CASE STUDY

# Baker Lake, Nunavut

***September, 2012***

A water treatment plant and dual truckfill system for the Government of Nunavut was installed in Baker Lake in August 2012. The system is operating and the project will be completed by the fall of 2013. The only Inuit community located away from sea water, Baker Lake has approximately 1900 residents at certain times of the year. Visitors and construction workers add another thousand people in summer.

*The water treatment plant and backwash tank viewed from the lake. Dual intake lines are shown at center*

The fresh water source is surface water from the lake. Being North of 64 degrees latitude, the lake is frozen more than 8 months per year, so turbidity is normally low. During the many windy summer days the lake water can have high levels of sediment and dissolved minerals.

The 6M wide x 28.6M long package water treatment plant (WTP) was shipped in four modules, then bolted together on site. The pump system was designed to deliver up to 1,200 L/min (72 m3/hr) of raw water from the lake to the plant. The WTP has systems for media filtration, ultra-violet irradiation and chlorination.

In more detail, the truckfill plant utilizes four parallel silica sand filters to allow backwashing of one while the others filter water, two parallel UV units for redundancy and a calcium hypochlorite dosing system. The chlorination system is designed for injection both before the water storage tank and into the distribution lines to the truckfill arms.

Auxiliary equipment in the plant includes 3 boilers, inside fuel tank, glycol heating system, heat recovery unit, diesel generator, battery bank and a motor control center (MCC).

The fuel tank, welded filter backwash collection tank (4.9M high x 6.1M dia.) and the welded treated water storage tank (7.3M high x 8.1M dia.), are located outside the truckfill building. The tanks are equipped with heat tranfer coils. The utilidor pipelines and access vaults are used to transfer water to the Health Centre and the Seniors Centre. This saves hauling water to these two locations.

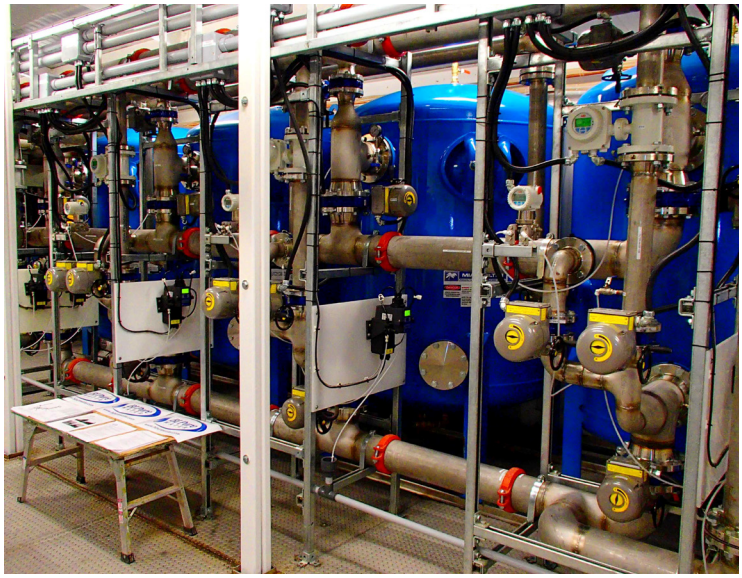
# CASE STUDY

The truckfill operation can be manual or fully automatic, in the latter case controlled by the PLC based on HMI touch screen input.

BI Pure Water also installed its “Remote Monitoring and Trending” system in the plant. The ing and data monitoring as well as trending of rine level, pressure differentials, pump speeds, turbidity and chlorine analyzer instruments. This er screens in Baker Lake, and at the company’s is the result, with BI Pure staff available to help real time.

*North side view of the water treatment building, truckfill arms and backwash tank during winter operation*

ing water quality test results and prescribing the Engineers pilot, design, manufacture, install, water treatment plants. The operators are then viced on a regular basis. BIPW focuses on small plants to meet the needs of federal, provincial trial process, mine camps, private water systems,



*Four parallel media filters use silica sand for filtration of particles. Turbidity meters monitor the water.*

BC & North American award winning design & manufacture


*#2 - 9790 190th Street*
*Surrey, BC*
*Tel: (604) 882-6650*
*Toll-free: 1 (888) 901-3111*


**bipurewater.com**

*Custom Engineered Treatment Systems*