



CMD 26-M24.1

Date: 2025-12-19

**Written Submission from
Ontario Power Generation Inc.**

**Mémoire de
Ontario Power Generation Inc.**

In the matter of

À l'égard de

Ontario Power Generation

Response to CNSC request pursuant
to Subsection 12(2) of the General Nuclear
Safety and Control Regulations:
Darlington Emergency Exercise
“Unified Command 2025”

Ontario Power Generation

Réponse à la demande de la CCSN
en vertu du paragraphe 12(2) du
Règlement général sur la sûreté et le
contrôle nucléaire : Exercice d'urgence de
Darlington « Commandement unifié 2025 »

Commission Meeting

Réunion de la Commission

February 13, 2026

Le 13 février 2026

December 19, 2025

OPG Proprietary

CD# NK38-CORR-00531-26493 P

Ms. Candace Salmon
Commission Registrar**Dr. Alexandre Viktorov**
Director General,
Directorate of Power Reactor Regulations
Canadian Nuclear Safety Commission
P.O. Box 1046
280 Slater Street
OTTAWA, Ontario, K1P 5S9

Dear Ms. Salmon and Dr. Viktorov:

Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise “Unified Command 2025”

The purpose of this letter is to provide CNSC staff with OPG's response to the four requested items documented in Reference 1 regarding the 2025 Darlington Emergency Exercise Unified Command (ExUC), confirming that OPG will comprehensively address the observed deficiencies in the Emergency Mitigating Equipment (EME) deployment during the exercise.

This response is prepared pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations (GNSCR), and in accordance with Darlington NGS Power Reactor Operating Licence 13.00/2045, Licence Condition 10.1, “*Emergency Preparedness Program*”, REGDOC-2.10.1, “*Nuclear Emergency Preparedness and Response, Version 2*” (Sections 2.1, 2.2.6, 2.2.9, 2.3.1, 2.3.2 and 2.3.3) and REGDOC-2.3.2, “*Accident Management, Version 2*” (Sections 3.2, 3.4 and 3.5).

CNSC also requested, in accordance with Subsection 12(2) of the GNSCR, OPG file a report with the Commission that contains the following information regarding the requests by December 19, 2025 (Reference 1):

- a) confirmation that the request will or will not be carried out or will be carried out in part;
- b) any action that OPG has taken to carry out the request or any part of it;

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- c) any reasons why the request or any part of it will not be carried out;
- d) any proposed alternative means to achieve the objectives of the request; and
- e) any proposed alternative period within which OPG proposes to carry out the request.

OPG will carry out the requests. Detailed plans, evidence, and milestones are provided in Attachments 1 to 4 with a summary provided in Table 1. The four attachments provide the report elements a) to e) pursuant to Subsections 12(2) of the GNSCR.

OPG maintains that safety of workers, the public, and the environment remained protected, and the EME deployment readiness was further strengthened. On December 4, 2025, OPG conducted an evaluated EME drill observed by CNSC inspectors that demonstrated the safe deployment, troubleshooting, and operation of Phase 1 and Phase 2 EME, including the deployment of Portable Uninterruptable Power Supplies (PUPS). In addition, while CNSC REGDOCs do not require a formal multi-site Beyond Design Basis Accident analysis, and as such there is no methodology in place to perform this analysis, OPG can assure that both Darlington and Pickering have the ability to independently respond to incidents through the response actions taken by the Emergency Response Organization (ERO), including the deployment of EME in the unlikely event it is required. OPG has dedicated ERO staff and sufficient EME at both sites to operate independently in the exceedingly unlikely case of coincident events.

References 2 and 3 summarize the immediate actions taken following the October 22-23, 2025 Darlington EME ExUC and OPG’s response to the Type II preliminary summary of findings, respectively.

TABLE 1 - Summary
CNSC Request 1 Gap analysis on training for personnel deploying and operating the EME:
OPG Summary: Attachment 1 provides OPG’s Summary of Training Gap Analysis Actions. The design, development, and implementation of existing EME training is in accordance with N-PROC-TR-0008, “ <i>Systematic Approach to Training</i> ” (SAT) and REGDOC-2.2.2, “ <i>Personnel Training, Version 2</i> ” (Section 5.1.2, 5.3.2, 5.5). A comprehensive review of Emergency Response, Maintenance, and Operations Training program documents was completed supporting Analysis, Development, and Evaluation phases of SAT. There is strong evidence of demonstrated use of Training Needs Analyses, Job and Task Analyses, Assessments, and Post Training Effectiveness Evaluations in the training programs. Actions were identified to review and ensure alignment to governance standards in accordance with current station practices and learnings from EME drill events, including benchmarking. This will include further task performance

TABLE 1 - Summary

reviews, crew capability assessments, and sustaining actions to improve proficiency through continuing training. These actions are tracked under Regulatory Management Action Request (REGM) 28278750 for completion by June 26, 2026, as detailed in Attachment 1.

CNSC Request 2**Plans to validate the Phase 2 EME Guides:****OPG Summary:**

Attachment 2 provides OPG's plan to validate the Phase 2 EME guides and evidence of recent demonstrations.

The human factors validation of the Phase 2 EME deployment guides will be conducted in accordance with Part B of REGDOC-2.5.1, "*General Design Considerations: Human Factors*" with contracted Human Factors Engineering (HFE) expertise engaged in Q1 2026, a formal Human Factors Validation Plan prepared and submitted to CNSC staff for review in Q2 2026, pre-drill preparations in Q3 2026, execution during the Emergency Preparedness evaluated drill on September 30, 2026, and a Validation Report submitted to CNSC staff in Q4 2026.

OPG will pursue continuous improvement of its emergency preparedness program and incorporate EME functional elements into the 2026 drill schedule, including the planned Human Factors Validation of Phase 2 EME in the September 30, 2026 drill.

With respect to demonstrating safe deployment, troubleshooting, and operation of all Phase 1 and 2 EME (including PUPS), the December 4, 2025 evaluated drill observed by CNSC inspectors provided the required demonstration evidence and satisfies the second part of Request 2. Accordingly, OPG does not plan additional drills for this item.

CNSC Request 3**Evaluation of the existing maintenance program for EME:****OPG Summary:**

Attachment 3 provides a summary of the EME Preventive Maintenance (PM) program and the actions underway to strengthen equipment availability and readiness. OPG is implementing:

- Increased PUPS battery replacement frequency.
- Refined instructions for quarterly EME inspections.
- Re-evaluation of hose testing and telecommunications inspections.

For your information, all five Darlington PUPS are currently operational.

TABLE 1 - Summary**CNSC Request 4****Evaluation of the extent of condition and required improvements, including those at Pickering NGS:****OPG Summary:**

Attachment 4 provides a summary of Pickering NGS's evaluation of the extent of condition and required improvements.

The extent of condition assessment is currently underway. In addition, Pickering EME stakeholders are actively gathering Operating Experience (OPEX) from Darlington NGS by:

- Communicating with their Darlington counterparts,
- Visiting Darlington to observe equipment and discuss gaps identified in the initial drill.
- Attending the daily Darlington EME touchpoint meetings.
- Insights gained from these activities are supporting the implementation of confirmatory equipment testing and Dynamic Learning Activities (DLA) at Pickering, leading into an evaluated drill at Pickering on January 21, 2026.

This submission completes Regulatory Obligation 28278148. No further updates are planned for CNSC staff Requests 1, 3 and 4. OPG does not propose to conduct any further drills for Request 2 as the December 4, 2025 evaluated drill provides the required demonstration evidence.

As documented in Request 2, the remaining validation will be completed through the planned Human Factors Validation drill. OPG will supply CNSC staff with:

- Human Factors Validation Plan for review by June 30, 2026.
- Human Factors Validation Report by December 15, 2026.

REGMs will be generated to track these items.

OPG will provide interim milestone updates to CNSC staff through continuing scheduled EME focused monthly meetings.

Should you have any questions please contact Mr. Scott Preston, Director, Emergency Management and Fire Protection, at (905) 706-8187 or at scott.preston@opg.com.

Sincerely,



Allan Grace
Senior Vice President
Darlington Nuclear
Ontario Power Generation Inc.

Attach. (4)

cc: CNSC Site Supervisor – Darlington
forms-formulaires@cnsccsn.gc.ca
Mr. K. Lun – CNSC

- References:
1. CNSC letter, A. Viktorov to A. Grace, “Darlington NGS: Request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise “Unified Command 2025””, November 6, 2025, e-Doc # 7593926, CD# NK38-CORR-00531-26453.
 2. OPG email, C. Bédard to K. Lun, “Darlington NGS – Immediate Actions in Response to Observations during the Darlington EME Drill”, October 31, 2025, e-Doc # 7595270, CD# NK38-CORR-00531-26456.
 3. OPG email, S. Woolley to D. Hipson, “OPG Response to Type II: Preliminary Summary of Findings - Emergency Preparedness and Response”, November 21, 2025, CD# NK38-CORR-00531-26533.

ATTACHMENT 1

OPG letter, A. Grace to Ms. C. Salmon and Dr. A. Viktorov, "Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025""

CD# NK38-CORR-00531-26493

Summary of Training Gap Analysis Actions (6 pages)

Prepared by: V. Sabesharasah

Checked by: J. Vanderheyden

Attachment 1**Summary of Training Gap Analysis Actions****CNSC Request 1 (Reference A1)****Gap analysis on training for personnel deploying and operating the EME:**

A comprehensive review of the existing EME training to ensure that its design, development and implementation is in accordance with the requirements of REGDOC-2.2.2, Personnel Training, Version 2 (Section 5.1.2, 5.3.2, 5.5). This shall include a description of how OPG will ensure that the staff required to deploy, operate and troubleshoot Phase 1 and 2 EME are qualified and proficient, along with measures to maintain that proficiency.

Emergency Response Actions	
Assignment	Description
28278750-01	Review the Requalification Frequency of Qualifications: QUAL 46033, “Emergency Mitigation Equipment Deployment & Set Up (Darlington)” QUAL 46034, “Emergency Mitigation Equipment Deployment & Set Up (Pickering)”
	<p>Training to review the frequency of QUAL 46033 and QUAL 46034 with the station Subject Matter Experts (SMEs) to confirm the 12-month interval. Update the frequency if required. This action will be considered complete once the 12-month requalification period for Task #9 in job task analysis N-JTA-800-00055, “Emergency Response Maintainer FLM(A)” has been reviewed with station SMEs and updated if necessary.</p>
28278750-02	Review of Course Material and Requalification Periods for Performance Element: PEL 70326, “Deployment and Set Up of EME Equipment, Pumps, and Generators (DN) – JPM”
	<p>Training to review and update the course material as required for PEL 70326 to ensure it accurately reflects current operational requirements. Following this review, align the requalification period for PEL 70326 with the 12-month frequency specified for Emergency Mitigation Equipment (EME) deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.</p>
	Review and Update the Course Material as required for: PEL 70325, “Deployment and Set Up of EME Equipment, Pumps, and Generators (PN) – JPM”
	<p>Training to review and update the course material as required for PEL 70325 to ensure it accurately reflects current operational requirements.</p>

Emergency Response Actions	
Assignment	Description
	Following this review, align the requalification period for PEL 70325 with the 12-month frequency specified for EME deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.
28278750-03	<p>Correct Discrepancy between the Current 36-month Requalification Period – Review and Update the Course Material as required for: PEL 76904, “EME Multi lift - DODGE RAM 5500”</p> <p>Training to review and update the course material as required for PEL 76904 to ensure it accurately reflects current operational requirements. Following this review, align the requalification period for PEL 76904 with the frequency specified for EME deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.</p>
28278750-04	<p>Review and Update as Required: PEL 76935, “EME Utility Tractors”</p> <p>Training to review and update the course material as required for PEL 76935 to ensure it accurately reflects current operational requirements. Following this review, align the requalification period for PEL 76935 with the frequency specified for EME deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.</p>
28278750-05	<p>Review and Update as Required: PEL 78099, “EME Documentation Review and Field Walkdowns”</p> <p>Training to review and update the course material as required for PEL 78099 to ensure it accurately reflects current operational requirements. Following this review, align the requalification period for PEL 78099 with the frequency specified for EME deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.</p>
28278750-06	<p>Review and Update the Course Material as Required: PEL 78100, “EME Telecommunications Trailer Deployment – Darlington”</p> <p>Training to review and update the course material as required for PEL 78100 to ensure it accurately reflects current operational requirements. Following this review, align the requalification period for PEL 78100 with the frequency specified for EME deployment in N-JTA-800-00055. Ensure all changes are documented to maintain consistency and compliance with established standards.</p>

Emergency Response Actions	
Assignment	Description
28278750-15	<p>DN EME DYNAMIC LEARNING ACTIVITY (DLA)</p> <p>This AR addresses the development and execution of Dynamic Learning Activities for DN Emergency Response, Maintenance, and Operations organizations to provide participants and observers with opportunities to self-evaluate their application of current knowledge, skills, work practices, and processes in the area of EME execution. Each of the associated A/R actions are to be developed in collaboration with respective Line organizations and their Training organizations counterparts.</p> <p>DN EME Develop and Execute DLA - Emergency Response</p>

Operations Actions	
Assignment	Description
28278750-07	<p>To Perform a Training Needs Analysis (TNA) on: QUAL 33344, “P5-8 NLO Emergency Mitigating Equipment”</p> <p>Training to perform a TNA to include looking at all PELs associated with the Qual to determine validity and structure of the Qual to ensure alignment with all streams and sites.</p>
28278750-08	<p>To Perform a TNA on: QUAL 33425, “P1-4 NLO Emergency Mitigating Equipment”</p> <p>Training to perform a TNA to include looking at all PELs associated with the Qual to determine validity and structure of the Qual to ensure alignment with all streams and sites.</p>
28278750-09	<p>To Perform a TNA on: QUAL 34384, “CS /Fuel Handling/Wet Fuel NLO Emerg Mitigating Equip”</p> <p>Training to perform a TNA to include looking at all PELs associated with the Qual to determine validity and structure of the Qual to ensure alignment with all streams and sites.</p>
28278750-10	<p>To Perform a TNA on: QUAL 42393, Darlington Generating Unit Emergency Operations;</p> <p>Training to perform a TNA to include looking at all PELs associated with Qual to determine validity and structure of Qual to ensure alignment with all streams and sites.</p>
28278750-11	<p>To Perform a TNA on: QUAL 42394, “Darlington Unit 0 Emergency Operations”</p>

Operations Actions	
Assignment	Description
	Training to perform a TNA to include looking at all PELs associated with the Qual to determine validity and structure of the Qual to ensure alignment with all streams and sites.
28278750-12	To Create a 'What Excellence Looks like' Checklist: Training to create a "What Excellence Looks Like" checklist to ensure all Qualifications are evaluated with the same criteria to ensure alignment between Qualifications and sites.
28278750-15	DN EME DYNAMIC LEARNING ACTIVITY (DLA) This AR addresses the development and execution of Dynamic Learning Activities for DN Emergency Response, Maintenance, and Operations organizations to provide participants and observers with opportunities to self-evaluate their application of current knowledge, skills, work practices, and processes in the area of EME execution. Each of the associated A/R actions are to be developed in collaboration with respective Line organizations and their Training organizations counterparts. DN EME Develop and Execute DLA - Operations

Maintenance Actions	
Assignment	Description
28278750-14	Maintenance review of Self-Assessment: NO25-040148-SA, "Gap analysis on training for personnel deploying and operating the Emergency Mitigating Equipment (EME)"
	Design Phase Action - PEL 78243, "BDBA Telecommunications – Overview and Radio Equipment – CAL": Training to review PEL 78243 and document evaluation method in AS9.
	Design Phase Action - PEL Type Determination for Self-Study Guides (SSG) PELS: <ul style="list-style-type: none"> • PEL 70254, "Connect/Disconnect Portable Temporary Power Supplies for PNGSA EME - SSG-ARQ" • PEL 70259, "Connect/Disconnect Portable Temporary Pumps for DNGS EME - SSG – ARQ" • PEL 70256, "Connect/Disconnect Portable Temporary Power Supplies for DNGS EME - SSG – ARQ" • PEL 70257, "Connect/Disconnect Portable Temporary Pumps for PNGSA EME - SSG – ARQ"

Maintenance Actions	
Assignment	Description
	<ul style="list-style-type: none"> • PEL 70258, “Connect/Disconnect Portable Temporary Pumps for PNGSB EME - SSG – ARQ” • PEL 70259, “Connect/Disconnect Portable Temporary Pumps for DNGS EME - SSG – ARQ” <p>Training to review the usage of Administrative Requirements (ARQ) in the training specified for EME related tasks (PELs 70254, 70255, 70256, 70257, 70258 and 70259). Determine if course is deemed more appropriate and take the required follow-up action to align with requirements of N-PROC-TR-0008, “<i>Systematic Approach to Training</i>”.</p>
	<p>Evaluation Phase Action – Perform PTEE on PELS 70259 AND 70256:</p> <p>Training to conduct a PTEE on PEL70259 and PEL70256.</p>
	<p>Station Maintenance Crew Capabilities Review (Mechanical Maintenance)</p> <p>Station Maintenance Crew Capabilities Review (Control Maintenance)</p> <p>Training to review crew capabilities and proficiency heat maps for EME deployment and installation tasks. If appropriate, add QUAL 32756, “<i>Connect/Disconnect Portable Temporary Pumps for DNGS EME</i>” and/or QUAL 32753, “<i>Connect/Disconnect Portable Temporary Power Supplies for DNGS EME</i>” to crew proficiency heat maps and link additional staff to these qualifications as needed. Review if it is appropriate to add these qualifications to N-LIST-08920-10003 R007, “<i>TIMS II Qualification Application Interface List</i>”.</p>
	<p>Implementation Phase Action – Submit Training Records (Mechanical Maintenance)</p> <p>Training to ensure all requested supporting documentation for PEL 70259 are available for all active credits.</p>
	<p>Implementation Phase Action – Submit Training Records (Control Maintenance)</p> <p>Training to ensure all requested supporting documentation for PEL 70256 are available for all active credits.</p>
28278750-15	<p>DN EME DYNAMIC LEARNING ACTIVITY (DLA)</p> <p>This AR addresses the development and execution of Dynamic Learning Activities for DN Emergency Response, Maintenance, and Operations organizations to provide participants and observers with opportunities to self-evaluate their application of current knowledge, skills, work practices, and processes in the area of EME execution. Each of the associated A/R</p>

Maintenance Actions	
Assignment	Description
	<p>actions are to be developed in collaboration with respective Line organizations and their Training organizations counterparts.</p> <p>DN EME Develop and Execute DLA - Mechanical Maintenance</p> <p>DN EME Develop and Execute DLA - Control Maintenance</p>

Reference A1. CNSC letter, A. Viktorov to A. Grace, "Darlington NGS: Request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025"", November 6, 2025, e-Doc # 7593926, CD# NK38-CORR-00531-26453.

ATTACHMENT 2

OPG letter, A. Grace to Ms. C. Salmon and Dr. A. Viktorov, "Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025""

CD# NK38-CORR-00531-26493

Plan to Validate Phase 2 Emergency Mitigating Equipment (EME) Guides (2 pages)

Prepared by: V. Sabesharasah
Checked by: K. Kotyk

Attachment 2**Plan to Validate Phase 2 Emergency Mitigating Equipment (EME) Guides****CNSC Request 2 (Reference B1)*****Plans to validate the Phase 2 EME Guides(s):***

Develop a plan and validate the Phase 2 EME guide(s) and demonstrate to CNSC staff that OPG can successfully and safely deploy, troubleshoot and operate, all Phase 1 and 2 EME, including the deployment of PUPS.

OPG Response:

OPG confirms that the human factors validation of the Phase 2 EME deployment guides will be conducted in accordance with the guidance set out in Part B of REGDOC-2.5.1, “*General Design Considerations: Human Factors*”. This ensures that human factors validation activities are robust, systematic, and compliant with CNSC regulatory expectations.

The following plan outlines the key steps for human factor validation, with current target dates. All dates except for the September 30, 2026, drill are preliminary and will be confirmed following contract award:

- 1. Engagement of Human Factors Expertise**
 - OPG will issue a Scope of Work and other procurement documentation to contract specialized Human Factors Engineering (HFE) staff in Q1 2026 to lead the validation process.
- 2. Preparation of Validation Plan (per REGDOC-2.5.1, Part B pertaining to validation)**
 - Contracted HFE staff will review the Phase 2 EME guides and conduct a detailed task analysis in Q2 2026.
 - A formal Human Factors Validation Plan, meeting the requirements of REGDOC-2.5.1 Part B (pertaining to validation only), will be prepared and submitted for internal review and acceptance in Q2 2026.
 - The approved Validation Plan will be provided to CNSC for review in Q2 2026. A Regulatory Management Action Request (REGM) will be raised to track this item.
- 3. Pre-Drill Preparation**
 - In Q3 2026, HFE staff will coordinate with OPG resources to prepare for the validation drill, including pre-job briefs (PJB) for observers and documentation reviews.
- 4. Execution and Observation of Validation Drill**
 - The human factors validation, including direct observation and assessment of Phase 2 EME deployment, will be conducted during the Emergency Preparedness (EP) evaluated drill scheduled for September 30, 2026.
 - HFE specialists and OPG staff will observe and evaluate the deployment, followed by a structured post-drill debrief.

5. Validation Report Preparation and Submission

- Following the drill, a Human Factors Validation Report will be prepared by the contracted HFE staff in Q4 2026, reviewed internally, and submitted to CNSC in Q4 2026. A REGM will be raised to track this item.

OPG will provide interim milestone updates to CNSC staff through continuing scheduled EME focused monthly meetings.

Demonstration of EME Deployment, Troubleshooting, and Operation

To address the requirement to *“demonstrate to CNSC staff that OPG can successfully and safely deploy, troubleshoot and operate all Phase 1 and 2 Emergency Mitigating Equipment (EME), including the deployment of Portable Uninterruptable Power Supplies (PUPS),”* OPG conducted an EME focused, evaluated drill on December 4, 2025, with CNSC inspectors in attendance.

During this drill, OPG teams demonstrated the deployment, operation, and troubleshooting of the following EME components:

- Phase 1 EME Pump
- Phase 1 Generator
- Portable Uninterruptable Power Supplies
- Portable Air Compressor
- Phase 2 EME Generator
- EME Refueling Demonstration
- Beyond Design Basis Accident Telecom Trailers

All activities were completed under challenging conditions, with teams troubleshooting and resolving equipment and procedural issues as they occurred. CNSC inspectors observed and engaged with participants throughout the drill.

Based on the successful demonstration of all required EME elements in the presence of CNSC inspectors, OPG respectfully requests that this item be considered closed. OPG remains fully committed to open communication and supporting regulatory oversight.

OPG will continue to pursue continuous improvement of its EP program. The 2026 EP drill schedule is designed to regularly incorporate EME functional elements, including a planned human factors validation of Phase 2 EME in the September 30, 2026 drill. This approach ensures ongoing validation and enhancement of OPG’s EME capabilities.

Reference	B1. CNSC letter, A. Viktorov to A. Grace, “Darlington NGS: Request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise “Unified Command 2025””, November 6, 2025, e-Doc # 7593926, CD# NK38-CORR-00531-26453.
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ATTACHMENT 3

OPG letter, A. Grace to Ms. C. Salmon and Dr. A. Viktorov, "Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025""

CD# NK38-CORR-00531-26493

Emergency Mitigating Equipment (EME) Preventative Maintenance (PM) List (4 pages)

Prepared by: V. Sabesharasah

Checked by: A. Gandhi

Attachment 3

Emergency Mitigating Equipment (EME) Preventative Maintenance (PM) List

CNSC Request 3 (Reference C1)

Evaluation of the existing maintenance program for EME:

Assess the current EME maintenance program to identify any changes necessary to ensure the continued availability and operational readiness of all EME (such as PUPS, generators, etc.), including associated components such as fittings and connection points.

OPG Response:

Evaluation of the existing maintenance program for EME: Assess the current EME maintenance program to identify any changes necessary to ensure the continued availability and operational readiness of all EME (such as Portable Uninterruptable Power Supplies (PUPS) , generators, etc.), including associated components such as fittings and connection points.

Table 1 of EME PM program outlines the various maintenance work that are executed for the system. The PM identifier (PMID), frequency, and last performed instance is listed. From reviewing the PM's frequency and work reports, the program is adequate in preventing deficiencies with the established scope and execution timeline. Evaluations have been initiated to improve the PM program. This includes a more frequent battery replacement on the PUPS via PM change request PMC-N-24-243826 to address discovered battery issues, refined instructions for the quarterly EME inspections (via PM feedback EVAL-25-174752) and re-evaluations of the hose testing and telecommunications inspection.

During the review of the EME PMs, it was found that instances of the telecommunications inspection and hose testing were missed. This is documented by EME hose testing work orders (WO# 05538169 and WO# 05538170). Hose testing was completed August 2023 and November 2023 respectively due to resource challenges, but it was not actually completed by the work order closing date reflected in Asset Suite 9. As a result, it was determined there is no risk. A Station Condition Record, SCR D-2025-16664, "*EITER: Incorrectly documented EME Hose PMID 174794-02/PMID 175448-01*" had been initiated to document this issue. Telecommunications inspection (PMID 175448-01) was temporarily suspended in July, 2025 (after completing WO# 06280995) due to contract issues with the Vendor Partner. This issue has now been resolved and the inspection has since resumed (most recently under WO# 06331297 in December, 2025).

Table 1 - List of EME Preventative Maintenance Programs

#	PMID	Description	Frequency	Last Performed	Comment
1	132970-01	EME DAILY INSPECTIONS	Performed Daily. Results submitted weekly.	WO#06322294 (11-18-2025)	NA
2	132977-01	EME ANNUAL EQUIPMENT	Annual	WO#06204681 (12-18-2024*)	NA

#	PMID	Description	Frequency	Last Performed	Comment
		INSPECTION (ERM PERFORM EME MM TOOLKIT INSPECTION (EITER)			
3	132977-02	EME ANNUAL MAINTENANCE - TELECOM SYSTEM TESTING	Annual	WO#06266127 (09-04-2025)	NA
4	132972-01	QUARTERLY EME EQUIPMENT INSPECTIONS (ERM – EME GENERATOR INSPECTION & STARTUP (EITER)	Quarterly	WO#06319664 (11-14-2025)	PM Feedback EVAL-25-174752 entered to include additional details in PM description. No change to actual PM scope.
5	132972-02	EME VENDOR PUMP TESTING	156 weeks	WO#05690796 (09-22-2024)	NA
6	132971-01	PUPS CARTS VISUAL INSPECTIONS	Monthly	WO#06321161 (11-21-2025)	NA
7	175382-01	U0 DOT694834-0013 PUPS 4Y RPLC BATTERY	208 weeks	WO#05848861 (06-19-2025*)	PMC-N-24- 243826 entered to change to 156 weeks
8	175383-01	U1 DOT694834-0014 PUPS 4Y RPLC BATTERIES	208 weeks	WO#05848860 (10-07-2025)	PMC-N-24- 243826 entered to change to 156 weeks
9	175384-01	U2 DOT694834-0016 PUPS 4Y RPLC BATTERIES	208 weeks	WO#05848859 (08-01-2025)	PMC-N-24- 243826 entered to change to 156 weeks
10	175385-01	U3 DOT694834-0016 PUPS 4Y RPLC BATTERIES	208 weeks	WO#05848858 (02-14-2025*)	PMC-N-24- 243826 entered to change to 156 weeks
11	175386-01	U4 DOT694834-0017 PUPS 4Y RPLC BATTERIES	208 weeks	WO#05747198 (07-03-2025)	PMC-N-24- 243826 entered to change to 156 weeks
12	166245-01	PORTABLE UPS CART ANNUAL BATTERY DRAIN TEST	52 weeks	WO#06030916 (05-03-2024)	NA
13	23479-02	EXERCISE PAC VALVES 2-72800-V628 & 2-72800- V629	Leap Frogging every 12 years	PMID created under CR2020- 00664. No previous execution yet.	NA
14	132610-01	EME MC TOOLBOX INSPECTIONS 100 & 107.5 ELEV	Annual	WO#06282653 (10-14-2025)	NA
15	174794-01	EME HOSE TESTING - TRAILER 982-025	5 years	WO#05538168 (12-17-2021)	NA
16	174794-02	EME HOSE TESTING - TRAILER 982-026	5 years	WO#05538169 (02-28-2023*)	NA

#	PMID	Description	Frequency	Last Performed	Comment
17	174794-03	EME HOSE TESTING - POWERHOUSE	5 years	WO#05538170 (01-15-2024*)	NA
18	174794-04	EEME HOSE TESTING - SPARE HOSE	5 years	WO#05538171 (09-22-2025)	NA
19	174794-05	EME - HOSE MONTHLY INSPECTIONS	Monthly	WO#06317681 (11-06-2025)	NA
20	174794-06	EME HOSE INSPECTIONS - QUARTERLY INSPECTIONS	Quarterly	WO#06298492 (09-11-2025)	NA
21	174794-07	EME HOSE INSPECTIONS - ANNUAL INSPECTIONS	1 year	WO#06304522 (09-25-2025)	NA
22	175524-01	ANNUAL EME FUEL TESTING / POLISHING	Annual	WO#06314426 (11-01-2025)	NA
23	172593-01	EME MONTHLY FX CHECKS	Monthly	WO#06313581 (10-21-2025)	NA
24	172593-02	EME ANNUAL FIRE EXTINGUISHER CHECKS	Annual	WO#06234589 (08-17-2025)	NA
25	175448-01	ERT - EME MONTHLY TELECOMMUNICATIONS INSPECTION	Monthly	WO#06280995 (07-09-2025*) WO#06331297 (12-10-2025)	PM temporarily suspended in July, 2025 due to contract issue with Vendor. New PO# 00329075 has now been initiated to resolve contract issue and resume PM execution.
26	172002-01	EME ANNUAL COMPRESSOR CHECKS	52 weeks	WO#06316877 (11-06-2025)	NA
27	175106-01	EME ANNUAL INSPECTIONS – TOOLBOXES	52 weeks	WO#06300162 (09-11-2025)	NA
28	175106-02	EME ANNUAL INSPECTIONS - VENTILATION TOOLBOXES	52 weeks	WO#06304515 (09-25-2025)	NA
29	175106-03	EME ANNUAL INSPECTIONS - AIRLOCK TOOLBOXES	52 weeks	WO#06303848 (09-25-2025)	NA
30	175106-04	EME ANNUAL INSPECTIONS - PORTABLE INSTRUMENT MONITORING	52 weeks	WO#06311215 (10-18-2025)	NA
31	181332-01	EME PORTABLE MONITORS BATTERY REPLACEMENT	26 weeks	WO#06297038 (09-05-2025)	NA

#	PMID	Description	Frequency	Last Performed	Comment
32	181332-02	EME INSPECT/FUNCTION CHECK PORTABLE MONITORS	156 weeks	PMID created under PMC-N- 20-061984. No previous execution yet.	NA

* WO#06204681 status closed on AS9 system 03-20-2025. Work was performed 12-18-2024 as per completion notes.

* WO#05848861 has not been closed yet. Work was performed 06-19-2025 as per completion notes.

* WO#05848858 has not been closed yet. Work was performed 02-14-2025 as per completion notes.

* WO#06280995 status closed on AS9 system 10-11-2025. Work was performed 07-09-2025 as per completion notes.

* WO#05538169 status closed on AS9 system 02-28-2023. Work completed August 2023.

* WO#05538170 status closed on AS9 system 01-15-2024. Work completed November 2023.

Reference: C1. CNSC letter, A. Viktorov to A. Grace, "Darlington NGS: Request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025"", November 6, 2025, e-Doc # 7593926, CD# NK38-CORR-00531-26453.

ATTACHMENT 4

OPG letter, A. Grace to Ms. C. Salmon and Dr. A. Viktorov, "Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025""

CD# NK38-CORR-00531-26493

Evaluation of the Extent of Condition and Required Improvements at Pickering Nuclear Generating Station (NGS) (4 pages)

Prepared by: V. Sabesharasah
Checked by: D. Knott

Attachment 4

Evaluation of the Extent of Condition and Required Improvements at Pickering Nuclear Generating Station (NGS)

CNSC Request 4 (Reference D1)

Evaluation of the extent of condition and required improvements, including those at Pickering NGS:

A summary of the extent of condition and any improvements that are required for both Darlington and Pickering NGS to address similar issues.

OPG Response:

Pickering NGS Equipment, Procedures and Proficiency Extent of Condition

The extent of condition assessment at Pickering NGS is currently underway. In addition, Pickering Emergency Mitigating Equipment (EME) stakeholders are actively gathering Operating Experience (OPEX) from Darlington NGS by communicating with their Darlington counterparts, visiting Darlington to observe the equipment and discuss gaps identified in the initial drill, and attending the daily Darlington EME touchpoint meetings. The OPEX gathered is being applied to OPG's extent of condition assessment.

To date, Pickering NGS has confirmed the functionality of the Phase 1 pumps and generators, along with the Phase 2 generator, during a cross-functional EME deployment held on December 2 and 3, 2025. This deployment also included field confirmation of the relevant procedures within scope, and any gaps identified were documented for follow-up action.

Throughout December 2025 and January 2026, Pickering NGS will verify the functionality of the following equipment through deployment and in-field procedure checks:

- Beyond Design Basis Accident Telecommunications trailer at Pickering
- Portable Uninterruptable Power Supplies (PUPS) at Pickering
- Airlock Compressors at Pickering
- EME Refueling at Pickering

Any gaps identified during these deployments will be addressed, and Pickering NGS's capability to carry out its EME deployment program will be demonstrated during an evaluated drill on January 21, 2026.

Pickering NGS Evaluation of existing EME Maintenance Program

Evaluation of the existing maintenance program for EME: Assess the current EME maintenance program to identify any changes necessary to ensure the continued availability and operational readiness of all EME (such as PUPS, generators, etc.), including associated components such as fittings and connection points.

Table 1 EME Preventative Maintenance (PM) program outlines the various maintenance work that are executed for EME at Pickering NGS. The PM identifier (PMID), and frequency are listed. From reviewing the PM's frequency and work reports, the program is adequate in preventing deficiencies with the established scope and execution timeline.

The maintenance program for the Pickering NGS EME equipment was in the scope of a CNSC field inspection conducted in September 2025. Commitments documented in Field Inspection Record PRPD-2025-FIR-25710 and PRPD-2025-FIR-25711 will continue to be implemented through their identified timelines within each Field Inspection Record.

Table 1 - List of EME Preventative Maintenance Program

PM Requirement		PM Status	Frequency Code	Title
165839	1	ACTIVE	1 WK	018-76801-EME EQUIPMENT WEEKLY INSPECTIONS / WEEKDAYS ONLY
165839	2	ACTIVE	13 WK	018-76801-EME EQUIPMENT INSPECTIONS & TEST RUN
165839	3	ACTIVE	13 WK	018-76801-EME EQUIPMENT QUARTERLY INSPECTIONS
165839	4	ACTIVE	1YL	(DO NOT SCH) 018-76801-EME EQUIPMENT YEARLY HOSE PRESSURE TESTS
165839	5	ACTIVE	5YL	018-76801-EME EQUIP. 5YR FUEL TOTE INSPECTION/CERTIFICATIONS
165839	6	ACTIVE	3YL	(DO NOT SCH) 018-76801-EME EQUIP. PUMP TEST RUN
165839	7	ACTIVE	3YL	018-76801-EME EQUIP. 3 YR OEM PUMP INSPECTION, TEST & MTCE
165839	8	ACTIVE	3YL	018-76801-EME EQUIP. 3 YR OEM GENERATOR INSP., TEST & MTCE
165839	9	ACTIVE	1YL	018-78601 ANNUAL EME FUEL TESTING/POLISHING
165839	10	ACTIVE	1YL	018-76801-EME PUMP MANIFOLD CAP INSPECTION/CLEAN/LUBE
165839	11	ACTIVE	156 WK	018-76801-CALIBRATE - EME PRESSURE GAUGES
165839	12	ACTIVE	1 WK	018-76801-EME EQUIPMENT WEEKLY INSPECTIONS
165839	13	ACTIVE	2 WK	018-76801-EME EQUIPMENT BI-WEEKLY INSPECTIONS
165839	15	ACTIVE	01M	1/4-76801-EME UPS & BATTERY MONTHLY INSPECTIONS
165839	17	ACTIVE	13 WK	018-76801-EME EQUIPMENT QUARTERLY-GLOVE INSPECTIONS
165839	18	ACTIVE	01M	018-76801-EME EQUIP. MONTHLY - GEN. & RECP. INSPECTIONS
165839	19	ACTIVE	17 WK	018-76801-EME EQUIPMENT TERTILE - VENTILATION FAN INSPECTION
165839	20	ACTIVE	26 WK	1/4-76801-EME UPS & BATTERY SEMI-ANNUAL INSPECTIONS
165839	21	ACTIVE	1YL	018-76801-EME EQUIPMENT ANNUAL- TOOLBOX INSPECTIONS
165839	23	ACTIVE	1YL	EME ANNUAL INSPECTIONS - ERT - MEGGERS

PM Requirement		PM Status	Frequency Code	Title
165839	25	ACTIVE	1YL	018-76801-EME EQUIPMENT ANNUAL- FACILITIES & ERT INSPECTIONS
165839	26	ACTIVE	39 WK	018-76801-EME REPLACE EQPT. AIRLOCK BOTTLE RACK SEALANT KIT
165839	27	ACTIVE	1YL	018-76801-EME EQUIPMENT - DIESEL AIR COMPRESSOR INSPECTIONS
165839	28	ACTIVE	1YL	018-76801-EME EQUIPMENT - DIESEL SUMP PUMP INSPECTIONS
165839	29	ACTIVE	13 WK	018-76801-EME EQUIPMENT QUARTERLY- RAD. INSTRUMENTS CALIBRATION
165839	30	ACTIVE	13 WK	018-76801-EME EQUIPMENT QUARTERLY- HTT RADIO BATTERY INSPECTIONS
165839	31	ACTIVE	52 WK	018-76801-EME EQUIPMENT ANNUAL FUEL TRANSFER HOSE PRESSURE TEST
165839	32	ACTIVE	1YL	018-76801-EME EQUIPMENT ANNUAL- TELECOM SYSTEM INSPECTIONS
165839	33	ACTIVE	2YL	018-76801-EME EQUIPMENT BIENNIAL- DG STORAGE PAD INSPECTIONS
165839	34	ACTIVE	2YL	1-76801-EME EQUIPMENT BIENNIAL- PRV+ RV INSPECTIONS
165839	35	ACTIVE	156	0-76801-EME EQUIPMENT(3YR)-TEMP/LEVEL INDICATOR INSPECTIONS
165839	36	ACTIVE	13 WK	018-76801-EME QUARTERLY- INSP OF GENERATOR TOOLBOXES
165839	37	ACTIVE	5YY	018-76801-EME EQUIPMENT 5YR AIRLOCK
165839	38	ACTIVE	5YL	018-76801-EME EQUIP. 5YR - DG STORAGE PAD - FACILITIES
165839	39	ACTIVE	1YL	1/4-76801-EME EQUIPMENT MTCE - BDBE BATTERY CAPACITY TESTING
165839	41	ACTIVE	1YL	018-76801-EME EQUIPMENT ANNUAL EMERGENCY AIR BOTTLE RACK TOOLBOX
165839	42	ACTIVE	312	058-76801-EME EQUIP. 6YR PORTABLE SWITCHGEAR INSPECTIONS
165839	43	ACTIVE	1YL	EME ANNUAL INSPECTIONS - ERT - 15KV POTENTIAL TESTERS
165839	44	ACTIVE	1 WK	018-53800-G1. WEEKLY CHECKS OF EME ALTERNATE BACKUP GENSET
165839	45	ACTIVE	01M	018-53800-G1. MONTHLY CHECKS OF EME ALTERNATE BACKUP GENSET
165839	46	ACTIVE	1YL	018-53800-G1. ANNUAL CHECKS OF EME ALTERNATE BACKUP GENSET
165839	47	ACTIVE	01M	018-76801-EME EQUIPMENT MONTHLY TELECOMMUNICATIONS

- Reference D1. CNSC letter, A. Viktorov to A. Grace, "Darlington NGS: Request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise "Unified Command 2025"", November 6, 2025, e-Doc # 7593926, CD# NK38-CORR-00531-26453.

**Summary of Regulatory Commitments, Regulatory Obligations and Regulatory
Management Actions Made/Concurrence Requested**

CD# NK38-CORR-00531-26493 P

Submission Title: **Darlington NGS – Darlington NGS – OPG Response to CNSC request pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Darlington Emergency Exercise “Unified Command 2025”**

Regulatory Commitments (REGC):

No.	Description	Date to be Completed
	None	

Regulatory Management Action (REGM):

No.	Description	Date to be Completed
1.	Provide CNSC staff with the Human Factors Validation Plan.	Jun. 30, 2026
2.	Provide CNSC staff with the Human Factors Validation Report.	Dec. 15, 2026

Regulatory Obligation Action (REGO):

No.	Description	Date to be Completed
	None	

Concurrence Requested: None.