ONSITE
WASTEWATER NEWS
ONTARIO ON-SITE WASTEWATER ASSOCIATION NEWSLETTER

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Mandatory Maintenance and Inspection – A Message from the 2004 Ontario Onsite Conference

The 2004 Ontario Onsite Conference moved to Ottawa this year and was an overwhelming success. The Environmental Commissioner of Ontario, the President of the BC Onsite Association, and the head of the onsite program in Alberta all provided inspiring and thought-provoking speeches for those who attended the conference.

This year's conference was the largest to date. With over 30 exhibitors, 2 panel discussions, 25 presentations, and some 250 participants, attendees came from nearly all the provinces. The conference was lively, the talks well attended, and the exchange of ideas and information second to none.

A key message from Gord Miller, the Environmental Commissioner of Ontario, was that with cutbacks in government staffing over the past decade, any changes need to be initiated by industry. Whether we want changes in the code or changes in licensing, these changes need to commence with groups such as the Ontario Onsite Wastewater Association. Not incidentally, the Association has decided to make mandatory maintenance and inspection of all systems its theme and objective for 2004.

Frank Hay, President of the BC Onsite Association, described substantive changes in BC with regard to licensing of all practitioners in the industry. Regardless of whether individuals are providing design, installation, or maintenance services, they now need to meet minimum education requirements, be certified, and be involved with continuing education to retain their certification in BC.

Other speakers from Ontario and Quebec described highly successful re-inspection programs, new technologies, management procedures, and studies pertaining to the onsite industry. There was something for everyone. In addition, the popular A-Z of onsite was repeated and, again, well attended. This year we added two panel discussions. The discussion of the new certification requirements was an especially lively discussion with all the panel members and the audience participating.

A final lunch saw entertainment provided by local comedian, Paul Mussel, who in addition to being highly amusing, provided lessons on how to start (or not start) a chainsaw. In addition, all of the exhibitors provided prizes for the draw, which was very successful.

Thanks to the organizing committee for such an excellent job, to the speakers for the time they took to share with us there activities, to the exhibitors for continuing to come up with new products to address industry needs, and last, but not least, to the attendees for coming.

See you all next year.

Doug Joy and Terry Davidson,
Conference Co-chairs.

Letter to the Editor

Submitted by Morey Houle Chevrier Engineering Ltd.

To Repair or To Replace, That is the Question...

To decision to repair or replace an existing failed or malfunctioning septic system has been a confusing one for some time now. At what point does one decide to install a brand new septic system as opposed to doing a repair? Part 11 of the Building Code is the only current guideline for septic repairs and/or alterations, but due to the ambiguity of this document it is very difficult to get a repair approved. The Ministry of Municipal Affairs and Housing needs to clarify Part 11, and needs to do it soon. It is frustrating for designers and homeowners alike when a repair is the best alternative for a specific property, but regulators, due to inadequacies in the code, reject repair plans. Regulations need to be clarified to identify what alterations are acceptable under Part 11 of the building code and under what circumstances a septic system does not qualify for repair. The following are just some of the issues that need to be addressed by the Ministry:

- The effect of the original permit on the proposed repair. What if the original permit is not available?
- Possible changes due to the capacity of the septic tank.
- Under what circumstances does the number of bedrooms have an effect?
- Does the amount of biomat impacted material have an effect on whether or not a repair is permissible?
- Is the installation of a mantle considered to be a repair if the original septic bed should have had a mantle to begin with?
- Many older systems have plugged or broken clay tile distribution pipes within a septic leaching bed that would perform satisfactorily if new distribution pipes were installed. Why can't these systems be repaired using new pipes? Homeowners can't understand the rationale for a complete replacement under these circumstances.

In many cases a repair could be a cost effective alternative to replacing failed or malfunctioning septic systems. However, under current regulations repair proposals are being refused because Part 11 does not leave enough latitude for regulators. This often results in frustration both on the part of designers and regulators, as well as confusion and unnecessary expenditure on the part of homeowners.

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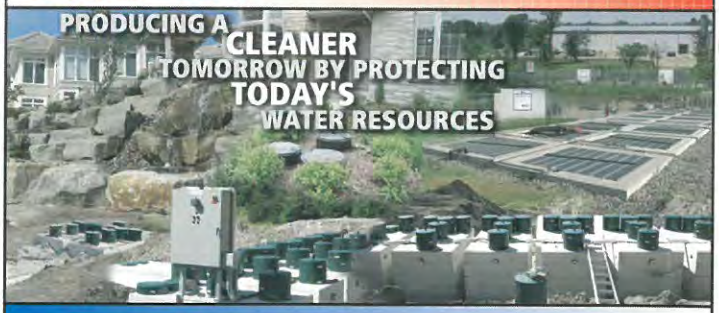

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S-Files — *Unexplainable or inexplicable septic sightings*

Please note that this picture is not upside down. The outlet is! When the lid of this Clearstream unit was removed, this is what the photographer saw. The outlet pipe and surge wire had been twisted almost 180 degrees from their normal positions. Apparently the installer forgot to check the piping before gluing it into position. Although this installation is clearly incorrect, it does resemble modern art ... hmm ... septic art. We wonder.

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Feature Installation

This month's feature installation highlights work done by Dan & Lee Wright of Manotick Pumping Ltd. Manotick Pumping installed a Clearstream tertiary treatment unit which discharged to shallow buried trenches; a design prepared by Bill Kollaard of Johnson Engineering. What makes this particular installation unique is that there are two separate septic tanks serving two sides of the same residence.

The original plan was to reroute the plumbing within the house to decommission one of the septic tanks. However, once the work began, it became clear that the plumbing could not feasibly be altered and the two septic tanks would have to stay. As a result, a pump chamber had to be installed after the septic tank on the opposite side of the residence to pump the effluent to the pretreatment tank for the Clearstream. Dan & Lee were then faced with the challenge of trying to run a forcemain under a sidewalk that the owner desperately wanted to remain untouched by the construction.

To make matters worse, excavation of the existing concrete septic tank, to be used as the pretreatment tank, revealed a significant crack extending from the top of the tank down along the outlet wall. Dan & Lee decided to abandon the existing tank and install a new plastic tank. The plastic tank allowed Manotick Pumping to meet the separation distance to the property line without moving all of the tanks further away from the house.

The shallow buried trenches, dosing chamber and timer system were installed with little difficulty and the site was reinstated in a clean and professional manner. This was a job well done.

OOWA Profile

Name: Eric & Helena Draper
Organization: Eric Draper Backhoe Services Inc.
Locations: Osgoode, ON
phone: (613) 826-2203
fax: (613) 826-832
email: draper@mondenet.com

Eric & Helena Draper, owners of Eric Draper Backhoe Services Inc. and the Septic Store, of Osgoode, Ontario, have been in the septic business since 1985. They have been members of OOWA since its conception in 1999.

Their knowledge and experience in septic system layout and troubleshooting have helped save clients' time and money. They install new septic systems only on the islands in the Rideau Lakes. For this they have specialized equipment and a barge with pumping capability. They offer onsite treatment solutions for all types and sizes of properties: residential and commercial, small flows and large flows, household-strength waste and high-strength waste, poor soils and groundwater issues. They will refer their clients to installers in other areas if the clients do not live on the islands of the Rideau. At the present time, Eric & Helena have 7 employees working in two locations, one in Osgoode and the other in Portland, Ontario. They are interested in hearing from companies with sound onsite technologies backed by excellent technical support. If you are looking for a septic system expert or you have problems with an existing septic system in the Ottawa or Portland areas, call Eric Draper Backhoe Services Inc. at (613) 826-2203.

Ontario On-site Wastewater Association Graduate Scholarship

The Ontario On-Site Wastewater Association is sponsoring an annual scholarship to support the studies of a graduate student conducting research focusing on-site wastewater systems. This annual scholarship of $1000 is awarded annually and presented to the student at the Annual On-Site Conference in March.

This year's scholarship was donated by Mr. Bryand Whitehead of Rural Development Consultants in Schomberg, Ontario. The recipient of the 2004 scholarship was Jinlong Zang. He is studying water resources engineering at the University of Guelph and has been working towards a master's of science degree since May of 2003.

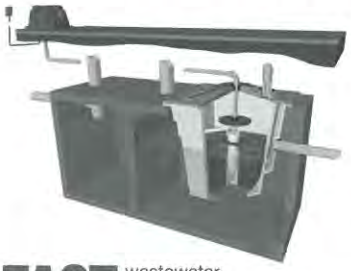
Jinlong Zang has a background in water resources and costal engineering and has worked in China assessing the affects of nuclear power on costal areas. His current research focuses on migration of nitrate from septic systems. This research will help to improve predictions for the impact of septic systems on nitrate levels in groundwater, for individual as well as clusters of systems. Jinlong Zang received the award because of the appropriateness of his research to the onsite industry, and we wish him luck with this and future studies.

The conditions of the scholarship are:

- must be enrolled in a graduate program (MSc or PhD) of an Ontario University
- can only receive the award once during their studies
- must be conducting research which focuses on on-site wastewater issues, including but not restricted to:
- development of new technologies
- impacts of on-site systems on the environment
- assessment of performance of on-site systems, including new and old technologies, and soil systems
- operation and maintenance of on-site systems

Details regarding the 2005 scholarship will be forwarded to Ontario universities in September 2004.

Innovative On-site Wastewater Technologies



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Rob's World By Robert A. Passmore, B.Eng.

Reflection: How Quickly Things Can Change

It is amazing how quickly the onsite wastewater industry evolves. Just when I thought it was beginning to get difficult coming up with topics for this column, the industry provides me with fuel for the next few years. This edition of Rob's World will deal with active remediation devices, the first of several "key" issues that may determine the fate of our industry.

Active remediation devices (ARDs) is a term that I have started to use to describe mechanical aeration units that are installed in a septic tank with the goal of remediating a failed or failing leaching bed. These devices are not new to the industry and several companies have been producing them for several years in the United States. Cursory review of testimonials and casual internet searches reveals that ARDs have varying degrees of success through patchwork approvals. After much searching one thing becomes clear, the onsite wastewater treatment industry is having difficulty dealing with ARDs.

My concerns are focused on the need for our industry to deal this these devices properly. Part 8 of the Ontario Building Code (OBC) does not provide adequate guidance to regulators to make informed decisions. Some regulators have provided approval to install these devices on a small scale to control and monitor their performance. Other regulators will not allow their installation at all.

To make matters worse, there is an appeal underway at the Building Code Commission by a distributor of one of these ARDs to dispute the jurisdiction of regulators to require permits for the installation of these units. This appeal should be of immense concern to all onsite professionals in our industry.

So why should we be so concerned? For starters, the fundamental principle of this appeal is that someone should be free to install any device in their septic tank that claims to remediate a failed for failing leaching bed without any permits at all. There would then be no need for anyone to actually verify the claims of these devices or monitor their use. Although it is not the provincial government's responsibility to protect homeowners from the unscrupulous contractor, it is their responsibility to protect surface and groundwater resources and human health. Allowing unpermitted changes to onsite wastewater systems that could very well lead to contamination of our water resources must not be allowed to occur. The way I see it, many onsite professionals have made significant strides over the last five years in bringing a level of professionalism and integrity to our industry and, in doing so, many "fly-by-night" contractors (or snake oil salesmen as the technical editor likes to refer to them as) have been forced out. As is often the case when you are focused on your journey, you forget just how far you've come. Our industry has come very far in a relatively short period of time and our achievements are many. We now have forward momentum and our membership base is growing and the dark days of past practices are fading into the shadows. But as we look from the past to the future, we find ourselves at yet another crossroads. Do we, as an industry, stand up and take action now to control ARDs, or do we sit on our hands and let the provincial government fumble around with the issue while everything that we have worked towards slips quietly back into the darkness?

From the Editor

To coincide with this year's theme, OOWA is pushing ahead with the "Mandatory Operation and Maintenance" issue. Letters on this issue have been written to the appropriate Ministers on behalf of OOWA and a committee is being assembled to come up with potential alternatives for a mandatory program.

In other news, the OOWA exhibit booth has been completed and will be soon be available for OOWA members to sign out to take to various events – watch the website and next newsletter for more details.

Calendar of Events

November 7-10. 2004 - **Decentralized Systems - The Changing world of Wastewater treatment,** Hyatt Regency Hotel and Conference Center in Albuquerque, NM.

Registrations can be mailed up until October 22, or you can register on site between October 23 and November 7. There are pre-conference workshops and technical sessions, which can be registered for at an additional cost. Visit www.nowra.org for more details

Science Corner

The Microbiology of Water Treatment

Summary of: **"A Lesson in Microbiology – Life forms too small to see, but don't underestimate what they can do."**
By Chain-Wen Wang, Ed.D., NDWC Contributing Writer and Craig Mains, Training Specialist, National Environmental Training Center for Small Communities. From On Tap (Winter 2004, Volume 3, Issue 4)

Available from:
National Drinking Water Clearinghouse
West Virginia University
P.O. Box 6064
Morgantown, W.V.

The E. coli outbreak, which occurred in Walkerton in May 2000, was a tragedy, which killed seven people, and made 2300 more sick, but what exactly caused this outbreak? It is important to know how wastewater is treated, but it is also important to know why wastewater is treated, and what exactly the treatment is doing. An understanding of the microscopic lifeforms that can be found in wastewater, or in drinking water, is essential to understanding why wastewater is treated as it is.

Microbial contaminants in drinking water are controlled by multi-barrier techniques including filtration and disinfection. Some microbes, however, can be very small, and may also be resistant to disinfection. Multi-barrier techniques are intended to reduce microbial contaminants 99 to 99.99 %, but this level may not be enough. If certain protozoans or viruses are present in very high concentrations in the water, they could potentially pass through the filtration and disinfection processes to make people sick.

The following table outlines the microbial contaminants, which may be found in drinking water and the symptoms that they can cause when ingested.

Contaminant	General Description	Symptoms
Bacteria	Bacteria are single celled prokaryotic along with many others, secrete toxins cells whose distinguishing feature is that their genetic material is not contained in a nucleus enclosed in a membrane.	Bacteria such as E.coli and Salmonella, that can cause damage to the stomach and intestines.
Protozoans	Protozoans are eucaryotic cells, which contain nuclear membranes. They are essential to the decay of organic materials, and require damp or aquatic environments. They are capable o producing cysts inf adverse conditions, and can live in the cyst.	Many people carry protozoans without any symptoms. Infection occurs through contact with cyst-contaminated water. Symptoms can include diarrhea, cramps, vomiting, and nausea. Infection can be fatal for people with already weakened immune systems.
Fungi and Algae	Fungi have eucaryotic cells, no chlorophyll, and can absorb soluble substances across their cell walls to gain nutrients.	Fungi and algae can grow on the walls of water distribution lines, but their health effects are, for the most part, unknown. They cause taste, odor, and colour problems in water, but it is only recently that their health effects have come under question.
Viruses	Viruses are unique because they require host cells to reproduce. Viruses contain either DNA or RNA, but never both, and so are incapable reproducing on their own. They are deadly fo small in size and resistant to environmental stresses, and so can be difficult to catch.	Symptoms of viral infections include diarrhea, nausea, vomiting, abdominal pains, and fever. Most healthy individuals will survive a viral of infection, but the infection can be rdeadly for persons with weaker health.

Frequently Asked Questions

Q Does the O.B.C. require a Class II system for a sink in a cottage with no running water and no plumbing within the cottage?

A Yes. A Class 2 System should be installed because waste derived from kitchen sinks, bath tubs, washing machines, and laundry tubs is classified as greywater and Class 2 systems must be used for the disposal of greywater. The fact that there is no plumbing within the cottage does not mean that a Class 2 system is not required. It simply means that the total daily design flow will be lower. The O.B.C. stipulates in section 8.4.2.1,(2) that the total daily design flow for a class 2 system is 125 L per fixture unit where there is no supply of pressurized water. In the case of the cottage, the sink would be this fixture unit since there is no plumbing in the cottage and therefore no pressurized water.

Q Does the O.B.C. stipulate in what circumstances a clay seal should be used to prevent the flow of effluent into bedrock?

A The O.B.C. does not directly stipulate that a clay seal must be used to prevent the flow of effluent into bedrock. However, 8.9.1.2,(1),(c) does say: "Sanitary sewage or effluent shall not emit, discharge, seep, leak or otherwise escape from the sewage system or any part thereof into a piped water supply, well water supply, a watercourse, ground water or surface water." Placing 4 inches or 10 cm of impermeable soil, such as clay, on the fissured bedrock to pervent effluent from passing through the rock before being properly treated is a good construction practice, and will help the system to reach the requirements of 8.9.1.2,(1),(c). Also, the intention is to seal off the underlying rock because there is no soil available for treatment. It is important to provide the maximum loading area to increase evapotransportation and provide a large contact of imported fill for treatment.

For information about upcoming courses visit: **www.orwc.uoguelph.ca**