



Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

P.O. Box 1046 Station B
Ottawa, Ontario
K1P 5S9

C.P. 1046, Succursale B
Ottawa (Ontario)
K1P 5S9

Fax: (613) 995-5086

Télécopieur : (613) 995-5086

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Directorate of Nuclear Cycle
and Facilities Regulation

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Telephone: 613-992-8110

July 27, 2010

Dave Boyce
Manager Waste Facility Operations
Port Hope Area Initiative Management Office
5 Mill St South
Port Hope, ON, L1A 2S6

Subject: Port Hope Project – CNSC Comments on AECL Work Plan to Increase Collection Pond Capacity at the Welcome Waste Management Facility

Dear Mr. Boyce:

Canadian Nuclear Safety Commission (CNSC) staff has reviewed the Work Plan to Increase Collection Pond Capacity at the Welcome Waste Management Facility (WMF) [1] and the requested additional information on stability analysis [2] addressing the action required for avoiding emergency discharge to Clark's ditch [3].

CNSC staff concurs with the proposed plan for modification of the perimeter berms at Welcome WMF. However, CNSC staff is in the opinion that under the proposed design the berms may not be stable if flooded and has four recommendations for your consideration that are detailed in the attachment to this letter. CNSC staff expectations in relation to the pond leakage rates and reassessment of the ponds once the Water Treatment Definition for the Port Hope Project is finalized are also provided in the attachment.

Following the Semi-annual compliance inspection at Welcome WMF on July 20, 2010, CNSC staff noted several changes that may eliminate the need for emergency discharge to Clark's ditch. For example, the recent replacement of treated effluent discharge pipeline with two 4" pipes resulted in a significant increase in the treated discharge flow rate which in combination with improved daily management of pond water levels may provide enough capacity to eliminate the need for emergency discharges to Clark's ditch. Another possible example that could be considered is the diversion of runoff from areas not associated with historic wastes away from the collection ponds.

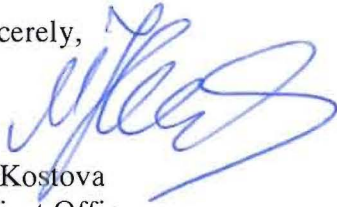
A development of water treatment needs is currently underway by AECL as part of a Port Hope Project Water Treatment Definition. The scope of this effort includes addressing water and leachate management during LTWMF Site Preparation, Excavation/Construction as well as long term water management at the new facility.

The outcome of this effort, expected in early 2011, is likely to result in a proposal of one or a combination of modifications to the current ponds which may also eliminate the need for emergency discharge to Clark's ditch.

AECL is required to inform CNSC once they have chosen their preferred option to address no further emergency discharge to Clark's ditch. This CNSC action will be deemed addressed once AECL has clearly demonstrated that actions taken or planned actions will eliminated the need for emergency discharge to Clark's ditch.

Please feel free to contact me if you have any questions.

Sincerely,



M. Kostova
Project Officer
Wastes and Decommissioning Division

cc C. Fahey (AECL)
H. Zhang, J. Thelen (CNSC)

Attachment (CNSC Integrated Review of AECL Work Plan to Increase Collection Pond Capacity at Welcome Waste Management Facility)

References:

- [1] Port Hope Project: Work Plan to Increase Collection Pond Capacity at the Welcome Waste Management Facility. D. Boyce (AECL) to M. Kostova (CNSC). June 18, 2010. CNSC E-doc: 3565391.
- [2] Port Hope Project: Additional Information Requested Regarding Work Plan to Increase Collection Pond Capacity at the Welcome Waste Management Facility. D. Boyce (AECL) to M. Kostova (CNSC). July 14, 2010. CNSC E-doc: 3575749.
- [3] Port Hope Project: Actions Required as Result of the 12(2) Request for Information for Welcome WMF. M. Kostova (CNSC) to Fahey, C (AECL). April 16, 2010. CNSC E-doc: 3533794.

Integrated Review of AECL Work Plan for Modification of Collection Ponds at Welcome WMF

CNSC staff has reviewed AECL's submittals regarding the Welcome Waste Management Facility. While CNSC staff agrees with the general plan for berm modification, groundwater monitoring and accumulated sediment removal, further technical comments are provided below. Prior to conducting any physical works at the site associated with this submittal an acknowledgment of these comments is requested by AECL.

1. Pond Berm Modification

It is Staff's opinion that the berms will not be stable under the proposed design when flooded (*as shown in the attached figure*). Staff proposes the following four recommendations associated with berm stability and pond management. Acceptance of these recommendations by AECL will demonstrate to the CNSC adequate provision of safety and environmental protection.

- *Recommendation 1:* The licensee shall ensure, via pond management measures that perimeter berms at the WWMF are not to be overflowed at any time during the operation of the collection ponds.
- *Recommendation 2:* The downstream gradient of the berms should be evaluated to ensure a less than 1V:3H gradient is maintained to ensure protection of the berm from erosion and compensate for the potential input parameter uncertainty. Berm erosion protection O&M measures should also be conducted.
- *Recommendation 3:* The berm modification construction should be supervised by a Professional Engineer, including assurance from the PE of an adequate compaction of the berm modification.
- *Recommendation 4:* Upon completion of the project AECL should submit to CNSC an as-built technical report of this project.

2. Pond Leakage Rates

Whenever modifications are under consideration for an existing water treatment system Staff expectations include consideration of ways to reduce and monitor potential releases, including leakage rates. In the Welcome WMF '*Work Plan for Increasing Collection Ponds Capacity*' (E-DOCS#3564259) AECL proposes changes to groundwater monitoring and actions to increase pond capacity. Regarding monitoring, Staff agrees with AECL's proposed changes to the groundwater monitoring program. To increase pond capacity, in addition to berm modification AECL has also proposed removal of approximately 1,000 cubic meters of sediment from the east pond. Staff expects AECL will demonstrate in the an as-built technical report of this project that this action will not result in an increased pond leakage rate by inadvertently increase hydraulic flow though the altered pond bottom composition.

3. Pond Requirements Under AECL's 'Water Treatment Definition

Once the final plans have been established under AECL's Water Treatment Definition, Staff expectations are that these ponds will be re-assessed and modified, where appropriate, to meet current design standards and practices (e.g., consideration of a geosynthetic liner and/or other methods to reduce leakage).

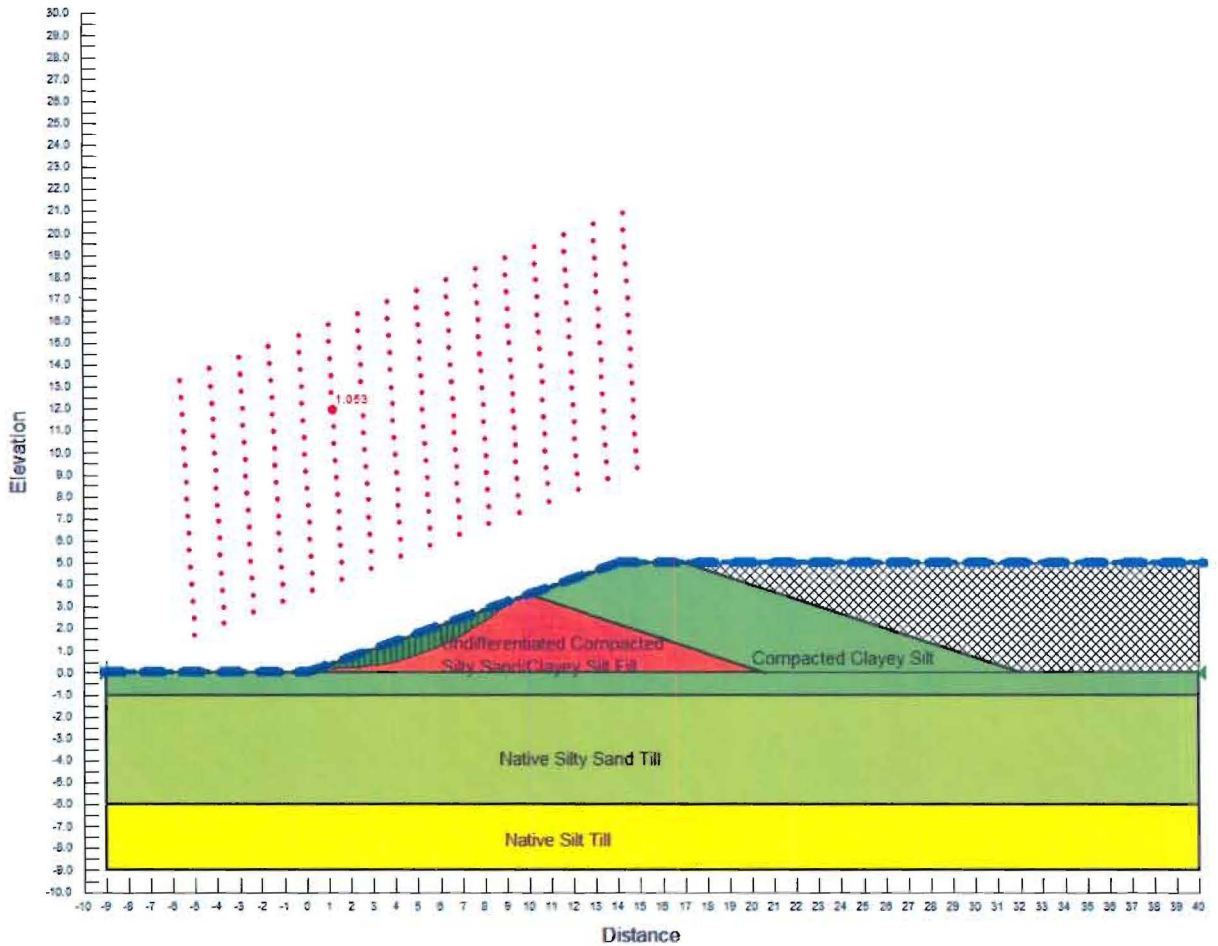


Figure 1: Result of berm stability analysis at a flooding condition (using SLOPE/W 2007).