

EXTRACTIONS



a newsletter from **O'CONNOR ASSOCIATES**

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POLLUTERS PAY

A tough new "polluter pays" regulation came into effect in British Columbia on September 1, 1992. All waste management permit holders will pay fees for permits based on the amount and type of discharge allowed. "This is an incentive program to reduce pollution," said Environment Minister John Cashore when he introduced the regulation. "In short, the more permit holders pollute, the more they pay. In the interest of fairness, the new fee structure will be implemented in two phases giving permit holders time to bring in pollution control technologies and other measures that will reduce their fees."

The fees for waste management permits will rise in September 1993.

[from BC Environment news release July 31, 1992]

BUSINESS SAVING MILLIONS

According to EPA Administrator William Reilly, American business already is saving \$702 million a year and stands to save millions more through voluntary measures to conserve energy and reduce output of toxic substances. Three states, three cities, and 425 corporations have joined the Green Lights Program to install energy-efficient fluorescent lighting, which reduces costs, conserves energy and cuts air pollution. The program, which provides companies with information and technical assistance, has reduced carbon dioxide emissions by the same amount as taking 1.6 million cars off the road, Reilly said.

Another 734 firms signed on to the Environmental Protection Agency's 33/50 Program, with a pledge to reduce emissions of 17 toxic chemicals. The companies have agreed to eliminate 304 million pounds of toxic emissions, the agency said. The voluntary nature of the program encourages creativity in substituting less harmful materials or changing manufacturing systems to avoid toxic releases. "We have surprised ourselves with our success," Reilly said.

[from UPI March 18, 1992]

A GREENER SOLUTION

O'Connor Associates Environmental Inc. is constantly looking for better ways to solve problems. A recent solution resulted in cost savings for two clients: one with a waste disposal problem and one with a requirement for consumables.

During the recent upgrading of a fertilizer blending and packaging facility, several tonnes of off-spec fertilizer were collected. Originally the first client planned to send the material to the local landfill, but the O'Connor Associates engineer who was handling the project recognized that it might be recycled. She suggested shipping the off-spec fertilizer to a second client who routinely bought fertilizer to assist in the biodegradation of hydrocarbon-contaminated soil. Both parties agreed, the fertilizer was shipped and the landfill was spared the additional waste.

BURIED ARSENIC

Arsenic may be contaminating the ground water near old US burial sites, says John Konefes, director of the Iowa Waste Reduction Center. Formulas for embalming fluids containing arsenic—often up to 15 pounds per person—were in use from the time of the US Civil War. Concerns for the health of the embalming workers stopped the practice in 1910, but arsenic could still be in the ground. Konefes calculated that a cemetery in a modest-sized town might contain from 380 pounds to a ton of arsenic. If environmental authorities suspected this much arsenic was buried at an industrial site, they would no doubt act immediately to determine the health risks. However, with the sensitive nature of cemeteries and burial sites they have done little. Konefes arranged to have the US Geological Survey analyze shallow groundwater from hand-pump wells near some older Iowa cemeteries. Although the USGS did not expect to detect any arsenic, they found two of fourteen samples contained 30 ppb. While this is 20 ppb under the EPA's safe drinking water standard, Konefes still thinks arsenic from burial grounds may be a serious problem and that further detailed study is needed.

[from *Soils* Nov.-Dec. 1991, p. 36-39]

ARE TOXIC VAPOURS POLLUTING THE AIR IN YOUR HOME?

Although air pollution is commonly thought of as an outdoor problem, indoor air quality has been receiving increasing attention. Americans spend about 90 per cent of their time indoors. A new Illinois State Water Survey study is examining the role of toxic vapours from common household chemicals (automotive products, pesticides, paints, and solvents) in residential indoor air pollution. Many of these products contain benzene, carbon tetrachloride, methylene chloride, or other volatile organic compounds (VOCs).

Water Survey scientists Stephen Vermette and Clyde Sweet are collaborating on the two-year project with University of Illinois Building Research Council architect, William Rose. Sponsored by the Hazardous Waste Research and Information Center, the project will assess indoor air quality and determine the extent of contamination from the storage of hazardous household products.

Part of the project involves measuring VOC levels in an experimental house the Building Research Council developed to create a controlled environment. The house contains ten 8x20-foot rooms, each with independent heating, cooling and ventilation controls. One room simulates a storage area for household chemicals and another simulates living quarters.

According to Vermette, many people store paints, pesticides, solvents, and other materials because they are not sure how to dispose of them properly. If this research shows a link between storage of hazardous household chemicals and indoor air quality, society will have yet another reason to promote proper disposal methods.

[from Steven D. Hilberg, *Currents*, Illinois State Water Survey]

OZONE LAUNDRY

Tri-O-Clean Laundry Systems Inc. of Fort Pierce, Florida has developed a washing process that uses ozone instead of detergent. The company claims that using ozone will consume a fraction of the usual amount of water, reduce shrinkage and energy costs, and wash three times faster than conventional methods. The machine is economical to run because their ozone generator uses ordinary air instead of pure oxygen as an ozone source. The ozone laundry process holds particular promise for commercial establishments. For example, a 250 room hotel laundry might normally spend \$44,000 per year for water, sewer, heating, and chemicals. Leasing an ozone system saves 15% or more in these operating costs and reduces waste water and chemical discharge.

PLANTS AS AIR FILTERS

Another example of the growing interest in indoor air quality is found in the work of Dr. Bill Wolverton who retired last year from NASA. He now studies the cleansing properties of houseplants for the US Plants for Clean Air Council. Continuing from his work on self-contained life-support systems for space flights, Wolverton studies the ability of common houseplants to remove substantial amounts of VOCs from indoor air. For example, Aloe vera reduces formaldehyde concentrations by 90% while the African daisy removes 50%.

Wolverton most recently studied xylene. The US EPA reports that average workplace air contains 0.622 µg of xylene per cubic foot, mostly from paints, linoleum and phone cables. This table shows how fast some plants can absorb xylene:

botanical name	common name	µg xylene per hour
<i>Phoenix Robelenii</i>	dwarf date palm	610
<i>Dieffenbachia</i>	dumb cane	341
<i>Dracaena marginata</i>	dragon tree	338
<i>Dracaena fragrans</i>	corn plant	274
<i>Spathiphyllum</i>	peace lily	268

The peace lily also effectively removes acetone at the rate of 5,400 µg per hour.

Wolverton says 8 to 15 well-placed plants will significantly improve the air quality of the average home.

[from *Canadian Gardening*, Vol.3, No. 2 Feb./March 1992]

GONE WITH THE WIND?

Mexico City, with its immense smog problems, has cut industrial production, taken half a million cars off the roads, and cancelled classes for millions of school children. But the smog continues, especially during the winter when thermal inversions trap it within the basin. Rumour has it that the government is considering city-wide air conditioning—using giant fans. One hundred 24-foot diameter fans around the city would create a light breeze to blow the smog from the valley.

[from *Environmental Legislation Outlook* March 16, 1992, p.4]

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