

Amphibious Excavator Fatality

Synopsis

On April 9, 2018, an incident involving a heavy equipment contractor occurred at a tailings pond on an active mine site. The heavy equipment involved in the incident is described as an Amphibious Excavator and was originally contracted to break up ice in and around the shoreline of the tailings pond to facilitate a dredging operation. The scope of work for the amphibious excavator changed during its term at the mine site from breaking up ice to towing a fuel barge across the tailings pond. While towing the fuel barge, the amphibious excavator contacted a dredge cable and then capsized, drowning the operator.

Findings

After the incident was reported to the Ministry of Energy, Mines and Low Carbon Innovation as per *the Health, Safety and Reclamation Code for Mines in British Columbia*, an investigation, under [Section 7](#) of the *Mines Act*, was initiated by the Chief Inspector of Mines (CIM).

The investigation determined the following key findings:

- The amphibious excavator was not designed to perform operations in open water with a depth over 1.5 meters without additional stabilization and support. The barge was being moved at a depth of over 3 meters when the capsize occurred with no additional stabilization and support in place.
- A Safe Work Plan was created for the original task that did not identify a change in the scope of work to be performed, consider the possibility of capsizing with an adequate rescue plan or safety equipment that would be required in such an emergency.
- The Safe Work Plan included that the amphibious excavator would not be operated without a dedicated spotter, however when the incident occurred, there was no dedicated spotter present.
- Field Level Hazard Assessment (FLHRA) meetings were completed daily during the project's operation; however, the contractor was not in attendance for these meetings and a FLHRA was not completed the day the incident occurred.
- The Mine Emergency Response Plan (MERP) in place for the mine did not include the identification of water related hazards and did not include any response procedures for water rescue despite having multiple settling and tailings ponds at the mine site.

- Mine management relied on the contractor's experience and training to operate the amphibious excavator safely; however, no verification that the contractor was trained in the safe operation of the machine or emergency egress in the event of a capsizing was requested.

Outcome

Pursuant to Section 15(5) of the *Mines Act*, the mine was issued orders to suspend work until remedial action was taken. The mine responded to and complied with the issued orders.

The Mines Investigation Unit made five recommendations in total based on the findings of the investigation.

1. A Hazard Alert be issued and in June of 2020, Hazard Alert No. 8 was published [Hazard Alerts - Province of British Columbia \(gov.bc.ca\)](#) by the CIM. The Hazard Alert included awareness of this incident and past incidents of fatalities regarding excavators working on or near water at mine sites in BC. In addition, the hazard alert included recommended best practices and some of the requirements found in the Health, Safety and Reclamation Code (HRSC) that must be considered when using excavators at mine sites in BC.
2. Amend Section 26 of the *Mines Act* (Supervision) to be more explicit in the requirement and less open to interpretation.
3. Expand Section 26 of the *Mines Act* (Supervision) to include responsibilities with regards to Mine Owners, Contractors, and Subcontractors on mine sites.
4. Mine managers to review all equipment brought on site to ensure the equipment, especially specialized equipment, is safe and suitable to operate on the mine site.
5. The Mines Investigation Unit also recommended an Administrative Monetary Penalty be levied and a determination was made.