



## **Water Resources Industry Bulletin: Water Main Flushing and De-Chlorination**

The Fisheries Act contains two key provisions on conservation and protection of fish habitat essential to sustaining freshwater and marine fish species.

The Department of Fisheries and Oceans administers section 35, the key habitat protection provision, *prohibiting any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat*. Environment Canada administers section 36, the key pollution prevention provision, *prohibiting the deposit of deleterious substances into waters frequented by fish*, unless authorized by regulations under the Fisheries Act or other federal legislation.

A deleterious substance can be any substance that, if added to any water, would degrade or alter its quality such that it could be harmful to fish, fish habitat or the use of fish by people. Chlorine has been determined to be a deleterious substance that is harmful to fish. Violations under the Fisheries Act can result in anything from a *warning letter* up to *large fines and imprisonment* for those who violate the Act.

The Department of Fisheries monitors chlorinated water releases to the watershed and has an enforcement program. Water Resources received a warning notice under the Act and has determined that our best practice is to routinely de-chlorinate all flushing water as standard practice.

Issue:

Existing requirements for Subdivision construction of water mains under the Standard Specifications Waterworks Construction not align with this practise. At construction completion the contractor is required to flush clean, fill and pressure test with potable water from the distribution system.

1. At construction completion we permit the contractor to flush, fill and pressure test with potable water from the distribution system. Potable water used during this process is directed into the storm system in order to minimize the volume of chlorinated water being added to the sewage treatment process.
2. Following a successful pressure test, the contractor is required to introduce chlorine to a level of 25mg/L. This must reside in the main for a minimum 24hours and then the super chlorinated water is flushed directly to the sanitary sewer system.
3. The main is then given a thorough cleaning flush, after which turbidity and bacterial samples are taken. If the sample is good, no further flushing takes place. This round of flushing is also directed into the storm system.

Fisheries Act Compliance:

To ensure that the commissioning process for new water main meets the prohibitions of the Fisheries Act Water Resources is proposing revisions to Section 504.09.02 (Preliminary Flushing of Mains and Services) and Section 504.10.00 (Disinfecting and Final Flushing). Wording will be added to both Sections requiring that "All flushing water directed to the storm system shall be de-chlorinated to the satisfaction of the Director, Water Services."

If additional information is required pertaining to this issue, contact Bill Ng, Technical Coordinator, Waterworks Specifications at [bill.ng@calgary.ca](mailto:bill.ng@calgary.ca).