

The Hospital for Sick Children

Company Overview

The Hospital for Sick Children is one of the largest paediatric academic health science centres in the world, with an international reputation for excellence in health care, research, and teaching. The Hospital for Sick Children employs approximately 6,300 staff and is located at 555 University Avenue in Toronto.

The Environmental Affairs Department and the hospital as a whole are continually striving to improve their environmental performance and reduce pollutants and wastes through pollution prevention. Thus, the hospital wishes to meet or exceed all legal requirements through the application of sustainable development practices.

P2 Assessment Process

To meet the objectives of the Toronto Region Sustainability Program, The Hospital for Sick Children underwent a pollution prevention assessment by a consulting firm, Pinchin Environmental. The consultant has significant knowledge of pollution prevention methods as they apply to the health care institutions' processes, waste streams and technologies. The P2 Plan that they prepared has now become one of the key components of the hospital's environmental management system and was the first comprehensive, multi-media P2 plan for a hospital in Canada.

Summary of Findings

In total there were eighteen recommendations provided by Pinchin. These include thirteen P2 projects using material substitution to generally address VOCs, toxics, metals and equipment upgrading to reduce energy consumption and greenhouse gases.

In the housekeeping department material substitution, purchasing procedures and process changes were identified

as solutions to environmental issues. For example, the hospital will use a floor wax with reduced zinc content and a xylene-free floor cleaner. In general, they will be working toward purchasing only phthalate-free or alkylphenol-free products. These replacements will reduce 255 kg/yr zinc, 0.9 tonnes/yr alkylphenol

ethoxylates (toxic), 1.1 tonnes/yr xylene (VOC) and indeterminate amount of phthalates.

In most cases, these measures are cost neutral.



Hospital for Sick Children, Toronto, Ontario

"It is encouraging to see community partners like OCETA play such an active role in assisting the Health Care sector to find ways to manage in a more sustainable manner. The financial incentive from OCETA allowed us to take a more holistic multimedia approach to Pollution Prevention, while preparing our P2 plan for the Toronto Sewer Use Bylaw."

*Valerie O'Grady, Director of Support Operations,
Hospital for Sick Children*

P2 Solutions, Environmental Results and Related Cost Savings

The table below summarizes P2 projects being undertaken by the Hospital for Sick Children from the list of P2 recommendations outlined in the assessment report. When implementation is complete, the P2 measures are projected to reduce annually:

- 2.1 tonnes VOCs
- 2.6 tonnes toxics
- 67,000 tonnes water
- 454 tonnes GHGs
- 255 kg metals
- 1,435 MWh electricity

With annual savings of **\$5,000** and an overall payback of **2 years**.

Process	P2 Solutions	Environmental Reductions	Cost Savings & Payback
Maintenance and Housekeeping Targeted Pollutants: Zinc, Xylene, Alkyl Phenols and Alkyl Phenol Ethoxylates, Phthalates	Material substitution, purchasing procedures and process change:	Annual reductions of:	Most measures cost neutral
	Use floor wax with reduced zinc content; eliminate car waxing/washing operation	255 kg zinc	
	Alternative xylene-free floor cleaner	1.1 tonnes xylene (VOC) (includes reductions associated with lab testing)	
	Alkyphenol-free cleaners	0.9 tonnes alkyphenol ethoxylates (toxic)	
	Phthalate-free products	indeterminant amount of phthalates	
Laboratory Testing Targeted Pollutants: Chloroform, toluene, xylene, formaldehyde	Material substitution and purchasing procedures:	Annual reductions of:	Most measures cost neutral
	Chloroform-free DNA/RNA extraction kits	0.9 tonnes chloroform (VOC)	➔ Improved purchasing procedures reduces costs by \$5 K/yr
	Solvent-free slide mounts, contact cement, cement thinner and cleaning reagents, alternative tissue fixatives	12.5 kg toluene (VOC), 1.1 tonnes xylene (VOC) (includes reductions associated with maintenance), 1.7 tonnes/yr formaldehyde (toxic)	
Heating and Cooling Targeted Pollutants: Greenhouse Gases	Upgrade gas fired heaters and chillers	Reduce 80 tonnes/yr carbon dioxide and 88 kg/yr nitrogen oxides	Cost neutral
	Retrofit medical air pumps (air cooled instead of water cooled)	Reduce water consumption by 67,000 tonnes/yr	➔ Annual savings of \$67 K
	Chiller Replacement, medical and plant air replacement and installation of new cooling towers	Reduce electricity use by 1,435 MWh/yr and GHGs by 374 tonnes/yr	

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