

March 21, 2014

Ms. Laurie Swami
Vice-President Nuclear Services
Ontario Power Generation

<contact information removed>

Subject: Information Request Package #13 from the Joint Review Panel

Dear Ms. Swami:

The Joint Review Panel has determined that additional information is required as detailed in the attached table. Please provide an estimate of the time that will be required to respond to these information requests.

Please note that the Panel will also direct the Canadian Nuclear Safety Commission to respond to information request EIS 13-515.

Any questions that you may have regarding the attached information requests or the process may be directed to either of the Panel Co-Managers, Kelly McGee at (613) 947-3710 or Debra Myles at (613) 957-0626.

Sincerely,

<original signed by>

Stella Swanson
Chair, Deep Geologic Repository Joint Review Panel

c.c.: James F. Archibald, Joint Review Panel Member
Gunter Muecke, Joint Review Panel Member

Frank King, Nuclear Waste Management Organization
Allan Webster, Ontario Power Generation

/Attachment

**Attachment 1
Deep Geological Repository Project
Joint Review Panel EIS Information Requests
Package 13 – March 21, 2014**

IR #	EIS Guidelines Section	EIS Section or other technical document	Information Request	Context
EIS 13-514	<ul style="list-style-type: none"> • Section 8.1, General Information and Design Description 	<ul style="list-style-type: none"> • NWMO DGR-TR-2011-25 "Postclosure Safety Assessment" • Reference Waste Inventory of L&ILW 	<p>Provide the following:</p> <ul style="list-style-type: none"> ▪ The results and evaluations of the re-runs of postclosure safety assessment models at a similar level of detail and clarity as that provided in NWMO DGR-TR-2011-25 "Postclosure Safety Assessment"; ▪ An assessment of how the revised inventories will affect the pre-closure safety evaluation of the DGR, with special emphasis on the occupational health and safety of the workforce, as well as radiation protection requirements. This assessment should also address the impact of the revised inventories on the possible future expansion of the DGR; ▪ An assessment of how the revised inventories would affect the environmental effects of accidents, malfunctions and malevolent acts, with emphasis on the pre-closure phase; ▪ A Waste Inventory Verification Plan, similar to the Geoscientific Verification Plan, which provides clear objectives, activities, and time-lines of future endeavours to improve the accuracy of the Reference Waste Inventory. The response should also include any plans for an independent expert evaluation of the methodology and verification procedures; and ▪ Clarification of the methodology used to determine radioisotope concentrations and activity levels in filter resins. 	<p>Recent correspondence between Dr. Frank Greening and the NWMO (See CEAR numbers 1777, 1808, 1809, 1810 and 1811) has raised questions regarding the accuracy of OPG's 2010 Reference Waste Inventory of L&ILW that would be emplaced into the proposed DGR. These questions concern radionuclide concentrations in CANDU pressure tubes and garter springs for which the concentrations of some radioisotopes appear to have been significantly underestimated or not estimated at all. The underestimates appear to be due to the use of calculated values and scaling factors, rather than measured values.</p> <p>In its February 20, 2014 response to Dr. Greening, the NWMO stated that:</p> <ul style="list-style-type: none"> ▪ the estimated tritium content of the PT waste is approximately 300 times higher than in the 2010 Reference Waste Inventory. ▪ an inventory estimate of Cm-244 is not included in the 2010 Reference Waste Inventory. Cm-244 is the dominant PT transuranic radionuclide in terms of activity at reactor shutdown. ▪ for the pressure tube wastes, the values for Cs-134 and Sb-125 are low by a factor of 3-4, and Cs-137 is significantly underestimated by a factor of 2300. ▪ the garter spring activity was not included in the 2010 Reference Waste Inventory. Although the garter spring mass is small, the total amounts of Co-60, Ni-63 and Ni-

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				<p>59 in the garter springs are significant compared to the amounts in the pressure tubes in part because the garter springs are primarily nickel. The ratio change in total DGR inventory at 2062 is 1.5 for Ni-59 and 2.2 for Ni-63.</p> <p>The NWMO has also noted that some of the radioisotopes that were underestimated (H-3, Cs-137, and Cm-244) have short half-lives and would not impact the long-term safety case. The NWMO also stated that it has re-run DGR postclosure assessment models using revised pressure tubes inventories for several key scenarios and calculation cases. It concluded that the changes in the waste inventories did not change the safety case conclusions for the DGR.</p> <p>While the waste inventory is a work in progress and cannot be finalized at this stage of the Project, additional quality assurance would be provided by a Waste Inventory Verification Plan.</p>
EIS 13-515	<ul style="list-style-type: none"> Section 12, Accidents, Malfunctions and Malevolent Acts 	<ul style="list-style-type: none"> <i>Malfunctions, Accidents and Malevolent Acts TSD</i> 	<p>Provide a brief description of the recent incidents at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. Include an explanation of the relevance of these incidents to worker and public health and safety (both occupational health and safety and radiation protection requirements) at the proposed DGR under normal and accident conditions.</p> <p>Describe how the consequences of such incidents might or might not fall within what OPG modeled for its analysis of accidents, malfunctions, and malevolent acts.</p>	<p>Recent events at the WIPP have received media attention and raised concerns with interested parties. The requested information will provide context for the Panel's review of the proposed DGR.</p>