

PROJECT:

Water Treatment at the Iqaluit Landfill Site, Nunavut

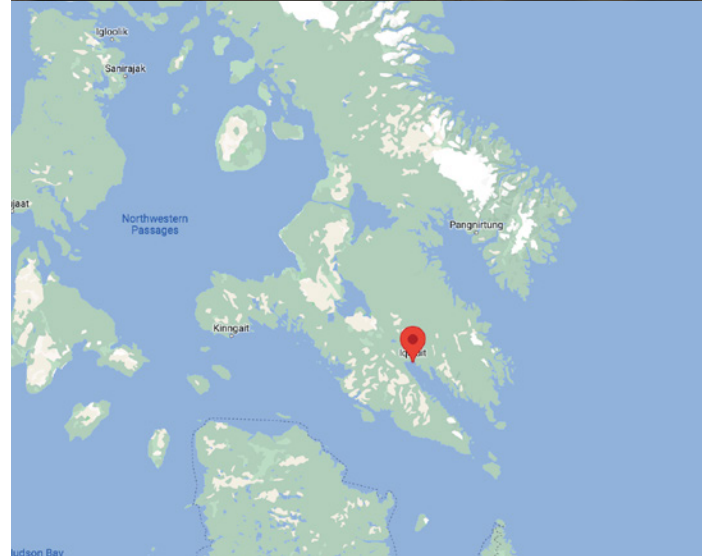
The logo for SANEXEN, with the letters 'SANEXEN' in white and a green 'X'.

CHALLENGES

After a fire in the municipal landfill, QE quickly mobilized to the site, despite significant logistical constraints imposed by the sealift schedule. QE designed, installed and operated a complete biological water treatment system under harsh arctic conditions (Iqaluit, Nunavut).

BACKGROUND

In 2014, a fire occurred in the City of Iqaluit's Solid Waste Facility. This fire lasted several months before it was completely extinguished. Water from the leachate catchment pond was used to extinguish the fire. This water was a deep black colour, and contained a wide variety of contaminants such as heavy metals, dissolved organic carbon (BOD⁵), ammonia nitrogen, TSS and O&G. QE supplied and installed a complete treatment system, including biological processes, to address the contaminants so as to discharge water that was not toxic to the fish habitat.



WATER TREATMENT

Project location: Iqaluit, Nunavut

Quantity of water treated: 13,000,000 L

Project date: 2014

SOLUTION DEVELOPED

QE first built a 5,000 m³ water storage pond that was later converted to a bioreactor.

The treatment consisted of a metal precipitation process, followed by a clarification process. BOD₅ was removed using an aerobic biological reactor, while ammonia nitrogen was oxidized into nitrate in a nitrification biological reactor. TSS were removed using sand and bag filtration units. Finally, dissolved and colloidal hydrophobic molecules were removed using ULTRASORPTION™ and activated carbon filtration.

Analyses of water samples, as well as toxicity testing, were performed regularly to monitor the treatment efficiency and to ensure compliance with the discharge objectives. The discharge was supervised by officials from the City of Iqaluit, the Nunavut Water Board, and Environment and Climate Change Canada.

QE has successfully treated more than **13,000,000 L** of heavily contaminated water, which was discharged into Koojesse Inlet.

In addition to having successfully treated heavily contaminated water on Baffin Island (Nunavut), QE also contributed to the local economy by favouring the hire of local labourers and contractors.

Furthermore, the quality and implementation of the health and safety program ensured that the work was completed without incident.



CONTACT US

info@altragroup.com

1 800 263-7870

9935 de Châteauneuf Street,
Entrance 1 – Suite 200, Brossard
(Québec) J4Z 3V4

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