EXTRACTIONS

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COMPOST FROM BIOSOLIDS BINDS LEAD IN SOIL

Biosolids, the organic residuals produced during wastewater treatment, are rich with iron, manganese, and organic matter. A study, funded by the non-profit Water Environment Research Federation in Virginia, composted some biosolids and mixed them with lead-contaminated soil in a home garden in Baltimore. The composted biosolids appear to have bound the lead, lowering bioavailability — that is the amount of lead available to enter the bloodstream — by 20% to 38%. The best mixture for reducing bioavailability was one made from Baltimore biosolids that contained more iron and manganese than the others tested.

This reduces the danger of children being poisoned when they dirty their hands playing outside or are tempted to taste those delicious mud pies they "baked" in the backyard. The Centers for Disease Control and Prevention says that 50% of inner-city children in the United States have lead levels in their blood high enough to cause irreversible damage to their health. For children, there may be no lower threshold for some of the adverse effects of lead, which increase as their blood lead levels increase.

According to Sally L. Brown, University of Washington professor of forest resources, the garden soil in the study is similar to hundreds of thousands of yards contaminated with lead in other inner cities. Even yards that were never near smelter operations can have contaminated soils because of lead-based paints from older buildings and auto exhaust from leaded gasoline.

Using composted biosolids to remediate soils would be far less costly than other alternatives, Brown says, but researchers still need to find out how long the effects last and if similar results can be obtained using compost that doesn't come from biosolids.

[from www.washington.edu/newsroom/news/2003archive/02-03archive/k022803a.html and www.cdc.gov/nceh/lead/guide/1997/docs/factlead.htm]

NEGLIGENT ENGINEERS PAY $130K

A discount price is no excuse for sub-standard engineering work, according to Ontario Superior Court Judge Kruzick. In a recent decision, Judge Kruzick found that a site investigation report done by an engineering firm for Ontario's Ministry of Transportation (MTO) did not meet the standard of care for engineering practices, and ordered the engineering firm to pay for the full cost of cleaning up the property, $130 000.

Based on the engineers' faulty report, the MTO bought the former gas station site for full price, with no allowance for clean-up. When MTO's contractors discovered petroleum contamination during construction, MTO hired another consultant to supervise the "dig-and-dump" clean-up.

However, because the engineering firm was not given the opportunity to rectify the problem, the Judge refused to order the firm to pay for the MTO's costs of hiring another consultant to supervise the clean-up.

[from www.willmsshier.com/pubs/newsltrs.htm]

MAGNETIC BUGS CUT SEWAGE SLUDGE

Bacteria, used to break down some harmful pollutants in wastewater, add to leftover sludge. Much of this sludge currently ends up in landfills. But these microbes will cling to powdered iron sprinkled into the brew, Yasuzo Sakai, of Utsunomiya University, and his colleagues found. Magnets can then drag them out, reducing the sludge volume, up to five tonnes per day for a plant serving 100 000 people, and enabling the plant to re-use the bugs.

A year-long test, in which 80 litres of raw sewage were passed through a rotating magnetic drum every day, produced no bacterial sludge. "Magnetic separation is fast and reliable," Sakai says.

There's no guarantee that Sakai's results can be repeated on a larger scale, but the researchers have now teamed up with water-treatment companies and local government to build a pilot plant that will treat 30 tonnes of sewage per day.

[from www.nature.com/nsu/030324/030324-8.html]

IRAQ's FRAGILE ENVIRONMENT

In a Special Report from the New Scientist (March 15, 2003), Fred Pearce reviewed the environmental damage that might arise during the current war in Iraq.

The United Nations Environment Programme (UNEP) said it stood ready to enter the country to assess the environmental damage of the conflict. The agency, which has assessed post-conflict damage in the occupied Palestinian territories, Afghanistan and the Balkans, typically sends in teams of 15 to 20 experts to collect samples of soil, water, and vegetation for analysis. "I know there are other priorities at the moment, but it makes sense to do this as soon as security permits and provided we're not getting in the way of other activities," UNEP spokesman Michael Williams said.

While environmental scientists and non-governmental organizations are loath to forecast, few doubt the impact will be dramatic. "The Gulf war showed that such conflicts have devastating effects on the environment, biodiversity, and quality of life, long after the cessation of hostilities," says Michael Rands, chief executive of Cambridge-based conservation alliance BirdLife International.

What are some potential environmental effects from the current war?

- At particular risk of pollution are Iraq's rivers, including the Tigris and Euphrates, which will spread any pollution that seeps into them from bombed chemical plants, other factories, or sewage-treatment works.
- Much of the Iraqi desert has a thin, brittle surface that protects it from erosion. Convoys of heavy vehicles break up this crust, uncovering sand that may gradually form persistent, moving sand dunes. Kuwaiti geomorphologists say the 1991 war unleashed dunes that may one day engulf Kuwait City.
- Acid rain from burning oil wells, which burned for up to nine months in 1991, seems less likely this time because fewer wells have been set on fire.
- Possibly the biggest threat comes from depleted uranium, the super-dense radioactive metal used in the tips of armour-piercing rounds. The previous Gulf War left around 400 tonnes of uranium dust. With more and bigger bombs this time, the threat is greater.

A bleak future indeed.

[from www.newscientist.com/news/news.jsp?id=ns99993491 and www.planetark.org/dailynewsstory.cfm/newsid/20247/story.htm]

REGULATING B.C.'s CONTAMINATED SITES

The Advisory Panel on Contaminated Sites issued an Interim Report in September 2002, which proposes changes to how British Columbia regulates contaminated sites, moving from a system driven by fear of liability to one that protects health and the environment from harm. Some of the recommendations are:

- Amend the definition of "contaminated" to risk-based categories of low, medium, or high risk. To classify a site, consider whether there is an actual risk at the site that threatens human health or the environment.
- Have the government disengage from regulating all but high-risk sites.
- Establish a new independent professional qualification: "Licensed Environmental Professional" or LEP. The LEP's primary responsibility would be to assess and sign-off on contaminated sites.
- Eliminate the right to recover the cost of clean up for low and medium risk sites from other responsible parties. Let the market take care of financial responsibility for such sites.
- Create a more structured system for cleaning up certain types of sites, such as former gas stations and dry cleaners.

The Panel has been consulting extensively with members of the business, scientific, and legal community and was expected to have a final report by the end of October 2002. However, that report is still pending. The provincial government intends to introduce legislative amendments to incorporate the Panel's final recommendations in the spring of 2003.

[from www.blakes.com/english/publications/belb/december2002_ontario/contaminated_sites.asp and wlapwww.gov.bc.ca/epd/epdpa/contam_sites/ministers_panel/ministerspanel.html]

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