Presentation of Draft Environmental Assessment Study Report

Port Granby Project
Tuesday, February 22, 2005
7:00 to 9:30 p.m.
Newtonville Community Hall

What Happens if....

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What would happen if the aboveground 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 potential amount of water passed through the cap, and it took five years before repairs were completed, 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 geomembrane – one of the many components in the mound's base liner – were to fail after 150 years. They 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 quantity would reach the dense, long-lived clay layer in the base, which would naturally repel the leachate and trap contamination. Minute amounts of contaminated water would slowly pass through this layer, exiting the mound to the native clay-type soil, 8 to 12 metres deep. This soil would form an effective backup because of its very low permeability. Even after 500 years, the chemistry of the groundwater entering Port Granby Creek would be essentially similar to current conditions. The deep aquifer that supplies area wells would not be affected at all.

Port Hope Area Initiative

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Low-Level Radioactive Waste Management Office

Winter 2005

Port Granby Project

News

SPECIAL PORT GRANBY PROJECT EDITION

The studies are done. Your input has counted.

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

How will the Port Granby 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 relocate the historic low-level radioactive waste from its existing site on Lake Ontario to an engineered aboveground mound at a new site away from the lake.

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 EA 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 project for the long-term management of the waste.

Clarington resident Harvey Thompson and planner Faye Langmaid discuss the project with LLRWMO Project Specialist Rick Rossi at a recent public meeting.

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 interactions between the project and the environment are investigated.

To do this, the environmental assessment for the Port Granby 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 assessment 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 around the existing and proposed sites and transportation route were used to predict future effects from dust and noise. The analysis predicted that dust outside the construction sites' fence lines 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.). Predicted concentrations for airborne metal and radioactive contaminants, including Thorium-230, Thorium-232 and Radium-226, were well within safety limits. The maximum predicted off-site concentration for radon gas, produced from the decay of radium-226, was also well within the standard set for the protection of human health.

Monitoring stations measured dust and noise

During the peak construction period, truck traffic along the proposed transportation route is predicted to noticeably increase for about a month during the first and second years of the project and for about two months in Year 6. Truck noise would be noticeable. Noise from construction activities at the waste management facilities should be no different from typical construction noise. Varieties of ways to minimize the effect were identified, but because noise cannot be eliminated entirely, the effect was considered further by the human health, terrestrial and socio-economic studies.

Geology and Groundwater:

Conestoga-Rovers & Associates

The study confirmed that 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 and released to Lake Ontario. Special attention was paid to the quality of the groundwater and Port Granby Creek. The study predicted that changes to the groundwater would be minimal and would have no effect on the creek. Results of groundwater modelling also showed that the aboveground mound would have no effect on the deep aquifer that supplies household wells. Well water quality and quantity would be unchanged; contaminants would not move from the mound into this aquifer.

Study paid close attention to Port Granby Creek

Lake Ontario bluff at the existing waste management site

At the existing waste management site on Lake Ontario, removing the waste was shown to improve soil and groundwater conditions. Contaminated groundwater from the East Gorge would continue to be collected and treated until natural flushing reduced the concentrations to acceptable levels. The assessment predicted that, over time, contamination entering Lake Ontario would be essentially eliminated by the project.

Terrestrial: plants and animals

AMEC Earth & Environmental

During the waste excavation and construction phase, 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.

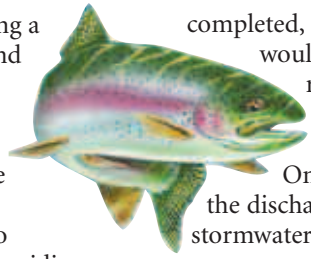
The assessment predicted that the quantity of dust generated would be too small and occur over too short a period to affect plants or animals. Increases in noise levels and traffic would not disturb wildlife. At the existing waste site where wildlife habitat is richer, the study concluded that the existing dense forest would reduce noise effects. Excavation of the existing waste would improve soil and groundwater 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.

Could dust harm plants or animals?

Aquatic: fish, shoreline habitat, wildlife

EcoMetrix

The assessment predicted that once the waste was removed from the existing site and the new facility was completed, much less leachate would have to be treated and released. This would cause a measurable improvement in Lake Ontario water quality at the discharge location. Clean stormwater from the proposed site would be directed from a treatment pond to Port Granby Creek. The assessment studied possible changes to the creek from stormwater and groundwater and concluded the facility would have no effect on Port Granby Creek's aquatic environment.



The project would have lasting benefits

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:

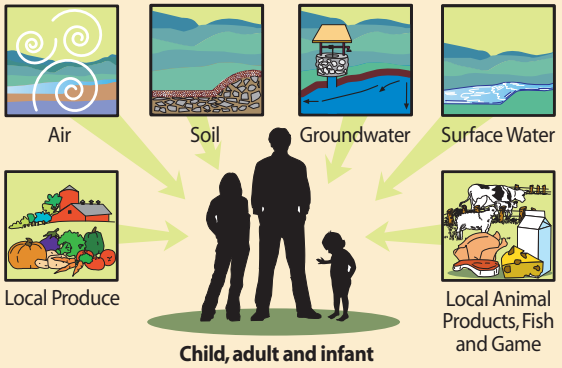
- Concentrations of radioactive and metal contaminants in air, soil, water and food;
- Predicted accidents from increased truck traffic;
- Noise and dust from construction and transportation activities;
- Residents' feelings of well-being as a result of the project.

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 construction site – the existing and proposed waste management facilities – or on Concession 1, the proposed transportation route for construction materials. These 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 activities, 24 hours a day, seven days a week over five years.

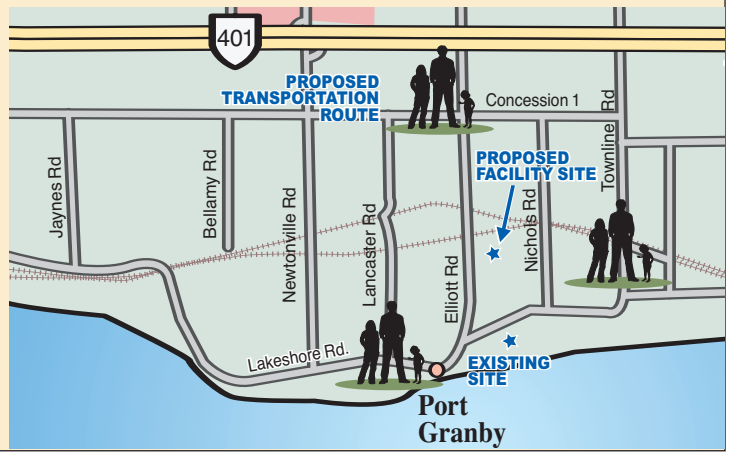
Under these circumstances the study found that residents' total exposure to radioactive contaminants from the project would be just a small fraction of the allowable dose limit set by the Canadian Nuclear Safety Commission. Maximum worker exposure would also be well below allowable occupational limits.

Exposures were too low to affect health

The study also assessed potential health effects from non-radioactive contaminants, in particular, metals, general dust and truck exhaust. Predicted increases in dust were small and within Ministry of the Environment limits. Similarly, project-related truck exhaust met air quality standards. The study concluded there would be no health impacts from dust-borne metals. During construction and in the early life of the project, levels of uranium and arsenic would be slightly above background where the treated water from the facility enters Lake Ontario. The assessment concluded this would not affect human health.



While project-related noise would be noticeable, measures were recommended to reduce annoyance levels. The study concluded that basic safety measures would adequately minimize traffic accidents, and residents' concerns about the project would be addressed in a variety of ways including ongoing communication and monitoring.



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

Socio-economic
Gartner Lee Limited

The assessment concluded that construction activity in the peaceful, rural community around Port Granby will be a temporary intrusion. Residents living closest to the existing and proposed waste management facilities will notice increased truck traffic and construction-related noise.

Study predicts temporary local effects

However, changes in the character, social and economic life of the Municipality of Clarington as a whole are not predicted. The concerns of residents living closest to the project over traffic, noise and disruption will be an effect of the project requiring mitigation. The study proposes ways to build residents' confidence that the facility will not be used in the future to accept more waste.

For about a month during the first and second years of the project and about two months during the final (sixth) year, a maximum of 125 trucks a day, each way, will transport construction materials. As a result, traffic noise along the proposed transportation route will be noticeable, similar to that along a typical county highway.

Some construction noise will be audible around both the existing and new waste management facilities.

Dust, however, is not expected to be a nuisance because of dust suppression measures that will be used. Outside the construction sites, dust is expected to meet all air quality standards (including radiological and non-radiological criteria for the protection of human health).

During the construction phase, short-term residential property value effects could occur. The assessment concluded that values would return to normal some time after construction ended. The presence of the waste management facility is not expected to affect property values over the long term, although a positive effect could result from the restoration of the existing waste site on Lake Ontario.

Twenty farms are located in the vicinity of the project. The atmospheric, geology/groundwater and terrestrial assessments found there would be no effects on air, soil, ground or surface water quality that could harm crops or livestock. Noise was considered too low to bother animals. However, traffic conflicts with slow-moving farm vehicles could occur. Farm property values were not considered overly sensitive to project effects because the value is tied to demand, size, soil quality, etc.

Study suggests how to deal with nuisance effects

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 and conflicts;
- Ongoing monitoring of the Property Value Protection Program to assess its effectiveness and duration;
- Enhanced liaison with local farmers including communication, traffic and environmental monitoring and mitigation for direct impacts;
- Landscaping and tree planting to minimize visual impact of the aboveground mound;
- 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?

The project currently proposes to install a four-way stop at the intersection of Lakeshore Road and the dedicated waste haulage road that would be built between the existing site and the new long-term management facility. An accident is highly unlikely given the safety precautions proposed and the good visibility in both directions. 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.

The LLRWMO will be considering enhanced waste transportation methods during the next phases of the engineering design. These include an underpass that would allow haulage vehicles to pass under Lakeshore Road and use of a rail-type system to move enclosed waste containers to the new facility.

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