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International Best Management Practices for Source Water Protection

With the passage and implementation of the *Safe Drinking Water Act, 2002* (“SDWA”)¹ and the *Clean Water Act, 2006* (“CWA”)², Ontario has taken important steps towards a meaningful realization of a multi-barrier approach to safeguarding the province’s water. Source water protection, the safeguarding of untreated surface and groundwater from contamination and overexploitation, is being undertaken in Ontario through the implementation of the CWA.

Contamination of municipal drinking water supplies in Walkerton, Ontario in 2000, and in North Battleford, Saskatchewan in 2001, resulted in the deaths and serious and often chronic illness of many residents. The SDWA and the CWA were passed in the wake of these events, in an effort to protect Ontarians from similar tragedies.

Municipal drinking water contamination events are more likely than most people realize. In North America alone, there have been five notable drinking water contamination events since 1985, which affected more than 15,000 people and resulted in close to one hundred deaths.³ Moreover, existing and potential water quantity issues stemming from population growth and climate change, and the increasing complexity and variety of toxic chemicals which are found in our drinking water, are indications that source protection implementation ought to be of great importance in our time and beyond.

In this brief, the source protection efforts of the European Union and various individual Western countries are summarized and analyzed. The source protection experiences of the USA and Australia are notable for Canada in general, and Ontario in particular, given the geographic and demographic (i.e. population density) similarities among the three countries. European efforts have often incorporated an ecosystem approach to source protection. Examples of interjurisdictional cooperation, of importance to the governments of Ontario and Canada, given as-yet unreconciled Great Lakes and federal-provincial jurisdictional source protection issues, are also cited.

It is hoped that the best management practices discussed in this brief will help inform any broadening of Ontario source protection efforts in the years to come. Such efforts may include incorporating the threat assessment and mitigation of cumulative-impact contaminants in the Great Lakes, and other surface water bodies, in provincial source protection efforts; extending source protection to citizens on private drinking water systems, such as individual domestic wells; and embracing an ecosystem approach to source protection. Restrictions on water use in Ontario municipalities reliant on groundwater, such as

¹ *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 [SDWA].

² *Clean Water Act*, S.O. 2006, c. 22 [CWA].

³ These five are Orangeville, Ontario 1985; Milwaukee, Wisconsin 1993; Washington County Fair, New York 1999; Walkerton, Ontario 2000; and North Battleford, Saskatchewan 2001. See 20 August 2009 PowerPoint presentation by Bruce Davidson, available online at www.thewaterhole.ca.

Guelph, and boil-water advisories and contaminated aquifers in communities across Ontario, including both those on municipal and private drinking water systems, demonstrates that raw water quality and quantity is not something that can be taken for granted. As past crises have demonstrated, when our water supplies are taken for granted, we risk overtaxing and contaminating our water resources.

UNITED STATES OF AMERICA

The Safe Drinking Water Act (“US SDWA”)⁴, the focus of which is the protection of public drinking water supplies, was passed in 1974. The US SDWA does not apply to drinking water systems that have fewer than fifteen service connections or that regularly serve fewer than twenty-five people.⁵

In 1986 the scope of the US SDWA was expanded to include the protection of groundwater sources, under the Wellhead Protection Program. The pollution prevention and management plans of this program are implemented at the state level and require the approval of the US Environmental Protection Agency (“EPA”).⁶

Amendments to the US SDWA required states to assess all public drinking water systems by 2003. Assessments can be tailored to each state’s water resources and drinking water priorities. However, all assessments must include the delineation of the source water assessment area, an inventory of potential contaminants in the delineated area, a determining of the susceptibility of the water supply to identified contaminants, and the public releasing of assessment findings.⁷

However, a limitation of the legislation adopted to date in the US at the federal level is the lack of any mandatory requirement for implementation of measures to protect drinking water sources once assessments are conducted. Some implementation occurs, but in a patchwork manner.

The state of **Washington’s** *Growth Management Act* (1992)⁸ includes aquifer recharge areas as one of five “critical areas” to identify and protect.⁹

EUROPEAN UNION

In 2000 the European Union Council and Parliament adopted the Water Framework Directive, the goal of which is to ensure surface and groundwater are “in...good status” by 2015.¹⁰

The EU’s plans include numerous multinational endeavours. For example, seven EU countries are located within the Rhine-Meuse system: France, the Netherlands, Belgium, Germany, Austria, Luxembourg and Italy. It has been anticipated that the Rhine-Meuse plan will fall short of its goal of 100 per cent of its water being in “good status” by 2015, but that the goal will almost be met by 2027.¹¹

⁴ 42 U.S.C. §6A.300 (1996) [“US SDWA”].

⁵ Meeting of the Implementation Committee on Source Protection Planning. *Summary of Source Protection Programs in Different Jurisdictions*. January 27, 2004.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Growth Management Act* 36 R.C.W. §70A.030(5) (2009 current through Oct. 30.) [“Growth Management Act”].

⁹ *Supra* note 4.

¹⁰ EC, *Commission Directive 2000/60/EC October 2000 establishing a framework for Community action in the field of water policy* [2000] O.J. L 327/0001.

¹¹ *Ibid.*

Although direct, qualitative source protection comparisons between the endeavours of the EU and Ontario are not possible, it is interesting to compare earmarked expenditures. The EU intends to invest approximately 2 billion euros (\$3 billion Canadian) under the Water Framework Directive by 2015.¹² Ontario source protection efforts under the CWA to 2012, which include assessment reports and the development of source protection plans, will cost an estimated \$135 million Canadian.¹³ For the EU and Ontario, per capita expenditures are approximately \$6 and \$10 (Canadian), over periods of fifteen years and four years, respectively. The EU also intends to spend another 2.4 billion euros (\$3.6 billion Canadian) between 2015 and 2027 under the Water Framework Directive; Ontario source protection from 2012, the period of source protection plan implementation, has to date no subscribed funding. Moreover, the price of water in the EU increases by 2.3 per cent per year in order to cover Water Framework Directive costs, and to encourage water conservation.¹⁴ In Ontario, costs of source protection are valid costs required to be included in municipalities' drinking water system Financial Plans which are now required to be developed and approved by municipal councils and filed with the province, according to a recent regulation under the SDWA.

It should also be noted that geographically the EU is approximately four times larger than Ontario with almost forty times Ontario's population. However, as Ontario source protection efforts are at present largely focused on Southern Ontario, the population density of which is comparable to much of Europe's, the differences in geography and population are actually not quite so marked.

FRANCE

Since 1964's L. 211 of the *Environmental Code*¹⁵ France's waterways, groundwater and surface water have been managed by watershed.¹⁶

In 1992 planning documents were defined by *Water Law 92-3* (article L. 212 of the *Environmental Code*)¹⁷ for the management of water use and the improvement and protection of water quality and quantity. River and bay plans were instituted on five-year plans for restoring rivers and basins. Restoration in this context includes improvements in water quality, in water course flow, and in the resilience of aquatic and terrestrial habitat (the last of which includes human-modified landscapes).¹⁸

In addition, France's sewage treatment plants currently have the capacity to treat the waste of approximately 90 million people; France's current population is about 62 million.¹⁹

¹² EC, Agence de l'eau Rhin Meuse, online: *Directive cadre européenne eau 2015 Rhin Meuse*, (January 2010), < <http://www.eau2015-rhin-meuse.fr/dce/site/index.php>>.

¹³ Based on funding estimates in Ontario source protection committees' Terms of Reference. Figures compiled by the Canadian Environmental Law Association.

¹⁴ *Ibid.*

¹⁵ France, Ministère de l'Ecologie, de l'Energie, du Développement durable et de la Mer, online: *Eau: Mise en oeuvre de la DCE et politique locale de l'eau*, (March 2009), < <http://www.ifen.fr/acces-thematique/eau.html> >.

¹⁶ *Ibid.*

¹⁷ *Ibid.*

¹⁸ *Supra* note 13.

¹⁹ *Ibid.*

UNITED KINGDOM

The Environmental Agency is responsible for protecting “controlled waters” from pollution under the Water Resources Act (1991).²⁰ Controlled waters include watercourses and groundwater. Under the Groundwater Regulations 1998 and the Waste Management Licensing Regulations 1994 the Agency is also responsible for preventing the pollution of groundwater by “certain dangerous substances”.²¹

Source Protection Zones (“SPZs”) have been identified to provide indications of groundwater quality risk. Each SPZ is divided into three and sometimes four sub-zones: an inner zone with a fifty-day or less time of travel; an outer zone with a four hundred day time of travel or 25 per cent of the source catchment area, whichever is the larger; a total catchment area; and sometimes a zone of special interest, where “pollution activities could impact on a groundwater source even though the area is outside the normal catchment of that source”.²²

Approximately 35 per cent of England’s and Wales’s public water supply come from groundwater.²³

GERMANY

The 1957 *Act on the Regulation of Matters Relating to Water*²⁴ states that all waters, including groundwater and coastal water, are fully subject to federal oversight. However, states regulate ownership, monitoring, and “maintenance” of waters, as well as licensing procedures for water uses and indirect discharges.²⁵

AUSTRALIA

The *Country Areas Water Supply Act* (1947)²⁶ and the *Metropolitan Water Supply, Sewerage and Drainage Act* (1909)²⁷ are the legislation under which Public Drinking Water Source Areas are managed for water quality. The two Acts above are administered under the *Water and Rivers Commission Act* (1995)²⁸. By-laws of this Act permit the control of potentially polluting activities, the regulation of land use, and the inspection of premises for pollution prevention or clean-up.²⁹

In the last ten years, the potential effects of climate change on Australia’s water supplies have shifted the focus of source protection to water quantity. Two laws addressing these effects have been passed since 2007, the *Water Act 2007*,³⁰ and the *Water Amendment Act 2008*,³¹ which amends the former Act in order to incorporate the Australian intergovernmental Agreement on Murray-Darling Basin Reform, and

²⁰ *Supra* note 5, at 18.

²¹ *Supra* note 15.

²² *Ibid.*

²³ *Ibid.*

²⁴ *Supra* note 20, at 19.

²⁵ *Ibid.*, at 15.

²⁶ *Country Areas Water Supply Act 1947* (W.A.), (s.__).

²⁷ *Metropolitan Water Supply Sewerage and Drainage Act 1909* (W.A.), (s.__).

²⁸ *Water and Rivers Commission Act 1995* (W.A.), (s.__).

²⁹ *Ibid.*

³⁰ *Water Act 2007* (Cth.), (s.__).

³¹ *Water Amendment Act 2008* (Cth.), (s.__).

to “enable water resources in the Murray-Darling Basin to be managed in the national interest, optimising environmental, economic and social outcomes.”³²

The Australian Competition and Consumer Commission (“ACCC”) is tasked with advising the Minister for Climate Change and Water on draft rules for increasing the flexibility around the trading of farmers’ water access rights. The ACCC will also oversee efforts to increase the efficiency and sustainability of water use in the Murray-Darling Basin. Water market rules are being established to help “free up the trade of water access rights within the Murray-Darling Basin by ensuring that the policies or administrative requirements of irrigation infrastructure operators do not prevent or unreasonably delay trade.” The ACCC is also charged with ensuring that “fees...payable to irrigation infrastructure operators, bulk water operators and government agencies for water services are based on full, but not excessive, cost recovery.” A consistent application of rules across the Basin will help “facilitate the efficient functioning of water markets by removing distortions to trade and by sending signals to water users about efficient investment in water infrastructure assets.”³³

The 2008 Act also establishes the independent Murray-Darling Basin Authority to ensure that Basin water resources are managed “in an integrated and sustainable way.” The Authority is responsible for preparing a Basin Plan, under which Basin limits on surface and groundwater takings will be set; critical human water needs will be identified; threats to Basin water resources (e.g. climate change) will be identified; a water quality and salinity plan will be set; a “water rights information service” for facilitating water access rights trading in the Basin will be developed; measuring and monitoring will be undertaken; and communities will be engaged in managing Basin resources.³⁴

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³² Austl., Department of the Environment, Water, Heritage and the Arts, online: *Water Amendment Act 2008*, (29 August 2009), <<http://www.environment.gov.au/water/australia/water-act/index.html>>.

³³ *Ibid.*

³⁴ *Ibid.*

