

Region of Niagara/
Association of Municipal Recycling Coordinators
(AMRC)

White Goods Switch Removal Program Mercury Policy and Elimination Plan



Great Lakes Region Pollution Prevention
Roundtable (GLRPPR)

Toronto, Ontario

August 27-28, 2002

Region of Niagara

- Two-tier government, Regional Government & 12 area municipalities
- population 423,600
- approximately 170,000 households
- Lake Erie and Lake Ontario watersheds, Welland & Niagara Rivers
- 2,100 Regional Staff
- \$540 million Operating Budget

AMRC

Non profit organization formed in 1987

- facilitates sharing of municipal waste reduction and recycling information and experience
- coordinates specialized workshops and seminars
- produces reports, manuals and other documents on specific waste management and waste diversion topics of interest to municipalities
- Represents over 95% of the municipalities in Ontario with recycling programs

Mercury Switch Removal Program

Pilot Rationale

- *Ontario Municipal White Goods Collection and Mercury Switch Removal Survey & Report, March 2000*
- AMRC completed report for Environment Canada on the status of appliance recycling in Ontario
- Report found:
 - all municipalities in Ontario recycle the old appliances
 - no mercury devices were removed before recycling
 - approximately 150 kg of mercury entered the recycling stream through municipal programs in 1999

Mercury Switch Removal Program

Pilot Overview

- Environment Canada funded nine-month pilot to study the removal of mercury devices from old appliances by AMRC & Region of Niagara
- The finished products included:
 - Final report to Environment Canada
 - a “How To” Manual
 - a demonstration video, “Removing Mercury Switches & Sensors from Old Appliances”

•
•
•

Mercury Switch Removal Program

Pilot Objectives

Characterization of:

- The type, make and model of appliances that contain mercury switches
- Time/motion studies
- Labour, handling, transport, disposal cost, and;
- The quantity of mercury diverted from improper disposal

Mercury Switch Removal Program

Pilot Scope Activities

- “Suspect” appliances (e.g., chest freezers, furnaces, gas appliances) set aside by contractor
- Contractor employee instructed on locating and removing mercury bearing devices
- Information on appliances most likely containing mercury devices provided to contractor (State of Minnesota, Appliance Recycling Information Centre, Pollution Probe)

Mercury Switch Removal Program

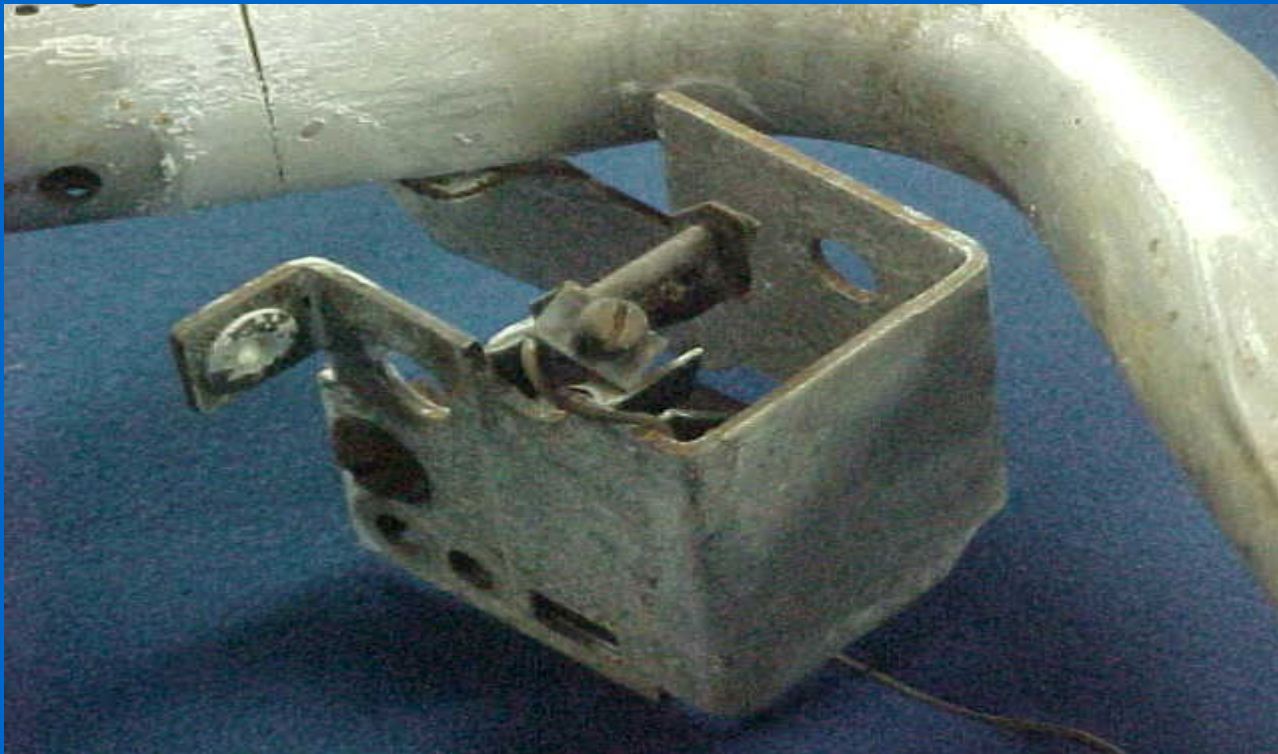
Study Results

- 1,314 white goods units were received
- 120 units (9%) contained mercury
- 117 devices found within the light assembly of the lid of chest freezers
- 1-2 minutes to locate a mercury switch in a freezer
- the other 3 devices found in old gas ranges
- 10 minutes to isolate and remove mercury bearing devices (pilot flame sensors) in gas ranges

-
-
-

Mercury Switch Removal Program

Gas appliance pilot flame sensor containing mercury



•
•
•

Mercury Switch Removal Program

Study Results - General

- Mercury switches in good condition & pose no threat of leakage when handled during the pilot project
- No other potential mercury containing appliances were received (furnaces, pre-1970's washing machines and space heaters)

•
•
•

Mercury Switch Removal Program

Potential Issues

- Space - segregating the mercury containing items from other appliances
- Finding local expertise on appliances
- Curbside scavenging of appliances

Mercury Switch Removal Program

General Conclusions

- clear picture of the extent of mercury containing switches and sensors in the appliance waste stream (9% of the total)
- Able to identify and target the appropriate appliances (make, model, type)
- Itemize costs - based on receiving 14 mercury containing devices/month, the estimated program costs are between \$615 - \$895 per year

•
•
•

Mercury Switch Removal Program

Special Thanks to:

- The State of Minnesota Office of Environmental Assistance, State of Vermont, and Pollution Probe for use of their factsheets
- Environment Canada for funding assistance
- Modern Corporation

Thinking Further...

Regional Niagara Mercury Policy and Elimination Plan

- Joint project, Niagara and the AMRC
- Niagara manages mercury through HHW, appliance collection, wastewater programs but has no comprehensive policy or plan to link programs or to reduce/eliminate mercury from its operations
- Funding application currently being considered by Environment Canada

Mercury Policy and Elimination Plan

Services offered by Regional Niagara that may handle mercury in their respective operations:

- Solid Waste Management
- Water and Wastewater treatment
- Community Services
- Public Health Services
- Transportation (Regional Roads)
- Purchasing Dept.

-
-
-

Mercury Policy and Elimination Plan

Step 1 Assess mercury purchasing, handling/disposal practices, quantification of mercury inputs/outputs, review service provision

Step 2 Develop mercury reduction/elimination plans for each department

Step 3 Develop a policy statement for Regional Council consideration

Step 4 Implement departmental mercury reduction/elimination plans

Mercury Policy and Elimination Plan

Intended Results:

- Clearly document phase-out of certain mercury containing devices
- Quantifiable reduction/elimination of mercury release to the environment
- Serve as a template for other municipalities