



Subject: Notice Regarding Public Safety Hazards at "Low Head" Dams That are Subject to State Regulation

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information regarding hazardous flow conditions that have the potential to develop at "low head" dams, also known as "roll" dams. Per dam safety regulations 302 CMR 10.03 Definitions, a roll dam, or a low head dam, is defined as "usually run-of-the-river overflow weir[s] or spillway structures that produce vertical water surface drops of one to 15 feet and change river flows from super-critical to sub-critical."

According to the American Society of Civil Engineers (ASCE), "A **low head dam** is a manufactured structure, built in a river or stream channel, extending fully across the banks. A low-head dam is designed and built such that water flows continuously over the crest from bank to bank. If water levels rise downstream, a submerged hydraulic jump can form that produces an upstream directed current that traps any recreationist who might go over the dam."

Information on the hazard posed by the submerged hydraulic jump flow condition, also known as a "hydraulic roller," has been compiled by the Association of Dam Safety Officials (ASDSO) and is available on the following web page, <https://www.damsafety.org/public-safety-hazards#Hydraulic%20Roller>.

With support from the Federal Emergency Management Agency (FEMA), the Public Broadcasting Service (PBS) has produced a video, "Over, Under, Gone: The Killer in our Rivers," which demonstrates the hazardous flow conditions that can exist at low head dams. The video is available at the following web page, <https://www.pbs.org/video/over-under-gone-killer-our-rivers/>.

In June 2021, DCR ODS updated the required Phase I inspection report template to include "Section 2.5 **Awareness of Potential Dam Related Safety Hazards at, near, and on Dams**". If your dam has been inspected since June 2021 and your inspecting engineer determined that your dam is or may be subject to this condition, it is likely specified in Section 2.5 of the report. Please review Section 2.5 of your most recent Phase I inspection report and direct your engineering consultant to 1) assess the possibility of hydraulic roller conditions developing at your dam and to 2) evaluate the need for installation of safety measures at the dam such as signage, booms, and buoys to limit exposure of the public to potential water-based safety hazards.

If your dam has not been inspected since June 2021 or your most recent report does not reference this condition in Section 2.5, during your next inspection, please direct your inspecting engineer to evaluate the potential of hydraulic roller conditions developing at the dam.

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam."

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
Department of Conservation and Recreation
180 Beaman Street
West Boylston, MA 01583
508-792-7423 508-792-7805 Fax
www.mass.gov/dcr



Maura T. Healey
Governor

Kimberley Driscoll
Lt. Governor

Rebecca L. Tepper, Secretary
Executive Office of Energy & Environmental Affairs

Brian Arrigo, Commissioner
Department of Conservation & Recreation

You are reminded that it is the obligation of the dam owner to contact and notify all applicable local, state, and federal permitting agencies prior to conducting any work at a dam including manipulation of water levels.

Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is fluid and cursive, with the first name "William" being the most prominent part.

William C. Salomaa, Director
Office of Dam Safety