



# Toronto Region Sustainability Program Central Reproductions Inc.

Lithographic  
Printing  
Sector

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## COMPANY OVERVIEW

Central Reproductions is a full service, 80-person, commercial lithographic printing company. Central's Management is committed to producing high quality offset lithographic printing and direct mailing services with minimal impact to the environment. The firm is also committed to compliance with all applicable laws and regulations and to provide a safe and healthy working environment for employees. Central Reproductions is certified by EcoLogo Certification and is aiming for the ISO 14001 Certification in the near future.

## P2 ASSESSMENT PROCESS

Through the Toronto Region Sustainability Program (TRSP), Central Reproductions contracted John Piggott of EcoSafe Environmental Health & Safety Management to assess the facility's operations for pollution prevention (P2) opportunities. The primary purpose of the review was to assist Central Reproductions in meeting the P2 regulatory requirements of all levels of government. The firm's management was also interested in meeting or exceeding EcoLogo Standards, as well as demonstrating good corporate citizenship.

The P2 Assessment provided a customized multi-media evaluation of Central Reproduction's processes, raw materials, equipment, chemical use and storage, along with the emissions and waste discharges. Throughout the course of the assessment, Mr. David Hall, Production Manager, was directly involved in assisting with the plant audit, and providing access to the data and other related information required. The consultant provided the firm with a detailed P2 Assessment Report, which identified P2 options for key processes at Central Reproductions.



David Hall @ Central Reproductions Inc.

## SUMMARY OF FINDINGS

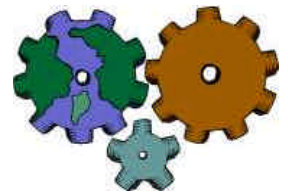
There were numerous P2 opportunities recognized for the two main processes at the Central Reproductions facility -- Pre-Press (computer imaging, film, computer-to-plate) and Pressroom (sheet fed printing and finishing).

In the pre-press area, the Computer to Plate (CTP) processor uses approximately 8.9 litres per minute (2 gallons per minute) of fresh wash water.

This is controlled by a solenoid so that the water runs when plates are being processed. The rinse bath removes the developer and emulsified plate by-products, which go to drain. The total water usage is 211,200 kilolitres a year.

Another area of concern was in the fountain solution in the Pressroom. All lithographic printing inks contain subject pollutants, depending on the color. For example green, gold and blues contain copper, silver contains zinc, and violets and purples contain molybdenum. Inks also contain up to 40% VOCs. Fountain solution becomes contaminated with water extractable metals such as cobalt, copper, molybdenum, zinc and other elements from the ink and the solvents.

A spent fountain solution sample was analyzed and was found to contain subject pollutants including chromium, copper, nickel, arsenic and zinc. There was also high BOD levels and other contaminants, including Isopropyl Alcohol (IPA). IPA is used to reduce ink/water balance problems associated with fluctuating water quality and unstable conductivity. It is, however, a smog precursor (100% VOC) and listed in the National Pollutant Release Inventory (NPRI) list of toxic substances.



*"At Central Reproductions we recognize the importance of pollution prevention as part of our growth management. By taking advantage of the comprehensive OCETA program to retain the technical services of John Piggott of EcoSafe, we are achieving this goal."*

*David Hall, Production Manager,  
Central Reproductions*

## P2 SOLUTIONS, THE ANTICIPATED RESULTS, AND RELATED COSTS SAVINGS

The table below summarizes P2 projects being undertaken by Central from the list of P2 recommendations outlined in the assessment report. When implementation is complete, the P2 measures at Central Reproductions are projected to **reduce 8.2 tonnes of VOCs, 1.2 tonnes of process wastes, 148 tonnes of water and 0.4 tonnes of GHGs annually, with overall payback of 11 months.**

Process	P2 Options	Environmental Reductions	Cost Savings & Payback
<b>Pressroom</b> <b>Use of Isopropyl Alcohol (IPA) in the Fountain solution (10% of IPA)</b>	<ul style="list-style-type: none"> <li>Installation of reverse osmosis (RO) system (228 -455 L/d) to eliminate use of IPA in the fountain solution. The RO system eliminated dissolved minerals and other contaminants from the water source.</li> </ul>	<p>This option reduced 100% (3 tonnes) of the VOC generation from IPA and fountain solution at the facility annually.</p> <p>This option reduces regulatory reporting under the NPRI, improves the printing quality as well as health and safety measures for Central Reproductions.</p>	Estimated saving of \$6.4 K annually with a payback of 6 months.
<b>Pressroom</b> <b>Waste Fountain Solution &amp; Press Bucket Wash</b>	<ul style="list-style-type: none"> <li>Installation of a closed-loop Ultra Filtration Membrane unit to treat the spent fountain solution and bucket wash water on-site prior to discharge or re-use.</li> </ul> <p>Other water-based waste filtered at the same time with the fountain solution to save on costs for off-site disposal.</p>	<p>The re-use option reduces 5.2 tonnes of solvent use (VOCs) annually and saves approximately 95% of the costs of virgin fountain concentrate.</p> <p>This option also reduces 24 drums of waste to be hauled off-site annually.</p>	Estimated annual savings of \$5 K in waste disposal and feedstock costs, with a payback of 12- 18 months.
<b>Pre-Press</b> <b>CTP Liquid Wastes - Developer</b>	<ul style="list-style-type: none"> <li>Developer recirculation and reduction unit is under investigation to reduce chemical consumption and waste produced</li> <li>Installation of wash water recirculating unit</li> </ul>	<p>The unit will filter and recapture 50 to 70 % of the spent developer use and reduce 1.2 tonnes/yr of CTP wastes</p> <p>This option will reduce water consumption by up to 70% (148 cubic m/yr) &amp; 0.4 tonnes/yr of GHG equivalents</p>	<p>This P2 option will lead to savings of \$3.9 K with an ROI of 10 months</p> <p>Annual savings of \$1.5 K with payback of 6 months</p>
<b>Facility</b> <b>Fluorescent Light bulbs</b>	<ul style="list-style-type: none"> <li>Collection of spent tubes for pick up by fluorescent lamp recyclers in Cambridge</li> </ul>	The offsite recovery and reuse will eliminate 105 mg of mercury from landfill annually	Revenue Neutral

### Funding and Program Support:



Environment Canada / Environnement Canada



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Ontario  
Ministry of the Environment / Ministère de l'Environnement

THE ONTARIO TRILLIUM FOUNDATION / LA FONDATION TRILLIUM DE L'ONTARIO

TORONTO Economic Development



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