

# A Speech by a Septic Dyspeptic

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Message on behalf of FOCA to municipal councillors and lake users everywhere that if there is no septic reinspection program (SRP) underway in your community you should take steps to start one ASAP.

FOCA has undertaken a project which we call "A Roadmap to Septic Reinspection"; more about this later. The information and ideas offered here today are based on extensive research done by members of the FOCA Environment Committee as well as by summer students employed by FOCA. We've consulted a number of experts as well as personnel from various septic reinspection programs around North America and looked at documents from the MMAH (Ministry of Municipal Affairs and Housing) and the U.S. EPA (United States Environmental Protection Agency). Further information about contacts and sources are available on request but will not be listed here.

## WHY SHOULD WE ESTABLISH A SEPTIC REINSPECTION PROGRAM?

Answer: Water Quality. All septic systems need regulation and maintenance but if they are near water they need special consideration. When septic systems are near lakes the water table is often close to the surface and the absorption field near open water. This can result in contaminants "leaking" to the water. Also, when shorelines erode, the distance between the septic system and the shoreline gets shorter and shorter, making it more likely that liquid waste could move horizontally through the soil to the bank and then quickly over the surface to the water. This pollution can happen even though your system appears to be working well and complies with code. A study done by the LaGrange, Indiana County Health Department, in which sophisticated measuring equipment was used, demonstrated the presence in near shore areas of invisible septic plumes. Phosphorous concentrations were 2-10 times higher than they were mid-lake; and bacterial counts in high water level conditions exceeded the allowable limit for recreational use; i.e. swimming. These less obvious types of system failure, related to migration in the soil, sometimes for long distances, of septic effluent, can go on for years without being recognized and pose a threat to water quality and human health.

Degraded water quality and human health hazards - these outcomes result from the 2 types of contaminants that result from septic system failure.

Degraded water quality resulting from nutrient loading: Phosphorous and nitrogen act like natural fertilizers. They cause weeds to grow and algae blooms to erupt. Water clarity decreases, swimming becomes less pleasant. More importantly, when the algae die, the decaying process depletes the oxygen in the water. Certain species of fish suffocate and die and the ecosystem is disrupted. (FYI - One pound of phosphorous will produce 500 pounds of algae.) The economic value of clean, clear water has been well documented. Water quality is a decisive determinant of where people spend their vacation dollars and buy property. A landmark, oft-cited study done in Maine put a clear dollar value on water clarity and determined that decreased water clarity would mean millions of dollars in lost revenue to the state. Here in Ontario, a Ministry of Environment study done in 1995 cited water quality as the number one factor in angler satisfaction. (As of January, 1999, fishing and related industries were worth billions of dollars to the economy of the province and supported 55,000 jobs.)

Human health hazards: Where polluted discharges enter water, pathogens (disease causing organisms) may be present. Rising and falling water levels which change soil conditions can exacerbate the situation. As is often the case, children, the elderly and people with weakened immune systems are the most vulnerable to these pathogens which most commonly cause things like stomach ache, diarrhea, and infections of the eye, ear, or throat. More serious diseases can occur (such as hepatitis and cholera). Fecal waste from humans carries the most human pathogens and therefore presents a serious health concern. It can enter the water from improperly functioning septic systems. For example, the health department reported, following a Walkerton type E coli outbreak in Albany, New York during the summer of 1999, that the E coli strain responsible for the outbreak had been found in a nearby septic system, not in livestock manure, as was the case in the Walkerton outbreak.

Population Growth + Unregulated Septic Systems = Contaminated Water

Interestingly, the Ontario Building Code (OBC), which deals with septic system regulations in Ontario does not distinguish between septic systems that are adjacent to water and those that aren't, but Ontario is quite alone in this regard. The state of Massachusetts, which is the only state in the U.S. that has state-wide mandatory septic reinspection programs, does not require, for example, that all cesspools in the state be replaced unless they are located close to water. The U.S. EPA's publication, "Guideline for Management of Onsite/Decentralized Wastewater Systems", suggests 5 model management programs with numbers 1 to 5 representing increased levels of control as public health and environmental concerns dictate. While most traditional onsite systems were thought to fall into level 1 or the minimum level of management, it was stated that level 3 should be selected for sensitive areas "such as those along a lakefront". This management level includes renewable operating permits and regular compliance

monitoring reports. To quote from this document:

"Ponds, lakes and coastal embayments are all susceptible to over-growth of algae and other aquatic plants due to an overabundance of nitrogen and phosphorous from various sources, including septic systems. One of the primary reasons for the failure of these systems is the lack of adequate management. In a majority of cases, the homeowner is not aware of system failure until it becomes catastrophic." The EPA also found "that septic systems constitute the third most common source of ground water contamination."

Can we just trust everyone to look after their own system? In Ontario, you will remember that the now defunct Cottage Pollution Control Program, depending upon which year you check, found that one of every 3 or 4 systems inspected was malfunctioning, and these numbers are borne out, for the most part, virtually everywhere else; all the septic reinspection programs we looked at reported failure rates, minimally, of over 20%. It is also important to note that failing systems taken out of service will continue to leach pollutants into surface and ground water for up to 10 years, pointing up the necessity for quick action.

In Ontario the responsibility for septic systems now rests with the municipalities. Municipal councillors, even those who are already convinced of the economic, environmental and health benefits of a septic reinspection program, have expressed concerns about how to structure such a program, how to fund and staff it, and about liability issues.

A recent publication of the MMAH, entitled *Septic System Reinspections* (available free of charge from the MMAH or on the website: <http://obc.mah.gov.on.ca>), gives a reasonably clear idea of the responsibilities and powers of municipalities with respect to septic systems under the terms of the Building Code Act (BCA) and the OBC. The building code does not dictate that municipalities conduct septic reinspection programs; it does, however, say that municipalities have the responsibility for the enforcement of the OBC but can delegate authority to health units and conservation authorities.

The OBC is a consumer protection act, not an environmental act. The lack of specificity, however, may open it to interpretation. It provides inspectors with right of entry onto land to determine whether a system is unsafe, and "unsafe" is defined as "not maintained or operated in accordance with the building code." Included in the BCA under General Requirements for Operation and Maintenance is the following: "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." "Effluent" is a general term meaning something that flows out; that would include phosphorous and may open the door to an environmental interpretation. Entry into a dwelling is treated differently and is not permitted without the consent of the occupier who must first be informed of his right to refuse entry, but there is a provision for entry under the authority of a warrant which can be obtained in circumstances where the building official or designated inspector has some reason to believe that the septic system is "unsafe";

The MMAH publication suggests that a visual reinspection is "perhaps the most viable option for a program." This must be considered in light of the two types of septic system failure, which are:

**HYDRAULIC FAILURE** – Hydraulic failure occurs when the soil cannot handle the volume of wastewater, and as a result, sewage flows onto the ground or backs up into the house. Causes of hydraulic failure include locating the system in or too close to the high groundwater table, inadequate sizing of the system for the wastewater load, failure to pump out the septic tank, and encroachment of tree and bush roots into the system. This is the type of failure that will be detected by a visual inspection.

**LACK OF ATTENUATION** – refers to lack of attenuation in the soil of contaminants including nitrates, phosphorous, bacteria and viruses, dissolved metals, detergents and solvents. This occurs when there is a lack of fine soil particles for the effluent to pass through before reaching the water. This is often the case with systems located on very coarse, sandy soil, or directly on bedrock. In these cases there is usually no visible evidence of system failure. The result, however, is that untreated effluent will continually contaminate the receiving water just as if the effluent were piped directly into the water.

Visual inspection will detect hydraulic failure only and would therefore seem to be of rather limited use. Sewage back-ups are difficult to ignore, and most people will remedy them without the added impetus of a reinspection program.

## THE FOCA ROADMAP TO SEPTIC REINSPECTION

The purpose of this soon-to-be publication is to pave the way to septic reinspection programs for municipalities and cottage associations by doing the research for them.

The process of preparing this has been slow because there is by no means widespread agreement on how inspections should be carried out and how programs should be structured. Every existing program we investigated is different in some way from all the others. Our Roadmap will be written by or in consultation with experts in the fields under discussion, and will include a sample reinspection program, information on overcoming obstacles such as funding and liability issues, examples of some successful reinspection programs currently in operation, new technologies, how to

measure the success of your septic re-inspection program, and a section on current law in Ontario relating to septic systems. Here are some suggested steps in a sample reinspection program:

**Form partnerships.** Some programs, for example Crow Wing County, Minnesota's septic reinspection program for the Whitefish Chain of lakes, were able to lower costs substantially by using volunteers to prepare the data base, as well as to help with promotion, education, PR and administration. Look to cottage associations, land trusts, naturalists' groups, Stewardship Councils or anyone else who has a stake in local water quality.

**Notify property owners** in a nice, friendly letter that in an effort to protect water quality you will be instituting a septic reinspection program. Give enough notice to allow people time to upgrade systems on their own; many people will want everything to be in order before the inspector arrives. Enclose correspondence with the tax bill to save on postage.

**Establish a data base.** Use all available records as well as owner interviews to determine the type, age, and location of each system (file the information by location so it doesn't get lost when the property changes hands &ndash; civic addresses will make this job a lot easier). Note the size of the dwelling and the number of people who live there. Every property in the township that is not vacant and is not on a public sewage system should be in this data base. This data base will provide the documentation for the above-mentioned "reason to believe" that there is an "unsafe" condition. If there is no available data on a system that, too, constitutes a "reason to believe", as does the presence of a steel tank older than 20 years (steel tanks have an acknowledged limited life span before they begin to deteriorate and are no longer airtight). The data base allows for identification of high risk systems with which to begin the program.

**Develop a funding plan.** Virtually every septic reinspection program we investigated involved some kind of inspection charge to the owner. Homeowners on public sewage systems pay for water and sewage without complaint. Those who are lucky enough to live next to a beautiful lake which belongs to everyone should be prepared to do their part to protect the water, and that should rightly include paying for the maintenance of their sewage system. In Cuyahoga County, Ohio, all residents, even those who don't have a septic system pay a \$30 fee which funds water quality monitoring as well as septic reinspection programs. Everyone in the county is considered a shareholder in a program that protects water quality for the good of all. In Santa Cruz County, California, the program is funded by annual service charges to property owners for wastewater management (the charge increases to those who have alternative or high-maintenance systems), also by fees for a permit to discharge. There is a further levy of \$6.90 for funding of permanent facilities for collection and treatment of septic tank sludge, and an additional \$18.54 charged to all properties in the San Lorenzo River watershed to pay for the increased management needed to protect the river. The most straightforward funding strategy in my opinion is to require every owner of an on-site wastewater disposal system to buy a permit to discharge which must be renewed every 3 to 5 years. This allows for an ongoing revenue stream which, once the program is underway and running smoothly, may eventually provide enough extra money to fund more sophisticated water quality monitoring. There is already a system in place for collecting and keeping track of taxes and it would not be onerous to notify property owners with their tax bill that their permit is up for renewal. Permits and renewals would be issued when the property owner submits proof of inspection and pays the fee.

**A word about by-laws:** The OBC and the BCA take precedence over by-laws if they are legally challenged, but, according to sources at the MMAH, the MMAH will not challenge a by-law that has not been challenged within the municipality. An example: The City of North Bay and East Ferris Township have mandatory pumping bylaws. The septic system pumper issues a receipt which must be submitted with tax payment every 2 years. This differs from the terms of the building code, which dictates that a system shall be pumped when the sludge reaches the 1/3 level. No individual has challenged the bylaw, which has worked well in these areas.

**Mandatory pumping** may become more of an issue than it has been in the past due to new, stringent Ministry of Environment regulations prohibiting the spreading of sludge on farmers' fields and increasing the standards for the liners in lagoons where septage is taken. These higher standards will increase costs to the pumpers and therefore raise the cost of pumping. It is reasonable to assume that the higher the cost of pumping, the longer people will wait between pump-outs. Failure to pump when it is time will result in the accumulation of sludge which will start to impinge on the volume in the septic tank. This in turn allows less settling time, the effluent will carry more solids into the leachfield, thereby significantly shortening the life of the leachfield. There are several reasons, other than this one, to tie inspections to pumping, which will be discussed in the next step of this sample program:

**Inspections.** There is much to be said for licensing pumpers to do inspections. (The OBC sets the minimum requirements for certification of septic inspectors who must also pass an exam.) In some instances, the removal of biosolids before they reach a detrimental depth is unnecessary and may adversely affect the biology of the tank. Pumpers could be encouraged through education to check the biosolids and empty them only when necessary. The pumper would still be paid for the inspection. Perhaps more importantly, inspectors to whom I have spoken say that they can't check whether a tank is functioning properly when it is empty.

Putting the reinspection itself in the hands of the pumper, or other septic professional, keeps in in the realm of free enterprise and takes some of the responsibility for consumer satisfaction off the municipality. The homeowner can hire who he wants provided it is a licensed individual; the owner pays the inspector directly, thereby freeing the municipality from collection responsibilities; the owner submits to the municipality as proof of inspection a standard inspection form

filled out and signed by the inspector. It is the responsibility of the owner to arrange for the inspection before his current permit to discharge expires, and if there is an accident or damage to the septic system the liability rests with the septic professional and not with the municipality.

There has been some debate about the usefulness of dye tests as part of the reinspection process. Dye tests are not perfect and do not produce consistent results due to the influence of various factors such as rainfall, but may be the most economical method of detecting the lack of attenuation; failures described earlier.

Enforcement is the final stage of the program. Non-compliant owners should be allowed a reasonable amount of time to bring their system into compliance and should be notified of the time limit. They will be more likely to cooperate if they are aware of the very good reasons for which you are demanding compliance. As described in the MMAH publication discussed earlier, an "Order to Remedy an Unsafe Building" may be issued to those who do not respond. Fines may be levied. One California county charges a violation reinspection fee for any subsequent enforcement visits made necessary by non-compliance. Tiny Township, here in Ontario, is looking at a proposal to place a holding provision on non-compliant properties which would prevent the issuance of a building permit or any change in use of the property until the owner demonstrates that the septic system has been brought into compliance. The biggest problems in enforcement occur when a system in a principal residence requires expensive replacement which poses a hardship to the owners. This will call for some creative thinking on a case by case basis. A revolving loan fund might be established where the funds can be raised; this may be something that partners can help with. A conservation minded organization might take it on as a project. Investigate available grants.

FOCA's representatives have been attending meetings at the MMAH regarding new septic regulations. These meetings were attended by every kind of septic professional including engineers, installers, pumpers and manufacturers. Everyone in attendance agreed on the need for reinspection provisions in the legislation, and the MMAH has promised to have a meeting devoted exclusively to the reinspection issue. In the meantime, however, we must work within the current framework and that means that the responsibility for management of individual on-site wastewater disposal systems fall to municipalities. It falls to cottage associations and other interest groups to encourage their municipalities to start a septic reinspection program. Our hope is that FOCA's Roadmap will make the job a little easier. We encourage all municipalities to make a start, for even the simplest program will raise public awareness of the importance of septic system maintenance. In time, with experience and a revenue stream, municipalities may add to their programs with increasingly sophisticated inspections and water quality monitoring.