

WaterIssues

First Nations, INAC and resident experts improve drinking water

Despite Walkerton, North Berford and numerous other incidents of unsafe drinking water distribution in Canada, maintaining rural water quality remains a formidable challenge, which few have dared to tackle. What urban people don't realize are the huge challenges of maintaining quality water systems in rural and especially Aboriginal communities across Canada.

The City of Calgary, with the recent flooding, went into panic mode when its high quality water started to show some hints of salmonella in it. Calgary takes up to six hours to treat its high quality water, meanwhile the Yellow Quill First Nation sewage-treated "wag" was treated for a couple of months. Yes, and at Yellow Quill, the community water could not even pass the solution test resulting in a nine year long boil water advisory, which is an incredibly long time to be under such a health threat.

But, Yellow Quill's long struggle for better water generated a strong response from a dedicated team of Aboriginal people, engineers, scientists and staff members from the Department of Indian and Northern Affairs Canada (INAC), all devoted to work together to solve Yellow Quill's long standing drinking water problems.

The Yellow Quill Water Project Management Team faced both political and technical hurdles, but with perseverance and support from a dedicated INAC staff member, Jackie Gukassini, we were able to involve

these issues and move closer to a sustainable solution.

Our goal was to develop a treatment process that could make drinking water from poor quality groundwater instead of the previously used surface water source. During a two-year period a biological water treatment process was developed followed by Reverse Osmosis Membrane Filtration system.

We were unsuccessful using conventional treatment filtration vessels and it was not until we worked with biological filtration systems that we started producing quality water.

The biological process ended up using three filtration vessels operated in series. Biological filtration is based on providing "friendly bugs" a home. These types of bugs are present in most raw water sources and were an important part of the process.

In the first filter we provide excellent conditions for new bacteria and in the second and third filters we have different conditions suitable for the removal of ammonium and organics.

The water after the third filter is "biologically stable", which means that there is really no load left for microbes to live off. This means that membrane treatment can be carried out with low levels of fouling, and the distribution system cannot support prolific growth of microbes.

This Integrated Biological/Membrane Treatment Process was implemented in December 2003 and after clearing the distribution and treating over 600 houses on the Yellow Quill First Nation, the Boil Water Advisory was finally lifted in March 2004.

The Indigenous Environmental Network (IEN) got word of the water quality system installed on the First Nation and invited representatives from Yellow Quill and the Safe Drinking Water Foundation to travel

to New York and India, along with the IEN, a joint presentation to the United Nations about our work.

The reason our project was selected is due to the urgent need for safe drinking water in Indigenous communities around the world. The Yellow Quill Story was held up as an example for how future Aboriginal water quality issues not only in Canada, but elsewhere in the world, should be dealt with.

Further development of innovative technologies that can handle Aboriginal and rural Canada's challenging water sources should be encouraged. Both the Pasqua and Gordon First Nations are currently showcasing their recently constructed suspension granular filtration plants and are replacing them with the Integrated Biological/Membrane System that was developed at Yellow Quill.

On May 10, 2005 an internal briefing note was published from an access to information request. The document states "Thousands from contaminated water cost our health system \$300 million a year. Between 20 and 40% of rural wells are more contaminated than drinking water guidelines recommend" and "non-point" issues are a rural rather than an urban Canadian problem.

While it may be convenient and cheap to do as little as possible and call it "a treatment plant", the existing costs of running the Canadian Health Care System would indicate that it may be time to look at prevention rather than treatment. A



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