Reach for Unbleached!

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MEDIA ADVISORY

APRIL 30th 1999

On Thursday, Ontario’s Environmental Commissioner, Eva Ligeti, revealed her annual report on the Environment in Ontario for 1998. The report is critical of the way the Ministry of Environment is treating pulp and paper mill wastes. About 8 pages were devoted to the Province’s treatment of paper mill sludge on agricultural land, composting of paper sludge, and problems with Dombind, the spent pulping liquor that is used as a dust suppressant. The report makes strong recommendations for better management of these industrial wastes.

The pulp watchdog organization Reach for Unbleached! is warning BC residents that the pulp and paper waste practices criticized by the Ontario Commissioner are also happening in British Columbia.

- Lignosulphonate, waste black liquor, is imported from the United States to spread on gravel roads as a dust suppressant, including last summer in Strathcona Park
- Recycling mill sludge is mixed with GVRD municipal sludge and spread on Scott Paper poplar plantations in the middle of the Fraser River
- Kraft pulp mill waste from Howe Sound mill is being used at the Britannia Mines site
- Mechanical mill sludge is being spread on agricultural land in the Quesnel area
- Crofton pulp mill currently has a proposal in front of the Ministry of Environment to approve spreading of waste lime dregs on a local dairy farm

“We were members of a provincial committee on this issue for two years, asking over and over for testing,” says Reach for Unbleached! Executive Director Delores Broten. “Last December the BC Ministry finally agreed to do some chemical analysis, and we found some independent scientists to help. Meanwhile the pulp workers’ unions found information about toxic fungi in the sludge. Just at that point, the Council of Forest Industries walked out of the process. Now they are designing some sort of guidelines behind closed doors with the government.”

A list of approvals and permits for pulp mill sludge spreading in British Columbia as of 1997 is available at the Reach for Unbleached! web page: http://www.rfu.org

The Ontario report notes that the EPA is considering the listing of paper mill sludges as hazardous waste, and that Ontarians have been complaining about the spreading of pulp and paper sludges for years: “The applicants cite concerns about the contamination of soil, groundwater and surface water, as well as impacts on livestock, wildlife and soil microorganisms. Many have also complained about odour, and symptoms such as headaches, burning eyes and breathing difficulties associated with freshly spread sludges.” Copies are available by calling 1800 701-6454 or downloaded from the ECO website: http://www.eco.on.ca/english/publicat/ar98/part04.pdf

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Recycling Pulp and Paper Mill Wastes

The ECO regularly hears from members of the public who are concerned about the harmful effects of recycled pulp and paper mill wastes. In most cases, “recycling” of these wastes entails some form of release into soils, water or air. Better scientific studies are needed to ensure that public health and the environment are adequately protected from the contaminants contained in recycled pulp and paper mill wastes. The rules governing the recycling of pulp and paper mill wastes need to be clarified.

Background

Ontario’s pulp and paper industry produces large quantities of sludge wastes, in both pulp-making and paper-making operations. The generation rates vary widely among mills. For example, the production of recycled paper produces large quantities of sludge, amounting to about 20 per cent of the used paper fed into the de-inking mill. The composition of the sludges also varies depending on the industrial process, but they usually contain short fibres of pulp or paper, clay particles, and residues of the chemicals used in the process. Sludges from de-inking mills also contain inks that were removed from the recycled paper.

The industry also produces large volumes of a liquid waste, called black liquor, which is a mixture of cooking liquor effluent from the pulping reactor, dissolved lignin, and washed pulp.

Ontario’s pulp and paper industry is increasingly trying to recycle both its sludges and black liquor. Recycling of industrial wastes has been encouraged for many years by both regulators and environmental groups; finding good uses for manufacturing wastes can relieve pressure on landfill sites and sewage treatment plants. It also helps companies to reduce waste disposal costs. However, not everyone agrees on the definition of “good uses.” There is often controversy about the environmental impacts of these materials in their new incarnations.

To encourage the recycling of paper and to conserve capacity in the province’s landfill sites, the Ministry of the Environment has, for a number of years, approved the spreading of sludges from a paper recycling mill onto farm fields near Peterborough. MOE has also recently approved a controversial operation in northern Ontario which will mix mill sludges with scrubber ash from the mill’s smokestack, producing a material to be sold as a soil conditioner. As well, MOE has been permitting the spreading of black liquor onto rural roads to control dust.

What are the environmental concerns?

Since 1995, many groups and individuals have contacted the ECO with concerns about the recycling of pulp and paper mill wastes. Ontarians have submitted applications under the EBR and have also requested leave to appeal the instruments that MOE has issued to permit the recycling of these wastes. The applicants cite concerns about contamination of soil, groundwater and surface water, as well as impacts on livestock, wildlife and soil microorganisms. Many have also complained about odours, and symptoms such as headaches, burning eyes and breathing difficulties associated with freshly spread sludges.
According to the pulp and paper industry, sludges contain organic matter, plant nutrients and kaolin clay. But residents near recycling sites worry about toxic materials such as dioxins, furans and heavy metals such as mercury. Although industry says the sludges contain low amounts of these toxics, in the U.S., a survey of more than a hundred mills in 1988 found dioxins and furans in bleached pulp mill sludges, resulting in calls to regulate both landfill disposal and land application of such sludges. More recently, the U.S. Environmental Protection Agency (USEPA) has been assessing the risks of land application of paper mill wastewater treatment sludges, and considering whether these sludges should be listed as hazardous wastes. In Ontario, the Ministry of the Environment, on the other hand, does not appear to have carried out any independent studies of the composition of these sludge wastes.

According to the USEPA, black liquor also has environmental impacts. Spills of black liquor can have impacts on receiving waters, are a source of air emissions, and can disrupt the microbial action of wastewater treatment plants.

**How are these activities regulated?**

MOE’s regulation of wastes from pulp and paper mills is complex and variable, in spite of common underlying environmental issues. Below are three examples of how these materials are regulated.

**The rules for spreading sludges onto farm fields**

MOE regulates the spreading of all types of sludges onto farm fields through the “Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land” (the “Biosolids Guidelines”). First issued in 1992, the Biosolids Guidelines are very vague on some key points. For example, they don’t mention pulp and paper mill sludges, and distinguish only between sewage biosolids and “other wastes.” The Guidelines state that “little is known about the effects of industrial organic contaminants contained in other wastes when applied to agricultural lands. The concentrations of each industrial organic contaminant will be assessed on a case-by-case basis.” The Biosolids Guidelines also say “that metal additions to soil from waste materials is undesirable, and that application rates of metals should be reduced in the future,” but they don’t say when this long-term target might be in effect.

The Biosolids Guidelines were consolidated and posted on the Registry as a new decision by MOE in 1996, but they were not clarified or strengthened. MOE also failed to address public comments that pointed to stronger regulations in other jurisdictions.
CASE STUDY: PAPER MILL SLUDGE SPREADING

Since 1991, when MOE issued a "Provisional Certificate of Approval for a soil conditioning site" to Atlantic Packaging Products, Ltd., the company has been spreading sludges from its paper recycling operations onto farm fields near Peterborough. Although this certificate of approval is called "provisional," it permits very large-scale sludge spreading — 120,000 tonnes were applied to local fields in 1997 alone. Residents living near the farms contacted the ECO and sought to use the EBR. But since this type of instrument is not prescribed under the EBR, local residents cannot comment on these approvals before they are granted by the ministry and thus they were not successful in their request for an EBR review. When the residents asked MOE for a list of all complaints about the sludge spreading, the ministry did acknowledge there had been about 250 complaints, but did not release the list.

As incentives for farmers to participate in the Peterborough sludge spreading program, the company provided a free sludge-spreading service and gave farmers free nitrogen fertilizer — 90 pounds per acre. Paper sludge contains almost no nitrogen, and soil microbes cannot decompose the sludge unless nitrogen is added. Farmers were allowed to apply the nitrogen to other fields if they wished. Thus, depending on their acreage, participating farmers could save up to $13,000 a year in fertilizer costs.

MOE's Biosolids Guidelines do state clearly that "materials must be of benefit to crop production or soil health and not degrade the natural environment before approval for use will be given by MOE." However, MOE has permitted sludge spreading to continue since 1991 in the Peterborough area without any demonstration of benefits to the soil. The paper mill evaluated paper sludge applications on the fields of approximately 200 farms over more than seven years, and finally submitted a required report in the fall of 1998 which concluded: "...there was no reproducible trend in crop yield data and soil nutrient retention and no definitive changes in other soil characteristics." Because MOE was concerned about the scientific validity of the study done by the paper mill, MOE scientists also carried out a short study in the summer of 1998. The MOE study grew three crops in pots containing soil, or soil plus sludge, or soil plus sludge plus nitrogen fertilizer. The MOE study found that while soybeans grew well when sludge was added, wheat and tomatoes did not grow well in sludge, even when nitrogen fertilizer was added.

MOE now has to decide whether the sludge is of benefit to crop production or soil health, and whether it should allow the sludge spreading to continue on agricultural lands.
The rules for sludge composting

MOE is in the process of updating its “Guidelines for Aerobic Composting Facilities and Compost Use,” and released a draft in May 1998. These new draft Guidelines specifically reference pulp and paper sludges, while the previous Interim Guidelines, in effect since 1991, don’t mention pulp and paper sludges. However, the Interim Guidelines did specify that compost must heat up to a minimum temperature to be in compliance. They also state that “simple exposure of solid organic matter under non-engineered conditions resulting in uncontrolled decay is not considered to be composting and will not be permitted.”

CASE STUDY: SLUDGE COMPOSTING

In 1997, a company in Sault Ste. Marie proposed to mix 167 tons a day of pulp mill sludge with scrubber ash and process it into a soil conditioner. Local residents raised concerns that an earlier pilot project by the same company, using the same material, had caused serious odour problems, and pointed out that MOE had finally ordered the proponent to transport the sludge mix to a certified waste disposal site. But in late July 1998, MOE approved the full scale project, asserting there would be compliance with the old interim composting guidelines, which state that compost must heat up to a minimum temperature to be in compliance.

The ECO review has identified several problems with MOE’s approval of this particular project. Most important, MOE acknowledged in a 1998 letter that the pulp sludge in this case is not compost as defined by its own guidelines, presumably because the material fails to heat up. The notice of MOE’s decision on the Registry to approve the project inaccurately stated that no public comments had been received, when in fact MOE had received numerous letters of concern about this proposal and had participated in meetings with local residents. Public concern about the approval was so strong that four separate applicants sought leave to appeal it. (See the discussion on p. 202.)

The rules for using dust suppressants

In 1997, the ECO reported on the regulation of road dust suppressants: MOE will sign a Letter of Agreement with a producer of dust suppressants if the ministry is satisfied that the material is a “product” rather than a waste. However, MOE relies on information provided by the producer, without conducting independent tests on dust suppressants or setting regulated limits for contaminant levels.

In June 1998, MOE proposed a new waste management regulation, including a standardized approval regulation (SAR) instead of Letters of Agreement to regulate dust suppressants. Under this regime, dust suppression systems would have to conform to standardized rules on start-up, operations, ongoing requirements, record keeping and reporting. The contents of dust suppressants would also have to conform to standardized contaminant limits for certain substances. However, as with other proposed SARs, the public would not have
a chance to review and comment on dust suppressant proposals under the EBR. Instead, seven days before any application, only the clerk of the local municipality would receive notice.

MOE has received a large number of negative comments on this proposal for dust suppressants. To qualify, municipalities would have to designate their rural roads as waste disposal sites, and they are opposed to doing this. Based on its own investigations, Environment Canada has commented that MOE’s proposed 50-metre “no application” distance from receiving waters may not be enough, since some dust suppressants can be washed over longer distances, and municipalities say they cannot realistically identify and avoid all wells along rural roads. Environment Canada also recommends adding ditches and stormwater collection systems to the list of waterways that need protection from dust suppressants.

MOE now plans to reconsider its approach to dust suppressants.

CASE STUDY: USING BLACK LIQUOR AS A DUST SUPPRESSANT

In December 1993, MOE signed a five-year Letter of Agreement with Domtar’s pulp mill in Trenton, permitting the use of its black liquor as a dust suppressant on rural roads. The Letter of Agreement assumed that Domtar would soon undertake a major plant expansion, including a new recovery boiler that would use the black liquor as fuel. Although the plant expansion did not occur, the plant increased its production of black liquor by 45 per cent and now produces 62 million litres of this waste material each year. Domtar called the material “Dombind” and offered it free to about 70 rural municipalities in the region.

Dombind is watersoluble and, according to MOE’s application guidelines, should not be applied within 50 metres of a waterway to prevent toxicity to aquatic life. The ministry received complaints that the spreading trucks were not staying far enough away from rivers and creeks. There have also been numerous complaints over the past five years about the smell, look and stickiness of the material. A number of townships stopped using Dombind, citing environmental concerns. The World Wildlife Fund launched a campaign against the spreading of Dombind on roads, and urged MOE not to renew its Letter of Agreement with the company.

Then, in December 1998, three former Ontario Ministers of the Environment jointly signed a letter urging the current Minister of the Environment to end the practice of spreading this material on roads. Shortly afterward, MOE announced that it intends to phase out the practice over the next two years, because the company was producing increasing amounts of the material and because of potential for long-term environmental impairment. The company now says that because of the added cost of managing this waste, the decision not to allow the spreading of its black liquor on rural roads is threatening the future of its Trenton mill, involving as many as 140 local direct jobs and 300 secondary jobs.
Conclusions
As illustrated by the case studies on these pages, there is a strong and growing interest in the recycling of industrial wastes. But there is also significant concern from people living near sites where waste is created and where it is being applied to land or roads. There are public concerns that the patchwork of existing and proposed regulations and guidelines is not consistent and that it does not adequately deal with the environmental issues. The resulting local controversies have been time-consuming and frustrating for ministry staff, industry and members of the public. To resolve this controversy, the regulatory framework needs to be improved.

Recommendation 36
MOE should undertake a broad policy review of the overall environmental costs and benefits of recycling and reuse of various types of industrial wastes, including composting and applications to land. The review should:
- evaluate industrial recycling trends, case studies and technological advances
- consider the best available scientific information on long-term environmental impacts to downstream receiving media
- propose and evaluate policy and regulatory options to minimize the environmental impacts of industrial waste recycling
- share information with the public and involve the public in policy development.