Conservation Ontario Submission to the Walkerton Inquiry

Public Hearing #5

Conservation Ontario, on behalf of all conservation authorities and specifically in partnership with Saugeen Conservation and the Grand River Conservation Authority, respectfully submits this paper in response to the Agenda outlined for Public Hearing #5. This paper addresses only those agenda items for which Conservation Ontario has expertise and perspectives.

Conservation Ontario Recommendations Regarding Regulatory and Technical Issues for Specific Sources of Contaminants and Water Quantity:

Agricultural Contaminants

Conservation Ontario has prepared a Draft Submission for Proposed Bill 81, the *Nutrient Management Act*. This is expected to be endorsed by Conservation Ontario in September, 2001 and will be submitted to the Ontario Ministry of Agriculture, Food and Rural Affairs as part of the Public Hearing Process. This submission represents Conservation Ontario's draft recommendations on agricultural contaminants as they relate to Bill 81 and excerpts are included for this submission to the Walkerton Inquiry, Public Hearing #5.

Bill 81 addresses one component of protecting surface and ground water resources from agricultural impacts – nutrients. Agriculture may also contribute other contaminants such as sediment, pesticides and pathogens to water. In the wake of Walkerton, source water management addressing all land use impacts including urban development, septic systems and agriculture is emerging as critical to safe water supplies. Conservation Ontario strongly advocates that there must be a Provincial Water Policy Framework developed in order to address the complex issue of protecting water resources in a coordinated and cost-effective manner.

The *Nutrient Management Act* is one tool in a Provincial Water Policy Framework. Conservation Ontario recommendations strengthen water and source protection potential for Bill 81, the *Nutrient Management Act* and its proposed Regulations.

1. It is recommended that:

Bill 81 and the Regulations be broadened to incorporate watershed characteristics to provide effective water protection. This requires that watershed scale information on hydrologically sensitive areas are incorporated and considered in the local site specific farm Nutrient Management Plan (NMP).

And that:

Conservation Ontario be consulted in the development of Bill 81 and the Regulations to ensure conformity with watershed protection and Conservation Authority requirements.

Conservation Ontario overall supports the intent of proposed Bill 81 to provide a framework for intensive livestock operations and nutrient management and establish Provincial standards. However, the extent of water protection benefit can not be evaluated until the Regulations are released and reviewed. Although this legislation is helpful for protecting water, it falls short and requires additional considerations in order to achieve a higher level of water protection from agricultural activities.

Bill 81 and the Regulations must incorporate watershed characteristics in order to provide comprehensive source water protection. For example, a nutrient application in an aquifer recharge area or a municipal water supply wellhead protection area would have different best management practices required for nitrogen loadings than if only considering the current nutrient management planning (NMP) requirements as recommended by Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Another example is that a new livestock operation may meet standards for construction but without consideration for hydrologically sensitive areas may be located in a significant aquifer recharge area. A complete environmental evaluation and understanding of watershed conditions is essential for intensive livestock operations and nutrient management to protect water resources.

Bill 81 should include a clause to emphasize the importance of watershed considerations in nutrient management planning. The Regulations must further define how this can be incorporated into the NMP process. Conservation Ontario is available to work with OMAFRA and MOE on such a clause in the legislation and its further refinements in regulation.

The Province needs to invest in providing readily accessible watershed characterization information. As a watershed management organization, Conservation Ontario can assist with watershed data development and provision. Conservation Authorities locally may also assist with the NMP review process.

It is proposed that Bill 81 would provide the authority to provide Regulations governing distance requirements for manure and biosolids near wells and waterways. Conservation Ontario supports this as an important measure to protect water resources from agricultural activities. This distance should be based on a formula which would consider site specific characteristics such as topography, type of watercourse, soil type, and type of contaminant source.

Provincial enforcement ensures a consistent approach across the Province. Proactive inspections of management activities will be more effective than a reactive system. The proposed NMP Registry will ensure that data is available to manage nutrients on a watershed basis and that accurate accounting of nutrients is occurring.

Surface and ground water monitoring are essential to monitor changes in water quality and implement measures to address trends before serious environmental impacts occur. Conservation Authorities in partnership with the Ministry of Environment are implementing regional surface and ground water monitoring networks which provide regional data. Local site specific water information would be ideal for baseline information. The Ontario Federation of Agriculture Baseline Water Well Testing Program is a good example of site specific information that can be collected. Monitoring is required to document and react to changes in water quality and to review the effectiveness of the NMP approach.

It is very important that all stakeholders be consulted to develop Bill 81 and the Regulations to ensure effective program implementation. Meaningful opportunities must be provided. Conservation Ontario should be consulted in the development of Bill 81 Regulations to ensure that watershed and natural hazards are considered as well as Conservation Authority requirements such as Fill, Construction and Alteration to Waterways Regulations. This would ensure that standards developed are compatible with Conservation Authority requirements and watershed characteristics; for example, new livestock operations should not be located in a floodplain to protect against spills and earthen manure storages should not be located in a significant aquifer recharge area.

Conservation Ontario supports the ability to delegate components of Bill 81 functions as it provides the opportunity for local cost effective delivery. Conservation Authorities deliver extensive local stewardship and watershed management programs. There may be opportunities to discuss where Conservation Authorities could provide viable cost effective service delivery in specific areas consistent with their other watershed programs.

Conservation Authorities can also provide valuable input into NMP, agricultural best management practices and other Regulations based on their broad experiences delivering watershed and agricultural stewardship programs across Ontario.

2. It is recommended that:

Bill 81 and the Regulations related to Nutrient Management Plans (NMP) be broadened to further protect ground and surface water by adding best management practices for agricultural pathogens management.

In order to ensure adequate source water quality protection from agricultural sources, the NMP should be broadened to add best management practices for pathogens such as *E. coli*, cryptosporidium and giardia. Ontario research has shown that these pathogens are widespread in livestock manure and, as such, pose a serious potential risk to human health if present in ground or surface water sources.

There is extensive research on best management practices for pathogen control from livestock manure. These were developed in association with watershed source protection programs in other jurisdictions; for example, there are programs to protect the surface drinking water supplies for New York City and Syracuse in the United States. These programs clearly demonstrate how water quality can be protected by incorporating watershed characteristics in farm plans.

It is recognized that further research is required for appropriate best management practices for pathogen management in Ontario. Agriculture, academics, government, Conservation Authorities and other stakeholders need to work together to research and develop best management practices for pathogen management, to establish a protocol for including this in the farm planning process, and to update this as new information becomes available. Bill 81 and the Regulations should incorporate consideration for best available pathogen management and define the protocol required in consultation with stakeholders.

3. It is recommended that:

The Province of Ontario develop a comprehensive long term approach to address the complex challenges of agricultural non-point source pollution.

And that:

This approach include education, technical support, financial assistance, research and partnerships of farmers, business, federal, provincial and municipal governments and Conservation Authorities working together for effective program delivery.

Non-point sources of pollution by their nature are difficult to control and require a different strategy than point sources which originate from a clearly defined location. Agricultural non-point source pollution requires a multi-faceted approach which goes beyond Bill 81 and should be part of a Provincial Water Policy Framework if water resources are to be effectively protected.

Educational programs are critical to increasing awareness of agricultural practices on water quality and affecting management changes to protect water. Programs must be directed to nutrient management as well as the other potential impacts of agriculture such as pesticides, sediments and pathogens. The Environmental Farm Plan (EFP) is an established educational tool for identifying environmental risk areas including nutrients on the farm. The current EFP could be improved by incorporating watershed characteristics into the risk assessment. There are many farmers who have not yet completed the EFP. This point reinforces the need for increasing support for agricultural educational initiatives including the EFP, OMAFRA and Conservation Authority extension programs to protect water resources.

The Province should offer financial incentives targeted to assist with implementing water quality improvement projects. Financial assistance could include loans, tax incentives or financial incentives.

Many Conservation Authorities deliver rural water quality programs providing financial and technical assistance. In the absence of Provincial or Federal funding, municipalities have recognized the importance of these programs for protection of water and have provided the core funding to these initiatives in recent years. A Provincial and Federal recommitment to financial assistance programs is required to provide clean water for public health. OMAFRA has funded some "new" agricultural water quality programs delivered by Conservation Authorities through the short-term "Healthy Futures For Agriculture" program. Similarly, Agriculture and Agrifood Canada has provided funding through the "Agricultural Environmental Stewardship Initiative". This Provincial and Federal financial assistance is necessary and should continue. These programs must provide a longer term implementation schedule for effective delivery and support existing rural water quality programs as well as new initiatives.

The Province should build on the expertise and experience of Conservation Authority agricultural extension programs rather than create new programs. Conservation Authority agricultural program delivery and development involves many stakeholders including agriculture as well as provincial and municipal governments.

The Province has an important role in agricultural best management practice research and development and dissemination of watershed information with relevance to the farm. BMP's must be continually improved to address ground and surface water protection, consider all significant contaminants and incorporate watershed considerations. There is also a need for readily available watershed information to be considered for the site specific farm plan.

Conservation Ontario recommendations regarding septage and biosolids are detailed in the next section "Human Wastewater and Biosolids".

Conservation Ontario supports the proposed banning of land application of untreated septage through Bill 81 Regulation(s).

Conservation Ontario supports inclusion of biosolids applications on agricultural lands in the proposed Bill 81 and Regulations. This may achieve a higher level of water protection from land applications. Of course, the water quality impact of the Regulations can not be evaluated since they are not yet available for review.

Human Wastewater and Biosolids

4. It is recommended that:

The Province require wastewater be managed in a watershed context, particularly where there are major point and non-point sources of pollution located upstream of major water supply withdrawals.

And that:

For such areas the Province require water quality monitoring and water quality studies including assimilation studies so as to ensure that the receiving streams meet

Provincial Water Quality Standards and remove any impact on downstream water supply withdrawals (e.g. issues of public health, taste and odour, etc.).

And that:

The Province support research into new innovative methods for cost effective wastewater treatment.

The impacts of municipal and industrial wastewater treatment discharges on receiving waters must be assessed beyond the point of discharge using a watershed analysis. The cumulative impacts of discharges on a receiving water body can be significant with upstream and downstream effects on the aquatic ecosystem and water users. This can be evaluated through water quality monitoring and water quality studies including wastewater assimilation studies on a watershed basis.

A watershed based wastewater assimilation study would identify the assimilative capacity of the natural water system to receive current wastewater discharges. As well, it would analyse projections for future growth and development and assess the ability of the natural water system to assimilate the associated wastewater treatment requirements. Growth and development decisions must ensure that wastewater disposal requirements now and in the future can be adequately assimilated. This is particularly urgent where water systems have reached or are nearing their maximum carrying capacity in order to protect the aquatic habitat. In some areas of the Province, decisions need to be made regarding where wastewater allocations should be given thus directing development accordingly.

Improved cost effective wastewater treatment could achieve higher treatment levels resulting in less impact on the environment and affected drinking water sources.
Wastewater treatment is very costly and often requires Provincial grants to rural communities. Many rural communities are on private well and septic systems with a high risk of cross contamination. This often results in a municipal wastewater treatment system being required to service the community. Improved cost effective methods for wastewater treatment are required for long term infrastructure sustainability in rural areas.

Any instream water quality studies should assess the effectiveness of point and non-point remedial measures to determine the most cost effective methods to reduce downstream water quality impacts.

5. It is recommended that:

The Province work in partnership with municipalities, Health Units, Conservation Authorities and environmental groups to encourage those using and/or managing private septic and communal wastewater systems to implement best management practices in order to maximize the performance of the system and minimize surface and ground water contamination.

And that:

The Province implement programs requiring mandatory inspections and maintenance of septic systems targeted to water quality risk areas.

And that:

The Province support research into developing innovative and cost effective technology for private septic and communal wastewater systems.

And that:

The land application of untreated septage be banned as proposed to be included in Bill 81, the *Nutrient Management Act* Regulations.

Improperly constructed and managed septic systems are a significant source of ground and surface water contamination contributing nutrients and pathogens to the environment and in some cases the individual's own well.

Conservation Authorities are involved in many stewardship initiatives including those directed to proper well and septic management. These include grants to upgrade faulty septic systems, education and outreach, individual home environmental audits and research and training. Some Conservation Authorities have also been delegated full or partial authority for delivery of the septic system program in some areas of the Province (e.g. Ottawa and Eastern Ontario). Conservation Authorities work with many partnerships in the delivery of these programs.

Optimal treatment from a septic system requires proper management. Many people do not know how their septic system works, if they have one or where it is. There is a urgent need to have users and those responsible for their septic systems learn and apply best management practices to optimize the septic system's treatment thus protecting the water resources.

The Province should develop a mechanism to address septic systems which are old, improperly constructed or poorly maintained and therefore pollute the environment. A re-inspection program should be implemented to identify and remediate these septic systems. Programs should be first directed to areas which are identified as water quality risk areas in the watershed. The implementation of these programs should be coordinated with others with septic program responsibilities as well as interested groups such as local cottage associations. In order to ensure that septic systems function optimally, a mechanism should be established for a mandatory septic tank pumping program as well.

There is a need for cost effective and innovative new technology for domestic wastewater private servicing. Provincial resources should be directed to organizations such as the Rural Wastewater Center in Ontario for researching and demonstrating alternative technologies. This is crucial to manage the requirements of difficult sites (e.g. bedrock) and to make these systems affordable thus improving the rate of replacement of inadequate systems. Septic approval authorities must be provided training and education to keep abreast of acceptable new technology options.

The proposed Bill 81, Nutrient Management Act and Regulations would provide authority for a regulation banning the land application of untreated septage over a 5 year period. It is

understood that copies of such a Regulation are not available for review at this time. Conservation Ontario sees this measure as very important for the protection of water resources. It is imperative to develop a strategy for alternative disposal of septage waste. This may require providing additional wastewater infrastructure capacity to handle septage waste disposal and treatment.

6. It is recommended that:

Biosolids standards, approvals and procedures should be improved for greater water resource protection.

Proposed Bill 81, the *Nutrient Management Act* will include biosolids applications on agricultural lands in its Regulations and this may contribute to a higher level of water protection. The water quality impact of the Regulations can not be evaluated since they are not yet available for review. Land application is one aspect of biosolids management.

Biosolids in this discussion includes wastewater management byproducts from sewage, pulp and paper, food processing and other industrial processes. Wastewater treatment is important to protect human health and the aquatic ecosystem. It also results in the byproduct biosolids requiring management through land application, disposal or other means. Each biosolid has specific physical, chemical and biological compositions posing varying degrees of risk to the environment. Biosolids management requires a rigorous review and approval protocol to ensure environmentally safe applications that protect drinking water as well as the environment.

Proactive monitoring and inspection is required to ensure that prescribed standards are being used in the biosolids application. Long term water quality monitoring is required to evaluate if there may be any adverse impacts from biosolid applications.

Biosolid Certificate of Approval applications consider a broad spectrum of site conditions such as biosolid quality, soils, water table, and crop nutrient requirements. The biosolid utilization guidelines and approval process should be improved by specifying watershed considerations in the biosolid application requirements. For example, an aquifer recharge area may require a lower biosolid application rate.

There must be further research to review all contaminants in biosolids and determine the potential for impact on surface and ground water and health. In addition, research is required into alternative wastewater treatment and biosolids treatment to achieve higher levels of treatment and reduce contaminants.

Separation distances to wells and watercourses should be scientifically reviewed. The separation distances must be adequate to protect water and will vary depending on factors such as topography, soil conditions and biosolid quality characteristics.

Agency roles to address biosolids procedures and complaint responses must be clarified and properly resourced to fulfill responsibilities.

Other Contaminant Sources – Landfills, Urban Development, Industrial Activity, Forestry, Mining

Conservation Ontario recommendations are general in nature to encompass all contaminant sources rather than specifically addressing each land use activity.

7. It is recommended that:

The Province implement a Provincial Water Policy Framework and a mechanism to require that the siting of different land use activities consider watershed characteristics to protect surface and ground water resources from contamination.

And that:

Approvals for land use activities evaluate their environmental impact including water quality and quantity to ensure a healthy ecosystem and sustainable water resources.

And that:

Each land use activity governed by its respective legislation, standards, regulations, and guidelines be reviewed for adequacy to protect water and that changes be made as required in consultation with the stakeholders.

And that:

Targeted education, financial and technical incentive programs be implemented as appropriate in partnership with stakeholders to increase adoption of best management practices. This is critical to protecting water as many contaminants originate from non-point sources and do not lend themselves to regulatory controls.

Conservation Authorities involvement in various land uses includes watershed planning and extends from a regulatory function, to providing information, to delivering stewardship programs involving education, technical and financial assistance.

Land use activities interact with the water cycle and impact on the watershed. Many different approaches can be involved in land use activities to minimize water quality and quantity impacts:

- proactive planning to direct appropriate siting of activities so that watershed characteristics are considered and hydrologically sensitive areas are protected from contamination.
- regulatory approvals with operational requirements
- education and incentive programs providing financial and technical assistance to adopt best management practices

Different legislation, standards, regulations, guidelines and/or best management practices provide the framework for each land use activity. The effectiveness of this framework for each

land use activity should be critically evaluated for its impact on water resources. A strategy should then be developed to address water quality risk areas in consultation with all stakeholders. This could include amendments to legislation, protocols for plan review and operational standards. Strategies must include consideration for future projected impacts as well. For example, urban development is a major source of water contamination as demonstrated in a number of Great Lakes Areas of Concern. The magnitude of population growth expected for the Province warrants a greater effort and strategy to address urban design and contamination sources such as stormwater and erosion and sediment control. These are all factors affecting surface water and groundwater supplies as well as the effectiveness and costs of future treatment.

Additional resources are required to compile and provide watershed information for evaluating land use activities' impact on water. For example, there are gaps in water quality data being collected in the Provincial surface water quality monitoring network. This program is currently being implemented in partnership with some Conservation Authorities but is very dependent on available resources and hence delivered in a variable manner across the Province.

Hydrologically significant natural areas such as wetlands and forests must be identified and protected for their invaluable role in the watershed functions and buffering the effects of land use activity on water quality and quantity.

Water Quantity

8. It is recommended that:

The Province of Ontario support regional/watershed studies to determine:

a) how much water is available from groundwater and surface water sources to meet:

i) present and future water supply needs;

ii) environmental or aquatic needs.

b) the effectiveness of conservation methods in reducing water demand.

c) appropriate drought management strategies.

Increasing water demands from a growing population, additional industrial development and more intensive agriculture will put increasing demands on water supply from ground water and surface water sources throughout the Province.

At present the Great Lakes system can adequately supply the lake based communities such as Toronto and Hamilton and pipelines from the lake can service some internal cities such as London. However, pipelines, largely because of their expense, do not solve the water supply dilemma for smaller inland communities and private rural users. At present, there are few regional or watershed studies available to estimate the availability of ground and surface water supplies. Regional studies are needed to estimate how much water is available for municipal water supply, livestock watering, crop irrigation, rural needs for processing and washing as well

as the needs of the natural environment (aquatic/fishing functions and wetland functions). Parallel conservation studies are needed to examine the effectiveness of management alternatives for reducing water demand.

Watershed drought management studies should be developed as part of water supply studies. Recent droughts in 1997-98 and 2001 have stressed surface and ground water supplies throughout southern Ontario. More work is required in advance of such events so that they are not dealt with in a crisis management mode.

9. It is recommended that:

Source protection include water quantity as well as water quality.

Water supply for both human consumption and for supporting aquatic/fishing resources is dependent on maintaining adequate quantity and quality in both surface water and ground water. Increasingly, surface and ground water supplies are being depleted and water allocation will become an increasing contentious issue as growth proceeds.

10. It is recommended that:

The Province support the development of decision support tools such as water budget and groundwater models to aid in the long term management of watershed water supply issues.

Decision support tools such as water budget models and ground water modelling aid in:

a) understanding the existing hydrologic process;
b) determining the sustainability of water taking;
c) determining the ecological impacts of such takings;
d) identifying areas susceptible to droughts;
e) determining the impacts of future scenarios on water supplies. Some future scenarios are: long term climate change, land use change, population increase and agriculture intensification.

11. It is recommended that:

The existing Permit to Take Water program be reviewed and improved so that it becomes an effective regulation to aid in planning, allocating and protecting Ontario's water resources.

The Permit to Take Water program is the principle means by which the Ontario Ministry of the Environment regulates the taking of water in the Province. Under Section 34 of the Ontario Water Resources Act, a permit to take water is required for most water taking of 50,000 litres per day or greater in Ontario. This permit applies to groundwater or surface water.

On February 1, 2001, the Environmental Commissioner of Ontario (ECO) submitted a study to the Walkerton Inquiry that pointed to deficiencies in the management of water taking in Ontario (Reference: Ontario's Permit To Take Water program and the protection of Ontario's Water Resources – January, 2001 by ECO). The Commission concluded that 'MOE's administration of Ontario Permit To Take Water program is inadequate and needs improvement … In the absence of such improvements there are serious questions about the usefulness of the information from the PTTW program. Without a database of reliable water taking information, there is significant risk that many water taking permits will be granted and land use planning decisions made without adequate knowledge of the availability of water resources. Furthermore, decisions about water resources will not be made in a transparent and publicly accountable manner, contrary to the goals of the EBR". Conservation Authorities, if properly resourced, can play a significant role in this regard in terms of assessing the technical merits of each application and providing advice to MOE in the context of an overall water budget for each watershed.

The Permit To Take Water program plays a vital role in:

a) assessing water demand, an essential part in determining the adequacy of available water supplies (Refer to Recommendation 8).
b) regulating water taking in a fair and equitable manner.

12. It is recommended that:

The various governments identify and quantify the roles of existing wetlands, forests and riparian areas and protect, enhance and restore those that provide water quality and quantity benefits.

Wetlands, forests and riparian areas provide many critical hydrological and biological functions which maintain the health and abundance of freshwater resources. They filter pollutants and sediments and provide essential surface water storage and groundwater recharge. While provincial policies are in place to protect provincially significant wetlands, many wetlands are afforded little protection because they are not considered provincially significant or have not yet been classified and evaluated. Even when development is set back from wetlands, the flow of surface and ground water that sustains the wetlands is disrupted. Watershed studies are required to determine the benefits and water management roles of natural areas and to identify the management approaches that are necessary to best protect, enhance and restore key natural areas. Additional resources are required for the Ontario Ministry of Natural Resources or their delegates to update, classify and evaluate all wetlands in Ontario.