

May 29, 2013

Ms. Laurie Swami
Vice-President Nuclear Services
Ontario Power Generation
889 Brock Road, 6th Floor
Pickering, ON L1W 3J2

Subject: Information Request Package #11 from the Joint Review Panel

Dear Ms. Swami:

As the Joint Review Panel proceeds with its review of the submissions received during the comment period on the Environmental Impact Statement (EIS), licencing documents and additional information provided by Ontario Power Generation, we have determined that responses to a limited number of additional information requests are required. Please provide responses to the requests in the attached table at your earliest convenience and in advance of the close of business on June 6, 2013.

For your information, the Panel is continuing with its evaluation of the DGR project information and submissions received in relation to the review. On, or prior to, June 23, 2013, the Panel will determine whether the information adequately addresses the requirements of the EIS Guidelines. At that time, the Panel will either schedule and announce the public hearing for the project or request more information from Ontario Power Generation before proceeding to the hearing phase of the review.

Any questions that you may have on the attached information requests or the process may be directed to 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 11 – May 29, 2013**

IR #	EIS Guidelines Section	EIS Section or other technical document	Information Request	Context
EIS 11-500	<ul style="list-style-type: none"> • Section 11.4.8, Noise and Vibration 	<ul style="list-style-type: none"> • EIS: Section 11.4.8 Noise and Vibration • OPG response to IR EIS 09-454 (CEARIS 957) 	<p>Explain how the schedule for the site preparation and construction phases will be affected by OPG's commitment to comply with the Municipality of Kincardine Noise By-Law #2008-076.</p>	<p>OPG states in the EIS that it intended to engage in construction of the surface and underground DGR facilities 24 hours per day, 7 days per week, 365 days per year for the these phases of the project. The Municipality of Kincardine's Noise By-Law # 2008-076 places limitations on the hours of operation of any equipment in connection with construction.</p>
EIS 11-501	<ul style="list-style-type: none"> • Section. 12, Accidents, Malfunctions and Malevolent Acts 	<ul style="list-style-type: none"> • <i>Post Closure Safety Assessment TSD: Section 4.1.5, Safety Relevant Features</i>, page 33 • OPG response to IR EIS 04-122 (CEARIS 704) • OPG response to IR EIS 04-124 (CEARIS 759) 	<p>Provide:</p> <ol style="list-style-type: none"> a) operational details for over-packing of failed or failing waste containers prior to transport and placement into the repository; b) the time period during which deposited waste containers would be retrievable from the DGR; and c) contingency measures that would be taken to permit handling and/or retrieval of waste packages that may suffer lack of integrity during the operational phase of the DGR. 	<p>Waste containers are expected to maintain their integrity to the degree necessary to facilitate easy retrieval (if required) for a decade or more after emplacement in the DGR. In some cases, the containers will provide effective containment for longer periods.</p> <p>The wastes are considered to be always retrievable, however, it is recognized that the ease of retrievability of waste containers will diminish with time.</p>
EIS 11-502	<ul style="list-style-type: none"> • Section. 8.1, General Information and Design Description 	<ul style="list-style-type: none"> • EIS: Section 4.5, Waste to be Placed in the DGR • <i>Reference Low and Intermediate Level Waste Inventory for the Deep Geologic Repository Report –</i> 	<p>Discuss the relationship between fuel damage that develops coincident with reactor aging and the formation of fuel fragments. Describe the potential effects of reactor aging on certain categories of intermediate level waste that may be affected by such fragments.</p> <p>Describe the methods to be used to ensure detection of such fragments within the waste.</p>	<p>The response by OPG to EIS IR 06-260 states that: "A "recognizable fuel fragment" is a visually recognizable piece of fuel, such as a pellet, fuel element, partial fuel bundle, etc. Such wastes are not routinely produced at OPG or Bruce Power. They are the result of rare discreet incidents involving severe physical damage to a fuel bundle. The potential for such wastes would be known in advance as any fuel damage incident is closely investigated. The waste</p>

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		<p><i>December 2010</i> (00216-REP-03902-00003-R003)</p> <ul style="list-style-type: none"> • <i>Reference Low and Intermediate Level Waste Inventory for the Deep Geologic Repository Report – August 2008</i> (00216-REP-03902-00003-R01)(CEARIS # 184) • OPG response to IR EIS 06-260 (CEARIS 823) 		<p>would be subject to special handling at the station during the recovery process due to the very high dose rates associated with them and the need for fissile material accounting and control. Fuel fragments would be canned and stored in the fuel bays at the stations as “failed fuel”. The exclusion in the WWMF WAC and the DGR WAC is to provide added assurance that waste generators do not mix these fuel fragment wastes with L&ILW.”</p>
EIS 11-503	<ul style="list-style-type: none"> • Section 13, Long-Term Safety of the DGR 	<ul style="list-style-type: none"> • <i>EIS</i>: Section 7.10.2.11, Other Physical Assets • <i>EIS</i>: Section 9, Long-Term Safety of the DGR • OPG response to IR EIS 08-366 (CEARIS 886) 	<p>Describe the ‘considerable international experience’ of other DGR projects sufficiently to establish how the successes and failures of other DGR-type projects can substantiate planned DGR activities and assist in mitigating performance uncertainties.</p> <p>Elaborate on the successes and failures of international DGR efforts to date in order to provide relevant substantive examples of where learning-by-doing has taken place, and explain how the extent of remaining uncertainties has been respected.</p>	<p>EIS 08-366 required that OPG “Describe the ‘considerable international experience’ of other DGR projects sufficiently to establish how the success and failure of other DGR-type projects can inform the proposed DGR.”</p> <p>The response provided by OPG highlighted that each approach to nuclear waste storage is unique and that there does exist international experience for DGR operations. However, there does not appear to be enough international experience to determine what designs are truly successful, particularly over the long-term.</p>
EIS 11-504	<ul style="list-style-type: none"> • Section 8.1, General Information and Design Description 	<ul style="list-style-type: none"> • <i>EIS</i>: Section 4.5.2 Total Radionuclide Inventory 	<p>Provide a clear, concise and stand-alone definition of low, intermediate and high level waste.</p> <p>With respect to refurbishment waste, what is the proportion of low, intermediate and high level waste?</p> <p>How will refurbishment waste that is considered high-level be managed?</p>	<p>Despite the information provided in the EIS Summary, EIS and additional information from OPG, there is still confusion on how waste is categorized.</p>

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EIS 11-505	<ul style="list-style-type: none"> Section 8.1, General Information and Design Description 	<ul style="list-style-type: none"> EIS: Section 4.5.2 Total Radionuclide Inventory 	<p>Provide a list of all radionuclides that are known to be present in high-level radioactive waste (i.e., used fuel) that will not be found in the low-level and intermediate-level wastes to be placed in the DGR. This list is to consider ion-exchange resins, refurbishment wastes and potential decommissioning wastes.</p>	<p>A clear understanding of the difference between low and intermediate-level waste and high-level waste will provide information required to evaluate the comparative nature of the waste to be placed in the DGR relative to high-level waste.</p>
EIS 11-506	<ul style="list-style-type: none"> Section 11.5.6, Human Health 	<ul style="list-style-type: none"> EIS: Section 7.11 Human Health 	<p>Explain how cohorts within the local and regional study area that may have high sensitivity or susceptibility to emissions from the DGR Project, particularly with respect to air emissions during site preparation and construction, were explicitly considered in the human health assessment. These cohorts may include the elderly, or people with chronic conditions.</p> <p>Provide information regarding the health effects of anxiety caused by concern about the DGR project and OPG's plans for mitigation of these concerns. Provide specific information regarding how sensitive cohorts within the local and regional study area will be engaged with respect to anxiety-related health effects and the mitigation of these effects.</p>	<p>Greater clarity is required with respect to how the human health assessment considered cohorts with higher sensitivity to project-related emissions such as particulates, as well as noise and vibration.</p> <p>Anxiety has definite effects on health. More information regarding mitigation of anxiety caused by the DGR project is required.</p>
EIS 11-507	<ul style="list-style-type: none"> Section 14, Cumulative Effects. 	<ul style="list-style-type: none"> EIS: Section 10, Cumulative Effects 	<p>How will cumulative effects indicators be selected for the follow-up monitoring program?</p> <p>Provide a conceptual model of potential cumulative effects on either ecosystem structure or function.</p>	<p>The most effective and informative indicators of cumulative effects may not be the same indicators that are used to monitor for effects on individual VECs. This is because the effects of complex interactions among multiple stressors at a community or ecosystem level may first be detected by measuring indicators that were not identified as VECs but which are essential to the persistence of that VEC (e.g. effects on lower levels of the food chain that, in turn, effect the VEC). A list of criteria applied to the selection of the indicators of cumulative effects would provide increased clarity and would assist in the evaluation of the acceptability of the follow-up monitoring program,</p>

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EIS 11-508	<ul style="list-style-type: none"> Section 8.1, General Information and Design Description 	<ul style="list-style-type: none"> <i>EIS</i>: Section 4.8.2.1 Description of Waste Packages 	<p>Describe in greater detail the program(s) used to verify waste container integrity at point of manufacture, point of arrival at the WWMF, and prior to transfer into any longer-term management scenario, such as the DGR.</p> <p>Provide the specific criteria that have to be met and the methods of verification.</p>	<p>This IR follows up on the OPG response to IR #: EIS 08-343. More clarity and detail on the quality control for radioactive waste containers over their entire life-cycle is required.</p>
EIS 11-509	<ul style="list-style-type: none"> Section 13, Long-Term Safety of the DGR 	<ul style="list-style-type: none"> <i>Preliminary Safety Assessment</i>: Section 4.1.6, Uncertainties 	<p>Provide methods that will be implemented to address problems with poor documentation for legacy waste that will be placed in the DGR.</p>	<p>The PSA states that OPG's waste packages are mostly well defined, and most waste categories are relatively homogeneous. However, standards of documentation have improved over time and documentation for some of the older waste may now be considered inadequate. The waste package criteria set for the Konrad Mine, Germany, acknowledge such deficiencies and remedial measures are being instituted.</p>