



FAX COVER

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Message :

We would like to introduce you to the members of the Advanced Aboriginal Water Treatment Team (AAWTT). The first fax in this series will explain the history and the purpose of the AAWTT and the subsequent faxes will introduce you to the members of the team and the First Nation communities that support them. Please feel free to contact us at info@safewater.org or (306) 934-0389 if you have any questions or comments.

The Advanced Aboriginal Water Treatment Team (AAWTT)

Unfortunately, government agencies have turned a blind eye to the challenges forcing communities to use sub-standard water with some not knowing the extent of the problem, while others are placed under boil water advisories for years. One such community, Yellow Quill First Nation, was under a boil water advisory for nine years. It should also be noted that water at Yellow Quill contained >10,000 particles per mL, so not even chlorine was effective (where particle counts are mandatory the levels should be <100 particles/mL).

Yellow Quill is the community where the Integrated Biological and Reverse Osmosis Membrane (IBROM) treatment system was developed. SDWF has continued to work with Yellow Quill to further improve the process and Yellow Quill now has highly trained operators providing the community with high quality drinking water. The biological process uses no chemicals and the Reverse Osmosis part requires low antiscalant additions resulting in large cost-savings while at the same time producing superior quality drinking water. Also, as the biological filters need to be backwashed less frequently, water savings of tens of thousands of L per day are realized at the water plant. Now people from neighbouring rural communities come to Yellow Quill to fill containers with safe drinking water.

The “Yellow Quill Process” has now been implemented in Pasqua and George Gordon First Nations as well and SDWF is working with these communities to further improve how the water is treated. Four more First Nation communities are in the process of implementing the IBROM system on groundwater. Saddle Lake Cree Nation in Alberta is in the process of implementing the IBROM process following a very successful two year pilot on their very challenging surface water. The George Gordon First Nation is saving over \$100,000 annually just in direct chemical costs, additional savings in labour, and related costs (membrane and filter extended life expectancy etc.) as well as drastically reduced demand on water as a resource all contributing to the goal to find ways of making the process increasingly cost-efficient and effective.

With these participating Aboriginal communities, SDWF decided in July 2005 to form the Aboriginal Advanced Water Treatment Team with team members being highly trained water operators with an excellent understanding of how to treat poor quality water sources. To be a part of the AAWTT the reservation's political leadership has to support its Water Keepers and encourage their continued training and development. The two reservations that are strongest in moving the issues forward are George Gordon First Nation in SK and Saddle Lake Cree Nation in AB.

AAWTT members are trained by SDWF in the chemistry and biology of water treatment, how to troubleshoot and assess water treatment challenges, (issues not included in present government training programs) and are encouraged to make presentations to other communities. As AAWTT members develop a unique body of

knowledge it is our desire to share this knowledge with other Water Keepers in Canada and internationally. The George Gordon First Nation in Saskatchewan is spearheading work on groundwater, while Saddle Lake Cree Nation in Alberta is showcasing its surface water biological treatment, with the aim to hold regular workshops for how to treat poor quality water sources in both locations. During June, July and August 2008 SDWF has received over 30 requests from First Nation communities for help from the AAWTT, we are doing our best to share the knowledge they are all seeking, however we really need to attract funds that will allow the AAWTT to offer support in a person to person culturally sensitive manner.

We have Aboriginal communities and Water Keepers that are going way beyond the call of duty to ensure that their water treatment plants can produce safe drinking water. Unfortunately, help from the federal government is not forthcoming to address these severe challenges. INAC has an Ottawa-based approach, where INAC surrounds itself with Health Canada (carrying out water quality testing (although by design useless) to determine if a water treatment plant works or not) and they then have a dedicated agency in each province that is training native communities on water treatment processes (never mind that water treatment processes that can produce safe drinking water are not used). On paper, it looks good; in practice it is part of the continued failure of native water treatment plants to produce safe drinking water. If Health Canada did the appropriate testing we estimate that >90% of native water treatment plants fail to meet even the not very stringent Canadian Drinking Water Quality Guidelines (Safe Drinking Water Foundation and the Association of Professional Engineers in Ontario joint understanding).

The goal of the AAWTT is to empower communities to deal with challenging water quality issues in a sustainable fashion. Another goal of the collaboration between AAWTT reservations is to be able to design advanced water treatment systems that cost no more than conventional water treatment systems. If the profit motive is removed from this development, (layering of contracts with 15% inflation at each level), it is actually already possible to do this and build advanced treatment systems producing superior drinking water at costs no greater than currently designed "engineered conventional systems" that fail to produce safe drinking water.

Indeed, supporting us in these developments is one very large European manufacturer of biological filtration material whose interest is to produce safe drinking water with as little harm as possible (biological treatment does not require chemicals and is both cost-effective and sustainable). The processes are indeed based on this sustainability (very low use of chemicals, conserving water), robustness (will work even under adverse conditions), operator-friendliness, and cost-effectiveness, while at the same time producing water that is truly safe meeting not only Canadian, but also U.S. and European drinking water regulations.

To summarize, the Advanced Aboriginal Water Treatment Team (AAWTT) is a team of volunteer participants dedicated to the advancement of water treatment processes on Aboriginal reservations in Canada. Team members will help each other resolve water

treatment problems when using advanced water treatment processes. The team is supported by one groundwater laboratory located at George Gordon FN, Saskatchewan, and one surface water laboratory (paid for by band funds) located at Saddle Lake Cree Nation, Alberta. At these two locations, R&D into advanced water treatment processes is carried out on a daily basis (currently virtually no funding). Both laboratories are integrated with the regular operation of advanced water treatment processes. Each plant will also become part of the bigger picture where improvements are being documented and shared with other participants.

In the following weeks we will introduce you to the individual AAWTT members and the communities that support them.

CALL TO ACTION FOR First Nations Drinking Water

Name of community: _____

I wish to remain anonymous Yes **or**

Contact person: _____

Water Treatment Plant Phone #: _____ Fax #: _____

What time would be best to call the contact person ? _____

Position: _____ Email: _____

If you have any questions, please do not hesitate to contact our research scientist who will be starting work in our lab on Monday, January 12th, 2009.

Date: _____

1) Do you treat ground or surface water? _____

2) What treatment process do you use, can you describe it?

3) How much water do you treat per day? _____

4) Do you have support when problems arise? Yes or No please explain

5) Who do you answer to when there are problems? eg. a committee or Chief & Council

6) How many people do you service with water? _____

7) Do you have an adequate supply amount of water for your community? Yes or No

8) What are the total and free chlorine levels in your distributed water?

a) Does it vary within the same close range? _____

b) Free chlorine: _____

c) Total chlorine: _____

9) What are the chlorine residuals in the distribution system?

10) Have you had any boil water advisories? Yes or No

a) If yes why was it called? _____

b) How was it resolved? _____

c) How long did it last? _____

11) Do you measure turbidity? Yes or No

a) What are the average levels? _____

12) Do you drink your water? Yes or No

a) If so how does it taste? _____

b) Does it carry an odor? Explain if it does. _____

13) Does the raw water have any smell? _____

14) Do you have raw water data?

15) Do you have treated water data?

16) Are you willing to share some of the data with SDWF's Advanced Aboriginal Water Treatment Team (AAWTT)? _____

17) Do you want a scientist to have a look at the data and get back to you with his/her interpretation?
Circle Yes or No

18) Do you have any health concerns for your community when it comes to the water?

19) Is there anyone from outside the community that tests your water? Circle Yes or No
If so who? For example EHO, or water quality monitor.

Do you test your water on all the water quality parameters yearly? ie: iron, arsenic, etc.
Circle Yes or No

If so are you willing to share your results with SDWF's AAWTT?
Circle Yes or No

20) Do you know what your annual bill is for chemicals for your water treatment process
\$ _____

21) How long has it been since INAC allocated any funding to improve or replace your water treatment plant? Please Circle
Less than 5 years 5 – 10 years over 10 years

22) How much did INAC spend on your community water treatment? \$ _____

Any comments:

I have forwarded the information you have sent regarding First Nations Call to Action for Safe Drinking Water to our Chief and Council Yes or No