

Recommendations submitted to Part 2 of the Walkerton Inquiry, Public Hearings 2 & 3, by the Ontario Society of Professional Engineers

Context for recommendations:

The position of the Ontario Society of Professional Engineers with respect to drinking water systems in Ontario is outlined in our paper, *Safe Drinking Water & the Role of Professional Engineers*, posted on the Walkerton Inquiry's website. It can be summarized very briefly as follows:

- 1. Historically, engineers have been involved in every aspect of drinking water production: source selection (and protection, design of wells, treatment plants and treatment processes, construction of facilities and distribution systems, and infrastructure renewal.
- 2. Over the past decade or so, however, the involvement of professional engineers in the water supply system has declined on a number of fronts:
 - far fewer professional engineers are employed by the Ministry of the Environment (other than in the Approvals Branch), and they have all but disappeared from policy-making and senior management roles;
 - whereas once there was an ongoing liaison between ministry engineers working out of MOE's regional offices, and municipal water system operators, there are now very few, if any, professional engineers in the ministry's regional offices;
 - a similar trend is seen at the municipal level; municipal water systems (particularly smaller systems) are far less likely to be overseen or monitored by a professional engineer (municipal employee or consultant) on an ongoing basis.
- 3. Facilitating this reduction is a lack of "demand-side" legislation in Ontario pertaining to water systems, i.e. legislation requiring that a professional engineer undertake specific acts or types of work with respect to water systems. The result is that a professional engineer or engineers may never be involved in work that clearly entails engineering.
- 4. This situation exists, despite the fact that the design, construction, monitoring and renewal of water systems, including the design of treatment processes, significantly involves engineering.
- 5. As government reduces its direct involvement in inspecting, monitoring, and advising, and private sector involvement grows, there is a need to ensure not only that technically-qualified people undertake certain kinds of work but that those who take responsibility for such work are professionally accountable.

Recommendations:

- Over the past several years there has been a significant reduction in the number of professional engineers in the Ministry of the Environment, whereas at one time, professional engineers occupied a significant number of senior management positions. We believe there is a need to redress the balance, to ensure that professional engineering expertise is part of the decision-making process.
- 2. At the municipal level, a similar reduction has taken place; municipal water systems are far less likely to be overseen or monitored on an ongoing basis by a professional engineer. We recommend that water treatment facilities and distribution systems be monitored on a regular basis by a professional engineer or other qualified person who has the training and expertise to recognize the significance of events or conditions in one part of the system as they may affect other parts of the system.
- 3. Interestingly, there is very little "demand-side" legislation in Ontario pertaining to water systems, i.e. legislation requiring that a professional engineer undertake specific acts or types of work with respect to water systems. The result is that a professional engineer may never be involved in work that clearly involves engineering. We recommend, therefore, that certain provisions under the *Ontario Water Resources Act* or other legislation be considered, requiring:
 - a professional engineer's seal ("stamp") before water can be extracted via a well, pump house or water treatment plant, i.e. before such an installation goes into service. Currently, the only requirement is that such installations adhere to "sound engineering principles" but there is no actual requirement that a professional engineer be involved;
 - that water treatment plants, wells, and other water facilities be designed by a licensed professional engineer;
 - that original designs for water facilities and distribution systems be sealed ("stamped") by a professional engineer, and kept on record; and that the same apply to designs for modifications and replacements to treatment plants and components of distribution systems;
 - that a licensed professional engineer be involved in the decision-making process leading to the design and replacement of components of water systems, e.g. replacement of pipelines or chlorinators;
 - that farm structures and storage containers (including drainage ditches, ponds, storage or holding tanks, sewage and waste systems) and processes to digest, thicken and spread wastes, be designed by a professional engineer or other qualified person. A further mechanism is needed to ensure that structures are built in accordance with approved designs, and that processes are implemented as intended.

- 4. We do not suggest that the items referred to in recommendation no. 3 above constitute a definitive list of items that should be included in demand-side legislation. [In fact, we will have further recommendations for demand-side legislation that will be presented at a later hearing.] We would strongly urge Mr. Justice O'Connor to consider recommending a further process, following completion of the Walkerton Inquiry, to examine the need for demand-side legislation with respect to water systems, and the professionals who should be required to undertake certain types of work.
- 5. In the absence of engineering oversight by MOE regional offices, consideration should be given to creating an engineering position similar to that of the local Medical Officer of Health, whose principal function would be to safeguard public health and safety in matters related to engineering (including drinking water quality); this engineering officer who might be part of a regional 'SWAT' team, would be independent of local municipal organization structures, and would exercise independent authority.
- 6. Local boards of health should consider the potential benefits of actively recruiting professional engineers to serve as volunteer board members, in order to provide the engineering perspective on municipal health issues having an engineering component.
- 7. Consideration should be given to the development of "whistle-blowing" legislation, i.e. protection for engineers (and possibly other professionals) who exercise their 'duty to report' in order to protect public welfare.

Rationale: Under the Professional Engineers Act, engineers have a duty to take action to correct <u>or report</u> a situation which the practitioner believes may endanger the safety or welfare of the public. The latter is known as the 'duty to report' and is an important part of the engineer's creed.

An issue related to the 'duty to report' is the potential conflict an engineer may face between the duty to maintain confidentiality regarding aspects of a client's business, and the engineer's duty to protect public welfare. The Act is clear that in such situations, duty to the public, i.e. duty to report, is paramount. While engineers are constantly mindful of this responsibility, one may surmise that some form of protection for those who exercise this duty, i.e. "whistle-blowing" legislation, would be helpful.

NOTE: A number of the recommendations above suggest that consideration be given to requiring that professional engineers undertake certain activities within the water supply system. We note as a precedent the Occupational Health and Safety Act, which includes numerous requirements for approval/review/design by a professional engineer (many have come about due to accidents in the manufacturing and construction industries).

One example is a recent amendment to the OH&S Act which requires that a Pre-start Health and Safety Review be conducted by a professional engineer prior to

manufacturing equipment going into service, following installation or modification. In 2000, the Ministry of Labour completed stakeholder consultations to determine the kinds of situations that would trigger a pre-start engineering review, demonstrating that it is possible to define circumstances that would (and would not) require such reviews. A similar approach could be taken in defining circumstances in water supply operations, maintenance and infrastructure renewal that require intervention by a professional engineer.