



Canadian Nuclear Safety Commission  
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4.05.03 / 37-5-1-0

March 4, 2010

Mr. Andrew J. Oliver  
Vice-president  
Fuel Services  
Cameco Corporation  
1 Eldorado Pl,  
Port Hope, ON L1A 3A1

**Subject:        Request for Information pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations*: Effluent Discharge Releases at the Port Granby Waste Management Facility**

Dear Mr. Oliver:

On October 17, 2008 CNSC staff issued to Cameco Corporation a Request for Information pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations*: Effluent Discharge Releases at the Port Granby Waste Management Facility [1].

Cameco has been requested to address the following two sections of the Action Plan proposed with the 12(2) Request for Information:

**A. Specifications of the Current System**

**B. Evaluation of the Level of Risks to Human Health and the Environment**

In response to the 12(2) Request for Information and in relation to each section of the Action Plan, Cameco has performed the requested analysis and developed the reports as specified in Table 1.

CNSC staff has reviewed and provided detailed comments on each of the submitted reports. Based upon the package of information provided under the 12(2) Request for Information, CNSC staff has summarized its key findings in relation to the current state of the facility and the effluent discharge at Port Granby Waste Management Facility (WMF).

## **A. Specifications of the Current System**

The existing water collection and treatment system at Port Granby WMF is currently meeting the licence discharge limits for radium-226 and pH. CNSC staff is in the opinion that the system can continue to operate in accordance with the licence requirements until the remediation of the facility under the Port Hope Area Initiative (PHAI).

### **Water Treatment System Outfall**

The water treatment system outfall includes a ditch that extends approximately 35 metres from the outfall to the beach of Lake Ontario. Treated effluent is discharged through the ditch, across the beach and finally reaches Lake Ontario.

Cameco is requested to reassess the outfall design to avoid discharging of final effluent across the beach and to ensure adequate mixing of the discharged effluent within Lake Ontario.

### **Precipitate Accumulation in Sedimentation and Treatment Lagoons**

In the assessment of the current design it was observed that the precipitate in the treatment lagoon occupied nearly the entire water column at the north-east corner where the discharge pipe from the treatment plant enters the lagoon. Accumulation of precipitate is expected to continue over the next few years until remediation of the facility. Cameco should make sure the material remains submerged.

### **East & West Reservoirs (overflow system)**

Over the past 12 years overflow events occurred frequently during the time of increased precipitations. The most recent overflow event occurred on January 25, 2010 [2].

During periods of increased precipitations, the inflow to the reservoir can exceed the surge capacity and the maximum pumping rate resulting in discharges of untreated inflow to Lake Ontario.

Cameco is requested to propose modifications of overflow system to cease discharging untreated inflow into Lake Ontario during periods of snow melt or increased precipitations.

## **B. Evaluation of the Level of Risks to Human Health and the Environment**

### **Characterization of the Discharged Effluent, Receiving Environment and Conceptual Site Model**

The *Effluent, Water, and Sediment Monitoring Report* for the Port Granby WMF and the addendum report was prepared in response to a 12(2) Request for Information. A second component of the 12(2) request was for a Conceptual Site Model detailing known and potential exposure sources, routes, and pathways for both ecological and human receptors.

In those submissions, Cameco has identified the contaminants of potential concern associated with Port Granby WMF site that have the potential to reach the onsite and offsite environment.

Based upon information provided in the above noted submissions and analysis previously conducted by the CNSC staff [3], no additional monitoring of the receiving environment is required at this time. However, as a preventive measure, CNSC staff requires that Cameco continues toxicity testing until completion of the facility remediation and includes sampling of bluff seepage in their monitoring program.

### **Actions Required**

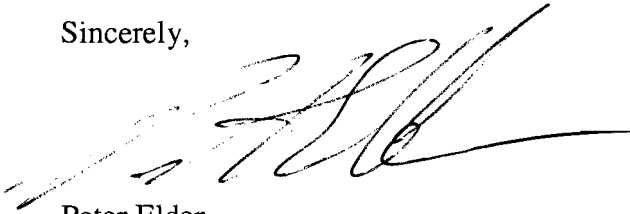
Resulting from the assessment of the information submitted under the 12(2) Request for Information, the CNSC requires Cameco to take the following actions to prevent or mitigate effects on the environment and to control the releases nuclear and hazardous substances within the site and into the environment:

- By the end of May 2010, develop and submit to CNSC an action plan addressing the feasibility of extending the discharge pipeline from the end point of discharge into Lake Ontario.
- By the end of May 2010, assess the accumulation of precipitate in treatment lagoons and if needed to relocate the precipitate to ensure the material remains submerged.
- By the end of May 2010, develop an action plan for CNSC review and approval on the design of the overflow system to cease discharging untreated inflow into Lake Ontario.
- Submit the results of acute toxicity testing performed during 2009 to CNSC. It is expected that this will include results from 12 consecutive months of toxicity tests. The licensee is required to perform monthly toxicity tests for the remaining operating life of the Port Granby WMF.
- By the end of March 2010, add Total Suspended Solids to the existing discharge effluent monitoring program.
- By the end of March 2010, include the bluff seepage sampling in their monitoring program.

At this time, the CNSC is satisfied that the licensee has complied with the requirements of the Request for Information issued on October 17, 2008 pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations: Effluent Discharge Releases at the Welcome Waste Management Facility*. CNSC staff will continue to monitor and follow-up on the Cameco's required further testing and facility modifications to protect the health, safety and security of Canadians and the environment.

If you have any questions, please contact Don Howard at 613-995-1770 or by e-mail at [don.howard@cnsccsn.gc.ca](mailto:don.howard@cnsccsn.gc.ca).

Sincerely,



Peter Elder  
Director General  
Directorate of Nuclear Cycle and Facilities Regulation

c.c.: D. Howard, M. Kostova, S. Hamlat, M. Rinker, H. Zhang, G. Smith (CNSC)  
T. Smith, D. Workman (Cameco)

**References:**

- [1] CNSC Request for Information pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations: Effluent Discharge Releases at the Port Granby Waste Management Facility. October 17, 2009. CNSC E-doc: 3297286.
- [2] E-mail T. Smith (Cameco) to M. Kostova (CNSC): Port Granby WMF Reservoirs Overflow. January 25, 2010. CNSC E-doc: 3489985.
- [3] CNSC Staff Assessment of Welcome WMF and Port Granby WMF Discharges to the Receiving Environment. October 23, 2008. CNSC E-doc: 3289751.

**Table 1: Summary of the Reports submitted under the 12(2) Request for Information for Port Granby Waste Management Facility**

Information Request under CNSC 12(2) Letter [Ref. 1] (E-DOCS#3297286)	Documents Submitted by Cameco	CNSC Comments/Conclusions	Completeness of Activities under CNSC 12(2) Letter
<b>A. Specifications of the Current System</b>			
A.1. Characterization of the Discharged Effluent	<p>1) Water and Sediment Program; Final Study Design Proposal - Welcome and Port Granby WMFs, SENES. November 14, 2008. (E-doc: 3307697)</p> <p>2) Effluent, Water and Sediment Monitoring Report for Port Granby WMF. April 9, 2009. (E-doc: 3362016)</p> <p>3) Addendum to Effluent, Water and Sediment Monitoring Report for Port Granby WMF (E-doc: 3469792)</p> <p>4) Response to CNSC comments pertaining to the Port Granby WMF Water and Sediment Report. December 10, 2009. (E-doc: 3474866)</p>	<p>1) CNSC comments on Water and Sediment Program Study Design Proposal for Welcome and Port Granby WMFs. November 21, 2008. (E-doc: 3309857).</p> <p>2) CNSC staff review of Preliminary Conceptual Site Model and Effluent, Water and Sediment Report for Port Granby WMF. June 11, 2009. (E-doc: 3389270)</p>	Complete
A.2.Design Summary Report	1) Cameco WMF - Current Design Summary Report (Water Collection and Treatment System) (E-doc: 3432378)	1) CNSC Staff Review of Current Design Summary Report for PGWMF. December, 22, 2009. (E-doc: 3474335)	Complete

Information Request under CNSC 12(2) Letter [Ref. 1] (E-DOCS#3297286)	Documents Submitted by Cameco	CNSC Comments/Conclusions	Completeness of Activities under CNSC 12(2) Letter
<b>B. Evaluation of the Level of Risk to Human Health and the Environment</b>			
B.1. Conceptual Site Model	1) Preliminary Conceptual Site Model for the Port Granby WMF (E-doc: 3350492)  2) Response to CNSC comments pertaining to the Port Granby WMF Water and Sediment Report (E-doc: 3474866)	1) CNSC staff review of Preliminary Conceptual Site Model and Effluent, Water and Sediment Report for Port Granby WMF. June 11, 2009. (E-doc: 3389270);	Complete
B.2. Characterization of the Receiving Environment	1) Water and Sediment Program; Final Study Design Proposal-Welcome and Port Granby WMFs, SENES. November 14, 2008. (E-doc: 3307697)  2) Effluent, Water and Sediment Monitoring Report for Port Granby WMF. April 9, 2009. (E-doc: 3362016)  3) Addendum to Effluent, Water and Sediment Monitoring Report for Port Granby WMF (E-doc: 3469792)  4) Response to CNSC comments pertaining to the Port Granby WMF Water and Sediment Report. December 10, 2009. (E-doc: 3474866)	1) CNSC comments on Water and Sediment Program Study Design Proposal for Welcome and Port Granby WMFs. November 21, 2008. (E-doc: 3309857)  2) CNSC staff review of Preliminary Conceptual Site Model and Effluent, Water and Sediment Report for Port Granby WMF. June 11, 2009. (E-doc: 3389270)	Complete

Information Request under CNSC 12(2) Letter [Ref. 1] (E-DOCS#3297286)	Documents Submitted by Cameco	CNSC Comments/Conclusions	Completeness of Activities under CNSC 12(2) Letter
B.3. Human Health and Ecological Risk Assessment	1) Cameco's response to CNSC Request for Information pursuant to Subsection 12(2) of the <i>General Nuclear Safety and Control Regulations</i> . November 28, 2008.	Based upon information/documents provided by Cameco and taking into account the upcoming remediation of the facility, the Human Health and Ecological Risk Assessment for Port Granby WMF is not needed at this point.	Complete