

## Presentation of Draft Environmental Assessment Study Report

Monday, February 21, 2005: 7:00 to 9:30 p.m.  
Royal Canadian Legion, Toronto Road, Port Hope  
Thursday, February 24, 2005: 7:00 to 9:30 p.m.  
Canton Municipal Hall, County Road 10, Port Hope

## What Happens if....

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there would be no change in leachate concentrations and no measurable effect on groundwater.

### What would happen if the liner were to fail?

The geology and groundwater specialists used computer modelling to predict what would happen if the synthetic geomembranes – one of the many components in the mound's base liner – were to fail. The analysis considered a possible failure of the primary liner's geomembrane after 150 years; the more protected geomembrane in the secondary liner was modelled to fail after 350 years. The study found that the other layers in the mound's cover and base would protect the environment. As leachate passed through these layers, the quantity would be reduced. A small amount would reach the dense, long-lived clay layers in the double base liner system. The clay would naturally repel the leachate and trap contamination. The computer modelling showed that minute amounts of contaminated water

would slowly pass through these layers, exiting the mound to the native soil. Yet even after 500 years, the chemistry of the groundwater entering Brand Creek would be essentially similar to current conditions. The deep aquifer that supplies area wells would not be affected at all.

### What if something happens to the mound hundreds of years from now...who will take care of it, who will pay?

The Government of Canada will own the aboveground mound facility. The Canadian Nuclear Safety Commission (CNSC) will license it. In other words, the historic low-level radioactive waste and long-term maintenance and monitoring of the facility will remain the responsibility of the federal government, which must take care of any future contingencies. The project anticipates that residents would have a role in the facility's long-term monitoring. Finally, the Legal Agreement, the scope of the environmental assessment and the CNSC all require long-term monitoring.



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Low-Level Radioactive Waste Management Office

Winter 2005

# News

SPECIAL PORT HOPE PROJECT EDITION



Residents watched their ideas take shape at a recent workshop as local artist Katherine McHolm sketched suggestions for community uses of the proposed long-term waste management facility once it is closed.

## The studies are done. Your input has counted.

Now the draft report for the Port Hope Project is ready to be presented

**H**ow will the Port Hope Project affect me? How will it affect my environment? This special edition of the newsletter provides answers to these questions.

In recent months environmental specialists have investigated the many ways the project might affect the natural, social and human environment. Their conclusions are presented in the Environmental Effects Assessment Reports, which form the basis of the overall Environmental Assessment (EA) Study Report. The project proposes to consolidate all of Port Hope's historic low-level radioactive waste in an engineered aboveground mound. The new facility would be built at the site of the existing waste management facility and adjacent land near Highway 401.

Late last year, the municipality and its peer review team began reviewing results of the effects assessments. Their comments, along with community input received since an Open House in January, are enabling the Low-Level Radioactive Waste Management Office (LLRWMO) to finalize the draft Environmental Assessment Study Report. This document brings together the results of three years of public consultation and detailed technical and scientific studies. It will be submitted to the federal authorities this spring and used as the basis for decision-making on the Port Hope Project for the cleanup and long-term management of the waste.

**Inside: The project's many links with our environment**

# Effects assessment



## Team of scientists studies everything from quality of water to quality of life

Predicting environmental effects is a step-by-step process to make sure the many possible interactions between the project and the environment are investigated.

To do this, the environmental assessment for the Port Hope Project divided the environment into six areas. Possible effects on the *atmospheric, terrestrial, aquatic and geology/groundwater* environment were studied under the natural environment. The *socio-economic* assessment looked at effects on various elements of the community. The sixth assessment – *human health and safety* – pulled together all of the findings to determine how the project, taken as a whole, might affect human health.

The assessments also proposed measures to reduce any negative effects. Using a variety of analytical tools, these mitigation measures were applied and the effects re-evaluated. The assessments were based on the project design to this point. Additional improvements will continue to be considered. In summary, the effects assessments identified some potential risks, found ways to deal with them and concluded the project can be done safely, without harming the environment or human health. The municipal peer review team continues to analyze and discuss the findings with the LLRWMO. The team will report to the municipality in March. Some highlights of these studies are found on the following pages.

## Could the project affect the natural environment?



### Atmospheric: dust, odour and noise SENES Consultants Ltd.

The most likely effects on air quality are expected to be dust, odour and noise. To calculate the possible extent of these effects and build in a suitable margin of safety, SENES used proven atmospheric modelling techniques based on maximum possible emission conditions. This conservative approach was used to assess effects

from all dust, including dust containing radioactive and metal contaminants. A similar approach was used to predict noise.

Data collected in 2003 from monitoring locations in Wards 1 and 2 were used to predict future dust and noise from project activities. The analysis predicted that dust would meet air quality standards because of the dust control practices that would be used (watering of

unpaved roads and excavation areas, vacuum sweeping, etc.). All predicted radon and radioactive dust levels would be well within air quality standards. Any air quality concerns to be studied further during the human health and safety effects assessment.

Maximum potential noise levels from truck traffic and construction activities were calculated. Noise along most transportation routes was not considered noticeable at only a 1-2 decibel increase. However, these calculations showed that noise from clean-up activities (machinery and trucks) at large sites could be a nuisance. Ways to reduce this effect were, therefore, considered further in the socio-economic assessment.

### Odour unlikely to be noticeable next to landfill

Maximum predicted odour concentrations were calculated for properties immediately next to the municipal landfill site on Highland Drive where historic low-level radioactive waste will be removed. Results showed that odour was unlikely to be noticeable because of the landfill's age; odour levels were projected to be just a fraction of Ministry of the Environment standards.

Residents living closest to the Port Hope harbour could



### Geology and Groundwater: Conestoga-Rovers & Associates

Because groundwater at the proposed long-term waste management facility site discharges into Brand Creek, special attention was paid to possible effects on the watercourse. The study predicted that changes to the groundwater would be minimal and

### Study paid close attention to Brand Creek

would have no effect on the creek. Results of groundwater modelling also showed the aboveground mound would have no effect on the deep aquifer that supplies household wells. Well water quality and quantity would be unchanged, and contaminants would not move from the mound into this deep aquifer. The study confirmed the aboveground mound would successfully isolate the waste from the environment. Only a very small amount of leachate would be generated by the mound for treatment. Existing contaminated groundwater would continue to be collected and treated on site, and its quality would be significantly improved over the long-term life of the facility.

Finally, the assessment found that the cleanup of contaminated sites throughout Ward 1 would improve the quality of soil and groundwater.







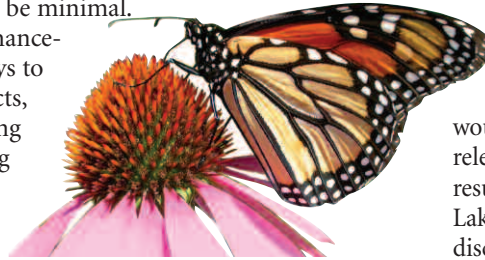
**Terrestrial: plants and animals**  
AMEC Earth & Environmental

During the construction phase – the cleanup of Ward 1 sites, aboveground mound construction and waste

**Could dust harm plants or animals?**

transportation – potential effects would include clearing vegetation, dust, ground or surface water contamination, traffic and noise. For example, the terrestrial specialist investigated whether radiological and non-radiological dust settling on leaves or taken up through plant roots from soil could harm plants and, therefore, animals.

The assessment predicted that the quantity of dust generated would be too small and occur over too short a period to affect plants or animals. Increases in noise levels and traffic were not predicted to disturb wildlife. The cleanup would improve soil, groundwater and surface water quality, having a positive effect on plants and animals. Although some vegetation would be lost, the study concluded its effect on wildlife would be minimal. Landscape enhancements and ways to minimize effects, such as avoiding clearing during bird nesting times, were proposed.

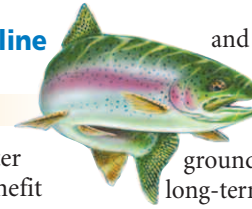


**Aquatic: fish, shoreline habitat, wildlife**  
– EcoMetrix

The findings showed that the water quality of Brand Creek would benefit over the long-term; the proposed waste management facility would improve the quality of the groundwater flowing into the

**The project would have lasting benefits**

creek. Similarly, once the above-ground mound was completed, much lower volumes of surface/ground water and leachate would need to be treated and then released from the facility. This would result in a measurable improvement in Lake Ontario water quality at the discharge location. Removal of waste



and contaminated soil from the Highland Drive municipal landfill site would improve groundwater quality over the long-term and benefit local tributaries of the Ganaraska River. Dredging activities would temporarily disrupt the aquatic environment of Port Hope's inner harbour basin. During this work, contaminant concentrations could increase in the area where the harbour joins the Ganaraska River. The study predicted all levels would remain within provincial water quality objectives. Following the cleanup, a better fish habitat and reduced contaminant levels in bottom-dwelling species were predicted.



**Could the project affect human health and well-being?**



**Human health and safety effects assessment**  
Golder Associates

To find out if project activities could affect residents' health, this study brought together findings from all the environmental effects assessments (see preceding stories). It looked at possible health effects on residents and project workers from changes in:

- Concentrations of radioactive and metal contaminants in air, soil, water and food;
- Predicted accidents from increased truck traffic;
- Noise and dust from construction and transportation activities;
- Residents' feelings of well-being as a result of the project.

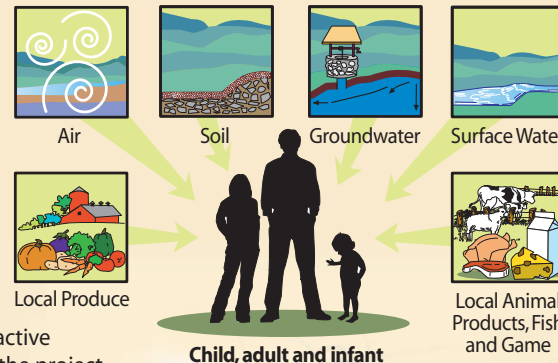
To calculate potential risk to human health, the study developed maximum exposure scenarios for an adult male, a 10-year-old child and a one-year-old infant because doses differ with body size and development. Maximum effects on these hypothetical people were determined by assuming each lived next to a site where major project

activities would occur or along the busiest transportation routes, 24 hours a day, seven days a week for five years. The scenarios exposed them to the highest predicted levels of dust, truck exhaust and noise and the highest reasonable levels of contaminants through their diets and lifestyle activities.

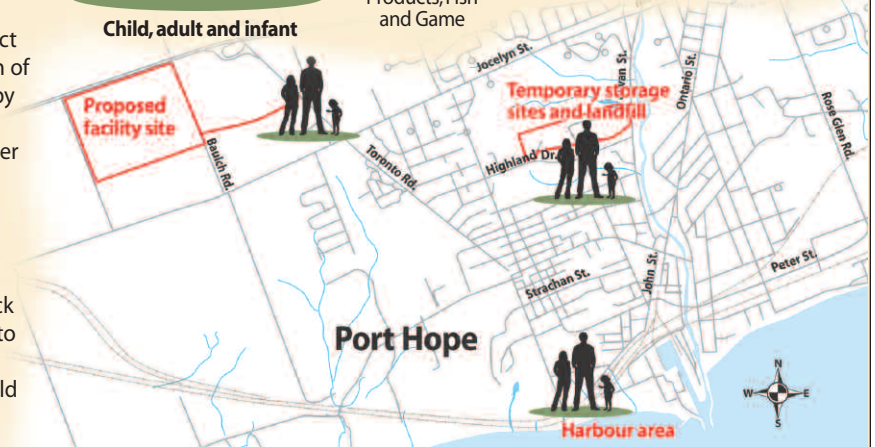
Under these circumstances the study found that residents' total exposure to radioactive contaminants from the project would be just a small fraction of the allowable dose limit set by the Canadian Nuclear Safety Commission. Maximum worker exposure would also be well below allowable occupational limits.

**Exposures were too low to affect residents' or workers' health**

The study assessed potential health effects from non-radioactive contaminants, in particular, dust, truck exhaust and metals. Measures to reduce dust and truck exhaust were proposed. For metals, the potential risk to human health was calculated using the maximum emission scenarios. The results showed increases would be too small to cause adverse effects.



Although construction and truck noise could be noticeable at certain sites, ways to reduce it were proposed. The study concluded that basic safety measures would adequately limit traffic accidents, and residents' concerns about the project would be addressed in a variety of ways, including ongoing communication and monitoring.



## Could the Port Hope Project affect the community's character or residents' daily lives?



### Socio-economic Gartner Lee Limited

The study predicted that major changes in population, business and economic development will not occur. The important features that attract visitors to Port Hope (i.e. antique shops, Capital Theatre, restaurants, heritage architecture) should not be affected. The Initiative is expected to remove the stigma associated with the waste, resulting in an even more positive business climate. Restoring the Highland Drive area sites and the Port Hope waterfront to positive uses is expected to benefit the community.

The assessment also concluded that most residents' day-to-day lives are unlikely to be disrupted by the project. Increased traffic and noise will be temporary during construction and cleanup at designated

locations. Concerns of residents living closest to the proposed waste management facility about traffic, noise and dust will be an effect of the project requiring mitigation.

### Study proposes ways to reduce disruption

No general drop in property values is expected. In neighbourhoods with major cleanups or near the proposed facility, short-term property value effects could occur. The

assessment predicted values would return to normal after the project is completed.

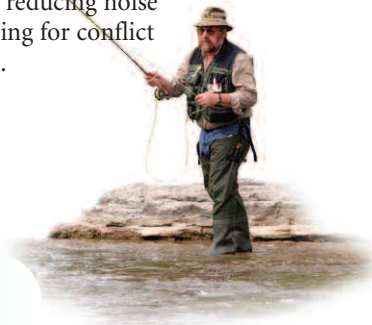
Some community facilities located near major clean-up sites could be affected. Construction activity in the Highland Drive area, for example, could cause nuisance effects for Jack Burger Sports Complex. The Port Hope Yacht Club and Firefighters' Museum will relocate temporarily. However, the cleanup will result in opportunities for development at the harbourfront.

A survey of anglers indicated recreational fishing in the Ganaraska River is unlikely to be disrupted.

The assessment offered a variety of ways to offset effects including:

- Notification and consultation through a local residents' group about the project's progress, planned activities, environmental monitoring results and possible traffic disruption;
- Ongoing monitoring of the Property Value Protection Program to assess its effectiveness and duration;

- Landscaping and tree planting to minimize visual impact of the aboveground mound;
- Traffic safety improvements along affected streets, access routes and at intersections;
- Numerous ways to reduce nuisance effects such as adjusting work schedules, reducing noise and planning for conflict resolution.



## What happens if....

*At meetings and in conversations, people often ask: What happens if? Below are some of your most frequently asked questions and the answers.*

### Have you considered an accident involving a truck spilling its waste?

Such an accident is highly unlikely given the safety precautions proposed. Nevertheless, an accident involving a waste truck would be dealt with under the project's transportation and emergency response plan. Emergency personnel, including a radiation surveyor and safety officer, would be notified immediately, and appropriate personnel would be dispatched. Access to the accident scene would be restricted and monitoring and cleanup would begin. Dust inhalation would be unlikely because of the waste's high moisture content. Radiation and contamination surveys would be carried out to ensure areas where waste may have spilled were cleaned to background levels.

### What would happen if the above-ground mound's cover were damaged or didn't stand up over time?

The cover is repairable and replaceable if needed. A problem with the cover would be detected early through regular inspections of the cap and monitoring of the quantity and quality of leachate. Under normal operations, the cap sheds most rain and surface water. If the synthetic geomembrane failed, precipitation that soaked in would reach the sand drainage layer where much of it would be diverted. The remaining water would pass through the waste to the leachate collection system where it would be pumped to an on-site facility for treatment and discharge. Analysis showed that even if a maximum possible amount of water passed through the cap, and it took five years before repairs were completed,

*continued on page 8*