

# Issue Specific Implementation Tools

Review of Watershed Based Source Protection  
Implementation Committee Report to the Minister of the  
Environment, November, 2004 Section 5 for ENGO Forum  
on Source Protection, January 13, 2005

Friends House, Toronto

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Overview of Issue-Specific Implementation Tools

# Issue Specific Implementation Tools

- Implementation Committee Report makes recommendations related to management of source protection issues that may arise in specific watersheds
- Intent is to ensure that tools are available to deal with those water risks in the specific context in which they arise
- The tools are not intended to be an exhaustive list

# Abandoned Drinking Water Wells

- Risk is potential direct pathway to aquifer
- Major need to address these unused wells
- Need for expansion of well abandonment programs to private landowners
- Explore mechanisms to require decommissioning as condition of development
- Expanded well decommissioning programs

# Oil and Gas Wells

- 10's of thousands of oil and gas wells were drilled and abandoned in SW Ontario
- No inspection program; location not known
- 600 suspended “live” wells per year
- Risk is potential for contaminants to flow up or down
- Legislation is fragmented (four pieces of legislation)

# Oil and Gas Wells recommendations

- Consolidate approach between the 4 pieces of legislation - coordinated approach
- resources to the petroleum resources program and increased financial assurances
- Abandoned oil and gas well program including incentives for private landowners
- Municipal power to require location & decommissioning

# Aggregate Extraction

- Potential source water concerns include removal of surface material, exposing water table, potential loss of water quantity, risk of contaminated fill on rehabilitation, activities in the extraction site such as fuel storage and asphalt recycling
- Current hydrogeological requirements not comprehensive re source protection aspects

# Aggregate Extraction Recommendations

- Designation of additional lands under ARA
- Inert fill standards
- Review application requirements from source protection perspective
- Include consideration of water storage
- Include source protection as criteria for rehabilitation of abandoned sites
- Post extraction land use consistent with source protection

# Mines and Mine Tailings

- Most common water risks acid drainage and heavy metals
- Ontario has 5600 abandoned mine sites
- Report recommends a program to assess the hazards from source protection perspective
- enhance legislation as necessary to address risks identified by approved source protection plans

## Storage Tanks (Above and Below Ground)

- Both above and below ground storage tanks store crude oil, gasoline, diesel, heating fuels, other liquid fuels as well as liquid wastes such as waste oil, chemicals such as chlorinated solvents, pesticides and food products
- Risk is leaks and spills from both types of tanks that could contaminate source water

# Storage Tanks Recommendations

- Technical Standards and Safety Authority inspection and updating requirements extend to only some fuel tanks; should extend to all
- Consider transportation, storage standards for fuels, solvents and inorganic fertilizers in well head protection areas, intake protection zones, vulnerable areas
- Non-fuel chemical storage tanks should be regulated according to level of risk to well head protection areas, intake protection areas, vulnerable areas

# Chemical Use, Handling & Storage

- Jurisdictional authorities are needed to control chemical use, handling and storage when related to source protection
- Examples include structural facilities, maintenance procedures, prohibited activities, physical layout and construction of work site, selection of products and materials used, containment systems

# Chemical Use, Handling Storage

- Report recommends working with stakeholders (e.g. sectors) to determine what requirements must be adopted in vulnerable areas.
- Approaches could include voluntary best management practices; financial incentives; formal agreements; mandatory measures such as regulations and municipal by-laws

# Small and Medium Enterprises

- Many sectors (e.g. auto wreckers / recyclers, metal manufacturers, garden services)
- Very large numbers of businesses
- Existing regulation often not specific to facilities, sectors or activities
- Understanding of prudent / safe operating practices may be very poor

# Small and Medium Enterprises

- Report recommends identifying the small medium enterprise sectors most likely to pose threat / significant risk to drinking water sources and most pervasive in province
- Develop appropriate management tools and measures on sectoral basis, including BMP's, incentives, compliance assistance, education and outreach

# Pesticides

- Report recommends review and where necessary strengthening training courses to include source protection
- Development of programs to reduce reliance on pesticides
- Review existing monitoring programs
- Prioritize inspections and enforcement of Ontario Pesticides Act and Reg. 914 in high risk areas

# Pesticides cont'd

- Report also recommends reviewing Ontario Pesticides Act and reg to determine if appropriate pesticide storage requirements exist in context of source protection
- Review standards for certain pesticide schedules in wellhead protection areas, intake protection zones and vulnerable areas
- Encourage use of standard and scientifically defensible requirements for municipal pesticides by-laws

# Pesticides cont'd

- Report also recommends provincial gov't establish additional requirements re sale of pesticides for home use
- Work with federal government to expedite re-evaluation of existing pesticides, evaluation of new products more protective of source water and approval of minor use pesticides that pose no concern to source water

# Contaminated Sites

- Soil, sediment and groundwater contaminated from old landfills, manufacturing, commercial activities, fuel facilities, mines
- Number and location of all contaminated sites in Ontario unknown
- Existing provisions may not provide sufficient mechanisms to follow up on advice of SPPCs and protect wellheads, intakes and vulnerable areas

# Contaminated Sites cont'd

- Report recommends tools so source protection committees can identify contaminated sites that may pose threat to drinking water sources
- Province should review order powers to ensure they are available in context of potential threats to drinking water sources

# Contaminated Sites cont'd

- Responsible parties for remediation of property posing a significant risk to source water to be identified in source protection plans
- Civil liability provisions to be reviewed re barriers to redevelopment / remediation
- Record of site condition regulation to be amended to be consistent with source protection

# Waste Disposal Facilities

- Report recommends that approvals for new and expanding landfill and waste disposal facilities be consistent with approved source protection plans
- Ensure operating authority requires consistency with approved SP plans
- Review powers re non-approved closed landfills to address risks identified

# Hazardous and Liquid Industrial Waste

- Ministry preparing to implement a Land Disposal Restriction Program
- Report recommends that province ensure educational materials to generators, carriers and handlers emphasize proper handling and storage especially in high risk areas identified in approved SP plans

# Land Application of Biosolids and Septage

- Biosolids includes material such as sewage treatment plant sludge, pulp and paper mill sludge, and certain food processing wastes
- Septage is waste from portable toilets, septic systems and holding tanks (“hailed sewage”) - from residential, commercial, industrial sources
- Further work being done re contaminants in biosolids

# Land Application of Biosolids and Septage cont'd

- (Ministry in process of consulting on Guide for Beneficial Use of Non-Agricultural Source Materials on Agricultural Land - deadline Jan. 20, 2005, EBR No. PA04E0008)
- MoE developing a strategy to ban land application of untreated septage

# Biosolids and Septage cont'd

- Report recommends revising standards to align with source protection objectives
- Particularly with respect to well heads, intakes and vulnerable areas
- Coordinate and integrate nutrient management planning and source protection planning
- Proceed expeditiously with proposal to ban untreated septage and develop further standards for treated septage re land application

# Manure / Fertilizer Application and Storage

- Pathogens present in manure
- Impacts from nitrogen pose risk to groundwater from manure and fertilizer
- Report recommends co-ordinated phase in of nutrient management and source protection
- Revise existing or provide additional nutrient management standards to address source protection issues

# Manure / Fertilizer cont'd

- Report particularly recommends review of standards for wellheads, intakes and other vulnerable areas
- Including re commercial fertilizers
- provincially uniform outcomes
- ensure nutrient management plans consistent with source protection objectives including human health objectives

# Farm Water Protection Planning Framework

- Report recommends farm water protection plans should be scoped to address risks associated with large farms and farms in vulnerable areas
- Farm water protection planning should be in accordance with approved source protection plans

# Septic Systems

- 1.2 million on-site septic systems in Ontario
- Small systems regulated under Ontario Building Code Act; larger systems under the Ontario Water Resources Act
- Report recommends that legislation should authorize septic re-inspections of small on-site septic systems

# Septic Systems cont'd

- Report also recommends re-inspection protocol for large systems should be revised to target vulnerable areas
- Clear authority should be provided to the septic approval authority (municipalities, health units etc.) to restrict construction or modification of new or additional septic systems in specified vulnerable areas

# Salts/ De-icing Compounds

- Road salt and de-icing compounds may affect potability of water
- Source protection plans may require salt protection measures e.g. by Ministry of Transportation, municipalities, contractors
- Should include provisions regarding areas in watershed that are precluded from placement of cleared snow
- New road siting and construction approvals should include consideration of chlorides and road carried contaminants re source protection

# Cemeteries

- Current provision requires medical officer of health to state land suitable for a new cemetery
- Report recommends Cemeteries Act be amended to include provision requiring evaluation of likelihood of contaminants from cemetery flowing into surface or groundwater

# Cemeteries cont'd

- Guideline to be updated
- Cemetery owners to monitor if in wellhead protection areas, intakes, other vulnerable areas as per parameters to be specified by province
- Province should ensure order powers available in case of source protection issue involving contaminants from cemetery

# Storm Water

- Urban storm water contains organic matter, nitrogen, phosphorous, chloride, heavy metals, suspended solids, silt, oil, grease and pathogens
- Gaps in current storm water management framework that would improve storm water vis a vis source protection - e.g. pathogen criteria to storm water design considerations

# Storm water cont'd

- Report recommends municipalities address source protection objectives in design and implementation of storm water processes and facilities
- Province should do studies re migration of pathogens and soluble contaminants through storm water facilities and practices to minimize impacts

# Storm water cont'd

- Separation distances from intakes; infiltration approvals to consider source protection
- Tools to local agencies like green roofs, roof top collection so long as long term operation and maintenance tools available
- Municipal authorities such as inspection of private storm water measures post development
- Promote use of shared storm water systems with capital and operating cost provisions

# Waste Water

- Report recommends that province develop a regulation (as opposed to policies and guidelines) for municipal sewer treatment plant discharges
- Report recommends adequate funding to upgrade remaining primary treatment STP's
- Report requires enhanced minimum treatment for Combined Sewer Overflows, especially those in intake protection zones

# Waste Water cont'd

- Report recommends province develop model source protection sewer use by-law and that municipalities use their powers to enact sewer use by-laws for source protection purposes
- Sewer and stormwater pipe repairs especially in vulnerable areas

# Non-point Sources / Cumulative Loading

- Cumulative issues in the watershed may include nitrates, phosphorous, pathogen loadings, chlorides, suspended sediments and particles
- Report recommends that source protection plans provide measures to address cumulative threats arising from associated land and water uses

# Non-point / cumulative cont'd

- Report also recommends addressing cumulative loading issues that jeopardize source protection through regulatory and approval mechanisms for those sectors
- Source protection plans to include measures to track long term trends re cumulative loading issues in the watershed
- Research, technologies, strategies, incentives as well

# Land Drainage

- Two types of drainage - private systems such as ditches and tile drainage as well as municipal systems
- Three pieces of legislation
- Half of the arable land in Ontario is subsurface drained
- Many different impacts based on many factors

# Land Drainage cont'd

- Report recommends that science and practices associated with municipal and private agricultural and non-agricultural land drainage practices be reviewed
- Also that provincial framework with associated legislative and policy amendments as to how the impacts of drainage on source protection should be dealt with in source protection plans

# Permits to Take Water

- Recommendations of both TEC and IC committees regarding permits to take water vis a vis source protection cover matters beyond Ministry's most recent amendments to the water taking regulation
- Over 6000 Permits to Take Water issued by Ontario at present

# Permits to Take Water cont'd

- Report recommends water budgets must form basis for watershed source protection planning
- Province should establish mechanism to obtain information on return flow tracking (quantity and quality)
- Water taking permits issued should be consistent with the approved source protection plan

# Permits to take water cont'd

- Province should make water quantity data available publicly while recognizing reasonable proprietary protection
- Report recommends changes to the permitting program such as harmonizing processes with other environmental and water related approvals, delegating authority for certain types of permit renewals

# Permits to take water cont'd

- Report also recommends that province ensure a mechanism to facilitate water use allocation decisions with special consideration to future water needs, together with appropriate conservation measures and within context of sustainable watershed plan

# Water Conservation

- Canada ranked 28th of 29 OECD countries in per capita water consumption (behind only the U.S.)
- Report recommends that various sectors be assisted to develop water conservation toolkits which could encompass a variety of measures
- Report recommends exploring Building Code amendments to improve water efficiency standards

# Water Conservation cont'd

- Measures could include sectoral best management practices, water restoration methods such as buffering and wetlands, incentive programs, e.g. for retro-fitting, water rates, metering, water accounting, loss control, full cost recovery, water use audits and repairs, leak detection and repair, water reuse and recycling, efficient irrigation, to name a few

# Ontario Low Water Response

- Ontario now has a few years of experience with the Low Water Response program, for example with the Norfolk Water Supply Project dealing with management of significant, chronic drought conditions
- Report recommends that experience with OLWR should be used as a guide in sectoral water conservation plans

# Private Water Wells

- Source protection may be only protection for drinking water for some consumers
- Over 2 million Ontarians get their drinking water from private wells
- Source protection plans should identify measures in the watershed for efficient and effective source protection measures to be applied to private wells

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