NEW WATER SYSTEM FOR NORTHERN QUEBEC VILLAGE

By **Darrin Hopper**

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Kuujjuaq, formerly known as Fort Chimo and by other names, is a former Hudson's Bay Company outpost at the mouth of the Koksoak River on Ungava Bay. It has become the largest northern village in the Nunavik region of Quebec.

To supply the village with safe water, a $3 million project involving CIMA+ was implemented to upgrade an existing pumping station and construct a new drinking water treatment plant capable of providing a 1,123 m^3/d flow rate. The selected treatment train is comprised of granular and membrane filtration (nanofiltration), followed by UV disinfection and a dosage of sodium hypochlorite. Treated water is then stored in a 825 m^3 glass-lined steel reservoir before being distributed to the community by truck.

Bolted steel tanks lend themselves well to remote area installation. The actual erection process of a bolted steel tank is very independent from the actual location of the project. The great benefit of the bolted tank is that it comes in a kit form, well packed for transportation to remote areas and it is factory coated with high quality control. Factory quality control of the coating process ensures that environmental conditions do not affect the

finished product and there are minimal site delays due to atmospheric conditions.

Availability of concrete, forming arrangements and local labour play a major factor in making bolted steel tanks attractive in remote areas. Compared to concrete tanks and other tank styles, field erected bolted steel tanks are the more environmentally friendly option as they do not require large excavation nor use of construction aggregate or material that may be difficult to find locally.

Field erected tanks are one of the fastest types of tanks to erect, short of being able to install a pre-fabricated tank. Kuujjuaq's tank, which is 11.9 m in diameter by 9.14 m tall, took less than 15 days to erect. In areas where the window for construction is short, this can be a major determining factor.

The planning process from the client and consultant is of utmost importance as the main issue with these types of projects is getting the materials shipped to site in a timely fashion. Typical lead time from the issuance of a tender to an actual order being written to a supplier is three months or more. Then, there is the submittal, review and approval process before materials even enter manufacturing and can be shipped to site. This submittal and works delivery process can easily take two to three months. This can often be delayed by the levels of review and approval within the client/consultant/contractor dynamic and geographic separation of all entities involved.

Having a primary contractor that has done work in the area and is very familiar with the shipping routes and timelines of boats, barges, shipping lines, etc., make things much smoother. Typically, they understand the timelines involved and can talk intelligently with the client/consultant regarding these issues.

In the case of the Kuujjuaq project, the primary contractor was FCNQ Construction. They have extensive knowledge and experience in northern communities and the pressure they applied and the efforts they put forward to get shipments to boats on time was short of miraculous. All this work was to get the tank kit and tools to site, before the shipping lanes closed for the season. Otherwise, it would have had to wait to the next spring for the shipping lanes to open again and delay the project beyond its expected completion deadline.

Originally, the project was tendered in December with plans to meet the summer shipping lane season, so the tank could be erected late summer. But with all the delays through the whole process, the tank and the tools required only just made the last available boat of the season.

When bidding these projects, it is almost impossible to eliminate all risks. Working with a strong contractor that knows the obstacles and understands that these projects are a partnership will go a long way to dealing with delays and the fact that tools/specialty jacks are out of commission for almost a year. ■

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