

ATTAC NEWS

The Quarterly Newsletter of the Alaska Training/Technical Assistance Center

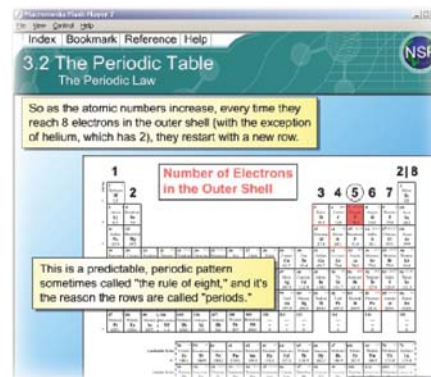
Issue 12, October, 2004

In This Issue

- ▶ *Basic Water Chemistry*
- ▶ *UAS Environmental Technology Spring 2005 Courses*
- ▶ *Upcoming Events*
- ▶ *Remote Operation and Monitoring of a Membrane Water Treatment System*
- ▶ *ATTAC Annual Report*
- ▶ *ADEC Online and Interactive Training*
- ▶ *ATTAC Services*
- ▶ *Free Resources*
- ▶ *ATTAC Lending Library*

Basic Water Chemistry

The Introduction to Basic Water Chemistry course offered by the University of Alaska-Sitka Environmental Technology Program will soon be available on CD and on-line. The course, titled "Basic Water Chemistry for Operators," will cover basic chemistry and application to both water and wastewater. It is designed for students and operators with no previous chemistry background. There are 18 lessons that will include detailed objectives, instructional text and visuals, interactive instructional screens and self-checks, and unit quizzes. Development of the course is funded by the National Science Foundation (NSF). The first parts will be entering the field test phase by the first of the year. If you are interested in being a "field tester," please contact the ATTAC office.



NSF is also funding a project to enhance technical education in rural Alaska through the use of technology. ATTAC staff will be working with rural students to determine the most effective ways to design and deliver technical material over the internet. The plan is to produce a set of short, web-based units on specific, technical, water and wastewater subjects that operators can access at anytime and complete on their own schedule and at their own pace. Use the following link to keep up with progress on this project: www.uas.alaska.edu/attac/nsfweb/nsfp2.html.

UAS Environmental Technology Spring 2005 Courses

The following ENVT courses will be offered Spring Semester, 2005, by distance delivery and locally at the UAS Sitka Campus. Classes begin the week of January 18 and finals week is May 2-7, 2005. **Register early!** Classes may be canceled if the minimum registration is not met. For more information or to register call 1-800-478-6653.

Class

ENVT S111 Wastewater Systems
ENVT S120 Utility Management*
ENVT S130 Basic Sanitary Chemistry/Microbiology
ENVT S132 Basic Sanitary Chemistry/Microbiology Lab*
ENVT S211 Wastewater Treatment*
ENVT S212 Hydraulics*
ENVT S232 Intermediate Sanitary Chemistry/Micro Lab*
ENVT S240 Practicum*

Time/Dates/Delivery

Wednesdays 6-7:50 pm/Audio
Web Based
Web Based/Audio
May 9-14, 2005 Sitka Campus
Wednesdays 8-9:50 pm/Audio
Audio TBA
May 9-14, 2005 Sitka Campus
TBD with instructor

* prerequisite(s) apply



Serving small public water systems in Alaska

Upcoming Events

Intro to Small Water Systems OIT/1
(with NSHC)
Nome, Nov 15-19



Intro to Small Wastewater Systems OIT/1
(with Maniilaq Assoc.)
Kotzebue, Dec 6-10



Check the ATTAC web site for
additional classes

Remote Operation and Monitoring of a Membrane Water Treatment System

Contributed by Dr. Dan White, ATTAC UAF

The source water used by many small systems in rural Alaska is often available only seasonally, and is of poor quality. Water quality is frequently compromised by high concentrations of natural organic matter. While the organic matter itself is not normally a health hazard, once the water is chlorinated the potential exists to form a class of chlorinated organic molecules called disinfection by-products (DBPs). DBPs are among a group of chemicals believed to cause cancer and reproductive problems in humans. In order to remove organic matter from water, some new technologies are required. Membrane filtration is one such

technology. Unfortunately, membrane systems are not often designed for small system operation. Membrane systems are usually controlled by computers, do not have manual overrides, and do not have readily available or manufactured parts.



Microfilter unit



Nanofilter unit

In an attempt to make these systems better suited to operation in small communities, ATTAC is conducting a study on the remote operation and monitoring of membrane treatment systems.

In 2002 a membrane water treatment plant was donated to the University of Alaska by Barrow Electric Utilities Cooperative Inc. This system was renovated in Fairbanks in 2004 and transported to the Toolik Field Station (TFS) on the North Slope of the Brooks Mountain Range. TFS is a research camp owned and operated by the University of Alaska Fairbanks. The site serves as an ideal test bed for remote operation and maintenance of the membrane water treatment plant because it is on the road system, is connected to the internet, but is still very isolated. There is no infrastructure at TFS other than that needed to support research. The camp operates a Class B public water system. The membrane water treatment plant is fully automated and connected to the internet. The software that runs the plant and monitors control parameters can be run from Fairbanks, 350 miles away. The concept of remote operation and maintenance does not mean that a remote operator is not needed; rather, the remote access could support the operator in evaluating repair or replacement needs. For example, by monitoring pump run times, one can determine when pumps will require routine maintenance. Pump run time recorders can also alert operators to failures in the system such as main line leaks.



Dates may change!

If you have questions about any of the above classes or would like to register, please contact ATTAC. Classes may be canceled or rescheduled at the discretion of the instructor or if minimum registrations are not met.

Toll free: (888) 750-3823

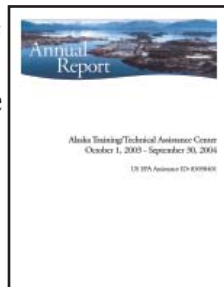
Email: attac@uas.alaska.edu



ATTAC Annual Report

ATTACs Annual Report covering October 1, 2003 - September 30, 2004 is now available to view on our web site. Twenty four workshops were offered during the report period, serving 281 people. Fourteen of those twenty four were certification workshops.

The basic goal of ATTAC is to assist small, public water systems in Alaska to develop, enhance and maintain technical, managerial, and financial capacity. ATTAC is entering its seventh year of funding from the USEPA Office of Water.



ADEC Online and Interactive Training

The operator certification program recently unveiled its online training course. Operators of small untreated water systems can now receive valuable training via the Internet.

The small untreated course, developed by ATTAC under contract with the operator certification program, is available at <http://www.state.ak.us/dec/water/opcert/onlinetraining.htm>. The \$35 enrollment fee can be paid using a credit card. The course is worth 0.5 Continuing Education Units (CEUs).

The course is divided into six chapters that cover the basics of ground water, wells, operations and maintenance, passive forms of treatment, regulations, and math. Students move through the course similar to watching a slide show. There's an abundance of written instruction, graphics, photographs, and interactive exercises. Tests are at the end of each chapter and students must achieve a score of 70 percent on all tests in order to pass the course.

A small untreated water system is a class A public water system that serves fewer than 500 people and fewer than 100 service connections. No chemicals are added to the water. Simple forms of passive treatment, such as cartridge filtration or softening, may be used. To determine the classification of your water system, visit the system classification database at <http://www.dec.state.ak.us/fco/opcert/system1.html>.

Operators of small untreated systems must be certified and must pass an exam to become certified. In most cases, operators of small untreated systems can take the exam based on experience. In other cases, completion of a course is required. Regardless, completion of the online course is an excellent way to prepare for the exam.

To find out if the course is right for you, visit the Operator Certification web site at <http://www.state.ak.us/dec/water/opcert/onlinetraining.htm>.

Remote Operation Continued.....

During summer 2004 the system was operated with the treated water going to waste while the Alaska State approval to construct was being reviewed. Research will be conducted during 2005 to test our ability to remotely operate and monitor the system.

ATTAC is a cooperative effort involving three academic units of the University of Alaska; UAS, UAA and UAF. A component of the ATTAC work plan has been applied drinking water research. These projects have been carried out by partners in the UAA and UAF Engineering Departments. Dr. Dan White manages the research at UAF and Dr. Craig Woolard directs the research at UAA. For more information about ATTAC research projects, visit our web site at www.uas.alaska.edu/attac.

ATTAC Services

- Educational materials for high school classrooms
- Lending library (books and videos)
- Operator-in-Training workshops
- Public education presenters/materials
- Sanitary survey training
- Small water system training
- Water/wastewater math reviews
- Web page with operator activities
- Workshops and preparation for OIT exams

Please contact us to discuss your training needs.

Free Resources

- Getting Sick Stinks (sanitation placard about honeybuckets, hauling water and hand washing)
- Instructional Activities for Community Sanitation (teacher's resource guide)
- It Happened One Summer (video)
- Resource Guide to Financial and Technical Assistance for Water and Wastewater Projects
- Self Evaluation Toolkit for Drinking Water Systems
- Small Water System Training CD-ROM
- Statewide Training Calendar
- Taking Charge... Sanitation Strategies for Rural Communities

Check out our web page for publications and other documents you can download!

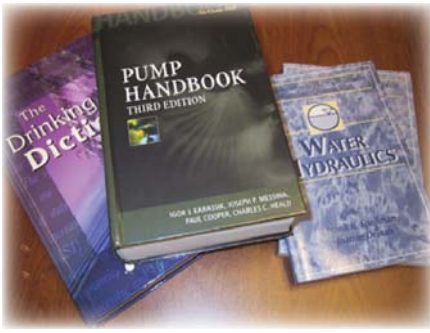
ATTAC News

ATTAC News is published quarterly by the Alaska Training/Technical Assistance Center (ATTAC). ATTAC does not necessarily endorse, approve or recommend names, products or other services mentioned.

ATTAC Staff:

Tim Anderson, Environmental Trainer/Asst Prof
Dr. John W. Carnegie, Program Director
Nicole Duclou, Program Coordinator
Andy Holt, Instructional Designer
Dr. Dan White, Assoc Professor
Dr. Craig Woolard, Assoc Professor

Please contact ATTAC if you would like to use any articles in other publications. Credit should be given to ATTAC. For information on contributing or receiving this publication call (888) 750-3823 or email attac@uas.alaska.edu.



ATTAC Lending Library

ATTAC maintains a library of books and videos in a variety of water and wastewater subjects available for public use. ATTAC purchases books and videos from various publishers and organizations including AWWA and WEF. If you live in Alaska and are interested in borrowing a book or video please call (888) 750-3823 or check them out using our online form at www.uas.alaska.edu/attac/library.html. Items may be used on a 45-day loan basis.

By requesting the item, you accept responsibility for any item lost, damaged or not returned and agree to pay the purchase price to replace the item. Return postage is the responsibility of the borrower.

Some recent additions to the library are:

- AWWA Satellite Teleconference Video: Emerging Issues in Water Utility Operations
- Career Paths in the Water Environment
- Operator Certification Study Guide, 5th Ed.
- Simplified Procedures for Water Examination Manual of Supply Practices, 5th Ed.
- The Site Calculations Pocket Reference

Alaska Training/Technical Assistance Center
University of Alaska SE
1332 Seward Ave.
Sitka AK 99835
Toll Free: (888) 750-3823
(907) 747-7756
Fax: (907) 747-7753
Email: attac@uas.alaska.edu
www.uas.alaska.edu/attac

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