

EXTRACTIONS



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CANADA ATTACKS SMOG

A recent scientific report, prepared jointly by Health Canada and Environment Canada, finds a correlation between the high levels of particulate matter in smog and increases in emergency room visits, hospital admissions and deaths. Extremely fine particles — less than 2.5 microns — can be inhaled deep into the lungs where they can enter the blood stream and contribute to diseases such as chronic bronchitis and asthma. The report concludes that particulate matter in smog presents an unacceptable health risk to Canadians.

In response, the federal government will now use the powerful Canadian Environmental Protection Act to control smog-causing chemicals. All pollution particles with a diameter of less than 10 microns will be declared toxic and so become subject to regulation under the Act. Most of these small particles come from vehicle exhaust pipes, electrical power plants, industrial boilers and wood-burning stoves — all consumers of fossil fuels.

A group of federal departments is studying fine particulate matter from transportation sources to calculate what percentage of atmospheric particle loading in populated areas is due to transportation and how this would change as a result of different policies on transportation and transportation fuels.

Under the Act, the federal government can compel industries to prepare pollution-reduction plans and begin reducing emissions within two years. The current Canada-wide standard for fine particulate matter is $30\mu\text{g}/\text{m}^3$ averaged over 24 hours, to be achieved by 2010. Heavy industries will probably have to install better scrubbers to remove tiny particles from their smokestack emissions.

Federal officials believe Canada can show it is cleaning up the air and so pressure the U.S. to curb cross-border smog emissions when the two countries negotiate a new air-quality agreement later this year.

[From *Calgary Herald*, Friday, May 19, 2000 and *Science and the Environment*, No. 18, May/June 2000]

MARINE MOTORS CLEAN UP

Marine engines, which have never been subject to emissions regulations, are much less clean and efficient than car engines. For example, a 70-horsepower two-stroke outboard emits the same mass of hydrocarbon pollution in one hour as a new car does driving 8000 kilometres.

As much as 40% of a two-stroke engine's fuel exhaust remains unburned because the exhaust ports in the cylinders remain open briefly while a charge of fuel and air flow into the combustion chamber from the intake port. Since two-strokes require a mix of oil and gasoline, some of that exhausted fuel is raw oil.

Now Environment Canada and the Canadian Marine Manufacturers Association have completed a memorandum of understanding to voluntarily introduce cleaner outboard engines. Beginning with the 2001 model year, new outboards sold in Canada must come with an emissions warranty and comply with U.S. Environmental Protection Agency emissions standards, which seek to reduce hydrocarbon emissions from gasoline outboards by 75% over pre-control levels.

[From *Science and the Environment*, No. 18, May/June 2000]

NEW CANADIAN STANDARD ON PETROLEUM HYDROCARBONS IN SOIL

A new Canada-wide standard on petroleum hydrocarbons (PHCs) was approved in principle by the Canadian Council of Ministers of the Environment on June 5-6, 2000 for endorsement in November, 2000. The standard, which includes Tier I soil remediation levels for several PHC fractions, will provide a consistent approach to managing PHC-contaminated sites across the country. Because the standard is tiered and risk-based, there is necessarily some complexity in its development and application. The details, along with technical supporting documents are found at the web site below.

[From <http://www.ccme.ca/3e_priorities/3ea_harmonization/3ea2_cws/3ea2.html>]

PESTICIDE PRECAUTIONS URGED

After a year of research, the environmental committee of Canada's House of Commons released a report this spring recommending that pesticides used to treat lawns, parks, and golf courses be phased out over five years.

"Dandelions don't pose a threat to health," said committee chairman and Liberal MP Charles Caccia. "But herbicides do — particularly to children."

Pesticides are most often breathed in, absorbed through the skin, or consumed in produce. Children are most vulnerable because their smaller size means greater exposure as they play on sprayed grass or eat treated food. Some wildlife species, such as frogs, are also vulnerable to poisoning by chemicals in their water.

Caccia reported that a U.S. National Cancer Institute study found children whose parents use pesticides in their homes and gardens are six times more likely to get leukemia than children in homes without pesticides. Pesticides are also linked to non-Hodgkins lymphoma and possibly breast cancer.

The Canadian report also recommends controlling food-related pesticides more tightly, investing more in organic farming, better informing the public of risks, and further researching pesticide health effects.

In the meantime, Canadians should carefully wash their produce, parks departments should stop spraying, and 'cosmetic' weed- and insect-killers should be banned without waiting for absolute proof that they are dangerous, the report says.

[From *Calgary Herald*, May 17, 2000]

DIOXIN LINKED TO CANCER AND DIABETES

A recent U.S. Environmental Protection Agency report concludes that the risk of cancer from exposure to dioxin is 10 times higher than previously estimated. Most dioxin found in the environment comes from incinerating medical and municipal waste (including backyard trash burning), and from using chlorine to bleach pulp and paper products.

Dioxin was the chemical used in the defoliant Agent Orange during the Vietnam War. The U.S. Air Force has found that veterans with high blood levels of dioxin are 47 percent more likely to develop adult onset diabetes than are veterans who hadn't worked with the chemical.

[From *Environmental News Service*,
<<http://www.ens-news.com/ens/may2000/200L-05-17-09.html>>
and
<<http://www.ens-news.com/ens/mar2000/2000L-03-29-09.html>>]

UV CLEANS GAS ADDITIVE FROM GROUNDWATER

MTBE (methyl tertiary butyl ether) is added to gasoline to make it burn cleaner and reduce air pollution. But the additive itself can pollute groundwater from fuel spills or by leaking from underground gasoline storage tanks, and conventional methods for removing pollutants from groundwater don't work well for MTBE. Reynaldo Barreto from the chemistry department of Purdue University has a solution: add titanium dioxide to the water, bubble oxygen through it, and expose it to high energy ultraviolet rays to turn the compound into carbon dioxide. Barreto says "After a couple of hours I can eliminate the bulk of the MTBE."

[From *Environmental News Service*,
<<http://www.ens-news.com/ens/mar2000/2000L-03-29-09.html>>]

MUSSELS MONITOR TOXINS

Scientists have found that blue mussels are an ideal tool to gauge levels of toxic chemical contaminants in the Gulf of Maine. Mussels are abundant and easy to collect. They feed by pumping large volumes of water through their systems exposing their tissues to contaminants, making it possible to determine water quality in a nearby area by analysing the concentration of contaminants in the mussels' tissues.

Mussels collected from sites around the Gulf since 1991 show that contamination levels correlate with population density, latitude, and distance from known contamination sources. The information gained helps government agencies in Canada and the U.S. to establish pollution controls, determine the safety of seafood, and assess the effects of accidental spills.

Meanwhile, another mussel is helping scientists test for E. coli bacteria. Zebra mussels, natives of the Caspian and Black seas, have infested the Great Lakes since being accidentally introduced by a passing freighter in the mid-1980s. Because mussels eat E. coli bacteria and take a long time to expel it from their system, testing mussels from various locations on a river helps pinpoint sources of the bacteria.

[From *Science and the Environment*, No. 17, March/April 2000 and
The Detroit News May 9, 1999]

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