

Company Overview

North York General Hospital (NYGH) is a multi-site community teaching hospital serving North Central Toronto and Southern York Region. As part of its vision to lead in shaping healthcare for tomorrow, NYGH's Green Team retained the services of Enviro-Stewards to conduct a pollution prevention (P2) assessment under the Toronto Region Sustainability Program at its General Division, which led to implementation of its P2 Plan and addressed the hospital's compliance status with the City of Toronto's Sewer Use By-Law.

Hazardous wastes and *Canadian Environmental Protection Act (CEPA)* toxic substances also were focal points of the assessment.

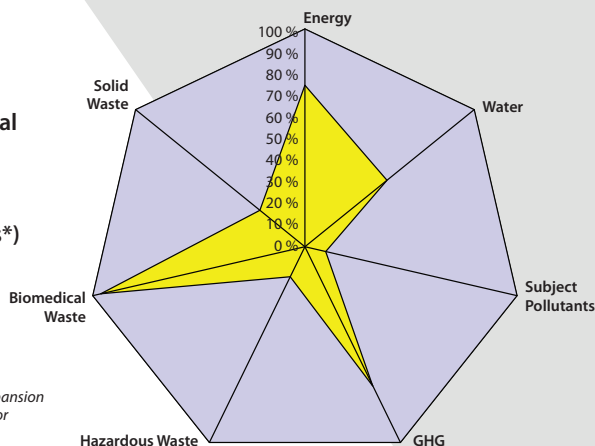


P2 Assessment Process

Enviro-Stewards began and completed most of the work on the pollution prevention assessment in 2002, but due to budget constraints and complications due to the outbreak of SARS, NYGH decided to put the project on hold until it could be given full attention. Management was able to implement some of the recommendations made by Enviro-Stewards in 2002, and significant improvement in environmental performance was evident by the time the assessment was revisited and completed in 2007.

NYGH Environmental Footprint 2002-2006 (per m2 Basis*)

2002
2006



*Southeast tower expansion in 2004 increased floor area by 22,000 m2.

Summary of Findings

Nonylphenol ethoxylates (NPEs) were commonly used in the maintenance and housekeeping procedures at NYGH, as they are typical constituents of a variety of cleaning products. Wastewater analysis showed that effluent from the hospital contained levels of NPEs above the limits defined in the Sewer Use By-Law. By replacing NPE-containing products with more environmentally friendly cleaners, NYGH reduced its NPE effluent by 97% between 2002 and 2006 and is now well below the by-law limits in this regard.

Formaldehyde, formalin, xylene, and ethanol are used in the laboratory for various testing procedures. These materials are photo-chemical reactive volatile organic compounds (VOCs), and once spent, must legally be handled as hazardous wastes when being disposed. Installation of a solvent recycling still has been highly effective in reducing NYGH's purchases of these materials, as well as hazardous waste creation and disposal costs since 2002. Further investigation and pilot testing of alternatives to xylene is also recommended and will yield even greater environmental benefits.

A 2007 follow-on study to the original assessment confirmed that the recommended P2 actions were successful, and the associated projected reductions of toxics, metals, VOCs and hazardous waste were achievable, and in

many cases had already been achieved. Some of these hard numbers are shown in the table on the following page.

"As a large multi-site health care provider, North York General Hospital is committed to continuous improvement of its environmental performance. The hospital's partnership with Enviro-Stewards and OCETA has assisted the organization-wide Green Team to focus its efforts on pollution prevention, energy efficiency and on-going education. Successful outcomes include the positive change in hospital culture, from basic compliance to environmental stewardship. More than ever, we are challenging each other and helping each other become environmentally friendly co-workers."

Janak Jass, Director, Support Services, North York General Hospital

P2 Solutions, Environmental Results and Related Cost Savings

The table below summarizes P2 projects being undertaken at NYGH's General Division from the list of P2 recommendations outlined in the assessment report. When implementation is complete, the P2 measures at NYGH are projected to eliminate annually:

- 9.5 tonnes VOCs
- 83 kg toxics
- 4,2750.5 tonnes water
- 33.3 kg metals
- 12 tonnes hazardous wastes

With annual savings of **\$31,000** and an overall payback of **2.8 years**.

Process	P2 Solutions	Environmental Reductions	Cost Savings & Payback
Maintenance, Housekeeping and General Usage Targeted Pollutants: Zinc, Molybdenum, Nonylphenol Ethoxylates (NPEs), Water Consumption	Material substitution and improved purchasing procedures	Reductions of: 83 kg/year (97%) NPEs; 6.73 kg/year (98%) molybdenum; 26.6 kg/year (77%) zinc	➔ Potential for cost savings; capital cost is negligible
	Adoption of water conservation measures (e.g. water saving toilets)	Implementation of this option is expected to reduce water consumption by 4,270 tonnes annually	➔ Annual savings of \$9 K Payback of 4.7 years
Laboratory Testing and Usage Targeted Pollutants: Xylene, Formaldehyde, Formalin, Ethanol	Distillation and reuse of waste solvents	Reductions of: 5.5 tonnes/yr (92%) formaldehyde;	➔ Annual savings of \$20.5 K Payback of 2 years
	Material substitution and improved purchasing procedures	4 tonnes/yr (63%) of formalin and xylene/ethanol mix (VOCs & hazardous waste)	
Biomedical Waste Management Targeted Pollutants: Non-Hazardous Wastes	Improvement of classification procedures (Prevention of non-hazardous materials entering the biomedical waste stream)	Implementation of this option is expected to achieve a reduction of 2.5 tonnes/year (5%) of non-hazardous waste improperly classified as biomedical	➔ Annual savings of \$1.2 K Immediate payback

Funding and Program Support:



Delivered by:



For more information, please contact:

Fred Granek, Vice President, Sustainability, OCETA
 2070 Hadwen Rd, Unit 201A, Mississauga, ON L5K 2C9
 Tel: 905 822 4133 x224, email: fgranek@oceta.on.ca
 Web site: www.oceta.on.ca/TORSUS/