Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 18-M66

Date: 2018-12-13
File / dossier : 6.02.04
Edocs: 5735756

Update from CNSC Staff

Mise à jour du personnel de la CCSN

Status Update on Port Hope Harbour Wall Collapse of October 9, 2018

Mise à jour au sujet de l'effondrement du mur au port de Port Hope le 9 octobre 2018

Commission Meeting

Réunion de la Commission

December 13, 2018

Le 13 décembre 2018

Canada

This page was intentionally left blank

Cette page a été intentionnellement laissée en blanc

Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

MEMORANDUM NOTE DE SERVICE

To / **A**	Marc Leblanc Commission secretariat c.c.: Ramzi Jammal, EVP-CROO
From	Haidy Tadros, Director General Directorate of Nuclear Fuel Cycle and Facilities Regulation

Security Classification – Classification de sécurité	Unclassified
Our File – Notre référence	File No.: 4.02.02 / e-Doc 5671010
Your File – Votre référence	
November 2, 2018	613-943-8948

Subject
Objet Status Update on the Port Hope Harbour Wall Collapse, October 9, 2018

ISSUE

On October 9, 2018 Cameco Corporation (Cameco) and Canadian Nuclear Laboratories (CNL) notified Canadian Nuclear Safety Commission (CNSC) staff that a large section of the west wall of the Port Hope Harbour collapsed and fell in to the harbour.

BACKGROUND

The harbour wall is property of the Municipality of Port Hope (the Municipality) and is under jurisdiction of the Municipality. The harbour wall is adjacent to Cameco's Port Hope Conversion Facility (PHCF), however it is outside both the PHCF and the CNL's Port Hope Area Initiative's (PHAI) licences.

The Municipality has been aware of the deteriorating condition of the harbour wall since it took ownership of the harbour from the Department of Fisheries and Oceans in 2006. By 2017, the deterioration had worsened to the point of imminent collapse. In anticipation of the harbour wall collapsing, a fence was erected to prevent public access to the affected area and a silt curtain was installed to contain any suspended silt and sediment in the harbour water and minimize any seepage to Lake Ontario. The Municipality has been anticipating the remediation of the aging harbour walls and dredging of approximately 120,000 cubic metres of contaminated historic low-level radioactive waste from the harbour since 2010. This work is part of the PHAI, which represents the federal government's commitment to respond to the community-recommended solutions for the clean-up and local, long-term, safe management of historic low-level radioactive waste in the Municipality of Port Hope. The clean-up of the harbour began in mid-July 2018 and is scheduled to take approximately five years to complete.

SITE AND DESCRIPTION OF THE OCCURRENCE

On October 9, 2018 Cameco and CNL notified CNSC staff that a large concrete section in the middle of the west harbour wall, approximately 100 meters, fell into the Port Hope Harbour. Figure 1 shows the PHCF site, Center Pier and the Port Hope Harbour (green box). The area of the harbour west wall where the collapse occurred is indicated with a red line. Figures 2 and 3 are photographs showing alternate views of the collapsed section of the west harbour wall.

Figure 1: Arial view of the Port Hope Harbour. The main PHCF site, harbour, and Center Pier are outlined in green. The red line indicates the approximate area of the collapsed harbour wall.

Figure 2: Photograph of collapsed section of harbour wall and silt curtain (view from North)

Figure 3: Photograph of collapsed section of harbour wall (view from South)

The collapsed section of the harbour wall is outside of, and immediately adjacent to the Cameco PHCF. Cameco operations, including the cooling water discharge, fenceline and internal road behind the fence were not affected. The existing silt curtain installed by the Municipality performed as expected, although it did receive minimal damage. The Municipality installed an additional curtain on October 12 and is meeting regularly with Cameco and CNL to discuss potential impacts that may result from the collapse of the wall. The Municipality is currently having the wall assessed to determine appropriate repair measures since the potential for erosion is high, and additional erosion could impact Cameco's fenceline and internal roadway. As a precautionary measure Cameco has closed the internal roadway running parallel to the harbour wall to vehicle traffic. Cameco is also planning the construction of an additional fence that will ensure the site security perimeter is maintained should further erosion of the shoreline compromise the existing fence.

In preparation for the harbour remediation activities, CNL recently installed turbidity curtains at the mouth of the harbour to isolate the harbour from the lake, and has been performing a 'fish-out' of the turning basin. There are very few fish in the harbour at this time; however, some are still being found (e.g., salmon that jumped over the curtains). These turbidity curtains are not near the area of the harbour wall that collapsed, and they continue to function properly.

Staff from ECCC and MECP, were at the harbour with the Municipality on October 10, 2018 to assess potential impacts of the wall collapse. ECCC and MECP staff concluded that the silt curtain had successfully contained sediment from moving beyond the harbour. MECP staff confirmed that they are currently satisfied with the measures taken, and ECCC staff indicated that no regulatory action is currently planned. As a precautionary measure, the MECP requested the Municipality to increase sampling at the Port Hope municipal water treatment plant, although they do not expect there to be impacts at the plant. The Municipality is currently carrying out this request.

CNSC inspectors visited the site on October 10 and 11, 2018 to assess the damage to the wall, and to collect water samples within the harbour and outside of the turbidity curtain at the mouth of the harbour. CNSC staff compared results of the water sample analysis [1] with those provided in Cameco's most recent (i.e., 2016) Environmental Risk Assessment (ERA) to characterize the risk posed by the contaminants on biological receptors. CNSC staff determined that the October 10, 2018 measured concentrations are within or slightly above the range that was used in the ERA (see attachment A) and in all cases, are below benchmarks for the protection of aquatic life. As a result, no adverse effects to the environmental and human health are expected from the contaminants associated with the Port Hope harbour west wall collapse based on this data. Results of CNSC staff's water sample analysis are provided as an attachment to this memo (attachment A).

CONCLUSIONS

- Based on water analysis, CNSC staff have confirmed that no adverse impacts to human or environmental health are expected from the wall collapse.
- Appropriate physical barriers were in place prior to the collapse, and are expected to continue to be effective in preventing access to the potentially unstable area.
- Cameco is taking appropriate proactive and precautionary measures to minimize potential impacts resulting from further erosion of the harbour wall.
- The Municipality's response to this situation to date has been appropriate.

- CNSC staff will continue to monitor the situation through engagement with the Municipality of Port Hope, Cameco and CNL.
- CNSC staff will provide an update at a future Commission Meeting if future developments occur that would be of interest to the Commission.

REFERENCE

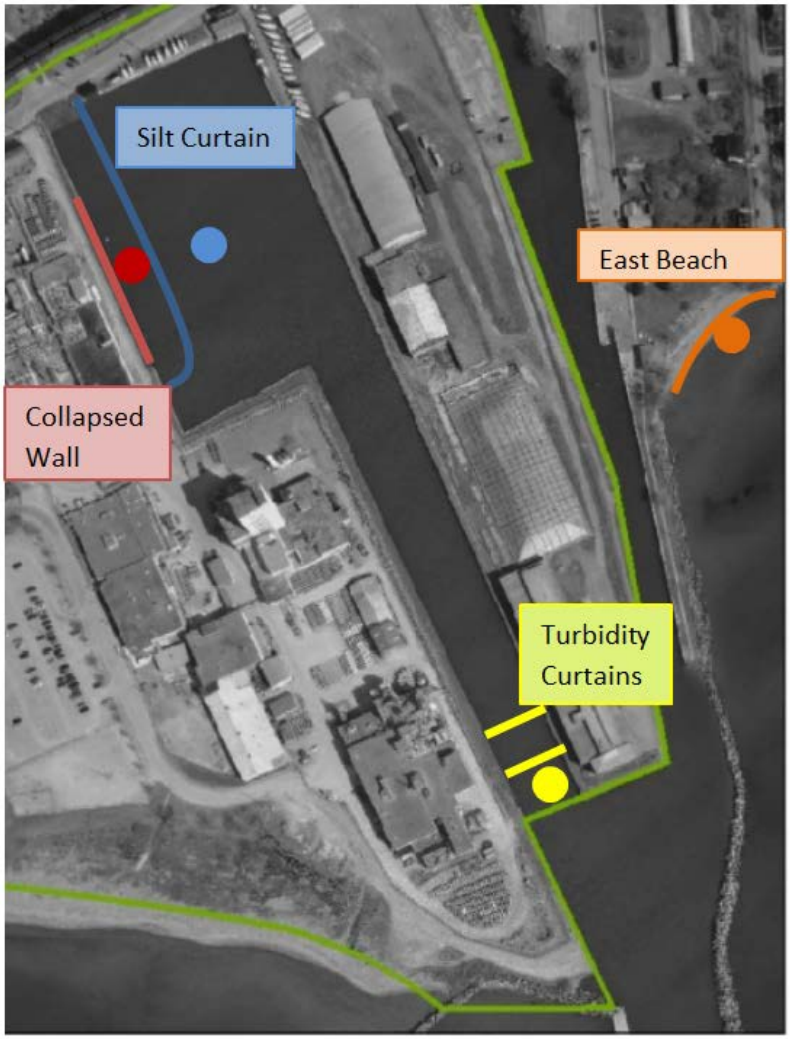
[1] CNSC Laboratory Services, Sample Analysis Report # LR-SA-2018-00061, October 25, 2018 (e-Doc 5685694).

Attachment A
CNSC staff October 11, 2018 surface water sampling

Table A-1: Water analysis results for surface water samples collected by CNSC staff on October 11, 2018

		Sample Location				Benchmark		ERA
Analyte	units	Harbour Wall (W1)	Harbour (W2)	Lake Ontario (W3)	East Beach (W4)	Value	Reference[1]	Max Value[2]
Cobalt	µg/L	0.29	0.29	0.29	0.05	0.9	PWQO	0.22
Nickel	µg/L	1.52	1.19	1.78	0.7	25	PWQO	1.9
Arsenic	µg/L	4.26	3.91	2.05	0.82	5	CWQG	3.2
Antimony	µg/L	0.17	0.14	0.1	0.15	20	PWQO	0.31
Lead	µg/L	0.1	0.1	0.08	0.04	07-Jan	CWQG	1.17
Thorium	µg/L	<0.01	<0.01	<0.01	<0.01	N/A	N/A	N/A
Uranium	µg/L	10.42	9.38	4.9	0.43	15	CWQG	7.8
TSS	mg/L	15	9	19	25	N/A	N/A	N/A
Gross Alpha	Bq/L	<0.2	<0.2	<0.2	<0.2	N/A	N/A	N/A
Radium-226	Bq/L	0.17	0.19	0.07	<0.03	0.26	CNSC	<0.055

1. Benchmark references:
   PWQO = Provincial Water Quality Objective
   CWQG = Canadian Water Quality Guideline
   GCDW = Guidelines for Canadian Drinking Water Quality
   CNSC = CNSC's screening levels are derived using the methodology in CSA N288.1 (*Guidelines for Calculating Derived Release Limits for Radioactive Material in Airborne and Liquid Effluents for Normal Operation of Nuclear Facilities*) and using an effective dose of 0.10 mSv to a member of the public
   N/A = Not available
2. Max Value = Values represent the maximum surface water values measured in the Port Hope Harbour, used in the most recent ERA for PHCF (*Environmental Risk Assessment for the Cameco Port Hope Conversion Facility*, March 2016)



Sample	Location
W1	Harbour Wall
W2	Harbour
W3	Lake Ontario
W4	East Beach

Figure A-1: Surface water sampling locations