



Directorate of Power Reactor Regulation

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Mr. Dietmar Reiner  
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**Subject: Request pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations*: Issues Relating to Radiation Risk Assessments and Measures Taken to Protect Workers from Potential Alpha Exposures in the Retube Waste Processing Building and Darlington NGS Unit 2 Vault**

Messrs. Duncan and Reiner,

This letter is a formal request pursuant to subsection 12(2) of the *General Nuclear Safety and Control Regulations* due to unresolved concerns with respect to deficiencies in radiation risk assessments and the provision of reasonable precautions to protect workers from potential alpha exposures in the Retube Waste Processing Building (RWPB) and in the Darlington NGS Unit 2 vault.

Based on information reported to the Canadian Nuclear Safety Commission (CNSC) and obtained from follow-up inspection activities, it has been confirmed that there have been two recent incidents in the RWPB [1, 2] for which:

- The radiation hazard characterization performed by Ontario Power Generation (OPG) was insufficient to estimate the radiological risks associated with the alpha hazards in the RWPB;
- OPG made non-conservative assumptions that resulted in the incorrect classification of alpha hazards;
- Workers were exposed to alpha hazards in the absence of suitable protective measures due to incorrect alpha hazard classification; and
- Monitoring and oversight were insufficient to provide timely indications as to when alpha hazards were changing and when current protective measures for workers were no longer sufficient for the actual hazards present.

CNSC staff have reviewed OPG's detailed event report for the February 6, 2018 incident [3], and while the report includes a cause analysis and actions taken by the licensee, the report does not examine the root cause(s) for the incorrect alpha hazard classification, the insufficient monitoring and the inadequate oversight. The actions identified by OPG for the most part are remedial in nature and do not address either the process or performance failure, or both, that resulted in workers being exposed to alpha hazards in the absence of suitable protective measures.

In addition, during a meeting on June 26, 2018, OPG informed CNSC staff that respiratory protection would not be used in the vault during some of the upcoming reconstruction activities. CNSC staff recognize that licensees are responsible for making decisions on the protective measures to be implemented in consideration of ALARA principles. However, CNSC staff are concerned that this approach may not be consistent with conservative decision making with respect to the assessment, monitoring and control of alpha hazards.

Therefore, pursuant to my authority as a person authorized by the Commission for the purposes of subsection 12(2) of the *General Nuclear Safety and Control Regulations*, I request that OPG complete, no later than July 30, 2018 the following actions:

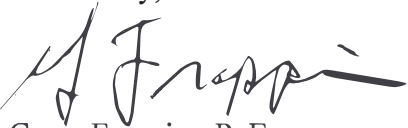
- Perform an analysis of the radiological hazard characterization methods to ensure alpha hazard characterization and classification adequately account for the source term and are sufficiently robust to respond to changing radiological conditions in an evolving work environment;
- Perform an analysis on the adequacy of alpha monitoring to provide timely detection of alpha hazards and changing radiological conditions;
- Perform an analysis of the adequacy of OPG's oversight activities in the RWPB and the Darlington NGS Unit 2 vault to ensure compliance with both regulatory requirements and the requirements of OPG's radiation protection program;
- Conduct an extent of condition analysis to determine whether other activities in the RWPB may have resulted in personnel exposures to alpha hazards, and develop a strategy to determine potential dose consequences. OPG shall provide their method and plan for this retrospective assessment including the number of workers selected and the criteria for selection; and
- Perform an ALARA analysis of the removal of respiratory protection requirements for reconstruction activities in the Unit 2 vault and provide a report that demonstrates that this approach meets an overall objective of minimizing dose and does not pose an undue radiological risk to workers. The report shall include details of the analysis along with the implementation strategy with dates.

Please note that, in accordance with subsection 12(2) of the *General Nuclear Safety and Control Regulations*, OPG is required to file a report by July 9, 2018, with the Commission that contains the following information:

- 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;*
- 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.*

If you have any questions related to this matter, please do not hesitate to contact Ms. Nathalie Riendeau, Director, Darlington Regulatory Program Division, at (613) 943-2923 or by e-mail at [Nathalie.Riendeau@canada.ca](mailto:Nathalie.Riendeau@canada.ca).

Yours truly,



Gerry Frappier, P. Eng.  
Director General  
Directorate of Power Reactor Regulation

c.c.: R. Jammal (CNSC), P. Elder (CNSC), M. Rinker (CNSC), C. Purvis (CNSC), N. Riendeau (CNSC), B. Ellaschuk (CNSC), D. Desjardins (CNSC), R. Manley (OPG), I. Malek (OPG), M. Bosley (OPG)

**References:**

1. OPG, PER SCR D-2018-04257: DNRU - Internal Uptake from Personnel Contamination Event - for RegDoc 3.1.1 reporting of N-2018-03429, e-Doc [5465523](#)
2. CNSC letter, N. Riendeau to D. Reiner and B. Duncan, "OPG DNGS: CNSC Type II Inspection Report: DRPD-2018-008 – Reactive Type II Inspection to RD – 3.1.1 reportable event D-2018-04257, New Action Item 2018-13-14117", June 7, 2018, e-Doc [5546896](#)
3. OPG, DER SCR D-2018-04257 : DNRU - Internal Uptake from Personnel Contamination Event - for RegDoc 3.1.1 reporting of N-2018-03429, e-Doc [5520140](#)