Toxic Chemicals Update

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Atlantic Region Newsletter
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SMOG FORECAST PROGRAM REACHES NEWFOUNDLAND

Environment Canada's smog forecast program has been extended into Newfoundland. The program that operates in New Brunswick, Nova Scotia and Prince Edward Island will now include Newfoundland in its twice-a-day forecasts from June until the end of October, issued as part of Environment Canada's daily weather forecast to the provinces. The Newfoundland Smog Forecast can be accessed publicly through Environment Canada's recorded weather information telephone lines in St. John's, Gander and Corner Brook.

The Environment Canada Smog Forecast for all regions is available on the Internet at: www.atl.ec.gc.ca/weather/ozone.html

STEPHENVILLE ECOLOGICAL RISK ASSESSMENT

Environment Canada has recently completed a draft qualitative ecological risk assessment for the former Upper Air Station in Stephenville, Newfoundland. The site, currently owned by Environment Canada, was once a United States Air Force base where several steel-barrel disposal areas were created. The contents of the barrels and the size of the waste disposal areas were unknown. The purpose of the study was to determine if any potential contaminants at the site were impacting the two adjacent waterbodies.

A field program was conducted in November and December, 2001 by EPB staff. Sediment, surface water and fish samples were collected from the two adjacent ponds (Ned's Pond and Pond #2) and two reference ponds. In addition, sediment samples were also collected from an on-site marsh and a reference marsh. All samples were tested for organic and inorganic contaminants. Low concentrations of several metals, polycyclic aromatic hydrocarbons, and petroleum hydrocarbons were identified in all the samples from the adjacent ponds and/or on-site marsh.

A risk assessment was conducted for non-human organisms which may be exposed to the detected contaminants in the sediment, surface water and/or fish. Based on the low contaminant concentrations and the limited bioaccumulation expected of the identified contaminants, no unacceptable risks were expected to the organisms under study via exposure to the contaminants in Ned's Pond, Pond #2 or the on-site marsh, and no further action was recommended at the former Stephenville Upper Air Station.

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NATIONAL POLLUTANT RELEASE INVENTORY (NPRI) UPDATE

The national summary report for the 2000 NPRI will be published in September 2002. The data for the calendar year 2000 is currently available on the NPRI web site and the preliminary 2001 NPRI data will also be accessible on the web site very shortly.

The 2002 NPRI reporting requirements were outlined in a *Canada Gazette* Notice issued in December 2001. Quantities of 273 substances released on site or transferred off site in waste by industrial facilities in 2002 must be submitted to Environment Canada on or before June 1, 2003. This data will be released to the public soon after.

A number of CEPA-toxic substances have been added to the NPRI list or have had reporting thresholds significantly lowered for 2002:

- The manufacture, process or other use threshold for cadmium compounds has been reduced to 5 kg per year at 0.1% or greater concentration, down from 10 tonnes and 1% concentration
- The threshold for arsenic and lead compounds and tetraethyl lead has been reduced to 50 kg per year and 0.1% or greater concentration, down from 10 tonnes and 1%

- Hexavalent chromium compounds will now be reported separately from the more general category of chromium and its compounds with a threshold level of 50 kg per year at 0.1% or greater concentration,
- Particulate matter less than 10 microns **(PM_{10})** has been added to the NPRI at a release threshold of 500 kg.

In addition to the changes listed above, several other changes have been made to the NPRI reporting requirements:

- Criteria Air Contaminants (CACs) have been added to the NPRI substance list: Carbon monoxide (CO), nitrogen oxides (NOx), sulphur dioxide (SO_2), total volatile organic compounds (VOCs), total particulate matter (TPM), PM_{10}, and $PM_{2.5}$. Twenty-tonne release thresholds apply to CO, NOx, SO_2 and TPM, 10 tonnes for VOCs, 500kg for PM_{10}, and 300kg for $PM_{2.5}$.
- Municipal sewage collection or treatment systems discharging 10,000 m^3/day or more of treated or untreated wastewater must report regardless of the number of employees working at the facility.
- The waste throughput threshold for non-hazardous, biomedical or hospital waste incineration threshold has been reduced to 26 tonnes per year, down from 100 tonnes.
- Terminal operations that handle crude oil, artificial crude or intermediates of fuel products will have to report regardless of the number of employees at the facility.
- The reporting exemption has been removed for substances used in the painting, stripping, rebuilding or remanufacturing of transportation vehicles.

For more information on the NPRI please visit the web site at www.ec.gc.ca/pdb/npri/

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Chemical Spill Contingency Planning

In cases of accidental release of toxic chemicals, the most likely type of scenario is one where the chemical is released at a very high concentration in a relatively short time period. Most laboratory-generated toxicity information is generated for time periods (96 hours) which are longer than sequences due to spills would normally occur in the environment. In order to develop more environmentally relevant information that can be used in establishing a protocol for chemical spill contingency planning, EC Atlantic Region has undertaken a series of short term test using representative chemicals. A suite of acute lethality and subchronic static tests with four chemicals (acrolein, acrylonitrile, cadmium chloride and potassium dichromate) and four species were used (2 fish, 1 invertebrate, 1 plant). Organisms were exposed to chemicals for 1, 4, and 10 hours and then transferred to clean water for the normal duration of the relevant test. Based upon species sensitivity, results indicate that estimates of the toxicity of short-term exposures should include acute lethal tests of both an invertebrate and a fish species. Although the Microtox test was the most sensitive endpoint for one hour exposure, further testing is required to determine the usefulness of Microtox to protect all species.

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Screening of the Domestic Substances List (DSL)

The new *Canadian Environmental Protection Act 1999* requires the Ministers of Environment and Health to "categorize" approximately 23,000 substances on the Domestic Substances List (DSL) that are in Canadian commerce on the basis of whether they are persistent and/or bioaccumulative and inherently toxic. The categorized substances will then be "screened " to determine whether they are "toxic" as defined in the *Act*, require in-depth assessment, or require no further action.

As part of the screening process, problem formulations will be written for all substances that are currently on the DSL pilot project list. The pilot project consists of 123 organic substances which were selected for further study based on preliminary predictive modeling which indicated that these substances may be persistent/bioaccumulative, and inherently toxicity. The problem formulations will summarize the physical, chemical, and toxicological properties (where available) of each of the substances to non-human organisms. Where toxicity information is unavailable, substances will be compared to other substances with similar physical and chemical properties and known toxicities, in order to determine the potential toxicity of the substance under study (also known as quantitative structure activity relationships or QSARs). All regions will be responsible for writing the problem formulations for the 123 substances on the pilot project. These problem formulations are expected to be approximately three to five pages in length.

In addition to the physical, chemical and toxicological information that will be compiled as part of the problem formulations, Environment Canada is currently accepting CEPA 'Section 71 surveys' from industry. In October, 2001, a notice (pursuant to paragraph 71(1)(*b*) of the *Canadian Environmental Protection Act, 1999*) was posted in the Canada Gazette with regard to gathering background and use pattern information, with a deadline of January 24, 2002. Environment Canada has extended the deadline for survey submission until September, 2002. The data will then be collated and analyzed for use in the problem formulations for the pilot project.

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P2 Pollution Prevention

Pollution prevention is defined as:
"The use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to the environment or human health." *(CEPA., 1999)*

The new *Canadian Environmental Protection Act (CEPA)* has been modernized and strengthened by making pollution prevention the cornerstone of national efforts to reduce toxic substances in the environment. Under the new legislation, the focus of environmental protection in Canada will shift from cleaning up after the damage is done to preventing pollution and environmental damage in the first place. This new regulatory emphasis complements the ongoing voluntary P2 activities that Environment Canada has been promoting for many years.

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Environment Canada is committed to developing P2 ideas and actions. A number of projects have been undertaken by EC Atlantic Region which focus on pollution prevention.

Mercury Inventory At Federal Facilities

The mercury use at Federal Facilities in the Atlantic Region has been characterized in a recent study. The study began in October, 2001 when EPB Atlantic sent out a total of 86 questionnaires to 38 federal facilities, which included military bases, penal institutional, First Nation groups, and individual governmental departments. The intent of the study was to develop an inventory of mercury-containing products at federal facilities and to determine which facilities have developed mercury management plans.

As of June 1, 2002 25 completed questionnaires were returned (29% response rate). The initial results of the unpublished report show that the federal government is in fact a major user of mercury products. There is in use or in storage, about 24.0 kg of mercury in federal facilities. The largest amount of mercury use is in the form of elemental mercury and mercury chemicals (15.7kg in total).

Most federal facilities which reported using mercury did not have detailed mercury management plans. Of the facilities who responded, 32% had some low level of mercury management. The extent varied widely from battery recycling to phase-out initiatives to annual clean-outs. Environment Canada will provide recommendations to the facilities on how to reduce mercury use and how to properly manage mercury containing products.

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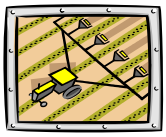

Prince Edward Island Spray Advisory Project

In 2001, a pilot project was conducted in the Bedeque Bay area to determine whether daily spray advisories to farmers would be a useful tool in making pesticide spraying decisions. The project was a cooperative effort between the Bedeque Bay Environmental Management Association and Environment Canada. Throughout the growing season seventeen farmers received a daily weather forecast each morning by fax or email. For each three hour interval given in the forecast spraying categories of high, medium, and low were provided indicating probability of either a spray drift or a rain-induced run-off. Questionnaires completed by farmers at the end of the growing season revealed that most consulted the advisories and wish to have it in the future.

For the 2002 growing season, the pilot spray advisory will be conducted again in the same area in order to test its reliability, and if it is found to be suitable, it will be promoted for wider distribution next year.

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Mercury Use and Reduction Initiatives at Nova Scotia Hospitals

Increasingly, hospital administrators implementing "green" hospital programs have been undertaking pollution prevention initiatives to reduce or eliminate mercury from their operations. An Environment Canada sampling program, conducted in the summer of 2000, showed elevated concentrations of mercury in wastewater from a hospital that had undertaken a mercury reduction program. That raised questions about the effectiveness of those P2 initiatives and the scale of the mercury release from health care facilities.

Subsequently, in 2001, Environment Canada Atlantic Region and the NS Dept. of Environment and Labour conducted a pollution prevention study related to mercury use at 17 hospitals in Nova Scotia. A questionnaire was developed and used to determine mercury use patterns at those facilities. In addition, on two occasions, a 24 hour composite sample of the sewer wastewater from each facility was collected and analyzed for total mercury concentrations.

Total mercury concentrations in hospital wastewater ranged from 0.0064 to 0.26 µg/L with a mean concentration of 0.10µg/L. Total mercury concentrations in wastewater from reference stations (not influenced by hospital discharges) ranged from 0.0086 to 0.07 µg/L with a mean concentration of 0.03 µg/L. The data indicated that mean mercury concentrations from hospitals were 3.3 times higher than mean concentrations from the upstream reference stations. Total mercury concentrations in hospital wastewaters were at least two orders of magnitude below the Halifax Regional Municipality Sewer Discharge By-Law of 10 µg/L.

Mercury use pattern questionnaires that were received from the hospitals are currently undergoing a detailed analysis. A cursory evaluation of the questionnaires has indicated that there appears to be pollution prevention opportunities to reduce mercury at many hospitals in the province. In addition, many hospitals have already made efforts to reduce mercury use and implement environmentally responsible mercury management practices. Despite those efforts, mercury concentrations in hospital wastewaters remain high. A report detailing the results of the study is in progress

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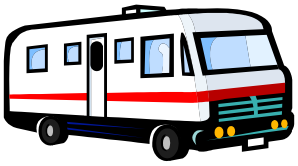

CAMP GREEN! CANADA

In Canada concern is growing about the treatment and disposal of waste from recreational vehicle (RV) holding tanks. RVs dump their stored "black water", primarily sewage which has been treated with chemicals to eliminate odours, at campground disposal facilities, frequently located in national and provincial parks. Two of the more common treatment chemicals used are (i) formaldehyde and (ii) quarternary ammonia (alkyl dimethyl benzyl ammonia). Both are currently being investigated as *CEPA* PSL 2 substances. Some of these chemicals may cause problems in campground septic systems, increasing the possibility of contaminating the soil as well as ground and surface water. In addition, there are potential health risks for all forms of life, including the people using these chemicals.

In 1999, federal, provincial and private agencies agreed to develop a program to get RV campers to switch from toxic chemical treatment chemicals to biological alternatives. An initial survey of RVer's indicated that many were unaware of the hazards of the chemicals they were using, and were willing to try new products. Camp Green! Canada provides information to campers on the problem and the alternatives, through distributing pamphlets and product right at the camp grounds. As well, many private, provincial and federal campgrounds are moving towards policies prohibiting the disposal of black water containing these substances.

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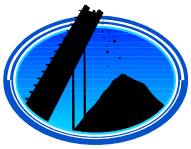
LEGISLATION UPDATE

PROPOSED ADDITIONS TO *CEPA'S* LIST OF TOXIC SUBSTANCES

Three cancer-causing air pollutants are proposed additions to the List of Toxic Substances under CEPA following scientific assessments conducted by Environment Canada and Health Canada. After the release of the assessment reports, May 2002, Canadians will have 60 days to comment on the proposal before the government makes a final decision. The substances are ethylene oxide, formaldehyde and N-nitrosodimethylamine (NDMA). Ethylene oxide is used to produce ethylene glycol and in manufacturing other compounds. Formaldehyde is used in the production of resins, and is found in motor vehicle exhaust and tobacco smoke. NDMA is not used in Canada but is released as a by-product of the manufacture of pesticides, rubber tires, and dyes.

More information and related documents at:
www.ec.gc.ca/Press/2002/020503_n_e.htm



METAL MINING EFFLUENT REGULATIONS

The Metal Mining Effluent Regulations (MMER) which stipulate new requirements for metal mines in Canada were registered on June 6, 2002. The requirements, to be fully in force by December 6, 2002, will significantly reduce pollution entering waterways from metal mines across Canada. The new MMER, which applies to approximately one hundred metal mines operating in seven provinces and three territories, impose limits on releases of cyanide, metals, and suspended solids, and prohibit the discharge of effluent that is acutely lethal to fish. The Regulations also require metal mines to conduct Environmental Effects Monitoring programs to identify any adverse effects of their effluent on fish, fish habitat, and the use of fisheries resources. The new MMER are being promulgated under the Federal *Fisheries Act*. They replace the 1977 *Metal Mining Liquid Effluent Regulations* and repeal the 1979 *Alice Arm Tailings Deposit Regulations.*

More information and related documents at:
www.ec.gc.ca/press/2002/020619_n_e.htm

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TETRACHLOROETHYLENE REGULATIONS

The proposed dry cleaning regulations were published in the Canada Gazette Part 1 on August 18th, 2001 for a 60 day public comment period. Environment Canada is presently reviewing those comments and expects to publish the regulations in the Canada Gazette Part II in the fall. The regulations stipulate the use, importation, sale, transport, disposal and recycling of tetrachloroethylene in the dry cleaning industry.

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FEDERAL HAZARDOUS WASTE REGULATIONS *

The Federal Hazardous Waste Regulations are expected to be published in *Gazette I*, August 2002. The specific aim of the FHWR is to prevent the release of hazardous wastes into the environment. The focus is on pollution prevention, which will require federal operators to prepare an Environmentally Sound Management (ESM) plan, to inspect hazardous waste sites every thirty days, to develop a decommissioning plan for each management activity on-site (handling, processing, storing, disposing and recycling), and to develop testing regimes of wastes resulting from *management of hazardous wastes* before they enter the environment. There are also

administrative requirements which include reporting releases, submitting annual reports of hazardous waste management activity, and maintaining records at the site for five years.

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REGULATIONS RESPECTING HEXAVALENT CHROMIUM *

The consultation package for the proposed Hexavalent Chromium regulations is near completion. The regulations, which will establish release limits, reporting requirements and maintenance plans for chromium electroplating and chromium anodizing, are expected to be published in *Gazette I* in the fall of 2002.

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FEDERAL HALOCARBON REGULATIONS AMENDMENTS *

Amendments to the Federal Halocarbons Regulations are expected to soon reach *Gazette I*. Information on the proposed amendments was mailed out mid-November by Environment Canada and comments were invited before January 4, 2002. The proposed amendments included; a more inclusive application section, several new prohibitions, revisions to sections dealing with permits, modifications and additions of definitions, addition of halon 101 to Schedule 1, and renumbering of sections and schedules to accommodate the new provisions.

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* Source:
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Federal Programs Division, EC Ontario Region.

OFFICE OF ENFORCEMENT

QUEBEC COMPANY PLEADS GUILTY TO IMPORTING HAZARDOUS WASTE

L'entreprise Québec Métal Recyclé (FNF) Inc. appeared in Edmundston Provincial Court on June 27, 2002 and pleaded guilty to three charges under the *Canadian Environmental Protection Act* for importing waste batteries. The company was fined $4500 and ordered to dispose of the batteries according to law. This is the first conviction in Atlantic Canada for an offence of this type.

Environment Canada laid the charges after Canada Customs and Revenue Agency staff in St. Leonard, New Brunswick found 11 cases of industrial batteries on a truck crossing the border into Canada in September 2001.

Québec Métal Recyclé (FNF) Inc. pleaded guilty to failing to give notice of shipment of the batteries, failing to get a permit for importing the batteries and unlawfully importing the batteries. Under CEPA's Export - Import of Hazardous Waste Regulations, Environment Canada must be notified of any intended shipment of hazardous waste into Canada. Environment Canada and other government partners can then determine whether a hazardous waste shipment complies with regulations for the protection of human health and the environment.

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ILLEGAL SALE OF ODS PRODUCTS LEADS TO COURT FINE

Two companies have been prosecuted for the illegal sale of products containing Ozone Depleting Substances (ODS). On August 29, 2001, RAE Industrial Electronics Ltd. of Dartmouth, NS, pled guilty to charges relating to the sale of ODS products contrary to the Ozone Depleting Substances Regulations. The company was ordered to pay $4000 to the Environmental Damages Fund and a court fine of $1000. On November 29, 2001, Munro Electronics (1988) Ltd. of Saint John, NB, also pled guilty to charges relating to the sale of ODS products contrary to the Ozone Depleting Substances Regulations. This company was ordered to pay $4000 to the Environmental Damages Fund and a court fine of $1000.

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ILLEGAL DUMPING OF DELETERIOUS SUBSTANCES WARRANTS $95,000 PENALTY

Dartmouth Marine Slips, a division of Irving Shipbuilding Inc., pleaded guilty in Dartmouth Provincial Court to violating Section 36(3) of the Fisheries Act. On September 6, 2001 was company was ordered to pay a penalty of $95,000. The charge was laid by Environment Canada on April 20, 2000 which alleged that on November 12, 1999 Dartmouth Marine Slips deposited sandblasting grit residue, a deleterious substance, into Dartmouth Cove. The charge was laid after a six month investigation by Environment Canada's Office of Enforcement, which included the execution of three search warrants. Investigators from the Nova Scotia Department of Environment and Labour were also involved in the investigation. The $95,000 penalty consists of a $5,000 court fine and a $90,000 payment to the Environmental Damages Fund administered by Environment Canada.

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Note to Readers:

In an attempt to reduce waste, Environment Canada is encouraging the use of electronic means to view this newsletter. You may request to receive an electronic version by email. If you presently receive a hard copy of this newsletter, and are able to access an electronic copy, please contact Cathy Caldwell to add your name to the e-mail list.

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