERA). OPG will provide further assessment of whether these activities may give rise to novel impacts on established and/or asserted Aboriginal and/or treaty rights when the PERA is complete.

OPG emphasizes that this assessment is preliminary in nature and may evolve as OPG's site planning efforts advance, the engagement process unfolds, and/or based on the Crown's assessment of consultation obligations. OPG is committed to proactively engaging with Indigenous Nations and communities to inform OPG's understanding of how the activities in this application may potentially impact established and/or asserted Aboriginal and/or treaty rights, and address those potential impacts through avoidance, mitigation, and accommodation measures, as appropriate.

1.6.3 Identified Nations and Communities

Engagement on the WWMF WFOL renewal is focused on the Saugeen Ojibway Nation (SON), comprised of Saugeen First Nation and Chippewas of Nawash Unceded First Nation, who are Rightsholders in the treaty and traditional territory where the WWMF is located. In consideration of CNSC REGDOC-3.2.2*, Indigenous Engagement*, OPG also engages with Indigenous Nations and communities that assert treaty and/or Aboriginal rights, as well as other Indigenous Nations and communities who do not

assert Aboriginal or treaty rights, but who have expressed an interest in our operations at WWMF.

In the tables below, OPG has identified the Indigenous Nations and communities that have established Aboriginal and/or treaty rights, have asserted Aboriginal and/or treaty rights, or have expressed an interest in the WWMF. The tables were developed based on consulting the Government of Canada's Aboriginal and Treaty Rights Information System, previous engagement and relationship building efforts with Indigenous Nations and communities, information shared by the CNSC on previous licence and renewal applications, and engagement lists previously provided by provincial and/or federal agencies.

Aboriginal and treaty rights refer to those rights that are recognized and affirmed in section 35 of the *Constitution Act, 1982.* For the purposes of the Duty to Consult, both established and potential rights are considered. Indigenous Nations and communities identified in table 4 have established treaty rights in the WWMF area that have been acknowledged by the Crown.

Table 4: Identified Indigenous Nations and Communities with Established Aboriginal and/or Treaty Rights

Nation/Community	Reason for Engagement
Saugeen Ojibway Nation, comprised of Saugeen First Nation and Chippewas of Nawash Unceded First Nation	Rights Holder, and the WWMF is within their traditional and treaty territory.

Indigenous Nations and communities identified in table 5 have claimed Aboriginal and/or treaty rights in the WWMF area but have not had these potential rights established in court or acknowledged by the Crown.

Table 5: Identified Indigenous Nations and Communities with Asserted Aboriginal and/or Treaty Rights

Nation/Community	Reason for Engagement
Métis Nation of Ontario Region 7 - Georgian Bay Traditional Territory Consultation Committee	Asserted Aboriginal and/or treaty rights where the WWMF is located.
Historic Saugeen Métis	Asserted Aboriginal and/or treaty rights where the WWMF is located.

Indigenous Communities identified in table 6 do not claim Aboriginal or treaty rights, but have expressed an interest in WWMF operations, and will be provided with information.

Table 6: Identified Indigenous Nations and Communities Expressing an Interest

Nation/Community	Reason for Engagement
Chippewas of Kettle and Stony Point First Nation	Has expressed interest in the WWMF operations.

1.6.4 Engagement Framework and Approach

OPG has established Relationship Agreements with Métis Nation of Ontario Region 7 Georgian Bay Traditional Territory Consultation Committee (MNO GBTTCC) and Historic Saugeen Métis (HSM). These Agreements allow for dedicated time and capacity funding to support ongoing engagement on OPG's WWMF operations and activities. OPG is sharing regular WWMF operations updates to SON through written communications. OPG continues to progress conversations with SON to establish an Agreement and associated capacity funding to support ongoing engagement on OPG's WWMF operations and activities.

OPG recognizes that meaningful engagement begins with relationship-building and the establishment of trust, and is committed to respect, openness and transparency in building these relationships. In the context of this specific application, OPG built an engagement plan to increase collaboration and deepen engagement with Indigenous Nations and communities, with respect to the WWMF.

In early 2025, OPG developed a draft WWMF Indigenous Engagement Plan (IEP) to guide engagement activities on ongoing and proposed programs and initiatives at the WWMF, including engagement on OPG's WFOL renewal application. This comprehensive IEP was informed by CNSC REGDOC-3.2.2*, Indigenous Engagement*, and was developed to facilitate holistic and comprehensive discussions and deepen the knowledge and understanding of WWMF operations and activities. The draft WWMF IEP has been shared with the Indigenous Nations and communities identified in section 1.6.3 table 4 and table 5 for review and input. The IEP is intended to be a dynamic document and, as such, will continue to be updated, as appropriate, to respond to new information which comes forward and/or any shifts in engagement priorities and needs.

To date, OPG has provided WFOL information and invited the Indigenous Nations and communities identified in section 1.6.3 to engage on OPG's licence renewal application and any other engagement opportunities of interest.

1.6.5 Summary of Engagement Efforts and Activities to Date

A high-level overview of OPG's recent engagement efforts and activities on the licence renewal application are detailed below. For thoroughness, engagement details on WWMF licensed operations and activities are also included, as that information sharing provides a background and context for the Nations and communities when engaging in the licence renewal application.

Table 7: Saugeen Ojibway Nation – Rightsholders – Summary of Engagement

Date/ Timeline	Engagement Activity	Summary
November 2025	Briefing Note and Document Review	Briefing note on draft WWMF WFOL application, including key timelines and milestones for the licensing process, summary of the draft application, and reports supporting the renewal application. Draft copy of WFOL renewal application shared for early review. Offer to discuss providing capacity to support conversations about the WWMF.
October 2025	Site Visit	SON Environment Office (EO) staff member participated in WWMF biodiversity monitoring activities – birdbox inspections and cleanouts.
October 2025	Briefing Note	WFOL renewal application update on progress. Licensed activity updates including a modification to repurpose a storage building and operation of the MPSB beginning. Offer to discuss providing capacity to support conversations about the WWMF.
October 2025	Email	OPG shared information on the WWMF groundwater monitoring program, in response to a voicemail request.
September 2025	Briefing Note	WFOL renewal application update on progress. Licensed activity updates including commission acceptance of OPG's Commissioning Report for MPSB and authorized OPG to begin operation, Preliminary Decommissioning Plans (PDPs) for Bruce Nuclear Site and upcoming reviews. Offer to discuss providing capacity to support conversations about the WWMF.

Date/ Timeline	Engagement Activity	Summary
September 2025	Tour	SON EO staff requested a tour of WWMF and the Western Clean-Energy Sorting and Recycling (WCSR) Facility for 10 participants. Tour took place September 23 – 4 participants from SON leadership and SON Environment Office Staff.
September 2025	Email – Document Review	Follow up on OPG sharing the draft WWMF IEP in July 2025, requesting review and input.
September 2025	Written Report	Annual summary for 2024 of: - WWMF operations, waste volumes received and processed, WFOL and WFOL renewal, Radioactive Material Transportation - Environmental Management including environmental protection monitoring, effluent and groundwater monitoring, non-radiological monitoring, and biodiversity initiatives - PDPs and upcoming reviews - Future plans (resin and metal processing initiatives), overviews of Darlington and Pickering licence renewals and projects, nuclear medicine and radioisotopes - OPG's Generation for Generations energy education program - SON-OPG relationship – offer to provide capacity to support conversations about the WWMF
August 2025	Briefing Note	WFOL renewal application updates, including sharing a draft application with SON in Q4 2025. Also shared licensed activity updates - details of MPSB commissioning and CNSC compliance inspection. Offer to discuss providing capacity to support conversations about the WWMF.
July 2025	Email – Document Review	OPG shared draft WWMF IEP, requesting review and input by end of August. Offer to discuss providing capacity to support conversations about the WWMF.

Date/ Timeline	Engagement Activity	Summary
July 2025	Briefing Note	Licensed activity updates – construction completion of a MPSB and commissioning report submission. Offer to discuss providing capacity to support conversations about the WWMF.
June 2025	Site Visit	SON EO staff member participated in WWMF biodiversity monitoring activities – site breeding bird point count across the site.
June 2025	Briefing Note	Licensed activity updates – summary of Environmental Risk Assessments and planning (i.e. field sampling) for 2026 ERA, seeking participation and perspective. Offer to discuss providing capacity to support conversations about the WWMF.
May 2025	Email	Offer to discuss capacity for engaging with SON on WWMF operations, including licence renewal. Shared copies of draft agreements and capacities initially shared in December 2024.
May 2025	Briefing Note	WFOL renewal application updates, Environmental Protection Safety and Control Area overview, PERA overview and timeline Offer to discuss providing capacity to support conversations about the WWMF.
April 2025	Briefing Note	WFOL renewal application updates, including summarizing the Safety and Control Areas. Licensed activity updates on MPSB construction progress. Offer to discuss providing capacity to support conversations about the WWMF.
March 2025	Briefing Note	WFOL renewal application updates – plans to submit application. Licensed activity updates on MPSB construction progress. Offer to discuss providing capacity to support conversations about the WWMF.

Date/ Timeline	Engagement Activity	Summary
December 2024	Email / letter	Shared OPG's Notice of Intent letter sent to CNSC on December 20, 2024, indicating OPG plans to submit a licence renewal application for a 10-year licence term in Q4 2025.
December 2024	Email	OPG shared copies of draft agreements and capacities, supporting historical impact resolution and WWMF operations and activities, including licence renewal, respectively.
November and December 2024	Emails	OPG communicated plans to draft agreements and capacities to support bifurcated streams of communications: historical impacts and WWMF operations and activities.
August 2024	Written Report	Annual summary for 2023 of: - WWMF operations, waste volumes received and processed, WFOL and WFOL renewal, Radioactive Material Transportation - Environmental Management including environmental protection monitoring, effluent and groundwater monitoring, non-radiological monitoring, and biodiversity initiatives - Future plans (resin and metal processing initiatives), overviews of Darlington and Pickering licence renewals and projects, nuclear medicine and radioisotopes - SON-OPG relationship – offer to provide capacity to support conversations about the WWMF
January 2023 – April 2024	Virtual Meetings	Bi-weekly/weekly meetings with SON Environment Office staff. Topics discussed included: - WWMF operations, projects, and initiatives - Environmental monitoring and site initiatives - including the biodiversity programs - Seeking SON input on various WWMF environmental initiatives and environmental reports like the Environmental Risk Assessment (ERA) and Environmental Monitoring Program (EMP) - Planning for tours and coordinating site visits

Date/ Timeline	Engagement Activity	Summary
		- Planning for OPG to attend and share information at Nuclear Advisory Council (NAC) and/or Joint Council (JC) meetings - Capacity funding, including development of a new relationship agreement and associated funding, to support information sharing outside of legacy issues - Participating and supporting SON EO events and SON community events *Meetings were paused, at the request of the SON Nuclear Advisory Committee.

Table 8: Identified Indigenous Communities with Asserted Aboriginal and/or Treaty Rights – Summary of Engagement

Nation/ Community	Date/ Timeline	Engagement Activity	Summary
HSM	December 2025	In Person Meeting	Q4 Engagement Meeting. *Planned* Agenda items include: WWMF licensed operations updates, MPSB operation, repurposing existing storage buildings, WFOL renewal application update (major milestones), WWMF 5-year project outlook.
MNO GBTTCC	November 2025	In Person Meeting	Q3/4 Engagement Meeting. Agenda items included: WWMF licensed operations, WFOL overview, Safety and Control Areas, MPSB construction completion and operation, repurposing existing storage buildings, WFOL renewal application update (major milestones), WWMF IEP and request for MNO review and input, 2026 WWMF ERA, Valued Ecosystem Components for the ERA, 2025 biodiversity program highlights, and OPG's Generation for Generations energy education program.
MNO GBTTCC	October 2025	Tour	Tour of the WWMF and overview of licensed activities.

Nation/ Community	Date/ Timeline	Engagement Activity	Summary
MNO GBTTCC	September 2025	Email – Document Review	Follow up on OPG sharing the draft WWMF IEP in July 2025 for MNO GBTTCC review and input
HSM	September 2025	In Person Meeting	Q3 Engagement Meeting. Agenda items included: WWMF licensed operations to date, WFOL renewal updates, construction completion of the MPSB and commissioning report submission, Preliminary Decommissioning Plans and upcoming reviews, WWMF 2026 ERA and selection of receptors.
HSM	September 2025	Site Visit	HSM on site to participate in WWMF biodiversity monitoring initiative - butternut tree monitoring
HSM	July 2025	Email – Document Review	OPG shared draft WWMF IEP for review and input by end of August. HSM reviewed, were no comments at this time (August 2025)
HSM	July 2025	Site Visit	HSM on site to observe water and sediment sampling, in support of 2026 the WWMF ERA
MNO GBTTCC	July 2025	Email – Document Review	OPG shared draft WWMF IEP for review and input by end of Augst.
MNO GBTTCC	June 2025	Briefing Note	Licensed activity updates – summary of Environmental Risk Assessments and planning (i.e. field sampling) for 2026 ERA, seeking participation and input.
HSM	June 2025	Briefing Note	Licensed activity updates – summary of Environmental Risk Assessments and planning (i.e. field sampling) for 2026 ERA, seeking participation and input.

Nation/ Community	Date/ Timeline	Engagement Activity	Summary
MNO GBTTCC	June 2025	In-person Meeting	GBTTCC All Councils Meeting. Agenda items included: overviews of OPG, Nuclear Sustainability, WWMF licensed activities and WFOL renewal, Radioactive Material Transportation, environmental programs, and biodiversity programs
MNO GBTTCC	June 2025	Virtual Meeting	Q1Q2 Engagement Meeting. Agenda items included: review of Nuclear Sustainability division, 2024 volumes and operation summary, and volume reductions, 2024 summary of Radioactive Material Transportation, WFOL overview including SCAs, MPSB construction update, WFOL Renewal process, including estimated timelines, Decommissioning Planning – shared high-level overview of PDPs and upcoming reviews. Overview of Environmental Protection SCA and associated programs, 2026 WWMF ERA – overview and invitation to participate
HSM	June 2025	In-person Meeting	Q2 Engagement Meeting. Agenda items included: WFOL renewal process, including estimated timelines, overview of licence conditions and SCAs, overview of ERA process – and 2026 ERA sampling and activities, and OPG's Generation for Generations energy education program.
HSM	June 2025	Tour	Tour of the WWMF and overview of licensed activities.
HSM	May 2025	Site Visit	HSM participated in WWMF biodiversity monitoring activities – snake coverboard monitoring
HSM	March 2025	In-person Meeting	Q1 Engagement Meeting. Agenda items included: 2024 volumes and operation summary, and volume reductions, WFOL renewal overview, environmental monitoring field work and sampling plan for 2025,

Nation/ Community	Date/ Timeline	Engagement Activity	Summary
			environmental emissions summary reports overview (effluents, groundwater monitoring), Indigenous Engagement Plans – and plans for the WWMF IEP to be drafted and shared later in the year.

Table 9: Identified Indigenous Communities Expressing an Interest – Summary of Engagement

Chippewas of Kettle and Stony Point First Nation (CKSPFN)		
Date/Timeline	**Engagement Activity**	**Summary**
May 2025	Virtual Meeting	Introductory meeting for WWMF overview: WWMF operations and licensed activities, WWMF WFOL, MPSB, WFOL renewal.
June 2023	Email	Follow up on OPG reaching out to CKSPFN for an introductory meeting and overview of WWMF.
October 2022	Email	OPG reached out to CKSPFN for an introductory meeting and overview of WWMF. This was in response to CKSPFN review and written submission on the 2021 CNSC Regulatory Oversight Report (ROR), for Canadian Nuclear Power Generating Sites.

1.6.6 Summary of Issues and Interests

OPG staff have not heard concerns or received substantive comments during the early engagement activities on the licence renewal application, summarized in tables 7-9, but have received concerns and perspectives from SON through communications related to historical impacts, summarized in table 10 below. OPG staff will continue to diligently capture issues and concerns over the course of engagement and seek to understand and address interests, as appropriate, through continued engagement.

Table 10: Summary of Interests and Concerns

Theme/Topic Area	Summary
Historical Impacts	Comments regarding lack of consultation and that consent was never provided by SON from the original construction of the Bruce Nuclear Site and development of the nuclear industry and continued operations in SON territory.

1.6.7 Planned Engagement

OPG is steadfast in its commitment to supporting meaningful engagement before, during and after the licence renewal application process and will work in collaboration with Indigenous Nations and communities to identify approaches to engagement that are considerate of the engagement context and the interests of each Indigenous Nation and community.

For engagement on the Licence Renewal Application, OPG will look to leverage the site-wide WWMF IEP as a guide to ensure a thorough and holistic understanding of WWMF operations and activities.

OPG will continue the bifurcated collaborative discussions and communications with SON on historical impacts and WWMF operations and activities respectively. OPG will also continue to offer capacity funding and meeting opportunities for participation and engagement activities described in table 11.

OPG will continue to provide capacity funding to the MNO and HSM to support their participation and engagement through the following forums described in table 11 below, in accordance with existing Relationship Agreements.

Table 11: Planned Engagement Activities

Nation/Community	Forum and Frequency	Scope and Topics
Saugeen Ojibway Nation	Written communications Monthly and annually	• WWMF licensed activities and WFOL renewal application • Comprehensive Annual Report for SON (details of contents above in section 1.6.5)
	Meetings and correspondence, as	• Historical impacts

	requested and/or required	• WWMF licensed activities and WFOL renewal application
	Site visits and tours, as requested	• WWMF licensed activities • Biodiversity initiatives • Other topics of interest
Métis Nation of Ontario GBTTCC	Biannual engagement meetings	• WWMF licensed activities and WFOL renewal application • Environmental Protection Program • Biodiversity initiatives • Other topics of interest
Métis Nation of Ontario GBTTCC	Site visits and tours, as requested	• WWMF licensed activities • Biodiversity initiatives
Historic Saugeen Métis	Quarterly engagement meetings	• WWMF licensed activities and WFOL renewal application • Environmental Protection Program • Biodiversity initiatives • Other topics of interest
Historic Saugeen Métis	Site visits and tours, as requested	• WWMF licensed activities • Biodiversity initiatives

For those Indigenous Nations and communities that express interest in the WWMF licence renewal, OPG will continue to share information and remain open to engaging with them upon request.

1.6.8 Schedule of Reporting

OPG will continue its practice of meeting with CNSC staff monthly to discuss the status of Indigenous engagement on the WWMF WFOL renewal application. In addition, throughout the licence renewal process, an engagement log will be maintained and shared with the CNSC staff upon request. If further information or additional meetings are required during the renewal process, OPG will work with CNSC staff to establish additional reporting, as appropriate.

1.7 Public Information and Disclosure Program

OPG's Stakeholder Relations division adheres to OPG's standard N-STD-AS-0013, *Nuclear Public Information and Disclosure*, as it prescribes consistent standards and procedures for all public disclosures of both material and non-material information as it relates to OPG's nuclear facilities, including the WWMF. This standard incorporates the regulatory requirements listed within CNSC REGDOC-3.2.1, *Public Information and Disclosure*.

The OPG document in the table below requires written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 12: LC G4 - Public Information and Disclosure

Document Number	Document Title
N-STD-AS-0013	Nuclear Public Information Disclosure

OPG believes in open and transparent communication in a timely manner to maintain positive and supportive relationships and confidence of key stakeholders and the public. OPG's Nuclear Public Information Disclosure and Transparency Protocol, posted on OPG's website, describes OPG's communication principles and information requirements and reporting.

OPG's public information program is recognized as an organizational asset, strengthening our ties to local communities, while building trust and transparency. To ensure continuous improvement, OPG annually evaluates the effectiveness of N-STD-AS-0013 and implements opportunities for continuous improvement (See Section 1.7.4 for further details).

The primary focus area for engagement activities, in addition to the public at large, includes residents, businesses and municipalities proximate to the WWMF site including the host community of Kincardine and adjacent communities within 40 km. This area is where residents are most familiar with the WWMF and regularly receive information on OPG's operations including facility and project updates.

OPG ensures the public and stakeholders with a potential interest in the WWMF operations and performance are provided with relevant information and have the opportunity to share their views and perspectives. Information is communicated in a number of ways based on their interests and preferred means of communication.

OPG develops, maintains and implements an annual public information and disclosure program that:

- Ensures consistent standards and procedures for public disclosure of material and non-material information.
- Ensures communications, whether positive or negative, are full, fair, accurate, timely and understandable and are broadly communicated in a non-selective manner to individuals, organizations, stakeholders and the public based on real or perceived risks and public interest or concern.
- Provides information on health, safety and security of persons and the environment, and ensures issues associated with the licensed operations and activities are communicated.
- Utilizes a managed system to ensure high standards of performance, compliance and ongoing effectiveness.

Key stakeholders and audiences may include but are not limited to:

- Residents in the vicinity of the WWMF and the public.
- Established community committees.
- Local businesses and business organizations, such chambers of commerce.
- Private/public community organizations and special interest groups.
- Non-Governmental Organizations.
- Nuclear industry associations/organizations and regulatory bodies.
- Media.
- Federal, provincial, regional, and municipal agencies and officials with a regulatory role or interest.
- OPG employees and retirees.

Throughout the current licence period, OPG has executed a strategic communication plan that proactively plans and prepares communications and engagements with all key audiences and communities. Information is provided and/or made available to the public in an informative, accurate and timely manner and in accordance with CNSC REGDOC-3.2.1, *Public Information and Disclosure*.

During the current licence period, OPG's Stakeholder Relations team has:

- Executed 242 facility tours,
- Distributed 18 publications to households, businesses and stakeholders in Bruce and Grey County,
- Supported 469 initiatives and organizations through OPG's Corporate Citizenship Program/Power for Change Program, and
- Responded to 264 public inquiries.

1.7.1 Communication Methods

Communication methods are the approaches and activities used to distribute information, and to solicit feedback and input.

Since 2015, OPG has publicly posted all reportable events for the WWMF, ensuring all regulatory requirements were met. OPG's NSS webpages were updated as required throughout the year. OPG news, updates and advertisements were shared on OPG's social media platforms (Facebook, Twitter/X, LinkedIn and Instagram). Following the Darlington Waste Management Facility's 2023 Licence Renewal, the CNSC conducted a desktop inspection of OPG's Public Information and Disclosure Protocol with a focus on waste terminology. As part of our corrective action plan to address the findings of the CNSC desktop inspection, OPG initiated a self-assessment, among other actions, to review and address all documentation released to the public and to ensure the terms nuclear waste, by-product and nuclear materials are clearly defined, appropriately used, and not used interchangeably.

OPG addressed CNSC concerns regarding the use of clear and transparent language with the following actions:

- *Website:* Revised nuclear waste pages on opg.com ensuring clear use of nuclear waste terminology. OPG continues to provide information and updates on www.opg.com. The website serves as a vehicle to provide access to information, as well as a mechanism to receive input from interested persons as an enhancement of the public outreach program; questions and inputs are tracked and responded to in a timely manner.
- *Social Media:* OPG maintains a presence on social media (Facebook, Twitter/X, LinkedIn and Instagram) and shares information through these forums.
- *Public Information Centre:* OPG works closely with Bruce Power to ensure information on OPG's waste management and handling practices at the WWMF are available and highlighted at the Bruce Power Visitor Information Centre, as well as on Bruce Power public bus tours of the site.
- *Community Events:* The OPG Stakeholder Relations team participates at a variety of community events and festivals each year, ensuring the public can ask questions about OPG's operations, including waste management and projects.
- *Media Relations:* Ongoing liaison with respect to operations and licensing activities is initiated and maintained by OPG with reporters and news editors for both electronic and print media.
- *Key Stakeholder Briefings:* Briefings are conducted to present information and provide an opportunity to have questions and comments addressed. Regular updates are presented to municipal representatives, established community committees and special interest groups. Feedback from these meetings is recorded for response and issues management.
- *Advertisements and Letters:* Public notifications are prepared and distributed in a number of ways including quarterly stakeholder newsletter(s), web communications, the OPG community newsletter (Neighbours) and advertisements in local print or social media (as required).

- *Workshops:* Key stakeholders with a high level of interest in operations or other station activities may be invited to participate in workshops that involve meaningful discussions with the opportunity to provide input and have questions answered.
- *Public Information Sessions:* Information sessions (in person or virtual) are advertised broadly and open to the public, providing an opportunity to learn more about OPG's operations, projects and the NSS division with the opportunity to provide comments and/or have questions answered by members of the OPG team.
- *Review of Material and Update Reports:* The regular review of all current public-facing materials ensures accuracy and transparency. Updated quarterly performance reports are reviewed to ensure terminology is not used interchangeably.

1.7.2 Facility Reporting

OPG regularly and proactively provides information to the public on its operations through OPG's nuclear standard N-STD-AS-0013, *Nuclear Public Information and Disclosure*.

For operational status changes or unscheduled operations that may cause public concern or media interest, OPG follows the Stakeholder Public Interest Notification Process to notify key stakeholders in a timely manner as outlined in Appendix B of OPG's nuclear standard N-STD-AS-0013. The purpose of the process is to ensure those key stakeholders in emergency agencies (fire, police, and emergency management) and local government organizations are kept aware and are able to respond accurately if they receive questions from constituents. WWMF maintains a duty on-call organization 24 hours a day, seven days a week.

OPG publicly posts performance reports on the WWMF operations and environment reports on the OPG website and shares these documents electronically.

1.7.3 Environmental Partnerships and Programs

A pillar of OPG's Power for Change program is "Protecting the Planet". OPG supports a wide variety of programs in the community whose mandate is to protect, restore and enhance our natural environment. This includes support of the Pine River Watershed Initiative, Grey Bruce Children's Water Education Council and the Huron Fringe Birding Festival, among others.

OPG's WWMF operations holds a gold level certification from Tandem Global (formally the Wildlife Habitat Council) for excellence in biodiversity at the Bruce site. This achievement recognizes the specific efforts of our biodiversity programs, which aim to protect and nurture species and their habitats wherever OPG operates.

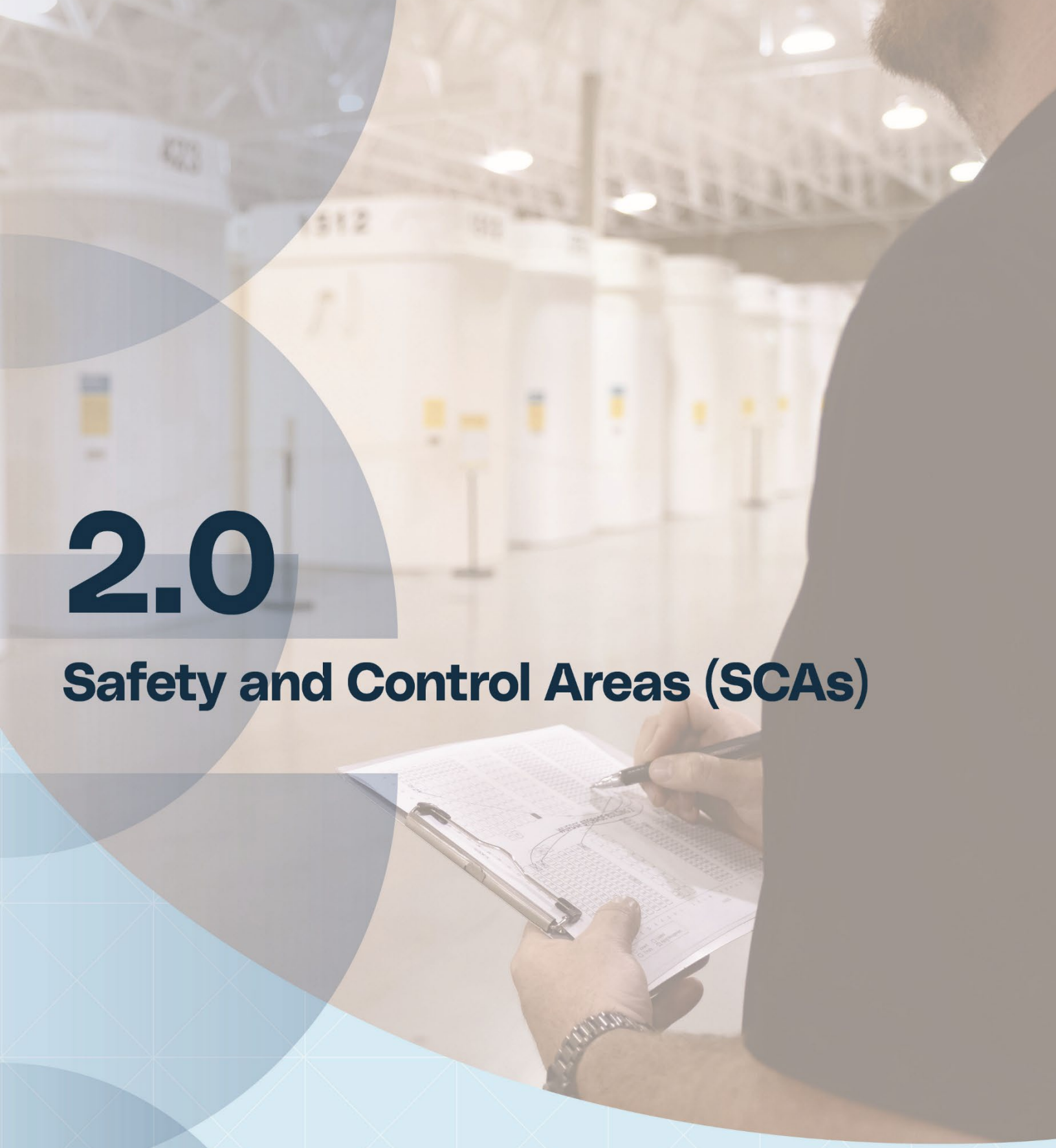
1.7.3.1 Community Recognition

- Progressive Aboriginal Relations Gold Designation from the Canadian Council for Aboriginal Business – 2021
- Women's Executive Network Ally of Excellence Award – 2022
- Canada's Best 50 Corporate Citizens by Corporate Knights – 2022
- Gold Certification by Tandem Global – 2020 & 2023
- Canada's Best Diversity Employers – 2023
- Government of Canada Employment Equity Achievement Award (Innovation category) – 2024
- Partnership Accreditation in Indigenous Relations Gold Designation from the Canadian Council for Indigenous Business (2024)
- Canada's Best Employers (2025)
- Canada's Best Employers for Company Culture (2025)

1.7.4 Planned Improvements

While OPG meets the requirements of CNSC REGDOC-3.2.1, *Public Information and Disclosure* OPG continues to look for areas to review our program and adapt it to make it more effective and comprehensive, ensuring we meet the needs of the communities and the public. Annually, OPG will continue to evaluate the effectiveness of the public information program and implement findings utilizing a variety of tactics including, but not limited to:

- Conducting interviews/focus groups/surveys with key stakeholders, community members, community groups/committees.
- Conducting Self-Assessments.
- Reviewing documentation/reports, including media coverage and Salesforce reports.
- Reviewing public opinion/opinion leader polling, research polling.
- Consulting with public and key stakeholders on a variety of Corporate Relations tactics including community and key stakeholder programming.



2.0

Safety and Control Areas (SCAs)

2.0 Safety and Control Areas

This section demonstrates our compliance with CNSC's regulatory requirements for the safety performance of programs. The sections are organized according to the CNSC SCA framework. As per the framework, each of the 14 SCAs are further divided into specific areas that define the key components of each SCA. The SCAs cover the functional areas of:

Management: (SCAs 1, 2 and 3)

Facility and Equipment: (SCAs 4, 5 and 6)

Core Control Processes: (SCAs 7, 8, 9, 10, 11, 12, 13 and 14)

Each SCA section provides a summary of the OPG programs and relevant supporting standards, processes and procedures implemented at WWMF to meet regulatory requirements and the conditions of the WFOL. Information is also provided regarding WWMF performance over the current licence period as well as implemented and planned improvement initiatives.

2.1 Management System

2.1.1 General Considerations

OPG maintains a Nuclear Management System in accordance with the operating licence and associated Licence Conditions Handbook. OPG's Nuclear Management System is applicable to all OPG nuclear facilities and is compliant with (Canadian Standards Association) CSA N286-12, *Management system requirements for nuclear facilities.*

The fundamental objective of OPG's Nuclear Management System is to ensure OPG nuclear facilities, including waste management facilities, are operated and maintained using sound nuclear safety and defence-in-depth practices to ensure radiological risks to workers, the public, and the environment are As Low As Reasonably Achievable (ALARA), and in keeping with the *OPG Nuclear Safety and Security Policy* and the best practices of the international nuclear community.

OPG's Nuclear Management System sets out the principles, required supporting actions and documentation to support the safe and reliable operations of our nuclear facilities, and brings together in a planned and integrated manner, the processes necessary to satisfy CSA N286-12 requirements and to carry out licensed activities safely.

Management system requirements provide direction to develop and implement management practices and controls. Programs and processes are created such that

all applicable regulatory requirements and codes and standards are embedded and integrated within the Nuclear Management System, including aspects of health, safety, environment, security, economics and quality.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 13: SCA 1 – WWMF Management System

Document Number	Document Title
N-CHAR-AS-0002	Nuclear Management System
N-PROG-AS-0001	Nuclear Management System Administration
N-STD-AS-0020	Nuclear Management Systems Organizations
N-PROG-RA-0010	Independent Assessment
N-POL-0001	Nuclear Safety and Security Policy
N-PROC-AS-0077	Nuclear Safety and Security Culture Assessment
N-STD-AS-0023	Nuclear Safety Oversight
OPG-PROG-0009	Items and Services Management
OPG-PROG-0039	Project Management

2.1.2 Management System

OPG's Nuclear Management System is documented in N-CHAR-AS-0002, *Nuclear Management System* (the Charter), and provides the framework for programs and processes that collectively ensure that the nuclear facility operates safely and reliably.

The Charter takes authority from N-POL-0001, *Nuclear Safety & Security Policy*, established by OPG's Board of Directors. In accordance with N-POL-0001, the Chief Nuclear Officer (CNO) is accountable to the Chief Executive Officer and Board of Directors to establish a management system that fosters nuclear safety and security as the overriding priority.

The Charter, consistent with N-POL-0001, communicates the expectations of the CNO. Collectively, the Charter and its reference processes establish a quality program, and the Nuclear Management System, and fulfill the requirements of CSA N286-12.

Every employee in the organization is responsible for and held accountable for complying with the expectations of the Charter and referenced Programs, and for ensuring their actions are deliberate and consistent with protecting worker health and safety, the health and safety of the public, and the environment.

The Nuclear Management System has evolved to support the OPG corporate-led business model. Several Programs have transitioned from being Nuclear-only to being owned by corporate business units (e.g., Items and Services Management, Information Management, and Environment and Health and Safety). For these programs, ownership and accountability for the Program resides with the Corporate Program Owner and the CNO remains accountable for the effectiveness of the implementation of these Programs in Nuclear, and in meeting the requirements of CSA N286-12. Oversight and review of the health and effectiveness of these Corporate Programs continue to be part of the Nuclear Management System.

N-PROG-AS-0001 *Nuclear Management System Administration* program describes the framework and processes established by OPG Nuclear and interfacing corporate organizations to demonstrate effective implementation and compliance with the requirements set out in CSA N286-12.

2.1.3 Organization

N-STD-AS-0020, *Nuclear Management System Organizations*, describes the organization and responsibilities of OPG in support of the Charter, CNSC REGDOC-2.1.1, *Management System*, and CSA N286-12.

N-STD-AS-0020 and N-PROG-AS-0001, *Nuclear Management System Administration* support N-CHAR-AS-0002.

WWMF continues to operate under a corporate-led organizational model. This model is structured to optimize efficiency and accountability across all business units by categorizing functional organizations into two main types: those responsible for delivering OPG-wide programs and those accountable for operations.

The corporate-led groups are designed to establish a single point of accountability for each business function, thereby ensuring comprehensive support for all business units. Corporate functions include Human Resources, Corporate & Technology Services, Legal Services, Corporate Affairs, Finance, and Supply Chain. These functions are crucial for implementing best practices across OPG's facilities and fostering the development of the expertise necessary to support operations effectively.

The Vice President, Nuclear Sustainability Services holds the authority to act and make commitments on behalf of OPG in engagements with CNSC staff. This role encompasses the management and control of the operation and monitoring of OPG's nuclear waste management facilities to fulfill the requirements of the CNSC operating licenses, in accordance with the Operating Policies and Principles and applicable Federal and Provincial Regulations. The day-to-day operations and management of the WWMF are overseen by the Senior Manager, Western Waste Operations. The Senior Manager reports directly to the Director of Western Waste Operations. Only

personnel authorized by the Senior Manager, Western Waste Operations are permitted to supervise operations at the WWMF. The operations staff receive direct support from central functions to ensure seamless integration and operational efficiency.

The organizational chart (figure 5) detailing the WWMF and its supporting corporate-led organizations is updated and maintained to reflect these structures.

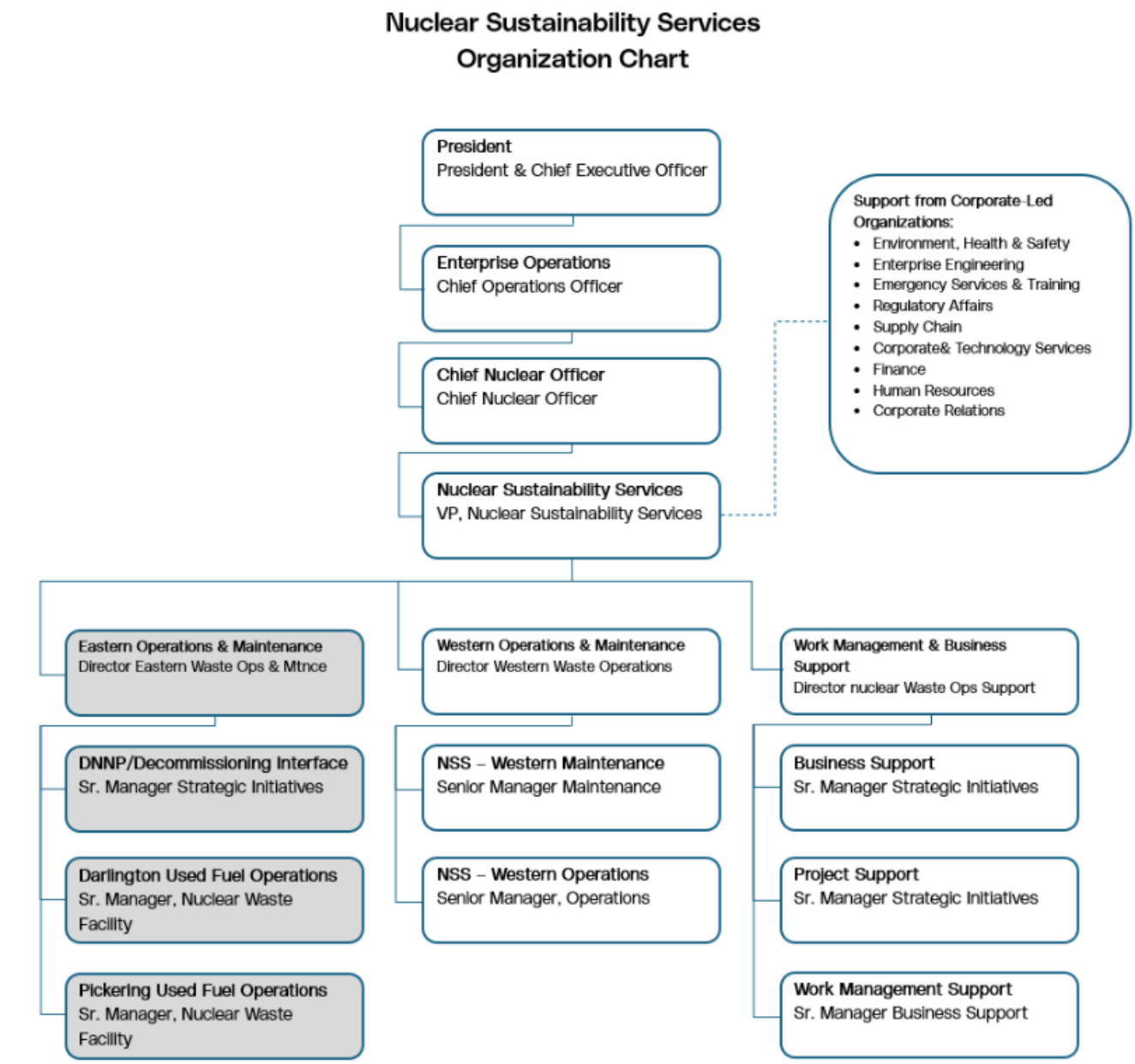


Figure 5: Nuclear Sustainability Services Organization Chart

2.1.3.1 Staffing Management

Workforce planning is an integrated and continuous process that identifies and addresses critical gaps between the current workforce and future needs in the

context of NSS' operating strategy. OPG is attracting, developing, and retaining our talent through existing programs and processes.

Staffing plans at OPG use workforce planning data (i.e. approved business plan demand, supply and attrition assumptions) to proactively identify potential resourcing gaps and risk areas requiring mitigation. The plans are prepared annually and are periodically reviewed throughout the year for the following: to ensure any changes to workforce profiles are regularly assessed for risks, mitigation plans which are required, and that qualified staffing levels are maintained for safe reliable operation of WWMF.

Recruitment and Onboarding

OPG has a number of internal and external recruiting programs to source and attract a diverse and high-performing workforce. The sourcing strategies are multi-faceted and include partnerships with educational institutions, apprenticeship programs, use of hiring halls for trades, internal and external job posting and career sites, direct sourcing, retained/ contingent recruitment agencies and succession planning discussions.

OPG's Indigenous Opportunities Network is dedicated to the recruitment of Indigenous Peoples through a network of employers in the energy industry and recruitment agencies. Furthermore, OPG proactively seeks Indigenous post-secondary student participation in co-ops, internships and summer employment opportunities in an effort to build an Indigenous talent pipeline. OPG has partnerships with ED&I and Indigenous programs at Ontario Tech University, Durham College, Humber College, Queen's University, Lakehead University, and Trent University and continues to expand post-secondary partnerships. OPG is committed to advance hiring of qualified equity-deserving candidates in the four designated groups (Women, Indigenous Peoples, Racialized People, Persons with Disabilities) and increase representation at OPG.

OPG's onboarding program integrates qualified employees and contractors into the organization. It promotes exceptional performance aligned with OPG goals and values. The Onboarding Centre, a centralized hub, provides new hires with essential information and tools for productivity.

Knowledge Management

OPG has many well-established methods to ensure people have the qualifications, knowledge and skills required to perform competently. The knowledge management program complements these foundational programs by providing tools and techniques to consider and share tacit knowledge. OPG has invested in knowledge management for ongoing operations as well as the delivery of projects and initiatives to ensure that the critical knowledge and expertise of employees is sustained.

Talent and Succession Planning

The OPG talent review and succession planning program ensures that necessary talent and skills will be available when needed, and that essential knowledge and abilities will be maintained. Succession planning is one component of this strategy, with the objective to identify and develop future leadership and to integrate this with the staffing needs to ensure continuity in critical roles.

The Nuclear organization has an integrated succession planning process that includes identifying critical positions and determining the priority of each role. The level of management oversight of the succession planning of these critical positions is determined by the priority given to the role.

The OPG talent review and succession planning program is fully integrated into the broader human resources management programs within OPG that include performance measurement, individual development planning, skills and capability development, diversity and inclusion, and culture.

Leadership Development

The Human Resources (HR) organization partners with OPG business leaders at all levels to deliver an integrated leadership and talent development program to achieve business results supporting OPG's strategy. HR designs, delivers and monitors the effectiveness of programs aligned with the strategy and OPG values, and other industry competency models that help to attract, orient, develop, engage and retain employees.

OPG participates in various external leadership development programs to advance internal leaders, support industry knowledge-sharing/learning and build a holistic approach to the learning and development portfolio. Programs and events are selected in partnership with line leaders and are managed by various program owners.

2.1.4 Performance Assessment, Improvement, and Organizational Effectiveness

OPG program N-PROG-RA-0010, *Independent Assessment* provides independent assessment (internal and external) processes to perform a comprehensive and critical evaluation of all activities affecting OPG nuclear facilities. This program ensures the management system under N-CHAR-AS-0002 is reviewed with sufficient frequency to confirm its continuing effectiveness. The program is comprised of the following processes:

- Internal independent assessments performed by OPG's Nuclear Oversight organization.

- External independent assessments performed by the Nuclear Safety Review Board (NSRB).

Programs in N-CHAR-AS-0002 are assessed independently (internally) by OPG's Nuclear Oversight organization.

The NSRB performs an independent (external) assessment to ensure the requirements of N-POL-0001, *Nuclear Safety and Security Policy*, and N-CHAR-AS-0002 are being fulfilled.

As a learning organization, NSS strives for continuous improvement. OPG program N-PROG-RA-0003, *Performance Improvement*, establishes the processes that support the conduct of performance improvement and, by extension, employs the principles for preventing, identifying and understanding, and correcting problems. This program covers the key areas of performance improvement, including corrective action, self-assessment, benchmarking, operating experience, and nuclear safety culture.

The effectiveness of the Performance Improvement program is routinely assessed through a set of Key Performance Indicators in the monthly Performance Improvement Health Report. Routine peer team meetings are effectively used to share site and industry best practices, discuss tactical and strategic actions to correct performance shortfalls and gaps to excellence.

This programmatic approach provides defence in depth by establishing multiple layers of oversight across the facility to ensure that adverse conditions are quickly identified, understood, and corrected. Strong line ownership, combined with timely action on emerging trends, ensures that issues and problems are resolved with the appropriate response and recurrence is either eliminated or reduced. This results in high quality work and safe, reliable operations. This ensures safety for the public, personnel, environment, and plant.

Over the past 2 years, NSS has been included as a site in 14 program audits, under the Nuclear Management System (NMS), conducted by the Nuclear Oversight organization. The audits covered a broad range of program areas as follows:

- Training,
- Nuclear Waste Management,
- Component and Equipment Surveillance,
- Groundwater Protection & Monitoring,
- Fire Protection,
- Integrated Aging Management,
- Pressure Boundary,
- Welding,
- Pressure Relief Valves,
- Items and Services,

- Work Protection,
- Conduct of Maintenance,
- Environmental Monitoring and
- Nuclear Environmental Management.

Collectively, the audit findings underscore opportunities for NSS to strengthen procedural rigor, enhance oversight, and ensure consistent alignment with industry standards and regulatory expectations. The Nuclear Oversight audits found that the managed system controls are effective and support the safe and reliable operations at the WWMF.

2.1.5 Operating Experience, Problem Identification and Resolution

N-PROG-RA-0003, *Performance Improvement*, allows for the proactive identification and resolution of potential issues or opportunities for improvement as well as allowing for the prompt identification of adverse conditions. This includes non-conformances, deficiencies, or conditions that adversely impact – or may adversely impact – plant operations, personnel, nuclear safety, the environment or equipment and component reliability. These processes ensure that problems are corrected or dispositioned with a level of rigor and formality commensurate with their risk significance. For those problems deemed to be of a high level of significance or systemic in nature, these processes ensure appropriate levels of management are notified, causes identified, actions taken to minimize or prevent recurrence and lessons learned are communicated. Actions taken to address the identified causes of significant or systemic problems are verified to be complete and effective.

In 2021, OPG developed a new Operating Experience (OPEX) database to facilitate the distribution of external OPEX from Conexus Nuclear Inc. (formerly called the CANDU Owner's Group) to departmental OPEX Single Points of Contact, the management of OPEX reviews, and the documentation of initial assessments or dispositions from site departments. The OPEX database also provides a readily available repository of all previous external OPEX and site reviews/responses to new OPEX with search capabilities.

As part of ongoing improvements for the OPEX process and use of OPEX at WWMF, a number of initiatives have been completed or are in progress:

- Implemented a web-based OPEX search engine that can extract information from various sources such as the Station Condition Record (SCR) database, OPEX Database, Work Reports etc. providing quick access to key OPEX events relevant to line organization tasks.
- Improving the use of internal and external OPEX during Pre-Job Brief and electronic Safe Work Plan in alignment with the Institute of Nuclear Power Operators IER L2-24-2, Leadership in Preventing Fatalities and Severe Injuries.

External OPEX brings in lessons learned from other nuclear facilities around the world.

2.1.6 Configuration Management and Change Control

Changes at OPG are implemented to incorporate improved results in safety, quality, cost and operations. Configuration Management at OPG is governed by N-STD-MP-0027, *Configuration Management*, which takes its authority from N-PROG-AS-0001, *Nuclear Management System Administration*. N-STD-MP-0027, *Configuration Management* ensures the facility physical configuration for all essential structures, systems and components (SSC) matches the configuration documents for all plant states. In addition, the standard ensures configuration information is maintained accurately, consistently and is readily accessible along with defining clear scope, responsibilities, authorities and interfaces among organizations. This information is uniquely identified, maintained current and consistent.

The standard controls the changes which may affect configuration by:

- Requiring regulatory and licensing reviews, approvals and safety evaluations to ensure physical configuration or configuration information changes conform to the design and licensing basis.
- Reviewing impacts so that related configuration information is maintained consistently with the change.
- Ensuring changes to the design and licensing basis receive appropriate verification and approvals before the change is made.
- Ensuring change processes work in accordance and consistently with each other for design, procurement, construction, installation, commissioning, operation and maintenance, including surveillance, training, and testing.

Figure 6 shows the relationship between Nuclear Management System activities, programs and configuration management.

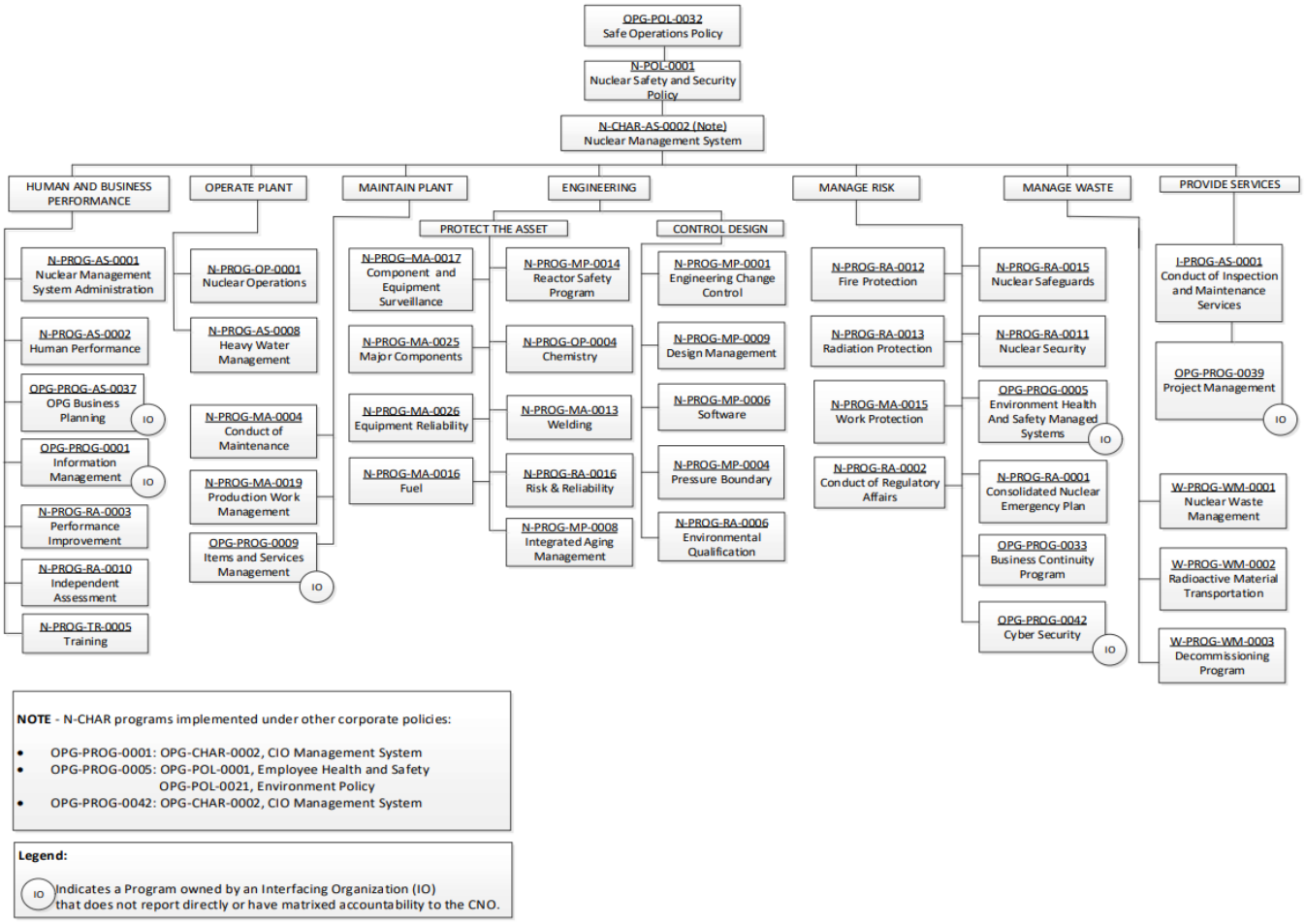


Figure 6: Nuclear Management System

Change Control programs such as Engineering Change Control (ECC), support configuration management by ensuring design changes, document changes and physical configuration changes that impact design and the licensing basis are tracked to completion and are traceable throughout the life of the facility. Adverse configuration management issues are documented using Station Condition Records.

Design changes are performed in accordance with OPG's program N-PROG-MP-0001, *Engineering Change Control*. The program and its implementing procedures have been written to be consistent with N-POL-0001, CSA N286-12, and all relevant legal, statutory and regulatory requirements, including those of the CNSC, as well as Industry guidelines. The ECC program ensures design changes to each OPG facility (including SSC, software and engineered tooling) are controlled such that the facility configuration is managed in accordance with the design and licensing bases and remains within the Safe Operating Envelope.

For pressure boundary SSCs, OPG's program N-PROG-MP-0004, *Pressure Boundary* complies with the general configuration management requirements and additional requirements in N-STD-MP-0027. The ECC process detailed in N-PROC-MP-0090, *Engineering Change Control Process*, ensures that OPG's pressure boundary processes are described in the Pressure Boundary program.

Configuration management is an important aspect of maintaining and keeping WWMF in an assessed state within the safe operating envelope and is reviewed both by internal and external organizations regularly. Actions are taken as appropriate to correct any identified adverse conditions.

OPG's Nuclear Oversight audits of the ECC program in 2020 and 2023 found that the managed system controls are effective and that overall, the program achieves its goal of executing and controlling engineering changes to support the safe and reliable operation of OPG facilities.

The ECC program documents undergo cyclic review and revision. Such revisions include improvements based on industry OPEX and as suggested by users. Ongoing process improvements are also generated through two monthly meetings intended to identify any problem areas and share OPEX. The Design Managers' Working Group consists of the OPG facility Design Authorities and other managers of various OPG and vendor design organizations, while the ECC Working Group consists of working-level staff from those organizations. Thus, the process is regularly examined from varying points of view to ensure that it meets requirements and is efficient.

OPG continues to make use of vendor companies to Engineer, Procure, and Construct (EPC) modifications that will improve the reliability of WWMF and other OPG facilities. To ensure the use of EPC is successful, OPG is continually working to better define the requirements and level of oversight required for contracted work. EPC process is managed through a quality assurance program to ensure that OPG's expectations for vendor design and installation quality are met.

2.1.7 Nuclear Safety and Security Culture

N-POL-0001, *Nuclear Safety and Security Culture* establishes the fundamental principles for OPG employees. It emphasizes the vital importance of nuclear safety and security as the top priority in all activities performed in support of OPG facilities and underscores the value that OPG places in ensuring the highest level of protection for individuals, the environment, and surrounding communities. The policy highlights the organization's firm commitment to prioritizing nuclear safety over any other consideration, including cost, schedule, or production. By adhering to this policy, OPG employees can be confident that they are contributing to a culture of safety and responsibility that is paramount to the success of the organization.

In accordance with the policy, the Chief Nuclear Officer is accountable to the Chief Executive Officer and the Board of Directors to establish a management system that fosters nuclear safety and security as the overriding priority.

OPG's Traits of a Healthy Nuclear Safety and Security Culture are detailed in figure 7. These 11 traits are incorporated into OPG's organization and administrative procedures starting at the policy level and cascading throughout the Nuclear Management System, programs and procedures as demonstrated in figure 8.

Figure 7: OPG's Traits of a Healthy Nuclear Safety and Security Culture

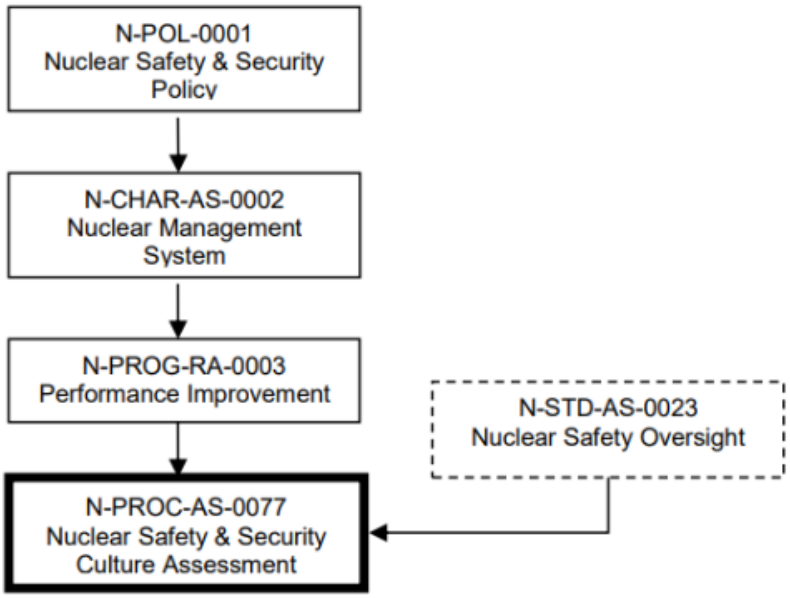


Figure 8: Policy, Charter and Program Connection

N-STD-AS-0023, *Nuclear Safety Oversight*, summarizes the framework and accountabilities for nuclear safety oversight as well as the external and internal processes used for oversight and assessment of nuclear safety. This standard applies to all aspects of nuclear operations and to all work and other activities undertaken at or in support of the WWMF. Nuclear safety oversight is conducted in a manner consistent with the Traits of a Healthy Nuclear Safety and Security Culture.

OPG conducts comprehensive, systematic and rigorous safety culture assessments at least every 5 years in accordance with CNSC REGDOC-2.1.2, *Safety Culture*.

In October 2022, NSS successfully conducted a site-wide Nuclear Safety and Security Culture Assessment to identify areas for improvement and areas of strength. The assessment included a staff survey of all NSS employees, as well as an on-site evaluation, including document reviews, staff interviews and observations. The 12-person assessment team included a mix of both internal and external members. 273 people responded to the survey (equivalent to a 78% participation rate) with over 1,250 comments provided. The on-site interviews yielded approximately 1,249 data points and over 1,954 comments.

The assessment focused on perceptions, attitudes and behaviours of the organization and concluded that NSS has a healthy nuclear safety culture, healthy respect for nuclear safety and nuclear safety is not compromised by production priorities. Questioning Attitude was noted as being used well by employees. When facing uncertainty while performing work, most employees do not hesitate to stop, check and adjust before continuing.

This marked NSS's first evaluation since the implementation of CNSC REGDOC-2.1.2, *Safety Culture* Vigilance trait in Nuclear Security. The evaluation determined that NSS has a healthy nuclear security culture.

All results, including areas for additional focus and improvement identified during the assessment were documented in a self-assessment report in accordance with N-PROC-AS-0077, *Nuclear Safety & Security Culture Assessments*. As per N-PROC-AS-0077, the results were communicated to staff by Senior Leadership within a month following the assessment and action plans were developed with input from the VP NSS's direct reports and the assessment Host Peer.

In 2022, Conexus Nuclear Inc. in collaboration with Canadian Nuclear Utilities, developed a tool to assist in the assessment of the Nuclear Safety and Security Culture. This tool was able to efficiently process and compare all the survey and interview data, significantly accelerate the report generation process and provide a more precise depiction of the culture within OPG facilities.

OPG will continue to conduct NSS assessments at least every 5-years as per CNSC REGDOC-2.1.2, *Safety Culture*.

In addition to the comprehensive site-wide assessment, OPG has instituted a NSS Nuclear Safety and Security Culture Monitoring Panel (NSSCMP) tasked with overseeing the key process indicators that reflect the state of the organization's nuclear safety and security culture. This panel, comprised of the NSS senior leadership team, convenes twice a year to deliberate on the 11 nuclear safety and security culture traits. In doing so, strengths and potential concerns that merit additional attention by the organization are identified and acted upon. The use of the Nuclear Safety and Security Culture Management Program exceeds the requirements of CNSC REGDOC-2.1.2, *Safety Culture* and further promotes meaningful conversations and the sharing of lessons learned amongst leaders to ensure any emergent issues that could impact Nuclear Safety and Security Culture are addressed.

One component contributing to these discussions is facilitated by the NSSCMP Power App. This online tool, developed in 2020, enables frontline site personnel to evaluate the 44 attributes that constitute a robust Nuclear Safety and Security Culture and provide input directly to the NSSCMP. This approach allows OPG to capture insights from staff that regularly work in and around the waste management facilities, helping to discern faint signals within the organization.

During the current licence term, OPG also implemented the Nuclear Safety and Security Culture Trait of the Week and accompanying App to remind staff about each of the attributes under the Traits on a rotating basis.

OPG has a comprehensive leadership development program that integrates the Nuclear Safety and Security Culture Traits at all levels. This includes the incorporation of Nuclear Safety Culture into employee orientation, leadership fundamentals training, and continuing leadership training.

OPG has a strong commitment to use external review mechanisms, such as World Association of Nuclear Operators (WANO) and the NSRB, to ensure that the company maintains high standards of operational performance. An extensive framework of internal oversight, including the Nuclear Executive Committee, Nuclear Safety Oversight Committee and independent assessments conducted by Nuclear Oversight provide a comprehensive and critical evaluation of all activities affecting OPG on an ongoing basis. These internal and external assessment mechanisms are used to identify opportunities for improvement and reinforce the culture of a learning organization.

2.1.8 Records Management

OPG-PROG-0001, *Information Management*, establishes a set of standards and procedures for the management of OPG's information throughout its life cycle, regardless of media, to ensure consistent and appropriate use. The Information Management program is applicable to all OPG employees, temporary staff and contractors. One of the objectives of the Information Management program is the advancement of electronic, digital, and mobility solutions that provide tools that effectively and efficiently capture, change, issue, and make content available electronically and with the highest quality. During the current licence term, a number of enhancements were made to Information Management tools used by OPG staff. For example:

- OPG's enterprise software, Asset Suite, was upgraded to incorporate new features and to maintain full vendor support.
- Cyber security has also evolved rapidly and is covered in Section 2.12.5.
- A new application allows workers to electronically submit and file their records and documents in Asset Suite/Curator, which has significantly reduced the turnaround time on availability.

A new application is planned to be used to further automate OPG's client service processes. Once completed, the tool will embed key information management processes to improve control for the many OPG workers who handle confidential security information, and to automate external information exchange and Legal Hold processes.

In conjunction with the Cyber Security program data protection project, the security document access process is planned to be upgraded/modernized to take best advantage of evolving encryption protections and to automate the approvals and Asset Suite access.

Records projects have been completed, including the closure of the Kipling record center, the reduction of legacy paper records in physical vaults, and the scanning of quality assurance records for secure, rapid access.

2.1.9 Business Continuity

The objective of OPG-PROG-0033, *Business Continuity Program*, is to establish a managed system for business continuity, and to provide direction related to business and operational continuity, and recovery planning.

The Business Continuity program is aligned with OPG's business goals and objectives. It ensures that if a disruption occurs or if there is a threat of disruption, critical business and operational processes continue to be available, or resume to at least the defined minimum operability within required time limits. Business Continuity is structured as an "all hazards" program adaptable to a range of hazards, or a combination of multiple hazards, including Human Health Emergency (e.g., COVID-19 pandemic).

To ensure OPG's business continuity, OPG performs Business Impact Analyses and develops Continuity Plans based on those analyses. This involves conducting a risk analysis of the impacts that a temporary disruption of the processes would have on the organization. Continuity Plans are established to mitigate the identified risks, if necessary.

Pursuant to this process, NSS has conducted a Business Impact Analysis. The activities performed by NSS are all assessed as being capable of being unavailable for more than a week (including several weeks or months) without significant consequences. As the activities are assessed to be low risk, Continuity Plans are not required.

2.1.10 Management of Contractors

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 14: Management of Contractors

Document Number	Document Title
OPG-PROG-0038	Contract Management

OPG has extensive experience in the use of contractors to engineer, procure and construct new facilities or to implement design improvements to OPG's existing facilities. OPG will leverage OPEX from previous similar projects such as the Darlington NGS Refurbishment project to optimize how supply chain integrates with contractors. This can include but is not limited to improved terms and conditions,

leveraging inventory tracking software to increase visibility on contractor inventory, and controlling costs through consolidating payment structures and applying new incentives and disincentive models. Contractors and suppliers are qualified by OPG Supply Chain Quality Services under a process that ensures each contractor has developed and implemented a management system that meets the applicable requirements outlined in CSA N286-12. OPG assesses a contractor's capability to work at OPG Nuclear facilities through an audit of the contractor's processes, to ensure they can perform the necessary work, with OPG oversight as the licensee at each stage. Once OPG is assured of a contractor's capabilities, they are placed on OPG's approved suppliers list, as approved contractors.

The contractors that OPG uses have experience with the nuclear industry and with OPG. OPG requires that all sub-contractors work under the contractor's quality program, to ensure there is an assurance that the agreed upon quality standards and expectations will be met, regardless of who is performing the work in the field. Field surveillance and verification activities are performed by OPG personnel (Contract Monitoring Officers) to ensure that the quality program requirements are being achieved.

Where possible, OPG will temporarily turn the contractor work area over to the contractor, as a Construction Island (defined project area controlled by contractor/vendor) where the contractor assumes the role of "Constructor" as defined in the Ontario Occupation Health and Safety Act. As Constructor, the contractor assumes responsibility and liability for conventional safety and environmental safety associated with the contractor work. The contractor produces a site-specific Health and Safety Plan and Environmental Safety Plan, which is accepted by OPG prior to the contractor starting work. Radiation Protection remains the responsibility of OPG. Where a construction island is not feasible, OPG maintains the role of Constructor and provides oversight to the contractor. In this case, all contractor work will be carried out in accordance with OPG-PROG-0005, *Environment Health and Safety Managed Systems* and associated processes and procedures. OPG maintains responsibility and liability for conventional safety, environmental safety, and RP of the contractor work. OPG retains the responsibility that the facility remains compliant with the operating licence. As such, OPG is accountable to the CNSC to provide the required assurances that the health, safety, and security of the public, workers, and environment are protected. This accountability cannot be delegated through contractual arrangements.

OPG program, OPG-PROG-0039, *Project Management* applies to the management of individual projects as well as to the integrated management of a group or program of related construction projects, or the total project portfolio at a plant/plant group, or business unit. This program, for nuclear projects, includes compliance with construction specific requirements of CSA N286-12.

2.2 Human Performance Management

2.2.1 General Considerations

NSS has an effective Human Performance Management Program that meets or exceeds all applicable regulatory requirements and related objectives to enable effective Human Performance through the implementation of processes that ensure a sufficient number of licensed personnel are in relevant job areas, have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 15: SCA 2 – WWMF Human Performance

Document Number	Document Title
N-PROG-AS-0002	Human Performance
N-PROC-OP-0047	Hours of Work Limits and Managing Worker Fatigue

2.2.2 Human Performance Program

The objective of the Human Performance Program is to continually reduce the frequency and severity of events through the systematic reduction of human errors and management of defences in pursuit of zero events of consequence.

The Human Performance Program is defined in N-PROG-AS-0002, *Human Performance* and is executed through a series of standards and procedures that lay the groundwork for improving and sustaining performance. The program provides guidance to reduce the probability and consequences of human error associated with worker-machine interfaces required to operate, maintain, and support WWMF.

WWMF leaders recognize that an understanding of the role of human performance in safety, supported by leadership and employee behaviours, helps prevent human error-related events. Human performance standards and expected behaviours are defined, established, and incorporate in processes, procedures and training.

Through the following supporting standards, N-PROG-AS-0002 drives continuous improvement of human performance and establishes processes to monitor and correct any organizational deficiencies to minimize human error.

- N-STD-AS-0002, *Procedure Use and Adherence:* provides requirements for usage of, and adherence to approved procedures.

- N-STD-OP-0002, *Communications*: specifies requirements for both verbal and written communication practices when performing maintenance and operating activities including expectations for three-way communication and use of phonetic alphabet.
- N-STD-OP-0004, *Self-Check And Stop When Unsure Practices:* describes the features of the Nuclear Self-Check program.
- N-STD-OP-0012, *Conservative Decision-Making*: provides management expectations for a conservative decision-making culture and establishes responsibilities and accountabilities for affected managers to ensure conservative decisions are made.
- N-STD-RA-0014, *Second Party Verification*: establishes the scope and extent of verification and degree of independence required and, to prevent errors going undetected, specifies requirements for verification when a second person confirms a specific task or activity that satisfies established requirements.

The primary intention of the Human Performance Program is to create continuous improvement within the organization and to reduce the potential for human error through the use of appropriate analysis methods or techniques. The advantages of this are to improve safety, quality, and efficiency. Initiatives to provide staff with an understanding of the factors that influence Human Performance and provide them with a set of tools and references to predict, manage, and prevent error-likely situations include:

1. N-INS-09030-10004, *Observation and Coaching* (O&C): Supervisors and managers are required to perform observations and document their findings in an O&C database where the data is rolled up and presented at a monthly Staying on Top meeting. The observations include worker behaviours (including the use of human performance tools), number of and effectiveness of defences, worker proficiency and knowledge, and the execution of work. Observations are documented under specific categories and focus areas to enable trending and filtering by area of interest. Department managers review their observations regularly to monitor for decline in performance or significant gaps and take corrective actions as needed. The monthly Staying on Top meeting is an opportunity for departments to present their findings, identify trends and potential focus areas. They create actions plans as needed to address the trends and gaps. The findings are also monitored by the Human Performance Department to identify trends which may require action. NSS O&Cs are tracked with a focus on identifying and resolving improvement opportunities to drive continuous improvement and prevent complacency and stagnation. There has been a focus on paired O&Cs to support supervisors' development and improvement in supervisors providing coaching and feedback to their crews and is used as one of the key performance indicators.

2. The process following human performance events includes the applicable department performing an accountability analysis using N-INS-09030-10001, *Human Performance Event Communications and Analysis*, to determine whether the error was the result of an intentional violation (very rare), a gap in process, or organizational and systemic weaknesses. The insights and actions taken are documented in a crew learning brief and shared with the organization. Event communication and analysis is issued to improve identification of system issues. This tool facilitates lessons learned from events to prevent event recurrence and foster an open reporting culture. The Human Performance department trends the information for indication of any adverse trends. If an adverse trend is identified, it is investigated further to identify its drivers and develop corrective actions. Crew Learnings are used as an event communication tool to share key learnings.
3. More significant human performance events (such as Department Event Free Day resets or Site Event Free Day resets per N-INS-09030-10002, *Site and Department Level Event Free Day Resets*) follow the same process and will also have an evaluation and corrective action plan. Due to the higher significance of these events, the event evaluation and action plans go to the site Corrective Action Review Board for cross-functional challenge and quality review.
4. Stop When Unsure and Positive Stop Work initiatives are implemented to ensure that front line workers feel empowered to stop in the face of uncertainty and, as a last line of defence. In addition to stopping when unsure, a matrix to restart work safely and promptly following a stop has been implemented. Leadership behaviours are aligned to positively recognize the stops using the Values in Actions application, leverage these stops as a leading indicator for event prevention, and provide a structured process to support workers to restart actions. application, leverage these stops as a leading indicator for event prevention, and provide a structured process to support workers to restart actions. Positive Stops were added to OPG's CORE4 + in 2024 to reinforce the importance of this behaviour.

The measures used to evaluate overall health, reliability and robustness of the Human Performance program are Site Event Free Day Resets (SEFDR). The SEFDR value is the number of human performance errors that result in events with significant consequences within a given period; it is the industry-wide measure of the effectiveness of the organizational safety and other Human Performance programs. These measures are reviewed at the bi-monthly Human Performance Oversight meeting. Refer to table 16 below:

Table 16: Site Event Free Day Resets (SEFDR)

	2017	2018	2019	2020	2021	2022	2023	2024
Target	0	0	0	0	0	0	0	0
# Site Event Free Day Resets	0	0	0	0	0	0	0	0

There were zero SEFDR at Western Waste Management Facility in the current licence period.

2.2.3 Planned Improvements

OPG is aligning with current industry best practices by enhancing Human performance tools. These tools, specifically Event Prevention Tools help the individual workers maintain positive control of a work situation by increasing self-awareness, understanding and focus to identify hazards and risks which require mitigation. This is further enhanced by the application of the Core 4+ initiative, which is applied during work activities, regardless of the risk perception associated with the task.

Core 4+ comprises of the following event prevention tools:

- Pre-Job briefing/Post Job Debriefing;
- Procedural Use and Adherence;
- 2-minute Job Site Drill;
- Verification Practices.

At the center of these tools is Stop When Unsure that is to be used at any time during the job process. Refer to figure 9.

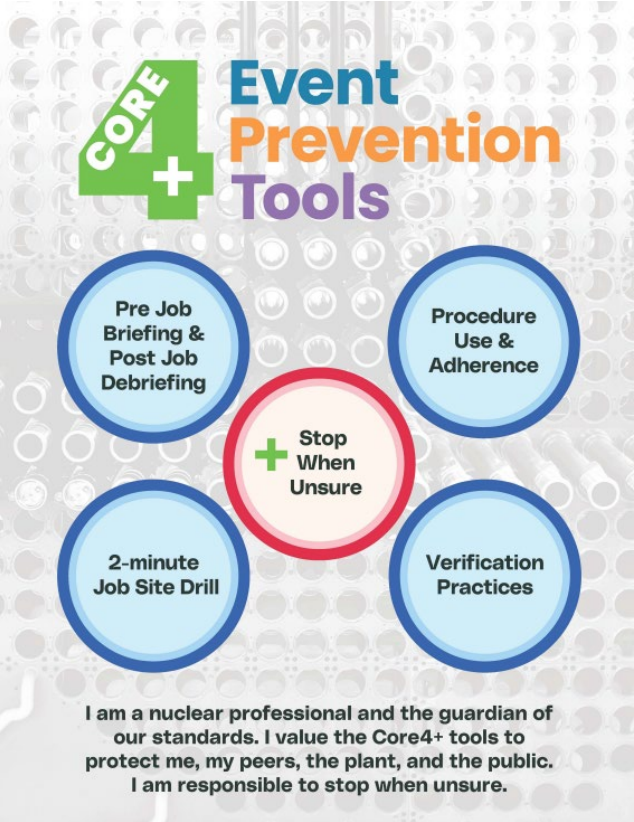


Figure 9: Four Core Event Prevention Tools

Leadership behaviours are aligned to positively recognize the stops using the Values in Action application, leverage these stops as a leading indicator for event prevention, and provide a structured process to support workers to restart actions. To ensure sustainability and reinforce positive behaviours, Positive Stops are recognized at the monthly Staying on Top Meeting.

As part of continuous improvement practices, WWMF continues to perform routine self-assessments and benchmarking to continually identify and address areas for improvement in the implementation of the Human Performance Program.

2.2.4 Personnel Training

2.2.4.1 Program and Objectives

The training program for regular staff, contractors, temporary personnel and other staff assigned work at OPG is defined by N-PROG-TR-0005, *Training*. This document, in combination with internal training procedures, defines the key activities involved in our training process and is compliant with CNSC REGDOC-2.2.2, *Personnel Training*. The purpose of the Training Program is to define the key program elements, objectives, roles and responsibilities, with the overall goal to ensure OPG

Nuclear staff have the appropriate knowledge, skill, and attitudes for safe and efficient facility operation.

The OPG documents in the table below require written notification of change per WWMF License Conditions handbook, LCH-W4-314.00/2027-R003:

Table 17: SCA 2 – WWMF Human Performance

Document Number	Document Title
N-PROC-TR-0008	Systematic Approach to Training
N-PROG-TR-0005	Training

2.2.4.2 Current Operations and Results

Operations, maintenance, and support staff are trained and qualified under OPG's Nuclear Training Program. Staff training and qualifications include initial training, on-the-job training, and evaluation. This training is then maintained by periodic requalification and refresher training as appropriate. The health of training is carefully monitored with a defined program to ensure that there is a Systematic Approach to Training (SAT) foundation for OPG's nuclear training programs upon which it continues to build and improve.

2.2.4.3 Training Plan

A training plan using a systematic approach to training has been developed for every Major Nuclear Training Program which identifies the training needed to meet the skill and knowledge requirements of the position.

For tracking, OPG utilizes the Training Information Management System which is a database application that stores and tracks training and qualification information for all staff, including contractors. This system also provides automatic notifications by email for upcoming scheduled training and identifying expiring qualifications to employees and their supervisors.

2.2.4.4 Enhanced Training

The training program is closely linked to the Human Performance program. Enhanced or focused training is often utilized in the effort to improve safety and reduce errors. The human performance expectations are built into the training courses.

2.2.4.5 Performance Monitoring

Training performance is tracked using a computer program to measure completion, scheduling and administration of qualification adherences and the capability of personnel to perform work duties through qualification status. A monthly computer report is generated that is reviewed during Monthly Curriculum Review Committee Meetings for each program area, quarterly Nuclear Waste Division Training

Performance Review Committee meetings and quarterly Nuclear Waste Division Training council meetings to ensure training adherence and performance.

2.2.5 Current Learning Culture and Use of Technology

WWMF has established a learning culture where development is encouraged and learning resources are available to promote proficiency and encourage employee development. Improvement initiatives in support of continued operational excellence include:

- The creation of Proficiency Heat Maps and Individual Development.
- Micro-learning through Video Learning-On-Demand library with over 550 videos is available to refresh skills.
- All Leaders are trained in Facilitative Leadership Techniques to enable learning and development.

2.2.6 Future Plans and Improvements

The health of training is carefully monitored with a defined program to ensure that there is a Systematic Approach to Training foundation for OPG's Major Nuclear Training Programs.

Improvements to the training programs are driven by feedback from internal and external OPEX, Station Condition Records, Curriculum Review Committees, self-assessments, audit reports, and in response to the training committee’ s needs. and in response to the training committee’s needs.

The program will continue to ensure OPG staff have the appropriate knowledge, skill, and attitudes for safe and efficient plant operation.

2.2.7 Work Organization and Job Design

To ensure operational efficiency and compliance with licensing requirements, NSS has developed a set of Training and Qualification Descriptions based on work group, which cover core qualifications to the discipline, and general training requirements such as hoisting and rigging, safeguards, supervision roles, radiation protection, security clearance, code of business conduct, and site-specific orientation.

WWMF manages staffing levels through staffing plans which are developed to ensure sufficient personnel are available to meet the business and operational objectives carried out under the WWMF WFOL.

OPG does not permit tasks to be completed by unqualified personnel. The staffing complement is reviewed regularly through business planning. The staffing model is in place to allow flexibility in workforce allocation, supporting succession planning, and support ongoing production while adapting to project demands. By aligning staffing

levels with business objectives, OPG ensures that WWMF operates efficiently without compromising safety or regulatory commitments.

2.2.8 Fitness for Duty

The WWMF maintains robust procedures and policies to ensure that all staff members are fit for duty. OPG prioritizes the safety and well-being of the employees and recognizes the importance of their physical and mental readiness to perform their roles effectively. To achieve this, WWMF follows procedures and policies to ensure that all staff members are fit for duty, which comply with:

- CNSC REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue*
- CNSC REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use, Version 3 (2021)*

OPG's Fitness for Duty: Policy on Managing Alcohol and Drug Use, sets out specific requirements for all workers to address alcohol and drug use and possession at all times while workers are engaged in company business, when on company premises and worksites, and/or when operating vehicles and equipment in the course of their duties for OPG. This Policy includes alcohol and drug testing for certain categories of workers included in the regulatory requirements in CNSC REGDOC-2.2.4, Volume II, *Fitness for Duty: Managing Alcohol and Drug Use*.

OPG's Fitness for Duty: Policy on Managing Alcohol and Drug Use was implemented on July 22, 2021, with the exception of CNSC REGDOC-2.2.4, Volume II, *Fitness for Duty: Managing Alcohol and Drug Use*, Version 3, Section 5.5 Random Alcohol and Drug Testing. The Federal Court of Canada approved the CNSC's requirement for pre-placement and random alcohol and drug testing for safety-critical workers at high-security nuclear sites in June 2023. Although this was appealed by unions, the Federal Court of Appeal upheld the decision in November 2024. As a result, the CNSC directed OPG to fully implement the relevant sections of CNSC REGDOC-2.2.4 on alcohol and drug testing by January 1, 2026. OPG's Fitness for Duty: Policy on Managing Alcohol and Drug identifies the processes for addressing fitness for duty as it applies to alcohol and drug use. Initial and continuing training elements addressing fitness for duty focus on explaining company policies, expectations, and the various employee support programs available include:

- The Continuous Behaviour Observation Program trains supervisors and managers to recognize and respond to behaviours that could impact worker performance and safety.
- Yearly Nuclear General Employee Training (for all site staff).
- Fitness For Duty – Managing Alcohol and Drug use for workers.
- Fitness For Duty – Managing Alcohol and Drug use for supervisors.

Employees' Hours of Work (HoW) are also monitored. N-PROC-OP-0047, *Hours of Work Limits and Managing Worker Fatigue* prescribes the process for monitoring and controlling the HoW for Nuclear Broad Population and Safety Sensitive employees to meet the requirement set out by CNSC REGDOC-2.2.4, *Managing Worker Fatigue*, the *Ontario Employment Standards Act* and Collective Agreement provisions. N-PROC-OP-0047 includes guidance and instructions on the following:

- Hours of work (Including Regulatory limits, shift schedules and special exceptions).
- Monitoring requirements for workers.
- Reporting requirements.
- Management of worker fatigue.

The process requires that employees are aware of their time limitations, track work hours and promptly notify the first line manager in advance of a potential violation. Supervisors are also required to ensure that their employees are aware of their prescribed limit and are also responsible for monitoring their employees' HoW.

Minimum Staff Complement for the WWMF Shift Staff is covered under W-INS-09110-00001, *Operator Expectations Nuclear Waste Facilities*, which details the staffing level required to operate L&ILW and Western Used Fuel Dry Storage Facility (WUFDSF) safely and within operating modes.

2.3 Operating Performance

OPG's NSS is responsible for the life cycle management of radioactive waste for OPG-owned facilities and has direct responsibility for transportation, processing, and interim storage until final disposal of the radioactive waste. The radioactive waste long term disposal strategy is described in Section 2.11.4.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 18: SCA 3 – WWMF Operating Performance

Document Number	Document Title
W-PROG-WM-0001	Nuclear Waste Management
W-OPP-01911.1-00001	Operating Policies and Principles, Western Waste Management Facility and Radioactive Waste Operations Site-1
N-PROG-RA-0002	Conduct of Regulatory Affairs
N-PROG-RA-0003	Performance Improvement
N-PROC-RA-0020	Preliminary Event Notification

WWMF has an effective Operations Program that meets or exceeds all applicable regulatory requirements and related objectives. The program ensures that the operation of the WWMF is safe and secure, with adequate regard for health, safety, security, radiation and environmental protection, and international obligations.

NSS operates and manages the WWMF, a Nuclear Class 1B facility, in accordance with the facility licensing basis and applicable standards, as outlined in the Nuclear Waste Management Program, W-PROG-WM-0001. NSS has direct responsibility for safe handling, movement, processing, storage and monitoring of all nuclear waste in its care. Procedures are utilized for all aspects of the operations, including safety related activities, plant and equipment operation and maintenance, work authorizations, equipment labelling, facility access, and plant status.

2.3.1 Conduct of Licensed Activity

W-PROG-WM-0001, *Nuclear Waste Management,* implements a series of standards and procedures to ensure that WWMF is operated safely and reliably. The program establishes safe, uniform, and efficient operating practices and processes that provide nuclear professionals with the ability to ensure the facility is operated in such a manner that the WFOL, the Operating Policies and Principles, and other applicable regulations and standards are followed. It also supports the alignment and

prioritization of equipment maintenance in a manner that protects the health and safety of workers, the public and the environment.

2.3.1.1 Conduct of Operations

Operation practices at the WWMF are implemented by specific WWMF operation governance and select nuclear operation procedures for the safe and reliable operation of its waste facilities. W-PROG-WM-0001 identifies the Nuclear and Nuclear Waste Management governance utilized by NSS for the safe and reliable operation of its waste facilities.

The operating limits and conditions for the WWMF are identified in W-SR-01320-00001, *Western Waste Management Facility Safety Report*, and W-OPP-01911.1-00001, *Operating Policies and Principles, Western Waste Management Facility and Radioactive Waste Operations Site-1.*

2.3.1.2 Work Protection

N-PROG-MA-0015, *Work Protection* describes requirements that are in place within OPG Nuclear to isolate and de-energize equipment to ensure worker safety. These isolation and de-energization requirements are known as "Work Protection". The program includes a description of management processes, existing corporate governance that further operationalizes this program, and roles and responsibilities that are in place to ensure worker safety where work on equipment requires isolation and de-energization.

Worker safety is achieved through the effective application of a work protection standard and procedures to ensure physical and administrative barriers are established between the energy source and the worker. Work Protection establishes safe conditions for work by creating a Safe Work Area to ensure complete isolation and de-energization of isolated equipment.

Operations Managers own the Work Protection program at the site and provide oversight through the NSS Local Work Protection Review Board, a monthly forum to provide oversight of the Work Protection performance at the Site and it is an opportunity to raise any work protection issues at the NSS sites.

2.3.1.3 Current Operations

Classifications of Radioactive Waste

During the operation of a nuclear facility, waste is produced much like any other industry. Some of this waste becomes radioactive and must be handled using special procedures. OPG categorizes the radioactive waste into low, intermediate and high-level waste.

- **Low-Level Radioactive Waste (LLW)** is radioactive waste having a dose rate less than 10 mSv/h (1 rem/h) at 30 cm. LLW consists of minimally radioactive material that has become contaminated during routine cleanup and maintenance and includes (but is not limited to) lightly contaminated metal objects and parts, incinerator ash, insulation, drummed wastes, solidified liquids and desiccant. These items make up about 95% of the total non-fuel waste volume. LLW is received at the WVRB at the WWMF where it is either processed through incineration or compaction to reduce its volume, or it is stored as is.
- **Intermediate-Level Radioactive Waste (ILW)** is radioactive waste having a dose rate greater than or equal to 10 mSv/h (1 rem/h) at 30 cm. ILW consists primarily of used reactor core components, ion exchange columns, resins, and filters used to keep the reactor water system clean. ILW is more radioactive than LLW and requires shielding to protect workers during handling. This waste makes up about 5% of the total volume of non-fuel waste produced by the NGSs.
- **High Level Radioactive Waste** (also referred to as irradiated fuel or used fuel) is defined as a Canada Deuterium Uranium (CANDU) fuel bundle that was irradiated in a reactor core. It is stored at the nuclear station in irradiated fuel bays for a period of typically ten years or more, and then transferred into dry storage containers (DSCs) for interim storage at the Used Fuel Dry Storage Facility (UFDSF).

Management of Low and Intermediate Level Waste

Figure 10 shows the flow of radioactive waste starting from generation at a nuclear facility through to packaging and transportation, processing and interim storage at WWMF, to ultimate disposal. This licence application pertains only to the section related to the processing and interim storage under the WWMF Waste Facility Operating Licence. The three areas shaded in gray: Generation, Packaging and Transportation, and Disposal are briefly described here for context, but are outside the scope of this licence application.

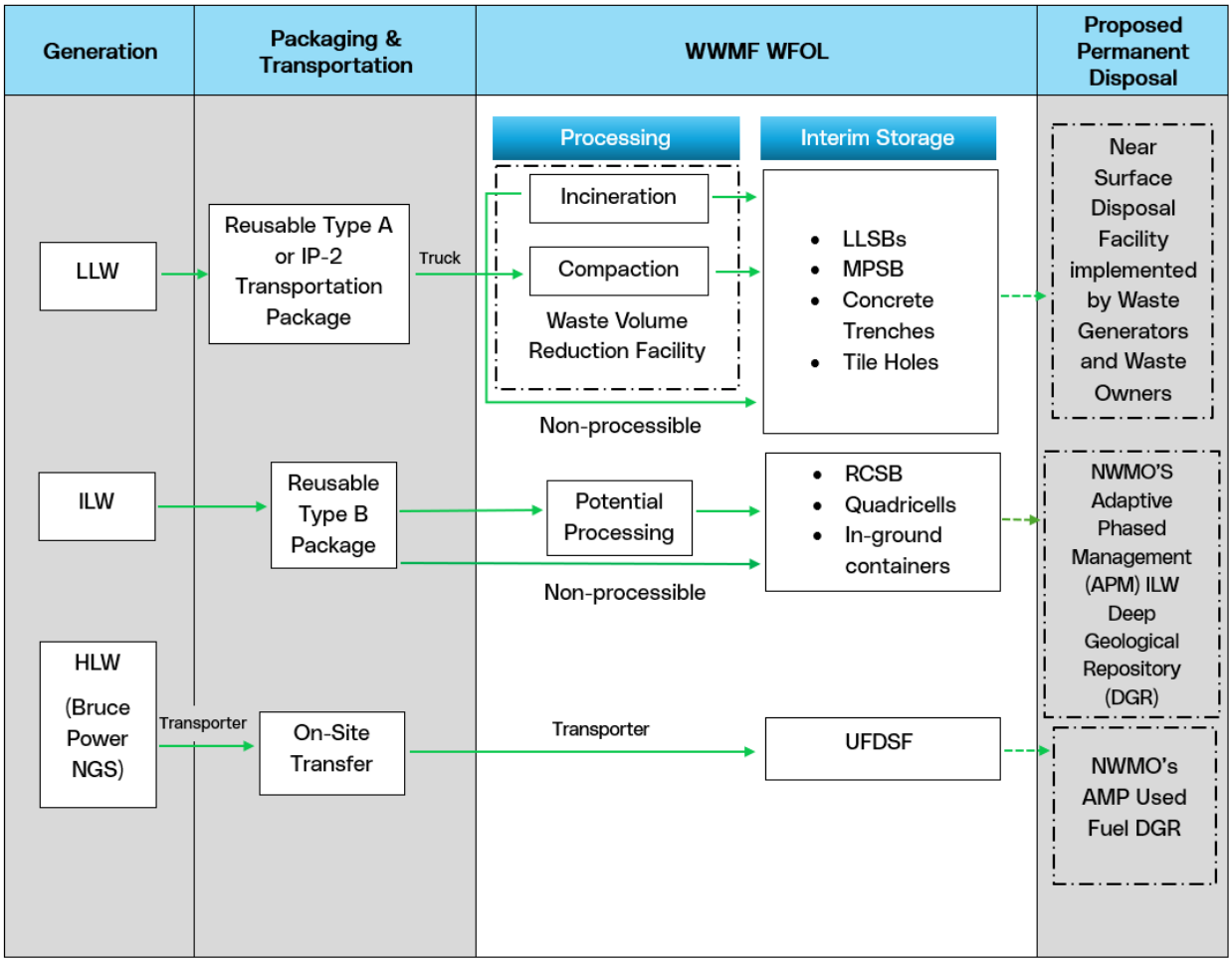


Figure 10: Management of L&ILW and Used Fuel

Generation of L&ILW

During normal operations involving radioactive work at the nuclear facilities, solid waste (e.g. protective clothing, cleaning material, bags, containers, etc.) is generated which becomes contaminated with radionuclides. L&ILW is collected from waste receptacles throughout the stations. The Active Waste Program provides three receptacles for this waste: Active, Active Metal and Likely Clean.

Active waste is checked for tritium and gamma; that information is then transferred onto a Radioactive Material Tag, which is attached the radioactive waste bag. The radioactive waste bag is then segregated either into an incinerable, compactable or non-processible shipping container, then shipped to WWMF for processing.

Active metal bags are checked for tritium and gamma; that information is then transferred onto a Radioactive Material Tag, which is attached to the bag or item. The

bag or item is then placed into a non-processible radioactive shipping container and then shipped to WWMF for storage.

The Likely Clean waste is monitored for tritium, alpha, beta, and gamma emitters. If it is determined that the waste is radioactive, it is monitored and transported off-site as active waste for processing at the WWMF. Non-radioactive or radioactive material below the acceptance criteria and in accordance with the Nuclear Substance and Radiation Devices Regulations is sent for disposal at licensed landfills.

Processing of L&ILW at WWMF

Processing of radioactive waste is a licensed activity under the WWMF licence. LLW that is generated at the nuclear facilities is segregated at the source into processible (for incineration or compaction) or non-processible wastes prior to being transported to the WWMF. All incoming L&ILW received at the WWMF must meet the waste acceptance criteria.

For processible wastes, volume reduction involves processing waste into a smaller volume, either through incineration or compaction, to reduce the handling and storage requirements, and to minimize future disposal needs. About 60% of all LLW sent to the WWMF is either incinerated or compacted at the WVRB. Non-processible LLW received at the WWMF is further sorted prior to it being sent to an LLSB for interim storage.

ILW is packaged in Type B transportation packages or disposal ready waste containers, transported to WWMF and sent directly to an above ground storage building, or an in-ground structure for interim storage.

Figure 11 below shows the volume of L&ILW received each year and the amount processed at the L&ILW Storage Facility since 2016. Between the years 2017 and 2024, NSS engaged third party licensed vendors' support for LLW storage. The figure displays the volume of waste received directly to WWMF and the total volume received to all storage locations.

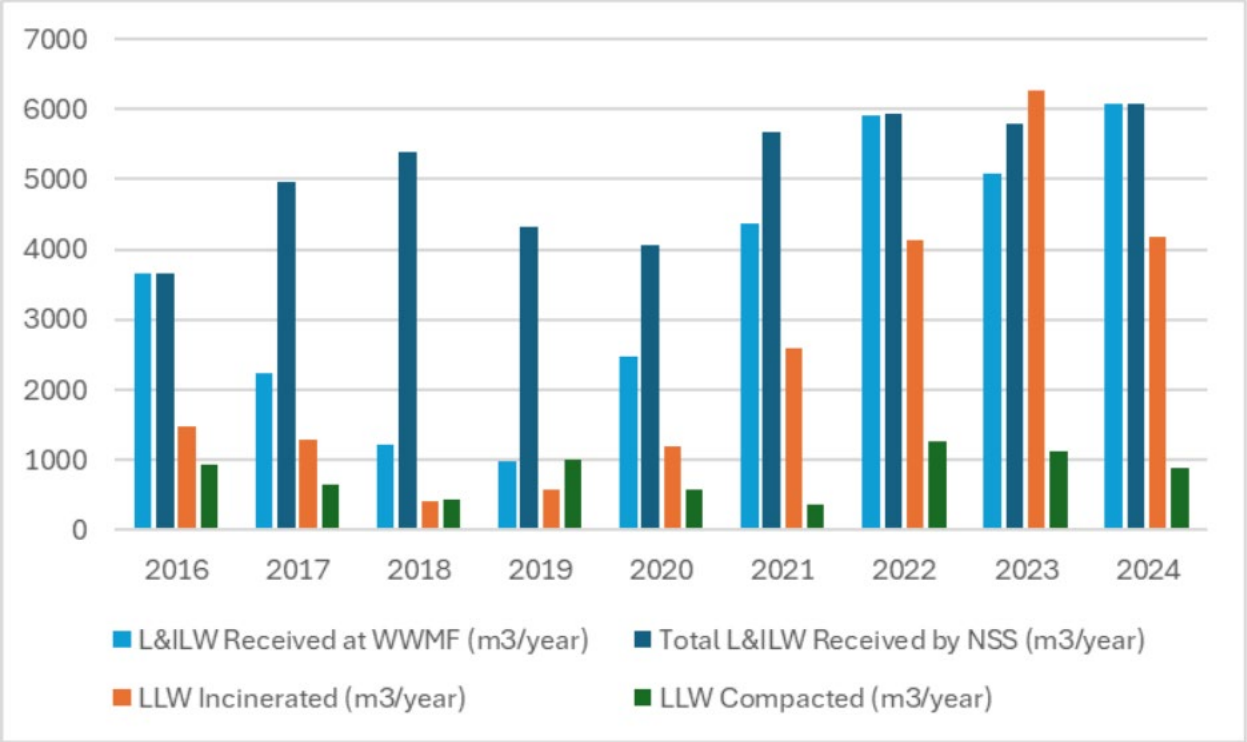


Figure 11: Volume of L&ILW Received and Processed Each Year

From 2016 to 2024, the Darlington Refurbishment and Bruce Power Major Component Replacement (MCR) projects contributed to higher than normal L&ILW volumes received by NSS.

NSS engaged third party vendor support for LLW incineration from 2021 to 2024. LLW incinerated volumes include both on-site and off-site incineration.

The following results were achieved over the period from 2016 to 2024:

- Remediation of Trench 3-2 - Coating repairs were made to trench 3-2 during the fall of 2017 to prevent water ingress. Drums were removed from the trench and placed in drum bins for storage in an alternate location.
- Linear Heat Detection Upgrade in LLSBs - Linear Heat Detection (LHD) is used in the LLSBs for fire detection. The upgrade to LHD provided higher reliability due to its wider operating range for environmental conditions.

All waste going into any LLSB has a lid.

- FHA recommendations were implemented, including
    - LLSBs - It is recommended that waste oil storage be limited to one of the LLSBs (#1, 2, 3, 9 or 10) on the west side and one of the LLSBs (#11, 12, 13, or 14) on the east side; and
    - WVRB/TPMB/WUFDSF (SB 1-6) - It is recommended that only the Transport and Work Equipment (TWE) associated with the operation of each building should be stored within the building.

    The recommendations were implemented as confirmed by OPG correspondence letter CD# W-CORR-00531-01907.
- LLW Sorting and Repackaging Program was formalized from the 2014 Pilot project.
- Western Clean Energy Sorting and Recycling facility in-service in 2023 efficiently sorts waste which allows the WWMF to redirect waste for more efficient volume reduction
- Waste Tracking System Upgrade – The Integrated Waste Tracking System, which is used to track all low- and intermediate-level waste received and stored at the WWMF, was replaced by eMWaste in 2017.

2.3.1.5 Incinerator Performance

In 2018, the incinerator underwent a refurbishment project that installed 14 modifications to introduce redundancy for ease of maintenance, improve availability, and resolve known system deficiencies. Following the completion of these 14 modifications, the annual volume reduction nearly doubled while maintaining compliance to all emissions requirements.

Throughout this licence period, priority has been placed on aging management and equipment reliability. Critical components were replaced including the baghouse and the refractory in the primary and secondary combustion chambers. Inspection hatches are currently being installed on the spray cooler and baghouse to facilitate improved access for inspections. Additional performance improvement initiatives have been undertaken including the procurement of critical spares in order to reduce forced production loss.

Air emissions from the incinerator are continuously monitored to ensure optimal waste combustion and emissions treatment is being achieved. The entire continuous emission monitoring system was replaced during an incinerator outage that lasted from March 2018 to February 2019; the new continuous emission monitoring system was successfully commissioned between April and June 2019. Stack testing was completed during the reporting period as required. The incinerator continues to perform very well environmentally, emitting well below the limits set for parameters such as dioxins/furans, metals, and particulates.

2.3.1.6 Management of High Level (Used Fuel) Waste

Used Fuel Dry Storage Processing

Figure 12 shows the structure of a DSC. The processing of a DSC begins with the preparation of new DSCs at the DSC processing building and ends with the storage of loaded, hermetically sealed DSCs in storage buildings for used fuel.

The process begins with the receipt and preparation of new, empty DSCs at the DSC processing building, followed by their transfer to Bruce Power NGS for loading with used fuel. After loading, decontamination, draining, and initial drying at Bruce Power NGS, the loaded DSCs are surveyed to ensure compliance with OPG's waste acceptance criteria, then transported via secure onsite vehicles to the WWMF. At WWMF, the DSCs undergo further processing, including lid seal welding, weld inspections, final vacuum drying, helium backfilling, leak testing, decontamination, and paint touch-up. Once all inspections are completed, the DSCs are labeled, sealed, and finally moved to a designated storage location within the Used Fuel Dry Storage Building for long-term storage. The steps are summarized in figure 13.

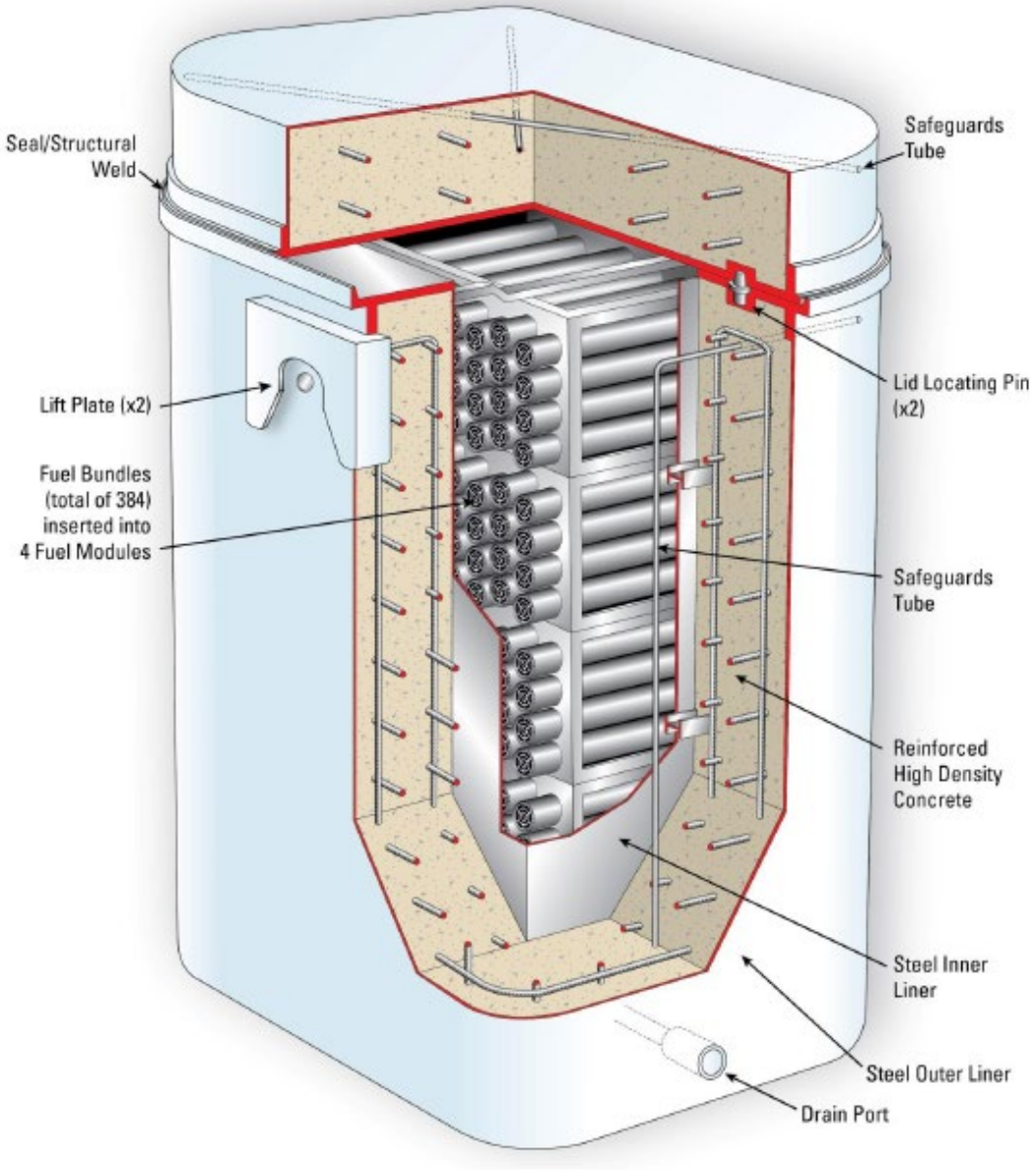


Figure 12: Dry Storage Container (DSC)

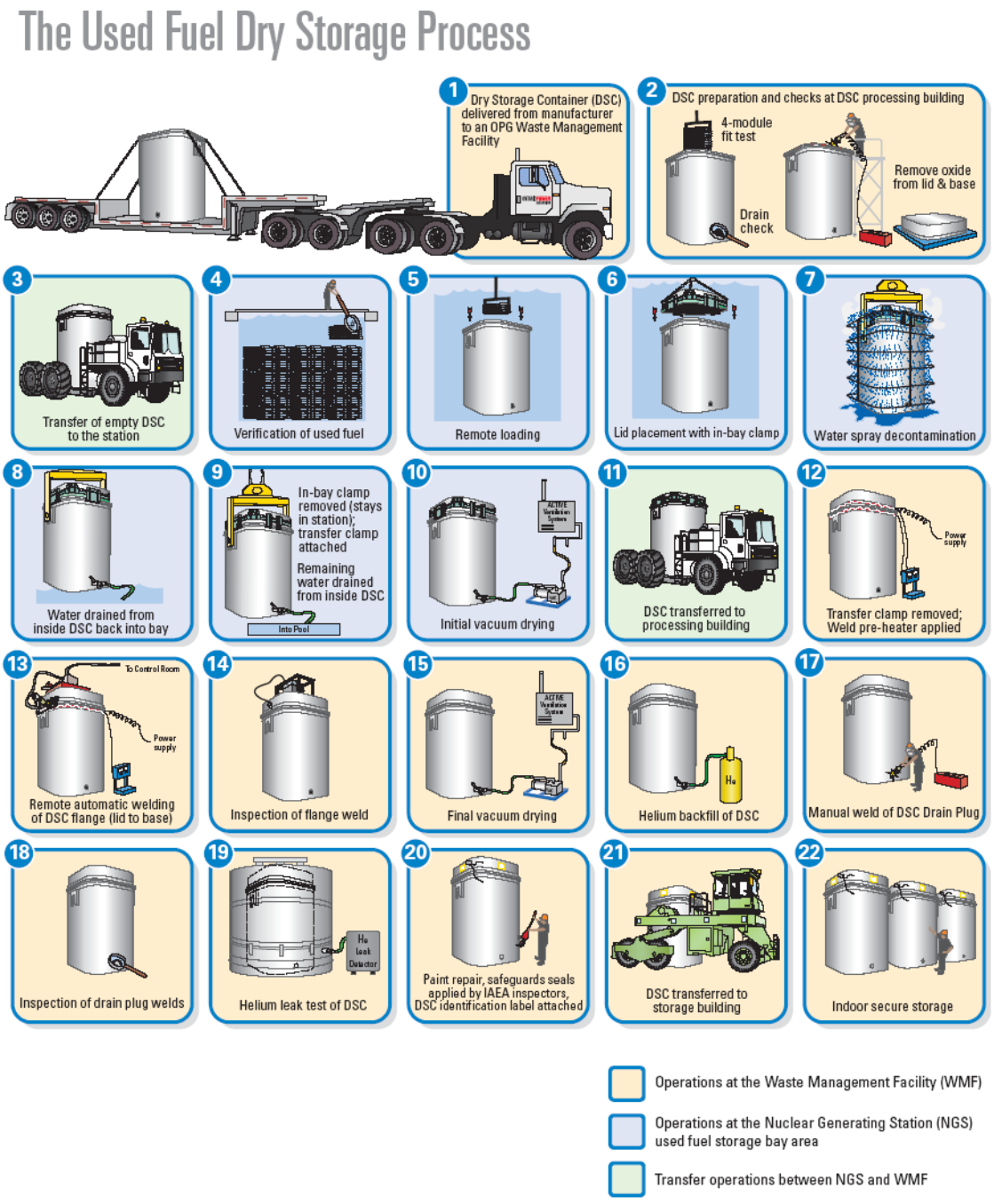


Figure 13: Used Fuel Dry Storage Process

To ensure adequate space in the irradiated fuel bays at the Bruce Power NGS, the UFDSF at WWMF operates safely and reliably to transfer, process, and store DSCs from the Bruce Power NGS in a timely manner until a long-term management facility becomes available.

2.3.1.7 Current Operations for Used Fuel

In this licence period, the safety performance of the WWMF used fuel processing and storage facilities has been excellent while meeting all production targets.

The following results were achieved over the period from 2016 to 2024:

- The annual rate of DSCs being placed into storage at the WWMF is expected to remain up to 130 DSCs per year. This is based on Bruce Power operating 8 units.
- The installation of new updated security equipment.
- There are two new generation DSC Transporter vehicles (the Gen IV) which are in operation at WWMF.
- Used Fuel Dry Storage Building (UFDSB) 5 and 6 were placed into service.

Table 19: Number of DSCs Received at WWMF this Licence period

Year	Number of DSCs Received at WWMF this licence period
2017	112
2018	106
2019	108
2020	110
2021	115
2022	115
2023	113
2024	115
TOTAL	896

2.3.1.8 Planned Improvements

The following future improvements are planned for WWMF:

- Construction of UFDSB 7 and 8, with an estimated nominal capacity of 1000 DSCs and an anticipated in-service date of 2029.
- Construction of UFDSB 9 and 10, with an estimated nominal capacity of 1000 DSCs and an anticipated in-service date of 2038.

- Construction of IC-18 Batch 7 consisting of 54 IC-18s, planned to be in-service date in 2027.
- Change in DSC lid to base welding process to gain efficiencies (the DSC design change is described in Section 2.6).
- Development and procurement of a new DSC welding machine technology, to assist with efficiencies and parts obsolescence.
- Large Object Processing as described in section 1.5.
- Incinerator replacement or refurbishment, including primary/secondary combustion chamber refractory replacement, flue gas ducting section replacement and stack replacement.
- Upgrades to the Public Address system across the site.

2.3.2 Procedures

Clear, concise, and accurate procedures are essential for safe operation and for efficient and adequate response to transient situations. WWMF's operating procedures are developed and revised using defined processes to ensure compliance with operational limits and regulatory requirements, incorporating human performance and error-prevention tools such as second-party verification and place-keeping.

2.3.3 Reporting and Trending

OPG provides scheduled and unscheduled reports for the WWMF to CNSC staff in accordance with CNSC REGDOC-3.1.2*, Reporting Requirements, Volume 1: Non-Power Reactor Class I Facilities and Uranium Mines and Mills*, and Licence Condition 3.2 of the WFOL. Throughout the current licence period, OPG submitted all required scheduled and unscheduled reports, and there were no significant events that affected the conduct of licensed activities at WWMF.

OPG meets reporting requirements by adhering to the following governance documents, which are a part of the management system per CSA N286-12, *Management system requirements for nuclear facilities*:

- N-PROC-RA-0020, *Preliminary Event Notification*, identifies the process by which preliminary notification requirements to facility and off-site organizations, management, and external officials and agencies are made after an event has occurred.
- N-PROC-RA-0022, *Processing Station Condition Records*, includes instructions on how adverse conditions are documented and reported, and outlines the process for effective evaluation, resolution, and trending of the adverse conditions. Adverse conditions typically have some level of risk-significance associated with them taking into consideration any actual or potential impacts on operability or whether it is reportable.

- N-PROG-RA-0003, *Performance Improvement*, establishes the processes that support the conduct of performance improvement and, by extension, employs the principles of problem prevention, detection, and correction at OPG Nuclear.

The implementing processes under this program allow for the prompt identification of adverse conditions, proactive identification and resolution of potential issues, or opportunities for improvement. Non-conformances, deficiencies, and adverse conditions must be promptly identified to prevent impact on facility operations, personnel, nuclear safety, the environment, or equipment and component reliability. These processes ensure that problems are corrected or dispositioned with a level of rigour commensurate with their risk significance. For those problems deemed to be of higher significance or systemic in nature, these processes ensure appropriate levels of management are notified, causes identified, actions taken to minimize or prevent recurrence, action completion and effectiveness verified, and lessons learned communicated.

2.4 Safety Analysis

2.4.1 General Considerations

OPG Nuclear Waste safety analysis is performed under the OPG Reactor Safety Program. The objective of the Reactor Safety Program is to define the organizational responsibilities and key program elements for the management of issues related to nuclear safety analysis. Specifically, as it relates to nuclear waste management, the program provides a basis for the performance of nuclear safety analysis and outlines the governing documents that define the processes associated with maintaining the safety analysis and safety reports supporting the operation of Nuclear Waste Facilities.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.01/2027-R003:

Table 20: SCA 4 – WWMF Safety Analysis

Document Number	Document Title
N-PROG-MP-0014	Reactor Safety Program
W-SR-01320-00001	Western Waste Management Facility – Safety Report

Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards. It evaluates the risk and consequences of normal, abnormal and accident conditions to ensure that the facility does not pose an unacceptable risk to workers or the public.

The objectives of a safety analysis are to:

- state the safety goals, objectives, and acceptance criteria (the safety requirements) that the facility is designed to meet;
- demonstrate that the safety goals, objectives, and acceptance criteria are met;
- derive or confirm operational limits and conditions that are consistent with the design and safety requirements of the facility;
- identify the systems, structures, and components important to safety (that is, the SSCs that are relied upon for the safety of the facility); and
- provide results for use in establishing and validating operating and emergency procedures and guidelines.

To assess the overall safety of the operation of WWMF storage buildings and structures, deterministic safety analyses are used. Computational tools are used for the dose consequence calculations when required. Bounding (worst-case) accident

scenarios are conservatively identified, and the results of off-site dose consequence calculations are then compared against the regulatory dose limits.

The Nuclear Waste specific safety analysis process is governed by N-PROG-MP-0014, *Reactor Safety Program.* The objective of N-PROG-MP-0014 is to define the organizational responsibilities and key program elements for the management of issues related to nuclear safety analysis. Specifically, as it relates to nuclear waste management, the program provides a basis for the performance of nuclear safety analysis and outlines the governing documents that define the processes associated with maintaining the safety analysis and safety reports supporting the operation of Nuclear Waste Facilities. Results of safety analysis are presented in each nuclear waste facility safety report, which also provides an overview of the facility design and operations. The WWMF safety report demonstrates that dose rates and emissions from the WWMF under normal operations and under credible abnormal events are acceptable, and operation of the facility continues to pose an acceptably low risk to the public, the workers, and the environment.

2.4.2 Results

2.4.2.1 Criticality

Criticality assessments have been completed for the used fuel stored in DSCs at the WWMF. Consistent with expectations for irradiated natural uranium fuel, the analyses and assessments have demonstrated significant sub-criticality margin with no likelihood for criticality of used CANDU fuel. Used fuel stored in DSCs cannot achieve criticality under normal conditions or under any postulated credible abnormal event at the WWMF.

2.4.3 Safety Assessment Results for WWMF Structures

2.4.3.1 Low and Intermediate Waste Structures – Safety Assessment of Normal Operating Conditions

Waste structures are designed and constructed such that dose rate targets at exterior surfaces of the structures, at facility fences and at site boundaries are achieved. Shielding analysis is performed to estimate dose rates outside of waste storage structures to confirm operation of the structures will be acceptable. Routine emissions are monitored and shown to be within facility targets, resulting in minimal doses to the public, well below regulatory limits.

2.4.3.2 Low and Intermediate Waste Structures – Safety Assessment of Credible Abnormal Events

Worst case bounding credible abnormal events are identified for each storage structure type, specific to the activity or type of waste stored in the facility. For example, a seismic event that impacts all waste structures has been identified as the worst case credible abnormal event that could lead to the maximum radioactive

release from the site. For all credible abnormal events considered, radiation doses to both workers and the public are predicted to be within acceptance criteria and well below the regulatory dose limits.

2.4.3.3 Used Fuel Dry Storage – Safety Assessment of Normal Operating Conditions

Shielding analysis is performed to predict dose rates from individual DSCs, both inside and outside of the used fuel dry storage buildings. Dose rates external to the buildings are determined for workers on site and for members of the public off site. In all cases, assuming storage buildings are filled to capacity, predicted dose rates are well below the regulatory limits. Predicted dose at the site boundary and for the nearest resident are estimated to be below acceptance criteria and accordingly are well below the regulatory public dose limit of 1 mSv/year.

2.4.3.4 Used Fuel Dry Storage – Safety Assessment of Credible Abnormal Events

The assessment of credible abnormal events considered the following main stages of the out-of-station used fuel dry storage operations:

- On-site DSC transfer operations;
- Operations inside the DSC processing building; and
- DSC Storage.

Each potential event was screened to establish if it could result in any radiological impact to the public and/or workers. Common-mode incidents such as seismic events, flooding, etc. were also considered. Design provisions and procedural measures that could prevent the event or mitigate its consequences were also considered/evaluated.

Although very unlikely, for on-site transfer, processing, and storage of DSCs (e.g. welding, inspecting, testing, sealing and moving to storage), the bounding credible abnormal event was identified to be a drop of the DSC, with subsequent 100% fuel sheath failures and subsequent release of radionuclides. The total doses to the public at the Bruce site boundary (750 m from WWMF) and the occupational doses due to this event were assessed to be acceptable and well below the regulatory dose limits.

2.4.4 Safety Report

The WWMF safety report is updated at least every 5 years in accordance with the WWMF Licence Conditions Handbook, supporting Licence Condition 4.1. The updates reflect changes in site layout, operational experience and information supporting the assumptions made in the assessments. The safety report update process encompasses the systematic identification of safety issues, their prioritization, their resolution, and the physical updates of the safety report.

The current version of the WWMF safety report was submitted to CNSC staff in 2022 and accepted by CNSC staff in 2024.

OPG's waste management safety analysis program is compliant with the following CSA standards:

- N292.0-19, *General Principles for the Management of Radioactive Waste and Irradiated Fuel*
- N292.3-14, *Management of Low and Intermediate Level Radioactive Waste*
- N292.4-23, *Storage of Radioactive Waste and Irradiated Fuel*
- N286.7-16, *Quality Assurance of Analytical, Scientific, and Design Computer Programs*

The WWMF Safety Report will be updated in 2027 and will incorporate CNSC REGDOC-2.4.4, *Safety Analysis for Class 1B Nuclear Facilities* requirements as communicated in W-CORR-00531-02004.

2.4.5 Future Plans and Improvements

The methodology for performing safety assessments is routinely assessed and updated for the methodology to be as up-to-date and accurate as possible.

Any facility improvements that are completed will be reflected in the safety report updates, after the facility improvements are implemented.

2.4.5.1 Support for Additional Structures

Safety analysis will be completed, prior to implementation, for additional structures listed in the WWMF operating licence demonstrating that the design and operation of these structures will not result in consequences that exceed the acceptance criteria listed in the facility Safety Report.

2.4.5.2 Safety Analysis Update

Facility safety analyses are reviewed and updated as necessary prior to safety report updates, to confirm that facility operations will not result in any unacceptable radiological consequences to the health and safety of the workers and the public, under normal operating conditions and under credible abnormal events.

2.5 Physical Design

The WWMF has an effective program to maintain its design basis which meets or exceeds all applicable regulatory requirements and related objectives. The program ensures that structures, systems, components and software meet and maintain their design basis given new information arising over time and taking changes in the external environment into account.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 21: SCA 5 - Physical Design

Document Number	Document Title
N-STD-MP-0028	Conduct of Engineering
N-STD-MP-0027	Configuration Management
N-PROG-MP-0009	Design Management
N-PROG-MP-0001	Engineering Change Control
N-PROG-MP-0004	Pressure Boundary
N-PROC-MP-0082	Design Registration
N-PROC-MP-0040	System and Item Classification
N-LIST-00531-10003	Index to OPG Pressure Boundary Program Elements
N-MAN-01913.11-10000	Pressure Boundary Program Manual
N-CORR-00531-20012	Authorized Inspection Agency for Pressure Boundary Inspection and Registration Services

2.5.1 Design Governance

Management of the design basis at the WWMF is governed by the OPG Nuclear Design Program as described below. The WWMF design will comply with the following codes and standards:

- NRC, National Research Council of Canada NBCC (2020), National Building Code of Canada;
- NRC NFCC (2020), National Fire Code of Canada;
- American Society of Mechanical Engineers (ASME) B31.1 (2022) Power Piping;
- CSA B51 (2019) Boiler, pressure vessel and pressure piping code;
- CSA N285.0 (2022) General requirements for pressure-retaining systems and components for CANDU nuclear power plants/Material Standards for reactor components for CANDU nuclear power plants;
- NFPA-20 (2010), Standard for the Installation of Stationary Pumps for Fire Protection;

- NFPA-24 (2010), Standard for the Installation of Private Fire Service Mains and their Appurtenances; and
- CSA N393-22 (2022) Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances.

As communicated to CNSC staff per W-CORR-00531-01928, the WWMF will be compliant with NBCC 2020 and NFCC 2020 by December 19, 2025.

OPG's design program satisfies the requirements of CSA N286-12, *Management system requirements for nuclear facilities* as defined in N-CHAR-AS-0002, *Nuclear Management System*. The program ensures that SSCs of facilities operate safely, reliably, and effectively, and are consistent with the design basis, safety analysis and quality control measures. The program also provides assurance that all design activities and their resulting documentation are controlled in a manner consistent with the plant's licensing basis.

N-PROG-MP-0009, *Design Management,* which receives its authority from N-CHAR-AS-0002, sets the overall requirement for execution and control of activities that provide design support and documentation for the nuclear facility. This program complies with CSA N286-12 and CSA N285.0-08 (and update no. 2), *General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plant*s. The program defines the minimum set of documentation that identifies and describes the design basis, design outputs, design processes, and the procurement engineering process ensuring implementation and maintenance of the physical nuclear facilities to meet the design basis requirements. The following governance documents receive their authority from N-PROG-MP-0009.

- N-PROC-MP-0040, *System and Item Classification,* defines the requirement and process to be followed for code classification of pressure retaining systems in OPG Nuclear.
- N-PROC-MP-0082, *Design Registration*, defines the requirement and process to be followed for design registration of pressure boundary and legacy pressure boundary systems. Refer to Section 2.5.5.1 for further details on pressure-retaining SSCs.
- N-STD-MP-0028, *Conduct of Engineering*, provides a framework for performing engineering activities in a consistent manner across OPG Nuclear.

N-PROG-MP-0001, *Engineering Change Control,* which receives its authority from N-CHAR-AS-0002, sets the overall requirement for modifications to the nuclear facility. The Engineering Change Control (ECC) program ensures design changes to each OPG Nuclear facility (including SSCs; software; and engineered tooling) are planned, designed, installed, commissioned, and placed into or removed from service such that the facility configuration is managed and remains within the Safe Operating Envelope or safety and design envelope, design basis, and licensing conditions. This program

complies with CSA standards N285.0 and N286-12. This program ensures all steps of a modification are properly assessed, analyzed, and evaluated including identifying the problem statement, determining requirements and risk level, design, review by stakeholders, installation, commissioning and close-out.

N-PROC-MP-0090, *Engineering Change Control Process*, which receives its authority from N-PROG-MP-0001, defines the process to be followed for all changes to the OPG Nuclear design basis, including modifications to, removal of, or abandonment of any SSC, software, or engineered tooling designs.

N-STD-MP-0027, *Configuration Management,* which receives its authority from N-PROG-AS-0001, *Nuclear Management System Administration*, ensures that OPG nuclear facilities are operated, maintained, and modified in conformance with their design basis and licensing basis. During all life-cycle phases of the ECC process, it is ensured that constructability, operability, maintainability, and safety issues are identified and incorporated into the design requirements of nuclear design projects and modifications.

N-PROG-MP-0006, *Software*, which receives its authority from N-CHAR-AS-0002, identifies the process and overall requirements for an effective software program. Modifications and design changes involving software comply with CSA N286.7-16, *Quality assurance of analytical, scientific, and design computer programs for nuclear power plants* to ensure software changes support safe and efficient plant operation. The software program identifies the processes and overall requirements for classification of software and identifies governing standards for each software classification defining requirements for software development, maintenance, procurement, qualification, use and retirement.

Any modification which may affect the IAEA monitoring systems or equipment, is reviewed to ensure the changes do not impact compliance with the safeguards agreements. This includes but is not limited to, potential obstruction of fields of view for the IAEA equipment or impact to the power supplies for IAEA equipment.

NSS has adopted the standard OPG Nuclear fleet metrics for physical design. The current suite of metrics includes measures of the health of the ECC process within NSS. The quality of design products is monitored using recorded verification results and cold-body design review boards within NSS. A monthly report card is used to record and track performance and to ensure that corrective actions are being taken to address any weaknesses or deficiencies that are observed.

The Nuclear Waste Engineering and Design Authority Senior Manager from the NSS Design Engineering department oversees the physical design SCA requirements and maintains the facility design basis to ensure that systems remain in compliance with applicable standards, codes and licence conditions. As the Design Authority for NSS, this department specifies design requirements and authorizes design modifications

to SSCs to ensure that all changes are within the Safe Operating Envelope, design basis, and licence conditions as per the WFOL.

2.5.2 Site Characterization and Facility Design

The WWMF site is described in Section 1.1.

The description of the systems and equipment at WWMF, including the system objectives, functional and performance requirements, interfacing systems, and design and operating conditions are provided in the following documents:

- Safety Report, W-SR-01320-00001
- Design Manuals
- System Design drawings

2.5.3 Structure Design

WWMF Site contains the following buildings and structures:

Table 22: Chronology of Development for L&ILW at WWMF

Structure/Building	Units	Number/ Capacity	In-Service Date
Above-ground Structure or Building			
Low Level Storage Buildings	1	7,050 m^3	Oct 1982
	2	7,050 m^3	Dec 1985
	3	7,050 m^3	Mar 1988
	4	7,050 m^3	Jun 1989
	5	7,050 m^3	Jun 1989
	6	7,050 m^3	Nov 1992
	7	7,050 m^3	Dec 1999
	8	7,050 m^3	May 2002
	9	7,050 m^3	Dec 2004
	10	7,050 m^3	Jan 2007
	11	7,000 m^3	May 2009
	12	7,000 m^3	Sep 2011
	13	7,000 m^3	Jul 2013
	14	7,000 m^3	Jul 2013
Retube Component Storage Buildings	1	298 RWC	Jan 2007
	2	240 RWC	Dec 2025
Multi-Purpose Storage Building	1	64 SGs	Sep 2025
Quadricells		360 m^3	Oct 1978

Contaminated Tool Storage Area		4,700 m^3	Sep 1990
In-ground Storage Structures			
Trenches	Stage 1	2,080 m^3	Dec 1974
	Stage 3	1,440 m^3	Mar 1976
	Stage 3E	2,350 m^3	May 1979
Tile Holes	Stage 1	80 m^3	Mar 1974
	Stage 3	144 m^3	Jun 1977
In-Ground Containers	Type (#)		
	IC-2 (20)	40 m^3	Dec 1985
	IC-12 (20)	240 m^3	Mar 1987
	IC-18 (8)	144 m^3	Jun 1989
	IC-18 (32)	576 m^3	Dec 1990
	IC-18 (54)	972 m^3	Oct 1993
	IC-18 (50)	900 m^3	May 1997
	IC-18 (54)	972 m^3	Feb 2002
	IC-18 (54)	972 m^3	Jul 2013
	IC-18 (54)	972 m^3	Sep 2022
In-Ground Heat Exchanger Containers (IC-HX)	Area 1, Phase 1	23	1991
	Area 1, Phase 2	4	1993
	Area 1, Phase 3	10	1997
	Area 2, Phase 4	4	2002
Processing			
Waste Volume Reduction Building	n/a	n/a	1977
• Upgraded			2002
Radioactive Incinerator	n/a	n/a	1977 – 2001
• Replacement			2002
Box Compactor	n/a	n/a	
• B-400			1993 – 2010
• B-1000			2011
Other			
Amenities Building	n/a	n/a	Dec 2001
TPMB	n/a	n/a	Dec 2004

Table 23: Chronology of Development for Used Fuel at WWMF

Building	Number	Capacity	In-Service Date
Processing Building			Oct 2002
Storage Building	1	500 DSCs (nominal)	Oct 2002
	2	500 DSCs (nominal)	Dec 2007
	3	500 DSCs (nominal)	Dec 2012
	4	500 DSCs (nominal)	Dec 2012
	5	500 DSCs (nominal)	Apr 2022
	6	500 DSCs (nominal)	Apr 2022

2.5.3.1 Facilities for Processing LLW at WWMF

The WWMF has facilities for processing LLW into smaller volumes, through either incineration or compaction, to reduce the handling and storage requirements, and to minimize future disposal needs. The Waste Acceptance Criteria, W-PROC-WM-0025, specifies the types of waste that can be incinerated or compacted at the WWMF.

Incinerable waste are volume-reduced in a controlled air incinerator. It provides a high-volume reduction factor, on average 37:1, and produces a stable waste material in the form of ash. The ash is discharged into 2.5 m^3 rectangular metal containers, and the ash-filled containers are then sent to an LLSB for storage on site.

The high temperature exhaust gas stream from the incinerator is cooled using a spray cooler. Powdered hydrated lime is injected into the cooled exhaust gas stream to neutralize acid gases such as hydrogen chloride and sulphur dioxide. Activated carbon injected into the gas steam absorbs heavy metals and the unburned organic compounds to transfer them from gas phase to solid phase. The baghouse particulate filtration system then removes all solid phase materials from the gas stream. A small amount of ash is collected in the incinerator's baghouse filter which is collected in a separate ash bin that is sent to an LLSB for storage on site.

Air emissions from the incinerator are continuously monitored to ensure optimal waste combustion and emissions treatment is being achieved. The incinerator currently operates under an Ontario Ministry of Environment, Conservation and Parks amended Environmental Compliance Approval (ECA #5956-D8CJYL), dated March 25, 2025).

The box compactor compresses dry radioactive waste into stackable steel boxes that are approximately 2.5 m^3 in volume. The compressed waste is retained in the steel box by integral anti-spring back devices and a steel lid. This compaction process produces a net volume reduction factor of approximately 5:1. These stackable boxes

are then sent to an LLSB for storage on site. The box compactor has an internal ventilation system with filtered exhaust to the building active ventilation system, which is monitored for tritium, particulates and radioiodine.

About 60% of all LLW sent to the WWMF is either incinerated or compacted at the WWMF. Non-processible LLW received at the WWMF is further sorted prior to it being sent to an LLSB for interim storage. All storage containers for L&ILW are monitored and assigned unique bar-codes for waste tracking purposes.

2.5.3.2 Storage Facilities for L&ILW at WWMF

Since the WWMF began operation in 1974, there has been an evolution in storage structure designs to incorporate a smaller footprint, better efficiency and more robust designs. Initially all waste was placed in small capacity in-ground structures. The modular nature of the storage structures incorporated improvements in the design and construction techniques to be included in each evolution. All storage structures are designed to match the physical and radiological characteristics of the waste being stored in them.

2.5.3.3 Above-Ground Storage Buildings

As per table 22, there are 17 above-ground storage buildings for L&ILW located at WWMF, fourteen are used to accommodate low level waste, one is for steam generators from Bruce Power NGS, and two are for retube components from Bruce Power NGS.

2.5.3.4 Existing Low Level Storage Buildings

An above-ground LLSB is a warehouse-like building used to store LLW with contact radiation fields less than 10 mSv/h at 30 cm (figure 14 and figure 15). The approximate building dimensions are 50 m long by 30 m wide by 8 m high, and each building can store between 7,000 – 7,050 m^3 of waste, as per table 22.

LLSBs are constructed in accordance to the *National Building Code of Canada* and the *National Fire Code of Canada* in accordance with the licence requirements in place at the time. They are constructed using prefabricated, pre-stressed concrete panels, which are joined with an overlap to prevent any radiation streaming between the panels. The panels can be removed from the structure to allow for waste retrieval and dismantling of the storage structure. The concrete roofs of the LLSBs vary in thickness to meet radiation shielding requirements. The LLSB floor is constructed of poured concrete (figure 16).

The buildings are unheated and are provided with a gaseous carbon dioxide fire extinguishing or suppression system, fire detection system and internal fixed lighting. A geomembrane liner and water collection system is also provided directly below the LLSBs for floor and sub-floor drainage. The drainage lines are directed to a sump where water can be collected, sampled and, if necessary, treated prior to discharge.

The freestanding stackable steel containers for LLW are stacked to heights of 6 m (4 to 6 containers high) inside the LLSBs.

With CNSC approval, a Liquid Waste Area can be constructed within an LLSB to facilitate the storage of liquid waste. The Liquid Waste Area is isolated by way of a curbed dyke, and the dimensions can be altered to suit the volume of liquid waste that is stored. The curbed area is sealed with a plastic liner to contain any liquid that may leak or spill. Liquid waste such as waste oil is stored in suitable containers until it is incinerated.

Figure 14: Low Level Storage Building

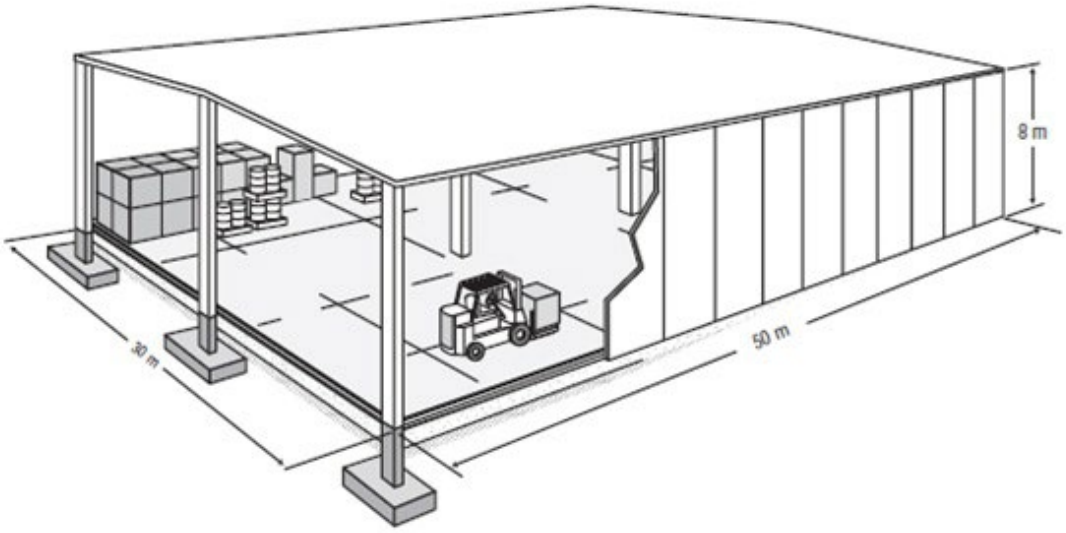


Figure 15: Cutaway of an LLSB

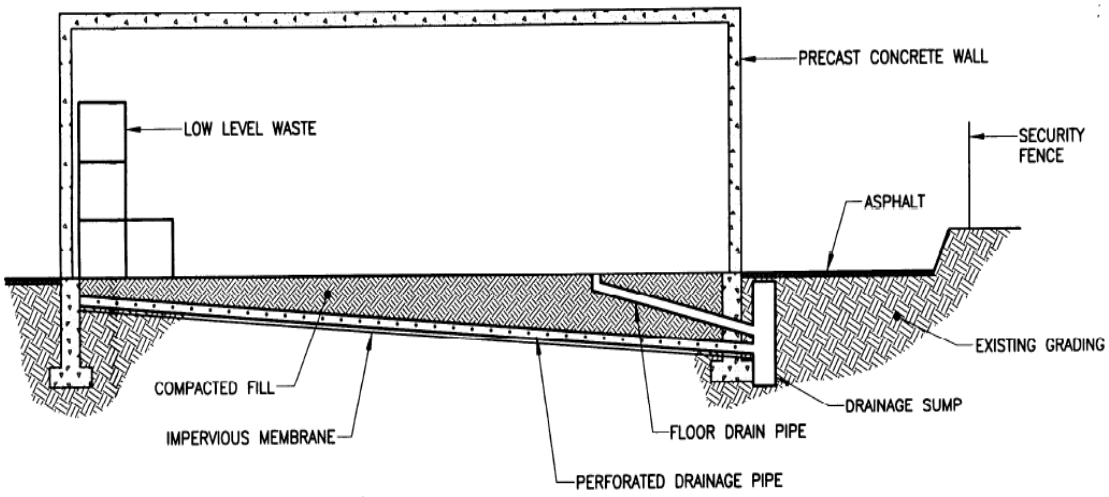


Figure 16: Typical LLSB Layout

2.5.3.5 Existing Steam Generator and Retube Waste Storage

The WWMF currently has one storage building to store steam generators, the MPSB, figure 18, and two storage buildings to store retube waste in RWCs from the refurbishment of Bruce Power NGS (figure 17). During the current licence period, the MPSB was constructed to store all steam generators (SGs) and then the existing Steam Generator Storage Building (SGSB) was converted to a RCSB to continue storing RWCs from Bruce Power. The design requirements of the retube waste storage buildings are generally the same as the low-level storage buildings described above. The MPSB is a fit-for-purpose storage structure whose requirements comply with the WFOL, its design minimizes construction and decommissioning effort while providing safe storage of the steam generators until they can be processed. The Fire Hazard Assessment considered the storage of metal components within metal containers and determined that a fire suppression system was not required for these buildings.

The available space within these structures will continue to be used to satisfy the waste arising from the Bruce Power Major Component Replacement program. Where practical, OPG will use any available space in these buildings to store other non-combustible low and intermediate level waste.

Figure 17: Retube Waste Container Storage at WWMF

Figure 18: Multi-Purpose Storage Building

Figure 19: Steam Generators inside MPSB

2.5.3.6 Quadricells

There are fifteen reinforced concrete quadricells at WWMF (figure 20). Quadricells are designed to store operational ILW e.g. spent resin liners. Each quadricell has a 24 m^3 storage capacity which provides a total storage of 360 m^3 of waste.

Thirteen quadricells are filled, and there have been no additions to the quadricells since 1989. Two quadricells remain empty as reserve. There are no plans to construct additional quadricells.

Figure 20: In-Ground Containers (foreground) and Quadricells (background)

2.5.3.7 In-Ground Containers

The design of in-ground containers has evolved from small capacity 1 m^3 precast concrete tile holes to large capacity 18 m^3 prefabricated in-ground steel liners. The early tile holes were constructed by digging a trench to the required depth, pouring a concrete slab, setting the sampling pipes, and then backfilling the area around the sampling pipes. Most of the tile holes are fitted with a retrievable steel liner into which the waste was placed. A subsurface drainage system is located at the base of the tile holes to prevent water from accumulating around the tile hole and to provide a means of detecting leakage. There are 224 tile holes in service and OPG has no plans to construct additional tile holes.

The "IC" series of in-ground containers have been used to store both low and intermediate level waste. The containers have storage capacities of 2 m^3 (IC-2), 12 m^3 (IC-12) and 18 m^3 (IC-18) with the majority of the containers being IC-18s (figure 20). There are currently 20 IC-2s, 20 IC-12s and 306 IC-18s on site. The IC-12s and IC-18s are designed to accept intermediate level waste, e.g. ion exchange (IX) resin containers.

Except for size, the main design features of the IC series of structures are similar (figure 21). Each structure has an outer carbon steel liner that is leak-tested before installation. The IC-18s can be fitted with different types of inserts to allow other wastes, such as reactor core components, to be stored.

There is an interspace between the waste package and the outer fixed liner. This interspace is sampled to detect possible water ingress by using a sampling pipe

attached to the exterior of the IC-18 liners. This pipe permits access to the space between the waste-packaging container and the IC-18 liner for periodic sampling and monitoring without removing the shielding cover. A pump can be lowered to the bottom of the IC-18 sampling pipe for water removal, if water is detected. Waste can be retrieved by directly lifting the waste packages out of the in-ground containers. directly lifting the waste packages out of the in-ground containers.

In the past, OPG stored waste heat exchanger tube bundles from moderator, primary heat transport and auxiliary systems in in-ground containers, known as IC-HXs. There are currently 41 in-ground containers for heat exchangers (IC-HXs) at WWMF, with the last one constructed in 2002. The diameter and depth of the augured holes can be altered to suit the various sized containers.

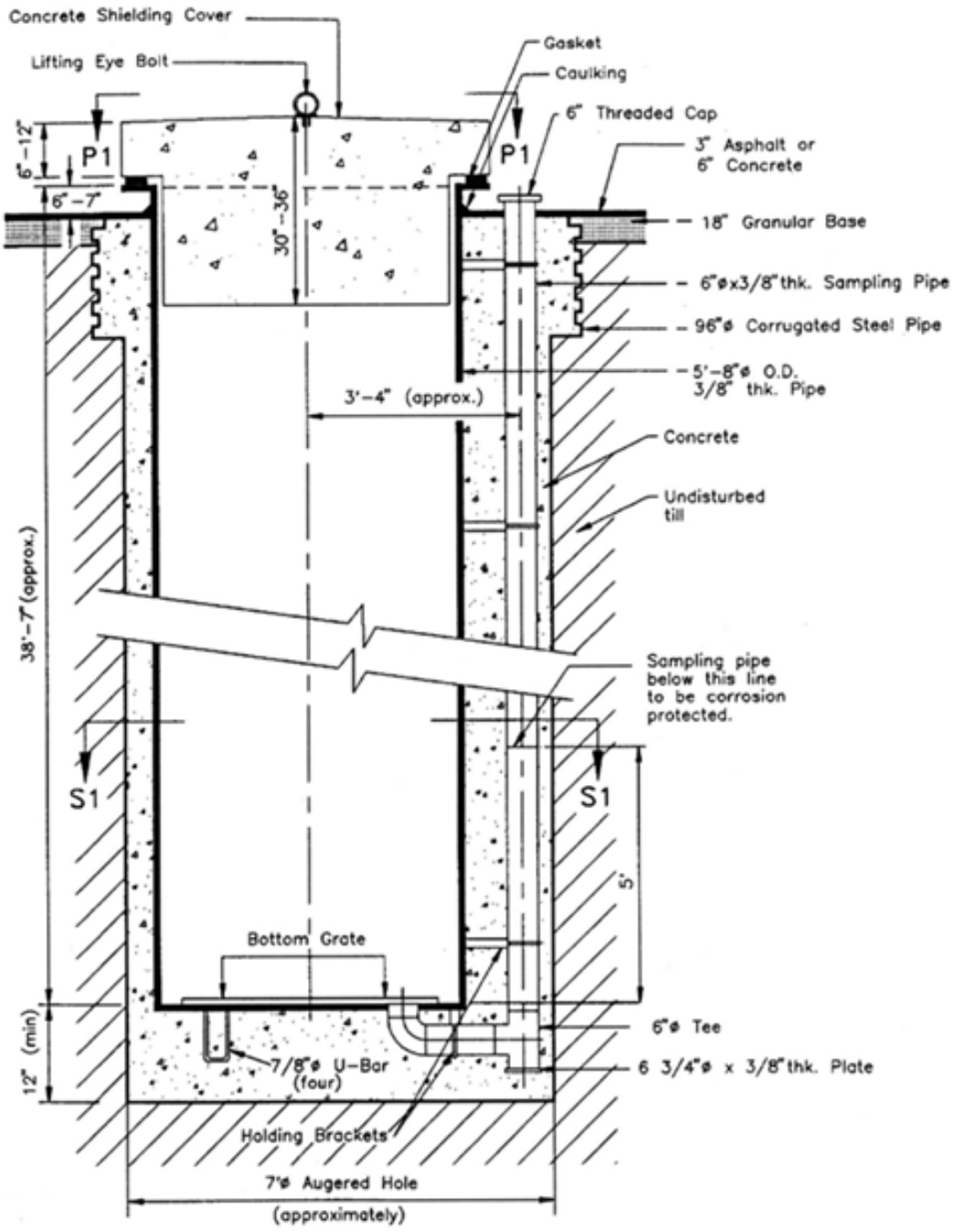


Figure 21: Main Design Features of the IC Series of Structures

2.5.3.8 Concrete Trenches

Concrete trenches are in-ground structures that have been designed to accept operational L&ILW such as drummed waste and waste of irregular shapes with radiation fields up to 150 mSv/hr. Most of the trenches are approximately 40 m long by 4 m wide and 3 m deep and are divided into 3 compartments. The in-ground portions of the exterior trench walls are waterproofed with emulsified asphalt. The bottom of each trench compartment slopes to a sump and standpipe to permit water detection and removal (figure 22). The technology evolved over time, so some design details vary (see figure 22 a, b). After the waste is placed into the trench, precast concrete lid caps with neoprene gaskets are placed on the trenches. The total capacity of the 15 in-ground trenches is approximately 5,800 m^3. There are no plans to build additional trenches.

The surrounding ground surface is graded to direct surface water away from the structures. There is a drainage system adjacent to and underlying each trench. The drainage systems prevent the accumulation of water between the concrete storage structures and the surrounding low-permeability silt till deposit. The drainage systems also provide a convenient means of detecting and controlling any potential leakage of contaminated water from the storage structures.

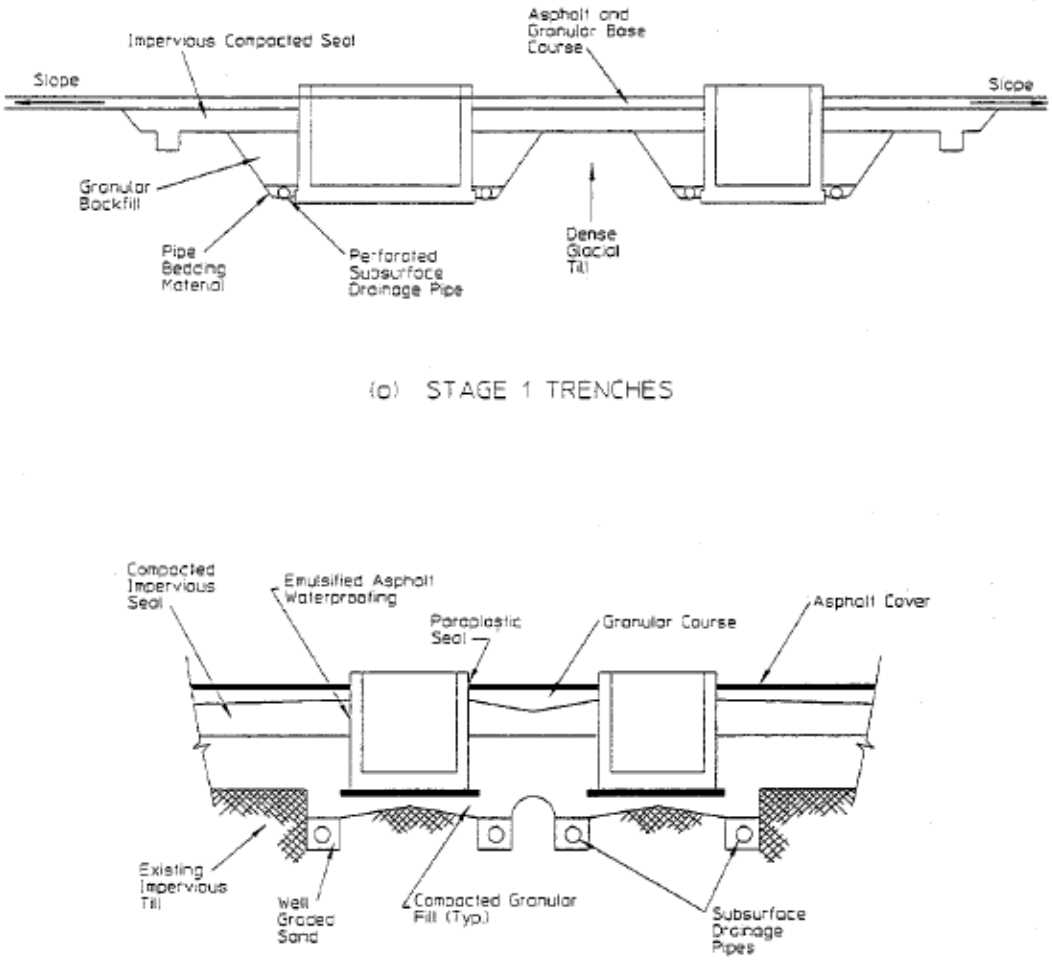


Figure 22: Trench Design

2.5.3.9 Facilities for Management of High Level (Used Fuel) Waste

The UFDSF is comprised of two security-protected areas: one area contains the DSC Processing Building and four UFDSBs, while the second area contains an additional two UFDSBs. Together, these areas provide interim storage space for up to 3,000 Dry Storage Containers (DSCs) for used fuel generated by Bruce Power NGS. The UFDSF was placed in service in October 2002 and received the first DSC from Bruce Power NGS in February 2003 (table 23). A second DSC Storage Building was placed into service in 2007, storage buildings 3 and 4 were constructed and placed into service in 2012, and buildings 5 & 6 were constructed and placed into service in 2020. As of the end of 2024, 2,172 DSCs have been safely stored in the DSC storage building at the WWMF. Based on contractual agreements with Bruce Power

to process up to 130 DSCs per year, OPG expects that the next storage building will be needed by 2029.

Dry Storage Containers

A DSC is a free standing reinforced concrete container with an inner steel liner and an outer steel shell, for the storage and on-site transfer of used CANDU fuel. It is made of two sub-assemblies, a lid and a base. The base provides the storage space for the used fuel (figure 12).

The DSC MKII constitutes the reference container design for the WWMF. The DSC is a double-shell rectangular container, with exterior dimensions of 2.121 m x 2.419 m by 3.557 m in height (including the lid), and an inside cavity of 1.046 m x 1.322 m by 2.520 m. The nominal thickness of each carbon-steel shell is 13 mm. The DSC walls consist of 520 mm (nominal thickness) concrete placed between the inner liner and the outer shell. The reinforced high-density concrete provides radiation shielding and structural strength while maintaining adequate used fuel decay heat dissipation. The concrete has a density in the range of 3.5 to 3.7 Mg/m3 and a compressive strength of at least 40 MPa. The maximum total mass (including the lid of 11 Mg) is approximately 60 Mg when empty and approximately 70 Mg when loaded with four modules (384 used fuel bundles).

Helium is used as the inert cover gas in the DSC cavity to protect the fuel bundles from potential oxidation reactions and to facilitate leak testing of the containment boundary.

The DSC is designed with the provision for installing safeguards seals. Two separate U-shaped 25.4 mm outer diameter stainless steel tubes are embedded in the DSC walls and floor in the plane of the outer reinforcing grid. These tubes are placed so that each tube runs across the centre of opposite container walls. Two similar tubes are embedded in the DSC lid and run diagonally across the lid. These tubes are used for attaching two different types of IAEA seals.

2.5.3.10 Storage Building for Used Fuel

Each UFDSB is designed to have an approximate area of 5,300 m^2, and a nominal storage capacity of approximately 500 DSCs. Reinforced concrete floor slabs are designed to accommodate heavy wheel load traffic and the weight of the loaded DSCs. The floors are constructed for long service with minimal maintenance, to retain surface alignment and provide a hard, smooth and durable surface. Floors are sloped to provide drainage to floor drains. The DSC processing building and the UFDSBs are designed to the National Building Code of Canada and the National Fire Code of Canada in accordance with the licence requirements in place at the time.

2.5.4 Pressure Boundary

N-PROG-MP-0004, Pressure Boundary (PB), manages the processes that control the quality of PB activities at OPG Nuclear with a goal of no failure of pressure retaining parts. The program establishes the infrastructure and defines the activities necessary to maintain a sustainable managed process that allows OPG to perform activities associated with repairs, replacements, modifications and alterations to pressure retaining items, components and systems, including installation of new systems.

The OPG PB Program ensures PB activities at WWMF are in accordance with the codes and standards required by the WFOL. The PB program is a mature program that is compliant with the mandated codes and standards.

N-MAN-01913.11-10000, Pressure Boundary Program Manual, describes the program used to control the quality of PB activities at OPG's Nuclear facilities. It complies with CSA N285.0-08 and update no. 2, and CSA B51-09, Boiler, pressure vessel and piping standards.

OPG currently has an agreement with the CNSC that freezes the code effective dates of applicable pressure boundary codes and standards throughout the duration of the Darlington NGS Refurbishment project. These frozen code effective dates are in place for WWMF as well. Once the Darlington NGS refurbishment project is completed, new code effective dates for applicable pressure boundary codes accepted by CNSC staff will be incorporated into OPG Nuclear governance.

WWMF uses the Technical Standards and Safety Authority (TSSA) as the Authorized Inspection Agency, under a contract between OPG and TSSA, to comply with CNSC requirements for the inspection of pressure boundaries.

Pressure boundary self-assessments for NSS were performed regularly, the latest one being completed in 2024, which concluded that NSS meets the requirements as specified in the pressure boundary program manual and program compliance is adequate with areas for improvement.

2.6 Fitness for Service

The WWMF fitness for service program covers the activities that monitor and mitigate the physical condition of systems, structures and components to ensure they remain effective over time. This includes programs that ensure the equipment is available to perform its intended design functions. The physical condition of Systems, Structures and Components at WWMF remain available, reliable, effective and consistent with design, analysis and quality control measures.

The aging management programs at WWMF meet the requirements of CNSC REGDOC-2.6.3, *Aging Management*.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 24: SCA 6 - Fitness for Service

Document Number	Document Title
W-PROG-WM-0001	Nuclear Waste Management
N-PROG-MA-0026	Equipment Reliability
N-PROG-MP-0008	Integrated Aging Management
N-PROG-MP-0009	Design Management
N-STD-MP-0028	Conduct of Engineering
00104-PLAN-79171-00001	Used Fuel Dry Storage Container Aging Management Plan
00104-PLAN-79171-00002	Dry Storage Container – Base (Underside) Inspection Plan

OPG is committed to maintaining WWMF systems, structures, equipment and components that are critical to the safe, reliable and economic transportation, processing and storage of nuclear waste in a fit-for-service state. The implementation of OPG's Equipment Reliability and Aging Management Programs ensures the ongoing fitness-for service of these systems. The following subsections describe aspects of the WWMF fitness for service program.

2.6.1 Equipment Reliability

The objective of the Equipment Reliability program, N-PROG-MA-0026, *Equipment Reliability*, is to ensure high levels of equipment reliability by ensuring reliable performance of critical components important to nuclear safety. The Equipment Reliability program leverages various activities to ensure ongoing high levels of reliable performance of critical components. This includes identification of critical components and maintenance strategies, executing Preventative Maintenance

programs, monitoring system and component condition, identifying and predicting aging and obsolescence issues on important components and embedding mitigating strategies and actions into the business plan. programs, monitoring system and component condition, identifying and predicting aging and obsolescence issues on important components and embedding mitigating strategies and actions into the business plan.

Under OPG's Equipment Reliability Program, system performance monitoring is performed on critical WWMF systems to ensure ongoing reliable operation. System performance monitoring involves the trending of system performance and initiation of investigations or maintenance activities before failures occur. Process parameters, field observations, maintenance work order backlogs, Station Condition Records, inspection results and spare parts status are some of the typical sources of data for performing monitoring. Where appropriate, equipment critical to system reliability are identified and maintenance strategies for these equipment are prepared. Actions to maintain or improve system health are also prepared. There are routine reviews of system health status, maintenance strategies and improvement plans. N-PROC-MA-0024 *System Performance Monitoring*, which gets authority from N-PROG-MA-0026 *Equipment Reliability*, establishes the requirements for System Performance Monitoring for Tier 1 and Tier 2 systems. There are no Tier 1 systems at the WWMF and the Tier 2 Systems are listed in N-PROC-MA-0024. Other systems are monitored to address specific issues. Ongoing management oversight of these improvement plans provides assurance that the plans are being implemented, and the improvements are being achieved.

2.6.2 Maintenance

WWMF's recurring preventive maintenance activities are planned, scheduled and executed according to the preventive maintenance program. The management and scheduling of preventive maintenance activities are completed using OPG's enterprise software system which also retains records of all maintenance tasks completed. Feedback from maintenance staff and changes to preventive maintenance activities are incorporated. Non-routine maintenance (corrective maintenance) activities are requested, planned and executed using the same software. Significant corrective maintenance issues may be identified using the Corrective Action Program and tracked to completion in the Action Tracking module.

As part of system performance monitoring, the status of the maintenance program is routinely assessed and reported to facility management for their review. Metrics for the completion of preventive and corrective maintenance activities are presented, and Station Condition Records are issued to address adverse conditions related to equipment health or the execution of maintenance activities. Corrective actions to address maintenance issues are provided for management approval and are monitored to completion. Corrective actions that require changes to systems,

structures or components are managed through the modification process discussed in Section 2.5 Physical Design.

2.6.3 Aging Management and Structural Integrity

The Integrated Aging Management program provides the framework for managing aging and demonstrates how the current processes and programs meet the requirements for effective aging management in accordance with CNSC REGDOC-2.6.3, *Aging Management*. Program document N-PROG-MP-0008, *Integrated Aging Management* is the governing program for aging management at OPG.

The Integrated Aging Management program ensures that the condition of critical nuclear facility equipment is understood and that required activities are in place to ensure the health of these components and systems over time. This is accomplished by establishing an integrated set of programs and activities to ensure that the performance requirements of all critical equipment are met on an ongoing basis. The Integrated Aging Management program covers all structures, systems and components defined as critical based on a nuclear safety, production, environment and cost significance perspective. The Integrated Aging Management process is summarized in figure 23.

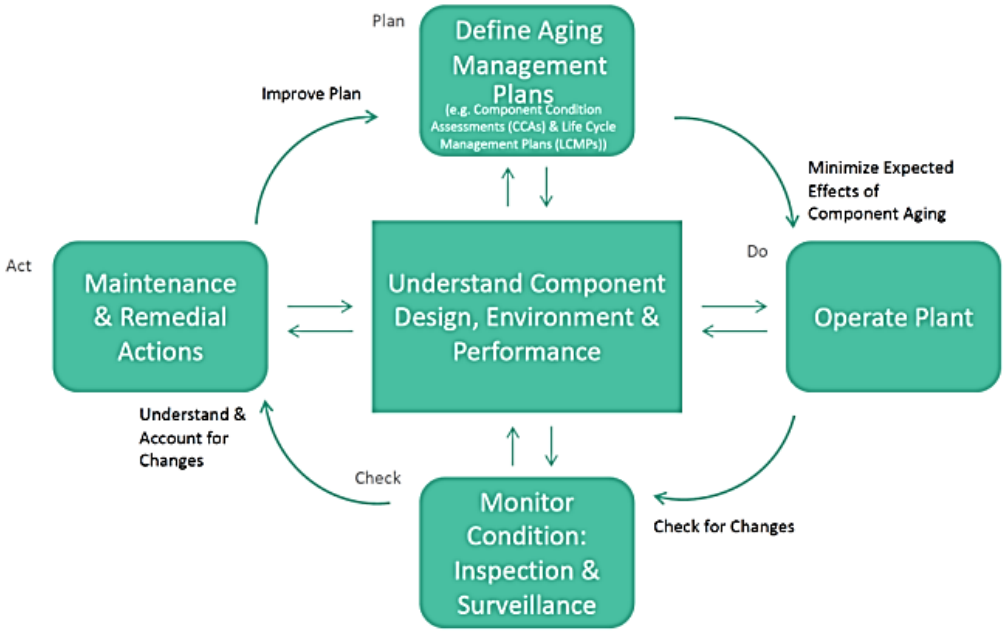


Figure 23: Integrated Aging Management Process

The aging management process uses a systematic and comprehensive approach to assess the effectiveness of an SSC's aging management plan and address any aging related issues.

NSS staff conduct maintenance, inspections, sampling and other activities to ensure the structural integrity and to manage the aging of systems, structures, and components to protect the health and safety of persons and the environment. NSS staff utilize the *Integrated Aging Management* program with a graded approach to manage the structural integrity and aging of systems structures and components commensurate with the risk. This is accomplished through the scoping and screening process established in the implementation procedures associated with N-PROG-MP-0008. The scoping and screening process defines the systems, structures, and components that are low risk or have established processes in place through N-PROG-MA-0026, *Equipment Reliability* or N-PROG-MP-0009, *Design Management* and identifies the remaining Systems Structures and Components that require development of an Aging Management plan.

2.6.4 Dry Storage Container Aging Management Program

The DSC Aging Management Program addresses aging mechanisms, such as corrosion, which could potentially affect DSCs. The aging management activities have yielded the following results over the current licence period:

- Of the inspected DSCs, the overall condition of the DSC coating was reported as fair to very good condition and the reported issues were addressed through paint touchups. Very few areas on the containment welds have required re-coating (i.e. touch-up).
- No change in the condition of the DSC base plates between the time of their initial inspection and re-inspection that would have any impact on their ability to safely store the fuel. CNSC staff are provided with the annual summary reports of these inspections.
- Ultrasonic re-inspection of indications in the base plate parent material have shown that there are no observed changes in laminar defects, supporting flaw stability.
- Measured chloride levels from the DSC shell have a negligible effect on the potential corrosion of the DSC external surfaces.

2.6.5 DSC Transfer Clamps Aging Management Program

The DSC Transfer Clamp Aging Management Program addresses aging mechanisms, such as mechanical deterioration and fitment of bushings, seals or corrosion, which could potentially affect the DSC Transfer Clamp. The aging management activities have yielded the following results over the current licence period:

- Visual inspections have shown that the transfer clamps remain in very good condition with the occasional need to apply lubrication to moving parts to maintain good working condition.
- Inspection of clamp seal and stand have shown that the seals and stand remain in very good condition. The O-ring seals are on-hand and have been replaced when deemed necessary per inspection.
- Inspection of lifting points has shown that the clamp lifting points remain in very good condition. There have been no reportable indications found and there has been no noticeable change in condition from year to year.

2.6.6 Low & Intermediate Level Waste Storage Structures and Containers

For the L&ILW storage structures and containers, the Aging Management Program addresses aging mechanisms such as freeze/thaw damage, chloride diffusion, sulphate attack or corrosion, which could potentially affect the structure of container. The aging management activities completed over the current licence period include:

- Visual inspections showing generally good condition;
- Condition assessments showing generally good condition;
- Water monitoring not indicating negative adverse trends;
- Radiation monitoring not indicating negative adverse trends; and
- Pressure-holding capability verification of IC-HXs.

2.6.7 Planned Activities

OPG is planning to carry out a number of activities to address aging, obsolescence, general improvements and to ensure ongoing fitness for service of critical structures, systems and components in the next licence period.

(a) **Dry Storage Containers and storage buildings**

- Upgrade to a new automated DSC lid to base welding system;
- New Dry Storage Container V-Groove weld design;
- Phased Array Ultrasonic Testing system upgrades;
- Processing and storage building roof replacements; and
- Electrical system upgrades.

(b) **Facility Component Replacements**

- Replacement of Air Conditioning Units that utilize Hydrofluorocarbons;
- Replacement of Air Handling Units that are approaching end of design life;
- Motor Control Center replacement;
- Box Compactor replacement; and
- Stack monitor replacements.

(c) **Low and ILW Storage Structures and Containers**

- Low Level Storage Building roof maintenance;
- On-going storage structure inspections;
- Asphalt maintenance and repairs; and
- Low Level Waste sorting activities.

(d) **Incinerator Improvements**

- Upgrades to the spray cooler system, baghouse hatch and programmable logic controller power supply module to improve Incinerator reliability and maintainability.

2.7 Radiation Protection

OPG has implemented and maintains a Radiation Protection (RP) program designed to comply with relevant Acts and Regulations. N-PROG-RA-0013, *Radiation Protection* controls occupational and public exposure ALARA and prevents and monitors for the uncontrolled release of contamination or radioactive materials from the site through the movement of people and materials. The RP program includes a set of action levels associated with the control of worker dose and contamination control.

The OPG documents in the following table require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 25: SCA 7 – WWMF Radiation Protection

Document Number	Document Title
N-PROG-RA-0013	Radiation Protection
N-STD-RA-0045	Occupational Radiation Protection Action Levels for Nuclear Waste Management Facilities
N-PROC-RA-0010	Facility Access and Working Rights (Radiological)
N-PROC-RA-0012	Dosimetry and Dose Reporting
N-PROC-RA-0019	Dose Limits and Exposure Control
N-PROC-RA-0024	Hazard Surveys, Posting, and Labeling
N-PROC-RA-0027	Radioactive Work Planning, Execution and Close Out
N-INS-09071-10009	Requirements for the Calibration and Maintenance of Radiation Protection Instruments
N-MAN-03416-10000	Radiation Dosimetry Program – General Requirements
N-MAN-03416.1-10000	Radiation Dosimetry Program – External Dosimetry
N-MAN-03416.2-10000	Radiation Dosimetry Program – Internal Dosimetry

2.7.1 Radiation Protection Program

2.7.1.1 Program and Objectives

The Radiation Protection Program, receiving authority from N-CHAR-AS-0002, *Nuclear Management System* is implemented through a series of standards and procedures for the conduct of activities within nuclear sites and with radioactive materials intended to achieve and maintain high standards of radiation protection including the achievement of the following objectives:

(1) Controlling occupational and public exposure by:
- Keeping individual doses below regulatory limits.
- Avoiding unplanned exposures.
- Keeping individual risk from lifetime radiation exposure to an acceptable level, and
- Keeping collective doses As Low as Reasonably Achievable (ALARA).

(2) Preventing the uncontrolled release of contamination or radioactive materials from the nuclear sites through the movement of people and materials, and

(3) Demonstrating the achievement of (1) and (2) through monitoring.
The key program elements are:
- Program Management
- Management Control over Work Practices
- Personnel Qualification and Training
- Exposure Control
- Contamination Control
- Ascertainment and Recording of Doses

This program is designed to comply with the Radiation Protection program requirements of the following acts and regulations as applied to licensed OPG facilities and licensed OPG activities:

- General Nuclear Safety and Control Regulations (Statutory Orders and Regulations (SOR)/2000-202)
- Radiation Protection Regulations (SOR/2000-203)
- Class II Nuclear Facilities and Prescribed Equipment Regulations (SOR/2000-205)
- Nuclear Substances and Radiation Devices Regulations (SOR/2000-207)
- Occupational Health and Safety Act, Revised Statutes of Ontario (R.S.O.) 1990, Chapter O.1.
- Occupational Health and Safety Act, Revised Regulations of Ontario (R.R.O.) 1990, Regulation 861, X-Ray Safety
- Radiation Emitting Devices Act, R.S., 1985, c. R-1
- Radiation Emitting Devices Regulations, Consolidated Regulations of Canada (C.R.C.), c. 1370

2.7.1.2 Management Control over Worker Practices for Dose and Contamination Control

Performing radioactive work within the WWMF requires a systematic approach and is managed by the OPG Radiation Protection Program, which includes the following processes:

- Limiting individual worker dose.

- Managing dose as a resource, in terms of constraints on work activities.
- Establishing facility design consistent with ALARA principles.
- Assessing hazards for planning and maintaining knowledge of conditions.
- Controlling the use of licensed radioactive devices and equipment, and
- Planning all radioactive work, taking into account personnel, hardware, procedures, supervision, and the physical environment of the job.

The planning process includes the anticipation and evaluation of radiation hazards and the selection of appropriate protective measures and dosimetry. The degree of formalization of the planning process and the approval levels for a job is proportional to the potential for exposure. Plans include backout conditions and contingencies. Radiation protection planning decisions are documented in a radiation exposure permit.

Radioactive contamination controls are in place to reduce occupational and public exposure, and to minimize the release of radioactive materials to the environment. The objectives are to prevent a loss of radioactive contamination control, to minimize the area affected if contamination occurs, and to restore the condition to acceptable levels as soon as possible.

2.7.1.3 Radiation Protection Program Monitoring and Oversight at WWMF

Established Key Performance Indicators are used to monitor Radiation Protection Program effectiveness measures commonly used in the nuclear industry. Radiation Protection Report Cards include radiation protection indices and are prepared monthly. Specific measures include personnel contamination incidents, regulatory infractions, as well as dose performance versus dose targets. The Radiation Protection Program is subject to ongoing monitoring through mechanisms including but not limited to:

- Management review and assessment which includes:
  - Joint Committee on Radiation Protection, and
  - Monthly Management Oversight Meetings
- Exceptional dosimetry and dose control device measurement results
- Dose trends
- Observation and Coaching
- Annual preparation and review of ALARA targets
- Radiation Protection program self-assessments and independent audits
- Investigation of events in which an Action Level has been exceeded, trending, benchmarking, and review of industry operating experience.

2.7.2 Current Operations and Results

2.7.2.1 Dose and Contamination Control

During the current licence period there have been no action level exceedances related to worker dose at the WWMF or any loss of contamination control events in excess of WWMF's contamination control action levels.

The current action levels for dose to workers and for contamination control are shown in table 26 and are documented in N-STD-RA-0045 *Occupational Radiation Protection Action Levels for Nuclear Waste Management Facilities*.

Table 26: Radiological Action Levels for the WWMF.

Application	Action Level	Observations
A person receives an external whole-body dose that equals or exceeds 0.5 mSv (50 mrem) above the Electronic Personal Dosimeter (EPD) dose alarm set point in a shift	0.5 mSv (50 mrem)	The Action Level is exceeded if a person receives an external whole body radiation dose of greater than 0.5 mSv (50 mrem) above the planned dose per shift.
Total (fixed and loose) surface contamination levels greater than 37 kBq/m^2 (1 μCi/m^2) (beta-gamma) or 3.7 kBq/m^2 (0.1 μCi/m^2) (alpha) are found in Zone 1 or a Discrete Radioactive Particle (DRP) with beta/gamma activity equal to or exceeding 7400 Bq (200 nCi) Cs-137 equivalent activity found in Zone 1.	3.7 x 10^4 Bq/m^2 (1 μCi/m^2) [beta/gamma] 3.7x10^3 Bq/m^2 (0.1 μCi/m^2) [alpha] 7.4kBq (200nCi) [beta/gamma] Cs-137 equivalent activity of DRP	The Action Level is exceeded if total contamination (fixed and loose) is found in excess of the corresponding values for beta/gamma or alpha radiological contamination or a DRP equal to or exceeding corresponding value.
A person receives a single intake of tritium oxide	Single intake of tritium	The Action Level is exceeded if a person receives a single

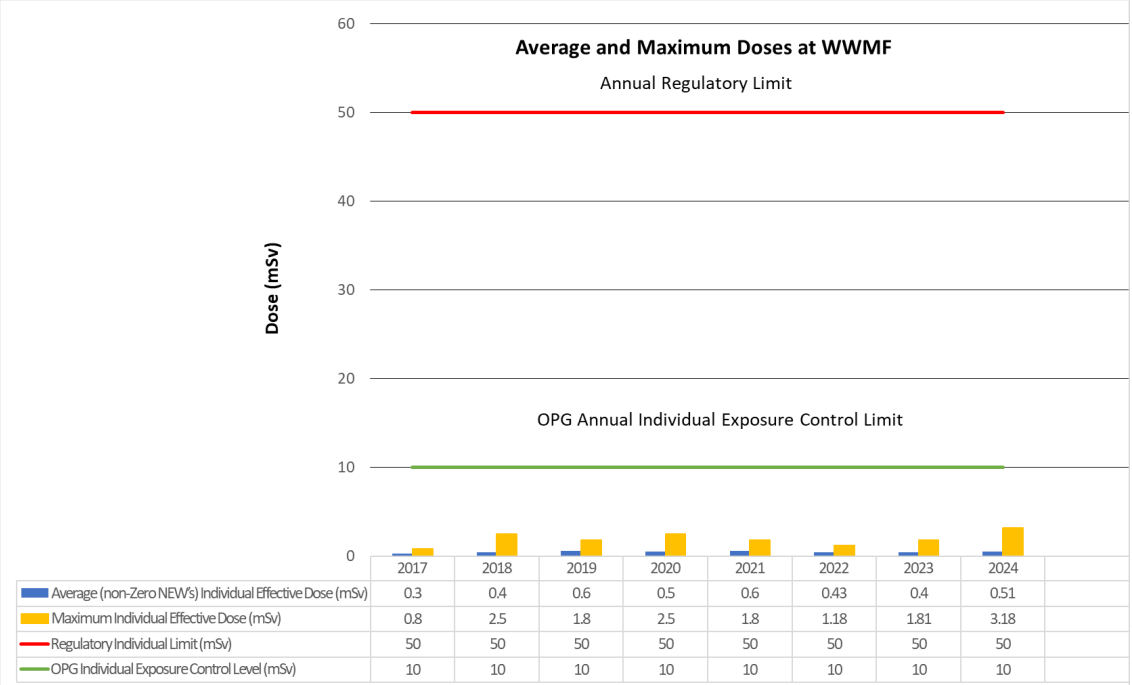
(tritiated water) in which the unplanned component of the initial concentration immediately after intake is estimated to equal or exceed 600 kBq/L (16 μCi/L) (representing a nominal unplanned exposure of 0.5 mSv [50 mrem]).	oxide of unplanned component of tritium oxide that is estimated to equal or exceed 600 kBq/L (16 μCi/L)	intake of tritium oxide (tritiated water) in which the unplanned concentration immediately after intake is estimated to equal or exceed 600 kBq/L (16 μCi/L) which would represent a nominal unplanned exposure of 0.5 mSv or 50 mrem.
A person receives an intake of a radionuclide other than tritium (in the form of tritium oxide) attributable to a single event that equals or exceeds an unplanned exposure of 0.5 mSv [50 mrem]).	Intake of a radionuclide other than tritium (in the form of tritium oxide) resulting in an exposure of 0.5 mSv [50 mrem].	The Action Level is exceeded if a person receives an intake of a radionuclide other than tritium oxide due to a single event that results in a nominal exposure of 0.5 mSv or 50 mrem.

OPG's administrative limits include two control levels for exposure:

1. the Exposure Control Level is 10 mSv/year, and
2. the Administrative Dose Limit is 20 mSv/year.

Exposure control levels are set below administrative control levels, which are in turn below the regulatory limits. Graph 1 shows the OPG individual exposure control level of 10 mSv (1 rem) per calendar year is significantly below the single year regulatory limit of 50 mSv (5 rem) in a year, and the five-year regulatory limit of 100 mSv (10 rem) over five years for a Nuclear Energy Worker (NEW).

Doses are maintained ALARA (As Low as Reasonably Achievable, Socio and Economic Factors considered) through the use of engineered barriers, work planning and use of exposure control levels for NEWs.



	2017	2018	2019	2020	2021	2022	2023	2024
Average (non-Zero NEW's) Individual Effective Dose (mSv)	0.3	0.4	0.6	0.5	0.6	0.43	0.4	0.51
Maximum Individual Effective Dose (mSv)	0.8	2.5	1.8	2.5	1.8	1.18	1.81	3.18
Regulatory Individual Limit (mSv)	50	50	50	50	50	50	50	50
OPG Individual Exposure Control Level (mSv)	10	10	10	10	10	10	10	10

Figure 24: Average and Maximum Doses at WWMF

OPG's contamination control measures within the RP Program continue to be in full compliance with regulatory requirements. Facility targets are set annually, based on DSC throughput and other waste operations, and overall performance is reported in the Annual Compliance Report.

Table 27 outlines the key dose statistics for WWMF. Worker doses were maintained consistently below OPG Individual Exposure Control Levels and well below regulatory limits in the *Radiation Protection Regulations* over the current licence period.

Table 27: Key Dose Statistics for WWMF

Year	Total Number of Staff Monitored	Total Number of NEW's* Monitored	Collective Dose	Average (total) Individual Effective Dose	Average (non-Zero NEW's) Individual Effective Dose	Maximum Individual Effective Dose	Regulatory Individual Limit (mSv)	OPG Individual Exposure Control Level
	#	#	Person-mSv	mSv	mSv	mSv	mSv	mSv
2017	176	176	9.4	0.1	0.3	0.8	50	10
2018	170	167	15.4	0.1	0.4	2.5	50	10
2019	173	172	18.1	0.1	0.6	1.8	50	10
2020	160	160	18.1	0.1	0.5	2.5	50	10
2021	174	170	31.8	0.2	0.6	1.8	50	10
2022	185	184	20.3	0.11	0.43	1.18	50	10
2023	701*	195	18.73	0.03	0.4	1.81	50	10
2024	666*	188	50.18**	0.08	0.51	3.18	50	10

* The increase in staff is associated with Bruce Power MCR and other projects that took place in 2023 and 2024.

** Increase in dose is associated with receipt and storage of steam generators.

2.7.3 WWMF Perimeter Dose Monitoring (non-NEW and Public)

Environmental Thermoluminescent Dosimeters are mounted on the perimeter fence of the WWMF figure 25 and figure 26 and are changed and analyzed quarterly. The Thermoluminescent Dosimeters are located on the perimeter fence – demarking the limit of approach for a non-NEW. Data is reported to CNSC staff in the WWMF Annual Compliance Report. Target Dose Rates for these locations is less than 0.5 μGy/h (air kerma rate).

A dose rate of 0.5 μSv/h for 2,000 hours of exposure would result in a dose to the public of 1 mSv, the regulatory annual limit. The average actual perimeter dose rate at the WWMF has consistently been less than the 0.5 μSv/h, with an overall average less than 0.1 μSv/h. The maximum potential dose at the site boundary over the course of a year to a member of the public is well below the regulatory annual dose limit of 1 mSv.

All measured dose rates during the licence period have been below target. Annual performance is reported as the average of all dose rates.

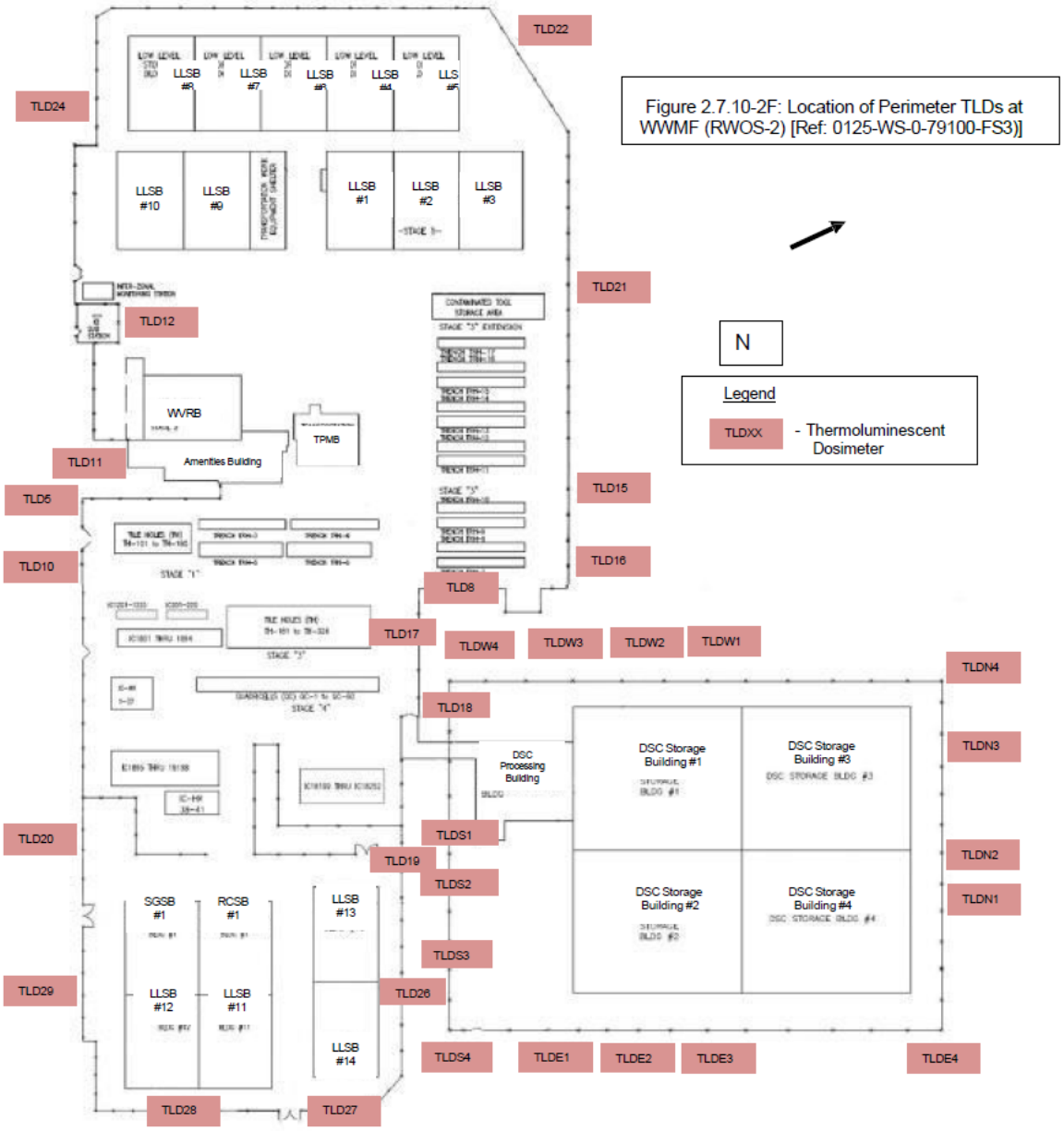


Figure 25: Thermoluminescent Dosimeter Locations around the WWMF

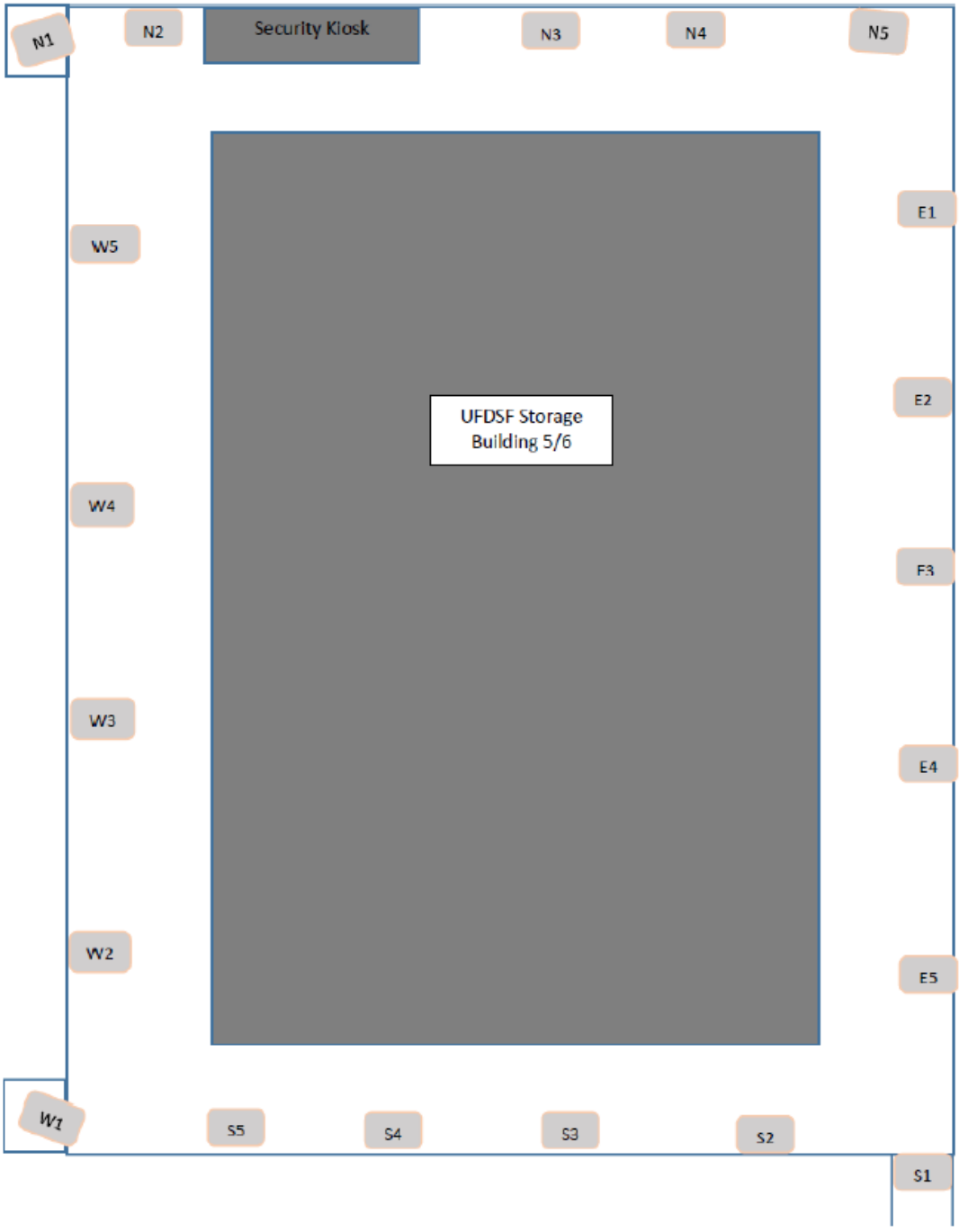


Figure 26: Thermoluminescent Dosimeter Locations around Dry Fuel Storage Building 5 & 6

2.7.4 Future Plans and Improvements

In 2025, the NSS Radiation Protection organization has plans in place to optimize the routine radiation survey program based on many years of operating experience. Additionally, there are plans to modernize OPG's neutron dosimetry and instrument program.

2.8 Conventional Health and Safety

OPG is committed to preventing workplace injuries, optimizing health, and continuously improving employee health and safety performance. The foundational document that upholds this commitment is the Employee Health and Safety Policy, OPG-POL-0001. The Health and Safety Policy describes OPG's approach to Conventional Health and Safety for the organization and outlines the requirements and accountabilities of all employees to uphold this commitment.

OPG has implemented and maintains a conventional health and safety program.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 28: SCA 8 - Conventional Health and Safety

Document Number	Document Title
OPG-POL-0001	Employee Health and Safety Policy
OPG-PROG-0005	Environment Health and Safety Managed Systems

2.8.1 Employee Health and Safety Policy

The Employee Health and Safety Policy commits to the prevention of workplace injuries, ill health, and to the continuous improvement of its employee health and safety performance.

The objectives of the OPG Health and Safety Policy are to:

- Meet or exceed all applicable health and safety legislative requirements and other associated health and safety standards OPG subscribes to. OPG shall require that its contractors maintain a level of safety equivalent to that of OPG employees while at OPG workplaces.
- Ensure that employees are involved in decisions that have an impact on their health and safety, either individually, as a group, or through their employee representative groups.
- Ensure that work is planned and performed to protect workers. It shall provide its employees with the information, training, tools, procedures, and support required to do their jobs safely; and
- Set health and safety targets as part of the annual business planning process. Health and safety performance against these targets shall be regularly measured and evaluated to ensure the effectiveness of OPG's health and safety systems.

2.8.2 Program and Objectives

OPG's program OPG-PROG-0005, *Environment Health and Safety Managed Systems* and its supporting governance documents establish operating standards and process requirements for health and safety risk identification, elimination, and where not possible, mitigation control or reduction. It also prescribes the roles and responsibilities of various entities and individuals at all levels in the organization to ensure the activities meet the requirements of OPG's Health and Safety Policy.

The objective of the Conventional Health & Safety section of the Environment Health and Safety Managed Systems Program is to ensure the safety and well-being of its workers. This is achieved by ensuring that safety is a core value and by managing conventional risks in the workplace associated with WWMF's operations. This program is designed to be an integrated system with OPG Nuclear business managed processes, where appropriate, and considers the current organizational structure.

The Environment Health and Safety Managed Systems include:

- Occupational conditions and factors that could affect the health and safety of workers in all workplaces, or work-related activities under OPG's control.
- Non-occupational health-related conditions and factors that could affect the health of OPG's workers, which impacts the achievement of OPG's business objectives.
- Contractor health and safety.

Risk reduction activities occur across multiple levels. These begin with strategic enterprise risk registries and extend to detailed risk management in work planning. Building resilience to risk is a function of cultivating a competent and proficient workforce and maintaining meticulous safe work planning practices. This approach ensures the implementation of redundant controls capable of mitigating human error and achieving safe outcomes across all aspects of OPG's operations.

OPG's Health and Safety Managed Systems program ensures alignment with internal and external specifications or standards such as N-CHAR-AS-0002, *Nuclear Management System*, and is based on the International Organization for Standardizations (ISO) 45001, *Occupational Health and Safety Management System*.

2.8.3 Health and Safety Management Practices and Awareness

The WWMF is subject to a robust framework of conventional health and safety regulations. These aim to protect workers from non-radiological hazards such as slips, trips, falls, mechanical injuries, and exposure to hazardous substances. Conventional Health and Safety is distinct from radiation protection and is governed by both federal and provincial legislation, as well as regulatory guidance from the CNSC REGDOC-2.8.1, *Conventional Health and Safety.*

2.8.3.1 Occupational Safety and Health Act and Corporate Safety Rules

OPG is committed to upholding robust workplace health and safety practices aimed at managing risk for both employers and workers. To fulfill this commitment, OPG has established the OPG Corporate Safety Rules (OPG-STD-0144), ensuring compliance with or exceeding applicable health and safety legal obligations mandated by the *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* (OSHA) and applicable regulations.

2.8.3.2 Health and Safety Managed Systems Program

Continuous improvement opportunities for OPG-PROG-0005, *Environment Health and Safety Managed Systems* program are identified using a "Plan-Do-Check-Review" management cycle. The objective is to ensure conventional health and safety risks, work practices and conditions are appropriately managed to achieve a high degree of employee safety. The Compliance Assessment functions to monitor Key Performance Indicators by conducting field assessments, document reviews and interviews with stakeholders to help identify systemic issues before they result in safety events and/or injuries.

2.8.3.3 WWMF Joint Health and Safety Committee

To further enhance worker safety, WWMF Joint Health and Safety Committee consisting of both front-line and management representatives has been established to work cooperatively to improve health and safety in the workplace, as set out in the OSHA.

2.8.3.4 Internal Responsibility System

The Internal Responsibility System is a system applied consistently throughout OPG Nuclear, where everyone has personal and shared responsibility for working together co-operatively, to prevent occupational injuries and illnesses. The duties for a healthy and safe workplace fall on every individual, to the degree they have:

- Authority to do so (based upon their position), and
- Ability to do so (based upon their expertise and qualifications).

Each person is expected to take the initiative on health and safety issues, work to solve problems, and make improvements on an ongoing basis. The Internal Responsibility System is based on the principle that employees themselves are in the best position to identify health and safety problems and identify solutions to ensure that hazards are addressed promptly and effectively. The Internal Responsibility System outlines the appropriate resolution level for timely corrections. As part of this system, employees have the right to refuse work if they believe it poses an undue health or safety risk to themselves or others, as per OPG-PROC-0225, *Health and Safety Hazard Resolution and Management of Work Refusals and Work Stoppages*. This right is protected and is integral to the governance of the system. Management

and leadership are committed to listening to these concerns and resolving them in a timely manner, in alignment with the core principles of the Internal Responsibility System.

2.8.3.5 Incident Investigation

N-STD-RA-0008, *Incident Investigation*, provides a systematic and consistent approach for evaluating adverse conditions at OPG Nuclear facilities, including determining the cause of an adverse condition or event and developing effective corrective actions to eliminate or reduce the probability of similar events occurring in the future.

2.8.3.6 Workplace Hazardous Materials Information System

OPG is compliant with Workplace Hazardous Materials Information System (WHMIS 2015), and has processes in place for the management, handling, and storage of hazardous materials to ensure regulatory compliance and to ensure workers have information to safely work, store and dispose of hazardous materials in the workplace.

2.8.3.7 Training

The Nuclear Conventional Safety Training and Qualifications document describes required initial and Continuing Conventional Safety Training and related qualifications for all major job families and contractors.

2.8.4 Current Operations and Results

OPG staff engagement in personal safety and associated initiatives and programs has instilled behaviours within the organization that have contributed to performance free of lost time injuries since 2011. NSS staff continuously strive for excellence and continual improvement in our Health and Safety performance. Health and Safety has focused efforts on benchmarking with industry leaders; and based on these benchmarks, OPG has introduced new initiatives and programs to support continual improvement in Conventional Safety.

OPG's Fail Safe strategy drives continuous improvement of OPG's performance in Health and Safety Managed Systems and human performance. It relates to the concept that OPG's programs have built-in protections (capacity) against significant injury and consequences, even in the event of employee error or equipment failure. OPG's Fail-Safe approach to safety and human performance is proactive and focuses on building a resilient organization.

To ensure that the overall objective of managing occupational hazards is met, OPG monitors the following performance indicators / elements:

- Total Recordable Injury Frequency (TRIF)

- Accident Severity Rate (ASR)
- Serious Injury Incidence Rate (SIIR)
- Timely Completion of Safety Corrective Actions (TCSCA)
- High Maximum Reasonable Potential for Harm Events (HMRPHE)/Safety Classification and Learning Model (SCL)

2.8.4.1 Total Recordable Injury Frequency

The Total Recordable Injury Frequency (TRIF) is defined as the number of fatalities, lost-time injuries, restricted work, and medically treated injuries divided by exposure hours and multiplied by 200,000. In 2018, the decision was made to change the safety performance indicator from All Injury Rate (AIR) to TRIF.

The TRIF and AIR are inclusive for the entirety of NSS, which the WWMF is part of. During the licence period, there were five (5) safety events that occurred at the WWMF that impacted the TRIF for the reporting period. In 2017, there was one medically treated injury (laceration to ankle); one medically treated injury (shoulder strain) in 2020; two medically treated injuries (laceration to thumb & back pain) in 2021; and in 2022 there was one medically treated injury (knee strain). All events were thoroughly investigated, and corrective actions were implemented to drive improved safety performance. Figure 27 below displays the All-Injury Rate/Total Recordable Injury Frequency from 2016 to 2024.

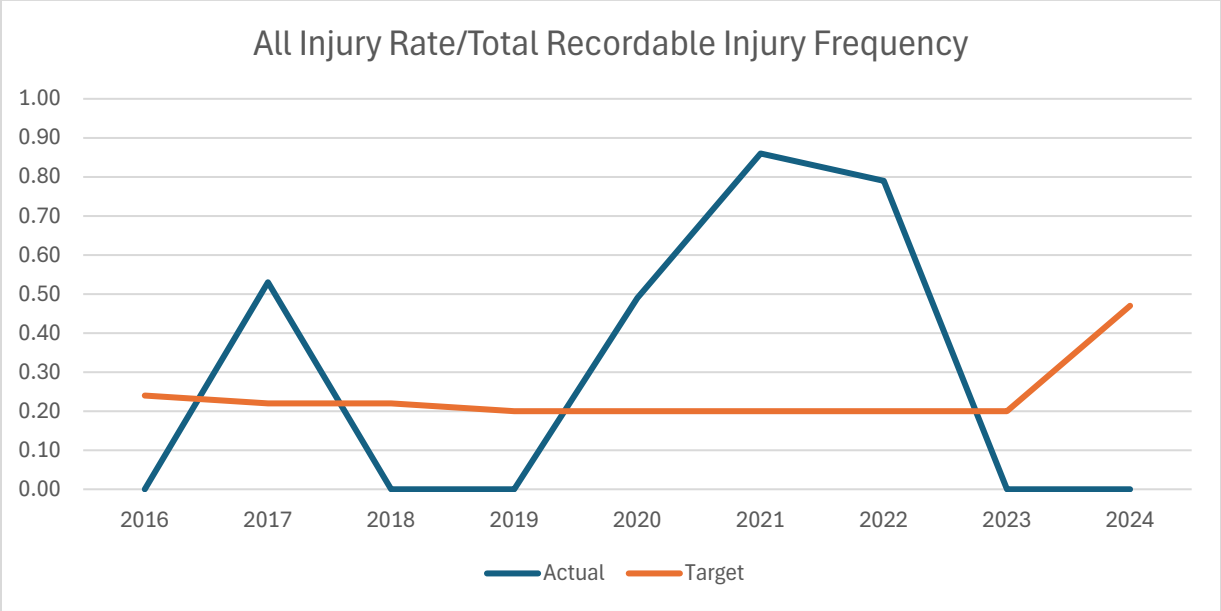


Figure 27: All Injury Rate/Total Recordable Injury Frequency

2.8.4.2 Accident Severity Rate

The Accident Severity Rate (ASR) is defined as the total number of calendar days lost due to a work-related injury multiplied by 200,000 person-hours, divided by the total exposure hours worked.

NSS ASR remained at zero from 2016 through 2024, as there were zero lost time injuries experienced in the reporting period. Specifically, at WWMF, there have not been any lost time incidents since 2011. This shows a strong commitment to safety and continued focus over the last 13 years.

2.8.4.3 Serious Injury Incidence Rate

Serious Injury Incidence Rate is defined as the number of work-related accidents for all OPG employees that result in serious injuries or fatalities, per 200,000 person-hours worked. This metric focuses on more serious injuries, assists in maintaining attention on high-consequence hazards, and accounts for the actual injury instead of the type of medical treatment.

WWMF Serious Injury Incidence Rate has remained at zero (0) since the introduction of the new safety performance metric in 2020.

2.8.4.4 Timely Completion of Safety Corrective Actions

Timely Completion of Safety Corrective Actions (TCSCA) aims to prioritize completion of safety related actions in a timely manner. TCSCA is the percentage of corrective actions, arising from safety events, that are completed on or before the initial due date (zero extensions).

Strong TCSCA performance has been observed for WWMF since the introduction of the metric in 2020 with a 100% completion rate, which is better than the target of 98%. Figure 28 below displays the WWMF TCSCA actual performance from 2020 to 2024 against the target.

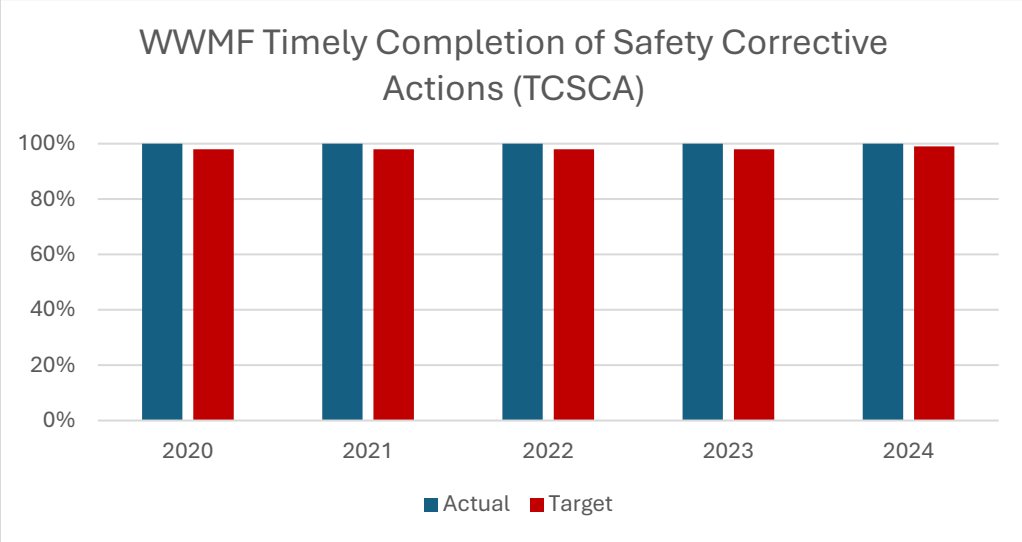


Figure 28: WWMF Actual Performance from 2020 to 2024

2.8.4.5 High Maximum Reasonable Potential for Harm / Safety Classification and Learning Model

In April 2024, OPG introduced the Safety Classification and Learning (SCL) model and transitioned away from the MRPH event classification.

The High Maximum Reasonable Potential for Harm (HMRPH) is an OPG rating system used to classify incidents, and to determine the potential severity of safety incidents. These are incidents with potential for injury to personnel; however, no actual injury may have occurred. High Maximum Reasonable Potential for Harm incident investigations offered learning opportunities for continued improvement in safety performance.

During the current licence period, there were 4 HMRPH events in Falling Material, Electrical, Working at Heights and Flying Object at WWMF. Each of these events were investigated, corrective actions taken and lessons learned shared to prevent future occurrences.

Figure 29 below displays the number of HMRPH events at WWMF from 2016 to 2024.

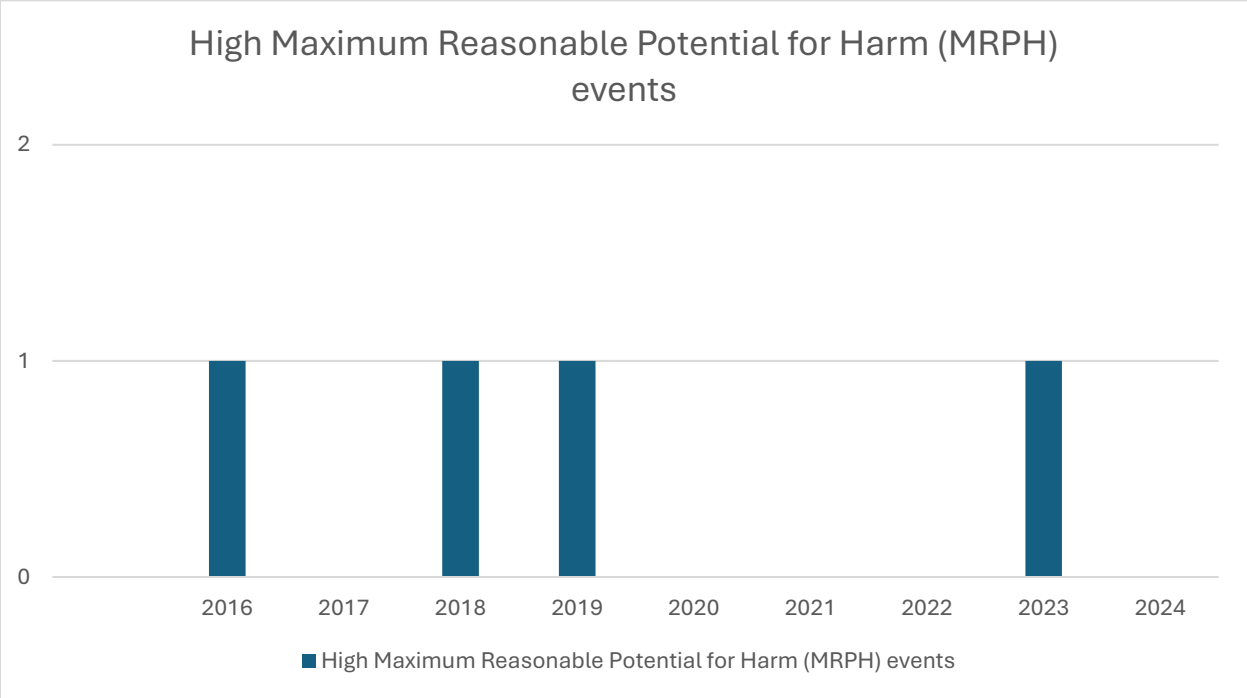


Figure 29: Number of HMRPH events at WWMF from 2016 to 2024

The SCL model is focused on learning from events to prevent recurrence and keep workers safe. The SCL also aligns with OPG's Fail Safe shift by focusing on high-energy, high-consequence events and the use of barriers and strong defences. The

fail-safe culture recognizes that human error can occur, and ensuring when that happens, the individuals are protected. It is a shift in mindset to proactively identify whether the defences in place are sufficient. This culture has been incorporated into safe work planning, work execution, and event learning. This provides the platform to further improve OPG's safety program. OPG has introduced industry accepted hazard assessment tools including the energy wheel, to better identify hazards in the planning stage to eliminate, control and ultimately protect workers against workplace hazards. SCL helps us understand where workers may be exposed to greater risk and hazards that could lead to serious injuries. Through better data quality and consistent classification, OPG will be able to address risks and protect workers from harm more effectively. Currently, SCL is being implemented in the following ways at WWMF:

- Creation of a failsafe dashboard to analyze and interpret SCL learnings.
- Classifying events using SCL models as they occur in real time.
- Training for staff on the SCL model.
- Updating safety event investigation process to include SCL classifications.

During the current licence period, WWMF has seen an improvement in the number of HMRPH events and since May 2023 there have been no high-energy, high-consequence events within the SCL classification.

2.8.5 Safety Enhancements

During the current licence period, a number of safety enhancements have been made to equipment and systems at WWMF, some examples are:

- LED lighting upgrades completed within the facility to increase visibility in work areas.
- Replacement of the degrading incinerator primary chamber refractory eliminating the risk of falling material.
- Upgraded epoxy floor in the incinerator building removing trip hazards and to allow for more effective cleaning.
- Establishment of the Engineering General Modification to support the electrical safety program with the installation of receptacles to limit the use of extension cords
- Added permanent stairs to the Waste Volume Reduction Building, enhancing the safety of accessing the roof.

2.8.5.1 Future Plans and Improvements

A number of health and safety improvement initiatives have been identified for the WWMF as part of the continuous improvement cycle of the health and safety management system, which include:

- Continuous implementation of Fail-Safe Culture Change initiatives to build defences into the planning of work, creating a learning organization, recognizing our workers are the solutions, avoiding blaming the worker, and other key Fail-safe concepts.
- Continue to maintain the iCare Safety Culture initiatives in areas of Communications, Recognition, Risk Management, Human Performance & Coaching, and Total Health Strategies. The initiatives focus on how safety messages are presented and transition the tone from “do this because we are required” to “do this because you care and don’t want an injury.”
- Implementation of “Wellness in Action: Building a Supportive, Healthy Organization Together,” which emphasizes empowering employees to integrate wellness into daily life. The focus includes accessible tools for mental health, physical vitality, financial wellbeing, and work-life balance, supported by monthly campaigns and resources. The strategy also reflects updated data from Employee Family Assisted program utilization and aligns with psychosocial risk factors outlined by Canadian Centre for Occupational Health and Safety.
- Industry leading SIIR metric will continue to be reinforced to focus on prevention of serious injuries that have life-altering consequences.
- OPG’s commitment to continuously improve performance is reflected by setting challenging targets for safety performance metrics.

2.9 Environmental Protection

OPG's comprehensive environmental protection programs aim to continually minimize impacts from nuclear facility operation on the environment and human health. This is achieved by ensuring that there are multiple barriers in place to control and minimize emissions to the environment and to ensure emissions are monitored.

The WWMF has in place environmental protection programs in accordance with CNSC REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures,* Version 1.2 and compliant with CSA N288.0-22, *Environment management of nuclear facilities: Common requirements of the CSA N288 series of Standards*. Given OPG's robust programs and processes, it is expected that the WWMF will continue to meet or exceed regulatory requirements and expectations within this SCA over the next licence term.

The OPG documents in the table below require written notification of change per the WWMF Licence Conditions Handbook LCH-W4-314.00/2027-R003:

Table 29: SCA 9 – Environmental Protection

Document Number	Document Title
Effluent and Emissions Control (Releases)	
N-STD-OP-0031	Monitoring of Nuclear and Hazardous Substances in Effluents
0125-REP-03482-00002	Derived Release Limits and Environmental Action Levels for Western Waste Management Facility
Environmental Management systems (EMS)	
OPG-POL-0021	Environmental Policy
OPG-PROG-0005	Environment Health and Safety Managed Systems
Assessment and Monitoring	
N-PROC-OP-0025	Management of the Environmental Monitoring Programs
N-STD-OP-0046	Groundwater Protection and Monitoring Program
01098-REP-07701-00015	Environmental Risk Assessment 2021 Update for Nuclear Sustainability Services – Western Waste Management Facility
01098-REP-07701-00012	Predictive Effects Assessment for the Western Waste Management Facility Expansion Project

01098-REP-79139-00006	2024 Predictive Effects Assessment Addendum for The Western Waste Management Facility Expansion Project – Multi-Purpose Storage Building

2.9.1 Environmental Managed Systems

OPG maintains an Environmental Management System (EMS), OPG-PROG-0005, *Environment Health and Safety Managed Systems*, which defines the procedures and supporting documents that implement the requirements of OPG's *Environmental Policy* (OPG-POL-0021). The EMS is consistent with the International Organization for Standardization (ISO) 14001 *Environmental Management System Standard* and CNSC REGDOC-2.9.1: *Environmental Protection, Environmental Principles, Assessments and Protection Measures*, Version 1.2.

The objectives of the OPG Environmental Policy are to:

- Establish an EMS and maintain registration for this system to the International Organization for Standardization (ISO) 14001.
- Work to prevent or mitigate adverse impacts on the environment, with a long-term objective of continual improvement in its EMS and its environmental performance.
- Strive to be a leader in climate change mitigation.
- Manage OPG's sites in a manner that strives to maintain, or enhance where it makes business sense, significant natural areas and associated species of concern. OPG will work with its community partners to support regional ecosystems and biodiversity through science-based habitat stewardship. Where disruption is required, OPG shall take reasonable steps to manage the residual impact to these areas and species.
- Set environmental objectives as part of its annual business planning process. Performance against these environmental objectives will be monitored and associated documented information will be maintained.
- Communicate its environmental performance to employees, governments, local communities, and other stakeholders.

The current OPG ISO 14001 EMS certificate, issued in 2024 following a successful external audit, is valid for 3 years.

The EMS uses a risk-based approach to identify and assess areas of concern with respect to environmental management at the WWMF. Elements of OPG's activities, products, and services that interact or can interact with the environment are considered environmental aspects per the *Environment Health and Safety Managed Systems* program. Significant environmental aspects, as determined by assessing risks and opportunities, are environmental aspects that have or can have a significant

environmental impact. Identified environmental aspects, including significant environmental aspects, are managed as appropriate through operational controls at the sites. Performance measures are established to ensure the controls perform as designed and are corrected and/or improved under the EMS framework.

The identification of significant environmental aspects which apply to the WWMF allows for more focus on areas where there is the potential to have a negative or positive impact on the environment. The significant environmental aspects that have been identified for WWMF include the following:

- Spills; (refer to section 2.9.1.1 for details)
- Wildlife habitat: enhancement or disruption; (refer to section 2.9.1.3 for details)
- Radiological emissions: production or reduction; (refer to section 2.9.4.1 for details)
- Non-radiological emissions: production or reduction; (refer to section 2.9.4.2 for details)
- Low or intermediate radiological waste: generation or diversion; (refer to SCA 11 Waste Management Program
- Non-radiological waste: generation or diversion. (refer to SCA 11 Waste Management Program)

Continual improvement of WWMF operations is an ongoing effort under OPG's ISO 14001-certified EMS. Opportunities for continual improvement are identified through routine EMS audit activities, the OPG performance improvement program, and strategic initiatives such as execution of OPG's Climate Change Plan and Reconciliation Action Plan (available at www.opg.com).

2.9.1.1 Spill Management Program

OPG has a framework in place per OPG-STD-0152, *Spill Management* to manage spills, ensuring implementation of spill prevention, preparedness, response, clean-up, and remediation processes in accordance with applicable regulations. Spills are classified as Category A (Very Serious), Category B (Serious), Category C (Less Serious), or Category D (Exempted or Potential Spills). Spills are identified, classified, and reported following OPG-PROC-0041, *Environmental Event Identification, Classification, and Reporting*.

During the current licence period (2017 to 2025), there were no Category A or B spills. As of November 11th, 2025, there were three Category C spills at WWMF. Although reportable, these spills were minor in nature with no impacts to the public and environment.

2.9.1.2 Regulatory Compliance

The WWMF site operates under numerous environmental regulations governing plant operations. The primary regulators from an environmental perspective are the CNSC, Environment and Climate Change Canada and the Ministry of the Environment, Conservation and Parks (MECP).

During the current licence period (2017 to 2025), there were 38 non-compliances associated with the performance requirements of the incinerator (as of November 11, 2025) specified in the Environmental Compliance Approval (ECA) from the MECP. The majority of which were related to instantaneous spikes in carbon monoxide, brief temperature drops in the secondary chamber below 1,000°C, and by-pass stack cap openings of a few seconds to minutes. The brief performance requirement exceedances were primarily related to waste feeding and air flow challenges, temperature probe failures, and service water interruptions. Changes to waste feed procedures, upgrading of the induced draft fan, and cleanouts of the flue gas ducting have reduced the intermittent exceedances of the performance requirements in recent years . There were no significant impacts to the environment or public associated with these non-compliances of the performance requirements.

2.9.1.3 Biodiversity

The WWMF site has a strong Biodiversity program and Natural Areas Management program to protect, maintain and enhance the natural environment, species and wildlife habitat on, and in the vicinity of, the WWMF.

OPG's biodiversity conservation program meets the requirements of OPG-POL-0021, *Environmental Policy,* and takes authority from OPG-PROG-0005, *Environment Health and Safety Managed Systems.*

There has been a variety of on-site biodiversity initiatives at the WWMF which support species and habitats across the site. Projects include:

- avian monitoring of nest boxes,
- migratory and marsh birds that focus on protecting a variety of bird species such as the Eastern Meadowlark, a species at risk on our site.

Habitat enhancement projects at site include:

- native pollinator gardens,
- tree plantings,
- bird strike prevention measures at the OPG office buildings,
- installation of bird boxes,
- and establishing no mow areas for grassland species.

WWMF is also participating in the Long-Term Snake Monitoring program with Ontario Nature where coverboards are surveyed for snake observations.

The NSS staff continues to enhance habitat offsite through the ongoing partnership with the Invasive Phragmite Control Center. Since 2018, the Invasive Phragmite Control Center has been removing non-native, invasive phragmites and OPG has been conducting annual aerial drone surveys to monitor the progress of these efforts. OPG has also conducted environmental community engagement during local tree planting events, the Huron Fringe Birding Festival, and Pumpkinfest in Port Elgin.

OPG submits applications for Tandem Global (formerly Wildlife Habitat Council) certification of select sites. Tandem Global is an international non-profit, non-lobby group that promotes and independently certifies habitat conservation and management on corporate lands through partnerships and education. The WWMF currently holds the gold standard Tandem Global certification for the period of 2024 to 2026, which is the top tier certification.

2.9.2 Environmental Risk Assessment

Consistent with CNSC REGDOC-2.9.1 *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, Version 1.2, OPG updates the WWMF site Environmental Risk Assessment (ERA) at least once every five years. The 2021 ERA, 01098-REP-07701-00015-R002, *Environmental Risk Assessment 2021 Update for Nuclear Sustainability Services – Western Waste Management Facility*, focused on the years 2014 to 2020 and meets the requirements of CSA N288.6-12 *Environmental risk assessments at class I nuclear facilities and uranium mines and mills*. The ERA is reviewed and updated based on ongoing environmental monitoring data, operational experience, and advances in scientific knowledge. The next ERA update is currently in progress and will be finalized in 2026.

The purpose of the WWMF site ERA is to assess potential human health and ecological risks from exposure to radiological contaminants, conventional contaminants, and physical stressors (e.g. noise) present in the environment as a result of site operations. This is achieved through completion of a human health risk assessment and an ecological risk assessment.

The results of the ERA guide the Environmental Monitoring program and Effluent Monitoring programs, as per CSA N288.4-10, *Environmental monitoring program at class I nuclear facilities and uranium mines and mills,* and CSA N288.5-22, *Effluent monitoring programs at class I nuclear facilities and uranium mines and mills*. These programs are also used as guidance for the ERA by providing information on effluent concentrations and loading, and by providing environmental data to assist in model calibration and validation.

The 2021 ERA confirms that the WWMF continues to operate in a manner that is protective of the health of the public and the environment. The ERA results are intended to be conservative to not underestimate any risk to the public and the environment.

The 2021 ERA report was submitted to the CNSC and details of the ERA were shared with Indigenous Nations and communities. OPG is committed to facilitating Indigenous engagement on ERAs and will continue to work with Indigenous Nations and communities to develop comprehensive and ongoing engagement around ERAs. The 2021 ERA is available on www.opg.com.

2.9.2.1 Predictive Environmental Risk Assessment

The purpose of a Predictive Environmental Risk Assessment (PERA), previously referred to as a Predictive Effects Assessment (PEA), is to identify and assess the potential interactions with the environment as a result of future site activities and to determine whether adequate provision for the protection of the environment and health of persons has been made.

In 2016, OPG undertook a PEA to support the WWMF licence renewal application process (2017 licence renewal) to evaluate the potential for adverse effects to human health and the environment from the activities associated with expansion of the site to accommodate additional waste storage buildings.

In 2025, OPG issued a PEA Addendum Report, 01098-REP-79139-00006, *2024 Predictive Effects Assessment Addendum for the Western Waste Management Facility Expansion Project – Multi-Purpose Storage Building* to demonstrate continued protection of human health and the environment based on an updated storage plan and building design for the north portion of the WWMF site.

Both the 2016 PEA and the 2025 PEA Addendum reports concluded that there are no potential adverse effects predicted to human health or the environment from continued operation of the WWMF site.

For this licence renewal application, OPG is preparing a PERA in accordance with CSA N288.6-22 and CNSC REGDOC-2.9.1 for storage of Lutetium-177 waste and two additional used fuel storage structures.

2.9.3 Assessment and Monitoring

OPG maintains an Environmental Monitoring Program (EMP) in the vicinity of the WWMF site in accordance with licence requirements. The EMP is implemented through N-PROC-OP-0025, *Management of the Environmental Monitoring Programs*, and complies with CSA N288.4-10, *Environmental Monitoring Programs at Nuclear Facilities and Uranium Mines and Mills*, as demonstrated in W-MAN-03443-00001,

Western Waste Management Facility Environmental Monitoring. The scope of the WWMF EMP encompasses protection of both the public and the environment from nuclear substances, hazardous substances, and physical stressors resulting from operations at the WWMF site.

OPG EMPs are designed to satisfy the following primary objectives of CSA N288.4:

1. Assess the impact on human health and the environment of contaminants and physical stressors of concern resulting from operation of OPG nuclear facilities.
2. Demonstrate compliance with limits on the concentration and/or intensity of contaminants and physical stressors in the environment or assess their effect on the environment.
3. Demonstrate the effectiveness of containment and effluent control and provide public assurance of the effectiveness of containment and effluent control, independent of effluent monitoring.
4. Verify the predictions made by the ERAs, refine the models used, and reduce the uncertainty in the predictions made by these assessments and models.

Additionally, the Bruce Power Environmental Monitoring Program for Bruce A and B Nuclear Generating Stations as required by their licence covers the overall Bruce nuclear site operations, which includes the WWMF. The annual public dose attributed from the operations of the Bruce Nuclear Site during the licence period has consistently been a very small fraction of the public dose limit of 1,000 μS/year.

OPG reports the results of the WWMF site specific facility EMP annually to the CNSC. The report is also made available to the public on www.opg.com. The Bruce Power EMP for the overall Bruce Nuclear Site is available on www.brucepower.com.

2.9.3.1 Groundwater Protection and Monitoring Program

The WWMF Groundwater Protection and Monitoring program was established to confirm the predominant on-site groundwater quality and flow characteristics of the WWMF site and to detect any emergent issues. The overall objective of the program is to ensure there are no adverse off-site impacts from contaminants in groundwater. In 2021, OPG implemented the requirements of CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, at the WWMF site and are currently compliant with the CSA N288.7-23 update. This standard focuses on both groundwater monitoring and groundwater protection.

As part of the WWMF's annual groundwater monitoring program, samples were collected from fifty-seven sampling locations at the WWMF site in 2024. Collected samples are analyzed for tritium with the sampling points including monitoring wells

and subsurface drainage features. These samples are analyzed statistically to identify any trends.

From 2017 to 2024, the groundwater data collected from many of the key areas at WWMF indicate that tritium concentrations are consistent with results from previous years with expected fluctuations associated with on-going operations. Where tritium concentrations have been elevated above background conditions historically, they are generally showing improvement (decreased concentrations). In a small number of wells where tritium concentrations in groundwater were showing an increasing trend, the increases are understood to be associated with historical conditions and do not represent inadvertent releases. Tritium concentrations within the site perimeter wells are at background levels indicating that there are no off-site impacts.

Water level elevation data collected as part of the WWMF site's annual Groundwater Protection and Monitoring program has shown that groundwater flow patterns over the licence period remained consistent with historical interpretations. The 2024 WWMF Shallow Groundwater Contour Map is provided in figure 30. The flow directions are complex in this hydrostratigraphic unit, which is considered to reflect influences from subsurface drainage infrastructure and the heterogeneous nature of the till/fill material. The shallow groundwater unit is inferred to discharge to the South Railway Ditch and other drainage ditches at the WWMF (e.g. perimeter ditches in the laydown area) which ultimately discharge to Lake Huron.

Groundwater flow in the middle sand aquifer is directed towards the east (figure 31). Groundwater in the middle sand aquifer also flows downward into the bedrock. In the bedrock aquifer, groundwater is inferred to flow north towards Lake Huron, as shown in figure 32.

Figure 30: 2024 WWMF Shallow Groundwater Contour Map

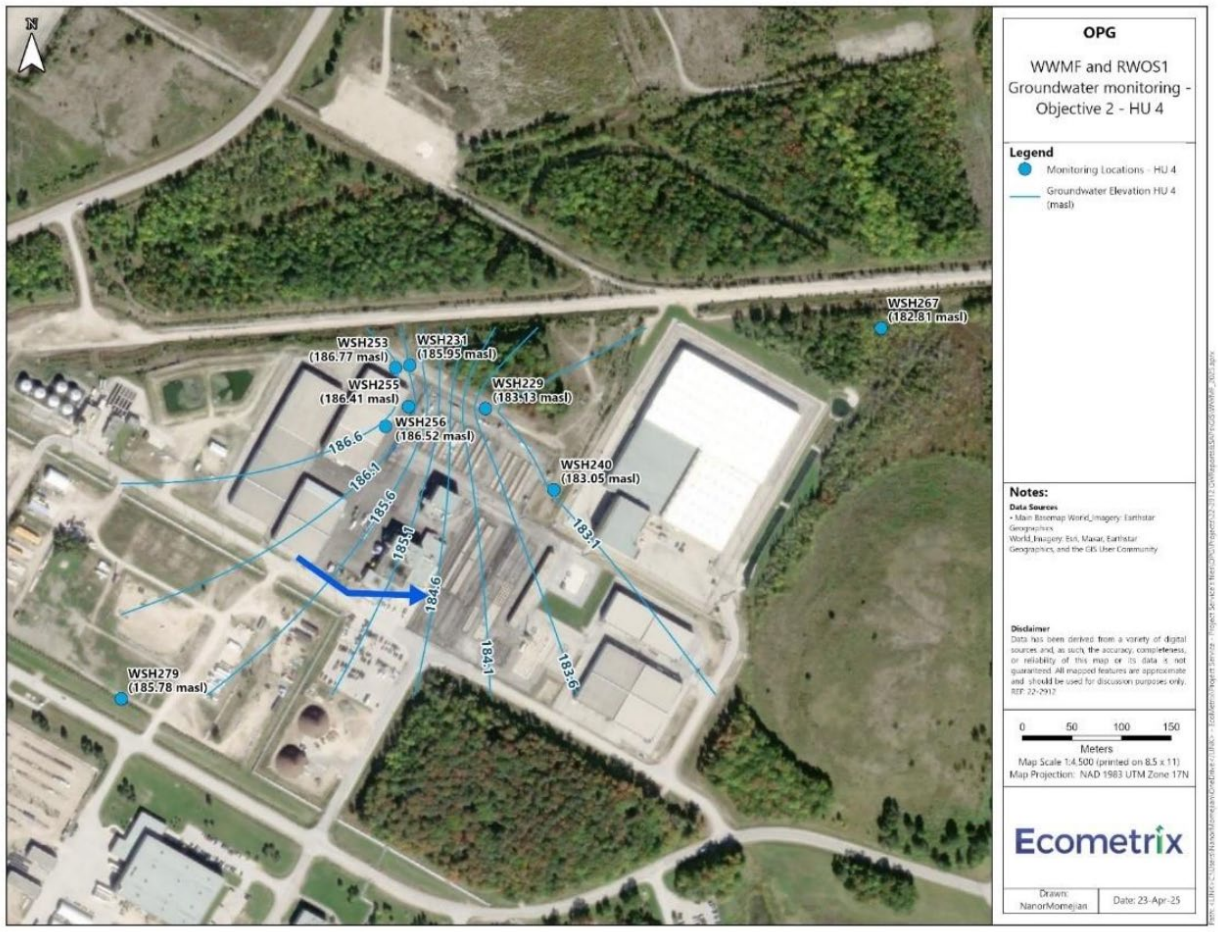


Figure 31: 2024 WWMF Middle Sand Aquifer Groundwater Contour Map

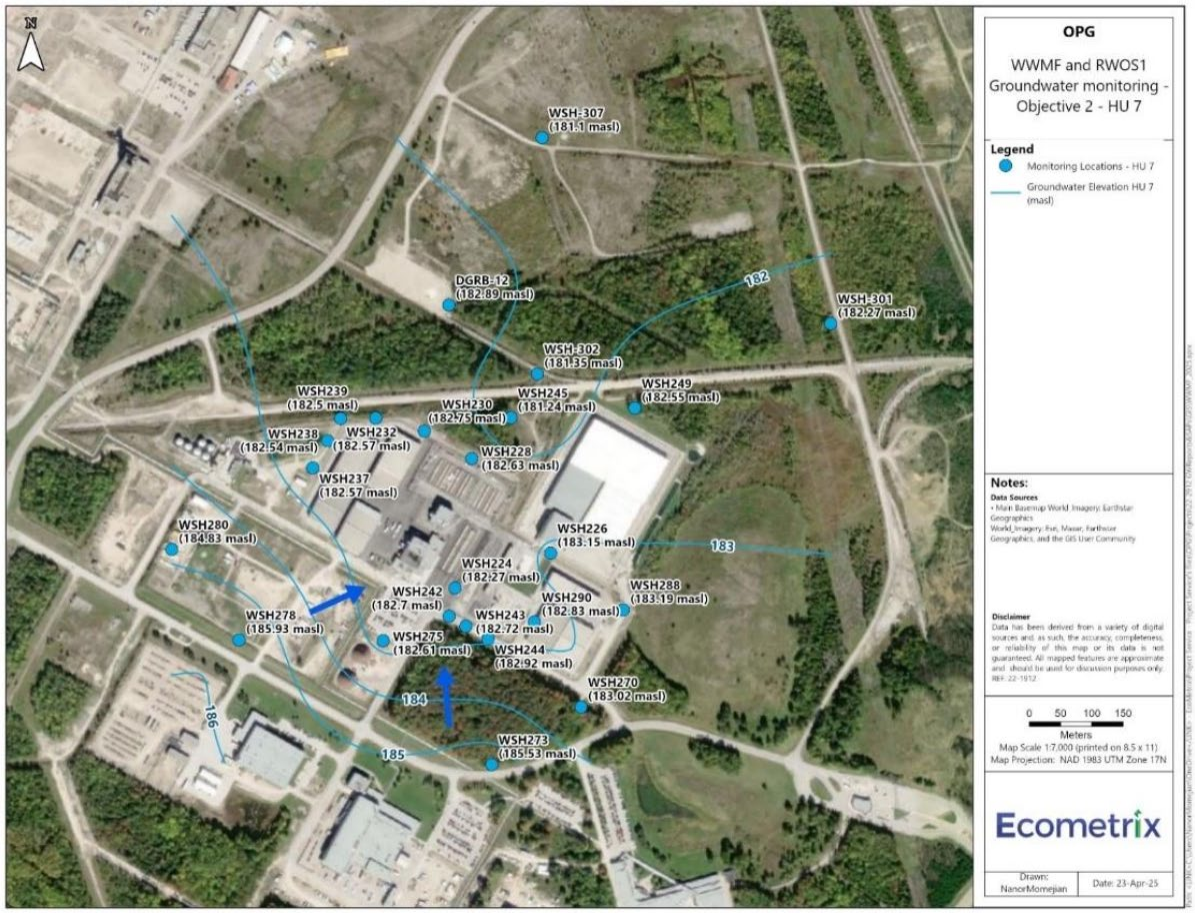


Figure 32: 2024 WWMF Bedrock Groundwater Contour Map

2.9.4 Effluent and Emissions Control

2.9.4.1 Radiological Emissions to Air and Water

The WWMF site effluent monitoring program documented in N-STD-OP-0031, *Monitoring of Nuclear Hazardous Substances in Effluents,* is compliant with CSA N288.5-22, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*. The objectives of the effluent monitoring program are to:

- Demonstrate compliance with authorized release limits and any other regulatory requirements concerning the release of nuclear and hazardous substances from the source.
- Demonstrate adherence to internal objectives and targets set on release amounts, for purposes of effluent control.
- Confirm the adequacy of controls on releases from the source.
- Provide an indication of unusual or unforeseen conditions that might require corrective action or additional monitoring.

- Provide data to assess the level of risk on human health and safety, and potential biological effects in the environment of the nuclear and hazardous substances of concern released from facility.
- Confirm predictions in the environmental impact statement made through the environmental review process.
- Provide assurance to the public on the effectiveness of effluent and emissions control.
- Provide data which, when combined with the results of environmental monitoring and modelling, can be used to test or refine the models used in the ERA or dose assessments.
- Address any other objective identified by the nuclear facility or licensed activity (e.g., demonstrating due diligence, meeting a stakeholder commitment, or other business reasons).

A Site Emissions Monitoring Plan is developed as a requirement of N-STD-OP-0031 and addresses design requirements, reporting requirements, and sampling/analytical procedures use, in alignment with CSA N288.5-22.

Derived Release Limits

Derived Release Limits (DRLs) are calculated using CSA N288.1-20, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear* facilities and submitted to the CNSC. The DRL for a given radionuclide is the release rate to air or surface water during normal operation of a nuclear facility that would cause an individual of the most highly exposed group around the WWMF site to receive and be committed to a dose equal to the annual regulatory dose limit over the period of a calendar year.

DRLs are used to establish controls on the releases of radioactive materials and are calculated for radionuclides of potential dose significance in effluent streams, to facilitate the control, reporting, and regulation of radionuclide emissions. The DRL values are shown below in table 30 and documented in 0125-REP-03482-00002, *Derived Release Limits for the Western Waste Management Facility*. For operational purposes, the airborne DRLs are divided into weekly amounts and waterborne DRLs into monthly amounts.

Table 30: WWMF - Derived Release Limits

Release Category	Radionuclide	DRL (Becquerel/year)	Operational DRL (Becquerel/week)
Air	Tritium	3.45E+17	6.64E+15
	Particulate	6.65E+11	1.28E+10
	Iodine-131	1.99E+12	3.83E+10
	Carbon-14	2.41E+15	4.63E+13
	Gross Alpha	3.36E+11	6.46E+09
Release Category	**Radionuclide**	**DRL (Becquerel/year)**	**Operational DRL (Becquerel/month)**
Water	Tritium	3.59E+15	2.99E+14
	Carbon-14	7.02E+12	5.85E+11
	Gross Beta-Gamma	4.01E+10	3.34E+09
	Gross Alpha	7.09E+09	5.91E+08

Action Levels

An Environmental Action Level (EAL) for an environmental release is an effluent monitoring level (concentration, activity, rate, etc.) that, if exceeded, triggers an investigation to determine whether a loss of control of the environmental protection program has occurred, and enables corrective action, if warranted. In 2017, a standardized methodology for calculating and applying EALs at Class 1 nuclear facilities and uranium mines and mills was developed and documented in CSA N288.8-17, *Establishing and implementing action levels for releases to the environment from nuclear facilities*. The primary change introduced by the standard is that EALs are to be calculated based on the historical performance of the site.

In 2021, the EALs for the WWMF site were reviewed against the new standard and it was concluded that the radiological emissions from the WWMF were below the threshold requiring EALs. The updated analysis of the WWMF EALs to reflect the

guidance and methodology in N288.8-17 are documented in 0125-REP-03482-00004, *Action Levels for Environmental Releases – Western Waste Management Facility*. The existing licence requires EALs to be in place for the WWMF. As part of this licence renewal, OPG is requesting an amendment to Licence Condition 9.1 to require establishing EALs in compliance with CSA N288.8-17, which has identified no EALs are required for the WWMF. Communication regarding the implementation plan is documented in W-CORR-00531-01935, *Implementation Plan for CSA N288.8-17 at the Western Waste Management Facility*.

The current EALs for the WWMF are shown in table 31. Exceeding an EAL requires notification and reporting to the CNSC, investigation of the cause, and corrective action as required.

Table 31: WWMF – Action Levels for (EAL) for Environmental Releases

Release Category	Radionuclide	EALs: Gaseous Releases (Becquerel/week)
Air	Tritium	6.91E+14
	Particulate	1.33E+09
	Iodine-131 (mfp)	3.98E+09
	Carbon-14	4.82E+12
	Gross Alpha	6.72E+08
Release Category	**Radionuclide**	**EALs: Liquid Releases (Becquerel/month)**
Water	Tritium	2.87E+13
	Carbon-14	5.62E+10
	Gross Alpha	5.67E+07
	Gross Beta-Gamma	3.20E+08

Airborne Emissions

During the current licence term, the emissions from the WWMF have consistently been orders of magnitude below DRL values as shown in figure 33.

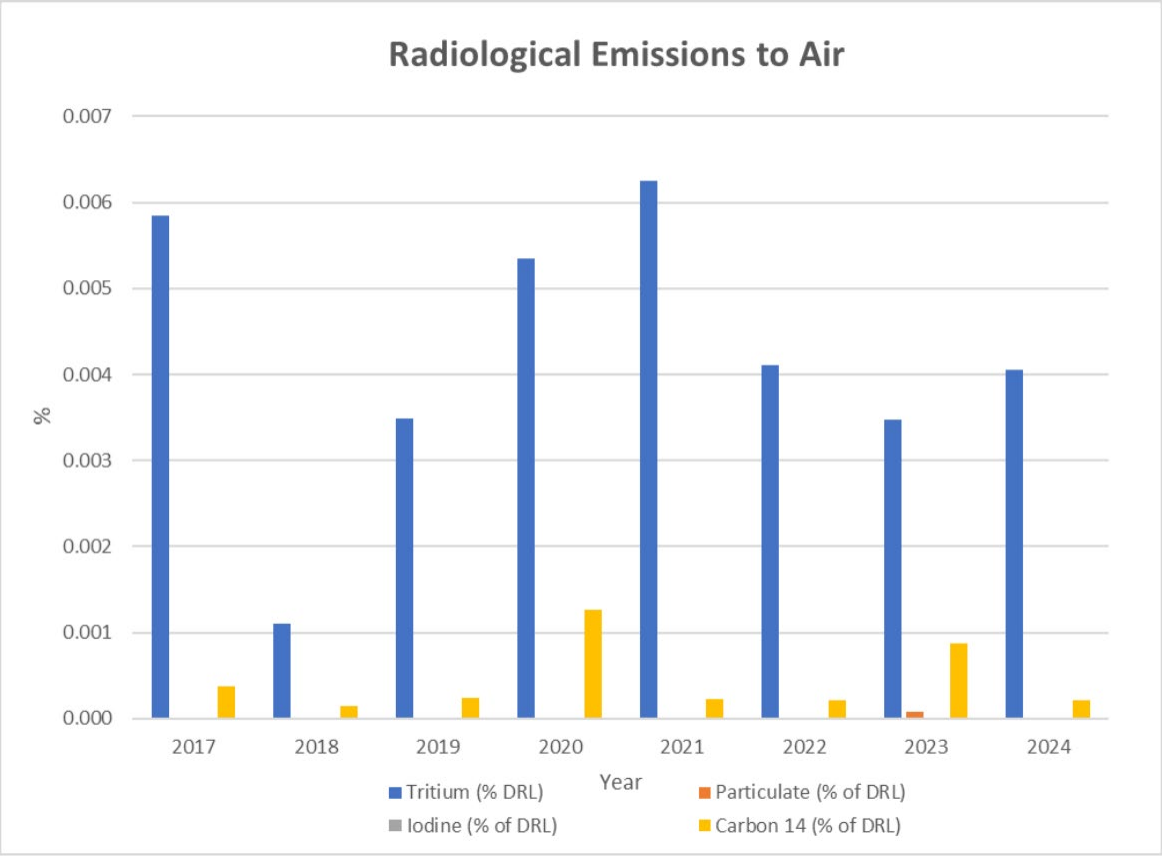


Figure 33: Radiological Emissions to Air

Note: Action levels set at 10% of the weekly DRL.

Note: Gross Alpha is not monitored at the WWMF since it does not meet the threshold for monitoring per N-STD-OP-0031.

At the WWMF, the WVRB radioactive waste incinerator stack and ventilation exhaust stack are monitored for gaseous effluent releases of tritium, particulate and iodine-131 while carbon-14 emissions are monitored on the incinerator stack only. The TPMB ventilation stack is monitored for tritium and particulate emissions. The airborne results are compiled weekly and compared to the applicable weekly DRL. Ventilation exhaust is equipped with High-Efficiency Particulate Air (HEPA) filters and are tested in accordance with the requirements of CSA N288.3.4, *Performance testing of nuclear air-cleaning systems at nuclear facilities*.

The UFDSF ventilation stack was formerly monitored for radioactive particulate for confirmation purposes. Past monitoring results have consistently demonstrated negligible particulate emissions from this building. Based on the monitoring results over the years and in alignment with the monitoring standards, this monitoring was determined to be no longer required. As per CNSC acceptance (W-CORR-00531-01915), this particulate emissions monitoring was discontinued in 2024.

Waterborne Emissions

There are no direct discharges to water from the WWMF site. Any water removed from the WWMF building sumps or storage structures is transferred to Bruce Power for discharge in their Active Liquid Waste system and is accounted for in that station's emissions. Surface water and subsurface groundwater drainage monitoring was formerly part of waterborne emissions prior to 2021. However, since there are no direct discharges to water at the WWMF, this monitoring was transitioned to the environmental risk assessment program under CSA N288.6-12 and the groundwater protection program under CSA N288.7-23.

2.9.4.2 Conventional Emissions

Monitoring and reporting on emissions of conventional substances are completed in accordance with provincial and federal regulatory requirements and submitted to provincial and federal agencies annually. The WWMF has two ECAs from the MECP for air emissions (5956-D8CJYL) and stormwater management (8208-APKNHE).

Incinerator

Under the Air Environmental Compliance Approval, continuous monitoring of the incinerator is completed for carbon monoxide, nitrogen oxides, hydrogen chloride, oxygen, temperature, and opacity to ensure optimal waste combustion and emissions treatment is being achieved. If any of these parameters exceeds a performance requirement in the Environmental Compliance Approval, the waste feed is suspended until the performance requirement is met and the MECP is notified of the exceedance with the cause and corrective actions.

Source testing of incinerator emissions is also completed once a year to quantify overall emission rates of particulate matter, metals, polychlorinated biphenyls, dioxins and furans, polycyclic aromatic hydrocarbons and volatile organic compounds. The annual source testing results indicate that incinerator emissions are well within the regulatory limits.

Table 32 provides a summary of key parameters of the source testing results since 2017 for incinerator stack emissions in comparison to the allowable limits specified in the Environmental Compliance Approval.

Table 32: Incinerator Source Testing Results

Parameter		Particulate Matter	Mercury	Dioxins & Furans	Total Hydrocarbons
Units		**mg/Rm³**	**Mg/Rm³**	**pg TEQ/Rm³**	**ppm**
Allowable Limit		**14**	**20**	**80**	**50**
Measured Concentration	2017	0.95	<0.22	2.04	0.80
	2018	--	--	--	--
	2019	--	--	--	--
	2020	0.60	<0.30	14.2	16.10
	2021	0.90	<0.32	21.1	1.04
	2022	0.55	<0.38	14.7	1.41
	2023	0.24	<0.32	7.66	1.41
	2024	0.34	<0.32	3.91	1.74

Note: Emission source testing was exempted for 2018 and 2019 with MECP approval due to the unavailability of solid waste burning.

Stormwater

The ECA for industrial sewage works, related to the WWMF stormwater system is designed to ensure the stormwater from the works is essentially free of floating and settleable solids and does not contain oil or any other substances in amounts sufficient to create a visible film, sheen, foam, or discolouration on the receiving area.

The WWMF stormwater system utilizes oil and grit separators and stormwater management pond to treat the stormwater before discharge into the natural environment. The stormwater management pond is monitored for total suspended solids to ensure it is working as designed and the oil and grit separators are inspected routinely and cleaned out per the manufacturer's manual. During the licence period (2017 to 2025) inspections and monitoring confirm the WWMF stormwater management system is operating per the design requirements.

2.9.5 Protection of the Public

The WWMF site is located within the Bruce Nuclear Site that includes the Bruce Nuclear Generating Stations operated by Bruce Power. Bruce Power conducts a full EMP for the overall Bruce Nuclear Site (including the WWMF), which includes radiological monitoring of off-site air, water (drinking water and lake water), aquatic samples (fish, sediment, and beach sand), and terrestrial samples (fruits, vegetables, milk, soil and animal feed). Data gathered from this program, along with Bruce Nuclear Site emissions data, are used by Bruce Power to assess the annual radiological dose to members of the public living or working in the vicinity of the Bruce Nuclear Site.

The effective dose limit for members of the public as set out in the Radiation Protection Regulations, is 1,000 μSv/year. As shown in the logarithmic scale in figure 34, dose to the public from operations on the Bruce Nuclear Site is a very small fraction of the annual legal dose limit.

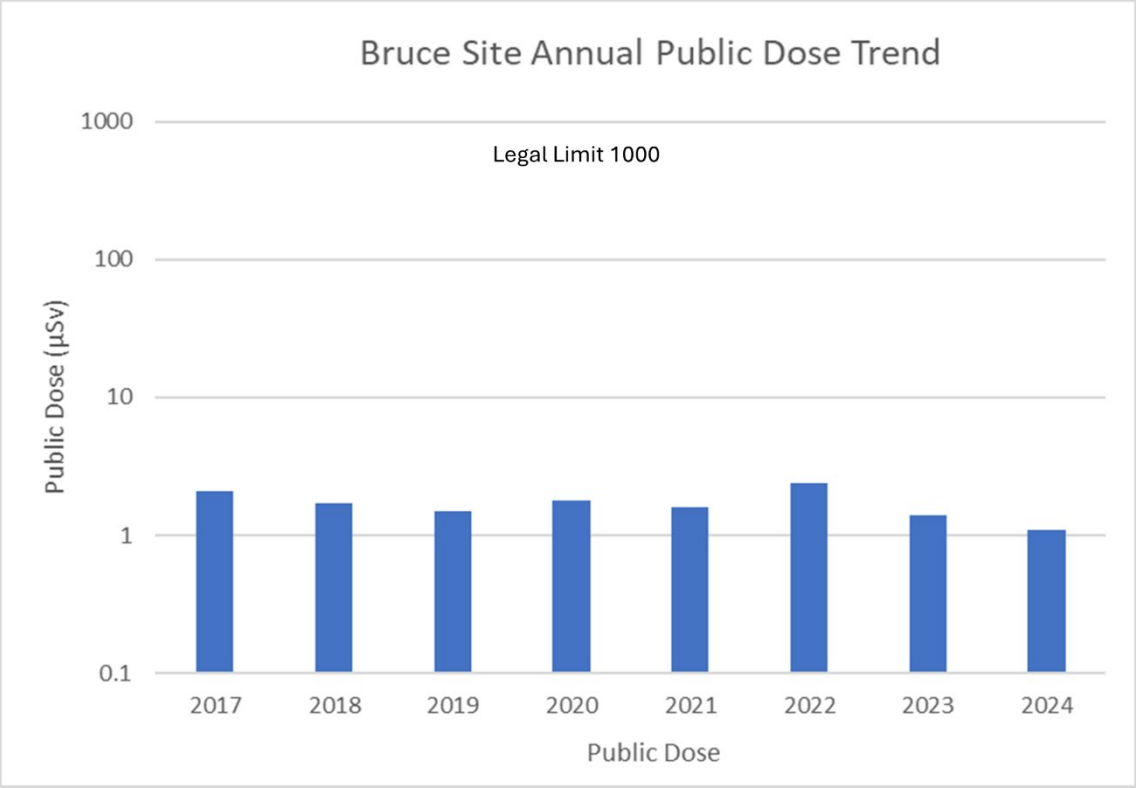


Figure 34: Bruce Nuclear Site Annual Public Dose Trend

The public radiological dose estimate from the WWMF operations is achieved by estimating the WWMF's contribution to Bruce Power's public radiological dose calculation by comparing the relative levels of their monitored radiological emissions. The public dose arising from the WWMF operations is a portion of the total dose from

the Bruce Site operations. Thus, the dose to members of the public from the WWMF operations is well below the regulatory limit.

Results of the public dose assessment are published in Bruce Power's Annual Environmental Protection report which is available to the public on www.brucepower.com. As well, annual OPG EMP reports for the WWMF are available on www.opg.com, under Regulatory Reporting.

2.10 Emergency Management and Fire Protection

2.10.1 General considerations

WWMF's Employee Emergency Response Procedure W-PROC-ES-0002, identifies emergency response requirements at WWMF for fire, medical and radiation emergencies. In accordance with the contractual agreements between OPG and Bruce Power, Bruce Power provides Emergency Response Services to OPG for all fire, medical, rescue and spill emergencies that arise at the WWMF. Such services are available 24 hours a day.

In accordance with the Provincial Nuclear Emergency Response Plan and the Bruce Power Nuclear Emergency Response Plan, OPG staff at the WWMF follow the emergency response instructions from Bruce Power for a Station Emergency at either Bruce Power NGS A or B.

The OPG document in the table below requires written notification of change per WWMF License Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 33: Emergency Management and Fire Protection

Document Number	Document Title
N-STD-RA-0036	Radioactive Materials Transportation Emergency Response Plan

While potential scenarios at WWMF do not present a radiological hazard to the public and therefore would not necessitate protective actions as outlined in the Provincial Nuclear Emergency Response Plan (PNERP), there may still be a risk to on-site personnel or the environment. In such cases, the procedures outlined in the Bruce Nuclear Emergency Response Plan would be implemented to manage the situation, particularly if a station emergency is declared or if support from the Emergency Response Organization is required.

2.10.1.1 Emergency Response Plan for Radioactive Materials Transportation

OPG's Transportation Emergency Response Plan (TERP) provides guidelines to ensure adequate emergency response capability is in place to support a coordinated response in the event of a transportation incident involving radioactive material.

N-STD-RA-0036, *Radioactive Materials Transportation Emergency Response Plan* includes:

- Emergency response capability for all off-site shipments.
- Defined roles, responsibilities, and notification protocols.

- Written reporting to CNSC within 21 days of a dangerous occurrence, as per Packaging and Transport of Nuclear Substances Regulations Section 38.
- Maintenance of an Emergency Response Assistance Plan and supporting documentation for Transport Canada.

N-STD-RA-0036, governs OPG's preparedness and response to transportation incidents involving radioactive materials, specifically for off-site shipments. On-site incidents at WWMF fall under Bruce Power Emergency Plan, not TERP. OPG is responsible for dispatching a Response Team within 90 minutes of notification. OPG TERP is activated through a 24-hour emergency contact system, upon notification of a transportation incident involving radioactive material.

2.10.2 Nuclear Emergency Preparedness and Response

Staff at the WWMF follow procedure W-PROC-ES-0002, *Employee Emergency Response*, to ensure appropriate actions are taken during emergencies such as fire, medical incidents, radiation events, severe weather, tornadoes, seismic events, and station blackouts.

Nuclear emergency planning at the WWMF is aligned with both the PNERP and the Bruce Power Nuclear Emergency Response Plan. Staff at the Bruce Site, including those at the WWMF, adhere to Bruce Power's instructions during a station emergency at a Bruce Power Nuclear Generating Station.

The Bruce Power Nuclear Emergency Response Plan defines the key program elements, objectives, roles, and responsibilities required for an effective response to nuclear emergencies. This plan applies to the entire Bruce Power site, including the WWMF, and outlines Bruce Power's capability to respond to nuclear emergencies with its primary objective to protect the public, employees, and the environment.

While potential scenarios at the WWMF do not pose a radiological hazard to the public and therefore do not require protective actions under the PNERP there may still be risks to on-site personnel on the Bruce Nuclear site. In such cases, the procedures outlined in the Bruce Power Nuclear Emergency Response Plan are implemented to manage the situation, particularly if a station emergency is declared or if support from the Emergency Response Organization is needed.

WWMF on-site staff participate in annual building evacuation drills, personnel accounting drills, and early dismissal drills for non-essential personnel. Due to the frequency of severe winter weather, staff are regularly involved in site evacuations during early dismissal days.

A mutual aid agreement, which formalizes cooperation among Canadian nuclear operators during major emergencies at nuclear stations, has been revised and

renewed for 10 years by Bruce Power, OPG, New Brunswick Power, and Canadian Nuclear Laboratories.

OPG is in compliance with CNSC REGDOC 2.10.1 *Nuclear Emergency Preparedness and Response, Version 2*. OPG is committed to enhancing and refining its Emergency Preparedness program to ensure compliance with evolving regulatory requirements and industry best practices. OPG maintains a robust framework for continuous improvement by incorporating valuable insights and lessons learned from drill and exercise reports. These reports play a pivotal role in identifying areas for enhancement, enabling OPG to continuously strengthen its preparedness, response capabilities, and overall program effectiveness.

2.10.3 Conventional Emergency Preparedness and Response

Staff at the WWMF implement W-PROC-ES-0002, Employee Emergency Response, to identify emergency response requirements for fire, medical, radiation, severe weather, tornado, seismic events, and station blackout conditions.

Response to non-radiological adverse conditions is managed in accordance with Bruce Power's emergency response and station procedures. Staff participate in drills and exercises as required by the Bruce Power Nuclear Emergency Response Plan.

2.10.4 Fire Emergency Preparedness and Response

The purpose of the Fire Protection Program is to define the key program elements, objectives, and roles and responsibilities with the overall goal to minimize the risks and consequences of fire to OPG Nuclear facilities.

The key program elements for WWMF are:

- Fire Safety Plan
- Inspections, Testing, Maintenance
- Analysis, Assessments, Reviews, Audits
- Drills

The OPG documents in the table below require written notification of change per the WWMF Licence Conditions Handbook LCH-W4-314.00/2027-R003:

Table 34: SCA 10 - Emergency Management and Fire Protection

Document Number	Document Title
N-PROG-RA-0012	Fire Protection

The fire protection codes and standards WWMF is currently required to conform to are:

- CSA N393-22, Fire protection for facilities that process, handle or store nuclear substances;
- NBCC (2015), National Building Code of Canada; and
- NFCC (2015), National Fire Code of Canada.

In 2023, OPG conducted code-over-code reviews for:

- NBCC 2020 vs NBCC 2015; and
- NFCC 2020 vs NFCC 2015.

The code-over-code reviews identified several gaps, for which implementation plans were developed to address and close all identified deficiencies, ensuring the WWMF achieves compliance with the latest applicable codes and standards. The identified gaps and corresponding implementation plans were submitted to CNSC staff under reference CD# W-CORR-00531-01928. Full compliance of the WWMF with NBCC-2020 and NFCC-2020 is targeted for completion by December 19, 2025, as documented in CD# W-CORR-00531-01956.

2.10.4.1 Current Operations and Results

Highlights

During the current licence period:

- Annual Fire drills were performed in accordance with the CSA N393-22 and National Fire Code of Canada (NFCC), results from drills have been satisfactory.
- Third-party reviews, analysis and audits completed confirming compliance with CSA N393-22 requirements.
- OPG revised the Fire Impairment Manual, which describes how OPG manages impairments for NSS facilities, including the WWMF.
- OPG revised the NSS Combustible Material Safety Instruction, to ensure that all transient combustible materials are minimized in NSS facilities, including the WWMF.

The new structures within the WWMF will comply with the latest editions of CSA N393 (2022), NBCC (2020), and NFCC (2020).

Governance

The site-specific Fire Protection Program requirements at the WWMF has been integrated into OPG Nuclear's overall Fire Protection Program to promote a consistent

fire protection strategy across all nuclear facilities. The WWMF fire protection procedures and related elements derive their authority from the OPG Nuclear Fire Protection Program. To ensure effective alignment, the WWMF governance has been reviewed against OPG Nuclear's program. This comprehensive approach supports adequate fire protection by reducing both the likelihood and potential impact of fire events at the facility.

Fire Safety Plan

The WWMF Fire Safety Plan provides direction with respect to fire prevention, fire protection, emergency procedures, training and drills. The Fire Safety Plan is reviewed and revised accordingly on an annual basis to ensure it reflects current field conditions and practices. The Fire Safety Plan at the WWMF meets the requirements of the NRC NFCC.

Inspection, Testing, Maintenance

During the current licence period, in accordance with the WWMF operating licence, the inspection, testing and maintenance of the fire detection and suppression systems was performed at the required frequency, as stipulated in the NFCC (2015). The inspection and testing were performed by OPG and reviewed by a third party. During the current licence period, independent third-party reviews were completed tri-annually, to confirm the WWMF fire systems have been operated, inspected, tested, and maintained in accordance with the NFCC (2015) and the standards listed therein.

- The independent third-party report indicates that the WWMF is in compliance with the CSA N393-13 (Reaffirmed 2018), and NFCC (2015) requirements. Findings from the reviews have been addressed via corrective actions.

Fire Drills

During the current licence period, fire drills were performed in accordance with the CSA N393-13 (Reaffirmed 2018) and NFCC (2015). Results from drills have been satisfactory with no major findings. The full scall fire drills were performed with the participation of the Bruce Power Emergency Protective Services (BP EPS).

Analysis, Assessments, Reviews, Audits

To maintain the compliance of WWMF with CSA N393, the following required third-party reviews, analysis and audits have been completed within the intervals stipulated in CSA N393:

- Fire Hazard Assessment.
- Code Compliance Review.

- Fire Protection Program Audit, including Inspection, testing and maintenance.
- Annual Facility Condition Inspection.
- Fire Response Needs Analysis.

The results of the compliance reviews have been submitted to the CNSC as required by the WWMF operating licence and CSA N393. The analysis, assessment and audit reports have confirmed the overall compliance of WWMF with the requirements of CSA N393.

Fire Protection Response

As per a Memorandum of Understanding (MoU) between Bruce Power and OPG, Bruce Power provides emergency response services to OPG for fire, medical, rescue and spill emergencies that arise at the WWMF.

Bruce Power Emergency Protective Services is familiar with the WWMF site, participating with the facility's annual fire drills at WWMF.

NSS Fire Impairment Manual

During the current WWMF licence period, OPG has revised and issued the NSS Fire Impairment Manual, which describes how OPG manages impairments for OPG's NSS facilities, including WWMF. This manual provides resource information to guide trained staff who are directly involved with planned and unplanned impairments to the fire protection system in evaluating, establishing, planning, controlling and executing outages of fire protection systems. The manual also provides detailed compensatory measure information for impaired fire systems.

NSS Combustible Material Safety Instruction

OPG has revised and issued the NSS Combustible Material Safety Instruction to ensure that all transient combustible materials are minimized, properly assessed, analyzed, and authorized before being placed in the waste management facilities, including WWMF. Combustible materials, combustible equipment, and ignition sources, other than that forming part of the approved facilities design that is located outside of designed storage areas, shall be eliminated. When elimination is not practical, combustibles shall be minimized, controlled, analyzed, and located in accordance with this combustible material safety instruction.

Engineering Change Control

All new structures and existing design modifications are reviewed for fire protection impact through the Engineering Change Control process which is described in section 2.5.1.

2.10.4.3 Future Plans and Improvements

Governance

Fire Protection governance will be frequently reviewed to maintain the alignment of NSS, including WWMF, with OPG Nuclear.

Fire Protection - Detection System:

- WWMF will continue to perform inspections, testing, and maintenance of the fire detection system as per the current preventive maintenance schedule.
- Replace the existing (obsolete) fire panels at WWMF.

Fire Protection - Suppression System:

- WWMF will continue to perform inspection, testing, and maintenance of the fire suppression systems as per the applicable codes and standards.
- Upgrade the current Carbon Dioxide (CO_2) tanks fill lines to ensure that CO_2 delivery process does not impact the safety and functionality of CO_2 fire protection system.

Compliance

The current WFOL requires the WWMF to comply with CSA N393-13 (Reaffirmed 2018), NBCC (2015) and NFCC (2015).

In 2023, OPG completed the Gap Analysis and the Implementation Plans for CSA N393-22, NBCC (2020) and NFCC (2020). The implementation plan to bring the NSS facilities in compliance with CSA N393-22, including WWMF, was completed on December 20, 2024, and plans to be in compliance with both NBCC (2020) and NFCC (2020) by December 19, 2025.

Fire Protection of New Structures

When the design of the new structures is initiated by the design engineering team, as per the Engineering Change Control Process, N-PROC-MP-0090, the fire protection impact evaluation form will be prepared. This form will be sent to the OPG Fire Protection organization to perform a review and provide comments.

As required, OPG's Fire Protection organization will also provide support to the design engineering team, by providing interpretation of code and standard requirements, as well as reviewing the project's Fire Hazard Assessment, Code Compliance Review and Third-Party Review reports.

New construction structures within WWMF will comply with CSA N393-22, NBCC 2020, NFCC 2020, and applicable fire Codes and Standards. The new structure's Fire Hazard Assessment report, Code Compliance Review report and the results of

the Third-Party Review, will be added to the overall site WWMF Fire Hazard Assessment report, Code Compliance Review report, and Fire Response Needs Analysis report during the next review/update cycle of these reports, as stipulated in CSA N393-22.

2.11 Waste Management

2.11.1 General Considerations

OPG's Waste Management program ensures that adequate provisions are in place to limit the generation of radioactive and conventional waste and if created, to control and manage its handling, storage, and disposal. This program ensures the safety of workers and the public and facilitates continuous improvement in environmental performance supporting OPG's Environmental Policy.

The OPG documents below require written notification of change per WWMF Licence Conditions Handbook: LCH-W4-314.00/2027-R003:

Table 35: SCA 11 – Waste Management

Document Number	Document Title
W-PROG-WM-0001	Nuclear Waste Management
OPG-STD-0156	Management of Waste and Other Environmentally Regulated Materials
N-PROC-RA-0017	Segregation and Handling of Radioactive Wastes
W-PROG-WM-0003	Decommissioning Program
0125-PLAN-00960-00001	Preliminary Decommissioning Plan - Western Waste Management Facility

Non-radioactive (conventional and hazardous waste) and radioactive waste elements of this SCA are managed under two waste management programs:

- OPG-PROG-0005, Environment Health and Safety Managed Systems; and,
- W-PROG-WM-0001, Nuclear Waste Management.

The *Environment Health and Safety Managed Systems* program describes how OPG's Environmental Management Systems meet the requirements of the ISO 14001, *Environmental Management Systems* standard, including waste management activities. Standard OPG-STD-0156, *Management of Waste and Other Environmentally Regulated Materials*, is part of the Environmental Management Systems program and describes OPG's processes and procedures to address regulatory requirements with respect to waste management. OPG is subject to federal and provincial waste management regulations which include general waste management practices, transportation of dangerous goods, Polychlorinated Biphenyl management, Ozone Depleting Substances management, and CNSC requirements for nuclear facilities. The radiological waste content of OPG-STD-0156 is limited to low and intermediate level radioactive waste only.

The *Nuclear Waste Management Program*, W-PROG-WM-0001, is a mature and effective program applicable to all of OPG. The objective of this program is to ensure adequate provisions are in place to limit the production of radioactive waste and to control its handling, storage, and disposal. Activities are performed in accordance with licensing basis standards and governing documents that prescribe controls and responsibilities to ensure the activities are carried out in a safe and effective manner by qualified personnel. W-PROG-WM-0001 is the program that implements the requirements of CNSC REGDOC-2.11.1 *Waste Management*, CSA N292.0-19 *General principles for the management of radioactive waste and irradiated fuel*, and CSA N292.4-23 *Storage of radioactive waste and irradiated fuel*.

Waste management program audits and self-assessments are conducted in accordance with OPG's Management System and internal governance requirements, to confirm that compliance obligations are addressed and to identify opportunities for continual improvement.

All waste handling and management activities are conducted in a manner that meets the requirements of OPG's Radiation Protection Program. Waste streams are handled and processed in a manner that ensures the safety of employees, the public, and the environment, while applying best practices to reduce and effectively segregate the generated waste. Radioactive waste generated at the WWMF is kept at the WWMF for interim storage. Additionally, OPG's RP program ensures the safe transfer of radioactive materials on site.

2.11.2 Waste Characterization

Waste Characterization supports the Nuclear Waste Management program ensuring that waste is sufficiently characterized, and the characteristics (i.e. physical, chemical, biological and/or radiological characteristics) are documented to meet the requirements at each step of the waste lifecycle, including generation, handling, packaging, transportation, processing and storage.

CANDU used fuel has historically been characterized and documented to support the development of safe handling and storage requirements. This information with an assessment basis is captured in the WWMF safety report and meets the intent of CSA N292.8-21.OPG adheres to W-PROC-WM-0096, *Nuclear Waste Characterization*, which documents the requirements for the characterization of L&ILW; this procedure is currently being updated to comply with the requirements of CSA N292.8-21, *Characterization of radioactive waste and irradiated fuel,* to include guidance on preparing a waste characterization plan. W-PLAN-03469.1-00001, *Low-And Intermediate-Level Waste Characterization Plan*, provides further detail on the characterization of routine radioactive waste generated at WWMF and is also being revised to comply with CSA N292.8-21. OPG will be compliant with CSA N292.8-21 by December 19, 2025 as communicated to the CNSC in N-CORR-00531-24041.

2.11.3 Waste Minimization

The objectives of WWMF's waste minimization activities are to:

1. minimize the volume of waste generated overall,
2. maximize diversion to the conventional waste stream to reduce the quantity of radioactive waste requiring long term storage, and
3. reduce the volume of radioactive waste requiring long-term storage through sorting and segregation for maximum volume-reduction potential.

WWMF continues to strive to reduce its environmental footprint by reducing waste generated. Waste minimization is a shared responsibility amongst all WWMF staff. WWMF staff segregate waste at the point of generation into conventional, radioactive, and hazardous waste streams in alignment with N-PROC-RA-0017 *Segregation and Handling of Radioactive Wastes*, and local instructions for Waste Collection Management.

Employee task proficiency is achieved through initial training and ongoing communications around the importance of proper segregation of waste materials.

OPG implemented the reporting of a station-specific LLW diversion metric in 2021. The LLW diversion metric calculates the volume of waste material that is diverted out of the radioactive waste stream to a clean conventional waste stream. WWMF started 2025 with a quarterly diversion level of 47%.

The key contribution to the minimization of LLW generation (diversion) is the "Likely Clean" program. The "Likely Clean" program advises employees to segregate waste generated inside the protected area into "Likely Clean" receptacles instead of "Active" receptacles, if the waste is believed to be uncontaminated. "Likely Clean" waste is surveyed and, if free of contamination, is processed as conventional waste.

2.11.4 Waste Management Practices

Waste generated from the maintenance and operation of the WWMF is segregated at the point of generation into conventional, radioactive, and hazardous waste streams in alignment with N-PROC-RA-0017 *Segregation and Handling of Radioactive Wastes*. The generated waste paths can be classified as follows:

- Radioactive waste, which is further segregated into incinerable, compactible, or non-processible, is then received into the WWMF's radioactive waste inventory as the licensed waste processing and storage facility.
- Inactive "clean" conventional waste, which is unconditionally cleared from the facility and transferred to a landfill or recycling facility.
- Inactive hazardous industrial waste, which is shipped to an approved waste receiver for disposal via incineration or placement in a hazardous landfill.

2.11.4.1 Long Term Disposal

OPG remains committed to the safe and permanent disposal of OPG's nuclear waste. The Nuclear Waste Management Organization (NWMO), in accordance with the federal Nuclear Waste Act (2002), is responsible for implementing Canada's plan for the safe, long-term management of used nuclear fuel. Under the NWMO's plan, a deep geological repository for used fuel is expected to be in service in the mid-2040s. Additionally, under the Federal Government's Integrated Strategy for Radioactive Waste (ISRW), the NWMO is also responsible for the long-term disposal of ILW. As per the ISRW, ILW is to be disposed in a deep geological repository with an expected in-service date by 2050. Waste generators are responsible for LLW. OPG remains committed to finding solutions for disposal of LLW by 2050, as outlined in Canada's Radioactive Waste & Decommissioning Policy Framework. The process for finding disposal solutions will include two-way information sharing and engagement with Indigenous communities and community stakeholders. As per the ISRW, LLW is to be disposed of in near surface disposal facilities with an expected in-service date by 2050.

As OPG's waste strategy for permanent disposal continues to evolve over the licence period, OPG will continue to engage with stakeholders and seek amendments to the WWMF WFOL as required.

2.11.5 Decommissioning Plan

W-PROG-WM-0003, *Decommissioning* program, describes the requirements and processes to safely and cost effectively decommission OPG owned nuclear facilities and provide assurances that decommissioning work will be performed in accordance with the applicable regulatory requirements and Codes and Standards. Planning for the eventual decommissioning of the WWMF is an ongoing process, taking place throughout each stage of the licensed facility lifecycle.

OPG's strategy for decommissioning its nuclear waste facilities, including the WWMF, is to dismantle the facilities once all of the waste is removed and the facility is no longer required. Since all of the waste will be removed from the facility prior to decommissioning, little residual radioactivity is expected to be present at the WWMF and as such, there will be no radiation hazard driver for deferment of decommissioning.

The WWMF Preliminary Decommissioning Plan, 0125-PLAN-00960-00001, was provided to CNSC staff in support of the 2023 to 2027 Financial Guarantee submission. The requirements of CSA N294-19 *Decommissioning of facilities containing nuclear substances*, as well as any relevant domestic and international experience obtained in the previous five years were incorporated into this revision.

The next revision of the Preliminary Decommissioning Plan will be submitted to the CNSC as part of the 2028 to 2032 Financial Guarantee submission and updated revisions submitted every 5 years after or when required by the Commission. This revision of the PDP will meet the requirements of CNSC REGDOC-2.11.2, *Decommissioning* as well as CSA N294-19 *Decommissioning of facilities containing nuclear substances.*

The WWMF Preliminary Decommissioning Plan describes the activities that will be required to decommission and restore the site for other OPG uses. It demonstrates that decommissioning is feasible with existing technologies, and it provides a basis for estimating the cost of decommissioning. The PDP includes schedules and cost estimates based on the assumptions that form the basis for the plan. OPG will update this plan as required to incorporate lessons learned, updates to regulatory requirements, and industry best practices.

OPG continuously monitors and incorporates best practices from the industry and has a high degree of confidence that the current plans are appropriate and sufficient.

2.12 Security

The objective of the Nuclear Security program is to ensure the safe and secure operation of the WWMF by supporting the protection of nuclear assets in accordance with regulatory requirements and N-POL-0001, *Nuclear Safety and Security Policy*, through the use of equipment, personnel and procedures described in N-PROG-RA-0011, *Nuclear Security*.

The OPG documents in the table below require written notification of change per the WWMF Licence Conditions Handbook, LCH-W4-314.00/2027-R003:

Table 36: SCA 12 - Security

Document Number	Document Title
01098-REP-08160-10001	Western Used Fuel Dry Storage Facility Security Report
N-REP-08160.3-10001	Western Used Fuel Dry Storage Facility Submission of Waste Harmonized Threat, Vulnerability and Risk Assessment Report
N-PROG-RA-0011	Nuclear Security

The WWMF is in compliance with CNSC REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer, Medical, Physical and Psychological Fitness* and CNSC REGDOC-2.12.2, *Site Access Security Clearance*.

The OPG physical security program for the WWMF is implemented through contracted security services provided by Bruce Power Security through the Site Licence Agreement. Bruce Power Security implements OPG's Security program at the WWMF in accordance with OPG's policies and procedures. The Bruce Site Security program has been rated as satisfactory or fully satisfactory in all CNSC's annual Regulatory Oversight Reports for Nuclear Power Generating sites.

The Security and Emergency Services organization within OPG has the accountably and responsibility for the effective management of security risk based on OPG risk tolerance, the Design Basis Threat (DBT) and required compliance with CNSC regulations and regulatory documents. The Nuclear Security program meets the expectations of N-CHAR-AS-0002, *Nuclear Management System*, by establishing, implementing, maintaining and improving a nuclear security management system with a focus on OPG high security sites that encompasses all licensing activities. This includes but is not limited to Security Threat Identification and Risk Assessments, which are performed annually to identify credible threats to a specific site or facility.

OPG takes any credible threats identified in a Threat Risk Assessment (TRA) into account in the design of the physical protection system.

The security program is based on credible risks and vulnerabilities. In accordance with the *Nuclear Security Regulations*. the WWMF has implemented physical protection measures, including:

- Access control,
- Intrusion detection and assessment,
- and measures designed to delay and prevent unauthorized access considering the DBT and any other credible threat identified by the TRA.

OPG's security program ensures uncompromised safety and security of the WWMF's assets and of its employees, the public and the environment. The need to improve security performance is recognized and OPG is ensuring that security is held to the same high standards and intrusive oversight as all other organizations at OPG that impact nuclear safety.

OPG Nuclear Security has progressed towards a more proactive approach to identifying program improvements that are evident in the implementation of a Security Excellence Plan that has established a Security Excellence Meeting with the pillars of Our People, Our Performance and Our Future. The Excellence Meeting process is a strategic model that has been proven to drive continuous improvement at the OPG facility level.

OPG's Security program has a comprehensive and enhanced oversight body which includes a fleetwide functional peer team, who reviews performance and trends regularly. Security performance and results are reviewed and challenged at the Nuclear Executive Committee on a regular frequency to continually drive performance. In support of OPG's safety culture, OPG's Security organization continues to work toward improved performance in all elements of the Security program through a critical lens using effective and established managed processes, in addition to new initiatives.

OPG maintains open communication with CNSC staff in forums such as the monthly and quarterly Security Director's meeting and the Nuclear Security Advisor Group which includes security representatives from all High Security Nuclear Sites in Canada. This group is focused on ensuring nuclear security programs in Canada continue to meet future requirements, through the sharing of operating experience and the promotion of best security practices. OPG's Security organization has also formed a Compliance Audit and Governance group, dedicated to unbiased, risk-based assessments of the Security program. Through these internal self-assessments, OPG is able to monitor performance and trend worker behavior indicators, gather Key

Performance Indicators data for analysis and proactively identify latent organizational or process-based gaps more effectively.

In accordance with the *Nuclear Security Regulations*, OPG's Security program ensures a large-scale security exercise through a Performance Testing program audit at the WWMF every 2 years. Bruce Power Security conducted the most recent Performance Testing Program exercise on June 20, 2024, with the onsite Nuclear Response Force (NRF).

The exercise tests and evaluates the integrated response capabilities of the onsite response force against adversaries equipped within the DBT. This exercise is highly dynamic and realistic. CNSC staff observe and audit these exercises. OPG's Security organization conducts a detailed after-action audit of the results, which is provided to CNSC staff and are used in the development of the training objectives for each subsequent year.

In accordance with the *Nuclear Security Regulations* and the Security program, Security drills are regularly conducted to evaluate security physical protection systems including tactical deployment plans under realistic conditions to ensure regulatory compliance as well as to identify security improvements. Bruce Power Security maintains an ongoing MoU with the Ontario Provincial Police (OPP) for offsite tactical response support. OPG's Security organization will continue to operate at a high standard and meet the CNSC licensing requirements throughout the life of the WWMF.

2.12.1 Facilities and Equipment

The OPG Security program ensures the possession, deployment and operation of required facilities and equipment at WWMF complies with the Nuclear Security Regulations, and CNSC REGDOC-2.12.1, High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices.

The WWMF Site Security Report describes in detail the physical security measures and systems and the security organization in place to ensure security of WWMF employees, the public and the environment in accordance with the regulatory requirements. Changes to security systems are documented in the Site Security Report and are required to be submitted to the CNSC staff.

2.12.1.1 Personnel

Entry to the UFDSF protected areas at the WWMF require all personnel to be searched for weapons and explosive substances in accordance with the *Nuclear Security Regulations*. The WWMF search facilities are equipped with dedicated equipment for conducting security searches that meet CNSC REGDOC-2.12.1, *High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices*

requirements. Once personnel have passed the security search screening process, they are then required to use their proximity card and a biometric scanner, two separate personnel identification verification systems, to verify their identity and confirm they have authorization for access. This verification then activates a revolving door to enter the protected area. Upon exit from the protected areas, in accordance with the *Nuclear Security Regulations*, all personnel are monitored for Category I, II or III nuclear substances.

2.12.1.2 Vehicles

All vehicles entering the UFDSF protected areas are searched for weapons, explosive substances and unauthorized persons in accordance with the *Nuclear Security Regulations* as well as contraband and prohibited items. All vehicles, upon exit from the UFDSF protected areas are monitored for Category I, II and III nuclear material.

The WWMF has physical protection measures against forced land vehicle penetration into the protected areas. The physical protection measures are compliant with CNSC REGDOC-2.12.1, *High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices.*

2.12.1.3 Material Security

Searches are conducted on all packages and equipment entering the protected areas for weapons, explosive substances, and unauthorized persons, in accordance with the *Nuclear Security Regulations*, as well as contraband and prohibited items.

Nuclear fuel is protected, stored and managed in accordance with the *Nuclear Security Regulations*. Security measures include access control, detection of unauthorized access, locking hardware and key control, physical barriers, alarm response protocol, and inspection, maintenance and testing of security-related equipment. Recurring WWMF familiarization training has been implemented and conducted with all Bruce Power NRF staff.

2.12.1.4 Physical Protection Systems

In accordance with CNSC REGDOC-2.12.1 *Volume II*, the WWMF protected areas are surrounded by a security fence equipped with devices intended to detect any attempt at unauthorized entry, and to detect any tampering or component failures that could cause the system to malfunction. The system is monitored at all times by Bruce Power Security in the Central Alarm Station. Bruce Power NRF staff respond to the WWMF protected area intrusion and tamper alarms. OPG employs a Defence in Depth approach to the physical security protection system which is designed to deter, prevent, detect, assess, delay and respond.

2.12.1.5 On-site and Off-site Communication

In accordance with the Nuclear Security Regulations, Bruce Power Security has a primary communications system which is interoperable with the OPP. In accordance

with the terms of a written MoU, the OPP provides off-site nuclear response force for the Bruce Power site.

2.12.1.6 Planned Activities

The following future improvements are planned for WWMF:

- Construction of UFDSB 7 and 8, with an anticipated in-service date of 2029.

Construction plans include consideration for:

- Expansion of the protected area boundary to enclose the footprint of the new SB7/8 for dry fuel storage.
- Using leading technology for perimeter intrusion detection and assessment.

2.12.2 Response Arrangements

In accordance with the Nuclear Security Regulations, Bruce Power Security has a written MoU with the OPP to provide off-site armed response force support to the Bruce Nuclear Power Development. The OPP has agreed that any services it provides to Bruce Power, pursuant to the MoU, at the Bruce Nuclear Power Development, will include the WWMF located at that site in the event of identified security incidents.

Bruce Power's tactical response plan for the WWMF is in place that sets out clear expectations on how to provide effective response to security events including the unauthorized removal of nuclear or radioactive material or to the sabotage of nuclear facilities, as required by the Nuclear Security Regulations. The tactical plan implements the primary objective of Nuclear Security to make an effective intervention taking into account the CNSC DBT and any other credible threat identified by the TRA to the protected area. The OPP provides support to this tactical plan.

2.12.2.1 Security Practices

The OPG Nuclear Security organization has accountabilities and responsibilities for the delivery of security services to effectively manage security risks based on OPG risk tolerance levels, the DBT and required assurance of compliance with CNSC regulations.

In support of the WWMF operations, Bruce Power provides on-site Nuclear Security Officer (NSO) staffing. Bruce Power provides an appropriate number of qualified staff as defined by OPG. The NSOs perform all of the security functions for personnel, bulk material and vehicle searching. On-site patrolling is conducted by Bruce Power armed NRFs, capable of dealing with situations outlined in the DBT. A defensive strategy is followed as required by the *Nuclear Security Regulations*.

The OPG Security clearance process ensures personnel requiring access to OPG business units, locations, or access to OPG Confidential, OPG Confidential Exclusive or Security Protected information do not pose a risk to the facilities, its employees, or OPG assets. Persons, including OPG employees and contractors, who require unescorted access to the WWMF protected areas must comply with the applicable requirements of the Nuclear Security Regulations and CNSC REGDOC-2.12.2, *Site Access Security Clearance*.

Prescribed information is controlled and released only on a 'need to know' basis to those who possess the appropriate security clearance.

The trait of Vigilance is part of OPG's *Nuclear Safety and Security Culture* traits. All of OPG's staff maintain vigilance as part of OPG's defence-in-depth security strategy through requirements such as OPG's Supervisory Awareness Program, Continuous Behavioral Observation Program. This program ensures all supervisors have the skill and knowledge to recognize behaviors that might constitute a risk to health and safety of employees, the plant and the general public.

2.12.2.2 Drills and Exercises

OPG's Security program ensures that Bruce Power Security conducts effective interventions, based on the DBT and any other credible threats identified through threat and risk assessments within the protected area. The objective is to prevent sabotage of the nuclear facilities or the sabotage and theft of Category I, II, or III nuclear materials.

Bruce Power has a comprehensive drill program which is in place for the WWMF protected areas ensuring the regulatory compliance. CNSC staff evaluated force on force exercises conducted at the nuclear facilities, providing performance testing of the nuclear security program.

Bruce Power is responsible for ensuring its personnel are fully trained and proficient in equipment operation to meet OPG's qualification standards and collaborate with OPG to ensure NSO staff assigned to the WWMF maintain current qualifications without lapses or expirations.

2.12.3 Cyber Security

OPG has established an enterprise-wide cyber security program, which is outlined in OPG-PROG-0042, *Cyber Security*, to establish and maintain processes, procedures and controls to ensure OPG meets or exceeds regulatory requirements for cyber security, specifically CSA N290.7-14, *Cyber Security for Nuclear Power Plants and Small Reactor Facilities* standard. Moreover, OPG has implemented N-PROC-RA-0135, *Cyber Security* which identifies systems that are Cyber Essential Assets and the requirements to protect them from internal and external cyber threats, up to and

including the design basis threat. This procedure is used to identify systems at the WWMF that are Cyber Essential Assets, establish controls to protect them from threats, and secure the confidentiality, availability and integrity of prescribed and/or sensitive WWMF information. The Cyber Security program is under the authority of OPG's Corporate and Technology Service organization.

Cyber security-related updates have been made to the Engineering Change Control process, employee training, and various maintenance and engineering instructions, guides, procedures and standards in addition to OPG's corporate cyber security policy.

OPG continues to maintain compliance with CSA N290.7-14, *Cyber Security for Nuclear Power Plants and Small Reactor Facilities.* and pursues continuous improvement initiatives to enhance OPG's cyber security posture.

2.13 Safeguards and Non-Proliferation

Safeguards and Non-Proliferation refer to an international system of monitoring and verifying nuclear material and specified nuclear activities, administered in Canada by the CNSC and verified by the IAEA, to deter the diversion of nuclear material from legitimate peaceful activities. This system facilitates the IAEA to evaluate compliance with its obligations pursuant to its international safeguards agreements.

Canada has entered into a Safeguards Agreement and an Additional Protocol (hereafter referred to as "safeguards agreements") with the IAEA pursuant to its obligations under the *Treaty on the Non-Proliferation of Nuclear Weapons* Information Circular (INFCIRC/140). The international *Treaty on the Non-Proliferation of Nuclear Weapons* is the cornerstone of Canada's efforts to promote its objectives of international disarmament, non-proliferation, and the peaceful use of nuclear energy. More specifically, Canada maintains obligations under the following Canada-IAEA safeguards agreements:

- Agreement Between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non- Proliferation of Nuclear Weapons INFCIRC/164; and,
- Protocol Additional to the Agreement Between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons INFCIRC/164/Addendum 1.

For WWMF, the non-proliferation program is limited to the tracking and reporting of foreign obligations and origins of nuclear material as per CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. The Additional Protocol contains further requirements for the provision of information and access, including the obligation to allow access to some locations on a 24-hours' notice, and the obligation to provide information on and access to certain nuclear manufacturers and researchers, neither of which need to involve nuclear material.

OPG is in compliance with these requirements to facilitate Canadian compliance with Canada's Safeguards agreements with the IAEA, and with OPG's obligations established in the General Nuclear Safety and Control Regulations.

OPG has an effective Safeguards and Non-Proliferation program that ensures compliance with Canada's safeguard agreements with the IAEA, the *General Nuclear Safety and Control Regulations* and other measures arising from the Treaty on the Non-Proliferation of nuclear weapons. This program consists of the following documents:

- N-PROG-RA-0015, *Safeguards and Nuclear Material Accountancy* program is designed to establish, maintain, and verify compliance with Safeguards and

Nuclear Material Accountancy requirements, ensuring all necessary measures are taken to facilitate Canada's compliance with international safeguards agreements and any other measures arising from the Treaty on the Non-Proliferation of Nuclear Weapons.

- N-STD-RA-0024, *Safeguards and Nuclear Material Accountancy Implementation* provides further direction to ensure OPG complies with its licence conditions, the *Nuclear Safety and Control Act*, the *General Nuclear Safety and Control Regulations*, and other related *Regulations* in support of Canada's safeguards and nuclear material accountancy agreements.
- N-PROC-RA-0136, *OPG Safeguards and Nuclear Material Accountancy Requirements* captures specific requirements for the establishment and maintenance of the Safeguards program at OPG Nuclear; this procedure closely follows and where possible, exceeds the CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy.*

Throughout the current WWMF licence period, the OPG Safeguards program was successful in meeting all international Safeguards and Non-Proliferation agreements. Since 2017, WWMF received satisfactory results from all inspections performed by the IAEA, indicating that OPG has successfully met the Safeguards requirements for the WWMF. NSS staff at the WWMF provided satisfactory support to the IAEA including nuclear material accountancy and control, access and assistance to the IAEA, operational and design information, support for Safeguards equipment, and containment and surveillance for the WWMF. In addition, the OPG safeguards program is internally evaluated each year through self-assessments to ensure the continued health of the program, ensuring that the program remains in compliance with regulatory requirements and a satisfactory working level structure is in place to ensure success in meeting OPG's obligations.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027 R003.

Table 37: SCA 13 - Safeguards and Non-Proliferation

Document Number	Document Title
N-PROG-RA-0015	Safeguards and Nuclear Material Accountancy
N-STD-RA-0024	Safeguards and Nuclear Material Accountancy Implementation
N-PROC-RA-0136	OPG Safeguards and Nuclear Material Accountancy Requirements

2.13.1 Nuclear Material Accountancy and Control

Nuclear material accountancy involves activities that establish and report the quantities of nuclear material present within defined areas, as well as the changes in those quantities within defined time periods. This includes nuclear material measurement, record keeping, preparation and submission of accounting reports, and verification of accounting information.

All units of nuclear material have a unique identifier which is tracked and accounted for. For all non-exempted nuclear material, the WWMF has Material Balance Areas (MBAs), where the inventory of nuclear material can be categorized, tracked, and measured. Any movements from one MBA to another are promptly reported to the CNSC and IAEA. Nuclear material movements within the same MBA are also tracked internally to ensure precise status. Inventory changes are input into Nuclear Material Accountancy software by OPG staff that are qualified to move nuclear material. This software supports tracking and report generation. Reports of inventory status are submitted to the CNSC and IAEA as required by CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*.

OPG utilizes an electronic system to help track deadlines associated with CNSC/IAEA Safeguards requirements to ensure submissions are made on time in accordance with CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. This system also supports historical traceability by documenting when submissions were made, in addition to record keeping of submitted files.

OPG, in accordance with N-PROG-RA-0015, *Safeguards and Nuclear Material Accountancy*, discloses to the CNSC, the IAEA, or an IAEA inspector, any records required to be kept, or any reports required to be made under a safeguards agreement. In accordance with the *General Nuclear Safety and Control Regulations*, Section 31, OPG files reports with the CNSC within 21 days of becoming aware of any inaccuracy or incompleteness in a record to be kept under the *Act*.

All communications with the CNSC and IAEA which contain sensitive information, such as nuclear material accounting, are performed using only secure means. To ensure timely communication and report submissions, procedures are kept in alignment with CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* requirements and relevant staff are trained on these procedures to be aware of reporting requirements and timelines. Between 2017 to 2024, WWMF submitted an average of 150 Safeguards Nuclear Material Accountancy submissions per year to the CNSC and IAEA.

2.13.2 Access and Assistance to IAEA

The IAEA may require access to a given site for a variety of purposes pursuant to the Canada- IAEA safeguards agreements. Staff at the WWMF will grant prompt access to all locations within the licence to the IAEA and CNSC inspector(s) or to person(s) acting on behalf of the IAEA/CNSC, where such access is required to carry out an activity pursuant to a safeguard's agreement. WWMF site procedures are written to allow access for inspection at all operating hours. Initial access to areas for inspection will be attained within two hours of the IAEA arriving onsite provided it is safe to do so. The IAEA has the right to request complementary access to any location in Canada with at least 24 hours' notice, or two hours' notice, if the IAEA is already present at a facility or location outside the facility, on the same site, for an inspection or Design Information Verification.

IAEA and CNSC inspectors regularly perform site visits to review the status of monitoring equipment, accessible nuclear material inventory, submitted records, facility design, procedures, and worker practices. Site visits are also required to perform maintenance of IAEA surveillance equipment, for example the replacement of the IAEA cameras and upgrades to the IAEA Remote Monitoring System in 2019. These inspections and maintenance prevent gaps in nuclear material safeguarding provisions.

Existing procedures have been in place for some time and have been reviewed against the Safeguards agreements and Canadian regulations to ensure compliance; they have also been tested through many years of use at the WWMF site. During site visits, there are opportunities to share concerns and potential improvements to existing processes to make the OPG safeguards program, access and assistance more effective.

2.13.3 Operational and Design Information

There are three primary reports provided for the WWMF that are sent to the CNSC and IAEA to capture relevant design and operational information required by CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. The reports are the Design Information Questionnaire (DIQ), the Operational program, and the Additional Protocol.

Through WWMF's internal routine electronic tracking (typically yearly), the DIQ is reviewed for any changes; any identified changes are included in a revision to the DIQ, and it is re-submitted to the CNSC and IAEA. In addition, the WWMF safeguards specialist maintains awareness of potential site developments that may necessitate updates and resubmission of the DIQ at any time. The OPG *Engineering Change Control* program, N-PROG-MP-0001, also requires design changes to be reviewed for potential impact to Safeguards in the early planning phase (for additional information

on OPG's ECC program see Sections 2.1.5 and 2.5.1). Design changes flagged for potential impacts to Safeguards are discussed with the WWMF safeguards specialist and reported to the CNSC and IAEA for alignment prior to implementation. Direct communications from the design change team allows for detailed and applicable information to be gathered for accurate reporting. Moreover, OPG's engineering change process requires rigorous documentation to capture all of the details that would be needed for Safeguards. Relevant information as confirmed through documentation and discussion with the design change team, IAEA and CNSC (where applicable) is then included in the DIQ update.

To further ensure the accuracy of the submitted DIQ and the site-specific safeguards measures, the IAEA also performs routine Design Information Verifications. During a Design Information Verification, the IAEA performs in-person inspections of the provided DIQ information to verify it is accurate and sufficient to make decisions on the safeguard measures.

The Operational program is submitted annually as per CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*. Typically, quarterly updates are also provided to deliver confirmation of no change or to identify any changes.

Much like the DIQ preparation, the WWMF safeguards specialist maintains awareness of site operating plans that may necessitate revision and resubmission of the Operational program at any time. The WWMF safeguards specialist gathers the required information from site contacts most applicable to the information; this ensures accurate information is provided from the source.

OPG submits the Additional Protocol annually which assists the CNSC and IAEA in reviewing the site Safeguards approach, looking for gaps, or future areas of increased concern to address.

In addition to the above three reports, WWMF maintains communication with the CNSC and IAEA Safeguards divisions. Operational activities that could not be foreseen, such as sudden power loss, that may affect Safeguards are promptly reported to the CNSC and IAEA. Furthermore, OPG supports industry peer team meetings, benchmarking of other nuclear generating stations, and routine trilateral meetings with the IAEA and CNSC to discuss the Safeguards program, process improvements, emerging trends etc. These are excellent environments to learn from each other and identify areas for improvement in the overall safeguards program.

OPG strives to be transparent with the CNSC and IAEA to ensure alignment and facilitate the objectives of the Safeguards and Non-Proliferation agreements.

2.13.4 Safeguards Equipment, Containment, and Surveillance

IAEA Safeguards equipment is installed at the WWMF to allow remote monitoring of necessary nuclear material movements within the UFDSF: such as, cameras which are strategically placed at critical transfer locations. WWMF supports this equipment by providing the required services and operating the safeguards equipment as specified by the IAEA. Such services include power supplies, lighting, and internet connections. The installed equipment provides the IAEA with continuous detailed data of nuclear material movements. The IAEA uses the information to compare against WWMF's nuclear material accountancy reports to ensure all nuclear material movements are accounted for and used for legitimate purposes in accordance with the non-proliferation treaty.

IAEA equipment is labelled and sealed to deter interference, damage, or tampering. Site procedures and staff training clearly state that tampering or disruption of IAEA surveillance equipment must be reported immediately to the CNSC.

Additional critical support parameters, such as the minimum required ambient lighting for IAEA cameras, have the requirements captured in site procedures and training, which reinforces expectations to perform all due diligence to satisfy these bounds.

2.13.4.1 IAEA Fuel Verification Program

The IAEA Fuel Verification program includes nuclear material accounting, the IAEA monthly remote monitoring report, and the use of surveillance equipment such as cameras, portable verification equipment, and containment equipment. WWMF's compliance with the Fuel Verification program is met through OPG's Safeguards and Non-Proliferation program.

2.13.4.2 Laser Mapping Container Verification System

The Laser Mapping Container Verification (LMCV) system (figure 35) designed by the IAEA is a digital weld identification scanner created to verify and uniquely identify DSC in-situ, a powerful tool for acquiring and verifying the "weld fingerprint" of the DSC.

Figure 35: Laser Mapping Container Verification (LMCV)

In 2019, the WWMF and IAEA completed full inventory scanning for DSCs in storage at the WWMF. All DSCs with full height welds will now only have the Cobra Seal applied, and LMCV completed negating the requirement for the metallic seals.

DSC design change in lid to base welding process as described in Section 2.6 will likely impact the LMCV tooling. OPG continues to coordinate with the CNSC and the IAEA as per the requirements in the LCH and the established processes to implement the DSC design changes.

2.13.4.3 Planned Activities

OPG is working to implement the equipment-based approach, as proposed and developed by the IAEA, in consultation with the CNSC and other multi-unit CANDU stations across Canada.

2.13.5 Import and Export

The scope of the non-proliferation program at WWMF is limited to the tracking and reporting of foreign obligations and origins of nuclear material. Import and export of controlled nuclear substances, equipment and information as identified in the *Nuclear Non-proliferation Import and Export Control Regulations*, is not currently authorized under the current WWMF licence and any application is made in accordance with applicable regulations.

2.14 Packaging and Transport

2.14.1 Packaging and Transport Overview

The WWMF has an effective packaging and transport program that meets or exceeds all applicable regulatory requirements and related objectives.

Program document, W-PROG-WM-0002, *Radioactive Material Transportation* (RMT), establishes the program and necessary controls for the safe, regulatory compliant and efficient transportation of radioactive material at OPG. The RMT program establishes procedures for the handling, packaging, shipment, and receipt of radioactive materials. The program also addresses emergency responses to transportation accidents. OPG's response in the event of a transportation accident involving radioactive material is documented in N-STD-RA-0036, *Radioactive Material Transportation Emergency Response Plan*.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027 R003:

Table 38: SCA 14 – Packaging and Transport

Document	Document Title
W-PROG-WM-0002	Radioactive Material Transportation
N-STD-RA-0036	Radioactive Materials Transportation Emergency Response Plan
N-PROG-RA-0013	Radiation Protection

2.14.2 Package Design and Maintenance

OPG controls the design of its radioactive materials packagings and performs maintenance on the packagings to ensure compliance with the *Packaging and Transport of Nuclear Substances Regulations* (PTNSR).

Each OPG radioactive materials transportation packaging, with the exception of one-time use packagings, is subject to an annual maintenance outage. Packaging maintenance is performed in a dedicated facility called the TPMB at the WWMF.

Each packaging is maintained in accordance with a packaging-specific procedure. Maintenance tasks include disassembly of major components, visual inspections of critical features and components such as fasteners, and replacement or refurbishment of worn parts. The containment system of each Type B or Type A packaging is tested to ensure its effectiveness.

Modifications to OPG's existing radioactive materials transportation packagings are a rare occurrence due to the maturity of the designs. All packagings have been maintained in good condition without any reduction in safety or operability.

An improved version of the OPG Trillium Transportation Package, designated as Trillium TP-03, will be added to the OPG fleet in 2025 to increase the fleet's capacity to transport spent ion exchange resins and ILW from the Darlington, Pickering, and Bruce Power stations. The design of the Trillium TP-03 was developed in accordance with N-PROG-MP-0009, *Design Management* and N-PROG-MP-0001, *Engineering Change Control* programs.

2.14.3 Packaging and Transport Program

The objective of the RMT program is to ensure that shipments of radioactive material for which OPG is the consignor are prepared and offered for transport in a manner that is compliant with the *Transportation of Dangerous Goods* (TDG) regulations and the PTNSR. The RMT program also establishes the necessary controls for safe and compliant transportation and handling aspects of radioactive material within OPG's control where OPG is the consignee or when OPG Class 7 carriers are used. This is done to ensure the safety of workers, the public, and the environment.

As per W-PROG-WM-0002, OPG ensures that radioactive shipments are characterized, classified, packed, shipped, and received in accordance with approved procedures and applicable Regulations. OPG ensures that staff who handle (i.e., load, unload, receive, classify or ship) radioactive material in preparation for transport must be adequately trained or under the direct supervision of someone who is. Within OPG, evidence that an employee is adequately trained for their function is demonstrated by holding a valid Class 7 Certificate of Training as per the TDG regulations. All Type A or Type B radioactive shipments and shipments requiring a Licence to Transport are supported by a RMT Transportation Officer. There have been hundreds of radioactive material shipments to and from the Western Waste Management Facility during the current licence period and none have been involved in any accidents or any other dangerous occurrences.

2.14.4 Registration for Use

Users of Type B packages must register with the CNSC and acknowledge that they have the necessary instructions to properly prepare the package for shipment. The user registration process is to ensure that OPG applies for and obtains confirmation from the CNSC that OPG has been registered as a user for the package of certified design.

Currently OPG is a registered user for eleven (11) different package designs. These packages include OPG's ILW and tritiated heavy water transportation packages, and

packages from external agencies and companies for used fuel samples, Cobalt-60, and Molybdenum-99.

2.15 Facility Specific

2.15.1 Construction Plans

Project specific design requirements, environmental management plan, and construction verification plan will be submitted to CNSC staff prior to the commencement of construction activities in accordance with the WWMF WFOL Licence Condition 15.1 *Construction Plans*.

The environmental management plan, construction verification plan and project design requirements assure that the environment is adequately protected from adverse impacts resulting from approved construction activities and that the proposed design will not deviate from the licensing basis. Consistent with OPG's practice, OPG will construct new facilities on an as needed basis utilizing a fit-for-purpose strategy.

2.15.2 Commissioning Report

The operation of any building or structures would only begin following OPG's submission of a commissioning report and its acceptance by the Commission or a person authorized by the Commission, in accordance with Condition 15.2 of the current licence.

The commissioning reports are submitted to the CNSC staff for any new buildings to assure that the project design requirements and the licensing basis have been met before the building is placed into operation.

OPG requests a change to Licence Condition 15.2:

In the current licence, Appendix A Table 2 shows the planned construction activities to support Bruce Power's Major Component Replacement Project, which was not approved by the Commission at the time of licence renewal. Appendix A Table 3 shows the planned construction based on currently approved projects. Now that the Bruce Power Major Component Replacement Project is well underway and since the projects associated with Appendix A Table 2 are no longer anticipated; either cancelled, approved, or in some cases complete, OPG proposes to replace Tables 2 and 3 from the current licence with a single table listing additional buildings and structures as listed in table 1, Section 1.0. OPG proposes that acceptance of commissioning reports for these buildings and structures to be granted by a person authorized by the Commission in alignment with planned construction based on currently approved projects.

2.15.3 Import and Export of Nuclear Substances

OPG ensures that all import and export activities involving nuclear substances comply with the *Nuclear Non-Proliferation Import and Export Control Regulations*, including obtaining the necessary licences from the CNSC.

The OPG documents in the table below require written notification of change per WWMF Licence Conditions Handbook, LCH-W4-314.00/2027 R003:

Table 39: SCA 15 – Import and Export of Nuclear Substances

Document	Document Title
W-PROG-WM-0002	Radioactive Material Transportation
N-PROG-RA-0013	Radiation Protection

OPG imports and exports only those nuclear substances found in Appendix B of the WFOL from the WWMF, occurring as contaminants in laundry, packaging, shielding and equipment. If the nuclear substances do not fall under this description, then an import or export licence is obtained per the Nuclear Non-proliferation Import and Export Control Regulations.

3.0
Additional Matters of Regulatory Interest

3.0 Additional Matters of Regulatory Interest

3.1 Financial Guarantees, Nuclear Liability Insurance, and Cost Recovery

3.1.1 Financial Guarantees

The objective of OPG's financial guarantee is to ensure that sufficient funds are estimated, collected, and administered for the management of liabilities associated with operating, refurbishing and decommissioning of all its nuclear facilities. The WWMF is also included within this consolidated financial guarantee scope.

In addition to the decommissioning program, OPG's Financial Guarantee also covers financial provisions for the long-term management (storage and eventual disposal) of all operational and decommissioning wastes (Used Fuel and L&ILW).

OPG's financial guarantee is prepared and maintained on a 5-year cycle in accordance with the requirements set out in CSA Standard N294, *Decommissioning of facilities containing nuclear substances* and CNSC REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*. OPG also submits an annual financial guarantee report to the CNSC detailing the status of the guarantee including the amounts accumulated in segregated funds and the value of the Provincial guarantee, when required. The report compares the amount of the liabilities and the financial resources available to discharge the obligations.

Following the submission of the Preliminary Decommissioning Plans and respective cost estimates, OPG will also provide the necessary financial guarantee arrangements using CNSC REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities.* The financial guarantee provisions for the WWMF demonstrate that the current level of funding is adequate for decommissioning the site or facility and returning the site to an end state agreed with the Regulators. CNSC access to these funds is provided by the CNSC Financial Security and Ontario Nuclear Funds Agreement Access Agreement between the CNSC, OPG and the Province of Ontario, and, as required, the Provincial Guarantee Agreement between the CNSC and the Province of Ontario. In December 2022, the Commission accepted OPG's proposed 2023-2027 consolidated financial guarantee as documented in Record of Decision DEC 22-H104.

OPG will continue to provide annual Financial Guarantee reports to CNSC staff detailing the status of the guarantee, including the amounts accumulated in segregated funds.

3.1.2 Nuclear Liability Insurance

OPG is required, under the *Nuclear Liability and Compensation Act* (NLCA), to maintain financial security in an amount equal to $13 million for WWMF in 2025. The following figures provide the certificate of insurance that verifies the financial security OPG has secured as required by the NLCA for 2025.

Marsh

Certificate of Insurance

No.: **2025-143** Dated: **September 05, 2025**

This document supersedes any certificate previously issued under this number

This is to certify that the Policy(ies) of insurance listed below ("Policy" or "Policies") have been issued to the Named Insured identified below for the policy period(s) indicated. This certificate is issued as a matter of information only and confers no rights upon the Certificate Holder named below other than those provided by the Policy(ies).

Notwithstanding any requirement, term, or condition of any contract or any other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the Policy(ies) is subject to all the terms, conditions, and exclusions of such Policy(ies). This certificate does not amend, extend, or alter the coverage afforded by the Policy(ies). Limits shown are intended to address contractual obligations of the Named Insured.

Limits may have been reduced since Policy effective date(s) as a result of a claim or claims.

Certificate Holder:	Named Insured and Address:
Canadian Nuclear Safety Commission Headquarters **280 Slater Street P.O.Box 1046 Station B** **Ottawa, ON K1P 5S9**	**Ontario Power Generation Inc.** **1908 Colonel Sam Dr.** **Oshawa, ON L1H 8P7**

This certificate is issued regarding:
Western Waste Management Facility

Type(s) of Insurance	Insurer(s)	Policy Number(s)	Effective/ Expiry Dates	Sums Insured Or Limits of Liability	
NUCLEAR LIABILITY	Certain Lloyds Underwriters	NCNTPL76	Jan 01, 2025 to Jan 01, 2026	Limit of Liability	CDN 13,000,000

Notice of cancellation:
The insurer(s) affording coverage under the policies described herein will not notify the certificate holder named herein of the cancellation of such coverage.

Marsh Canada Limited
120 Bremner Boulevard
Suite 800
Toronto, ON M5J 0A8
Matthew.Pullen@marsh.com

Marsh Canada Limited

By: _____
Matthew Pullen

Figure 36: Nuclear Liability of Insurance – Marsh – Certificate of Insurance

3.1.3 Cost Recovery

Pursuant to the *CNSC Cost Recovery Fees Regulations*, the CNSC prepares a Regulatory Activity Plan for Class I Nuclear Facilities and calculates an estimated annual fee payable for that fiscal year using the estimated full cost of the plan. OPG pays the CNSC's fees on a quarterly basis upon receipt of invoices. OPG will continue to make timely payments as required.

4.0 References

4.0 References

1. CNSC Letter, Dr. T. Berube to OPG, "Record of Decision DEC 22-H104 – Application for Acceptance of Ontario Power Generation's Revised Consolidated Financial Guarantee", December 6, 2022, e-Doc 6930798, CD# N-CORR-00531-23514.
2. PEA Addendum Report, "2024 Predictive Effects Assessment Addendum for the Western Waste Management Facility Expansion Project – Multi-Purpose Storage Building, R001" May 27, 2025, CD# 01098-REP-79139-00006.
3. Environmental Compliance Approval, #5956-D8CJYL, March 25, 2025.
4. CNSC Letter, Ms. T. Kalindjian to Ms. Brown, "CNSC Staff Review of OPG Response to CNSC Staff Comments on OPG's Submission – Dry Storage Container Processing Building Ventilation Stack Monitor Assessment for the Darlington, Pickering and Western Waste Management Facilities (WMFs)", June 19, 2023, CD# W-CORR-00531-01915.
5. OPG Letter, Mr. K. Aggarwal to Ms. Petseva, "OPG – Gap Analysis and Implementation Plans for the Pickering, Darlington and Western Waste Management Facilities for CSA Standard N393-22, National Fire Code of Canada 2020 and the National Building Code of Canada 2020" October 11, 2023, CD# W-CORR-00531-01928.
6. OPG Letter, Ms. C. Bhagan to Ms. R. Van Hoof, "OPG Response to CNSC Staff Review of OPG Gap Analysis and Implementation Plans for the PWMF, DWMF and WWMF for CSA Standard N393-22, National Fire Code of Canada 2020 & the National Building Code of Canada 2020" October 18, 2024, CD# W-CORR-00531-01956.
7. OPG Letter, Mr. S. Gregoris to Ms. K. Campbell, Mr. R. Richardson and Mr. A. Baig, "OPG - Implementation Plan for Compliance with CSA N292.8-21: Characterization of Radioactive Waste and Irradiated Fuel" May 31, 2024, CD# N-CORR-00531-24041.
8. Canadian Nuclear Safety Commission. (2017). *Record of Decision 2017-H-01*. Retrieved from https://api.cnsc-ccsn.gc.ca/dms/digital-medias/2017-04-12-Decision-OPG-WWMF-e.pdf/object
9. OPG Letter, Ms. L. Swami to Mr. M. Leblanc, "Application for Renewal of Western Waste Management Facility Operating Licence" May 16, 2016, CD# W-CORR-00531-01118.
10. OPG Letter, Mr. M. Welt to Ms. S. Watt, "OPG-Response to CNSC Staff's Review of OPG's Submission of the 2022 Fire Hazard Assessment for the Western Waste Management Facility" June 22, 2023, CD# W-CORR-00531-01907.

Appendix A: Commonly Used Acronyms

Acronym	Full Name
AIR	All Injury Rate
ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
ASR	Accident Severity Rate
BP EPS	Bruce Power Emergency Protective Services
CANDU	Canada Deuterium Uranium
CGA	Compressed Gas Association
CKSPFN	Chippewas of Kettle and Stony Point First Nation
CNO	Chief Nuclear Officer
CNSC	Canadian Nuclear Safety Commission
C.R.C.	Consolidated Regulations of Canada
CSA	Canadian Standards Association
DBT	Design Basis Threat
DIQ	Design Information Questionnaire
DRL	Derived Release Limit
DRP	Discrete Radioactive Particle
DSC	Dry Storage Container
EAL	Environmental Action Level
ECA	Environmental Compliance Approval
ECC	Engineering Change Control
ED&I	Equity, Diversity and Inclusion

EMP	Environmental Monitoring Program
EMS	Environmental Management System
EO	Environment Office
EPC	Engineer, Procure, and Construct
EPD	Electronic Personal Dosimeter
ERA	Environmental Risk Assessment
HEPA	High-Efficiency Particulate Air
HMRPH	High Maximum Reasonable Potential for Harm
HMRPHE	High Maximum Reasonable Potential for Harm Events
HoW	Hours of Work
HR	Human Resources
HSM	Historic Saugeen Métis
IAEA	International Atomic Energy Agency
IC	In-ground Container
IC-HX	In-ground Container for Heat Exchangers
IEP	Indigenous Engagement Plan
ILW	Intermediate Level Waste
INFCIRC	Information Circular
ION	Indigenous Opportunities Network
ISO	International Organization for Standardization
ISRW	Integrated Strategy for Radioactive Waste
IX	Ion Exchange
JC	Joint Council
L&ILW	Low & Intermediate Level Waste

LCH	Licence Conditions Handbook
LHD	Linear Heating Detection
LLSB	Low Level Storage Building
LLW	Low Level Waste
LMCV	Laser Mapping Container Verification
M&D	Monitoring & Diagnostics
MBA	Material Balance Area
MCR	Major Component Replacement
MECP	Ministry of the Environment, Conservation and Parks
MID	Mixture Identification
MNO	Métis Nation of Ontario Region 7
GBTTCC	Georgian Bay Traditional Territory Consultation Committee
MoU	Memorandum of Understanding
MPSB	Multi-Purpose Storage Building
NAC	Nuclear Advisory Council
NBCC	National Building Code of Canada
NEW	Nuclear Energy Worker
NFCC	National Fire Code of Canada
NGS	Nuclear Generating Station
NLCA	Nuclear Liability and Compensation Act
NMS	Nuclear Management System
NRC	National Research Council of Canada
NRF	Nuclear Response Force
NSCA	Nuclear Safety and Control Act

NSO	Nuclear Security Officer
NSRB	Nuclear Safety Review Board
NSS	Nuclear Sustainability Services
NSSCMP	Nuclear Safety and Security Culture Monitoring Panel
NWMO	Nuclear Waste Management Organization
O&C	Observation and Coaching
OSHA	Occupational Safety and Health Act
OPEX	Operating Experience
OPG	Ontario Power Generation
OPP	Ontario Provincial Police
PB	Pressure Boundary
PDP	Preliminary Decommissioning Plan
PEA	Predictive Effects Assessment
PERA	Predictive Environmental Risk Assessment
PNERP	Provincial Nuclear Emergency Response Plan
PPE	Personal Protective Equipment
PTNSR	Packaging and Transport of Nuclear Substances Regulations
RAP	Reconciliation Action Plan
RCSB	Retube Component Storage Building
RMT	Radioactive Material Transportation
ROR	Regulatory Oversight Report
RP	Radiation Protection
R.R.O.	Revised Regulations of Ontario
R.S.O.	Revised Statutes of Ontario

SCA	Safety and Control Area
SCL	Safety Classification and Learning
SEFDR	Site Event Free Day Resets
SG	Steam Generator
SGSB	Steam Generator Storage Building
SIIR	Serious Injury Incidence Rate
SON	Saugeen Ojibway Nation
SOR	Statutory Orders and Regulations
SSC	Structure, Systems and Components
TCSCA	Timely Completion of Safety Corrective Actions
TDG	Transportation of Dangerous Goods
TERP	Transportation Emergency Response Plan
TPMB	Transportation Package Maintenance Building
TRA	Threat Risk Assessment
TRIF	Total Recordable Injury Frequency
TSSA	Technical Standards and Safety Authority
TWE	Transport and Work Equipment
UFDSB	Used Fuel Dry Storage Building
UFDSF	Used Fuel Dry Storage Facility
VR	Virtual Reality
WAC	Waste Acceptance Criteria
WANO	World Association of Nuclear Operators
WCSR	Western Clean-Energy Sorting and Recycling
WFOL	Waste Facility Operating Licence

WHMIS	Workplace Hazardous Materials Information System
WUFDSF	Western Used Fuel Dry Storage Facility
WVRB	Waste Volume Reduction Building
WWMF	Western Waste Management Facility

Appendix B Additional Information Requested by CNSC

Other Relevant Regulations, Obligations and Permits

Table 40 provides the list of other regulations, obligations that WWMF must abide by, and permits, certificates and licences issued by authorities other than the CNSC.

Table 40: Other Legislation (Non-CNSC) That WWMF Abides By

Regulatory Agencies	Legislation	Legislative Instrument	Reporting Requirements
		FEDERAL	
Environment Canada	Canadian Environmental Protection Act	Federal Halocarbon Regulations	Reporting, leak testing, storage and permitting requirements for use, and release of halocarbons and other regulated substances.
Environment Canada	Canadian Environmental Protection Act	National Pollutant Release Inventory	Annual National Pollutant Release Inventory Report
Environment Canada	Canadian Environmental Protection Act	Environmental Emergency Regulations	Environmental emergency plan for propane system associated with the incinerator
		PROVINCIAL	
Ministry of Environment, Conservations and Parks	Environmental Protection Act	Environmental Compliance Approval - (Air & Noise)	Annual Summary Report under ECA 5956-D8CJY
Ministry of Environment, Conservation and Parks	Environmental Protection Act	Environmental Comp (Air & Noise)– Written Summary Form (012-8199e)	Annual Written Summary form for Air and Noise under ECA 5956-D8CJY

Ministry of Environment and Climate Change	Environmental Protection Act	Ontario Regulation 419/05: Air Pollution – Local Air Quality, supported by the Source Summary Table and Site Plan	Annual Update of the Emission Summary and Dispersion modelling for ECA 5956-D8CJYL
Ministry of Environment, Conservation and Parks	Environmental Protection Act	Ontario Regulation 419/05: Air Pollution – Local Air Quality, supported by Ontario Source Testing Code of Practice	Source Test Report associated with ECA 5956-D8CJY
Ministry of Environment, Conservation and Parks	Ontario Water Resources Act		Storm water Report under ECA 8208-APKNHE.
OTHER			
Technical Standards and Safety Authority (TSSA)	Ontario Technical Standards and Safety Act	Boilers and Pressure Vessels Regulation, administered by TSSA. Certificate must be renewed periodically.	Certificate of Authorization (expires). APRIL 15, 2026 **Note:** Certificate must be renewed 1-3 years depending on inspection schedule.

Open Action Items Discussed in CNSC Hearings and Meetings

There are no open action items remaining from the 2017 CNSC Hearing on WWMF Licence renewal.

Appendix C: Activities and Nuclear Substances to be Encompassed by the Licence

The information below is provided to satisfy the requirements of Section 3(1)(b) of the *General Nuclear Safety and Control Regulations*.

Activities to be Licensed:

The application for renewal of WFOL-W4-314.00/2027 contains information for the activities to be licensed. These activities include those currently licensed in WFOL-W4-314.00/2027:

(i) operate the Western Waste Management Facility (hereinafter "the facility"), which includes the Western Low and Intermediate Level Waste Storage Facility and the Western Used Fuel Dry Storage Facility, located at the Bruce nuclear site, Municipality of Kincardine, Province of Ontario;

(ii) possess, transfer, use, process, package, manage, import, export, and store nuclear substances, except Category I, II and III nuclear material that are required for, associated with or arise from the activities described in (i);

(iii) possess, transfer, package, manage, and store Category II nuclear material that is required for, associated with or arise from the activities described in (i) that are part of the Western Used Fuel Dry Storage Facility;

(iv) transport Category II nuclear materials that are associated with the activities described in (i) on the site of the Bruce Nuclear Power Development;

(v) carry out the site preparation, construction, or construction modifications at the facility associated with the authorized additional structures, when on completion will result in a total of no more than those listed in table 3;

(vi) possess and use prescribed equipment and prescribed information that are required for, associated with or arise from the activities described in (i), (ii), (iii), (iv) and (v).

Maximum Quantity of Radioactive Waste (Nuclear Substances) at WWMF

The maximum quantity of high-level radioactive waste (irradiated uranium) is interpreted as the maximum amount in the form of spent fuel bundles that can be stored in UFDSBs on site.

The maximum quantity of L&ILW is interpreted as the maximum amount of non-fuel radioactive waste that can be stored in the buildings/structures that have been designed for the purpose of storing the waste.

Table 41 provides the maximum quantities of low, intermediate and high-level radioactive waste.

Table 41: Maximum Quantity of Radioactive Waste (Nuclear Substances) at WWMF

Nuclear Substance	Form/Location	Maximum Quantity
High Level Waste (Irradiated Uranium)	Solid as spent fuel bundles stored in Used Fuel Dry Storage Buildings (UFDSBs).	1,920,000 bundles (500 DSCs per UFDSB x 10 UFDSB x maximum 384 bundles per DSC)
Low Level Waste	Solids mainly stored in Low Level Storage buildings (LLSBs).	140,500 m3 (LLSB 1-10: 7,050 m^3 each + LLSB 11-12: 7,000 m^3 each + LLSB 13 - 20: 7,000 m^3 each)
	Solid Heat Exchangers stored in in-ground containers (IC-HXs).	71 IC-HX (41 IC-HX existing + 30 IC-HX planned)
Low Level Waste	Liquid stored in one LLSB.	3500 m^3 (One half of one LLSB)
Intermediate Level Waste	Solids stored in above or below ground storage structures.	
	Steam Generator Storage Buildings (SGSBs)/Multipurpose Storage Building (MPSB)	64 SGs x 1 MPSB (8 SGs per unit, 8 units in total)
	Retube Component Storage Buildings (RCSBs)	504 m^3 of retube waste per unit 4 units per RCSB
	Quadricells	360 m^3
	Contaminated Tool Storage Area	4700 m^3
	Trenches (Stage 1, 3 and 3E)	5870 m^3
	Tile Holes (Stage 1 and 3)	224 m^3

In Ground Containers (ICs)	
IC-2	40 m^3
IC-12	240 m^3
IC-18	9,720 m^3 (18m^3 per IC-18 x 10 batches x 54 IC-18s per batch)

Appendix D: List of Hazardous Substances

The purpose of this Appendix is to document a list of hazardous materials at WWMF with respect to a licence application requirement under Class I Nuclear Facilities Regulations SOR/2000-204, Licence Applications, General Requirements, Section 3.

An application for a licence in respect of a Class I Nuclear Facility, other than a licence to abandon, shall contain the following information in addition to the information required by Section 3 of the General Nuclear Safety and Control Regulations.

(e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on.

Table 42, table 43, and table 44 contain lists of the hazardous substances and material at WWMF:

Table 42: List of Hazardous Substances

Name	Form	Characteristics	Quantity (Inventory)
Bulk Nitrogen	Gas	Colourless, odourless gas	Bulk Tank (250,000 ft^3)

Table 43: Hazardous Substances used for Environmental Sampling of Effluent

Name	Form	Characteristics	Quantity (Inventory)
Nitric Acid	Liquid	Oxidizer	500mL Bottles
Sulfuric Acid	Liquid	Acid	500mL Bottles
Phosphoric Acid	Liquid	Acid	3L Bottles
Copper Sulphate	Liquid	Salt	1L Bottle
Sodium Hydroxide	Liquid	Base	1L Bottle

Table 44: List of Hazardous Material

Name CGA – Compressed Gas Association MID – Mixture Identification	Form	Characteristics	Quantity (Inventory)
CGA NO/SO_2 MID	Compressed Gas	Corrosive to respiratory tract, causes severe skin burns/eye damage, may cause frostbite. Asphyxiant.	8 Bottles
CGA $NO/SO_2/CO$ MID	Compressed Gas	Corrosive to respiratory tract, causes severe skin burns/eye damage, may cause frostbite. Flammable. Asphyxiant.	9 Bottles
CGA O_2/CO/CO2 MID	Compressed Gas	Asphyxiant, strong oxidizer	10 Bottles
O_2/CO/CO2 HI	Compressed Gas	Asphyxiant, strong oxidizer	3 Bottles
0_2 LOW	Compressed Gas	Strong oxidizer	5 Bottles
NO/SO_2 HI	Compressed Gas	Corrosive to respiratory tract, causes severe skin burns/eye damage, may cause frostbite. Asphyxiant.	4 Bottles
CGA $NO/SO_2/CO$ HI	Compressed Gas	Corrosive to respiratory tract, causes severe skin burns/eye damage, may	9 Bottles

		cause frostbite. Flammable. Asphyxiant.	
HCL HI	Compressed Gas	Corrosive causes severe burns to skin and eyes, frostbite(liquid), irritate the respiratory system. Highly soluble in water = Hydrochloric acid.	14 Bottles
CGA HCL MID	Compressed Gas	Corrosive causes severe burns to skin and eyes, frostbite(liquid), irritate the respiratory system. Highly soluble in water = Hydrochloric acid.	3 Bottles
CO_2	Compressed Gas	Asphyxiant, frostbite	2 tanks at 44.35 Mg capacity
Propane	Liquid/Gas	Fire/explosion, asphyxiant, frostbite from rapid expansion.	Tank level between 30-80%
Carbon	Solid	Dust may cause respiratory, skin and eye irritation. Potential to cause dust explosion.	2 bags + bag installed
Lime	Solid	Skin and eye irritation or burns, respiratory problems if inhaled, and potential digestive issues if ingested. Reacts with water, releasing heat that could ignite combustible materials.	0-40 Tons in silo
Hydraulic Diethylene glycol fluid (CAT ID 598168)	Liquid	Toxic if ingested, Irritate skin/eyes, vapours cause respiratory	8 Pails

		irritation. Can be flammable.	
Glycol Cooling Fluid	Liquid	Toxic if ingested.	Closed system - in Tank ~81cm
Argon	Compressed Gas	Asphyxiant	10 Bottles
Acetylene	Compressed Gas	Flammable	1 Bottle
Oxygen	Compressed Gas	Oxidizing	1 Bottle
Product Packs (Argon/Carbon Dioxide Mixture)	Compressed Gas	Asphyxiant	3 Bottles
Mig Mix Singles (Argon/Carbon Dioxide Mixture)	Compressed Gas	Asphyxiant	2 Bottles
Paint	Liquid	Flammable/Toxic	100 L
Adhesives, Abrasives, Solvents, Lubricants	Liquid	Flammable	400 L
Fuel	Liquid	Flammable	20 L

ATTACHMENT 3

OPG letter, K. Aggarwal to Ms. C. Salmon, “Renewal Application for Western Waste Management Facility Waste Facility Operating Licence”

CD# W-CORR-00531-02073 P

Land Ownership

(4 pages)

Province of Ontario

Transfer/Deed of Land

Form 1 — Land Registration Reform Act

SoftDocs® 4.1 Wordprocessor Interface
OPG-Bruce Waste Inc.

A

FOR OFFICE USE ONLY

(1) Registry [X] Land Titles [ ] (2) Page 1 of 3A pages 1 office schedule 95

(3) Property Identifier(s) Block Property P900499 Additional: See Schedule [ ]

(4) Consideration
NIL ---------- 00/100 Dollars $NIL

(5) Description This is a: Property Division [ ] Property Consolidation [ ]

1. Part of Lots 18, 19, 20, 21, 22, 23 and 24, Concession A or Lake Range and Part of the Original Road Allowance between Lots 20 and 21 (closed by By-Law 811), Concession A or Lake Range, all designated as PARTS 12, 21, 22, 23, 24, 25, 26, 29, 30, 32, 33, 34, 35, 36, 64, 65, 68 and 69 on Plan 3R-7352, Township of Bruce, now in the Municipality of Kincardine, in the County of Bruce
- as described on Schedule annexed

New Property Identifiers See Certificate Attached Additional: See Schedule [ ]

Executions Additional: See Schedule [ ]

(6) This Document Contains (a) Redescription [ ] New Easement [ ] Plan/Sketch [ ] (b) Schedule for: Description [X] Additional Parties [ ] Other [X]

(7) Interest/Estate Transferred
Fee Simple
Confirming Deed.

(8) Transferor(s) The transferor hereby transfers the land to the transferee ~~and certifies that the transferor is a resident of Canada and that~~

see attached Schedule A entitled "*Electricity Act, 1998* Registration Statement".

Name(s)	Signature(s)	Date of Signature Y M D
OPG WASTE INC.	By: [signature] Name: David W. Drinkwater Title: Executive Vice President Law and Corporate Department	2001 04 24
We have the authority to bind the corporation.	By: [signature] Name: Richard Dicerni Title: Executive Vice President and Corporate Secretary	2001 04 24

(9) Spouse(s) of Transferor(s) I hereby consent to this transaction.

Name(s)	Signature(s)	Date of Signature Y M D

(10) Transferor(s) Address for Service C/o 700 University Avenue, Toronto, Ontario M5G 1X6

(11) Transferee(s) Date of Birth Y M D

OPG WASTE INC.

(12) Transferee(s) Address for Service C/o 700 University Avenue, Toronto, Ontario M5G 1X6

Planning Act — OPTIONAL

(13) Transferor(s) The transferor verifies that to the best of the transferor's knowledge and belief, this transfer does not contravene section 50 of the Planning Act.

Date of Signature Y M D — Signature

Date of Signature Y M D — Signature

Solicitor for Transferor(s) I have explained the effect of section 50 of the Planning Act to the transferor and I have made inquiries of the transferor to determine that this transfer does not contravene that section and based on the information supplied by the transferor, to the best of my knowledge and belief, this transfer does not contravene that section. I am an Ontario solicitor in good standing.

Name and Address of Solicitor

Date of Signature Y M D — Signature

Affix Statement by Solicitor for Transferee(s) here if necessary

(14) **Solicitor for Transferee(s)** I have investigated the title to this land and to abutting land where relevant and I am satisfied that the title records reveal no contravention as set out in subclause 50(22)(c)(ii) of the Planning Act and that to the best of my knowledge and belief this transfer does not contravene section 50 of the Planning Act. I act independently of the solicitor for the transferor(s) and I am an Ontario solicitor in good standing.

Name and Address of Solicitor

Date of Signature Y M D — Signature

(15) Assessment Roll Number of Property — Cty. | Mun. | Map | Sub. | Par. | MULTIPLE

(16) Municipal Address of Property
Bruce Generating Station (Part)

11208441

(17) Document Prepared by:
BLAKE, CASSELS & GRAYDON LLP
Barristers and Solicitors
Box 25, Commerce Court West
Toronto, Ontario M5L 1A9
(416) 863-2400
ATTENTION: Edward M. Perlmutter

FOR OFFICE USE ONLY

Fees and Tax	
Registration Fee	60 -
Land Transfer Tax	( )
Total	60 -

SCHEDULE A P90499

TO TRANSFER/DEED OF LAND

***ELECTRICITY ACT, 1998* REGISTRATION STATEMENT**

1. OPG-Bruce Waste Inc. is a person referred to in section 124 of the *Electricity Act, 1998* and is a person from which no consent was required in respect of the transfer in the transfer order, as amended, pursuant to subsection 116(5) of the *Electricity Act*, 1998.

2. OPG-Bruce Waste Inc. changed its name by Articles of Amendment effective April 12, 2001 to OPG Waste Inc. as registered in the Land Registry Office for the Registry Division of Bruce on , 2001 as No. .

3. The interests described in Box (7) in the lands (the "Lands") described in Box (5) in the Form 1 under the *Land Registration Reform Act* to which this schedule is attached were transferred unconditionally to OPG-Bruce Waste Inc. from Ontario Hydro by or pursuant to a Transfer Order, as amended, made under the *Electricity Act*, 1998, which transfer has taken effect.

4. There were no conditions or other provisions in the Transfer Order, as amended, that restrict the power or right of the Transferor to transfer the interest described in Box (7) in the Lands.

5. The foregoing statements are statements made pursuant to section 124 of the *Electricity Act*, 1998.

6. This transfer/deed of land is being registered to record the name of Transferee on title to the Lands.

7. Pursuant to Section 135 of the *Electricity Act*, 1998 the *Land Transfer Tax Act* does not apply to any transfer of assets by or pursuant to a transfer order.

8. Where applicable, by the *Power Commission Amendment Act*, 1973 proclaimed March 4, 1974, the name of The Hydro-Electric Power Commission of Ontario was changed to Ontario Hydro.

P900499

SCHEDULE

In the Township of Bruce, now in the Municipality of Kincardine, County of Bruce:

1. Part of Lots 18, 19, 20, 21, 22, 23 and 24 Concession A or Lake Range, and Part of the Original Road Allowance between Lots 20 and 21, (Closed by By-Law 811), Concession A or Lake Range.

   All designated as PARTS 12, 21 to 25 both inclusive, 26, 29, 30, 32, 33, 34, 35, 36, 64, 65, 68 and 69, on Plan 3R-7352.

2. Part of Lots 11, 12, 13, 14 and 15, Concession A or Lake Range, and Part of McNabb Street on the Town Plot of Inverhuron (Crown Survey No. VI) (Closed by By-Law 77-11) designated as PARTS 1, 2 and 3 on Plan 3R-7351, save and except PART 1 on Plan 3R-7355.

P900493
OPG-Huron A Inc.
PIN 33286-0060

Together with an easement in, on, over, along and upon those parts of Lots 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 and part of original allowance for road along the shore of Lake Huron Concession A or Lake Range designated as PARTS 45, 46, 47 48, 91, 92, 93, 123, 125 and 127 on Plan 3R-7352 for the purposes of pedestrian and vehicular access and installing constructing, repairing, replacing and using services, utilities, sewers, telecommunications equipment, conduits, pipes and cables and such other uses as may reasonably be required by an owner or occupant of the said lands pursuant to this transfer order and subject to such reasonable restrictions as may be imposed by the owner of the subject lands from time to time.

P900495
OPG-Huron B Inc.
PIN 33285-0176

And Together with an easement in, over, along and across those parts of Lots 11, 12, 13, 14, 15 and part of McNabb Street (closed by By-Law 77-11), Lot 1 west side of Head Street, Lot 1 east side of Raglan Street, Lot 1 west side of Raglan Street, Lot 1, east side of Morin Street, Lot 1 west side of Morin Street, Lot 1 east side of Russell Street, part of Head Street (closed by By-Law 1752), part of Raglan Street (closed by By-Law 810) and part of Morin Street (closed by By-Law 810), designated as PARTS 15, 16, 18, 19, 20, 21, 25 and 26 on Plan 3R-7351 and PART 1 on Plan 3R-7355 for the purposes of pedestrian and vehicular access and installing constructing, repairing, replacing and using services, utilities, sewers, telecommunications equipment, conduits, pipes and cables and such other uses as may reasonably be required by an owner or occupant of the said lands pursuant to this transfer order and subject to such reasonable restrictions as may be imposed by the owner of the subject lands from time to time.

P900497
OPG-Huron
Common Facilities
PIN 33285-0170

And Together with an easement in, on, over along and upon those parts of Lots 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and part of the original allowance for road allowance between Lots 20 and 21, Concession A or Lake Range designated as PARTS 5, 13, 14, 15, 16, 17, 18, 27, 28, 66, 113, 116, 118 and 120 on Plan 3R-7352 for the purposes of pedestrian and vehicular access and installing constructing, repairing, replacing and using services, utilities, sewers, telecommunications equipment, conduits, pipes and cables and such other uses as may reasonably be required by an owner or occupant of the said lands pursuant to this transfer order and subject to such reasonable restrictions as may be imposed by the owner of the subject lands from time to time.

COMMON SHARE CERTIFICATE

Certificate No.

For 1 Common Shares

Issued to

Ontario Power Generation Inc.

Dated March 26, 1999

From whom transferred

Treasury

Dated March 26, 1999

No. Original Certificate	No. Original Shares	No. Of Shares Transferred

Received Certificate No. _____

for _____ Shares

this ____ day of _____

No. COM - 1

INCORPORATED UNDER THE LAW OF THE PROVINCE OF ONTARIO

1 **Shares**

OPC WASTE INC.

This is to Certify that Ontario Power Generation Inc.

is the registered holder of one

fully paid and non-assessable Common shares of

OPG Waste Inc.

The class or series of shares represented by this Certificate has rights, privileges, restrictions or conditions attached thereto and the Corporation will furnish to the holder, on demand and without charge, a full copy of the text of,

(i) the rights, privileges, restrictions and conditions attached to the said shares and to each class authorized to be issued and to each series insofar as the same have been fixed by the directors, and

(ii) the authority of the directors to fix the rights, privileges, restrictions and conditions of subsequent series, if applicable.

LIEN ON SHARES. The corporation has a lien on the shares represented by this Certificate for any debt of the shareholder to the Corporation.

RESTRICTIONS ON TRANSFER. There are restrictions on the right to transfer the shares represented by this Certificate.

IN WITNESS WHEREOF the Corporation has caused this Certificate to be signed by its duly authorized officers and to be sealed with the seal of the Corporation this 26th day of March 19 99.

_____ _____

Summary of Regulatory Commitments, Regulatory Obligations and Regulatory Management Actions Made/Concurrence Requested

CD# W-CORR-00531-02073 P

Submission Title: **Renewal Application for Western Waste Management Facility Waste Facility Operating Licence**

Regulatory Commitments (REGC):

No.	Description	Date to be Completed
	None	

Regulatory Management Action (REGM):

No.	Description	Date to be Completed
	None	

Regulatory Obligation Action (REGO):

No.	Description	Date to be Completed
	None	

Concurrence Requested: None