

Standardizing Municipal  
HHW Data: Recording,  
Reporting and  
Tendering

FINAL REPORT

Prepared for the  
Ontario Waste Diversion  
Organization

March, 2001





**TABLE OF CONTENTS**

---

ACKNOWLEDGEMENTS	i
<hr/>	
1.0 EXECUTIVE SUMMARY	1
<hr/>	
2.0 INTRODUCTION	3
2.1 Background on Activities prior to Standardization Study	4
<hr/>	
3.0 STANDARDIZATION STUDY	5
3.1 REVIEW OF CURRENT DATA CONVERSIONS	5
3.2 ON SITE SAMPLING	5
3.2.1 SAMPLING PROCEDURE	6
3.2.2 SUMMARY OF WASTE CATEGORIES SAMPLED	6
3.3 REVISION OF STANDARDS TO REFLECT CHANGES	8
<hr/>	
4.0 RECOMMENDATIONS AND NEXT STEPS	9
<hr/>	
APPENDICES	
Appendix 1 - Sample Data Recording Sheets	11
Appendix 2 - Household Hazardous Waste Standardization Table	13
Appendix 3 - AMRC's HHW Committee Members	17

---



## **ACKNOWLEDGMENTS**

In carrying out this project, the AMRC worked at a number of HHW sites in four different municipalities: the Cities of Peterborough and Toronto, and the Regions of Peel and Niagara. The staff at each of these municipalities were extremely helpful and patient in working with us - we appreciate all of their help.

The AMRC's HHW committee oversaw this project, and indeed has spearheaded the move towards standardisation for the past four years. Members of the committee have reviewed the original and revised tender tables and provided insight and suggestions.

The revised tender table was also sent to the following HHW contractors for their review: Hotz Environmental, Safety-Kleen, Brendar and Drain-All. Their suggestions and assistance are also greatly appreciated.

This project was made possible by funding from the Ontario Waste Diversion Organization, on the recommendation of the HSW Task Group.



## 1.0 EXECUTIVE SUMMARY

The AMRC, with funding from the Ontario Waste Diversion Organization, has carried out the sampling work necessary to ensure greater confidence in the units and standards that are being used to measure, tender and report quantities of household hazardous waste (HHW) in Ontario. A total of seven municipal HHW sites were sampled in January and February, 2001 to determine the accuracy of the present assumptions regarding drum and lab pack residual quantities and weights of individual items (such as vehicle batteries and gas cylinders). The purpose of the study was to adjust the standard tender forms now in use and begin to use the more rigorous conversions in compiling province wide data.

In general, lab pack and drum residual quantities were found to be lower than had been assumed by previous studies, while weights of individual items were found to be relatively consistent.

Because of the time of year that the study was carried out, certain items commonly found in the HHW stream such as pesticides, acids/bases and oxidizers were not well represented. It is suggested that additional sampling be done over the spring and summer to ensure greater confidence in the residual quantities determined for these waste classes.

The revised standardized tender table will be forwarded to all Ontario municipalities with HHW programs for use in upcoming tenders.



## 2.0 INTRODUCTION

The AMRC and its HHW committee have worked since 1997 to refine the units of measure and reporting standards used for HHW. The reasons for this are:

1. To enable more accurate comparison of quantities and costs between and within programs. Municipalities often compare the pricing that they receive for specific HHW classes or categories. Differences in contractor packing and handling, containers, and units can make such comparisons difficult if not impossible.
2. To enable an accurate summary of year end quantities across all HHW programs. The MOE, in partnership with such organizations as CSR: Corporations Supporting Recycling, the Recycling Council of Ontario, the Composting Council of Canada and the AMRC compiles an annual summary of all residential waste diverted from disposal (recyclables, organics and HHW). The AMRC has identified a number of areas that need to be verified before the total HHW quantities can be reported with confidence, and
3. To prepare for future stewardship funding programs in which those industries whose residuals are handled by municipal HHW programs will require accurate reporting of materials handled and treated.

### 2.1 Background on Activities prior to Standardization Study

As previously noted, the AMRC's HHW committee took on the task of developing standards for measurement and unit conversions of HHW in 1997. In doing so, one of the first tasks was to determine which categories were standard. The starting point for this was a table in the *Analysis of Household Hazardous Waste: Reduction & Management Study Project Two: Municipal HHW Composition, Cost Analysis and Management Options Study*. (1996). The HHW Committee members then reviewed the categories to see which ones were commonly used. (Refer to Appendix 2).

Once the categories were determined, standard measurements had to be found. The categories could be split into two types: liquids and solids. The liquids were generally put into lab packs, drums, or vermiculite packs. HHW contractors indicated that the only difference between lab packs and vermiculite packs was that vermiculite packs had a lot more vermiculite. It was also found that vermiculite packs were rarely used. So an accurate standard was the lab pack, and the majority of contractors estimated that one lab pack held 80 litres of containerized liquid.

With respect to drums, most contractors and municipalities only called a measurement a "drum" if it was a 205 litre drum that had liquid poured into it. So the distinction was made that a drum would only mean a bulked drum, and a lab pack would only mean a drum that had containers placed inside it. If any municipality used any different unit for liquids, such as a box, cage, or gaylord, it would be requested that the re-

ported units be litres.

It must be stressed that most of the reported amounts for liquids are based on container volumes. However, most of the waste that comes through HHW programs is made up of partially full containers. The 1996 composition study findings were used to estimate the actual quantities of liquid diverted. The percentage of the average residual volume for each material type was multiplied by the reported volume of that material to get the total residual volume.

Standard conversions for solids such as aerosols, dry cell batteries, automobile batteries, oil filters, pharmaceuticals, propane cylinders, propane tanks and syringes were developed in several ways.

Pharmaceuticals are usually packed in lab packs, so the conversions would be the same as liquids. However, it was encouraged that the lab packs be weighed rather than reported in litres.

Syringe weights were estimated by contractors. A standard was not developed (other than using weight) because syringes are generally collected in boxes, and each contractor has a different box size.

Conversions for the automobile batteries, propane cylinders and propane tanks were determined by finding out the standard conversions used by the contractors. It was suggested that they be counted, then multiplied by a weight for each item type.

There were two big concerns, however. One was that the weights for conversions for the propane cylinders and tanks were not derived by taking sample weights. The other was that the metal in the containers was not hazardous once punctured (and the gas had escaped), so the conversion should only apply to the contents. In 2000, one contractor started counting every propane tank as 1 litre of propane. This also was not based on a sample - it was a number that was assigned to standardize reporting by their employees.

Conversions for aerosols, dry cell batteries, and oil filters were likely the most accurately derived, since they were developed by actually taking samples. The AMRC's HHW Committee members provided weights of several drums. In each category, the weights were added to the conversions provided by the contractors in order to get a final conversion. While these standards were much better than the original "one litre of batteries equals one kilogram of batteries", they was still much room for improvement. As an example, one drum of batteries may be full when reported by one contractor, but two-thirds full when reported by another.

### 3.0 STANDARDIZATION STUDY

#### 3.1 Review of current data conversions

The AMRC's HHW committee has developed a standardization table by which to classify household hazardous wastes according to MOE numbers (refer to Appendix 2). The table includes suggested units of measure, and factors for converting container quantities into actual material quantities - (e.g., one small pail of batteries weighs 20 kg.). Although these conversions are based on information provided by committee members and HHW contractors, in many cases, the weight and residual information still needed to be verified by controlled on-site sampling.

Particular attention was focused in the present study on the still questionable waste streams (e.g., aerosols, flammables, and certain items in the "solid" stream such as batteries, tanks/cylinders and pharmaceuticals) and on residual quantities in the different waste categories.

#### 3.2 Onsite sampling:

Sampling was carried out at four municipal sites over seven days. Table 3.1 summarizes sites and locations:

*Table 3.1 Municipal HHW Sites Sampled*

Municipality	Site	Date Sampled
Niagara, Region	Niagara Falls, mobile event	February 3, 2001
	St. Catharines, mobile event	February 10, 2001
Peel, Region	Brampton HHW Depot	February 7, 2001
	Brittania HHW Depot	February 15, 2001
Peterborough, City	HHW Depot (Pido Rd. facility)	January 23, 2001
Toronto, City	Ingram HHW Depot	February 1, 2001
	Scarborough HHW Depot	February 23, 2001

The goal of the sampling was to categorize:

- lab pack composition and residual quantities in individual containers,
- cage, gaylord, and box quantities, and
- weights for solids or their shipping containers (e.g., dry cell, vehicle batteries, aerosols, oil filters, syringes and propane tanks/cylinders).

### 3.2.1 Sampling Procedure

The sampling was done by two people, one acting as the handler to remove items from containers (e.g, labpacks), and read out the appropriate information, and one acting as the recorder to enter the information on the data sheet. Once data for a given item were entered, the handler would then re-pack the item in a new labpack.

For aerosols, propane cylinders and tanks, and vehicle batteries the procedure was the same as above, with additional weighing of each item.

Household batteries are normally shipped in 205 litre drums and so this was the unit of interest, rather than individual battery weights. Because a full drum of batteries can weigh in excess of 300 kilograms, the contents of each drum were weighed in batches: batteries were removed and weighed in smaller weighed pails. Total weights were then summed.

Sample data summary forms can be found in Appendix 1.

### 3.2.2 Summary of Waste Categories Sampled

Lab packs and items from the following categories were sampled:

- |                          |                         |
|--------------------------|-------------------------|
| ➤ Acids                  | ➤ Aerosols              |
| ➤ Bases                  | ➤ Car/Vehicle batteries |
| ➤ Dry cell batteries     | ➤ Fire suppressants     |
| ➤ Flammables             | ➤ Fuel                  |
| ➤ Gas cylinders          | ➤ Oxidizers             |
| ➤ Paint                  | ➤ Pathological waste    |
| ➤ Pesticides             | ➤ Pharmaceuticals       |
| ➤ Propane cylinder/tanks |                         |

A total of 88 drums containing over 4,800 items were sampled. An additional 339 individual items such as gas cylinders and tanks, and batteries were logged.

Table 3.2 on the following page summarizes the total number of items per category and includes the suggested measure for that category.

Table 3.2 Sampling Results

Waste Category	Number of Containers or Items Sampled	Total Number of Items in Containers (if applicable)	Container Volume or Weight/Residual Volume or Weight	Recommended Measure
Acid	1 drum	47	88.1L/62.4 L	60 L/Lp
Aerosol	5 drums	1,046	66.2 kg/31.5 kg	65 kg/Lp
Base	3 drums	127	78.2 L/60.5 L	60 L/Lp
Car/Vehicle Batteries	85 items	n/a	16 kg	16 kg/battery
Dry Cell Batteries	3 drums	n/a	286 kg	286 kg/Lp
Fire Suppressants	12 items	n/a		2.7 kg
Flammables	26 drums	1,233	122 L/70 L	60 L/Lp
Fuel	1 drum	31	100 L/61 L	60 L/Lp
Gas Cylinders	6 items		Freon: 3 kg	Record cylinder volume
Oxidizers	3 drums	456	101 L/56 L	55 L or Kg/ Lp
Paint	40 drums	1342	108 L/59 L	60 L/Lp
Pathological Waste	27 containers	n/a	0.2 kg/L	0.2 kg/L
Pesticides	3 drums	290	56.4 kg/LP/27 kg/LP	65 kg/LP
Pharmaceuticals	1 drum	n/a	n/a	65 kg/LP
Propane tanks Propane cylinders	91 tanks 139 cylinders 2 drums cylinders/ aerosols mixed	n/a n/a 372 units (cylinders & aerosols)	Est 2 kg 110 cylinders/Lp	11 kg/tank 560 g

Note that in the case of flammables, pesticides and paints the sampling results have been modified for the revised tender table (Table 3.2 on page 8). These changes are based on feedback from contractors and HHW Committee members.

### 3.3 Revision of Standards to Reflect Changes:

The conversions that were previously used have been modified based on the sampling results. Residual quantities information was also modified and are reflected in Table 3.3 below. The revised table was circulated to the AMRC's HHW committee members and to HHW contractors (Hotz Environmental, Drain-All, Safety-Kleen, and Brendar), and their comments and suggestions incorporated.

Table 3.3 Revised Tender Pricing Table

#	Common Materials	Waste Class	Recording Units	Conversion	Cost per Recording Unit
1	Inorganic Acids	148A, 114C	Lp	60 L/Lp	
2	Inorganic Bases	148A, 148B, 121C	Lp	60 L/Lp	
3	Dry Cell Batteries	121C, 148A	Lp	286 kg/Lp	
4	Car/Vehicle Batteries	112C	each or kg.	16 kg/battery	
5	Inorganic Oxidizers	148A	Lp	55 L/Lp	
6	Organic Oxidizers	263A	kg.	55 kg/Lp	
7	Antifreeze	212L	drum or litre	205 L/drum	
8	Bulked Fuel	221I, 221L	drum or litre	205 L/drum	
9	Flammables/Organics	263A, 233, 213A	Lp	65 L/Lp	
10	Large (20 In) Propane Tanks	331I	each or kg.	11 kg./tank	
11	Small non-refillable Propane Cylinders	331I	each or kg.	560 g/cylinder, 100 cylinders/Lp	
12	Aerosols	331I	kg.	65 kg/Lp	
13	Oil	252T, 252L	drum or litre	205 L/drum	
14	Oil Filters	252T, 252L	kg.	83 kg/Lp (150 filters/Lp)	
15	Paint	145B	litre (L)	60 L/Lp, 1 drum=205 L	
16	Paint Sludge	145B	Lp	60 L/Lp	
17	Pathological Waste	312P	kg.	0.2 kg/L	
18	Pesticides	242A, 269A	Liquid-Lp Solid-Lp	65 L/Lp 65 Kg/Lp	
19	Pharmaceuticals	261 A	Kg	65 kg/Lp	

Table 3.3 (continued)

#	Uncommon Materials	Waste Class	Recording Units	Conversion	Cost per Recording Unit
20	Inorganic Cyanides	148A	kg.	kg.	
21	Flammable Solids	148A	kg.	kg.	
22	Isocyanates	233	kg.	kg.	
23	Ignitable Gas Cylinders	331I	each (by volume)	record cylinder volume	
24	Non-ignitable Gas Cylinders	331R	each (by volume)	record cylinder volume (Freon: 3 Kg/unit)	
25	Non-basic Fire Suppressants	331R	each (by weight)	2.7 Kg/unit	

The numbers in the above table are now based on controlled sampling and peer review. For this reason, there is considerably more confidence in these conversions and unit measures than in the ones used formerly. However, the relatively small sample size for acids, bases, oxidizers and pesticides (1, 3, 3, and 3 drums, respectively) means that there is still work to be done in this area. It is suggested that further drums be sampled in the spring or summer when more of these items appear at HHW events.

#### 4.0 Recommendations and Next Steps

In order to ensure that the efforts to standardize HHW units and conversions continue to gain acceptance in municipal programs, it is recommended that the following be carried out:

- As part of this project, the AMRC has prepared a CD of sample tenders that reflect different HHW program types and sizes. This has been distributed to the majority of municipal HHW programs in Ontario, and will be sent to all the rest.
- The revised tender pricing table will be sent to all programs for incorporation into each program's standard form of tender. At the same time, the table will be placed on the AMRC's website for any new programs considering tendering next year.
- Further sampling work should be carried out once the spring/summer season begins to ensure greater confidence in the categories that were in short supply during winter sampling (i.e., acids, bases, oxidizers and pesticides).
- It should be recognized that it is not possible or desirable to standardize everything. For example, the different containers used for paint include gaylords,

cages, wranglers and lab packs. These reflect program operating efficiencies and contractors' handling requirements. Therefore, it is necessary to develop a set of reliable conversion factors. For example: one paint cage contains an average of xx 4 litre paint cans. Further investigation is therefore necessary into the different containers for paint to complete this work.

## Appendix 1 Sample Data Recording Sheets

For Acids, Bases, Flammables, Inorganic Oxidizers, Organic Oxidizers, Paint, Pesticides, Pharmaceuticals:

1. Drum ID#					
2. Product Type					
3. Product Name					
4. Brand Owner					
5. Container Type (Circle one)	Can Glass Plastic			Other -describe.	
	6. Container Condition	Good	Fair	Poor	Leaky
7. Residual Quantity	Full	3/4	1/2	1/4	Empty
8. Container Size					

For Aerosols and for Propane Cylinders  
total #Aerosols in drum ID#

1. Drum ID#					
2. Product Type	Aerosols		Propane Cylinders		
3. Product Name					
4. Brand Owner					
6. Container Condition	Good	Fair	Poor	Leaky	
7. Residual Quantity	Full	3/4	1/2	1/4	Empty
8. Container Volume					
9. Container Weight					

For Vehicle Batteries and for Propane Tanks

2. Product Type	Battery	Propane Tank		
3. Product Name				
4. Brand Owner				
6. Container Condition	Good	Fair	Poor	Leaky
9. Weight				

For Dry Cell Batteries and for Oil Filters

2. Product Type	Batteries	Oil Filters		
8. Drum fullness	1/2	2/3	3/4	full
9. Drum Weight				

## Appendix 2 Household Hazardous Waste Standardization Table

The following table was developed by the AMRC's HHW committee and has been used to prepare standard tender forms. Note the difference in conversions from the present study results

### BACKGROUND

Over the years, data collected on materials received by municipal household hazardous waste (HHW) programs have been recorded in a variety of unit measurements by municipal staff. Two examples of this variance in unit usage are: household batteries may be recorded in litres or kilograms, and paint may be recorded in drums, lab packs, cages, or boxes. When attempting to put together the total amount of HHW diverted in Ontario through these programs, conversion factors have had to be used, which reduced the accuracy of the compiled results. In order to develop a more accurate reporting procedure, the AMRC's HHW Committee has developed a standardized method of recording and reporting materials handled. These materials have been received by municipal HHW programs, and are listed in the accompanying table, which has been reviewed and accepted by the Ontario Ministry of the Environment (MOE).

### TABLE FORMAT

#### Column 1: "CATEGORY"

The category column is separated into subcategories of the MOE# column. The classifications in this column have been made for several reasons, as follows:

- consideration of the packaging and transportation requirements according to materials properties,
- consideration of the packaging and transportation requirements of the Transportation of Dangerous Goods Act, i.e. both acids and bases fall under MOE# 148A, but if packed together and should they leak, they would react dangerously
- facilitation of off-site treatment, i.e. liquid paint may be recycled into paint, but not so for paint sludge, - as the off-site treatment of materials varies, some being much more costly than others, segregation of different materials ensures that the higher charges are not applied to other materials which are less costly to treat.

#### Column 2: "MOE #"

The second column of the table shows the waste class numbers, as determined by the Ontario Ministry of the Environment's Regulation 347. Only class numbers applicable to municipal household hazardous waste programs are listed. When municipalities report to the MOE, they are required to use these class numbers.

#### Column 3: "PRODUCT TYPE"

The Product Type column lists materials that may fall into the various sections of the Category column and are representative of materials collected by municipal HHW programs. Some product types may fall into more than one category, i.e. a "cleaner" may be an acid or a base. Should a product type have the characteristics of two categories, i.e. wax stripper may be both a base and a flammable, it is classified based on its primary characteristic. If it is possible, the material will be placed in the category with the lowest off-site treatment cost.

#### Column 4: "SUGGESTED MEASURE"

The suggested measures are the measures most often used by municipalities and contractors. Most of the conversion factors listed were obtained from municipalities and contractors. In some instances, conversion factors from volume to weight were developed by having several municipalities weigh specified volumes of categories and the results having been averaged out.

CATEGORY	MOE #	PRODUCT TYPE	SUGGESTED MEASURE	
ACID	148A--Inorganics 114C--Other Inorganic Acid Waste	ACIDIC CLEANERS DESCALER ACIDIC DISINFECTANT DRAIN OPENER METAL CEMENT METAL CLEANER	MURIATIC ACID OTHER pH < 7.0 PHOTO CHEMICALS POOL CHEMICAL--pH REDUCER RUST REMOVER ACIDIC TOILETRIES	80 l/Lp
AEROSOL	3311--Waste compressed gases, including cylinders	AEROSOLS BUTANE LIGHTERS	SPRAY PAINT	kg 155 cans/Lp 55 Kg/Lp
ANTIFREEZE	212L--Aliphatic liquids	ANTIFREEZE		80 l/Lp
BASE	148A, 148B--Inorganics 121C--Alkaline sol'ns	ABC DRY CHEMICAL FIRE EXTINGUISHERS AMMONIA BASIC CLEANERS CORROSIVE PAINT REMOVER BASIC DISINFECTANT DRAIN OPENER	METAL CEMENT MERCURY OTHER pH >7.0 PHOTO CHEMICALS POOL CHEMICAL--pH BOOSTER BASIC TOILETRIES WAX STRIPPER	80 l/Lp
BULKED FUEL	2211--Bulked Fuel (221L if Diesel alone)	BULKED FUEL		80 l/Lp
CAR/VEHICLE BATTERIES	112C--Acid solutions containing heavy metals	CAR/VEHICLE BATTERY	LEAD-ACID BATTERY	kg 1 Battery = 18 kg
DRY CELL BATTERIES	148A--Inorganics 121C--Alkaline sol'ns	ALKALINE H.H. BATTERY BUTTON BATTERY LITHIUM H.H. BATTERIES	NICKEL-CADMIUM H.H. BATTERIES	kg 277 kg 1 Pail = 20 kg

STANDARDIZING MUNICIPAL HHW DATA: RECORDING, REPORTING AND TENDERING

FIRE SUPPRESSANTS (NON-BASIC)	331R--Waste compressed gases, including cylinders	CARBON DIOXIDE	HALON	per cylinder and kg, recorded by cylinder volume
FLAMMABLES / ORGANICS (not bulked; items listed here may have different waste classes if bulked)	263A--Misc. Waste Organic Chemicals  233--Other polymeric wastes  213A--Petroleum Distillates	ADHESIVE ALCOHOLIC DISINFECTANT AIR FRESHENER CRAFT PAINT BRAKE FLUID CANNED HEAT CARBON TETRACHLORIDE CARBURETOR CLEANER CLEANERS CONCRETE WATER SEALER CONTACT CEMENT DE-ICER DRIVEWAY SEALER ENAMEL FILLER (MISC.) FUEL GAS LINE ANTI-FREEZE GLUE HIGH HEAT PAINT INKS LACQUER LINSEED OIL LIQUID PLASTIC LUBRICANTS MINERAL SPIRITS	MOTH BALLS (NAPHTHALENE) MOTOR OIL PAINT REMOVER OR THINNER PETROLEUM DISTILATES PHOTO CHEMICALS POLISH OR WAX POWER STEERING FLUID PRIMER SEALER RESIN OR SEALER RUST OR METAL PAINT SHOE CARE PRODUCTS SOLVENT (MISC.) SPECIALTY PAINTS STAIN TAR OR ROOFING PATCH FLAMMABLE/ORGANIC TOILETRIES TRANSMISSION FLUID UNDERCOATING VARNISH VARSOL WALL PAPER PREP WATER REPELLANT WAX STRIPPER WOOD FINISH WOOD PRESERVATIVE	80 l/Lp 5 Gallon pail = 20 l
FLAMMABLE SOLIDS	148A--Inorganics	METAL POWDER	ZINC POWDER	kg
GAS CYLINDERS (IGNITABLE)	331I--Waste compressed gases, including cylinders	ACETYLENE	PROPANE (50 lb)	per cylinder and kg, recorded by cylinder volume
GAS CYLINDERS (NON-IGNITABLE)	331R--Waste compressed gases, including cylinders	CARBON DIOXIDE FREON	HELIUM OXYGEN	per cylinder and kg, recorded by cylinder volume
INORGANIC CYANIDES	148A--Inorganics	INORGANIC CYANIDES		kg
INORGANIC OXIDIZER	148A--Inorganics	BLEACH CLEANERS DISINFECTANT FERTILIZER OTHER	INORGANIC PEROXIDES PHOTO CHEMICALS POOL CHEMICAL INORGANIC OXIDIZING TOILETRIES	80 l/Lp
ISOCYANATES	233--Other polymeric wastes	ISOCYANATES		kg

STANDARDIZING MUNICIPAL HHW DATA: RECORDING, REPORTING AND TENDERING

OIL	252T--Leachate toxic liquid waste 252L--Waste crank-case oils and lubricant	MOTOR OIL		80 l/Lp
OIL FILTERS	252T--Leachate toxic liquid waste 252L--Waste crank-case oils and lubricant	OIL FILTERS		kg 83 kg/Lp 1 360 l Otto Cart =157 kg 1 Oil Filter = 0.759 kg
ORGANIC OXIDIZER	263A--Misc. waste organic chems	FERTILIZER WITH PESTICIDE HARDENER	METHYL ETHYL KETONE PEROXIDE ORGANIC PEROXIDES	kg
PAINT	145L--Waste paint and related materials	ALKYD/OIL PAINT ENAMEL LAQUER LATEX PAINT PRIMER SEALER RESIN	RUST OR METAL PAINT STAIN VARNISH WATER REPELLANT WOOD FINISH WOOD PRESERVATIVE	80 l/Lp
PAINT SLUDGE	145B--Waste paint and related materials	PAINT SLUDGE		80 l/Lp
PATHOLOGICAL WASTE	312P--Pathological wastes	SYRINGES		kg 8.6 kg/BFI Box, 9.73 kg/BFI Carton 5 kg/Hotz Bio-hazard box
PCBS	243D--PCBs	PCB CONTAMINATED WASTE	PCB WASTE BALLASTS	l for liquid, Lp for ballasts 200 ballasts/Lp, 290 kg/Lp
PESTICIDE	242A--Halogenated pesticides and herbicides 269A--Non-halogenated pesticides and herbicides	FUNGICIDE HERBICIDE INSECTICIDE	AEROSOL PESTICIDES	80 l/Lp
PHARMACEUTICALS	261A--Waste poisonous solids Nos	NON PRESCRIPTION DRUGS	PRESCRIPTION DRUGS	kg
PROPANE TANKS	331I--Waste compressed gases, including cylinders	PROPANE LARGE PROPANE SMALL		kg 1 large (20 lb) tank = 9.08 kg, 1 small (1 lb) tank = 0.454 kg 1 Lp (small (1 lb) tanks) = 45.4 kg

## Appendix 3

### AMRC's HHW Committee Members

Drew Berketo, Chair	Region of Niagara
Brenda Blain	Region of Peel
Art Mercer	Region of Halton
Rosanne Fritzsche	County of Simcoe
Jeanne Vilneff	Quinte Waste Solutions
Claudia Marsales	Norfolk County
Rob Zander	York Region
Craig Murdoch	City of Hamilton