



Directorate of Power Reactor Regulation

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**Subject: Request pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations*: Darlington NGS Unit 2 - Low Activity Detected on Upper Feeder Personal Air Sample (PAS) Samples - SCR D-2018-25175**

Messrs. Gregoris and Reiner,

This letter is a request pursuant to subsection 12(2) of the *General Nuclear Safety and Control Regulations* related to OPG's preliminary event report SCR D-2018-25175 - *Low Activity Detected on Upper Feeder Personal Air Sample (PAS) Samples* [1].

**Background**

On November 29, 2018, Ontario Power Generation Inc. (OPG) informed the Canadian Nuclear Safety Commission (CNSC) staff that two Personal Air Samplers (PAS) worn by contractors working on Darlington Unit 2 feeder replacement were found to contain low levels of radioactive particulates, including alpha emitters. OPG immediately mandated that all work in the feeder cabinets be conducted in plastic suits pending completion of OPG's investigation into the occurrence.

Subsequently, OPG:

- Identified six instances between November 18 and November 27, 2018 for which PAS showed a positive result for alpha emitters, indicative of potential intakes of alpha contamination.
- Determined that the worker exposures are likely related to removal of foreign material near or inside the Unit 2 upper feeders and headers.
- Confirmed that the six potentially affected workers were wearing negative pressure particulate respirators at the time.
- Found no other signs of elevated airborne particulates or contamination events (PCEs) from the foreign material removal activities. This was determined from OPG's review of airborne area monitoring and PAS data from those dates.

During a meeting held on December 11, 2018, OPG confirmed to CNSC staff its intention to ascertain dose from this event based on PAS results only, consistent with OPG's procedure N-HPS-03416.2-0007 - *Internal Dosimetry of Transuranics* [2].

CNSC staff are not satisfied that the analysis of PAS filters and follow-up measurements (in particular whole body count results) were performed in a sufficiently timely manner to adequately ascertain exposures. Furthermore, OPG has not shown that it considered all pertinent information in making a decision for dosimetric analysis, including contamination survey results representative of the work area and information on radionuclide isotopic distribution.

### **Request**

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, by January 31, 2019, conduct tests and modify procedures as follows:

- Initiate follow-up dose assessment activities using in vitro bioassay methods for all individuals whose PAS showed positive results for alpha emitters; and
- Modify OPG's alpha dosimetry program (including confirmatory dosimetry program) upon review of its capabilities in light of the elevated risks of alpha hazards associated with refurbishment activities and recent operating experience, and submit the proposed modification for CNSC staff's assessment.


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 December 21, 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), R. Marley (OPG), I. Malek (OPG), M. Bosley (OPG)

**References:**

1. OPG, PER SCR D-2018-25175: DNRU – Low Activity Detected on Upper Feeder Personal Air Sample (PAS) Samples, received December 4, 2018
2. OPG, Internal Dosimetry of Transuranics, N-HPS-03416.2-0007, Revision 3, September 20, 2016