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To the Editor:

This is an article from a series of monthly columns by Environmental Law Specialist Dianne Saxe, one of the top 25 environmental lawyers in the world, and Jackie Campbell. These articles are available for publishing at no charge, provided Dr. Saxe and Ms. Campbell are cited as the authors. Dr. Saxe can be contacted at (416) 962 5882 or admin@envirolaw.com. For more information, visit http://envirolaw.com.

Lead in Drinking Water

Lead is a popular industrial metal but a potent neurotoxin. One of the marks of our industrial lifestyle is how far we have spread lead – it's in the air, soil, homes (e.g., dust, old paint, solder, toys and other consumer products), food and drinking water.[i, ii] The good news is that most Canadians are much less exposed to lead now than we were before the 1970s, when leaded gasoline, lead-based paints and lead-soldered cans were phased out.[iii] Some research suggests that these reductions in lead exposure have contributed to a large drop in violent crime; see http://envirolaw.com/2007/11/12/lead-children-and-crime/.

But some Canadians, especially children, are still exposed to too much lead from several sources, including their drinking water.[iv] Municipally supplied drinking water contains very little lead.[v] However, lead can leach into drinking water in older homes from their own pipes and service connections (primarily in houses built before 1950) and plumbing solder (as recently as 1990).[vi,vii viii]

People deficient in calcium, iron and zinc may absorb lead more readily.[ix] Chronic exposure to even low lead concentrations can be harmful to infants, children and the unborn (lead crosses the placenta).[x] Even low-level exposure may cause intellectual and neurologic deficits.[xi] Lead accumulates in the bone, and is released slowly over many years.[xii] Extra lead may be released into the bloodstream during periods of stress (e.g., pregnancy, serious illness) or with loss of bone mass (e.g., in post-menopausal women).[xiii]

"Safe" levels of lead keep dropping. Blood lead "levels of concern" in the US were 60 mcg/dL before 1970; this went to 40 mcg/dL in 1971, 30 mcg/dL in 1978, and 25 mcg/dL in 1985.[xiv] The current US and Canadian threshold for blood lead is10 mcg/dL,[xv,xvi ,xvii] This may still be too high to prevent all adverse effects.[xviii,xix]

Responsibility for drinking water quality rests on both the federal and provincial/territorial governments. Health Canada's *Guidelines for Canadian Drinking Water Quality,* developed through the Federal-Provincial-Territorial Committee on Drinking Water, have been adopted by the provinces (e.g., Ontario's Drinking Water Quality Standards Regulation)[xx] and specify a maximum lead concentration of 10 mcg/L (10 parts per billion) in drinking water. [xxi] These levels were last affirmed/approved in 1992.[xxii]

In April 2007, elevated lead was found in tap water in a number of London, Ontario homes. The Chief Drinking Water Inspector ordered 36 municipalities to test for lead in older homes that were serviced by lead lines.[xxiii] This was followed by a provincial Lead Action Plan, which requires municipalities to test lead in their drinking water systems and take corrective action.[xxiv] A new regulation under Ontario's *Safe Drinking Water Act, 2002* requires annual testing and daily flushing of water systems in all schools, private schools, and most older day nurseries.[xxv]

Since then, drinking water in most of Ontario's 10,000 schools and nurseries has shown acceptable test results for lead. As of December 14, 2009, sampling frequency will now be relaxed for smaller systems with consistent good results. At the same time, a new annual sampling requirement will be mandated for day nurseries with plumbing installed in 1990 or later, as evidence suggests that even these systems may have some risk of lead contamination.[xxvi,xxvii]

People who live in older buildings, especially with small children, should consider taking some precautions at home:[xxviii xxix xxx xxxi]

- Check with your municipality to determine whether the service connections (pipes from the home to the street) may contain lead; if so, test the home's drinking water, and consider replacing the connection. While many municipalities have programs to replace municipally owned lead service lines, it is up to the homeowner to replace lead service lines from their property line to the house;
- Lead levels are generally higher in taps that have been off for over 6 hours. If in doubt, run the *cold* water tap for 5 minutes each morning;
- Use only cold tap water for drinking and preparing food (hot water likely contains more lead);
- Minimize other sources of lead – replace pre-1950 windows, check toys for lead content, don't put food or drink in leaded glass/crystal containers and encourage frequent hand-washing in children. And don't let children put keys in their mouthes.

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[viii] Government of Ontario. What municipalities need to know about reducing lead in drinking water through corrosion control. August 2008. http://www.ontario.ca/drinkingwater/254372.pdf
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[xxiv] Through amendments to O.Reg. 170/03 under the *Safe Drinking Water Act, 2002* (Drinking Water Systems)

[xxv] Ontario Regulation 243/07 under the *Safe Drinking Water Act, 2002* (Schools, Private Schools & Day Nurseries)

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