



**REGULATION OF COMPUTER RECYCLING
IN CANADA & THE UNITED STATES**
A Comparative Review

Funded by the Government of Canada
Action Plan 2000 on Climate Change

Prepared by
Legwork Environmental Inc.

Revised: August 2002

PO Box 45 Douglas ON Canada K0J 1S0 Tel: 613 649-2437 www.legwork.ca

EXECUTIVE SUMMARY

In late 2001, Natural Resources Canada invited Legwork Environmental Inc. to undertake a study of the regulatory environment for recycling of one of the fastest growing waste streams in North America - electronic waste.

Whole computers and computer peripherals, computer components and processed computer waste products and materials were selected as the focus for the study as they represent not only a significant opportunity for the recovery of valuable materials, including precious metals, but a serious challenge in terms of volume and potential hazard on final disposal.

As noted by several industry respondents, determining the status of specific recyclable products and materials is a complex matter, involving familiarity with finely nuanced definitions, various hazard test methods and knowing when and to what materials the regulations should be applied. Designation as a hazardous waste presents generators, transporters and recycling facilities with significant additional costs of notification, permitting, manifests, insurance and requirements for licensed carriers which may affect overall rates of recycling and development of the recycling industry.

There were two major drivers behind the decision to undertake a study of current and proposed regulations in North America, as they apply to computer recycling. First was recognition of the need to identify issues and potential costs in light of a parallel initiative of the Information Technology Association of Canada (ITAC) to design a possible national computer recycling program. Second was the contribution that such a program might play in terms of energy savings and combating climate change by reducing the release of greenhouse gases (GHGs) to the atmosphere. Preliminary estimates of potential GHG reductions associated with a possible national program for computer-related products and materials, are in excess of 130,000 Tonnes per year.

Applicability of Hazardous Waste Controls to Computer Recyclables in North America

United States Regulatory controls in the United States are applied if a material defined as a ‘*solid waste*’ (a material which has been discarded) exhibits a hazard characteristic. However, federal and state regulations often refer to specific products, components and processed materials which, following a review process, have, resulted in amendments in the form of exclusions, exemptions or reduced standards. All of the 11 computer components and processed materials addressed by this study are exempt, proposed for exemption or not subject to regulation, federally, in the United States. They include:

- Cathode Ray Tubes (CRTs);
- Batteries;
- Circuit boards;
- Lamps;
- Mercury containing switches;
- Printer Cartridges;
-
- Shredded Circuit Boards;
- Precious metal sweeps;
- Shredded Computers (PM Stream);
- CRT Glass (crushed); and,
- Router dust.

Canada In Canada, at the federal level, there are no exemptions for any of the above products or materials. However, cathode ray tubes, circuit boards, lamps and printer cartridges are not regulated providing they are intact and not in a “*dispersible*” form. According to Environment Canada, regulation occurs if recyclable materials are considered as hazardous when they exhibit a hazard characteristic or meet a hazard criteria. Recyclable materials may equally be regulated if they contain elements and/or components identified on specific lists. There are few product or material-specific references in the regulations (provincial exemptions for the recovery of *rechargeable batteries* is a case in point). Of the components and processed materials listed above, batteries, mercury containing switches, precious metal sweeps, shredded circuit boards, shredded computers, CRT Glass and router dust are managed as hazardous and would be subject to the Export and Import of Hazardous Waste Regulations if transboundary movement is required.

Provincially, six provinces and three territories (Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland & Labrador, the Yukon, the North West Territories and Nunavut) regulate the same components and processed materials as the Canadian federal authorities. Four provinces (British Columbia, Alberta, Ontario and Québec) have, within their provincial regulations either exempted these materials from regulatory control or were not subject to regulation at the outset.

Future Research As several government and industry contacts noted, this divergence may serve to work against increasing recycling of electronic waste in Canada. Further research is needed to confirm the effect this will have on the flow of feedstocks into Canada and access by Canadian companies to the larger and more developed infrastructure for recycling in the U.S.

Another area for further enquiry relates to the growing number of voluntary programs at the state and provincial level which are serving to raise awareness of the environmental issues and potential for economic returns associated with the emerging market for the burgeoning supply of used computers and other electronic equipment. More work in this area is needed to catalogue and evaluate these initiatives in order to determine what mix of incentives, in terms of policies and programs, and regulations are needed to support an effective national program for the recovery and recycling of these products and the valuable resources they contain.

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INTRODUCTION

In late 2001, Natural Resources Canada invited Legwork Environmental Inc. to undertake a study of the regulatory environment for recycling of one of the fastest growing waste streams in North America - electronic waste. Whole computers and computer peripherals, computer components and processed computer waste products and materials were selected as the focus for the study as they represent not only a significant opportunity for the recovery of valuable materials, including precious metals, but a serious challenge in terms of volume and potential hazard on final disposal.

Designation as a hazardous waste presents generators, transporters and recycling facilities with significant additional costs which may affect overall rates of recycling and development of the recycling industry. The primary objective of this study was to confirm the scope of existing and proposed regulations which control the flow of recyclable materials, particularly computer equipment and components in Canada and the United States.

This information is intended to assist the Information Technology Association of Canada (ITAC) in their efforts to determine the potential costs of implementing a national electronics stewardship program for the recycling and recovery of information technology equipment in Canada. Information about perceived incentives and barriers to increasing recovery and recycling of computer products and materials may also be helpful in finalizing amendments to Canada's regulations for the export and import of hazardous waste. Over the long term, it is expected that increased recovery of materials and reduced energy demands in the production of computer goods will contribute to greenhouse gas emission reductions and mitigation of climate change.

Background Electronic equipment contains various metals such as *aluminium, antimony, arsenic, beryllium, cadmium, chromium, copper, gold, iron, lead, mercury, palladium, palladiumplatinum, silver, steel* and *zinc*. Other materials found in large quantities in electronic scrap include glass and a variety of plastics and plastic composites such as *acrylonitrile butadiene styrene, polypropylene, polystyrene polyurethane, polycarbonate* and *phenol formaldehyde*.

At the end of product life, as a result of dismantling, disassembly, and processing operations, these materials may be found as complete pieces of equipment, equipment parts, individual segregated components, or as processed metal-bearing recyclable material streams. At different points, during the collection, processing and recovery phases, many of these recyclable materials may be subject to the provisions of domestic (inter- and intra-provincial or state regulation) and international legislation governing the handling and movement of hazardous recyclable materials.

A recent report, *Information Technology (IT) and Telecommunications Waste (Telecom) in Canada* report estimates that in 1999, 33,972 tonnes of IT equipment and 2,961 tonnes of telecom equipment were discarded in Canada. The report forecasts that in 2005, more than 67, 000 tonnes of computer-related, and 4,000 tonnes of telecommunications equipment will be scrapped which translates into an estimated 3,000 tonnes of lead, 4.5 tonnes of cadmium, and 1.1 tonnes of mercury available for recovery.

In the same year, 24 million computers became "obsolete", of which about 14 % (or 3.3 million) were recycled or donated in the United States. The rest - more than 20 million computers were dumped, incinerated, shipped as waste exports or put into temporary storage in attics and basements of American homes. Of the more than 300 million computer monitors sold in the US since 1980, by 1997 only about 1.7 million had been recovered, of

which about the majority (about 1 million) were shipped offshore for precious-metal salvage. In contrast, the major appliance industry (washing machines, refrigerators, etc.), recycled approximately 70 % of equipment sold in 1998, compared to only 6 % of older computers recycled, relative to the number sold in 1998.¹

Climate Change Mitigation When goods are re-used and recycled, there is a savings, not only in energy but in the release of greenhouse gases (GHGs) to the atmosphere. Increased re-use and recycling of electronic goods, specifically computers, their components and related materials is expected to contribute to reduced GHG emissions indirectly, by reducing the demand for energy otherwise required to produce these raw materials from virgin sources. Initial estimates of potential GHG reductions associated with implementation of a successful national recycling program are in excess of 130,000 Tonnes per year.

Figure 1 Potential Energy Savings and Reduction in CO² Emissions (Tonnes) Associated with Recycling

MATERIAL	1999	2005	Energy Savings (%)	Decreased CO ²
Glass/Silica	15,400	33,300		
Steel	12,600	27,300	74 %	27,000
Aluminum	8,600	19,000	95 %	100,000
Copper	4,200	9,300	85 %	
Lead	3800	8400	65 %	
Cadmium	6	12	54 %	
Mercury	1	3	90 %	

Anticipated ancillary benefits, associated with successful implementation of a national take-back program for electronic goods (specifically, computers and computer materials) include a larger pool of computers available for re-use in Canadian schools through the Computers for Schools program, reduced disposal to, and pressures on, landfill, lower effluents and emissions in metal production and reduced need for hazardous waste management for related metal bearing sludges and residues.

In light of these and other statistics, the *Information Technology Association of Canada (ITAC)* has agreed to consider establishing an *end-of-product-life recovery program* for selected electrical and/or electronic appliances in Canada. Designation of products, their components or their processed material streams as hazardous is an important factor in the design of such a program, and location of recycling facilities, because of the costs associated with additional handling, recycling, transportation and insurance requirements.

At the same, Environment Canada is reviewing several regulations, including the *Export and Import of Hazardous Waste Regulations (EIHWR)*, following amendment made to Canada's *Environmental Protection Act (CEPA)* in 1999. Information concerning current and proposed treatment of recyclable metals in both Canadian and U.S. jurisdictions would also be useful in ensuring that new and revised regulations support federal program and policy objectives with respect to the environmentally sound management of hazardous materials and recyclables. These changes will affect the significant volume of trade in recycled materials, including metals, that takes place between Canada and the United States.

Taken together, these findings and initiatives suggested the need for a comprehensive review of current and proposed legislation which affects the handling and treatment of computer equipment and related products and materials destined for recovery at the federal, provincial, state and territorial levels in Canada and the United States.

¹ US Environmental Protection Agency, *Region II Report, Life Cycle of Old Computers*.

Objectives The purpose of this study is to highlight the differences in approach taken in the regulatory environment among or between Canadian provinces and territories, as well as those that may exist between Canada and the United States. Specific goals with respect to the treatment of computer products, components and processed materials were to:

1. Identify, for both jurisdictions, the following elements:
 - federal, provincial, state and or territorial regulations governing the management of computer products, components and processed materials during recycling;
 - which products or materials are considered and controlled as equivalent or similar to hazardous waste and by which regulation;
 - which products or materials are excluded or exempt from the definition of solid or hazardous waste; and,
 - what rationale is used to justify their inclusion or exemption, e.g., by definition, specific listing or exhibiting a hazard characteristic subject to a hazard test;
2. Describe the differences between the American and Canadian regimes in terms of those recyclable computer products or material, highlighting those regulated in one or more, but not all jurisdictions; and,
3. Summarise the results in terms of the possible cost implications and other factors affecting the design of a computer product recovery program for the information technology sector and, by extension, the recycling of metals, in Canada.

Expected Results In addition to an initial summary of existing studies, reports and other sources of information on the subject of recycling as it relates to the information technology sector, and computers, a number of specific requirements were established for the final report. They include:

- a) a matrix identifying regulated/non-regulated hazardous computer products, components and materials at the federal, provincial/territorial and state level in both countries;
- b) a list of proposed changes to existing controls (as available);
- c) a list of recoverable materials which are not accorded equivalent treatment in one or more jurisdictions; and,
- d) an assessment of potential implications of current/proposed controls for design of a possible product recovery program for the information technology industry, in particular, the recovery and recycling of whole, part and processed computer products and materials, in Canada.

Methodology The first step taken to meet the above objectives involved development of a list of potential government and industry sources to be consulted in identifying existing studies and the scope and nature of relevant controls and preparation of an initial report highlighting the findings to date.

Phase two involved extensive and systematic consultation by telephone and electronic means to canvas the lead officials to confirm the scope and develop an overview of the specific legislation and regulations used to control the flow of recyclable computer products and materials federally and in each province, state or territory.

Finally, copies of the relevant sections were distributed to the same authorities to confirm the assumptions and conclusions prior to its release to a wider audience.

Structure of the Report Please note that the amount of information generated by this review is considerable. While the analysis might normally be placed at the end of the report, it was decided to include it immediately following the introduction so as to provide readers with a quick sense of the overall conclusions. Readers are invited to refer to each of the subsequent sections for detailed information on the regulatory environment for hazardous waste at the federal, provincial and state level in Canada and the United States.

Section 1: Key Findings and Observations Highlights the initial assumptions and conclusions derived from the review of recent reports and information online as well as the major findings and related observations based on the government response to consultation and the detailed review of regulations.

Section 2: Federal Legislation and Regulations An overview of federal legislation and regulations most relevant to the recovery and recycling of computers in Canada and the U.S.;

Section 3: Provincial Legislation and Regulations: A province-by-province review of key controls, highlighting current hazardous waste laws and/or proposed exemptions or exclusions affecting the computer recycling industry, including comments from provincial government contacts and results of a review of provincial government web sites;

Section 4: State Legislation and Regulations: A similar review of current and proposed State legislation and regulations, including the response from regulators and results of online searching of the information available on State web sites; and,

Section 5: Industry Response Individual comments received from several original equipment manufacturers, recyclers and users of processed computer scrap confirming which products and materials are subject to which regulations, from the perspective of the regulated community, in their entirety.

Appendix A: Summary Analysis Comprised of four tables (matrices) highlighting the distribution and nature of current and proposed controls in Canada and the U.S. for each level of government in Canada. Information contained in the April 2002 report of the Electronic Industry Alliance concerning the status of pending legislation in the US is also reflected in the narrative sections, as well as the Tables.

Appendix B, Sources Links to some of the most relevant web sites used in drafting the description of federal, provincial and state legislation and regulations.

Caveats In reviewing the following report, it may be useful to bear in mind a number the following considerations which affected the conduct of the study and interpretation of the findings.

First, this study was not intended to document, in any detail, how regulatory requirements differ, but to establish which materials are regulated in one or more jurisdictions, and what exemptions may exist. There was no attempt to compare or assess the implications of specific requirements across jurisdictions once the designation was made.

Second, the terms of reference had at the outset, a strong focus on the impact of hazardous waste management regimes on the metals recycling industry. This interest was very quickly overtaken by a larger focus on the distinction between whole, part and processed computer products and materials, and how these materials are regulated. The impact of hazard designation for the computer industry on metals recycling is necessarily indirect, but no less important.

Third, hazardous waste management is a shared activity involving government and industry in Canada and the United States. Provincial and state officials are well versed in the wording of relevant legislation and regulations. However, in both jurisdictions, the onus is on generators, transporters and recyclers to conduct the tests which determine which parts of the computer, or processed materials, will be subject to hazardous waste regulations. Consequently, the review drew equally on the practical experience of industry in applying regulations to specific products and knowledge of regulators, as well as the review of legislation to arrive at the results reflected in Appendix 1.

Finally, in addition to confirming which products, components and processed materials are subject to what rules and regulations in each jurisdiction, industry and government contacts also volunteered opinions on current issues, incentives and barriers to recycling of computer products and materials. These views tended to support a flexible approach to regulation supplemented by efforts to create the necessary infrastructure to absorb the forecast exponential increase in volume of recyclable materials.

This version incorporates comments received from provincial and federal government contacts, based on the initial draft and data as at 31 May 2002.

SECTION 1

Key Findings & Observations

Section 1: KEY FINDINGS AND OBSERVATIONS

Context The problem of electronic waste, in particular that arising from the ever rapidly growing numbers of home computers and related equipment, is a focus of increasing concern among regulators, industry and the general public. This concern is reflected in a variety of policies, programs and regulations at the federal, provincial and state levels.

The following consolidates the collective results of the initial literature review, consultation with government and industry contacts and online research. It summarises the state of development of federal, provincial and state initiatives aimed at ensuring the environmentally sound management of hazardous waste while encouraging increased recovery and recycling of whole computers, peripherals, components and processed materials. What will be apparent, following consideration of the nature of regulation on both side of the border, and trends, is that Canada and the United States differ significantly in their national regulatory agendas for dealing with the recycling of electronic (computer) products.

It is hoped that consideration of these differences, and the incentives or disincentives that they may present, may help to identify issues that need to be addressed in the design of a possible program in Canada for the recycling of computers and related equipment, components and materials.

Facilitating the recycling of computers and computer products is also expected to help in mitigating climate change. When goods are re-used and recycled, there is a savings not only in energy but in the GHGs released to the atmosphere. Increased re-use and recycling of electronic goods, specifically computers, their components and related materials is expected to contribute to reduced GHG emissions indirectly, by reducing the demand for energy otherwise required to produce these raw materials from virgin sources. Initial estimates of potential GHG reductions associated with implementation of a successful national recycling program are in excess of 130,000 Tonnes per year.

Figure 1 Potential Energy Savings and Reduction in CO² Emissions (Tonnes) Associated with Recycling

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Copper	4,200	9,300	85 %	
Lead	3800	8400	65 %	
Cadmium	6	12	54 %	
Mercury	1	3	90 %	

Anticipated ancillary benefits, associated with successful implementation of a national take-back program for electronic goods (specifically, computers and computer materials) include a larger pool of computers available for re-use in Canadian schools (through the Computers for Schools Program), reduced disposal to, and pressures on, landfill, lower effluents and emissions in metal production and reduced need for hazardous waste management for related metal bearing sludges and residues.

Infrastructure and Markets for Computer Recycling The first step in conducting the study involved a review of recent reports to establish a clear understanding of the industry and the nature of the market for recycled computer products and the materials they contain.

The re-use and recycling infrastructure for computers in North America is broadly based, comprised mainly of small and medium sized companies which are largely unconnected to any coordinated re-use/recover/recycling network. Many of these operations receive, repair, reuse, dismantle and recover as many as 40 different recyclable products and materials from discarded computers. As well, several of the large primary computer manufacturers have become very active in both the re-use and recycling of computers and peripheral equipment. Within the re-use/refurbishment marketplace are a growing number of recycling facilities, primarily involved in the recovery of non-ferrous and precious metals, which process computers and computer components as their main source of recyclable raw material product.

Computer recycling contributes to increased recovery of both base and precious metals (aluminum, copper, germanium, gold, iron, lead, nickel, palladium, selenium, silver, tin, titanium, vanadium and zinc)².

While the market for these activities encompasses many regions of Canada and the United States, the major markets for computer re-use and recycling are, not surprisingly, located in some of the major provinces and states with high population densities. These include: Ontario, Quebec, British Columbia, Alberta, California, Tennessee, Pennsylvania, Arizona and Minneapolis.

Composition of a Personal Computer The other area critical to the study was confirmation of what materials and substances to be found in a whole computer, computer components and processed materials, which are likely to be considered as hazardous (and subject to regulation).

Based on the October 2000 report prepared by Enviroris, *Information Technology (It) & Telecommunication (Telecom) Waste In Canada*, it appears that the relative amounts of recyclable materials contained in a personal computer are as follows: glass (25%), ferrous metals (20%) and plastics (23%). Other metals consist of aluminum (14%), copper (7%), lead (6%), zinc (2 %) and precious metals (3%).

The key substances of concern, based on risk to human health and the environment (primarily associated with disposal or incineration) are lead, cadmium, beryllium, lithium, chlorine/bromine (flame retardants), phosphors (zinc sulfide) and liquid crystal displays (LCDs)³. They are found in different concentrations in different parts of the computer and related peripherals.

In looking at what products may be deemed hazardous, and therefore subject to control, we referred to the report of the OECD Workshop on Environmentally Sound Management (ESM), for an indicative list of components. According to the OECD, these components include: circuit boards, batteries/accumulators, electrolyte/PCB capacitors, CRTs, liquid crystal displays (LCDs), mercury containing lights, printers, scanners. For the purpose of this study, the products and materials assumed to be the probable focus for regulation, because of their potential or proven hazard, includes:

- *printed circuit boards and cathode ray tube (CRTs)* are of most concern for their potential hazard for their *lead* and *mercury* content, as well as the presence of brominated flame retardants;

² Computer Recycling Infrastructure In Canada, *Canadian Environmental Industry Association For Industry Canada (With Contemporary Information Analysis)*, March 2001

³ Robert Tonetti, *Office of Solid Waste, US EPA, 2nd OECD Workshop on ESM of Wastes Destined for Recovery, Sept. 2000.*

- some *batteries, switches, wiring boards* and *fluorescent lamps* are also known to contain *mercury*;
- *CRTs, chip resistors, infrared detectors* and *semiconductors* contain cadmium;
- brominated flame retardants ((polybrominated biphenyls and polybrominated biphenyls), also found in *connectors, plastic covers* and *cables*; and,
- polyvinyl chloride plastic is found in *cabling* and *housing*.

Regulatory Approach As noted by several industry respondents, determining the status of specific recyclable products and materials is a complex matter, involving familiarity with finely nuanced definitions, various hazard test methods and knowing when and to what materials the regulations should be applied.

Regulatory controls in the United States are applied if a material defined as a “solid waste” exhibits a hazard characteristic. However, federal and state legislation frequently makes explicit reference to specific products, components and processed materials which, following a regulatory review process, have, as an outcome, become the subject of amendment procedures.

In Canada, as stated by Environment Canada,

“ the storage, transportation and disposal of computer components become subject to regulatory control when the materials that comprise these components are considered to pose an environmental or human health hazard according to well established lists, tests and criteria. In other words, the materials are considered hazardous recyclable materials when destined for recovery or recycling operations and they exhibit a hazard characteristic or meet a hazard criteria ”.

There are few product or material-specific references. The exemptions established by provinces, territories and the federal government for the collection and transport within Canada of rechargeable nickel-cadmium batteries (under a Federal Transport Canada *Permit Of Equivalent Level Of Safety*) runs counter to the overall trend in Canada.

Exempt status, or access to reduced management standards, can translate into significant savings in terms of operational costs to the generator, transporter and treatment facility, and an incentive for recycling, over regulation equivalent or similar to a hazardous waste

a) Exemptions and Exclusions

Residential (household waste) which includes electronic waste, including, computer products, is exempt from hazardous waste controls in both Canada and the United States, whether destined for recycling or disposal. Requirements governing the transboundary movement of hazardous waste are federal and similar in both jurisdictions. However, the United States maintains an array of regulatory options which are not replicated in Canada.

Depending on the amount and type of material, its source, how it is processed and its intended use, recyclable materials may be subject to all, some or none of the requirements of hazardous waste regulations. In the United States under the Resource Conservation and Recovery Act (RCRA) and related Code of Federal

Regulations (CFR), Title 40, Section 260-273, the following exclusions and exemptions exist which, apart from similar treatment for household hazardous waste, have no counterpart in Canada:

In the United States, the following provisions exist to exclude products and materials from the *definition of solid waste*, and therefore exempt from control as hazardous waste:

Part 261.4(a)(8) *Secondary materials reclaimed and returned to the original process or processes for reuse in the production process;*

Part 261.4.13 *Scrap metal (processed, unprocessed home and unprocessed prompt scrap metal) being recycled; or,*

Part 261.4.14 *Shredded circuit boards being recycled, provided they are stored in containers preventing release to the environment prior to recovery and free of mercury switches and relays, and nickel-cadmium and lithium batteries.*

Part 261.4(b)(1) *Household waste*

Other CFR exclusions for hazardous waste include:

- materials sent direct to an *industrial process for reclamation* without intervening treatment, if used as a substitute for a raw material (261.1(c)(5), i and ii);
- hazardous waste generated by non-residential sources amounting to less than 100 kilograms in a calendar (*conditionally exempt small quantity generators*); and,
- materials derived from federally exempt materials, such as router dust (under "derived from" rule).

b) Reduced Standards

Universal Waste Rule (CFR Part 273) Lesser controls intended to facilitate recovery of listed wastes arising from a large number of generators in small amounts (batteries, pesticides, thermostats and mercury-containing lamps).

In addition, there are several initiatives underway at the federal level to add to this list of exemptions, notably with respect to a specific exemption for cathode ray tubes (CRTs) and mercury-containing equipment.

Note: In Canada, for all computer products, the key determinant is the intent and the level of processing. It would appear from our analysis and confirmed by affected industries consulted, that whole products and/or components are not subject to regulation in Canadian jurisdictions. However, as soon as a computer or component is processed or shredded, it is assumed to have the potential to release encapsulated lead and other substances making it likely to fail the TCLP and must be managed equivalently or similar to as a hazardous waste.

Other Forms of Exemption Consultations revealed a further three areas where American law permits exceptions which reduce costs and thereby facilitate the recovery and recycling of used computer products and processed materials. They include:

1. **1999 Superfund Equity Act** Intended to correct the market distortion created by a series of court rulings under the *Comprehensive Environmental Response Compensation and Liability Act* (Superfund) which characterized recycling as a form of disposal and attached potential liability to sellers of recycled materials or products which contained recycled material, while exempting products made of new materials. The 1999 Act clarifies that recycling does not constitute disposal and that shipping for recycling should not be interpreted as "arranging for disposal" and in so doing removed a significant disincentive to recycling;
2. **Relief from Permits for Recycling Facilities** Two separate exemptions exist for hazardous waste recycled by treatment facilities to encourage recycling. The first provides relief from the standard and complex permit process for the recycling of hazardous waste, under 40 CFR 264.1(2). The second offers relief to facilities from requiring a hazardous waste permit for the treatment of hazardous wastes containing precious metals, under 40 CFR 266 Subpart F; and,
3. **Recognition of EPA Exemptions by Transport Ministry** In the US federal transport regulations espouse their own hazard classification. However, it is generally accepted that the Department of Transport acknowledges the exemptions granted by EPA.⁴

Application to Computers Products and Materials The following summarizes the type of exemptions from full control accorded whole, component and processed computer products and materials arising from industrial and institutional waste streams in the United States and Canada:

Whole Computers and Related Products (Central processing unit (CPU), monitors, printers, keyboards and accessories, such as mice). In the US, *whole monitors* are exempt and shipped as whole products. These products are initially assumed to be capable of reuse, are not considered to be discarded and thus are not defined as "waste". In practice, however, there would appear to be no significant market for used monitors as a consequence of ongoing improvements in size and other features, coupled with ever decreasing costs of new monitors. Used monitors are typically sent to evaluation facilities which either dismantle them or send them for dismantling. Industry respondents noted that while a strict interpretation of the federal law would suggest the need for a hazardous waste classification at this juncture, this is not how the product tends to be handled.

Computer Components (Cathode ray tubes (CRTs), circuit boards, lamps, mercury switches, batteries and printer cartridges). Specific exemptions exist for the *batteries*⁵ used in computers, which are shipped as universal waste (40 CFR 273) and for *mercury switches* which are "*conditionally exempt*" when shipped under the exemption for Small Quantity Generators (40 CFR 261.5). *Printed circuit boards* fall under the scrap metal exemption, pursuant to Memoranda issued by the EPA in 1992 and 1997.

⁴ *This type of reciprocal agreement is not relevant in the Canadian context given the fact that test procedures established by the Transport of Dangerous Goods Act provides the basis for determination of hazard for the management of hazardous waste and recyclable materials.*

⁵ *The batteries used in computers include lithium-Ion, nickel-metal hydride (non-hazardous) or NiCad (hazardous). NiCads are regulated at the federal level under the EIHW regulations but exempt across all provinces and territories under the RBRC Transport of Dangerous Goods Permit of Equivalent Level of Safety*

Processed Materials (Shredded circuit boards, shredded monitors, leaded glass, precious metal sweeps, router dust) *Shredded circuit boards*, although hazardous, are entitled to the specific exemption (40 CFR, 261) mentioned above. *Shredded monitors* are generally believed to fail the Toxic Toxicity Characteristic Leachate Procedure (TCLP) but will shortly be eligible for reduced restrictions under the proposed revision to RCRA (discussed in the body of the report). *Leaded glass from CRTs* may be exempt from classification as waste as a material used directly, i.e. without intervening reclamation, to make a product. Some monitors are being processed with relatively rigid separation of lead-to-glass concentrations so that they can be reused in new monitors, and therefore may be classified as not waste. *Router dust* is exempt under the 'derived from' rule and *precious meals (PM) sweeps* are covered only if they test positive for acute hazardous characteristics, like corrosivity.

Comparing Regulatory Controls in Canada and the United States While treatment accorded whole computers is similar in both Canada and the U.S., in that they are not subject to regulation until destined for disposal or recycling and determined to be hazardous, Canada and the United States currently take different approaches to the management of computer components and processed materials. The United States has provided, or is considering exemptions, for all of the types of processed materials, including CRTs, and does not regulate precious metal sweeps (derived from a non-listed material). Canada requires management of the same materials equivalent or similar to hazardous waste. The following figure summarizes the scope of regulatory controls at the federal level in Canada and the United States for the products and materials which were the focus for this study.

Figure 2: Application of Hazardous Waste Regulation in Canada and the United States to Computer Waste

	Whole					Components						Processed Materials				
	CPU's	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury *Switches	Batteries	Printer Cartridge	Shredded Circuit Bds	Precious Metal (PM) Sweep	Shredded Computers	CRT Glass	Router Dust
Canada									■	■		■	■	■	■	■
United States						P	E	E	E	E		E		E	P	E

Review of State and Provincial regulations reveals much the same situation. Based on the same Tables contained in Annex 1, in the United States, the general trend appears to be one of continuing efforts to reduce controls over the management and movement of electronic products, including computers, in the expectation of increasing recovery and recycling rates and diverting recyclable materials from landfill.

By comparison, in Canada, six provinces and three territories (*Manitoba, Saskatchewan, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, the Yukon, the North West Territories and Nunavut*) regulate processed computer materials being managed within their jurisdictions and destined for recovery operations equivalent or similar to hazardous waste. However, four provinces (*British Columbia, Alberta, Ontario and Québec*) have adopted regulatory approaches that are very similar to the situation in the United States. The movement of whole computers, computer components or processed computer materials destined for recovery within their respective provincial boundaries is either exempt or was never regulated at the outset.

As noted earlier, these four provinces represent the regions where the predominant re-use, recycling and recovery activities for computer based materials occur in Canada. As a consequence, processed materials destined for recovery operations that may not be subject to regulation at the provincial or state level will be subject to Canadian federal requirements if movement across the Canada-U.S. border is necessary.

Analysing Provincial and State Regulation Information received from government contacts, regarding the purpose and scope of existing regulations, was pooled with the response from industry, which bears responsibility for characterizing computer waste and determining which exemptions may apply, to establish how each Province and State is working to promote computer recycling. Annex A provides summary information of the anecdotal information provided by government contacts and the means for quantifying, in very proximate terms, the level of support for recycling, in terms of specific exemptions which target the computer recycling industry.

Information received from government contacts varied widely in terms of content and level of detail. In those cases where state or provincial authorities declined to reply, we assumed that State laws mirrored those at the federal level. In the absence of a response, or sufficient detail, we relied on the information available on web sites. The quality of information available online varied in terms of accessibility, organization and currency. The overall response rate was higher and the quality of information more complete from State, rather than provincial contacts. Industry response, recorded in Section 4, was useful in identifying the range of products currently subject to hazardous waste controls. While many more industry representatives were contacted than is reflected in the report, many responded by telephone or asked, for a variety of reasons, that their response not be included directly in this report. Despite some gaps, sufficient information was available for both levels, in both countries, to allow for comparison between the two regulatory environments.

United States

At the federal level, components (circuit boards, lamps, mercury switches, batteries) and processed materials (shredded circuit boards, shredded computers, router dust) are exempted under RCRA, Universal Waste Rules and CFR Title 40 261.4(a) Scrap Metal Exemptions. Most states (68%) have adopted RCRA by reference, along with the Universal Waste Rule and the exemptions for scrap and precious metals.

A few (6%) have not adopted all federal exemptions, including Alabama which regulates mercury switches, Missouri which regulates batteries and Nebraska which regulates router dust.

Over one quarter (14 states) have introduced regulatory exemptions beyond those available under RCRA and the CFR. These include:

- Colorado, New York, Oregon, South Carolina (exempt whole computer products and CRTs);
- Massachusetts, North Carolina and Rhode Island (monitors and CRTs);
- California, Maine, Maryland, Michigan, New Hampshire (CRTs); and;
- Nebraska (exempts whole computer products but regulates CRTs).

Current Exemptions Legislation intended to facilitate recycling of electronics which have been introduced include:

- California (two Bills for recovery/reuse/recycling of electronic scrap and CRTs)
- Connecticut (inclusion of CRTs as Universal Waste)
- Idaho (classification of computer monitors as Special Waste);
- Maryland (inclusion of CRTs as Universal Rule)

New or Amendments to Existing Regulations Four States had proposals under review as at April 24 of this year which would introduce *regulatory change* included:

- California
- Connecticut
- Hawaii
- Idaho
- Maryland

Electronic Recovery Programs and Research Initiatives

Legislation requiring introduction of electronic products recovery programs or conduct of studies are proposed by 21, or nearly half, the States, including:

- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Georgia
- Hawaii
- Idaho
- Illinois
- Iowa
- Maryland
- Massachusetts
- Minnesota
- Nebraska
- New Jersey
- New York
- Oklahoma
- Oregon
- Pennsylvania
- South Carolina
- Tennessee

Canada

None of the exemptions or exclusions provided under RCRA for computer products, components and processed materials exist at the federal government level under CEPA and the current or proposed Export and Import of Hazardous Waste (and Hazardous Recyclable Materials) regulations. All products or materials which are found to exhibit hazard pursuant to testing must be managed equivalent or similar to hazardous waste (and recyclables) in Canada. While there is a definitional distinction in the CEPA, between hazardous waste and hazardous recyclable materials, in practice, both are managed similarly under the same regime.

As noted earlier, the majority of Provinces (approximately 70 %) adopt a similar regulatory approach to the Federal regulations for managing hazardous recyclable materials with the exception of rechargeable batteries which all provinces, territories and the federal government have exempted for movement within Canada. By contrast, British Columbia, Alberta, Ontario and Quebec have enacted hazardous waste legislation for recyclables which differs from the Federal requirement.

Provincial Exemptions (when destined for recovery)

- Ontario exempts all processed materials (shredded circuit boards; precious metal sweeps; shredded computers (PM Stream); CRT Glass (crushed); and router Dust);
- BC exempts all of the above except for crushed CRT Glass;
- Quebec does not categorize any of these materials as hazardous waste and, accordingly, regulates only those hazardous materials destined for final disposal;
- Manitoba (proposed changes to Special Waste Regulations; and,
- Ontario (proposed Bill 90 Waste Diversion Act).

Perceived Incentives and Barriers Government and industry representatives contacted were also asked about their views on how existing or proposed hazardous waste regulations affect the recovery and recycling of computer products and materials. Their views are documented in Sections 3 and 4 of this report. These

views, while of interest in terms of issues which may need to be addressed in relation to any contemplated national program or regulatory amendments, do not fit directly within the terms of reference and will not be discussed in this summary section. Readers should refer to State comments and industry input directly for this information.

Future Directions In Canada, there are a number of processes underway to revise existing or introduce new legislation governing hazardous waste and recyclable materials, the outcome of which is yet to be determined. There are a large number of proposed bills in State legislatures as well, which are aimed at diverting larger amounts of computer waste from landfill and encouraging higher rates of recycling for electronic waste writ large.

In the United States, questions being asked about the conceptual basis for hazardous waste management over the long term. Earlier this year, the EPA recently released a White Paper, "*Beyond RCRA: Prospects for Waste and Materials Management in the Year 2020*", which contemplates major changes and possible replacement of the Resource Conservation and Recovery Act (RCRA) in response to the demands of an increasingly globalized and information-rich environmental and economic landscape. The Paper establishes steps that may be taken to achieve three broad waste management goals: *more efficient and sustainable resource use; reduced exposure to harmful chemicals*; and, waste management and control of chemical releases. In addition to fees for waste generation, surcharges on consumption or systems of credit to reward resource efficiencies, the paper suggests that reducing industrial waste may necessitate a regulatory as well as conceptual shift in the understanding of waste.

There are two suggestions in the paper which are of fundamental importance in weighing options for hazardous waste management programs. The first is the suggestion that a fundamental shift from the "waste versus non-waste construct that is embedded in the current RCRA system"⁶, and to embed waste management with a materials management framework. This would see materials currently considered wastes as material commodities with potential uses, "rather than as useless materials destined for disposal". Potentially hazardous materials or non-waste by-products would be regulated under the provisions of the Toxic Substances Control Act (TSCA), generating a broader, integrated materials management system rather than a waste management system as structured in the RCRA.

Some Conclusions What is apparent from the above results that there are some major differences in regulatory approach between Canada and the United States and that ITAC will need to consider that at present electronic waste, including recyclable computer products and materials, which are exempt from controls in the United States must be managed as hazardous waste under Canada's Export and Import of Hazardous Waste Regulations if they cross international borders. As several government and industry contacts noted, this divergence may serve to work against increasing recycling of electronic waste in Canada. A further observation relates to the proliferation of voluntary programs at the state and provincial level which are serving to raise awareness of the environmental issues and potential for economic returns associated with the emerging market for the burgeoning supply of used computers and other electronic equipment. More work in this area is needed to catalogue and evaluate these initiatives in order to determine what mix of incentives, in terms of policies and programs, and regulations are needed to support an effective national program for the recovery and recycling of these products and the valuable resources they contain.

⁶ US EPA White Paper, *Beyond RCRA: Prospects for Waste and Materials Management in the Year 2020*, p. 12.

SECTION 2

Federal Legislation & Regulations

2.1 Canada

2.2 United States

FOREWORD

The primary purpose of this study was to identify which computer products, components and processed materials may be regulate, managed equivalent to or in a manner similar to hazardous waste in Canada and the United States, and what exemptions may be available for different products at different stages in the recovery process requirements.

Section 1 provides highlights of current and proposed federal legislation in Canada and the United States which provide the framework for the regulation of solid and hazardous waste, in particular whole computers, components and processed computer products and materials, at the provincial and state level. The two main pieces of legislation are the Canadian Environmental Protection Act and the Resource Conservation and Recovery Act. Summary descriptions of additional, parallel legislation are also included which are directly or indirectly relevant to the recovery and recycling of computer waste in each jurisdiction.

It is important to note that this section is not intended to be exhaustive in nature. Rather, the intent intended to provide a sense of the broad legislative and regulatory framework in each country which creates positive and negative incentives for the recovery and recycling of computer goods, if and when a determination of hazard is made.

Note: Additional descriptions of RCRA and relevant US regulations are also found throughout the sections dealing with response from State officials and industry contacts, and further summarized in the summary findings and in Table 2 of Appendix 1.

2.1 CANADA

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

CEPA 1999 is Canada's principal piece of federal environmental protection legislation which also addresses the environmental aspects of interprovincial shipments of hazardous wastes and recyclable materials that are currently under the Transport of Dangerous Goods Regulations. CEPA provides the Federal Government's legislative authority to regulate the transboundary movement of hazardous waste destined for final disposal and hazardous recyclable materials destined for recovery operations. CEPA was amended in 1999 incorporating some significant new provisions and authorities including:

- the decoupling of hazardous waste destined for final disposal from hazardous recyclable materials destined for recovery operations;
- the authority to prohibit exports, imports and transits where the Minister is of the opinion that the waste or material will not be managed in an environmentally sound manner;
- the authority, with the approval of the Governor in Council, to prohibit exports, imports or transits of any waste or material for the purposes of implementing international agreements;
- the development of criteria to ensure environmentally sound management of wastes and materials, and to refuse permits for import or export if the criteria are not met;
- the issuing of Permits of Equivalent Level of Environmental Safety (PELES) authorizing activities to be conducted in a manner that does not comply with the regulations but ensures compliance to an equivalent level of environmental safety; and,
- the authority to control the interprovincial/territorial movement of hazardous waste and hazardous recyclable material.

Specific provisions of CEPA, Sections 185-192 of CEPA 1999, Part 7, Division 8 (Control of Movement of Hazardous Waste and Hazardous Recyclable Material, and of Prescribed Non-Hazardous Waste for Final Disposal) allow Canada to meet its international commitments under the Basel Convention (*on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal*), the OECD Council Decision C(92)39 concerning the transfrontier movement of wastes destined for recovery operations, and the Canada-US Agreement on the Transboundary Movement of Hazardous Waste (amended 1992).

Officials at Environment Canada have identified the following provisions as relevant to this paper:

Section 185 – Import, Export And Transit. Requires anyone seeking to import, export or transport a hazardous waste or hazardous recyclable material, or a prescribed non-hazardous waste for final disposal, to pay a fee and obtain a permit;

Section 186 and 189 – Prohibitions. For the purpose of implementing international agreements, Section 186(1) permits the Minister to prohibit, completely, partially or subject to conditions, the movement (import, export or transit) of waste or recyclable material referred to in Section 185(1);

Section 188(1) – Reducing or Phasing Out Exports. Provides authority to require exporters to prepare and implement reduction/phase out plans for hazardous waste that is shipped abroad for final disposal.

Section 189 – Movement in Canada. Requires that movement of hazardous waste or hazardous recyclable material within Canada shall be in accordance with the Regulations.

Section 191 Regulations Authorizes making of regulations, providing and establishing criteria for the purpose of subsection 185(2) that take into account international agreements to which Canada is party, establishing a classification system for waste and material;

Section 192 – Forms. Authorizes the Minister to establish forms for the import, export and transit of hazardous waste, recyclable material or prescribed non-hazardous waste destined for disposal.

Part 1 Section 9, Administrative Agreements provides for the federal government to enter *into Administrative or Equivalency Agreements* with provinces so that provincial requirements are enforced in place of the equivalent CEPA regulation. Other related agreements, such as those on Canada-Wide Standards, are entered into under CEPA section 9, however they represent cooperation towards a common goal, rather than a delegation of authority under CEPA. Furthermore, under Canada's constitution, the federal government has the authority to enter into international environmental agreements. CEPA and CEPA Regulations implement a number of these agreements.

TRANSPORTATION OF DANGEROUS GOODS ACT AND REGULATIONS (TDG)

The federal *Transportation of Dangerous Goods Act* legislates the management practices for the transportation of dangerous goods, including waste dangerous goods. Each province ensures this happens by requiring documentation to be completed, carried with the shipment at all times and copies then returned to the provincial ministry.

The current Act, regulates the transportation of dangerous goods in Canada, which are defined as a product, substance or organism included by its nature or by the Transport of Dangerous Goods Regulations (TDGR) in the following 8 classes:

Class 1: Explosives, including explosives within the meaning of the Explosives Act;

Class 2: Gases: compressed, deeply refrigerated, liquefied or dissolved under pressure;

Class 3: Flammable and combustible liquids;

Class 4: *Flammable solids*; substances liable to spontaneous combustion; substances that on contact with water emit flammable gases;

Class 5: *Oxidizing substances*; organic peroxides;

Class 6: *Poisonous (toxic)* and infectious substances;

Class 8: *Corrosives*; and,

Class 9: Miscellaneous products, substances or organisms (as prescribed by the Governor in Council to be dangerous to life, health, property or the environment when handled, offered for transport or transported).

Note: Class 7, concerning radioactive substances, covered by Canada's Nuclear Safety and Control Act is not relevant to the computer sector.

Requirements under the TDGA and TDGR cover the conduct of tests (for dangerous characteristics, Schedule VI); certification of dangerous goods transporters; safety marks (labels and placarding); certification of insurance; emergency response assistance plan and trained employees; and, the manifest system (to track movement at all stages during transport).

The current Regulations will be replaced on August 15, 2002, by new "clear language" regulations which will highlight security awareness. The new regulations have 16 Parts and schedules, of which Part 2 (classification of/criteria for determining dangerous goods), Part 3 (required documentation), and Part 4 (safety marks) are of particular relevance, in terms of their cost implications for generators, transporters and processes of recyclable computer materials. Other sections address safety standards for containment, training, emergency response plans (including for transfer across the Canada-US border), accidental releases/reporting. Part 14 is also important in that it provides for authorization (Permit for Equivalent Level of Safety (PELES), while meeting international obligations, under section 31 of the Act to conduct an activity in compliance with the conditions of that authorization instead of the regulations. The Regulations are accompanied by a series of schedules which list dangerous goods by UN number, or by special provision/product or shipping name.

Waste Waste is not defined as waste in the new regulations in order that all dangerous waste will be treated as any other dangerous good. The waste must be classified as any other DG and documented, marked and packaged just like a non-waste DG.

Proposed amendment 30. There is no waste manifest referred to in the clear language version. However, the proposed amendment 30 allows the order of the elements shown on the manifest in the order specified by the manifest until August 2004.

There will be a need for Environment Canada to ensure that shippers and importers are provided with a manifest in compliance with the new regulations if they continue to use a manifest for the import and export of dangerous waste.

EXPORT AND IMPORT OF HAZARDOUS WASTES REGULATIONS (EIHR)

Under section 191 of the Canadian Environmental Protection Act, 1999 (CEPA 1999), the Governor in Council has the authority to make regulations respecting conditions governing the movement within Canada of hazardous wastes and hazardous recyclable materials.

Introduced in 1992 under CEPA 1988, and rolled over under CEPA 1999, EIHR was designed to implement international agreements by setting out conditions for shipments of hazardous wastes across Canadian borders. The conditions set by EIHR were developed to promote environmental responsibility; allow proper control over waste shipments; ensure that generators take full responsibility for waste from generation to disposal and any accidents will be cleaned up; and, ensure import and export only to Basel or Article 11 countries.

For the purposes of these regulations, hazardous waste means any product, substance or organism that is dangerous goods as defined in Section 2 of the Transportation of Dangerous Goods Act, 1992, that is no longer used for its original purpose and that is recyclable material or intended for treatment or disposal, including storage prior to treatment or disposal. (including household products or substances, substances or products returned directly to a manufacturer or supplier for reprocessing, repackaging or resale, explosives, nuclear as well as substances specified in Schedule III (List of Hazardous Wastes Requiring Export or Import Notification). Schedule I of the regulations contains two lists: one describing processes considered to be disposal operations and the second describing recycling processes. The operations in these lists may not be environmentally acceptable practices in all countries or provinces, so the operations must be authorized by that country or province.

Conditions on the export and import for recycling include: proper labeling, placarding and packaging; written contract between exporter and the importing person; a manifest and within 30 days, written confirmation that waste has been recycled; certificate of insurance of exporter and carrier; authorized carrier and recycling facility.

CANADA-U.S. AGREEMENT CONCERNING THE TRANSBOUNDARY MOVEMENT OF HAZARDOUS WASTE

Entering into force in 1986, the Agreement, as amended in 1992, sets out the administrative conditions for the export, import and transportation of hazardous waste and other wastes between the two countries by ensuring the safety in transport of hazardous waste-shipped to facilities authorized by the importing jurisdiction. Under the Agreement, a waste is considered hazardous if defined by legislation of the exporting country. In the case of Canada, that would be the Export and Import of Hazardous Wastes Regulations and the federal Transportation of Dangerous Goods Act and Regulations, and in the United States the Resource Recovery and Conservation Act (RCRA) and the Toxic Substances Control Act (TSCA). The Agreement is based on four basic principles:

- each country must adequately manage waste in its own jurisdiction;
- exporting country must give importing country prior notice of the proposed shipment and importing country indicates whether it objects to the proposed shipment;
- the two countries must co-operate to ensure transboundary shipments of hazardous waste are accompanied by proper manifests; and
- exporting country must permit re-entry of any hazardous waste that may be returned by the importing country.

Under the Agreement, generators and transporters of hazardous waste must provide a notice containing the following information: type and amount of waste; export date; name of transporter and method of transportation; type of container; name and address of receiving party; and method of recycling, treatment, storage, or disposal. The importing country has 30 days to review the request and indicate objection or consent. If the shipment is to transit through one of the countries to a third country, prior notice must be given to the country of transit, indicating the length of time the hazardous waste will remain in the country of transit. The shipment must comply with the domestic legislation and regulations of the importing country and, in both countries, be accompanied by a detailed manifest.

Proposed Regulations

EXPORT AND IMPORT OF HAZARDOUS WASTES AND HAZARDOUS RECYCLABLE MATERIALS REGULATIONS (EIHWHRMR)

New regulations are likely to be available in early 2003 to reflect the decoupling of the definitions of waste and recyclable materials under CEPA 1999 to replace current EIHWR (to be called the Export and Import of Hazardous Wastes and Hazardous Recyclable Materials Regulations (EIHWHRMR)). Some of the specific proposed changes include:

- definitions for waste (any material which is disposed, destined for or required to be disposed) and

recyclable material (materials being recycled, destined or required to be recycled), and a definition for both hazardous waste and hazardous recyclable material (HRM);

- there will be two main ways to determine whether a waste or recyclable material is to be considered hazardous; listing or meeting one or more of the hazard characteristics with provisions for *exclusion of listed hazardous wastes or hazardous recyclable materials* under certain limited conditions.

The CEPA 1999, in force since March 2000, includes various important new provisions with respect to hazardous waste and hazardous recyclable materials. One of the most important of those changes is the authority to develop a control regime for exports and imports of hazardous recyclable materials. In addition, the new Act authorizes the Minister of the Environment to:

- prohibit exports, imports or transits in order to implement international agreements;
- develop criteria to ensure the environmentally sound management of wastes or recyclable materials, and to refuse permits for import or export if these criteria are not met;
- issue permits for activities that are different from the requirements set out in the regulations but are of an “*equivalent level of environmental safety*”; and,
- require the preparation of plans to reduce wastes destined for final disposal.

As a result of these various developments, Environment Canada is proposing to introduce new regulations which will introduce significant revisions to existing rules intended to establish controls on transboundary movement of hazardous recyclable materials consistent with Canada’s international obligations and address each of the CEPA 1999 authorities. According to Environment Canada, these changes will:

- facilitate recycling by providing a distinct control regime for recyclable materials;
- enhance the efficiency with which the control regime can be administered and complied;
- improve the federal-provincial and US-Canadian harmonization; and,
- strengthen the linkages between the import/export provisions under CEPA and the other elements of CEPA, 1999, including in particular the toxic substances provisions.

A further objective is to improve the clarity of the regulations, in terms of readability, as a whole, in addition to revising the substantive content of them. Among other things, this may involve “clear language” drafting and the introduction of statements of purpose for the main parts of the regulations.

INTERPROVINCIAL REGULATIONS

Environment Canada is developing new regulations that will integrate some of the waste controls formerly set out in the Transport of Dangerous Goods Regulations (TDGR). The proposed Interprovincial Regulations will apply to movement within Canada of hazardous wastes and hazardous recyclable material but would not apply to the movement of hazardous waste and hazardous recyclable material that remain solely within a province or that is part of an international movement.

The manifest has been used in Canada as a means to track shipments of hazardous waste since 1985, when it was first introduced under the TDG Regulations. Both the manifest and the classification process under the TDG Regulations have been used as important references for several other federal and provincial regulations on hazardous wastes and hazardous recyclable materials.

The introduction in CEPA 1999 of new authority to control the movement in Canada of hazardous wastes and hazardous recyclable materials signaled the intention of the Government of Canada to transfer the manifest tracking requirements from the TDG Regulations to regulations under CEPA 1999. This approach is reflected in the new TDG Regulations.

The new TDG Regulations do not include specific sections concerning the manifesting of hazardous waste, nor do they continue to define waste for the purpose of controlling wastes and recyclable materials as a separate category of dangerous goods. In order to maintain the current manifest system, these requirements must be included in the proposed Regulations. In addition, the new Transportation of Dangerous Goods Regulations modifies the way in which miscellaneous dangerous goods are classified, which must also be addressed in the proposed Regulations.

The goal of the proposed Interprovincial Movement of Hazardous Waste Regulations is to ensure that the current manifest tracking and classification requirements for the interprovincial movements of hazardous wastes are maintained. Relevant definitions and other provisions in the proposed Regulations include:

- Hazardous recyclable material: any substance coming within the meaning of recyclable (Listed Hazardous Waste and Hazardous Recyclable Materials) or exhibits a hazard classification of a gas, flammable liquid, dangerously reactive, oxidizer, toxicity, infectious, corrosive or environmentally hazardous as determined by criteria, tests and lists referred to in the Regulations;
- Hazardous waste: any substance coming with the meaning of waste and listed in the Regulations or exhibits a hazard classification as for hazardous recyclable material;
- Hazardous classification: means a hazard prescribed by list or described by criteria and test which will be set out in Part of the Regulations;
- Disposal means any of the operations described in one of the Schedules listing the Disposal (D) Operations;
- Recycling means any of the operations described in one of the Schedules listing the Recycling (R) Operations;
- Recyclable Material means any substance that is collected pending recycling, destined to be recycled, required to be recycled or recycled and does not include waste or any material used for its original purpose;
- Waste: any substance that is collected pending disposal, stored pending disposal, destined to be disposed, required to be disposed or disposed and does not include recyclable material or any material used for its original purpose.

Exceptions: Include *hazardous recyclable materials transported directly to a site to be wholly introduced or utilized into an ongoing agricultural, commercial, manufacturing or industrial process, or operations used for functions other than waste management and household waste*;

Previously, exemptions were part of the definitions, the proposed separate part of the regulations will be comprised of CCME recommendations and TDGR exemptions. Exemptions could include:

- Explosive materials (Class 1 – TDGR)
- Radioactive materials (Class 7 – TDGR)
- Certain hazardous recycle material transported directly to a site to be wholly introduced into an on-going agricultural, commercial, manufacturing or industrial process, or operations used for functions other than waste management;
- Household garbage, sewage, seepage or sludge;
- Waste or recyclable materials that are:
 - Solids in quantities less than 5 kg per movement or
 - Liquids in quantities less than 5L per movement or
 - PCB mixture, a PCB article or electrical equipment that contains a PCB mixture, the quantity of PCB mixture not greater than 500 g.
 - Zinc ashes that will not evolve flammable gases when wet; and do not satisfy any other hazard classification criteria set out in the regulations.

Hazard Characteristics: A waste or recyclable material not listed in Schedule 4 which are considered hazardous waste or hazardous recyclable material if meets one or more of specified conditions associated with the characteristics provided under the TDGA/TDGR:

- gases (ignitable, toxic or corrosive);
- flammable liquid;
- dangerously reactive (combustible);
- oxidizer (combustion);
- toxicity (oral, dermal or inhaled)
- infectious (micro-organism);
- corrosive (to human skin);
- environmentally hazardous.

Note: *Environmentally hazardous waste or recyclable material is a leachate toxic hazardous waste or hazardous recyclable material if it produces a leachate in accordance with U.S. EPA Toxicity Characteristic Leaching Procedure (TCLP), Test Method 131, with the list of hazardous constituents expanded to reflect Canadian regulatory threshold levels.*

2.2 UNITED STATES

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The RCRA was established in 1976 under Title 42, Public Health and Welfare, Chapter 82, Solid Waste Disposal. Together with the Hazardous and Solid Waste Amendments of 1984 (HSWA), RCRA provides the legal framework for national programs to achieve environmentally sound management of hazardous and non-hazardous wastes and promote resource recovery techniques and methods to reduce the generation of hazardous waste. Developed in response to public concern about the threats to human health and the environment posed by increased waste generation, *Subtitle C, Hazardous Waste*, directed the Environmental Protection Agency (EPA) to establish regulations addressing the generation; transportation; and treatment, storage or disposal of hazardous wastes.

RCRA is comprised of ten Subchapters (commonly referred to as Subtitles) which deal with the legal and administrative structure and responsibilities needed to implement the Act, along with Subtitle C *Hazardous Waste Management*, and three others (D, I and J) dealing with Solid Waste Plans (State or Regional), regulation of underground storage tanks and medical waste tracking..

Solid Waste

According to the RCRA, no material can be a hazardous waste unless it is a solid waste, which is defined as “ *any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial or mining and agricultural operations, and from community activities. . . [excluding] . . .solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows, or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act. . . , or source, special nuclear, or byproduct material as defined by the Atomic Energy Act [AEA] of 1954 .”*

Hazardous Waste

RCRA defines a hazardous waste “*a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or . . .pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”*

CODE OF FEDERAL REGULATIONS (CFR)

Title 40, Protection of Environment, Parts 260-273

The Code of Federal Regulations (CFR, Title 40) comprises the regulations in place needed to implement RCRA. Subpart A of CFR 40.261 identifies solid wastes subject to regulation (and notification requirements of RCRA) as hazardous wastes under parts 262 through 265, 268, and parts 270, 271, and 124). Subpart A also defines the terms "solid waste" and "hazardous waste", identifies wastes excluded from regulation (parts 262-266, 268 and 270) and special requirements for hazardous waste produced by conditionally exempt small quantity generators and hazardous waste intended for recycling which is recycled. Subpart B establishes the

criteria used by EPA to identify characteristics of hazardous waste (contained in Subpart C) and to list particular hazardous wastes (Subpart D).

Part 261.3C(c) defines a solid waste as any discarded material not specifically excluded which is abandoned, considered inherently waste-like, including "*recycled (used, reused or reclaimed) or accumulated, store or treated before recycling*".

The CFR also requires evidence that hazardous recyclable materials are not *accumulated speculatively*, i.e., there must be evidence to show that the material has the potential to be recycled, there is a technical way of doing so and at least 75% (weight or volume) of the material must be recycled or transferred to another site for recycling, within a year.

Standards for Generators, Transporters and Treatment Facilities 40 CFR 262-265 covers the rules for those involved in the generation, transport and disposal of hazardous wastes, including interim status, including the responsibility of the generator, transporter or owner/operator of a recycling facility to determine if a solid waste is also hazardous. A determination of hazard places introduces further requirements such as obtaining an EPA identification number, managing the hazardous materials according to RCRA's on-site waste management requirements, and the obligation to ship using the manifest system and hazardous waste carriers. *Transporters* are required to use the manifest system, must be licensed carriers and meet other specified requirements for packaging, emergency clean-up plans and appropriate insurance. *Treatment, Storage and Disposal Facilities (TSDFs)* need a permit to operate, must have security, emergency and facility closing planning, groundwater monitoring and maintain record keeping and reporting.

Exclusions Under 40 CFR 261.4, the following are excluded from the definition of solid waste:

- *households*;
- non-residential generators of less than 100 kilograms of hazardous waste in a calendar year (*Conditionally Exempt Small Quantity Generators*)⁷;
- *secondary materials that are reclaimed and returned to the original process or processes* in which they were generated where they are reused in the production process provided;
- *scrap metal* (processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal) being recycled; and,
- *shredded circuit boards* being recycled, provided they are stored in containers preventing release to the environment prior to recovery and free of mercury switches and relays, and nickel-cadmium and lithium batteries.

Determination of Hazard Under 40 CFR, a solid waste is listed as a hazardous waste if it exhibits any of a number of specific characteristics listed in Subparts 261.21-24 (*ignitability, corrosivity, reactivity and toxicity*), has been found to be fatal in humans in low doses (or having specific effects on test animals), or is otherwise deemed capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. Solid waste is also considered hazardous if it contains hazardous constituents, listed in appendix VIII, which include: *copper, cyanide, lead/lead compounds, nickel/nickel compounds, zinc cyanide, cadmium, mercury and silver*.

Toxicity is determined based on the level of concentration of listed contaminants in a representative sample of the waste, or the waste itself, using a test method known as the *Toxicity Characteristic Leaching*

¹ This provision includes whole computers, peripherals and components sent for disposal by households.

Procedure (TCLP) (Appendix II). Contaminants listed in terms of the maximum allowable concentration include: *arsenic, barium, benzene, cadmium, chromium, lead, mercury, selenium and silver.*

Universal Waste Management An amendment to the RCRA, the "*Universal Waste Rule (UWR)*" (implemented under 40 CFR 273) is designed to reduce the amount of hazardous waste items in the municipal solid waste stream, encourage recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses generating the wastes. The four products/substances currently listed under the Rule include: *batteries; agricultural pesticides; thermostats; and, mercury containing lamps.*

Universal wastes are subject to reduced requirements from those governing other types of hazardous waste. While they may not be disposed of through landfill or incineration, they are subject to lesser requirements for notification, labeling, marking, prohibitions, accumulation time limits, employee training, response to releases, offsite shipments, tracking, exports, and transportation. Handlers of universal waste fall into four categories: small or large quantity handlers, transporters and destination facilities. Key features which reduce the cost of storage, handling and movement of universal wastes include: 1) an extended period over which businesses may accumulate these materials on site; 2) no requirement to be transported by an authorized hazardous waste carrier; and, 3) no need to track shipments by using the manifest system.

Authorization of State Programs

State authorization is a rulemaking process through which the EPA delegates authority to States (CFR 270) to administer and enforce a hazardous waste program 'in lieu' of the Federal program. Provisions mirror those at the federal level with respect to the identification and listing of hazardous waste and setting out requirements for generators, transporters and treatment, storage and disposal facilities with respect to permitting, compliance evaluation, enforcement, public participation, and sharing of information. This process is intended to ensure national consistency and minimum standards while providing flexibility to states in implementing rules. Currently, 50 states and territories have been granted authority to implement the base, or initial, program. Many also are authorized to implement additional parts of the RCRA program that EPA has since promulgated, such as Corrective Action and the Land Disposal Restrictions.

State authorization does not preclude a State from adopting or enforcing more requirements which are broader in scope, more stringent or extensive than federal requirements. RCRA authorized States have primary responsibility for enforcing the program but the EPA retains its authority for enforcement, including the right to conduct inspections and take enforcement action. States which have received RCRA full authorization include: *Arizona, Arkansas, Delaware, Florida, Idaho, Illinois, Indiana, Louisiana, Michigan, Minnesota, Missouri, Montana, Ohio, Oklahoma, Texas and Wisconsin.*

Export/Import

Federal requirements for international shipment of hazardous wastes for recovery differ depending on whether the country to which the material is being exported is a member of the Organization for Economic Cooperation and Development (OECD). 40 CFR 262.58 sets forth the requirements of international agreements between the United States and receiving countries which establish different notice, export, insurance and enforcement procedures for the transportation, treatment, storage and disposal of hazardous waste for shipments between the United States and other countries. Subpart H, and F deal with transfrontier shipments within the OECD and Non-OECD countries, respectively.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY ACT (CERCLA)

Commonly known as the Superfund, was enacted by Congress in 1980 creating a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Over five years, \$1.6 billion was collected and the tax went to a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. CERCLA includes prohibitions and requirements for closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The law authorizes two kinds of response actions:

- Short-Term Removals: actions may be taken to address releases or threatened releases requiring prompt response; and,
- Long-Term Remedial Response Actions: permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening.

CERCLA also enabled the revision of the National Contingency Plan (NCP) that provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants and contaminants.

In 1999, CERCLA was amended by the *Superfund Recycling Equity Act* to provide an *exemption from liability for most recyclers*. Under CERCLA, recycling operations such as smelters, scrap dealers and businesses that sold or otherwise transferred their scrap or excess materials were exposed to liability. Recyclable materials that qualify for the exemption include *scrap paper, plastic, glass, textiles, rubber* (other than whole tires), *metal* and spent *lead acid, nickel cadmium batteries*. Scrap metals is very broadly defined and includes such things as bits and pieces of metal parts (bars, turnings, rods, sheets and wire), metal pieces held together with bolts or soldering (radiators, old cars and railroad box cars), as well as solder drippings and some *circuit boards*. Batteries qualify for the exemption if they have not been broken or smelted. Recyclable material does not include shipping containers that contain hazardous materials or any material containing PCBs in a concentration greater than 50 parts per million.

For the liability exclusion to apply, the recyclable material must:

- meet a commercial specification grade;
- must be a market for the material;
- yield a substantial part of the material for use in the manufacturing of a new product; and
- be a replacement or substitute for virgin, raw material.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

Enacted in 1976, the Act authorizes EPA to secure information on all new and existing chemical substances and to control any substances determined to cause an unreasonable risk to public health or the environment. All new chemicals must be reviewed before they are manufactured for commercial purposes. TSCA is comprised of the four Titles dealing toxic substances (I), asbestos hazard emergency response (II), the indoor radon abatement program (III) and reduction of lead exposure (IV).

risk and perform studies of the radon levels in schools and radon contamination in federal buildings; and,

Requirements of the Act also relate to the export/import of PCBs include: prohibits imports of PCBs for disposal (>2 parts per million) without an exemption, which requires a notice-and-comment proceeding; illegal to export PCBs in concentrations of fifty (50) or ppm; and in instances where a US exporter has shipped hazardous waste contaminated with PCBs in a concentration of 50 or more ppm, EPA has by interpretation deemed the transaction to be a transit rather than an import for purposes of entry and allowed its return to the US.

Under TSCA, Congress mandated the regulation of PCBs from manufacture to disposal, or from "cradle to grave" throughout the U.S. Although TSCA prohibited further manufacture, processing and distribution of PCBs, many products containing PCBs are still in use (i.e. PCB-containing equipment). EPA allows these uses to continue as long as the equipment is properly monitored and maintained.

Proposed

1. Conditional Exclusion for Broken, Used Cathode Ray Tubes (CRTs)

A Rule is an agency statement of general applicability that implements, interprets, or prescribes law or policy, or describes the procedure or practice requirements of an agency.

Under current regulations, unused CRTs sent for reclamation (recycling) are considered commercial chemical products (and hence, not hazardous waste). Used CRTs sent for recycling could be considered waste and CRTs sent for disposal are subject to the regulations dealing with determining if they are hazardous materials, and for those that fail the test for lead, they must be treated so that the TCLP lead concentration does not exceed 0.75 mg per liter. CRTs would be classified as hazardous waste if they exhibit one or more of the characteristics of hazardous waste as listed in 40 CFR 261.21-24 (ignitability, corrosivity, reactivity or toxicity).

As of June 12, the federal EPA has proposed Rule to:

- all intact and intact CRTs, and glass removed from CRTs intended for recycling from the definition of solid waste;
- clarify the status of CRTs sent for reuse; and,
- streamline the management requirements for used mercury containing equipment (by adding it to the federal list of universal wastes).

The purpose of the proposed Rule is to "*encourage greater reuse, recycling and better management of this growing waste stream while maintaining necessary environmental protection*".⁸ Traditionally, the EPA has treated materials taken out of service by one person as products, if they are put to use by a second. Used CRTs undergoing repairs or replacement of parts, prior to sale or reuse are considered products, not waste. *Whole and shredded circuit boards* sent for reclamation, under various rulings in 1992, 1994 and 1998, under the EPA has ruled that whole circuit boards sent for reclamation and shredded circuit boards (1994) fall under the *scrap metal exemption* from the definition of hazardous waste.

These further proposals to exempt computer waste will take effect through the addition of three new subparts under 40 CFR 261 Subpart E, Exclusions and Exemptions - 261.39, Conditional Exclusion for Broken, Used Cathode Ray Tubes (CRTs) undergoing Recycling will introduce the following three new sections:

- 40 CFR 261.39(a) Addition of a new section stating that used, broken CRTs *destined for recycling* would not be considered solid wastes if labeled or marked clearly and stored in a building or container designed to minimize identifiable environmental releases of CRT glass (including fine solid materials) to the environment and labeled/marked clearly (similar conditions apply to transport);
- 40 CFR 261.39(b) Used, broken *CRTs undergoing glass processing* would not be considered solid wastes if they are stored under the above conditions and the processing does not involve temperatures high enough to volatilize lead from used, broken CRTs;
- 40 CFR 261.39(d) to *exclude processed glass from used CRTs* from the definition if it is sent for recycling to a *CRT glass manufacturer or a lead smelter*, as long as the processed glass is not speculatively accumulated or used in a manner which would constitute disposal; and,
- Processed glass sent for recycling at a facility other than a glass manufacturer or a lead smelter would be excluded if it is packaged and labeled in accordance with the requirements of proposed 40 CFR 261.39(a).

2. Proposed Designation of Spent Mercury Containing Equipment as Universal Waste

Based on a 1996 submission by the Utility Solid Waste Activities Group (USWAG), the Edison Electrical Institute, American Power Association and the National Rural Electric Cooperative Association, the EPA is proposing to add used mercury containing equipment, such as manometers, barometers, hagenmeters, relay and mercury wetted switches, mercury regulators, meters and temperature gauges, to the UWR (under a new section, CRF 273.81).

The objective is to facilitate collection of mercury containing equipment and reduce the amount of mercury arriving in municipal landfills and incinerators. The EPA states that this equipment meets the criteria for UW, as it is discarded frequently by a large number of generators in small quantities and the risks posed during transportation and accumulation are relatively low. Households are not required but have the option of managing the universal waste they generate under the Rule if they wish, and must do so if mercury-containing equipment is mingled with other residential waste.

⁸ *Federal Register, Volume 67, No. 113*

Note: *Because states are not required to adopt less stringent regulations than federal requirements, States may opt not to adopt either of the above proposed Rules.*

SECTION 3

Provincial Legislation & Regulations

BRITISH COLUMBIA

GOVERNMENT RESPONSE

Current Legislation

I believe it is fair to say that our Minister has expressed an interest in expanded recovery of IT/Telecom wastes. British Columbia has a system of regulating storage, transport and treatment of these wastes under the provisions of the Special Waste Regulation. We believe many end-of-life IT/Telecom products would likely meet the prescribed criteria to be classified as special wastes.

Exemptions

The Special Waste Regulation prescribes criteria that define whether a material is designated as a special waste. Cathode Ray Tubes and NiCd batteries would very likely meet these criteria. At the same time there is authority under the Special Waste Regulation to provide exemption from various requirements for special waste collection, storage and transport provided there is sufficient assurance that materials will be properly handled. (Greg Tyson)

Electronics Recovery Programs

BC is currently looking at its regulatory regime regarding product Stewardship. Once our review and update of our current stewardship programs are complete we will be working with our partners to identify and prioritize future programs. (Christine Houghton)

Contact(s) Greg Tyson, Environmental Stewardship Program
Ministry of Water, Land and Air Protection, (250) 387-7980,
Greg.Tyson@gems6.gov.bc.ca
Christine Houghton Manager, Environmental Management Branch, (250) 387-9952,
Christine.Houghton@gems5.gov.bc.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Waste Management Act [RSBC 1996] **Describes** provincial prohibitions and conditions necessary for securing approval for the construction and operation of facilities or vehicles for the collection, storage, treatment, handling, transportation, *recycling* and destruction of wastes (including 'special wastes') and for the introduction of wastes into the environment. In addition to a facility permit, handlers and transporters of wastes and special wastes are required to notify provincial authorities within a specified time of the regulated activity by means of generator registration and a manifest system. A license is required to transport more than the prescribed amount of special waste. A permit is required for storage of special wastes and for any discharge to the environment.

Under the Waste Management Act, "*recyclable material*" means a product or substance that has been diverted from disposal, has no reuse value in its present form and satisfies at least one of the following criteria:

- (a) organic material diverted from residential, commercial or institutional sources and capable of being composted, or is being composted, at a site;
- (b) managed as a marketable commodity with an established market by the owner or operator of a site;
- (c) used in the manufacture of a new product that has an established market or is being processed as an intermediate stage of an existing manufacturing process; or
- (d) been identified as a recyclable material in a plan.

Special Waste Regulation, (includes amendments up to B.C. Reg. 52/95] Special wastes are waste materials, which, because of their toxic or reactive nature must be handled or disposed of properly to prevent harming people or the environment. In order for a material to be considered a special waste under the regulation (defined in Section 1 of the Regulation), it must be a prescribed material (e.g. waste asbestos) or meet the test of being a “leachable toxic waste” as determined by the Leachate Extraction Procedure (defined in the regulation). The regulation also requires persons who generate, store, receive and process special wastes to meet certain requirements and complete and submit various notifications to government depending on the type of waste being transported and the weight or volume. A shipping Manifest is required for the transportation of special wastes.

The Special Waste Regulations defines the term “*recycle*” as meaning to wholly utilize special waste or residue from a special waste management facility:

- a) in an agricultural, commercial, manufacturing or industrial process or operation, where the principal purpose of the process or operation is not waste management;
- b) by promptly packaging it for retail sale to meet a market demand;
- c) by offering it for retail sale to meet a market demand;

The definition of “*recycle*” does not include:

- d) the application of special waste or residue into or onto land; or
- e) the disposal of special waste or residue by burning, burning as a fuel or mixing with a fuel before burning;

Section 51(7) empowers the Director to authorize changes to existing regulations if a person can demonstrate to the satisfaction of the Director, that:

- the special waste is non-hazardous;
- the system used to manage or recycle the special waste provides equal or better protection than the protection offered by this regulation; or,
- (c) site specific natural conditions mitigate the hazards associated with the special waste, to such an extent that human health and the environment will not be substantially impaired.

The authority under 51(7) has been used by the Director to grant specified exemptions for industry groups managing unwanted medications, and other household hazardous wastes.

Section 53 Authorizes the Director to approve test protocols or methods to exempt from this regulation a special waste, class of special waste or residue from treatment or incineration where it is demonstrated using test protocols or methods approved under subsection that a special waste or class of special waste does not pose a threat to human health or the environment. For special wastes British Columbia also departs from federal regulations for the determination of hazard by introducing a modified procedure for leachate extraction under Schedule 4, Analytical Methods, Part 1. Importantly, this procedure is only applied to determine if a special waste is suitable to be deposited in a secure landfill.

Transportation of Dangerous Goods Act (Canada) For recyclable wastes, allows the provinces to establish higher threshold quantities for shipments occurring within the provinces, provided the manifest is replaced with a Dangerous Goods Shipping Document. A Manifest form need not be submitted when special wastes are transported: solely within the property boundaries of the generator for a distance less than 100 km (e.g. along a rail line owned by the generator); between the generators two nearby properties where shipment is on a

public road for a distance less than 1 km; or, by a homeowner or a farmer from their home or farm directly to a waste management facility authorized by the province.

ALBERTA

GOVERNMENT RESPONSE

Current Legislation

None of the waste computer equipment and/or component parts are considered as or managed equivalently to hazardous waste in Alberta. The Environmental Protection and Enhancement Act, Alberta Waste Control Regulation and Activities Designation Regulations are the most relevant for the classification, movement and management of hazardous wastes in Alberta.

Proposed Legislation

No current or proposed legislation or regulations that would include the recycling of electronics waste.

Exemptions

Computer monitors are exempt from being hazardous waste. Refrigerating machines containing non-flammable non-poisonous, non-corrosive, liquefied gases; microwave ovens; and, televisions are also classed as non-hazardous waste. Ozone depleting substances must be recovered from refrigerating machines prior to disposal.

Export / Import

The Waste Control Regulation prohibits the importation of hazardous waste for disposal in Alberta. Otherwise, the import and export of hazardous waste is the jurisdiction of Environment Canada, subject to Alberta's approval of import/export notices.

Transport

The Waste Control Regulation controls transportation of hazardous waste and hazardous recyclables in Alberta. Hazardous waste must be manifested, but a recycle docket can be used for hazardous recyclables. The Activities Designation Regulation outlines when an approval, registration or notification is required.

Electronics Recovery Program

I would like you to view our web page regarding the recycling of computers and fluorescent bulbs (<http://www.gov.ab.ca/env/>). We are currently preparing to launch Phase II of this program to the ICI Sector (Industrial, Commercial and Institutional). In February 2001 we launched Phase I to the MUSH (Municipalities, Universities, Schools and Hospitals) Sector. The program is strictly voluntary and each partner signs on to recycle all computers and computers components as well as spent fluorescent tubes. Alberta has recyclers who will completely recycle computers & monitors in Alberta. A company has recently bought a 24,000 square foot building in Rimbey, Alberta and is awaiting the delivery of equipment that will be used to recycle monitors, etc.

Contact(s) Patrick Kane, Patrick.Kane@gov.ab.ca
Bob Rippon, Bob.Rippon@gov.ab.ca
Lynn Bellamy, Household Hazardous Waste Program Innovations Division,
(780) 422-2009, Fax: (780) 422-5120, Lynn.Bellamy@gov.ab.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environmental Protection and Enhancement Act, Chapter E-12 Part 9 Waste Minimization, Recycling And Waste Management Under the Environmental Protection and Enhancement Act passed in 1993, Alberta Environment has the responsibility for regulating the transportation, treatment and disposal of hazardous wastes. In September 1996, the regulation of all waste management facilities, including those owned and operated by waste management companies, municipalities, and regional authorities, was transferred from the Public Health Act to the Environmental Protection and Enhancement Act and became the responsibility of Alberta Environment. A new regulatory approach was also introduced in that not all facilities require approvals. A landfill accepting hazardous waste or over 10,000 tonnes per year of non-hazardous waste or a compost facility accepting over 20,000 tonnes per year of mixed organic material requires an approval. A landfill accepting 10,000 tonnes of non-hazardous waste or less per year or a compost facility accepting 20,000 tonnes or less per year of mixed organic material must be registered with Alberta Environment. For a facility to be registered, it must be sited, designed and operated in accordance with a Code of Practice published by the Department. Alberta Environment only requires notification with respect to compost facilities which process only vegetative matter and/or manure and waste storage sites such as transfer stations.

Waste Control Regulations [192/96] Hazardous recyclables and in its application has *a small quantity exemption* under Part II section 17 which states that Section 169 of the Act does not apply to the consigning for shipment as a hazardous recyclable of less than 205 litres or less than 205 kg.

In Section 19, the recycle docket referred to in section 169 of the Act must meet the requirements for the shipping document for dangerous goods described in subsection 4.8(1) of the Federal Regulations. Section 21 states that no person shall import hazardous recyclables into Alberta without first obtaining written authorization from the Minister.

Schedule 1 Under these regulations in section 1 identifies the properties of hazardous waste and provides test methods prescribed by the Director to determine if a waste is hazardous and a recyclable is a hazardous recyclable waste. Test methods include those for combustion, toxicity, PCBs, and *toxic leachates*.

Schedule 2 Identifies the properties of non hazardous waste and limits to the quantity that can be accumulated to remain non hazardous waste with a reference back to schedule 1, other than those substances listed in table 4. Wastes characterized in Schedule 1 as not hazardous waste are also not hazardous recyclables.

SASKATCHEWAN

GOVERNMENT RESPONSE

Current Legislation

Presently, waste computer equipment is not being managed as a hazardous waste in Saskatchewan. Provincial regulations that address the handling, movement and/or management of hazardous wastes include:

- *Hazardous Substances and Waste Dangerous Goods Regulations: section 3.1, subsections 4(4) and 4(5), sections 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17 and 18; and.*
- *Dangerous Goods Transportation Regulations: section 4. These regulations and the legislation that they are pursuant to (i.e. Environmental Protection Act and the Dangerous Goods Transportation Act.*

Federal legislation/regulations that address the handling, movement and/or management of hazardous wastes include:

- *Transportation of Dangerous Goods Act and Regulations;*
- *Canadian Environmental Protection Act (CEPA);*
- *Interprovincial Movement of Hazardous Waste Regulations (effective Aug. 15, 2002); and*
- *Export and Import of Hazardous Wastes Regulations.*

Both the Hazardous Substances and Waste Dangerous Goods Regulations and the Dangerous Goods Transportation Regulations make direct references to the Transportation of Dangerous Goods Act and Regulations.

Proposed Legislation

There is no current or proposed legislation or regulation to mandate the recycling of computer equipment, components, peripherals or the metals that they contain. The issue of information technology equipment waste is a burgeoning one and the provincial government is warily observing the progress that the IT Sector is making in developing an extended producer responsibility program for their post consumer products. Should their efforts fail to produce an EPR program, which adequately addresses the issue of IT equipment waste, the province would likely be prepared to enact regulations to do so. Questions concerning historical exemptions or regulations designed to enhance the recycling of computer waste are not applicable.

Transport

Interprovincial movement of hazardous wastes is currently regulated under the Transportation of Dangerous Goods Regulations (pursuant to the Transportation of Dangerous Goods Act). Effective Aug. 15, 2002, the interprovincial movement of hazardous wastes will also be subject to the Interprovincial Movement of Hazardous Waste Regulations (pursuant to CEPA).

Export/Import

The transboundary movement (export or import) of hazardous wastes is regulated under the Export and Import of Hazardous Wastes Regulations (pursuant to CEPA).

Barriers / Incentives

Without a clear understanding of how proposed legislation and regulations identified are interpreted and applied, it is difficult to provide an accurate response. However, if electronic waste (whether in whole components, disassembled component parts or semi-processed states), which is specifically targeted for recycling, is treated as a "hazardous waste" and is subject to the regulatory requirements that that entails, there is the potential for the financial impediment of the recycling of IT waste.

Contact(s) Kim Yee, Environmental Protection Branch Saskatchewan Environment,
(306) 787-6124, Fax: (306) 787-0197, KYee@serm.gov.sk.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environmental Management and Protection Act Chapter E-10.2 Reg. 3 Hazardous Substances and Waste Dangerous Goods Regulations (effective April 1, 1989) as amended by Saskatchewan Regulations 25/92, 107/92, 28/94, 3/95 and 63/2000. Designation of hazardous substances occurs in clause 3 and are also listed in the appendices A *Industrial Hazardous Substances*, B *Acute Hazardous Substances* and C *Environmental persistent or chronic hazardous substances* described in clause 4(1)(b). Clause 3.1 designates waste dangerous goods as hazardous wastes. Clause 4 (1) identifies characteristics of certain hazardous substances and provides tests approved by the minister or those defined under the Transportation of Dangerous Goods Act (Canada). A waste dangerous good includes any substance that is no longer used for its original purpose, or is intended for reuse, recovery, recycling, treatment or disposal including storage prior to reuse, recovery, recycling or disposal and meets criteria listed in appendix D of the Act and as listed in or meets any of the criteria set out in The Dangerous Goods Transportation Regulations (clause 4 (4)).

Operators or owners of a storage facility are required under 13 (1) to maintain all documents including a *Material Safety Data Sheet* as defined in the regulations made pursuant to the Hazardous Products Act (Canada) and records of laboratory analyses that indicate the classification of the waste dangerous goods as per The Dangerous Goods Transportation Act as well as all other information regarding the composition of the waste dangerous goods as required by the minister.

Transferrals of waste dangerous goods are covered under the Transportation of Dangerous Goods Act and Regulations.

MANITOBA

GOVERNMENT RESPONSE

Current Legislation

I hope the following answers your questions, without the benefit of testing we are basing our response on assumptions about what the results of leachate testing would be. It is likely that whole monitors would be considered hazardous waste if they met the criteria that there was more than one residence being managed. Testing hasn't been performed here but we are relying on information provided from other jurisdictions. Computers may not meet those criteria until they were at least partially disassembled and it would apply to the circuit boards. Manitoba uses the Dangerous Goods Handling and Transportation Act and Regulations.

Electronic Specific Legislation

The Hazardous or Prescribed Household Waste Stewardship Regulation targets computers and TVs for product stewardship requirements.

Proposed Legislation

The Department is also in the early draft stages of a Special Waste Regulation under the DGHTA which would aim to simplify compliance with Hazardous Waste Requirements when a Director is satisfied that the objectives can be met through another means (i.e. a product stewardship program).

Exemptions

At the current time there are no provisions for exempting, improving or enhancing the recycling of specific products.

Export/Import and Transport

Export/import of hazardous wastes is federally regulated and transporters and recycling facilities have to comply with DGHTA.

Electronics Recovery Programs

There are several public/private sector initiatives.

Contact(s) Rod McCormick, Waste Reduction Officer, Manitoba Conservation,
(204) 945-7344, Fax: (204) 945-1211, rmccormick@gov.mb.ca
Don Labossiere, Regional Supervisor, Headquarters, Manitoba Conservation,
(204) 945-7094

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Manitoba uses the Dangerous Goods Handling and Transportation Act and regulations.

The Manitoba Hazardous Waste Management Corporation Act deals with the responsibilities of waste management corporations (S.M. 1986-87,c.10,Cap,H15). Under this act "hazardous waste" means wastes designated as hazardous waste under The Dangerous Goods Handling and Transportation Act. The objectives are to establish, operate and maintain a hazardous waste management system in Manitoba as well as to research, develop, establish, own, operate in Manitoba the collection, examination, storage, treatment recycling and disposal of hazardous wastes.

Waste Reduction and Prevention Act (W40) The purpose of this Act is to reduce and prevent the production and disposal of waste in the province consistent with the principles of sustainable development, to be carried out through WRAP levies and an industry operated WRAP fund for waste as defined under The Environment Act.

Waste reduction and prevention includes recycling, reuse or recovery, that results in providing a use for a thing that otherwise would be disposed of or dealt with as operated WRAP waste, including collecting, transporting, handling, storing, sorting, separating, and processing. It does not include the disposal of waste in land, the use of a thermal destruction process or any other activity prescribed by regulation.

Environment Act Chapter 125 Defines "pollutant" as any solid, liquid, gas, smoke, waste, odour, heat, sound, vibration, radiation, or a combination of any of them that is foreign to or in excess of the natural constituents of the environment, and (a) affects the natural, physical, chemical, or biological quality of the environment, or (b) is or is likely to be injurious to the health or safety of persons, or injurious or damaging to property or to plant or animal life, or (c) interferes with or is likely to interfere with the comfort, well being, livelihood or enjoyment of life by a person; and, "waste" to include rubbish, litter, junk, or junked obsolete or derelict motor vehicles, or obsolete or derelict equipment, appliances or machinery; slimes, tailings, fumes, waste of domestic, municipal, mining, factory or industrial origin; sewage; human or animal wastes; solid or liquid manure; or waste products of any kind whatsoever or the run-off from such wastes;

The Dangerous Goods Handling and Transportation Act Regulates both the handling, transport and facilities to which hazardous wastes are sent for storage, treatment or disposal. "Dangerous goods" means any designated product, substance or organism designated, or one which meets the related criteria, including hazardous and licensable hazardous wastes. Provisions cover classification and handling of goods and containers; prohibition and restriction; registration, licences, permits and manifest system; disposal systems (including recycling); and exemptions.

This Act and regulations do not apply to the handling of domestic quantities of dangerous goods and any offering for transport or the transportation of dangerous goods exempted by the regulations or under the sole control of National Defence. Carriers must be registered and licensed to transport hazardous waste and all shipments must be accompanied by manifest papers for transportation, storage, treatment or disposal.

The Lieutenant Governor in Council may make regulations for the purpose of carrying out the provisions of this Act according to their intent including those respecting the designation of dangerous, hazardous and licensable hazardous waste;

Proposed

Hazardous or Prescribed Household Waste Stewardship Targets various categories of household hazardous waste, including consumer electrical and electronic equipment (including computers), batteries and mercury-containing products for product stewardship requirements.

Special Waste Regulation Intended to facilitate compliance with Hazardous Waste regulations when it the Department is satisfied that the objectives can be met through another means (i.e. a product stewardship program). No details on the proposed regulation were available at the time of writing.

ONTARIO

GOVERNMENT RESPONSE

Current Legislation

Ontario's Environmental Protection Act regulates hazardous waste, and requires that waste be deposited in accordance with terms and conditions of a Certificate Of Approval (COA). The key issue is the question of determination, by the generator or transporter, of what is a waste. The regulations do not apply unless the material is deemed a waste. All recyclables are considered waste.

Regulation 347 of the Environmental Protection Act provides the framework for the management of hazardous waste in Ontario. Products which are being disassembled for re-use would not be covered.

A facility for the transfer or processing (e.g. shredding) of waste electronic components requires a Certificate of Approval in accordance with EPA, Part V, section 27, however, waste electronic components that satisfy Regulation 347, section 3 are exempt from Part V. For example, waste electronic components shipped directly by their generator to a user (e.g. a smelter) would be exempt from Part V. This means, for example, that the hazardous waste provisions of Regulation 347, such as generator registration and manifesting, would not apply. Similarly, electronic components, shredded materials, and recovered materials shipped from a waste electronics transfer or processing facility to a user (e.g. smelter) are also exempt from Part V.

Proposed Legislation

The Waste Diversion Act has passed through all stages but still requires Royal Assent, after which it will come into effect. It allows the Minister of Environment to designate a waste stream and request the Waste Diversion Organization to work with industry to establish a waste diversion program. Electronics, including computer products, are on the list of possible candidates for designation.

Exemptions

Section 3 of Regulation 347 provides a list of 'criteria' or categories of materials which are exempt and do not require a COA for their handling/transport.

Export/Import

Export/import of hazardous waste into and out of Ontario is governed under Regulation 347. International export/import of hazardous waste is a National issue

Transport

Under review.

Electronic Product Recovery Program

There are various municipally run programs for electronic waste collection.

Contact(s) Ciulini, Adam (416) 314-4633 adam.ciulini@ene.gov.on.ca
Okuhara, Dick (416) 314-7899 Dick.Okuhara@ene.gov.on.ca
Rocoski, George George.Rocoski@ene.gov.on.ca
Smith, Bette (416) 314-7917 smithb@ene.gov.on.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environment Protection Act Regulation 347, General-Waste Management Under these regulations, the following wastes are defined as hazardous: hazardous industrial, hazardous waste chemical, severely toxic, ignitable, corrosive, reactive, radioactive, pathological, *leachate toxic* and PCB waste. Household waste is excluded. Section 3 lists exemptions to the regulations, includes municipal or hazardous wastes to be packaged for retail sale or sent to a municipal recycling facility located at a manufacturing site that uses all of the output. The classification includes 'electroplating' includes common and precious metal electroplating, anodizing, chemical etching and milling, and includes cleaning and stripping associated with common and precious metal electroplating, anodizing, chemical etching and milling, but does not include chromating, phosphating, immersion plating, colouring or other chemical conversion coating, electroless plating or printed circuit board manufacturing. Certificates of approval are required for the transport, deposit, landfill or incineration of waste.

Determination of wastes by composition or chemical are listed in the Schedules at the end of the Act; Regulation 362 (Revised, 1990); and as defined by the Transportation of Dangerous Goods Act (Canada). For the purpose of this Regulation, a waste is derived from a hazardous waste if it is produced from the hazardous waste by blending, stabilization, processing, treatment or disposal. Schedules at end of act outline wastes that are affected either by composition or by chemical. Schedules include: Schedule 1 Hazardous Industrial Wastes/Hazardous Industrial Waste from Non-Specific Sources Hazardous Industrial Waste from Specific Sources; Schedule 1.1 Exempt Hazardous Industrial Waste; Schedule 2 Part A Acute Hazardous Waste Chemicals Part B Hazardous Waste Chemicals Schedule 2.1 Exempt Acute Hazardous Waste Chemicals Schedule 2.2 Exempt Hazardous Waste Chemicals; Schedule 3 Severely Toxic Contaminants; Schedule 4 – *Leachate Quality Criteria*.

Transportation of wastes is covered under the applicable requirements of the Transportation of Dangerous Goods Act (TDGA) and which requires a manifest for shipping materials out of or into Ontario. An equivalent manifest issued by another Canadian or the Uniform Hazardous Waste Manifest prescribed by the US EPA.

Proposed

Ontario Waste Diversion Act, 2001: Bill 90 The proposed Bill (which received Third Reading on June 13) will establish a non-profit arms length corporation, *Waste Diversion Ontario (WDO)*, to develop, implement and operate waste diversion programs. The program will include activities to reduce, reuse and recycle the waste, performance targets, implementation strategies, a fee schedule and identification of who is to pay the fee to cover the cost of the program. The Minister of Environment and Energy will direct the WDO to develop waste diversion programs for specific wastes. It will provide the tools necessary to sustain and grow the municipal Blue Box program, including funding to municipalities for 50% of the net operating program costs. Waste likely to be addressed includes hazardous household waste, scrap tires, used oil, *electronic components, batteries, fluorescent lighting tubes* and pharmaceuticals.

Not-for-profit Industry Funding Organizations (IFOs) may be established by the WDO to be set, collect and disburse fees for individual diversion programs approved by the Minister. IFOs will designate stewards to pay the fees (stewards have a commercial connection to designated waste or products from which waste is derived), determine the amount of the fees or method for determining the fees, timing for payment, and establish penalties for non-payment.

Bill 90 also allows for development of *Industry Stewardship Plans* to be submitted by a company or group of companies for the purpose of implementing their program. The plans must meet or surpass the performance measures of the approved WDO waste diversion plan. Approval of the stewardship plan would lead to exemption of those involved from the fee identified in the WDO waste diversion program.

Under the Bill, the Minister has regulatory authority, including designation of wastes requiring a waste diversion program. The Minister also has the authority to enter into operating agreements with the WDO, set broad policy direction and request the WDO to develop waste diversion programs for materials listed in a regulation.

QUEBEC

GOVERNMENT RESPONSE

Current Legislation

No, with the exception of crushed CRTs which may leach in lead, computer equipment and/or components are not considered or managed as hazardous waste in Quebec. The Regulation regarding hazardous materials and amending various regulatory provisions Q-2, r.15.1.

Proposed Legislation

No.

Exemptions

No.

Export/Import

There is no provincial regulation regarding this aspect. Quebec follows the federal export and import hazardous wastes regulations.

Transport

Permit requirements do not apply as long as they are not considered hazardous wastes.

Contact(s) Renée-Claude Chretien, (418) 521-3950, renee-claude.chretien@menv.gouv.qc.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environmental Quality Act governs waste management and disposal - permit system for waste management.

Hazardous Materials Environment Quality Act, Division VII.1, Environment Quality Act Main provisions are the introduction of the concept of "*hazardous materials*" to replace that of hazardous waste. It also assigns regulatory powers to the Minister of the Environment and Wildlife for all hazardous materials which are defined as "*a material which, by reason of its properties, is a hazard to health or to the environment and which, within the meaning of a regulation under this Act, is explosive, gaseous, flammable, poisonous, radioactive, corrosive, oxidizing or leachable or is designated as a hazardous material, and any object classed by regulation as a hazardous material.*"

Listed materials include: oil; grease; a contaminated empty container; a gas cylinder or aerosol container containing a hazardous material; a material or object containing 3% or more of oil or grease by weight; a material or object containing more than 1,500 mg/kilogram of total organic halogens, or polychloride biphenyls (PCBs) or contaminated by PCBs; a material or object contaminated on its surface. Materials not defined as Hazardous Materials include certain hazardous materials already subject to regulation, policies or directives before the adoption of the Hazardous Materials Regulation. Thus, in cases where the existing framework has proven adequate, these materials have been excluded from the concept of hazardous material that include: contaminated soil (however, soil having more than 50 mg of PCBs per kilogram of soil may not be placed in final deposit); demolition materials and *scrap metal* (except for materials classified as hazardous); and, certain radioactive materials.

Key provisions for hazardous materials include a prohibition on the release of a hazardous material into the environment (sect. 8) and, all other provisions set out in the Regulation apply only to residual hazardous materials, those discarded, used, spent, outdated, or that appear on the list set out in section 6. There are standards for storage and a requirement for a register and annual management report that targets hazardous materials (including PCBs) which is regulated under the Hazardous Materials Regulation which makes it obligatory to obtain a permit to transport residual hazardous materials to a disposal site.

The Quebec Policy for Waste Management 1998 – 2008 Mentions batteries but there is no specific mention of CRT's and their peripherals for either household or business.

Chapter T12 Transportation Act In this Act, a “dangerous substance” is any substance other than an explosive, designated as such by regulation. In addition to the other regulatory powers of this act, the Government may, by regulation: fix the requirements applicable to a cost estimate, contract or bill of lading in respect of a carrier; determine the requirements applicable to estimates, contracts, bills of lading and shipping documents in the case of a carrier or any person to whom the Act respecting owners and operators of heavy vehicles (chapter P-30.3) applies; and, determine the conditions that an operator of heavy vehicles whose establishments are situated outside Québec must satisfy to be registered in the bulk trucking register.

NEW BRUNSWICK

GOVERNMENT RESPONSE

Current Legislation

Clean Environment Act; Water Quality Regulations see general provisions under Section 3. Contaminant could be something that could leach and is usually used for pulp and paper, but 4.1, 2 and 3. Minister can declare an activity, which could result in a release, to waters, that's how they require approval mode for storage of hazardous wastes.

Electronic Specific Legislation

Electronic goods are not specifically mentioned. If dismantled, crushing/shredding may or may not require an approval. The government would make the call i.e. the Minister based on info provided re. 'danger of pollution'. e.g. tire recycling plant, storage site was problematic, can be declared a danger, and require manner of storage designation.

Export / Import and Transport

In list of undertakings reference to all waste disposal and treatment facilities and subset of all waste imported into the province, applicable whether hazardous or not, not a ban but makes it subject to EIA and only proceeds after a determination letter from the Ministry, introduced at a time when the US wanted to fill open pit mines in New Brunswick with ASR. EIA requirement for waste disposal/treatment doesn't apply to recyclables but does to import of waste into provinces, specifies for purpose of storage, destruction, disposal and recycling (no exemption for electronics) not a ban, it just notification, a determination letter, could trigger a full EIA.

Contact(s) Simone Godin, Chair, CCME Hazardous Waste Task Force
New Brunswick Environment Ministry
(506) 453-3855 simone.godin@gnb.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Clean Environment Act Chapter C-6 Environment Impact Assessment Act Regulates wastes in general - no one can release any contaminant unless doing so in accordance with government authority. In this Act "contaminant" means any solid, liquid, gas, micro-organism, odour, heat, sound, vibration, radiation or combination of any of them, present in the environment that: is foreign to or in excess of the natural constituents of the environment; that affects the natural, physical, chemical or biological quality or constitution of the environment; that endangers the health, safety or comfort of a person or the health of animal life, that causes damage to property or to plant life or that interferes with visibility, the normal conduct of transport or business or the normal enjoyment of life or use or enjoyment of property; or, that is prescribed by regulation to be a contaminant, and includes a pesticide. "Waste" includes rubbish, slimes, tailings, effluent, wastewater, fumes, smoke, other waste products of any kind and any other matter that is prescribed by regulation to be waste.

Under this Act, the Minister may issue a Ministerial Order affecting the control, reduction or elimination of the release of any contaminant or waste into the environment under section 5(1) and under 5.01(1) may also take further action to control, reduce or eliminate the release of the contaminant or waste and remedy the situation.

Clean Air Act Regulates release of contaminants into the air. The Minister may, by order designate “contaminants” and establish the maximum amounts, levels or concentrations of a contaminant or a class of contaminant that may be released, either alone or in combination with another contaminant or any other substance, into the air, which maximum amounts, levels or concentrations may vary according to the manner in which the contaminant is released, according to the area in which it is released or is found or according to any other factor. (Section 7). The Regulations Act does not apply to orders made under sections 7 or 10 or subsection 8(1) or (4) or 44(1).

Clean Water Act Regulates release of contaminants into or upon water and includes a danger of pollution from any activity or any real or personal property. "Danger of pollution" includes in its definition: an accumulation of material at a particular location; an artificial disturbance of land; a material storage or disposal facility; a transfer operation; a transport facility, or a pipeline, tank, drum, excavation, depression, pond or impoundment situated in or on the ground or in a building, whether natural or artificial and whether lined or unlined, for either storage or transport, as the case may be, of useful or waste materials, that could through use or misuse, seepage, leaching, accidents, leaks, breaks, negligence, acts of animals or persons or acts of God release contaminants directly or indirectly into or upon the waters of the Province and any application or disposal of materials or chemicals that could, directly or indirectly, enter the waters of the Province.

The Minister of Health and Wellness may by order designate as a contaminant a solid, liquid, gas, micro-organism, odour, radiation or combination of any of them, when in or upon potable water or any class of potable water (Section 10(1)) and, establish the maximum amount, level or concentration of a contaminant or waste or a class of contaminant or waste that is permissible, either alone or in combination with another contaminant, another waste or any substance, in or upon water that is not potable water or a class of water that is not potable water (Section 10(2)). The Regulations Act does not apply to orders made under this section (10(3)).

Transportation of Dangerous Goods Act Chapter T-11.01 Regulates carriers. Under this Act, "dangerous goods" means a product, substance or organism included by its nature or by the regulations in any of the classes listed in Schedule A; and a “shipping document” means a document that accompanies dangerous goods being transported and that describes or contains information relating to goods and includes a bill of lading, cargo manifest, shipping order and way-bill. *Schedule A* identifies 9 classes of dangerous goods covered under the Federal Act. Class 9 covers miscellaneous products, substances or organisms considered by the Lieutenant-Governor in Council to be dangerous to life, health, property or the environment when transported in a vehicle on a highway and prescribed to be included in this class.

Agreement between the Province of Quebec and New Brunswick concerning transboundary environmental impacts This Agreement encourages mutual understanding and cooperation on transboundary environmental issues including, but not limited to air quality and atmospheric pollutants; acid rain reduction; surface and groundwater management; monitoring and reduction of pollution in rivers, lakes and waterways; and agricultural pollution. Objectives are met through information exchange and joint cooperation mechanisms in accordance with the laws, regulations and procedures of Quebec and of New Brunswick (Article 2).

NOVA SCOTIA

GOVERNMENT RESPONSE

Current Legislation

No handling of waste computer equipment and/or component parts equivalent to hazardous waste -- only those products which follow under Federal Transportation of Dangerous Goods requirements. Our Storage of Dangerous Goods Regulations, pursuant to the Nova Scotia Environment Act follows the same trigger for designation as a waste dangerous good.

Proposed Legislation

The Minister has asked RRFB Nova Scotia to develop a Stewardship Program for the recovery of electronic goods. There are no provisions for including or exempting specific products, such as cathode ray tubes (CRTs), monitors or recyclable metals in this legislation.

Exemptions

Historically, our new Paint Recycling Program has removed waste paint from our Storage of Dangerous Goods Regulations in order to enhance and encourage the recycling of this material.

Export/Import

We do have policies, which prohibit the import of non-hazardous and hazardous wastes from foreign sources for the purpose of disposal. We are happy to export the material, though.

Transport

Not sure of requirements for transporters of hazardous wastes and recycling facilities which may impede or facilitate recycling of computers unless Federal regulations are too stringent.

Electronic Recovery Programs

No electronic recovery program in Nova Scotia.

Contact(s) Barry Friesen, FRIESEBK@gov.ns.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Nova Scotia Environment Act Governs hazardous waste that can be handled in a manner that causes no adverse effect to the environment and requires approvals for facilities handling waste dangerous goods. Responsibility of anyone who creates an adverse effect on the environment to take remedial action and pay for the costs of that action. In this Act, "contaminant" means, unless otherwise defined in the regulations, a substance that causes or may cause an adverse effect; "dangerous goods" means a substance designated as such in the regulations or conforming with criteria set out in the regulations; and "*designated material*" includes a material prescribed as such in the regulations or conforming with criteria set out in the regulations; "*waste*" means a substance that would cause or tend to cause an adverse effect if added to the environment, and includes rubbish, slimes, tailings, fumes, smoke from mines or factories, other air emissions, or other industrial wastes, effluent, sludge, sewage, garbage, refuse, *scrap*, litter or other waste products of any kind; and "waste dangerous goods" means a substance designated as such in the regulations or conforming with criteria set out in the regulations. (Section 3)

The Minister may:

- restrict or prohibit the *storage and disposal of types of waste or recyclable materials* in specified types of waste treatment, storage or disposal facilities;
- develop codes and guidelines for the use and content of *recyclable materials in the manufacture of new substances or products*;
- set *minimum content requirements for recyclable materials in specific substances/products*; or,
- limit production or sale of products that cannot be reused or recycled (Clause 96).

Clause 100 (1) gives the Minister broad authority to designate materials whose use is to be banned, reduced, composted or recycled.

Dangerous Goods Transportation Act Conforms with federal legislation criteria and classification, and provides the authority to enact regulations requiring insurance or a bond for persons transporting dangerous goods. The Regulations under the TDGA prohibits the storage of waste dangerous goods without approval. These regulations do not apply to a chlorobiphenyl or PCB storage system or device regulated in the PCB Management Regulations; refuse that is collected by or on behalf of a town, city or municipality from a residential premises except *waste dangerous goods from a household or residence*; and, a retail outlet in which dangerous goods are stored and packaged as consumer products in small quantities normally used by the consuming public. Storage, labeling and handling of dangerous or waste dangerous goods is done under the Transportation of Dangerous Goods Regulations (Canada), Workplace Hazardous Materials Information System (WHMIS) Regulations; in accordance with policies, standards and guidelines established or adopted by the Minister or industry.

Sets standards for the movement of harmful chemicals including paint, gasoline, diesel fuel, explosives, compressed gas, corrosive and oxidizing substances, goods damaging to the environment, radioactive material, dangerous wastes and poisons. They require training for the shipper, transporters and receivers. Employers are required to make sure employees receive the training appropriate for the level of the employees' assignment. Shipping documents accompany dangerous goods and include a bill of lading, cargo manifest, shipping order and waybill under the Transportation of Dangerous Goods Act (Canada).

PRINCE EDWARD ISLAND

GOVERNMENT RESPONSE

Current Legislation

Prince Edward Island currently has no legislation that addresses the handling and disposal of electronic waste. The Environmental Protection Act (EPA) does however prohibit the discharge of any contaminant into the environment.

Export/Import

If electronic waste is imported into the province for recycling, the facility would be subject to an Environmental Impact Assessment under the CEPA.

Transport

Prince Edward Island has adopted the Federal Transportation of Dangerous Goods Regulations. The Provincial Department of Fisheries, Aquaculture and Environment manages an electronic database that tracks the movement of hazardous waste via the manifest.

Contact(s) Glenda MacKinnon-Peters, Fisheries, Aquaculture, and Env. (902)-368-5047
GCMACKINNON-PETERS@gov.pe.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environment Protection Act Covers contaminants including any solid, liquid, gas, waste, odour, vibration, radiation, sound, or a combination of them which may adversely affect the environment or affect the health and safety of people. Waste under this act includes materials discarded by persons in the course of their daily activities at home or at commercial businesses, industries and institutions or other related activities. The Lieutenant Governor in Council may make regulations for the enhancement and protection of the environment, including waste collection, processing and treatment facilities.

Transportation of Dangerous Goods Act No person shall handle, offer for transport or import any dangerous goods unless the person complies with all applicable prescribed safety requirements; the goods are accompanied by all applicable prescribed documents; and the means of containment and transport comply with all applicable prescribed safety standards and display all applicable prescribed safety marks. Application of the Federal Act Regulations Code, etc., may be adopted by reference. The Lieutenant Governor in Council may make regulations affecting the classification, quantities, shipping, handling, labelling, exemptions, and transportation of dangerous goods under this Act. The Schedule lists 9 classes. Class 9 - Miscellaneous products, substances or organisms considered by the Lieutenant Governor in Council to be dangerous to life, health, property or the environment when transported in a vehicle on a highway and prescribed to be included in this class.

NEWFOUNDLAND

GOVERNMENT RESPONSE

Current Legislation

There is no current legislative initiative focused on computers & computer equipment in Newfoundland. There is a Waste Material Disposal Act & a Waste Management Act, both of which empower the Minister to control the handling, transport, treatment & disposal of wastes all forms of wastes. These & other Environmental Acts & Regulations are to be consolidated into Newfoundland Environmental Protection Act in 2002.

Proposed Regulations

Newfoundland will look to adopt new CEPA Regulations on Hazardous Waste & HW Recyclables when gazetted.

There is currently a substantial strategic initiative on Waste Management in Newfoundland. It involves phase out/ closure /decommissioning of 80% of the existing Waste Disposal Sites (240) in the next few years plus closure of all Municipal waste Incinerators within 10 years.

Computers are low on the list of priorities (not on the list).

Contact(s) *Toby Matthews, TMatthews@mail.gov.nf.ca*

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Environmental Protection Act Amended: Chapter E-14.2 An Act Respecting Environmental Protection (Assented to May 22, 2002) In this Act, "dangerous goods" means an organism, substance or thing designated as being dangerous goods under the regulations; "recovery" means the process of obtaining and reutilizing material or energy from solid, liquid or gaseous waste; and "recycle" means a process by which a post use material is collected with the intent of processing that material to transform it into another material or substance or for another use.

Under the Act, the Minister may establish restrictions and prohibitions on waste management systems, establish restrictions on production and sale of products not capable of reuse and recycling, develop codes and guidelines for the use and content of recyclable materials, and designate a material that is to be banned, reduced, composted, recycled or restricted in use. The Lieutenant-Governor in Council may make regulations for recycling of dangerous goods and treatment when not recyclable, designating substances as waste, and prescribing reports and records for transport, storage and treatment of hazardous wastes.

Dangerous Goods Transportation Act Governs the transportation of dangerous goods and, shipping documents, safety marks, requirements and standards, for the handling, offering for transport or transporting of dangerous goods the reporting of those activities, the training of persons engaged in those activities and the inspection of those activities, using The Transportation of Dangerous Goods Act (Canada) and includes the regulations made under that Act. The Minister may issue a permit exempting from the application of this Act the handling, offering for transport or transportation of dangerous goods in a vehicle. The Lieutenant Governor in Council may make regulations affecting the classification, quantities, safety, shipping, handling, labelling, prohibitions, exemptions, and transportation of dangerous goods under this Act. The Schedule lists the 9 classes found in the Transportation of Dangerous Goods Act (Canada).

NORTH WEST TERRITORIES

GOVERNMENT RESPONSE

Current Legislation

The Environmental Protection Act (EPA) is the primary legislation, which enacts the Contingency Planning and Spill Reporting Regulations.

Proposed Legislation

There is no legislation directed at IT wastes but the Guideline for Industrial Waste Discharges in the NWT addresses the metals deposition to landfill. The Manual for Landfill Operation and Maintenance in the NWT is presently in revision and lay down areas for IT waste at landfill is included. This is primarily due to the quantities of lead.

Electronic Specific Legislation

At present IT waste is not managed as a hazardous waste and disposal is to landfill.

Export/ Import

If wastes were to be imported into the NWT for management the facility would need to be permitted under the EPA. No requirements other than compliance with existing legislation and guidelines.

Transport

The Transportation of Dangerous Goods Regulations (adapted from Federal Regulations) is concerned with the movement of hazardous waste. This is administered by the Department of Transport, however Environmental Protection Service monitors the movement of waste by manifest.

Exemptions

The Industrial Discharge guidelines do not mention gold, platinum, palladium or the other precious metals except silver. No provisions or exemptions for components or their recycling. The Environmental Protection Act and the Guideline for the General Management of Hazardous Waste in the NWT (referred to as the General Guideline), along with specific guidelines for asbestos, antifreeze, batteries, solvents, and others as listed on our website. These address waste management in the NWT generated by NWT industry or persons.

Electronic Recovery Programs

Small scale recycling of computer components occurs at most landfill sites. Those involved concentrate on the precious metals (gold, silver, platinum, palladium), copper and aluminium. Small scale recycling of computer components occurs at most landfill sites. Those involved concentrate on the precious metals (gold, silver, platinum, palladium), copper and aluminium.

Additional Comments

One comment, which will put a new light on recycling in the north, is transportation distances. Yellowknife is one thousand road miles to the nearest commercial centre of Edmonton. The other difficulty is an eight-month winter and high heating fuel cost.

Contact(s) Don Helfrick, Don_Helfrick@gov.nt.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Consolidation of Environmental Protection Act R.S.N.W.T. 1988,c.E-7 Under this Act a "contaminant" means any noise, heat, vibration or substance and includes such other substance as the Minister may prescribe that, where discharged into the environment: endangers the health, safety or welfare of persons. The Powers of the Minister include the ability to develop, co-ordinate and administer policies, standards, guidelines and codes of practice relating to the preservation, protection or enhancement of the environment; collect, publish and distribute information relating to contaminants and to the preservation, protection or enhancement of the environment; and compile and study information directly or indirectly related to matters pertaining to the preservation, protection or enhancement of the environment.

The Chief Environmental Protection Officer may provide regulations for the storage, transport and treatment of contaminants, prescribe permit and reporting systems, categorization of contaminants, and appropriate fees.

NUNAVUT

GOVERNMENT RESPONSE

Electronic Specific Legislation

None of these waste computer equipments and/or component parts are considered as or managed equivalent to hazardous waste in Nunavut. All equipment is treated as bulk waste and goes into the landfill.

Current Legislation

Acts and sections that are most relevant are the Environmental Protection Act and the Guideline for the General Management of Hazardous Waste.

Proposed Legislation

There is no current or proposed legislation in this area or provisions for exemptions. Electronic waste has, up until a few months ago, never been suspected of having acute or chronic hazardous properties.

Export/Import

Legislation / regulations in place that address the export/import of hazardous wastes: Environmental Protection Act; Guideline for the General Management of Hazardous Waste.

Transport

We have no legislation or requirements pertaining to electronic wastes (for transporters or recycling facilities) or recovery facilities. Transportation costs in Nunavut are extremely high. Most goods are flown in and out of here at prohibitively high costs. Whereas other communities/jurisdictions in Canada have the option of shipping materials by road, Nunavut has no such options due to an absence of road connections to southern Canada and within Nunavut.

Contact(s) Robert Eno, Manager, Pollution Control, Environmental Protection Service,
(867) 975-5907, Fax: 975- 5982, reno@gov.nu.ca

RELEVANT LEGISLATION/REGULATIONS

Environmental Protection Act prohibits the discharge of contaminants into the natural environment without a permit or license.

YUKON

GOVERNMENT RESPONSE

Current or Proposed Legislation

There are no Yukon laws to require special handling or disposal of electronics wastes. Proposed *Designated Materials Regulations* create a framework for such a system but at this time will not include electronics wastes. Yukon would welcome a federal initiative that would require recycling/recovery of electronic wastes.

Contact(s) Pat Paslawski, Manager, Standards and Approvals Department of Environment,
(867) 667-5934, Fax: (867) 393-6205, Pat.Paslawski@gov.yk.ca

RELEVANT PROVINCIAL LEGISLATION AND REGULATIONS

Statutes of the Yukon, 1991 Environment Act Part 10 Hazardous Substances and Pesticides Environmental legislation document.

Special Waste Regulations These regulations prohibit the unauthorized release of special wastes into the environment and establish a tracking and reporting system to monitor special wastes. Most of the Yukon's special waste is used motor oil. Other common special wastes include: used anti-freeze; dead batteries; leftover cleaners, solvents, paints, pesticides, industrial chemicals and petroleum products; and biomedical wastes. Under the Regulations, a special waste permit is required to generate, handle or dispose of special waste and a manifest required for transport. The Department of Environment ships special wastes out of the Yukon once a year. A key element of the Special Waste Regulations is the prohibition against the unauthorized release of special waste into the environment (including *household hazardous wastes* e.g., *batteries*).

The definition of special waste includes dangerous goods that are no longer used for their original purpose, including a dangerous good that is:

- recycled, treated or disposed;
- *intended for recycle, treatment or disposal*;
- *in storage or transit before recycle, treatment or disposal*.

It does not include a dangerous good that is returned to a manufacturer or supplier of the dangerous good for reprocessing, repackaging or resale, including but not limited to a dangerous good that is defective or otherwise not usable for its original purpose, or in surplus quantities but still usable for its original purpose, and included in class 1 or class 7 in the Federal.

There is an exemption for household special waste when it is used or stored by a single household on the householder's own property, or being transported by the householder to a permitted special waste management facility or, carrier who is authorized under the Motor Transport Act to transport special waste. The Minister has the powers to issue special waste permits to generate, store, transport, dispose, or otherwise handle special waste.

SECTION 4

State Legislation & Regulations

ALABAMA

GOVERNMENT RESPONSE

Current Legislation

In general, except for household waste, discarded electronic equipment is a solid waste that is subject to a hazardous waste determination. In other words, this waste has the potential to be a hazardous waste.

Exemptions

One exception is shredded circuit boards being recycled (from the definition of solid waste). These items are not solid waste under specified conditions. Please refer to ADEM Admin. Code R. 335-14-2-.01(4)(a)14. The management of hazardous waste is regulated in the State of Alabama by the Alabama Department of Environmental Management. Applicable regulations are found at ADEM Administrative Code Division 14.

Electronic Specific Legislation

I am not aware of any current or proposed legislation, or regulations, aimed at the recycling of electronic waste (no exemptions).

Export/Import

The regulation of hazardous waste is detailed in the ADEM Admin. Code Division 14, including imports and exports.

Transport

Anyone transporting hazardous waste within the State of Alabama is required to obtain a permit from this Department. Also, even though the recycling process is not regulated, recyclers storing hazardous waste prior to recycling are required to obtain a permit from this Department, unless the materials are introduced into the recycling process within three days after receipt.

Electronic Recovery Programs

I am not aware of any electronic product recovery program in this area.

Contact(s) Michael B. Champion, Environmental Compliance, HW (334) 271-7993
Crockett, Chip VHC@adem.state.al.us
Barr, Bob RWB@Adem.State.Al.Us
Hughes, Scott ASH@adem.state.al.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 22, Chapter 22A – Alabama Environmental Management Act Outlines the authorities given to various government departments.

Chapter 30, Alabama Hazardous Waste Management & Minimization Act, (Section 22-30-2) Sets out general rules, regulations, guidelines and criteria intended to encourage minimization of hazardous waste generation, transportation and land disposal, consistent with the *Federal HWM Program*, including authority to ban or limit certain hazardous waste management technologies or their application to specific wastes (not listed explicitly in the Act).

Alabama Department of Environmental Management (ADEM) HW Program Chapter 335-14-1 Hazardous Waste Management System: General “*Universal Waste*” means any of the following hazardous wastes that are managed under the universal waste requirements (*Batteries, Pesticides and Lamps*).

ADEM Admin. Code R. 335-14-3-.01(2)]. Currently, in the State of Alabama, electronic equipment (including CRTs) generated by business and/or industry is considered a solid waste and is subject to a hazardous waste determination. While it is up to a waste generator to make this determination, it is likely that a CRT contains enough lead to cause an intact television or computer monitor to fail the TCLP, making it a hazardous waste when disposed. Business and/or industrial generators of waste electronic equipment should investigate alternative disposal options rather than land disposal.

ALASKA

GOVERNMENT RESPONSE

Current Regulations

Recycling computers and peripheral equipment in Alaska has not been a big issue for us. Alaska is waiting to see how other U.S. states deal with this, so we have not done anything on a recycling program.

The State of Alaska no longer has a hazardous waste (RCRA) program and therefore, the U.S. EPA has this responsibility.

Transport

Transportation of regulated hazardous waste requires a federal RCRA manifest.

The answers to all of your questions (1-9) are "no" or "none."

Contact(s) Michael A. Conway (907) 465-5298 Mike_Conway@envircon.state.ak.us
Glenn Miller Glenn_Miller@envircon.state.ak.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 18, Environmental Conservation, Ch. 62. Hazardous Waste 18 AAC 62 Electronic equipment, if determined as a hazardous waste, is subject to *Title 18* which mirrors the Federal hazardous waste regulations 40 CFR Parts 260-270.

ARIZONA

GOVERNMENT RESPONSE

Current Legislation

Waste computer equipment, components or processed materials are not considered as or managed equivalently to hazardous waste in Arizona. Although we encourage recycling of used technology, electronic components are disposed of as solid waste in landfills, which are monitored to prevent groundwater contamination. Arizona law conforms/complies with all RCRA requirements.

Arizona has adopted the Federal waste regulations with very few changes. Arizona statutes can be found in Title 49 of the Arizona Revised Statutes. The text of the rules themselves can be found in the Arizona Administrative Code, Title 18, Chapter 8, Article 2.

Proposed Legislation

Arizona has no current or Proposed Legislation regarding electronic waste. However, Arizona has researched the EPA proposed rule for CRTs (published in the Federal Register on June 12, 2002) and agrees with the EPA's streamlined approach to CRT management. In the interim, until Arizona adopts a final rule, ADEQ will be following the EPA's proposed rule.

Exemptions

There are no provisions for including or exempting specific products, such as cathode ray tubes (CRTs), monitors or recyclable metals in Arizona's legislation.

Export/Import

Arizona has adopted the federal regulations with regard to importing and exporting hazardous wastes. We have no hazardous waste disposal facilities in Arizona. Generators and transporters of hazardous waste must meet all RCRA requirements.

Contact(s) Patrick Gibbons (602) 207-2215 gibbons.patrick@ev.state.az.us
Denise McConaghy (602) 207-4110 d1m@ev.state.az.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 49, Ch. 4 Solid Waste Management Covers exemptions and rulemaking for solid waste and recycling (for non-hazardous materials). Article 8, Arizona Recycling Program, defines "recyclable material" as post-consumer materials which may be collected, separated, cleansed, treated or reconstituted and returned to the economic stream in the form of raw materials or products.

Title 49, Ch. 5, Hazardous Waste Disposal Definition and provisions of the manifest system used to identify the quantity, composition, origin, routing/destination of hazardous waste during transportation, treatment or storage. Also covers processing of permits and compliance monitoring; annual registration of treatment, storage and disposal facilities, transporters and generators; and hazardous waste fees.

Title 18, Ch. 8, Environmental Quality Regulations covering the identification and listing of hazardous waste, including standards for generators, transporters and operators of waste treatment/storage and disposal facilities, as well as management of "specific" hazardous wastes/facilities, restrictions and permit process. Title 18 also interprets the federal Universal Waste Rule, with the addition of *mercury containing lamps*.

ARKANSAS

GOVERNMENT RESPONSE

Current Legislation

Waste computer equipments and/or component parts are considered as or managed equivalently to hazardous waste if and when they meet the definition of hazardous waste and are not otherwise excluded or exempted.

Arkansas Pollution Control and Ecology Commission Regulation Number 23. Arkansas Code of 1987 Annotated, §§ 8-7-201 et seq. Act 1410, 2001, is an act concerning computer and electronic solid waste management but applicable only to Arkansas State Agencies and is primarily aimed at achieving the maximum benefit from the use of state owned surplus computers, electronics, and peripherals.

Proposed Legislation

There are no provisions for including or exempting or enhancing the legislation to include CRTs and peripherals.

Export/Import

Import/export legislated under Arkansas Pollution Control and Ecology Commission Regulation Number 23. Arkansas Code of 1987 Annotated, §§ 8-7-201 et seq.

Transport

There are no special regulations or exclusions from regulation for transporters of hazardous waste and recycling facilities that differentiate the recycling of computers and other electronic waste from other types of waste. Our hazardous waste regulations mirror federal hazardous waste regulations in that shredded circuit boards that are properly stored and free of mercury switches are not solid or hazardous waste when being recycled.

Electronics Recovery Program

There is no Electronics Recovery Program in Arkansas.

Contact(s) Joe Hoover HOOVER@adeq.state.ar.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Pollution Control and Ecology Commission Regulation Number 23 – Hazardous Waste Management

The regulations mirror as closely as possible the Federal hazardous waste regulations *40 CFR Parts 260-266, 268, 270, 273 and 279*. Section 273 of Regulation 23 deals with *Universal Wastes*, which are prohibited from disposal. They include *nickel-cadmium* and *small sealed lead-acid batteries*, agricultural pesticides and herbicides (recalled, banned from use, obsolete, damaged or no longer needed), *mercury-containing thermostats*, and intact spent or *waste lamps* exhibiting a characteristic of a hazardous waste.

Proposed

SB 807 (2001)⁹ Procurement legislation to establish and implement rules and regulations banning the disposal of all computer and electronic equipment in Arkansas landfills.

⁹ *Source: Electronics Industry Alliance, State Summary of Recent/Pending End of Life Legislation 24.5.02
Prepared for Natural Resources Canada by Legwork Environmental Inc. www.legwork.ca August 2002*

CALIFORNIA

GOVERNMENT RESPONSE

Current Legislation

The California Health and Safety Code Chapter 6.5, (Hazardous Waste Control Law) is the statute that governs the management of hazardous waste. The California Code of Regulations, Title 22, Division 4.5. California were adopted to implement the Statute.

California is a RCRA authorized state, which means that they implement the federal hazardous waste program in our state in lieu of the US EPA. California's laws and regulations are typically, however, broader in scope and/or more stringent than the federal provisions. There is a fee for people to take monitors to household hazardous waste collection days, as it is difficult for the counties to pay for the disposal/recycling. California is continuing to test other electronic products to determine whether or not they are hazardous as resources are available.

California recently put the management of CRTs into our Universal Waste Rule.

Proposed Legislation

Also at this site are other links to pending statute changes regarding the management of electronic waste. The Integrated Waste Management Board (which regulates solid, not hazardous waste) also has information on their web site.

Contact(s) Diana Peebler, Statewide Compliance (510) 540-3866 DPeebler@dtsc.ca.gov
Charles Corcoran, Waste Identification & Recycling Section (916) 327-4499.

RELEVANT STATE LEGISLATION AND REGULATIONS

Cathode Ray Tubes Emergency Regulation: R-01-06 Passed by the California Department of Toxic Substances Control in August 2001, classifies cathode ray tubes (CRTs) as *Universal Wastes* (wastes not subject to traditional hazardous waste requirements but subject to management requirements commensurate with handling risks). Disposal is prohibited but following conditions apply to the generation and handling of waste (those generating 5 or fewer CRTs per year may receive an exemption from the regulations) for:

Facilities generating less than 5,000 kg/year and not accepting CRTs from offsite sources: prevent releases, label or mark and package, store no longer than one year, clean up spills of glass, and use bill of lading for shipments.

Facilities generating 5,000 kg or more/year and do not accept from offsite sources: submit an annual report to DTSC, prevent releases, label or mark and package, store no longer than one year, clean up spills of glass, and use bill of lading for shipments.

Collection Center (accepting more than 5 CRTs from offsite sources): submit an annual report to DTSC, prevent releases, label or mark and package, store no longer than one year, clean up spills of glass, and use bill of lading for shipments.

Recycler (*break or crush CRT glass*): submit an annual report to DTSC, prevent releases, label or mark and package, store no longer than one year, clean up spills of glass, use bill of lading for shipments, and submit documentation to DTSC demonstrating financial assurance for liability and closure costs.

Proposed¹⁰

SB 1523 State Program for Recycling of CRTs/TVs Establishes a state program to recycle CRT devices including computer monitors and television sets. Bill sets 1/1/03 as the starting date by which every retailer that sells CRT devices in the state must begin collecting from consumers an as yet unspecified fee that would go toward funding the program. Hearing May 23, 2002, in Senate Appropriations Committee, bills passed – next step is to have Senate floor vote

SB 1619 (2002) Recovery/Reuse/Recycling of Hazardous Electronic Scrap Bill requires establishment of a state program to recover, reuse and recycle hazardous electronic scrap. As of Jan. 1, 2002, all manufactures must: label a wide range of electronic devices as hazardous as well as provide information on the proper disposal of hazardous electronic devices. A wavier is permitted if a manufacturer pays a fee, as specified, on all hazardous electronic devices that are sold in the state; and, demonstrate that it has a recovery and reuse or recycling system which may include 1) no-cost consumer take-back to site of purchase, 2) no-cost consumer mail-back to a designated recovery center; 3) no-cost pick-up of hazardous devices from consumer. If recycling goals are not met, a deposit system will be developed and implemented by the California Integrated Waste Management Board Hearing May 23, 2002, in Senate Appropriations Committee, passed. Next step is for Senate to vote on floor.

Senate Bill 1619 (Solid Waste: Cathode Ray Tubes and CRT devices) Considered and amended twice by the California Senate Appropriations Committee, and considered again on May 23, would require the California Integrated Waste Management Board use funds in Cathode Ray Tube Recycling Account (to be established by SB 1523 below) to provide matching grant funds for local collection and processing programs, annual recycling incentive payments to CRT material handlers, grants to non-profit recycling and refurbishing agencies, and loans and loan guarantees for research and development of environmentally friendly CRTs and CRT devices. Also require that on and after January 1, 2004, all cathode ray tubes and CRT devices and packaging containing those tubes and devices include a label on proper disposal methods. It will only become operative if SB 1523 is enacted.

Senate Bill 1523, Cathode Ray Tubes and CRT Devices: Recycling and Refurbishment This proposed bill is also to be considered by the Senate Appropriations Committee. Would require that after July 1, 2003, every manufacturer and retailer selling CRT devices collect a for each device sold, to be deposited in the Cathode Ray Tube Recycling Account (to be established by the bill) to provide matching grant for local collection and processing programs, annual recycling incentive payments to CRT material handlers, grants to nonprofit agencies to refurbish cathode ray tubes and CRT devices, grants to manufacturers to encourage consumers to return devices for processing, recycling or reuse, establish a public information program, and funding to Department of Toxic Substance Control to implement hazardous waste control measures. Payment of the fee is to be certified by a label provided by the board.

¹⁰ *EIA State Summary, 24.5.02*

COLORADO

GOVERNMENT RESPONSE

Current Legislation

From a waste management stand point, there is very little to report from a state level in Colorado. We function under the same control regulations as are in place federally.

Colorado's version of RCRA C is required to be at least as stringent as the federal model. It controls any hazardous waste component of electronic devices (including computer parts and cathode ray tubes) that are discarded or sent to disposal. If these items are in a business or process that leads to reuse, they are not a waste and therefore not regulated. If they are being mined (that is, if components are being stripped out for reuse) only the portions that go to disposal are regulated as waste. If they are being recycled (that is ground down and the glass, plastic, metals are being remanufactured into new products) the recycling criteria under RCRA are applied.

Electronic Recovery Program

There is a pilot project just beginning that hopes to define the scope of the need for more options or better options for the collection/reuse/recycling and disposal of electronics including CRTs.

Contact(s) Pamela Harley 303-692-3440 PAM.HARLEY@STATE.CO.US

RELEVANT STATE LEGISLATION AND REGULATIONS

HW Materials and Waste Management Regulations 1007, Part 273- Universal Waste Management

Applies to batteries, pesticides, mercury containing devices, aerosol cans, lamps and electronic devices and components. Electronic components are defined as components, subassemblies or other parts derived from disassembly of electronic device, and electronic device means equipment containing one or more electronic circuit boards or other complex circuitry including computer monitors, televisions, central processing units (CPUs), laptops, printers, terminals, mainframes and stereo equipment. There is a prohibition against disposal and diluting or treating. The requirements for generators, transporters and destination facilities mirror those in the Federal hazardous waste management regulations.

*Proposed*¹¹

HJR 1022 Encourages donation of used computers to economically disadvantaged individuals/schools.

HB 1106, CRT Recycling Fund Creates a CRT Recycling Account; establishes a CRT Pilot Program to encourage private industry to undertake research and development of new technologies for the recycling, disposal, and waste minimization of CRTs through grants and loans. Use annual appropriations out of general funds in an amount equal to the department's direct and indirect administrative costs. Universal Waste Law, proposed to include CRTs.

¹¹ EIA State Summary, 24.5.02

CONNECTICUT

GOVERNMENT RESPONSE

Current Regulations

New regulations were just adopted in October 2001, along with a draft of regulations that are expected to be adopted in June 2002 and available online toward the end of July.

Proposed

The second link is for a general permit that is proposed for modification. It has in it provisions for used electronics.

Contact(s) Kevin Sullivan 1- (888) 424-4193 kevin.t.sullivan@po.state.ct.us
Oswald Inglese oswald.inglese@po.state.ct.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 22a Chapter 445 – Hazardous Waste The recently revised regulations (October 2001) generally incorporate by reference the federal hazardous waste management regulations in Title 40 of the Code of Federal Regulations (CFR) Parts 260-279. Includes the *Universal Waste Rules* of Part 273 of the CFR for hazardous waste *batteries, thermostats, pesticides and mercury lamps.*

Proposed

Exemptions for Used Electronics The proposed revisions (expected to be approved in June) will add *used electronics* to the universal waste rule, i.e., a device or component thereof that contains one or more circuit boards or a cathode ray tube and is used primarily for data transfer or storage, communication, or entertainment purposes, including but not limited to, *desk top and lap top computers, computer peripherals, monitors, copying machines, scanners, printers, radios, televisions, camcorders, video cassette recorders (“VCRs”), compact disc players, digital video disc players, MP3 players, telephones, including cellular and portable telephones, and stereos.*

DELAWARE

GOVERNMENT RESPONSE

No response from State Authorities.

Contact(s) Kevin Yingling (302) 739-3689kevin.yingling@state.de.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Delaware is a fully authorized RCRA State.

Delaware Regulation Governing Hazardous Waste (As amended April 2001, in effect June 2001) The regulation generally mirrors Federal hazardous waste regulations, with standards for management of *Universal Waste* including *batteries, pesticides, thermostats and lamps*.

Solid Waste Regulations

Intended to encourage recycling, reuse, and reclamation processes and implement a program for improved solid waste storage, collection, transportation, processing, transfer, and disposal. Includes provisions covering universal waste (batteries, pesticides, thermostats and lamps). Other exemptions exist for lead acid batteries

Electronic Recovery Programs

Through the Solid Waste Authority, Delaware has a large IT, computer and electronic recycling program for homes & businesses alike.

Proposed¹²

SB 184 (Sept.2001) - Import of Recyclable Materials Allows the Solid Waste Authority to accept out of State recyclable materials for recycling and, by increased economies of scale, to make feasible recycling and resource recovery projects such as recycling of computer components. Signed into Law 07/09/2001.

¹² *EIA State Summary, 24.5.02*

DISTRICT OF COLUMBIA (*Washington DC*)

GOVERNMENT RESPONSE

No response from State Authorities.

Contact(s) Jim Sweeney (202) 535-2289 jsweeney@dchealth.com

RELEVANT STATE LEGISLATION AND REGULATIONS

The Environmental Health Division provides overall direction and day to day support to the Bureau of Environmental Quality, the Bureau of Hazardous Materials and Toxic Substances and the Bureau of Food, Drug and Radiation Protection. The office coordinates all Multi-Media request/inspections, reviews submissions for requests received pursuant to the Environmental Policy Act, represents the departmental environmental interest on boards, commissions, committees, and provides staff support for all environmental outreach events sponsored by the Administration / Department.

FLORIDA

GOVERNMENT RESPONSE

Current Legislation

Florida is a RCRA delegated state, so 40 CFR 260-273 (US RCRA regs) govern any escrap that would be hazardous waste (includes color CRTs, circuit boards, batteries, mercury relays). The circuit board exemption under RCRA applies. Florida has no specific regulations or laws at this time that affect the recycling of escrap The only Florida law that affects escrap recycling is one that allows us to give time limited grants for escrap infrastructure development (403.71851 and 71852, F.S.). John L. (Jack) Price)

Federal legislation provides for time limited grants to develop infrastructure. Focus on TVs, monitors, computers and peripherals. We adopted original UW (1995), but did not adopt the UWR for mercury lamps (2001) since we already had a State UW rule for all mercury containing lamps and devices.

If disposed (landfill, incineration), scrap containing CRTs from commercial sources are; from residential sources are not. If recycled, CRTs not subject to RCRA.

Exemptions

None at this time.

Export/Import

Federal RCRA

Transportation

RCRA regulations that apply to any hazardous waste.

Electronics Recovery Program

Grant programs mentioned above target these items and TVs.

Contact(s) Vicky Valade Vicky.Valade@dep.state.fl.us
Irene Gleason (850) 488-0300 irene.gleason@dep.state.fl.us
John L. (Jack) Price (850) 921-9218 John.L.Price@dep.state.fl.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Dept. of Environmental Protection Strategy for Managing End-of-Life CRTs, Computers And Other Electronic Equipment. A four-pronged strategy outlining the regulatory framework, promoting recycling infrastructure, includes various pilot projects to assess management options and state recycling contract for use by Florida governmental agencies. Other major categories of waste electronic equipment, e.g., computer central processing units (CPUs), printers, keyboards, fax machines and telephones, are usually less costly to recycle and have fewer (or no) hazardous constituents. Underlying assumption is that if televisions and computer monitors can be recycled/reused in quantity, other electronics will follow suit.

Florida Administrative Code (FAC) Rule 62-730 (Hazardous Waste) Adopted and incorporated portions of the Title 40 Code of Federal Regulations (CFR) Parts 260-271.

Section 71851 – Electronic Recycling Grants Department of Environmental Protection authorized to use funds from the Solid Waste Management Trust Fund as grants to Florida-based businesses with 5 or more years' experience in electronics recycling that recycle electronics such as commercial telephone switching equipment, computers, televisions, computer monitors, and other products that utilize lead-containing cathode ray tubes. Funding to be used for demonstration projects with one or more counties for countywide comprehensive electronics recycling, and grants for recycling.

Title 39, Chapter 403 – Environmental Control, Section 71852 – Collection of Lead-Containing Products A shared pilot program involving DEP and Department of Management Services in collection of lead-containing products, including end-of-life computers and other electronic equipment from state and local agencies. Local governments are encouraged to establish collection and recycling programs for publicly and privately owned lead-containing products.

Florida's State Contract for Electronics Recycling In cooperation with the DEP, Florida's Department of Management Services has developed a contract for state governmental agencies for the collection, de-manufacturing and recycling of end-of-life electronic equipment such as televisions and *computer monitors* which contain cathode ray tubes (CRTs), computers, computer peripherals (mouse, printer, keyboard), desk top or handheld telecommunications devices and copiers.

Collection of Lead-Containing Products Another joint DEP/DMS pilot program to collect lead-containing products, including end-of-life computers and other electronic equipment from State and local agencies. Local governments are encouraged to establish collection and recycling programs for publicly and privately owned lead-containing products, including end-of-life televisions, computers, and other electronic products, through existing recycling and household hazardous-waste-management programs.

Florida's State Contract for Electronics Recycling In cooperation with the DEP, the Dept. of Management Services has developed a contract for the *collection, de-manufacturing and recycling of end-of-life electronic equipment* such as televisions and *computer monitors* which contain cathode ray tubes (CRTs), computers, computer peripherals (mouse, printer, keyboard), desk top or handheld telecommunications devices and copiers. The contract is for state governmental agencies and may also be used by other governmental agencies or institutions throughout Florida. The Department has identified the following major types of electronic equipment that may be found in Florida's municipal solid waste (MSW). These types of electronic equipment are the focus of the Department's end-of-life electronics waste management efforts and the Department of Management Services state-wide electronics demanufacturing and recycling contract. Instead of assembling the product, de-manufacturers take the product apart to recover usable components, such as memory, disk drives and microprocessor chips, and scrap materials with value, such as copper cables and circuit boards, resulting in higher value from the recovery process than if the whole product was scrapped without disassembly.

Note:¹³ A proposal (SB 1922) to require the DEP to conduct a comprehensive review of end-of-life electronics waste stream with recommendations by 1/1/03 was rejected by the Committee on Natural Resources in March 2002.

¹³ *EIA State Summary, 24.5.02*

GEORGIA

GOVERNMENT RESPONSE

Current Legislation

The Georgia Hazardous Waste Management Act, Official Code of Georgia, Annotated, 12-8-60 et seq. is the equivalent RCRA legislation in Georgia. We operate a fully delegated program, and adopt the federal rules (40CFR) by reference. Nothing Georgia-specific aimed at the recycling of electronic waste at this time. However, it is likely that we will adopt the EPA CRT rule when it becomes final.

Georgia has case law (the "Olin" decision, DNR-EPD-HW-AH 4-92, dated July 28, 1993) that requires characteristic by-products and sludges to be managed as hazardous waste during accumulation, storage and transportation prior to reclamation; only the actual reclamation process is exempt. EPA and many other states adhere to the "Lowrance memo" from 1986 which prospectively exempts these wastes from regulation when they are "destined for reclamation".

Contact(s) Jim McNamara Jim_McNamara@mail.dnr.state.ga.us
Madeline Kellam Madeleine_Kellam@mail.dnr.state.ga.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Georgia Hazardous Waste Management Act, Official Code of Georgia, Annotated, 12-8-60 The equivalent RCRA legislation in Georgia, adopts the federal rules of 40 CFR by reference. There is no prohibition on disposal of electronic components or devices.

Georgia Comprehensive Solid Waste Management Act of 1990, OCGA 12-8-20 There is no reference to electronic components or devices in these regulations. General structure includes waste disposal permits, solid waste management plans, surface water requirements, and prohibition against putting lead acid batteries in landfills, and structure and design of landfills.

Georgia's *Universal Waste Law* does not include CRTs.

Proposed

HB 2 Establishment of a Computer Equipment/Disposal and Recycling Council Creates a 7 person Council with 3 persons appointed by the governor, and 2 each by the Speaker and Lt. Gov. to address issues surrounding *lead, mercury and heavy metals* in used computers) Computers and all components and peripherals. 4/24/2002 passed House and Senate - Sent to Governor for signature.

HAWAII

GOVERNMENT RESPONSE

NO RESPONSE FROM STATE AUTHORITIES

Contact(s) Grace Simmons (808) 586-4226 gsimmons@eha.health.state.hi.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Rules on Solid and Hazardous Waste

Universal Waste Law does not include CRTs.

Proposed

HB 1283 Computer Recycling Program Establishes a computer recycling program and an income tax credit for participation in the program Introduced, held in committee on Energy and Environmental Protection.

HB 1508, Lead Battery Recovery Incentive Waves surcharge at the point of sale of lead batteries, to only on sales that involve an exchange of at least as many old batteries as those newly purchased. 1/29/01 H Referred to the committees on EEP, FIN, referral sheet 5.

Note: Two recent proposals (HB 1638, Special Waste-Recycling Program and SB 812 CRT Recycling Program) are recommended for deferral. The first was to be operational by July 1, 2003, after which disposal of CRTs would be banned from normal solid waste facilities and rules were to be established for recycling programs for CRTs, computers, TVs, scientific equipment. The second was to prohibit disposal of CRTs in mixed solid waste facilities and a program developed for CRT special waste recycling.

IDAHO

GOVERNMENT RESPONSE

Current Legislation

Idaho Dept. of Env. Quality adopts the federal hazardous waste regulations by reference. Those regulations can be found in the U.S. Code of Federal Regulation, Title 40 Parts 260-279. (40 CFR 260-279). Authority for these regulations can be found in the U.S. Resource Conservation and Recovery Act of 1976 which was an amendment to the U.S. Solid Waste Disposal Act of 1965. Idaho has its own statute named the Hazardous Waste Management Act of 1983. This statute enables the promulgation of the Idaho Rules and Standards for Hazardous Waste which contain the adoption by reference of federal hazardous waste regulations.

Proposed Legislation

There is nothing yet regarding legislation or regulations to encourage recycling of electronic waste in Idaho. There was some discussion in the 2002 Idaho Legislature but nothing was passed. There may be a bill proposed in the 2003 Idaho Legislature. On the federal level, the US EPA may propose a universal waste rule under 40 CFR Part 273, to handle electronic waste. This proposal was due to be issued in the Spring of 2002. Hopefully, the soon to be proposed federal Universal Waste Rule would allow more flexibility to allow proper recycling of electronic waste.

Export/Import

Nothing, other than if it is manifested waste it must be treated or disposed at a state permitted Hazardous Waste Treatment, Storage or Disposal Facility if sent to Idaho. The U.S., I believe, still has not ratified the Basel Convention, which would have some controls over the export of hazardous waste to less developed countries. If a Universal Waste Rule is promulgated by the US EPA for electronic waste, more flexibility regarding the existing hazardous waste requirements will be available.

Electronic Recovery Program

Just recently, a city/county Electronic Waste Collection Program was announced for the area around Boise. This would be for household electronic waste, which is exempt from hazardous waste rules. A treatment facility in Utah has been selected to properly recycle/manage the electronic waste. The Northwest States and EPA have started on WEPSI- Western Electronic Product Stewardship Initiative. It is somewhat old but the contacts on the list may still be valid.

Contact(s) John Brueck (208) 373-0458 Jbrueck@Deq.State.Id.Us

RELEVANT STATE LEGISLATION AND REGULATIONS

Idaho Hazardous Waste Management Act 1983

Adopts the U.S. Code of Federal Regulation, Title 40 Parts 260-279 by reference.

Proposed

SB 1416, Classification of Computer Monitors as Special Waste¹⁴ Will requiring special treatment and handling of monitors after arrival at disposal site. Sent to Committee on Health/Welfare

¹⁴ EIA, *ibid.*

ILLINOIS

GOVERNMENT RESPONSE

Current Legislation

The hazardous waste regulations in Illinois are identical to the USEPA's RCRA Subtitle D regulations. We have "pass through provisions" in our legislation that requires that we adopt the exact regulations that US EPA adopts for hazardous waste management. Additionally, we do not have any regulations regarding recycling. If a facility causes a nuisance or discharges a substance such that the land, air or water is polluted, the activity is regulated as a waste management activity. Also, any waste produced by the activity in Illinois is a special waste and must be managed appropriately. If the waste material exhibits a characteristic of hazardous waste, it must be managed as hazardous waste. Our regulations are identical to RCRA Subtitle C.

Proposed Legislation

There is no proposed legislation for recycling electronic waste computers.

Export/Import

No legislation in place for import/export except that hazardous waste must be accompanied by manifests.

Contact(s) Joyce Munie, Permits, Bureau of Land (217) 524-3300 Joyce.Munie@epa.state.il.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 35-Environmental Legislation for the State of Illinois, Subtitle G- Waste Disposal The hazardous waste regulations in Illinois are identical to the USEPA's RCRA regulations, with no special reference to electronic components and devices. Part 733 (Universal Waste) applies to *batteries, pesticides, mercury thermostats and lamps*. Exemption for *mercury containing lamps* was repealed.

Illinois laws for solid and hazardous waste are contained in 415 ILCS 20/.

Proposed¹⁵

HB 983 (2001) Amends EPA and adds PCs to definition of "white goods" and CRTs containing lead to the definition of "white good components" therefore effectuating a ban on disposal. Requires at the point of sale of lead batteries, take-back and exchange of at least as many old batteries as those newly purchased. When no exchange at new purchase is made, dealer may assess fee, or extend a credit if old battery is dropped off without purchase of new. Returned batteries must not accumulate for a period over 90 days. Prohibits disposal of batteries in a municipal waste sanitary landfill or incinerator; Violation is punishable by \$100 fine. Apr 4,02 Passed Sen.Apr18,02 Re-Referred To House Rules Common/Rule 19(A).

¹⁵ *EIA Summary, April 2002*

INDIANA

GOVERNMENT RESPONSE

Current Legislation

Have adopted federal rules by reference.

Proposed Legislation

As far as e-waste Indiana is waiting rules from EPA. When using enforcement they are using discretion if computers are being disposed of until EPA rules received. (D.Berry)

Contact(s) Beth Bell 812-952-1144 bbell@dem.state.in.us
 Steven Boggs (317) 233-6660 sboggs@dem.state.in.us
 Dave Berry (317) 308-3341

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 13, Article 19 (Solid Waste and Hazardous Waste Management Generally) Establishes conditions for a *Secondary Material Exemption* for material that is not a solid waste as defined under 40 CFR 261.2(e) or is legitimately used in an industrial or manufacturing process, except reclamation, with no significant increase in the threat it poses to health or the environment, is not a solid waste. Residues arising from use of a secondary material that is not itself exempt must be tested to determine its status as a hazardous waste and does not retain the listing of the secondary material from which it may have been derived.

Indiana regulations are based on reference to the federal regulations.

IOWA

GOVERNMENT RESPONSE

Current Legislation

Basically, what I can tell you is that the state of Iowa is one of two states in the US without a RCRA program and so our standards with regard to hazardous materials conform directly with EPA guidelines and regulations. In addition, we do not recognize small quantity generators as being exempt from certain hazardous waste requirements, as outlined by EPA. Besides this, there is no legislation that we have at a state level that addresses neither electronics nor hazardous wastes.

Pending Legislation

There is a piece of legislation that is currently waiting for our Governor's signature that requires the Department of Natural Resources to complete a study on proper recycling and handling of electronic waste. This is scheduled to be completed 1 Jan 2004.

Electronics Recovery Program

We have about five recyclers that currently make up most of our recycling options and volume for electronics in the state. We also have a variety of smaller recyclers that vary in location and service provided. Computers and computer components are by far the most targeted electronic for most of our recyclers. The state has been part of the national electronics recycling dialogue that has been going on since 2001, NEPSI. A currently list of stakeholders that are participating in this effort is on their website, along with Scott Cassell, Executive Director -- and I would highly recommend you calling him.

Contact(s) Merry Rankin, Natural Resources Merry.Rankin@dnr.state.ia.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Iowa Administrative Rules, Environmental Protection (567), Chapter 141: Hazardous Waste
Regulations adopted by reference to Federal regulations.

Iowa Administrative Rules, Environmental Protection (567), Chapter 101: General Requirements Relating to Solid Waste Management and Disposal There is no specific reference to electronic components or devices.

Proposed¹⁶

SF 305 (2001) Bill includes computer monitors in the definition of household hazardous waste. Mar. 6, 2002 Sent to Subcommittee on Natural Resources And Environment

HF 2302 Bill requires the Department of Natural Resources Director to develop a strategy and recommend to the Environmental Protection Commission administrative rules to implement by 1/1/04, a strategy for the recycling of electronic goods and the disassembling and removing of toxic parts from all electronic goods. Passed House Committee Mar. 20 02 Referred to Environmental Protection Commission.

¹⁶ EIA, *ibid.*

KANSAS

GOVERNMENT RESPONSE

Current Legislation

Kansas has adopted the provisions of the federal Resource Conservation and Recovery Act (RCRA) regarding the generation, transport and storage/treatment/disposal requirements. These regulations are found in 40 CFR 260-279.

Proposed Legislation

At present, Kansas has not proposed any legislation aimed at recycling of electronic waste including computers, components, or peripherals. At the present time we are awaiting to see what the US environmental Protection Agency (EPA) decides to do in this area.

Export/Import

At this time Kansas has the same requirements for Export/Import of hazardous waste, as does the EPA..

Transport

At the present time all transporters of hazardous waste operating in Kansas must register with this agency but there are no impediments or facilitation in state statute or regulation effecting the recycling of computers, etc.

Electronic Recovery Programs

There are no known electronic product recovery programs in Kansas to our knowledge.

Contact(s) John W. Mitchell, Waste Compliance (785) 296-1608 JMitchel@kdhe.state.ks.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Kansas Hazardous Waste Management Act Mirrors 40 CFR 260-279 and includes a section on *universal waste* which has been adopted by reference to 40 CFR Part 273.

KENTUCKY

GOVERNMENT RESPONSE

Current Legislation

Our Hazardous Waste Regulations: 401 KAR Chapters 30 through 39. Universal waste requirements - 401 KAR Chapter 43.

Electronics Recovery Programs

The Kentucky Partnership for Effective Electronics Recycling and Reuse (affiliated with the non-profit Kentucky Pollution Prevention Center at the University Of Louisville) is hosting an electronics conference on August 28-29 at the Galt House in Louisville. The agenda looks very good. If you're interested, contact Lissa.Mccracken@louisville.edu. (Abbie Meyer)

Contact(s) Brian Begley (6502) 564-6716 Brian.Begley@mail.state.ky.us
Dale Burton Dale.Burton@mail.state.ky.us
Abbie Meyer Abbie.Meyer@mail.state.ky.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Hazardous Waste Management, 401 KAR Chapters 31-49

Covers identification and listing, standards for generators, transporters, owners of waste management facilities, interim transport/storage, permitting and enforcement. Chapter 36 includes definitions for speculative accumulation (conditions) of recyclables, recoverable and recycled materials and *Universal Wastes* (batteries, pesticides, thermostats and spent lamps) (see *Universal Waste 401 KAR Chapter 43*).

401 KAR 36:060. Recyclable Materials Used For Precious Metal Recovery Applies to recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination of these.

Kentucky Revised Statutes, Chapter 224, Subchapters 40, 46 Contains waste permitting/licensing requirements and planning/management standards applicable to hazardous waste management.

Recycled Material Content Statute Established to encourage recycling through the procurement process for State Agencies, including minimum recycled content requirements for materials, non-discrimination against recycled products, standards for contractors and purchase through general stores.

LOUISIANA

GOVERNMENT RESPONSE

Declined to respond.

Contact(s) Lourdes Iturralde 225-765-0219 lourdes_I@deq.state.la.us
 John Rogers (225) 765-2966

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 33: Environmental Regulatory Code Part V Hazardous Waste, Part VII Solid Waste Part V addresses requirements for hazardous waste and materials, covering all aspects including definitions, permitting, standards for generators/transporters, owners of waste management facilities), import/export, transport within OECD countries, information for solid waste management, remedial action plans. Indicates general consistency with RCRA.

Universal waste in Louisiana refers to batteries, pesticides, mercury thermostats, lamps and antifreeze.

MAINE

GOVERNMENT RESPONSE

Current Legislation

Chapter 850 through 857 (regulations) 39 MRSA 1301 et seq. (law).

Proposed Legislation

No legislation. We have universal waste rules that require the recycling of these.

Exemptions

We do not exempt these except if they are still workable equipment that is being given or sold for reuse as is. We have a history of superfund and uncontrolled sites from past unregulated recycling. By exempting these activities from regulation and controls, we believe this will cause more of these situations to develop.

Export/Import

Hazardous waste regulations, which includes Export/Import requirements

Transportation

None if you believe as we do that there need to be some controls to prevent problems from developing.

Electronic Recovery Program

No manufacturer take back program. We do have an electronics recycling facility in our state, which is operating under our universal waste rules.

Contact(s) David J. Lennett 287-2651 HW, Biomedical/Waste Oil Facilities Licensing
Stacy Ladner 287-2651
Scott Whittier 287-2651

RELEVANT STATE LEGISLATION AND REGULATIONS

Maine Statutes (Title 38), Hazardous Waste, Septage and Solid Waste Management Act

Maine Hazardous Waste Management Regulations, Chapters 850 through 857. State regulations for the safe management and transportation of hazardous wastes, consistent with RCRA, and in instances, exceeding Federal rules as deemed necessary to protect Maine's environment and strong reliance on groundwater for drinking water.

Hazardous waste are those identified as hazardous by particular substance, by characteristic, by chemical class or as a waste product of a specific industrial activity in proposed or final rules of the United States Environmental Protection Agency, plus polychlorinated biphenyls and any substance containing polychlorinated biphenyls. Acute or chronic toxins are defined their carcinogenicity; mutagenicity; teratogenicity; or infectiousness. Provisions cover reporting, handling, transportation, licensing of transporters, standards for handling/treatment, the manifest system and permitting by rule. Maine has adopted (as of January 2000) the EPA rules for universal waste, excluding pesticides.

Maine Hazardous Waste Management Regulations, Chapter 850, 3a: Scrap metals are excluded from the definition of hazardous waste - RCRA, in 40 CFR 261.1(c).

Universal Wastes Maine has adopted rules to regulate *batteries* (not vehicle batteries), *cathode ray tubes*, *lamps*, *mercury thermostats*, and *intact non-leaking PCB lighting ballasts* as universal wastes. A future rulemaking will include *mercury devices*, including mercury thermometers and mercury containing medical equipment. The UW rules create tailored standards for management of these hazardous wastes and ensure their hazardous constituents are captured and recycled or reused where feasible. Typical constituents of concern in these wastes are *cadmium*, *lead*, *mercury*, *nickel* and *polychlorinated biphenyls*. Maine's current rule became effective on January 23, 2001.

Application of the UWR to Cathode Ray Tubes (CRTs) Under the Universal Waste regulation, generators, owners/operators of any central accumulation or consolidation facility and transporters of CRTs are prohibited from disposing, diluting or treating them o any facility other than a central accumulation facility, consolidation facility or approved recycling facility. Households (televisions) are exempt from the regulations. All other conditions for universal waste apply to CRTS, including requirements for/time limits on storage, transport, manifesting, training. Accumulation of more than 200 CRTs requires an EPA Identification Number.

Solid Waste Management and Recycling Program Since 1989, Maine has established a coordinated statewide waste reduction, recycling and management program. The program encompasses an integrated approach to hazardous and solid waste management aimed at the reduction of waste generated at the source, including both the amount and toxicity of waste; waste reuse; waste recycling; waste composting; waste processing which reduces the volume of waste needing disposal, including waste-to-energy technology; and land disposal.

MARYLAND

GOVERNMENT RESPONSE

Current Legislation

Recycling of electronics, "eCycling," has been a major initiative in Maryland since the Fall of 2001. The State of Maryland, Department of the Environment (MDE) and the other EPA Region III States entered into an Agreement, a Memorandum of Understanding (MOU) with the Federal Environmental Protection Agency (EPA) in October of 2001 concerning regulatory approaches for the recycling of end-of-life electronics. In response to your question regarding Cathode Ray Tubes (CRTs), the EPA has promulgated a rule which conditionally exempts CRTs from the Resource Conservation and Recovery Act (RCRA) when they are sent for recycling.

Contact(s) Bill Schmidt, Waste Management (410) 758-5020 hschmidt@mde.state.md.us
Regina Rochez, Recycling/Outreach (410) 631-3314 rochez@mde.state.md.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Maryland Code, Environment, Title 7, Hazardous Waste Management Defined as waste covered under Title 49 of RCRA. Not clear whether Universal Waste Rule applies. Assumed consistent with RCRA.

Memorandum of Understanding – Regulatory Initiatives and E-Cycling Pilot Project The e-Cycle is a joint effort between EPA Region III and the following states: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. Its purpose is to foster the development of a sustainable collection, reuse, and recycling system for end-of-life electronics in the Region III states, with the materials being diverted from landfills and other disposal sites. The MOU provides for a regional rule that would conditionally exclude certain types of CRTs from the Federal definition of solid waste in each of the Region III states;

- a preamble stating that persons taking an electronic device out of service before their useful life is over is not a waste generator, unless they decide to dispose of the device;
- devices (including components) going on to further use either directly, or after minor repair, are not solid wastes;
- reflect that EPA is not aware of information suggesting that any end-of-life electronics which is solid waste (other than CRTs) generally comprise RCRA hazardous waste; and
- CRTs which are being recycled in a way which would normally make them RCRA solid wastes to be conditionally excluded from RCRA's definition of solid waste when they are sent for recycling.

Title 26- Environment, Subtitle 13, Disposal of Controlled Hazardous Substances, Subtitle 16:Lead
No specific reference to electronic devices or CRTs but the section on lead may be applicable to CRTs.

Note Two recent proposed Bills to have taken effect in 2004 were denied in March 2002 concerning:

- banning of CRTs from computer monitors or televisions at undesignated sites after December 31, 2004, prohibited solid waste facilities from accepting them, required a feasibility study on methods for management and recycling of used CRTs and imposed civil penalties; and,*
- minimum energy efficiency standards for specified new products sold in the State; and prohibiting the sale of new products which do not meet or exceed the standards.*

MASSACHUSETTS

GOVERNMENT RESPONSE

Current Legislation

Cathode ray tube devices (tvs, monitors and video games) that are collected for the purpose of recycling are not classified as hazardous waste. Any CRTs that are thrown in the trash are deemed hazardous waste and must be managed as such.. The handling requirements for CRTs destined for recycling are also outlined in the regulations. Also, please note that the regulatory actions described in the document were all done without any sort of legislation.

Proposed Legislation

There is legislation pending that would require CRT manufacturers to create an infrastructure for "take-back" from consumers and other generators. See <http://www.state.ma.us/legis/bills/house/ht04716.htm> for the text of the Bill.

Exemptions

The above web page links also provide information on exemptions and related rationale. See the Department's regulations, which provide regulatory relief for handling CRT devices for the purposes of recycling them. There is no current legislation or regulations in place that pertain specifically to CRTS or electronics.

Electronic Recovery Programs

There are over 280 municipalities in Massachusetts that provide some form of electronics collection and recycling programs.

Contact(s) Brooke Nash (CRTs/el waste), (617) 292-5984 Brooke.Nash@state.ma.us
Joanne Bissetta (recycling) (617) 348-4002 Joanne.Bissetta@state.ma.us
James Paterson James.Paterson@state.ma.us

RELEVANT STATE LEGISLATION AND REGULATIONS

310 CMR 16.000: Site Assignment Regulation for Solid Waste Facility: Non-commodity CRTs (those that will not be returned to service) must be managed in accordance with the solid waste requirements for CRT Operations under Section 16.05 (3) (f): *Conditionally Exempt Recycling Operation*. The section states that a CRT operation accumulating up to 40 tons of non-commodity CRTs must: minimize breakage; segregate non-commodity CRTs from solid waste; comply with RCRA export rules for shipments to foreign countries; transfer CRTs only to another CRT operation, recycler or hazardous waste facility (TSDF); hold them no longer than 1 year; and label its CRTs. If the operation holds 40 tons of non-commodity CRTs for more than 21 days must also notify the Department of Environmental Protection (DEP) and maintain shipping records and accumulation duration records for 3 years.

310 CMR 19.000: Solid Waste Facility Regulations: CRTs cannot be disposed of at landfills, transfer facilities and combustion facilities. A plan must be submitted describing actions to comply with the CRT disposal restrictions to DEP regional office.

310 CMR 30.000: Hazardous Waste Regulations: CRT shipments to a hazardous waste treatment, storage or disposal facility (TSDF) are subject to HW regulations (exemptions exist for monochrome computer

monitors), which include provisions for labeling, manifests and reporting for generators, transporters, treatment/disposal facilities.

Proposed¹⁷

HD 3154 Bill Requires manufactures that produce products where a CRT is a component to have implemented a plan, approved by the department of Environmental Protection, for a collection system of the used products. No product, which includes CRT, shall be offered for final sale or use or distribution until implementation plan is approved. Collection system shall include: education program; targeted capture rate of 95% of CRT; plan for financing the collection system, et al. Passed Out of House Natural Resources Committee. Pending Third reading in House.

HB 4454 Household HW Collection Centres Establishes local household hazardous waste collection centers and *includes CRTs as Universal Waste*, along with lamps; provides grant program under Clean Environmental Fund for establishment of collection centers; public education programs and technical assistance to collection centers for properly handling recycling and management. 08/09/01 H

HJ 752 State Universal Waste Rule in effect, including CRTs.

¹⁷ *EIA Summary Report, 24.5.02*

MICHIGAN

GOVERNMENT RESPONSE

Current Legislation

Part 111 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (324.11101), and the administrative rules (R 299.9101) which contain provisions that may apply to electronic waste.

Proposed Legislation

No current or Proposed Legislation that I am aware of (recycling of computer equipment/components).

Exemptions

Specifically, R 299.9206 exempts scrap metal being recycled; CRTs are electric lamps and are subject to the universal waste standards in R 299.9228; and the recovery of precious metals are subject to another set of standards in R 299.9803 The exemptions and alternate standards are provided to allow resource recovery.

Export/Import

The state and federal hazardous waste regulations mandate steps to follow in importing and exporting hazardous waste.

Transport

Part 4 of the rules provide licensing requirements for transporters of hazardous waste.

Contact(s) Jack Shinderle SCHINDEJ@michigan.gov

RELEVANT STATE LEGISLATION AND REGULATIONS

1994 P.A. 451 as amended: Hazardous Waste: R 299.9206: Scrap metal exempt from requirements for recyclable materials

Universal Wastes: Includes lamps which according to Michigan source, would include CRTs

R 299.9803: Recyclable materials for precious metals recovery: includes gold, silver, platinum, palladium, iridium, osmium, rhodium, and ruthenium.

Administrative Rules Part 115 of Natural Resources and Environmental Protection Act 1994 P.A. 451: Solid Waste Management Act has no specific reference to electronic components or devices.

MINNESOTA

GOVERNMENT RESPONSE

No response from State Authorities.

Contact(s) Jennifer Volkman (651) 297-8357 jennifer.volkman@pca.state.mn.us
Joseph Henderson (651) 297-8496 joe.henderson@pca.state.mn.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Minnesota law prohibits households and businesses from disposing of most rechargeable batteries and all mercury-containing components in municipal trash. Waste electronic and electrical products from households are not regulated or banned from disposal in Minnesota but households are encouraged to manage electronic wastes responsibly, even in small quantities. Businesses and institutions in Minnesota must manage electronic devices and components in a manner consistent with state and federal law. Businesses and institutions can recycle waste electronics using the streamlined regulatory structure of the Minnesota Pollution Control Agency's (MPCA) Special Waste Pilot Project. Waste Fact Sheet Managing Waste Electronic Equipment, published by the [Minnesota Pollution Control Agency](#).

7045.0125 Management Of Waste By Use, Reuse, Recycling, And Reclamation: Covers used oil, precious metals recovery, used batteries (being returned to the manufacturer for reclamation), scrap metal and used fuel exemptions. Also includes exemption for hazardous wastes used as feedstock if they are:

- used or reused as ingredients in an industrial process to make a product, provided the hazardous wastes are not being reclaimed;
- used or reused as effective substitutes for commercial products; or
- returned to the original process from which they are generated, without first being reclaimed. The hazardous waste must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks.

7045.0131 Characteristics Of Hazardous Waste: Subpart 1. In general. A waste which is not excluded from regulation as a hazardous waste if it exhibits ignitability, corrosivity, reactivity, toxicity, lethality, or is an oxidizer (consistent with RCRA).

Minnesota State Rules: Ch 7035 (SW), Ch 7045 (HW): Universal waste rules prevent disposal of universal waste including *batteries, thermostats* and *spent lamps*.

Proposed¹⁸

HF 2815, Ban on Electronic Products in Municipal Waste

No placing of "*electronic products*" in mixed municipal solid waste effective July 1, 2004.1st An Engrossment Version (March 6, 2002). TV, *CRTs, laptops, CPUs* and *printers* was re-referred to Rules and Legislative Administration (March 7, 2002)SF 2979 the same as HF 2815.

¹⁸ EIA, *ibid*.

MISSISSIPPI

GOVERNMENT RESPONSE

Current Legislation

We don't have any regulations at this time on computers and electronics in Mississippi.

Proposed Legislation

We do expect to have regulations in the near future on computer monitors due to lead, etc. If they are recycled they will not be considered hazardous waste. If they are crushed prior to shipping to a recycler, they will more than likely need to follow some of the hazardous waste shipping requirements. EPA is developing these requirements at present. Other than this there are no real regulations in the state on these electronic devices.

Electronics Recovery Programs

There is some minor electronic recycling going on at present. We are collecting some at a Household Hazardous Waste collection event in June. We hope to test this out and see how well this goes.

Contact(s) Larry Estes (601) 961-5036 Larry_Estes@deq.state.ms.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Hazardous Waste Management Regulations Provisions reflect federal RCRA.

Non Hazardous Regulation and Criteria (1996): Part 273: *Standards for Universal Waste Management* makes reference to Part 273 of the EPA Non hazardous Waste Management Regulations and Criteria.

DEP TV and Computer Monitor (CRT) Regulatory Guidance Regulatory guidance for the handling of discarded CRTs found in televisions, computer monitors, and some video game units. This guidance applies to the following: 310 CMR 16.02, 16.05, 19.043(5)(k), 30.010 and 30.104 - November 2001

CRT Regulations Section 310 CMR 19.017(3): Waste Specific Restrictions describes restrictions on the disposal of CRTs at landfills, transfer facilities and combustion facilities. Section 310 CMR 19.017(5):

Waste Restriction Plan Submissions Requires a plan describing the actions to be taken to comply with the CRT disposal restrictions be submitted to the appropriate DEP Regional Office.

MISSOURI

GOVERNMENT RESPONSE

Current Legislation

The entire Missouri Hazardous Waste Management Law Section 260.350, et. seq. RSMO and Title 10, Division 25 of the Code of State Regulations. Specifically, Section 260.432 5(2) RSMo - "After January 1, 1994, small quantities of hazardous waste which are exempt from regulation under the provisions of 260.350 to 260.434, except de minimis amounts, shall not be placed in sanitary landfill; and Section 260.432 5(3)- Any person convicted of knowingly placing small quantities of hazardous waste in a sanitary landfill shall be guilty of an infraction." In general, this removes the ability for conditionally exempt generators of hazardous waste to place their hazardous waste in Missouri's sanitary landfills. They must assure delivery to a recycler or to a permitted or interim status TSD.

Proposed Legislation

There is no current or proposed legislation which is aimed at the recycling of electronic waste and it does not target computer equipment, components, peripherals and metals at this time.

Exemptions

Hazardous waste from households and farmers remains exempt and may be placed in sanitary landfills in the state. Additionally, 10 CSR 25.3-260(1)(A)25 sets Missouri's regulatory framework for hazardous waste regulation at the point in which either 100 kilograms of non-acute hazardous waste or 1 kilogram of acutely hazardous waste is either accumulated or generated in one month or at any one time. Missouri has adopted the federal Universal Waste Rule and modified it to include mercury containing lamps, switches, thermometers, manometers and additional standards for pesticide collection programs (10 CSR 25-16.273).

The state adheres to the EPA determination that used whole circuit boards are scrap metal when sent for reclamation and are exempt from hazardous waste regulation. Missouri also adopted EPA's exclusion for shredded circuit boards being reclaimed provided they meet certain requirements.

Export/Import

Requirements for Export/Import do not go beyond federal requirements.

Transport

With respect to transporters, hazardous electronics intended for legitimate use/reuse may be exempt according to 40 CFR 261.2(e). If legitimately used or reused, the materials are not considered solid or hazardous waste until the decision to dispose is made. Transporters who meet state and federal transfer facility regulations may store the electronics as long as the waste arrives at its destination within the 10 calendar day period. For hazardous materials that are exempt from hazardous waste transportation regulations, Department of Transportation regulations may still apply.

Electronic Recovery Programs

The state does not have an electronic product recovery program except that Surplus Property attempts to accept used computers and to provide them for sale/reuse. In addition, computer recyclers could conceivably apply for a Resource Recovery Certification under Ch. 9 of our HW Regulations. These regulations apply to the reclaiming or reuse of hazardous waste for materials, or to transform hazardous waste into new products which are not hazardous waste. (Precious metal recovery is not

included.) They include notification ,certification ,closure and financial assurance provisions.

Contact(s) Kathy Flippin, HW Enforcement (573) 751-2032 nrflipk@mail.dnr.state.mo.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Code of State Regulations, Title 10, Division 25, HW Management, Division 80, SW Management The regulations for universal wastes include the Federal list and adds *mercury switches*.

Missouri Hazardous Waste Management Law and Regulations, Chapter 9 (Title 10 CSR 25-9.020) The U.S. Environmental Protection Agency has delegated authority to the Hazardous Waste Program to execute most of the requirements of the Resource Conservation and Recovery Act in Missouri. In addition to the RCRA, Missouri enacted the *Missouri Hazardous Waste Management Law* which addresses the generation, management and disposal of hazardous waste, cleanup of hazardous waste and hazardous substance releases.

MONTANA

GOVERNMENT RESPONSE

Current Legislation

The state program hazardous waste program is identical to the federal program. No electronic waste stream or component part has been specifically listed as a hazardous waste. The regulatory status of a waste depends on a facility's generator size and the facility's waste characteristics. E-waste is a subject of much discussion and EPA is contemplating a variety of responses, ranging from an exclusion to developing a regulatory structure which encourages recycling (such as inclusion into the existing universal waste system).

Proposed Legislation

At this time and to our knowledge, there is no legislation (aimed at recycling of electronic waste or computers) planned for the 2003 Legislative Session.

Exemptions

There have been no historical exclusions for electronic or computer wastes.

Export/Import

Import and export requirements for all wastes, including e-wastes, are found in Title 40 Code of Federal Regulations Section 262.60 and 262.80, incorporated by reference in the Administrative Rules of Montana, Title 17, Chapter 53, Subchapter 601.

Transport

Requirements for transporters of hazardous wastes and recycling facilities are available on the Internet. Unfortunately, Montana does not have a well-established recovery market for electronics. Montana does not have any legislation requiring electronic equipment to be recycled or banning electronics from landfills. Due to Montana's distance from most markets for recyclables, it may not be in Montana's best interests to ban materials from landfills until reliable markets have been established for those materials.

Electronics Recycling Programs

As you are aware, there is growing concern nationally regarding the potential for pollution resulting from disposal of electronics, especially computers. In addition, we have computer dealers and users in Montana that want to dispose of computers in the most environmentally responsible manner available.

Some companies are recycling just the precious metals, others offer the computers for resale or donate computers to needy organizations and individuals. These diverse recycling options do not add up to a particularly strong market for computers in Montana, but do offer creative alternatives to landfilling. There are many needy schools and organizations that would benefit greatly from donated computers and DEQ promotes this option to businesses and corporations looking to dispose of computers. In fact, the legislature adopted a policy instructing state agencies to work through the Office of Public Instruction (OPI) to surplus agency computers to needy schools on a first-come, first-served basis.

Contact(s) Jan Sensibaugh (406) 444-6815 jsensibaugh@state.mt.us
Art Compton acompton@state.mt.us
Don Vidrine dvidrine@state.mt.us

Brian Spangler 406-444-5307 bspangler@state.mt.us
Bob Reinke 406-444-1435

RELEVANT STATE LEGISLATION AND REGULATIONS

Montana Hazardous Waste Act RCRA consistent. Under no conditions may a variance be granted by the board that would result in a less stringent requirement or degree of control than would be imposed by the applicable federal regulations adopted under the federal Resource Conservation and Recovery Act. No reference to recycling or electronics.

Montana Universal Waste Covers the original three wastes established by the US EPA (Part 273, CFR 40), including: spent batteries other than lead-acid; pesticides; mercury containing thermostats plus spent electric tubes or bulbs, which are hazardous due to heavy metals.

ARM Title 17: Chapter 53 – Hazardous Waste No specific reference to electronic components or devices, and universal wastes include batteries other than lead acid, pesticides, mercury containing thermostats and spent electric bulbs and tubes.

MT Material Exchange Program Part of the Montana Pollution Prevention (MT P2) Program is to encourage recovery and reuse of discarded materials. It has a number of material categories that includes durable electronics.

NEBRASKA

GOVERNMENT RESPONSE

Current Legislation

Yes, cathode ray tubes (CRTs)/color monitors/color TV tubes and whole circuit boards. Note that whole circuit boards can come under the scrap metal exemption. Title 128, Nebraska Hazardous Waste Regulations implements Nebraska environmental legislation..

Proposed Legislation

The Unicameral has an interim study resolution to examine problems associated with disposal of used electronic equipment.

Exemptions

There are currently no exemptions, but the state will probably attempt to incorporate future federal CRT rulemaking initiatives into Title 128 Universal waste batteries and hazardous waste lamps (Title 128, Chapter 25) and lead-acid batteries (Title 128, Chapter 7, Section 011).

Nebraska incorporates 40 CFR Part 262 Subparts E & F by reference into Title 128 (Title 128, Chapter 9, Section 007.05). Nebraska does not consider the named items as hazardous waste (except for color TV tubes & color CRTs). There are no real impediments to recycling due to hazardous waste regulations except for CRTs and TV tubes. Recycling operations must, of course, comply with Title 128 hazardous waste requirements for the hazardous wastes they generate.

Electronics Recycling Programs

Several companies that target electronic wastes or excess products. There are also a few non-profits or non-governmental organizations that encourage electronics recycling under a broader general recycling agenda. One company has received a Title 128 variance to do a very specific type of incomplete CRT recycling on-site on the condition that all the CRT material is transported to the facility that completes the recycling.

Contact(s) Jim Harford, NDEQ Waste Compliance 402.471.8308
Jim.Harford@NDEQ.State.NE.US
Morgan Leibrandt Morgan.Leibrandt@NDEQ.State.NE.US
Richard Webster Richard.Webster@NDEQ.State.NE.US

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 128: Nebraska Hazardous Waste Regulations Serves as the primary source of regulatory guidance for waste computer and CRT disposal. Nebraska has a well defined program for CRTs and peripherals. Waste computers and monitors generated from households are not considered or regulated as hazardous waste. However, the Nebraska Department of Environmental Quality (NDEQ) encourages households to recycle or reuse computers.

Title 128, Chapter 2, Section 008 Exclusions Lists materials not considered solid wastes for the purposes of Chapters 2, 3, 7 (001-06) and 6 (008.08) and includes: *secondary materials that are reclaimed/returned to the original process or processes in which they were generated for reuse in the production process; scrap metal (processed/unprocessed home scrap metal and unprocessed prompt scrap metal) being recycled;*

shredded circuit boards being recycled (stored in containers sufficient to prevent a release to the environment prior to recovery and free of mercury switches/relays, nickel-cadmium /lithium batteries).

Chapter 4 Section 002 Requires persons who generate solid waste to determine if a waste is *excluded* (Chapter 2) or listed as or exhibits the characteristics of a hazardous waste (Chapter 3) *by testing or applying knowledge of the characteristic* in light of the materials or processes used.

Exclusions and Exemptions *Materials* are *not* solid wastes when used or reused as effective substitutes for commercial products. If a material is not a solid waste, it cannot be a hazardous waste. *Household hazardous waste* is not hazardous waste. *Scrap metal* is not hazardous waste if not accumulated speculatively.

Recyclable Materials Unless exempted, recyclables fall under Title 128 hazardous waste regulation and generators must manage them as hazardous even though it will ultimately be recycled. Only the actual recycling process itself is exempt.

CRTs and Monitors Computer equipment sent to a legitimate re-furbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT is waste and wants to send that waste to a recycler, then that waste comes under hazardous waste regulation. The *monitor or CRT* can contain materials that cause it to be hazardous waste. Neither the CRT or the monitor can be considered scrap metal, even though the monitor does have some electronic components with potential scrap value, considering the entire assembly with the CRT as scrap metal is considered sham recycling.

Computer Box While it may contain constituents that can cause it to be hazardous waste, it can *usually be managed either as a refurbishable product or scrap metal and be exempted from hazardous waste regulation* so long as the scrap metal is not speculatively accumulated. *Circuit boards* are considered usable parts or scrap metal if removed from the box.

Small Quantity Generator (SQG) Management Requirements Unless proven non-hazardous waste, CRTs are considered hazardous waste, not subject to exclusion/exemption even if destined for recycling, and must labeling and storage requirements, including the start accumulation date. CRT waste must be transported to a permitted treatment, storage, or disposal facility or a facility that recycles recyclable materials *without storing them before they are recycled*. Waste computers and monitors generated from households are not considered or regulated as hazardous waste.

Proposed¹⁹

LR 115 Bill Environmental Impact Study of Computer Disposal Provides for interim study to examine the environmental impact of the disposal of computers along with other electronic equipment items. May 9, 2001 Read first time. Referred to Executive Board.

Note: A recent proposal to establish an Electronic Equipment Recycling Program and a \$5 fee on sales after January 1, 2002 paid by consumer (*to Seller) to fund an electronic equipment-recycling fund and banning disposal of electronic equipment at solid waste facilities did not pass.

¹⁹ EIA Summary Report, 04.02

NEVADA

GOVERNMENT RESPONSE

Current Legislation

CRTs/monitors are the component most often singled out as being subject to federal/state hazardous waste management requirements in accordance with RCRA. CRTs are typically presumed to fail TCLP for lead. Other components/items may or may not be subject to hazardous waste regulation on a less consistent basis. Other than the standard RCRA hazardous waste regulations, Nevada has no additional or special handling regulations that specifically address electronic waste streams.

Proposed Legislation/Regulations

There is no proposed legislation initiated at the state level. NDEP is waiting for EPA's proposed rulemaking or guidelines. CRTs are the expected focus of EPA's pending proposal.

Exemptions

Historically, the most significant exemption for electronic "hazardous" waste is the "household exclusion" or "conditionally exempt" status of the generator, which is not unique to electronic wastestreams. NDEP recognizes that this exclusion and exemption more often facilitate solid waste disposal of the items rather than recycling.

Barriers/Incentives

As with any recycling endeavor, the biggest hurdle is that of practical economics. I have yet to encounter a CRT or computer recycling program that can recover the elemental components (e.g., lead, glass, plastic, other metals) at a cost less than the ultimate value of the recovered commodities. As a result, the recycling incentive is diminished by the additional surcharge that is extracted from the generator when electing to recycle his CRTs, etc..

Export/Import

Nevada has no regulations (other than those adopted under RCRA) addressing the export and import of hazardous waste. Nevada does consider wastes regulated as hazardous waste in their state/ country of origin as hazardous waste when brought to Nevada.

Transport

Transporters are required to have EPA ID numbers and use uniform manifest system. Recyclers are required to obtain "written determination" from the Department of Environmental Protection that they are indeed "recyclers" and are exempt from 40 CFR 270 (i.e., permitting). Recyclers may also be required to obtain storage permit to facilitate storage prior to recycling.

Contact(s) Jeff Denison, RCRA Facilities Supervisor
Bureau of Waste Management Nevada Division of Environmental Protection
775) 687-4670 x 3004 jdenison@ndep.carson-city.nv.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Nevada has taken a very general approach to recycling which includes the *voluntary adoption of procedures for the recycling of other materials* in the Public Buildings Recycling Law Amendment.

NRS 444A.013 Defines “*Recyclable material*” as solid waste that can be processed and returned to the economic mainstream in the form of raw materials or products, as determined by the state environmental commission.

NRS 459.430 Defines “*Hazardous waste*” as any waste or combination of wastes, including, solids/semi-solids, liquids or contained gases, except household waste, which because of its quantity, concentration or physical/chemical or infectious characteristics may cause or significantly contribute to increased mortality or serious irreversible/incapacitating illness or pose a substantial/potential hazard to human health, public safety or the environment during treatment, storage, transportation or disposal or is identified as hazardous by the Department as a result of studies undertaken for the purpose of identifying hazardous wastes.

NRS 459.432 Defines “*Household waste*” to include garbage, trash and sanitary wastes in septic tanks generated by single or multiple-family residences but not *nickel, cadmium, mercuric oxide, manganese, zinc-carbon or lead batteries, toxic art supplies, used motor oil, kerosene, solvent-based paint, paint thinner, paint solvents, fluorescent or high-intensity light bulbs, ammunition, fireworks, pesticides the use of which has been prohibited or restricted, or any other waste generated by a household that would otherwise be defined as hazardous.*

NRS 459.435 Defines “*Management of hazardous waste*” as the systematic control of the generation, collection, storage, transportation, processing, treatment, recovery and disposal of hazardous waste.

Assembly Bill No. 564, 1.4 Public Building Recycling and the 1999 Recycling Law Amendments In 1999 the Nevada legislature passed which amended the recycling statutes to broaden programs for the collection of source-separated recyclable materials to include public buildings, in addition to residential premises, in counties of over 100,000. The Bill also directed the SEC to establish minimum standards and a model plan for recycling at public buildings. AB 564 also strives to expand recycling programs at the 5 state entities noted above by providing for *voluntary adoption of procedures for the recycling of other materials* (in addition to paper products).

NEW HAMPSHIRE

GOVERNMENT RESPONSE

Current Legislation

Streamlined rules (Universal Waste Rule, Env-Wm 1100) have been adopted in NH for Cathode Ray Tubes (CRTs) that would meet the criteria for hazardous waste and therefore be subject to NH's Hazardous Waste Rules. Handlers are allowed to manage CRTs in accordance with the Universal Waste Rule in lieu of the more stringent hazardous waste generator (Env-Wm 500), transporter (Env-Wm 600), and facility (Env-Wm 300 and 700) requirements (provided processing for reclamation of hazardous constituents is not taking place).

Shredded circuit boards being recycled are exempt from NH's Hazardous Waste Rules if they are stored in containers sufficient to prevent a release and free of mercury switches, mercury relays, Ni-Cd batteries, and lithium batteries (Env-Wm 401.03).

NH Revised Statutes Annotated (RSA) 147-A, Hazardous Waste Management addresses the handling and movement of hazardous waste in New Hampshire. RSA 147-B sets a fee on certain quantities of hazardous waste generated in New Hampshire.

The NH Hazardous Waste Rules (Env-Wm 110, 211-216, 351-353, 400-1100) are the regulations adopted by the NH Department of Environmental Service (NHDES) under the authority of these statutes to govern the handling and transportation of hazardous waste in New Hampshire.

Proposed Legislation

There is no legislation specifically relating to electronic waste currently proposed or adopted in New Hampshire at this time.

Exemptions

Prior to the adoption of the Universal Waste Rule, effective 10-13-01, NHDES had a policy of not requiring a generator perform a hazardous waste determination on intact CRTs and PC Monitors if they were destined for recycling (indicated in Correspondence dated 2-28-96, 7-30-96, and 12-31-98).

Export/Import

NH's regulations relating to international shipments of hazardous waste can be found at Env-Wm 510.06 and 512.03. These incorporate the federal requirements at 40 CFR 262 Subparts E and F. For universal waste (i.e. CRTs), international shipment requirements can be found at Env-Wm 1106.07. Universal waste CRT transporters must ensure that a copy of the EPA Acknowledgement of Consent accompanies the shipment.

Transport

As mentioned above, streamlined rules (Universal Waste Rule, Env-Wm 1100) have been adopted for CRTs that would meet the criteria for hazardous waste and therefore subject to NH's Hazardous Waste Rules.

Facilities that process CRTs by shredding or breaking them are allowed to handle the CRTs under the Universal Waste Rule provided they meet certain conditions, including installing and maintain systems that minimize releases and prevent exposure to lead (Env-Wm 1113.03).

Recycling facilities (i.e. that reclaim the lead) that are located in New Hampshire must have a hazardous waste permit if any storage is taking place (Env-Wm 1107.01).

As with other universal waste, transporters of CRTs must comply with applicable U.S. Dept of Transportation regulations, and, if it is an international shipment, ensure that a copy of the EPA Acknowledgement of Consent accompanies the shipment (Env-Wm 1106.07).

Electronic Recovery Program

NH does not currently have a state run Electronics Recovery Program but there are collection programs run by other organizations and electronics "take-back programs run by manufacturers and retailers.

Contact(s) John Duclos, HW Compliance, (603) 271-1998 jduclos@des.state.nh.us
Holly Green (603) 271-1920
Christopher Way 603-271-6847 cway@des.state.nh.us

RELEVANT STATE LEGISLATION AND REGULATIONS

RSA 147-A and the Hazardous Waste Rules Env-Wm 100-1000 In New Hampshire, RCRA Subtitle C is implemented through RSA 147-A and the Hazardous Waste Rules Env-Wm 100-1000. This law and these rules provide criteria for determining whether a waste is hazardous, setting standards, procedures and reporting requirements for waste generators, and establishing a permit process for treatment, storage, disposal and transfer facilities. It also establishes a registration system for transporters of hazardous waste. The Department of Safety (DOS) regulates the transportation of hazardous materials (virgin and waste materials) in New Hampshire.

2001

Amend Env-Wm 110.01(c), eff. 8-1-00 (doc #7333 (9) "*Battery*" means a device consisting of one or more electrically connected electrochemical cells that are designed to receive, store, and deliver electric energy. The term includes an intact, unbroken battery from which the electrolyte has been removed.

Amend Env-Wm 110.01(c), eff. 8-1-00 (doc #7333 (13) "*Cathode ray tube*" means a glass tube used to provide the visual display in televisions, computer monitors, and certain scientific instruments, such as for example, oscilloscopes.

NEW JERSEY

GOVERNMENT RESPONSE

Current Legislation

Computers, CRTs, and other hazardous waste electronics are regulated in New Jersey under the Hazardous Waste Regulations or the Universal Waste Regulations. Generators of these waste electronics may choose to manage them under either set of regulations. Electronics were included in the Universal Waste Rule on June 17, 2002 but there is a 6 month delay in the effective date of the rule.

The Hazardous Waste Regulations found at N.J.A.C. 7:26G et.seq. and the Universal Waste Regulations found at N.J.A.C. 7:26A et.seq. govern the management of used electronics.

Most of the 21 counties in NJ are currently holding computer recycling days for households and small businesses. The counties are responsible for collecting household hazardous waste and have taken on the added responsibility of running collection days for electronics (mostly computers).

Proposed Legislation

A ban on the disposal of CRTs in solid waste facilities has been proposed in the NJ Legislature but has not yet been passed.

Prior to including used electronics in the NJ Universal Waste Rule, NJ began a pilot project which allowed NJ generators to handle computers and CRTs as universal waste provided the computers and CRTs were sent to facilities participating in the pilot project. The pilot project will continue until the inclusion of used electronics in the Universal Waste Rule goes into effect

Exemptions

The proposed legislation mentioned does not exempt any type of CRT from the disposal ban.

Export/Import

The Hazardous Waste Regulations govern the import/export of hazardous waste in NJ.

Transport

Hazardous waste transporters in NJ are required to have a NJ hazardous waste transporters license and are required to manifest all hazardous waste shipments. However, if used electronics are managed and transported as universal waste, the transportation of the electronics is exempt from the hazardous waste transportation requirements.

Contact(s) Frank Coolick (609) 633-1418 dshweb@dep.state.nj.us

RELEVANT STATE LEGISLATION AND REGULATIONS

New Jersey incorporates by reference 40 C.F.R. Part 261, Federal Regulations on Identification and Listing of Hazardous Waste and its appendices.

Recycling Regulations NJAC 7:26 A-1 (updated 07/25/2001) 6 At no time shall capacitors or *electronic components* which contain polychlorinated biphenyls (PCBs) and which are attached to, or detached from, appliances or other *scrap metal* be shredded, sheared or baled.

Hazardous Waste Regulations N.J.A.C. 7:26G-1 et seq. Subchapter Incorporates provisions of 40 CFR with state definitions of “Universal waste” which include Batteries as described in N.J.A.C. 7:26A-7.1 and state definitions also affect the requirements for universal waste handlers and transporters in the handling of those defined wastes (including batteries).

NJ Statewide Mandatory Source Separation and Recycling Act, N.J.S.A 13:1E-99.11 et seq. Does not apply to hazardous waste, except for universal waste exempted from hazardous waste regulation as provided at N.J.A.C. 7:26A-7.

Recycling Regulations N.J.A.C. 7:26A-1 Et Seq. Subchapter 1. General Provisions Does not apply to hazardous waste, except for universal waste exempted from hazardous waste regulation, use/reuse of material such as fill, aggregate or fuel substitute or landfill cover which would otherwise become solid waste.

Universal Waste A hazardous waste that is generated by household, institutional, commercial or industrial generators in similar quantities and manner and is exempted from full hazardous waste management. Universal waste includes hazardous waste *batteries, thermostats* and spent or recalled *pesticides* and other potential waste that meet the universal waste criteria listed by the Department at NJAC 7:26A-7. e.g., batteries, used oil and pesticides which may be collected, separated or processed and returned to the economic mainstream in the form of raw materials or products in their universal waste provisions.

Large Quantity Handlers of Universal Waste May sort, mix, discharge, regenerate, disassemble and remove batteries from consumer products (and electrolytes from batteries) and, in the latter case, is responsible for determining whether the electrolyte and/or other solid waste exhibits hazard and must be managed pursuant to 40 C.F.R Parts 260-272. The handler is considered the generator of the hazardous electrolyte and/or other waste and is subject to the hazardous waste management requirements of 40 CFR Part 262, as incorporated by reference at NJAC. 7:26G-6; and, If the electrolyte or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with NJAC 7:26.

Proposed²⁰

A1188 Bill encourages the recycling, reuse or proper disposal of used computers. CRTs. State should, in conjunction with manufacturers, retailers and distributors of computers and electronic equipment seek to develop an environmentally sound strategy for proper management, recycling and reuse of used computers. State in conjunction with manufacturers, retailers and distributors shall prepare educational materials relating to the reclaiming, recycling or reuse of used computer monitors.

Said materials shall promote values of recycling used computers and provide information for environmentally sound disposal of such items and encourage reuse of all CRTs found in consumer electronics. Department of Education shall, in consultation with manufacturers, retailers and distributors of computers and electronic equipment, organize public-private demonstration project to evaluate feasibility of requiring statewide mandatory source separation and recycling rather than disposal. DEP shall submit report to Gov. and legislature no later than two years from date of bill’s passage. 2/11/02 Received In Senate Referred To Senate Environment Committee.

²⁰ EIA, *ibid*.

NEW MEXICO

GOVERNMENT RESPONSE

Current Legislation

The State of New Mexico has authorization from the U.S. EPA for RCRA Subtitle C (hazardous waste) to apply the federal requirement with the exception of 40 CFR 124 (procedures for decision making). NM follows its own requirements for permitting procedures. The questions you have inquired will more than likely follow what the U.S. EPA is providing and allowing states to be authorized for. The Hazardous Waste Regulations can be found at 20.4.1 NMAC, 20.4.2 NMAC, 20.4.3 NMAC.

Contact(s) John E. Kieling John.Kieling@nmenv.state.nm.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Title 20 Environmental Protection, Ch. 4, HW Part 1 New Mexico has adopted federal regulations - 40 CFR PART 260.

Title 20 Environmental Protection, Ch. 9, Part 1, Solid Waste Management Applies to transportation, storage, transfer, processing, transformation, recycling, or disposal of solid waste (commercial, household or industrial). [11-30-95] Note: "industrial solid waste" means solid waste generated by manufacturing or industrial processes that is not hazardous waste regulated under Subtitle C of RCRA including waste resulting from the following processes: nonferrous metals; plastics and resins manufacturing; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products. [6-2-74; 5-14-89; 1-30-92; 8-17-94] [5-14-89; 1-30-92]

NEW YORK

GOVERNMENT RESPONSE

Current Legislation

We have information on our website that might answer some of your questions on how we regulate used electronics.

Proposed Legislation

There is no specific current or Proposed Legislation in NYS right now. There are always bills that are introduced to the legislature, but at this point, nothing is expected to pass.

Exemptions

Recyclers of used electronics typically rely on the hazardous scrap metal exemption and processed scrap metal exclusion which are described in the "Letter to Dismantlers" at the referenced area of our website. These exemptions exist in both state and federal regulation. Recyclers generally rely on the scrap metal exemption, thus are exempt from hazardous waste import/export regulations, as long as both jurisdictions recognize the exemption.

There is an exemption in the NYS waste transporter regulations NYCRR Part 364) for scraps. Only bare CRT glass is regulated as a hazardous waste. There is currently no regulatory fix, but we understand that the United States Environmental Protection Agency (EPA) is about to propose a conditional exclusion for CRTs. We are required to be at least as strict as EPA, so we must rely on changes to their regulations for greater flexibility.

Electronics Recovery Program

There are no government sponsored programs. Many large corporations have initiated their own programs to centralize their collection process. Many municipalities also do so as a service to private citizens.

Contact(s) Larry Nadler lnadler@gw.dec.state.ny.us
Michelle Ching mtching@gw.dec.state.ny.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Some items (e.g., monitors) typically qualify as hazardous waste under DEC's "RCRA" hazardous waste requirements. An April 13, 2000 [letter to Dismantlers and Recyclers of Used Electronics](#) describes regulatory information on the first two options in more detail.

Household electronics are excluded from the definition of a hazardous waste, even if they fail the TC/TCLP test. Their status can only change if they are still usable and are marketed for non-household use. Then, when discarded by the new owner, they would not be household waste. Recycling and disposal requirements for household wastes vary by municipality.

Conditionally Exempt and Small Quantity Hazardous Waste Generators:

regulations for air, water, and hazardous waste and information on pollution prevention opportunities.

Hazardous Waste Regulations, [6 NYCRR Parts 370 through 374 and 376](#).

Large Quantity Hazardous Waste Generators: Hazardous Waste Regulations, [6 NYCRR Parts 370 through 374 and 376](#).

New York's hazardous waste regulations are updated approximately every two to three years to reflect changes in RCRA. 6 NYCRR Parts 370, 371, 372, 373, 374 and 376 (the Part 370 series).

Part 371 Identification and Listing of Hazardous Waste Section 371.1 General (a) Purpose and scope. Outlines an exhaustive list of hazardous waste and identification of chemicals and establishes the procedures for identifying those solid wastes which are subject to regulation as hazardous wastes under Parts 370 through 373, and 376 of this Title.

A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; ...*Materials are no longer in this category once they are removed from accumulation by recycling.*

"*Scrap metal*" is bits and pieces of metal parts (e.g. bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts and soldering (e.g. radiators, scrap automobiles, railroad boxcars), which when worn or superfluous can be recycled.

A material is "*used or reused*" if it is either:

- (i) *employed as an ingredient* (including use as an intermediate) *in an industrial process to make a product.* A material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal containing secondary materials);
- (ii) employed in a particular function or application as an effective *substitute for a commercial product.*

Excluded scrap metal" is processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal.

Processed scrap metal is scrap metal which has been manually or physically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials and includes, but is not limited to scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (i.e., sorted), and, fines, drosses and related materials which have been agglomerated.

Note: Shredded circuit boards being sent for recycling are not considered processed scrap metal. They are covered under the exclusion from the definition of solid waste for shredded circuit boards being recycled (see subparagraph 40 CFR 371.1(e)(1)(xiv)).

Part 374-3 Standards for Universal Waste outlines the general requirements for managing Batteries, and provides an alternative set of management standards in lieu of regulation.

Proposed²¹

A 531 Prohibits the use of remanufactured, rebuilt or recycled parts in the manufacturing for sale or distribution in the state of a computer or any computer accessory, unless there is a clear and conspicuous label indicating that the product contains or may have remanufactured, rebuilt or recycled parts. Imposes a civil penalty for violation 02/21/2002 advanced to third reading.

Directs the Department of Environmental Conservation to: adopt regulations listing electronic equipment that "present a potential health hazard when improperly disposed of, handled or stored;" impose a \$5 fee on the

²¹ EIA, *Ibid.*

sale of cathode ray tubes, the proceeds being used to finance state grants for electronics recycling; develop a program to assist municipalities and business in setting up electronics recycling programs; beginning January 1, 2004, direct delivery of discarded electronic equipment to a recycling center, manufacturer or retailer; beginning January 1, 2005, ban the disposal of CRTs in municipal waste.

S.7091 (Marcellino) and A.10147 (Colton) Similar but not identical bills that direct the DEC to adopt regulations governing electronic recycling. The Senate bill addresses "recycling sites" only; the Assembly bill would govern "recycling, reuse and remanufacturing site[s]." 01/09/2002 Referred to consumer affairs and protection. Referred to Assembly Environmental Conservation Committee.

AB 5960 Bill Directs Department of Environmental Conservation to study the disposal and/or recycling of computer monitors, TVs and other items containing CRTs. Report due in one year. Passed 3/4/02 Senate referred to Environmental Conservation

AB 6286 Bans disposal of electronic equipment by 12/31/02. Requires manufacturers of such equipment to provide centers for its collection and disassembly; provides for creation of a list of hazardous electronic materials and for a public information program. 01/09/2002 Referred to Environmental Conservation.

NORTH CAROLINA

GOVERNMENT RESPONSE

Current Legislation

In general, NC adheres to RCRA. Focus in NC is on CRTs as having the characteristic of hazard. Dismantling or shredding would trigger regulatory permit requirement. Intact CRTs are considered non-hazardous. Right now, households are exempt and industry is not. NC has some regulatory power over small and large quantity generators, still works in tandem with the EPA, depending on site and resources.

Proposed Legislation

Senate Bill 1255 is active but has not yet been introduced to Committee schedules for introducing an advance disposal fee to inspire collection at the local/municipal level but may not pass until 2003.

Exemptions

None, apart from the Universal Waste Rule.

Export/Import

Federal responsibility.

Transport

Provisions fall under RCRA.

Contact(s) Scott Mouw (919) 715-6512 Scott.Mouw@ncmail.net.

RELEVANT STATE LEGISLATION AND REGULATIONS

1998 Markets Assessment of the Recycling Industry/Recyclable Materials Agrees with the U.S. EPA's position on CRTs removed from color televisions and computer monitor housings as being a hazardous waste due to the toxicity characteristic for lead. Commercial generators of electronic discards, especially color televisions and color monitors, should seek alternative recycling options in lieu of landfill disposal to avoid potential future liability. EPA and the N.C. DENR continue to investigate appropriate methods to determine if specific electronic components require management as a hazardous waste. Although CRT-containing electronic equipment from residential household sources would be exempt from hazardous waste management requirements, they should be recycled, when feasible, as well.

The Division of Waste Management currently allows CRTs to be managed as a 'scrap metal' for the purposes of recycling if the CRT is kept intact to reduce landfill disposal of solid waste and encourage commercial generators of these wastes to identify viable alternatives to disposal.

NC has adopted, by reference, the federal rule in 40 CFR 273 (Universal Waste Rule) and is encouraging EPA to add electronic equipment to the rule also.

Current regulatory interpretations for used electronic equipment or e-scrap include: unused, off-spec products are not regulated unless reclaimed; used products: spent materials are regulated even when reclaimed and intact CRTs are treated as reclaimed metals; and, crushed CRTs are regulated as hazardous waste unless they have a direct reuse market (NC staff makes this determination). There is still some uncertainty on the

part of NC staff concerning the overall benefits of managing electronic equipment under the Universal Waste Rule. Other states, including Florida, have these same concerns.

NORTH DAKOTA

GOVERNMENT RESPONSE

Current Legislation

The regulations pertaining to hazardous waste are found in North Dakota Century Code (law) 23-20.3 and North Dakota Administrative Code (rules) Article 33-24.

Proposed Legislation

I am unaware of any legislation currently pending related to handling and movement of hazardous waste. I am not aware of any current or Proposed Legislation aimed at recycling of electronic waste or media. However, there have been several pushes by environmental groups in ND that have encouraged recycling of electronic media.

Exemptions

Depending upon subsequent management, there are several areas that provide for relief of regulation for recyclable materials. Specifically, Chapter 33-24-02 NDAC provides for identification of hazardous waste and recycling of wastes may trigger an exemption.

Export/Import

Imports and exports of hazardous waste is addressed in Chapters 33-24-03 and 33-24-04 NDAC.

Transportation

Depending upon the management and waste determination made by the generator of the electronic waste (see question #3), the regulations pertaining to transportation are covered in either Chapter 33-24-04 NDAC or in the Solid Waste Management Rules (North Dakota Century Code 23-29 and North Dakota Administrative Code 33-20). Chapter 33-20-02.1 covers permitting transporters.

Electronic Recovery Program

To my knowledge, there is no electronic product recovery program operating in this area. I caveat this statement since there have been several electronic recycling programs that have been conducted across the state this year. These programs were very finite in duration and products taken for recycling.

Contact(s) Steve Herda, Waste Management (701) 328-5166 sherda@state.nd.us

RELEVANT STATE LEGISLATION AND REGULATIONS

ND follows 40 CFR 261 for regulations of hazardous waste. There is also identification of chemicals and substances deemed hazardous in 33-24-02-15 Lists of Hazardous Wastes. While there is no specific reference to CRT's or electronic equipment per se PCBs, batteries and mercury are identified in the legislation.

Chapter 33-24-02 Identification And Listing Of Hazardous Waste: *Exclusions* Polychlorinated biphenyl wastes regulated under Toxic Substance Control Act. The disposal of polychlorinated biphenyl-containing dielectric fluid and electric equipment containing such fluid authorized for use and regulated under 40 CFR 761 and that are hazardous only because they fail the test for the toxicity characteristic (hazardous waste codes D018 through D043 only) are exempt from regulation under this article, and the notification requirements.

Requirements For Recyclable Materials And Universal Waste. Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of subsections 2 and 3, except for the materials listed in subdivisions b and c of subsection 1. Exemptions include scrap metal, batteries and mercury containing devices.

Exports of Hazardous Waste. Sections 33-24-03-17 through 33-24-03-25 establishes requirements applicable to exports of hazardous waste. Except to the extent section 33-24-03-25 provides otherwise, a primary exporter of hazardous waste must comply with the special requirements of these sections and a transporter transporting hazardous waste for export shall comply with applicable requirements of chapter 33-24-04.

Article 33-20 Solid Waste Management/Land Protection defines commercial, hazardous and household wastes and recyclable material as solid wastes. It outlines solid waste management for the care and disposal of solid waste for used oil, lead-acid batteries, major appliances, and scrap metal stating that they may not be collected or transported for disposal to any solid waste disposal unit or facility unless such unit or facility has provision for intermediate storage and recycling of these materials and all such materials are appropriately segregated for recycling.

OHIO

GOVERNMENT RESPONSE

Current Legislation

There is strong evidence that computers, and circuit boards, present an environmental risk, as whole waste stream. Ohio's main legislation is found in the Revised Code, Sections 37-34, .1, .2, .5 and .12. Coverage of other components is scattered, and can be found under Ohio's Administrative Code 3745, Chapter 10, Sections 49-69, 218, 248, 270, 273 and 279. Ohio uses the Universal Waste to address mercury thermostats, batteries and pesticides.

Proposed Legislation

There is no legislation pending that deals specifically with electronic or computer waste.

Exemptions

Under Ohio's Hazardous Waste regulations, the practice, in terms of definition of solid waste, has been not to treat electronic waste (thermostats and florescent bulbs) as "spent material" but as "by products". Florescent bulbs provided the first instance for this interpretation, in 1994. These materials are not currently covered under Ohio's Universal Waste Rule but are expected to be adopted in 2003. It is likely that Ohio will adopt the US proposed Rule on CRTs in the future.

Export/Import

Federal rules apply to the export and import of hazardous waste in the US. The US EPA does not delegate this authority to the State level.

Transportation

Ohio's legislation/regulations are the same as those of the EPA, but the approach has been to treat electronic products as "by products" and not waste.

Electronics Recovery Program

There is no State-sponsored program for the recovery of electronic or computer waste in Ohio.

Contact(s) Karen Hale, Environmental Protection, (614) 644-2927 karen.hale@epa.state.oh.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Ohio's delegated hazardous waste management program is implemented under the authority of Subtitle C of the Resource Conservation and Recovery Act of 1976 (RCRA), the Hazardous and Solid Waste Amendments to RCRA of 1984, Chapter 3734 of the Ohio Revised Code, and Chapters 3745-50 thru 59 and 65 thru 69 of the Ohio Administrative Code. These laws and rules provide the authority to regulate facilities that generate, transport, treat, store, or dispose of hazardous waste.

Chapter 3734: Solid And Hazardous Wastes § 3734.01 Definitions: Defines "*Solid wastes*" as such unwanted residual solid or semisolid material as results from industrial, commercial, agricultural, and community operations, excluding earth or material from construction, mining, or demolition operations, or other waste materials of the type that normally would be included in demolition debris, nontoxic fly ash and bottom

ash, and includes, but is not limited to, garbage, scrap tires, combustible and noncombustible material, street dirt, and debris. It does not include infectious or hazardous waste.

"*Hazardous waste*" is defined as any waste or combination of wastes in solid, liquid, semisolid, or contained gaseous form that in the determination of the director, because of its quantity, concentration, or physical or chemical characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or pose a substantial present or potential hazard to human health or safety or to the environment when improperly stored, treated, transported, disposed of, or otherwise managed.

Hazardous waste includes any substance identified by regulation as hazardous waste under the "Resource Conservation and Recovery Act of 1976," 90 Stat. 2806, 42 U.S.C.A. 6921, as amended .

3734.12.2 § 3734.122 Storage and Disposal of Polychlorinated Biphenyls State standards are identical to federal laws and regulations governing the storage and disposal of polychlorinated biphenyls and substances, devices, and equipment containing or contaminated with polychlorinated biphenyls

3734.14 Recovery of resources from hazardous waste The Director of environmental protection shall periodically determine the market potential and feasibility of the exchange, use, and recovery of resources from hazardous waste.

Ohio Administrative Code, 3745-273, Universal Waste Rule: *Adopted federal Rule of September 1997, covering unused pesticides, all mercury-containing thermostats (that fail the TCLP), spent batteries (including lead acid).*

OKLAHOMA

GOVERNMENT RESPONSE

Current Legislation

There are no waste computer equipment or components considered hazardous in our jurisdiction. No electronic recovery programs. (Al Coulter)

Proposed Legislation

No regulations/legislation in, proposed or exemptions in our jurisdiction nor for the import/export or transportation of hazardous wastes. (Al Coulter) Pretty much any proposed recycling of HW in Oklahoma is assessed on a case-by-case basis. We have in the past given our "OK" to facilities, usually a broker or end-user, proposing HW recycling. However, we are refocusing our attention to the actual waste generated by an entity and its applicability to the "6 criteria" that the EPA identifies for recycling consideration and incorporating the information provided by brokers/end-users for assessment of the whole picture relative to legit recycling. (Tammi G. Johnson)

Contact(s) Al Coulter, DEQ, Land Protection Division, Al.Coulter@deq.state.ok.us
Tammi G. Johnson, Env. Land Protection, DEQ, Tammi.Johnson@deq.state.ok.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Oklahoma is a fully authorized RCRA state and follows 40 CFR 271.14 with some additions as can be seen in the following extracts from Title 252.

Title 252. Department Of Environmental Quality Chapter 205. Hazardous Waste Management
Incorporation by reference of federal legislation.

Title 252. Department Of Environmental Quality, Chapter 520. Solid Waste Management: Provisions regarding waste identification which place the onus on generators, transporters and owners/operators of treatment facilities to properly identify their wastes through analysis and/or knowledge of process to determine whether such wastes are hazardous or non-hazardous wastes.

Universal Waste Rule Adopted to include mercury containing fluorescent lamps as an emergency rule on April 14, 2000. The effective date for the permanent rule is June 6, 2000 under Oklahoma Statue Title 27A, Section 252:205-3-7.

Proposed²²

HB 1155 Bill Bans disposal of CRTs in landfills effective 1/1/02. Environmental Quality Board shall promulgate rules concerning recycling or handling of CRTs. 2/12/01 Referred to Rules Committee.

²² EIA, *Ibid.*

OREGON

GOVERNMENT RESPONSE

Proposed Legislation

The EPA will very shortly propose regulations to deal with electronics.

CRT Interim Management Policy *The purpose of the CRT Interim Management Policy is to describe how Cathode Ray Tubes (CRTs) can be managed under existing hazardous waste management regulations while EPA is finalizing its CRT management rule. This policy is patterned after EPA's stated intentions and proposed rule excluding CRTs as solid waste provided that they are recycled. The Oregon Department of Environmental Quality (DEQ) will review this policy in 90 days. This policy will remain in effect until DEQ adopts the federal CRT rule. This policy is intended as guidance for DEQ employees and facilities that use equipment-containing CRTs. It does not constitute rulemaking, by the Oregon Environmental Quality Commission and may not be interpreted to create a right or benefit, substantive or procedural, enforceable by law or in equity, by any person. DEQ may take action at variance with this policy statement.*

Contact(s) Gary Calaba, CALABA.Gary.J@deq.state.or.us
Rick Volpel, DEQ's HW Program (503) 229-6753 volpel.rick@deq.state.or.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Hazardous Waste Program The DEQ is authorized by the federal Environmental Protection Agency (EPA) to regulate hazardous waste in Oregon. Parts of 40 CFR are incorporated into Oregon Administrative Rules. They identify PCBs in their report. Oregon has developed an *interim policy for the handling of CRTs* that will be superseded by the EPA regulations.

Hazardous Waste Management Regulations: Incorporated, by reference, hazardous waste management regulations of the federal program included in 40 CFR Parts 260 to 266, into Oregon Administrative Rules. The rules and regulations governing the management of hazardous waste, including its generation, transportation, treatment, storage, recycling and disposal, prescribed by the United States Environmental Protection Agency in Title 40 Code of Federal Regulations with exceptions listed are adopted by reference and prescribed by the Commission to be observed by all persons subject to ORS 466.005 to 466.080 and 466.090 to 466.215.

Hazardous Waste/Toxics Use Reduction Policy Title: CRT Interim Policy Number: 2002-PO-001 Effective Date: May 7, 2002 The purpose of the CRT Interim Management Policy is to describe how Cathode Ray Tubes (CRTs) can be managed under existing hazardous waste management regulations while EPA is finalizing its CRT management rule. This policy is *patterned after EPA's stated intentions and proposed rule excluding CRTs as solid waste* provided that they are recycled. The Oregon Department of Environmental Quality (DEQ) will review this policy in 90 days. This policy will remain in effect until DEQ adopts the federal CRT rule. Intended as guidance for DEQ employees and facilities that use equipment-containing CRTs, it *does not constitute rulemaking*. DEQ may take action at variance with this policy statement.

This policy applies to *non-household facilities that handle computer monitors and televisions containing CRTs for recycling*. This policy also applies to *businesses repairing and reselling CRT-containing*

equipment that decide the equipment will be recycled and not reused. *Computer monitors and televisions destined for reuse, repair or refurbishment are regarded as a product and are not affected by this policy.* This material is not regulated as a hazardous waste or counted toward hazardous waste generator status. However, if the electronic equipment is later determined to be unusable, unrepairable or cannot be recycled, the equipment is a potential hazardous waste generated by the person making the determination that it is unusable and cannot be recycled. The facility or business making this determination will be subject to applicable hazardous waste management requirements.

Proposed²³

Product Steward-ship Bill: Its purpose is to achieve waste prevention, resource efficiency and sustainable product design through full-cost accounting, product design changes and improvements in product manufacturing, distribution and use. The Department of Environmental is to form a "Product Group" for each priority product. The product group is to develop an action plan that includes specific targets, timelines, implementation strategies, reporting requirements and alternative strategies for any target that is not met within the identified timeline. The Environmental Quality Commission may adopt any rules and guidelines that are needed to implement the action plan developed by the product group. The Department shall report to the 2003 and 2005 Legislature on the progress of the product group process.

HB 3301 Personal Computer Recycling Program: Directs Environmental Quality Commission to develop program that encourages recycling of personal computers. Requires registration and payment of fee at time of purchase of personal computer. Creates Personal Computer Recycling Account. Dedicates fees paid at time of purchase to account. Allows person to apply for refund of part of fee when person recycles personal computer. 7/7/01 HB3301 is in committee upon adjournment.

HB 3450 Ban on Disposal of Mercury Containing Products, Cell Phones, VCRs and CRTs Mercury thermometers, mercury thermostats, automotive mercury light switches and fluorescent lights; Cathode ray tubes; Mobile telephones; and Video cassette recorders Are banned from disposal in Oregon as municipal solid waste. 7/7/01 HB 3450 is in committee upon adjournment.

²³ *EIA, Ibid.*

PENNSYLVANIA

GOVERNMENT RESPONSE

Current Legislation

Our requirements parallel the USEPA federal requirements, in fact our regulations incorporate by reference a large portion of the federal hazardous waste regulations. Any materials generated from households are exempted from hazardous waste requirements. Shredded circuit boards that are recycled are considered scrap metal and not regulated as hazardous waste. The other components are required to be managed as hazardous waste if they exhibit a hazardous characteristic.

Our enabling legislation for solid and hazardous waste is The Solid Waste Management Act. Our hazardous waste regulations are located at 25 Pa. Code Chapters 260a - 266a, 266b and 268a - 270a.

Pennsylvania is working with EPA region 3, industry and region 3 states in the "ecycling" project and is having 7 collections in various counties throughout the state. At 6 of these collections residents can bring in any consumer electronic equipment for recycling. The other County only takes Computers. In addition, DEP reimburses Counties 50% for electronic collections through the household hazardous waste grant. Counties need to apply prior to holding the event.

Proposed Legislation

I am not aware of any current or Proposed Legislation, but USEPA is developing regulations that address cathode ray tubes (CRTs). It is likely that Pennsylvania will incorporate those regulations by reference.

Exemptions

There have been no specific exemptions from hazardous waste requirements.

Export/Import

Pennsylvania incorporates by reference the USEPA regulatory requirements for import/export of hazardous waste, except for those portions that are not delegable to states.

Transport

Pennsylvania law requires all transporters of hazardous waste to obtain a hazardous waste transportation license. Pennsylvania regulations provide an exemption for certain permit application and administration fees associated with hazardous waste recycling activities.

Contact(s) Rick Shipman, Environmental Protection, (717) 787-6239, shipman.rick@dep.state.pa.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Pennsylvania Solid Waste Management Act Except as expressly provided in this chapter, federal regulations 40 CFR Part 261 and its appendices (relating to identification and listing of hazardous waste) are incorporated by reference. Under Exclusions (261a.4) is states that, in addition to the requirements incorporated by reference exclusions do not apply to household hazardous waste collected as part of a collection event or collected at an out-of-State household hazardous waste collection and brought into this Commonwealth for processing, treatment, storage or disposal.

The Municipal Waste Planning, Recycling, and Waste Reduction Act 101, 1988 Authorizes programs to collect and manage household hazardous waste (HHW), provided they are registered with DEP. Most ongoing programs collect HHW once a year at one or more drop-off sites (one-day programs). Others offer such services on an ongoing basis (permanent programs). Several Pennsylvania local governments currently conduct HHW programs. The York County Solid Waste Authority, the first municipality to sponsor a program in 1985, continues to sponsor a program yearly. Permanent facilities for HHW collection have been established in Lancaster and Lehigh Counties. Electronic Waste is covered under Household Hazardous Waste with some guidelines provided on what to do with old computers and how to increase their lifespan.

eCycling is a partnership among Pennsylvania, EPA Region III, Delaware, Maryland, Virginia, West Virginia, and the District of Columbia to recycle unwanted computers, computer equipment, and televisions. Environmental officials in these states will work with electronics manufacturers, electronics retailers, waste management companies, and electronics recyclers to recycle obsolete equipment collected from residents and small businesses in the Mid-Atlantic States.

Proposed

S 341 Bill Tax credits for computers, scientific and video and audio equipment and services donated to schools by businesses. 2/6/01 Referred to Finance Committee

S 941 Bill Tax credits for donated services and equipment. 6/8/01 Referred to Finance Committee.

H 2206 Bill Requires person or company selling CRTs to accept, at point of transfer, used CRTs from customers in exchange for new CRTs purchased. Seller must post a written notice indicating that it is illegal to discard CRTs, and that state law requires seller to accept used CRTs for recycling in exchange for new purchases. Penalties apply if notice not posted. State may inspect place of sale for posting of such notice. This bill was introduced and referred to committee.

RHODE ISLAND

GOVERNMENT RESPONSE

Current Legislation

Our Rhode Island General Laws, chapter 23-19.1, specify our agency as responsible for the promulgation and enforcement of hazardous waste management regulations. Section 13 and portions of section 3 of our Department's "Rules and Regulations for Hazardous Waste Management" (amended 17 September 2001, effective 13 Nov 2001), provide details for regulation of universal waste and within these sections are details on the regulation of CRTs. We gained approval from USEPA to include CRTs within the realm of universal waste.

Proposed Legislation

There is no current or proposed legislation in our state on CRTs although there is current legislation in effect that provides a solid waste disposal ban, as of 2004, on most mercury-added products, modeled after NEWMOA model legislation. This indirectly would require, as of 2004, the mercury-containing components in computers to be either recycled (which will in the future be effected through our universal waste regulations or via special disposal provisions for households) or requirements for their disposal as hazardous waste.

Electronic Specific Legislation

With respect to CRTs, there is nothing (no regulations or exemptions) directed toward this particular waste stream.

Exemptions

No exemptions to date.

Export/ Import

Our hazardous waste regulations incorporate by reference the federal regulations in 40 CFR 262 Subparts E and F , relative to exporting or importing hazardous waste. both transporters and recycling facilities (the later termed destination facilities in our regulations) are subject to universal waste regulations, when handling and managing CRTs.

Transport

The universal waste regulations definitely facilitate matters for transporting waste (versus requirements as hazardous waste transporters) and you can view the federal regulations at 40 CFR 273, which we have incorporated by reference, to see the details of universal waste transporter regulations.

Barriers / Incentives

The actual recycling of the items, including disassembly, reclamation actions, etc. at the destination facility are basically no different in regulatory requirements than those requirements if the waste was handled as hazardous waste at such facility, so this may be viewed as an impediment, but this is the way the USEPA has mandated that the recycling facilities be addressed, since it is at those facilities where there is the greatest risk of adverse effects on human health/environment, if not properly regulated.

Electronic Recovery Programs

EPR Program no, nothing other than an intermediate collection facility (termed a universal waste handler by USEPA and our regulations) that sends these accumulated items at their storage facility to an out-of-state destination facility.

Contact(s) Chris Shafer, cshafer@dem.state.ri.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Rules And Regulations For Hazardous Waste Management, Organization And Method Of Operations 2.02 Adoption by Reference As of November 13, 2001. Rhode Island incorporated 40CFR or 49 CFR (and all applicable regulations, notes, appendices, etc.) into their rules and regulations for hazardous waste management.

Universal Waste Guidelines CRTs are addressed through these guidelines as documented for other States.

Rule 6, Recyclable Materials, Regulations For Reduction And Recycling Of Commercial And Non-Municipal Residential Solid Waste Requires segregation of laser toner cartridges from commercial solid waste, and kept in a condition to meet minimum market Standards. Materials covered under these regulations may change from time to time depending upon new technologies, economic conditions, and characteristics of the waste stream, environmental effects or other factors.

Hazardous Waste Compliance Workbook

Waste materials (solid and liquid) are hazardous wastes if:

- listed under US EPA 40 CFR 261 Subpart D. Section 2.2 refers to limits on the amount of “acutely hazardous waste” which can be stored temporarily on-site.
- demonstrate a characteristic of a hazardous waste as detailed in 40 CFR 261 Subpart C (a characteristic waste), i.e., ignitability, corrosivity, reactivity, and toxicity.
- they meet the description of a Rhode Island Hazardous Waste as listed in Section 3.67 of the Rhode Island Rules and Regulations for Hazardous Waste Management. Use the Federal definitions first, then use the State’s, if the Federal definitions do not apply. Do not mix the Federal with the State’s definitions.

13.00 UNIVERSAL WASTE 13.01 Requirements for Universal Waste: The wastes listed in this rule are exempt from regulation under 40 CFR 262 through 270 except as specified in 40 CFR 273 and, therefore are not fully regulated as hazardous waste. The wastes listed include *batteries; cathode ray tubes* (including the display devices containing the cathode ray tubes) as described in Rule 13.02 of these regulations; *mercury-containing devices* as described in Rule 13.03 of these regulations and *mercury-containing lamps* as described in Rule 13.04 of these regulations.

13.02 Applicability – Cathode ray tubes: The requirements of 40 CFR Part 273 apply to persons managing cathode ray tubes, as defined in these Rules. The requirements of 40 CFR Part 273 do not apply to persons managing the following cathode ray tubes:

- CRTs that are not yet wastes under 40 CFR 261: Rule 13.02(C) describes when cathode ray tubes become wastes;
- CRTs that are not hazardous waste (do not exhibits one or more of the characteristics identified in 40 CFR part 261, Subpart C);
- Waste CRTs: A waste cathode ray tube is a hazardous waste if it exhibits one or more of the characteristics identified in 40 CFR part 261, Subpart C. A used cathode ray tube becomes a waste on the date it is discarded. An unused cathode ray tube becomes a waste on the date the handler decides to discard it.

SOUTH CAROLINA

GOVERNMENT RESPONSE

Current Legislation

There is no current State proposed regulation of legislation concerning recycling of electronic waste.

Barriers/Incentives

The main impedance would be a potential requirement to obtain a hazardous waste permit for transportation, storage or treatment. The permit for storage or treatment on average takes about two years.

Electronic Recovery Program

I do not know of an electronic product recovery program in this area.

Contact(s) Bill Corder, Health/Env. Control, (803) 896-4187, corderwm@columb34.dhec.state.sc.us
Shelly Sherritt, HERRIMD@COLUMB34.DHEC.STATE.SC.US

RELEVANT STATE LEGISLATION AND REGULATIONS

S. Carolina Hazardous Waste Management Act;
R.61-79, S. Carolina Hazardous Waste Management Regulations;
R.61-104, South Carolina Hazardous Waste Management Location Standards.

61-79.273. Universal Waste Rule Part 273 Standards For Universal Waste Management Subpart A-General 273.1. Scope. Establishes requirements for managing universal waste including, *batteries* as described in 273.2; and *lamps* as described in 273.5. Provides an alternative set of management standards in lieu of regulation under parts 260 through 272.

Proposed

SB 1031 Bill Establishes the electronic equipment-recycling program to be administered by the recycling market development advisory council within the department of commerce. Fee of \$5 imposed on each piece of electronic equipment sold containing a CRT. State Treasurer to deposit all fees collected in electronic equipment recycling fund to be used, among other things, to determine the most efficient means of collecting, transporting, and processing scrap electronic equipment; to award grants, contracts and loans to further the process and technology for recycling such equipment. Bill requires Council to evaluate program and recommend whether it should be made permanent law. 02/20/02 Senate Referred to Comm. on Agriculture and Nat'l Resources SJ-3, Hearing scheduled in full committee for April 18,

2002H 5009 Joint resolution to establish the electronic equipment recycling program; to impose a five dollar fee on each piece of electronic equipment containing a CRT sold; to require the state treasurer to deposit the fees collected in the electronic equipment recycling fund to be used, and processing scrap electronic equipment and to award grants, contracts, and loans to further the process and technology for recycling this equipment 4/3/02 House Referred to Committee on Agriculture, Natural Resources and Environmental Affairs HJ-52; Subcommittee hearing on April 17, 2002. Hearing scheduled in full committee for April 18, 2002.

SOUTH DAKOTA

GOVERNMENT RESPONSE

Current Legislation

Just to give you an idea where the state of South Dakota is coming from, we adopt the federal hazardous waste regulations by reference. As a result, because the federal regulations do not currently specifically address the management of spent electronic equipment, South Dakota does not either. However, we do encourage businesses with electronic waste to first look into the possibility of recycling that waste by either giving it away, or sending it to a company that can recycle the unit. If disposal is the final option chosen, then we need to look at the whole waste stream and the generator of that waste needs to determine whether it is considered a hazardous waste.

Under the Administrative Rules of South Dakota (ARSD) Chapter 74:28, the state has adopted the federal hazardous waste regulations by reference. Therefore, ARSD 74:28:22:01 adopting by reference 40 CFR Part 261 addresses identification of hazardous wastes and the conditionally exempt small quantity generator requirements. ARSD 74:28:23:01 adopting by reference 40 CFR Part 262 addresses the small and large quantity generator requirements and ARSD 74:28:24:01 adopting by reference 40 CFR Part 263 addresses the hazardous waste transporter requirements.

Electronic Specific Legislation

As indicated above, should recycling electronic equipment not be an option for some reason, it is the generator's responsibility to determine whether the waste equipment would be considered a hazardous waste. Most CRT components are considered characteristic hazardous wastes due to the levels of lead and possibly other heavy metals. Based upon research performed by the University of Florida, VCRs and older keyboards also have the potential to fail the TCLP standard for lead.

Proposed Legislation

At this time the state does not have current or proposed legislation aimed at recycling electronic waste.

Exemptions

There are no provisions for exemptions (to improve recycling of waste electronic materials) outside of what is provided under the federal regulations.

Export/Import

Legislation / regulations addressing the Export/Import of hazardous wastes - See ARSD 74:28:23:01 adopting by reference 40 CFR Part 262 Subparts E (Exports) and F (Imports).

Transport

Under current regulations, if the material is considered a hazardous waste, the transporter must be a hazardous waste transporter and the receiving facility must be either a permitted hazardous waste facility, or comply with the requirements under ARSD 74:28:22:01 a.b.r. 40 CFR Part 261.6(c)(2) if the recyclable materials do not need to be stored on-site prior to processing.

Having to meet the state hazardous waste requirements for transporters and permitted hazardous waste storage facilities is prohibitive. However, it is our understanding EPA will be incorporating electronic waste into the Universal Waste rule. This would be a great benefit, encouraging responsible

recycling of electronic waste. Currently we are not aware of electronic product recovery programs in the state.

Contact(s) Bill Corder (803) 896-4187 corderwm@columb34.dhec.state.sc.us
Shelly Sherritt HERRIMD@COLUMB34.DHEC.STATE.SC.US

RELEVANT STATE LEGISLATION AND REGULATIONS

South Dakota Hazardous Waste Program Responsible for *enforcement* of hazardous waste rules and regulations. These management standards apply to generators and transporters of hazardous waste, used oil, and universal waste. The program also enforces *permitting* requirements for hazardous waste treatment, storage, and disposal facilities. Hazardous Waste staff provides technical assistance to regulated businesses and to state and local government to ensure compliance with environmental regulations.

South Dakota references the CFR regulations in the management of Hazardous Waste. The South Dakota Department of Environment and Natural Resources has compiled a list of businesses, transfer stations, and landfills that offer recycling services, including: businesses that accept recyclables (only two showed toner cartridges and only one took computers and electronics); landfills & transfer stations that conduct recycling (none show CRTs or computer and peripherals); and, battery recyclers, fluorescent bulb and mercury recyclers (there were a number here who identified some of the components separately, for example, PC board, and two that took computer components; CRT monitor, CPU keyboard, mouse).

TENNESSEE

GOVERNMENT RESPONSE

Current Legislation/Regulations

The federal regulations associated with the handling and transportation of hazardous waste are found at 40 CFR 260-279 with the basic regulations associated with the above topics at 260, 262, 263 264,k 265, 266, 268 and 270.

The State of Tennessee regulations, which closely coincide with the federal regulations, are found in the "Rules of Tennessee Department of Environment and Conservation, Division of Solid Waste Management, Chapter 1200-1-11, Hazardous Waste Management". Specific regulations applicable to the handling and transportation of waste are identified by both State and Federal citation(s), as for example, Tennessee Rule 1200-11-01, "Hazardous Waste Management System: General (40 CFR 260).

Proposed Legislation/Regulation

We have no knowledge of State legislation being proposed at this time specifically aimed at recycling of electronic waste. Legislative action will probably occur post receipt and review of the Federal Register's for State implementation.

Exemptions

Legislative provisions/details are not known (at the time of writing). We assume that computers, computer parts and peripherals will be addressed in the US EPA guidelines, rules and regulations, and exclusion components the same.

Import/Export

Importation/exportation of hazardous waste are addressed at: 40 CFR 262 Subparts E-H; 40 CRF 263.20(a) and (g) for exporters. Export requirements for OECD countries are addressed at: 40 CFR 261.6 (a) 5; 262.10 (d), 262.58, 262 Subpart H and 263.10 (d). Importation is addressed at 40 CFR 262.6(a) 5, 262.10 (d), 262.58, 262. Subpart H and 263.10(d).

Barriers/Incentives

In our opinion, the requirements associated with the definition of a recyclable material or rather the lack of a definition of recyclable materials, is the first impediment. The second impediment is the lack of specific criteria to determine legitimate recycling and associated permitting requirements for recyclers and materials transportation.

The cost of recycling has to be borne by someone, and the cost to the States to establish a program from pick up to storage to treatment is prohibitive. Special programs and less restrictions for manifests, etc. may be necessary to expedite recycling.

Electronics Recovery Programs

There is no State sponsored program at this time. Future programs may be developed post finalization of the regulations. Private firms are recycling electronics but there is no State sponsored program.

Contact(s) Garey Mabry, HW Waste Program, 615-532-0845
 Charles Allen, Charles.Allen@state.tn.us

RELEVANT STATE LEGISLATION AND REGULATIONS

About 70 percent of the heavy metals found in landfills come from discarded electronic equipment. The heavy metals and other hazardous substances found in electronics can contaminate groundwater and pose other environmental and public health risks. While these substances are technically regulated, the regulations do not generally apply to electronics. *The only current regulations for electronics disposal addresses volume discards. Businesses and agencies generating more than 220 pounds of hazardous materials per month or at one time must treat televisions and monitors as hazardous waste.* This makes individual initiative and environmental consciousness the most important force behind electronics recycling in Tennessee today. *There are only a few places in Tennessee that accept old electronics for reuse and/or recycling but these organizations are growing and there may soon be many more like them.*

Proposed

SB 1180 The department of commerce shall donate its replaced and refurbished computers to public schools
4/23/01 Assigned to Gen. Sub of Sen. Ed. Comm.

TEXAS

GOVERNMENT RESPONSE

Current Legislation

Note that Texas considers computer waste to be solid waste, so no special waste management circumstances exist. The most relevant Acts and sections are: 40 Code of Federal Regulations (CFR) Parts 260 to 279 and 30 Texas Administrative Code (TAC) Chapter 335.

Proposed Legislation

There is no proposed legislation regarding computer waste. Computer waste is regulated like any other solid waste generated in the State of Texas. Cathode ray tubes may be managed as Universal Waste Lamps (40 CFR Part 273). Please note that the Universal Waste Rule does not reduce any regulatory burden on the recycling facility.

Export/Import

The legislation/regulations in place that address the Export/Import of hazardous wastes are 40 CFR Parts 260 to 279 and 30 TAC Chapter 335. If you store hazardous waste prior to recycling, you are required to have a hazardous waste storage permit, but this is an issue that all hazardous waste recycling facilities must deal with.

Electronics Recovery Program

I'm not aware of any computer recycling programs in the State of Texas. Computer waste is regulated the same as any other solid waste generated or shipped into the State of Texas.

Contact(s) Jason Sutherland, (903) 535-5135, JSUTHERL@tnrcc.state.tx.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Texas Administrative Code

Texas incorporates 40 CFR regulations into the Texas Administrative Code. Title 30 Environmental Quality Part 1 Texas Natural Resource Conservation Commission:

Title 30 Environmental Quality Part 1, Texas Natural Resource Conservation Commission Chapter 335 Industrial Solid Waste and Municipal Hazardous Waste Hazardous industrial waste is defined as any industrial solid waste or combination of industrial solid wastes identified or listed as a hazardous waste by the administrator of the EPA pursuant to the Resource Conservation and Recovery Act of 1976, §3001. The administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in 40 CFR Part 261.

Hazardous substance is defined as any substance designated as a hazardous substance under the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, 40 CFR Part 302.

Hazardous waste is a solid waste identified or listed as a hazardous waste by the administrator of the EPA pursuant to the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 42 United States Code 6901 et seq., as amended. A *hazardous waste constituent* is defined as a constituent that caused the administrator to list the hazardous waste in 40 CFR Part 261, Subpart D or a constituent listed in Table 1 of 40 CFR §261.24.

UTAH

GOVERNMENT RESPONSE

Current Legislation

The Division waits until the feds promulgate and adopted regulations before we adopt them, and then we usually adopt them by reference. Consequently, the Division's regulations are essentially equivalent to the federal regulations.

Any waste computer equipment generated by small quantity or large quantity generators that is not going for recycle and that fails a characteristic should be managed as hazardous waste. The Utah Solid and Hazardous Waste Act (Title 19 Chapter 6) and the Utah Hazardous Waste Management Rules (Utah Administrative Code, R315-1 to R315-9, R315-12 to R315-14, R315-50, R315-101, and R315-102) regulate the handling of hazardous waste in the State of Utah.

Pending Legislation

Utah does not have any pending legislation; we are however, still waiting for the EPA to promulgate their CRT Rule.

Exemptions

No exemptions targeting improvement or enhancement of recycling of electronic waste materials.

Export/Import

Legislation / regulations in place addressing the Export/Import of hazardous wastes: R315-5-5. Exports of Hazardous Waste (40 CFR 262.50 - 262.58) and R315-5-6 Imports of Hazardous Waste (40 CFR 262.60).

Transport

The current exemptions in state and federal law for recycling/reclamation are designed to facilitate transportation and recycling of computers to the extent the exemption are applicable.

Electronic Recovery Program

There is an electronic product recovery program that targets CRTs and peripherals. In conclusion, Utah is waiting until EPA proposes rules before taking any action on state specific regulations. We would appreciate information on the results of your survey.

Contact(s) Jon Parry, (801) 538-6780, jparry@deq.state.ut.us

RELEVANT STATE LEGISLATION AND REGULATIONS

In Hazardous Waste Rules, Utah follows the terms defined in 40 CFR 261.1(c), 1997 ed., and they are adopted and incorporated by reference.

R315. Environmental Quality, Solid and Hazardous Waste

R315-1. Utah Hazardous Waste Definitions and References

R315-1-1. Definitions. R315-1-2. References.

Requirements for Universal Waste Identifies the following wastes as subject to regulation under R315-16 (a) *Batteries* as described in R315-16-1.2; (b) *Pesticides* as described in R315-16-1.3; (c) *Mercury thermostats* as described in R315-16-1.4; and (d) *Mercury lamps* (R315-16-1.6).

Note A battery is a hazardous waste if it exhibits one or more of the characteristics identified in R315-2-9.

R315. Environmental Quality, Solid and Hazardous Waste.

R315-6. Hazardous Waste Transporter Requirements.R315-6-1. General

A transporter of hazardous waste subject to the manifesting requirements of R315-5, or subject to the waste management standards of R315-16, that is being imported from or exported to any of the countries listed in 40 CFR 262.58(a)(1), which R315-5-5 incorporates by reference, for purposes of recovery is subject to R315-6-1 and to all other relevant requirements of R315-5-8, which incorporates by reference 40 CFR 262 subpart H, including 40 CFR 262.84 for tracking documents.

VERMONT

GOVERNMENT RESPONSE

Vermont has no formal program, staff or resources to manage these types of waste streams. Electronics wastes is just one of many emerging areas of consumer waste where there is a real issue of Toxics Along for the Ride (TAR).

CRTs are considered hazardous waste because they fail the TCLP test (Toxicity Characteristic Leaching Procedure) under RCRA for lead (Pb). The actual body of the computer (the case holding the CPU, motherboard, disk drives, etc) is not necessarily hazardous waste, but could fail the TCLP for some constituents. Actual components, however, are much more likely to fail TCLP and be hazardous waste for the constituents of arsenic, chromium, lead, silver, and mercury.

Current Legislation

Vermont operates a hazardous waste program that is delegated from the US government as being equivalent to the federal Resource Conservation and Recovery Act of 1976 (RCRA), as amended. Our authority in Vermont comes from 10 VSA Chapter 159, sections 6601 et seq. From 10 VSA 6604(b) we are given the authority to manage a hazardous waste program that is consistent with the federal program and to develop rules. We have developed rules, the Vermont Hazardous Waste Management Regulations (last amended in March 2001). These rules do not yet specifically mention waste electronics.

Proposed Legislation

We are waiting for the USEPA rule concerning CRTs. We cannot propose a "less stringent" rule to promote recycling until after EPA does so without jeopardizing our delegation.

We do plan to include CRTs and possibly other electronics waste as "Universal Hazardous Waste" in our next rule revision in Vermont. We do not have any specific proposals yet since we are still waiting on USEPA.

Exemptions

Universal Hazardous Wastes are exempt hazardous wastes for the purpose of collection, but must still go to a permitted recycling or treatment facility.

Export/Import

Same regulations as under RCRA.

Transport

Since transporters of either solid or hazardous waste must be certified in Vermont, there shouldn't be any barriers even if they are hazardous. There is potentially an increased cost in hiring a hazardous waste hauler, but, if we make these materials Universal Hazardous Wastes as planned, a solid waste hauler could collect the wastes for recycling. We do background checks in VT for all permitted waste haulers on the basis of criminal convictions and bad environmental record.

Electronics Recovery Program

Electronic Product Recovery Programs: Not yet. A few pilots have been done, but that's about it.

Contact(s) Peter Marshall, Peterm@dec.anr.state.vt.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Vermont HW Management Regulations, Subch. 2: Identification/Listing Of Hazardous Waste This subchapter identifies or otherwise describes those wastes subject to regulation as hazardous wastes under this chapter, and assigns EPA or Vermont “hazardous waste numbers” to them. It establishes procedures for determining whether a waste is hazardous waste and for petitioning the addition or removal of a waste to or from the lists of hazardous wastes identified in this subchapter. It also identifies or references sampling, analytical and testing methods and procedures to be used for the purpose of establishing whether or not a waste is hazardous.

Subchapter 9 Section 7-902 Batteries are subject to universal wastes.

Spent-lead batteries that are reclaimed or recycled are exempt from the provisions of these rules if they are stored and transported in compliance *with 49 CFR 171 through 177*; Parts

Shredded circuit boards being recycled are exempt provided that they are: stored in containers sufficient to prevent a release to the environment prior to recovery; and are free of mercury switches, mercury relays and nickel-cadmium batteries and lithium batteries.

7-202 Hazardous Waste Determination March 2001 2 - 12 Sludges resulting from the treatment of wastewaters (not including spent plating solutions) generated by the copper metallization process at the *International Business Machines Corporation (IBM) semiconductor manufacturing facility* in Essex Junction, Vermont, are exempt from the F006 listing, provided that IBM provides the Secretary with semi-annual detailing constituent analyses measuring the concentrations of volatiles, semi-volatiles, and metals (using methods presented in 40 CFR Part 264 Appendix IX) of both the plating solution utilized by, and the rinse waters generated by, the copper metallization process; and, IBM provides the EPA with semi-annual reports through the year 2004, or when IBM has achieved its facility wide goal of a 40% reduction in greenhouse gas emissions from a 1995 base year (when normalized to production), whichever is first.

7-204 Recycling Exemptions

The following hazardous wastes are exempt from regulation if they are recycled as specified:

- (1) used or reused as *ingredients in an industrial process to make a product*, provided the wastes are not first being processed or reclaimed; or
- (2) used or reused as *effective substitutes for commercial products*, provided the wastes are not first being processed or reclaimed; or
- (3) *returned to the original process from which they are generated*, without first being reclaimed or land disposed. The wastes must be returned *as a substitute for feedstock materials*. In cases where the original process to which the material is returned is a secondary process, the wastes must be managed such that there is no placement on the land.

VIRGINIA

GOVERNMENT RESPONSE

I am taking the liberty of forwarding your inquiry to Mr. John Ely. Mr. Ely had worked with the state taskforces on "e-waste", and is much better informed on the subject. I don't believe we have a focused regulation for this type of waste other than as a special waste under our solid waste management regulations. (Wickline)

Current Legislation

Under Virginia's current applications, e-waste devices that are managed as commercial products for rebuilding, reuse, or remanufacture by component substitution or replacement rather than for disposal would not be considered waste under RCRA. However, if the units are broken apart or disassembled ("demanufactured") into individual components, unit subsystems, or discrete component devices (e.g. capacitors, batteries, transformers, relays, switches, CRTs, motherboards, frame components, etc.), RCRA application issues become more problematic and will have to be evaluated on a case-by-case basis.

Any waste components or subassemblies subsequently generated and disposed of will require evaluation under the TCLP criteria and should be managed accordingly.

RCRA conditional exemptions may apply to certain subcomponents (e.g., batteries being reclaimed, precious metals being reclaimed, or scrap metal being reclaimed).

Also, any e-waste from households will maintain the existing household hazardous waste exclusion, but removed and discarded subcomponents from ebuilders/disassemblers will be a new waste stream subject to possible regulation.

Management of e-waste may be subject to regulation under the Virginia Solid Waste Management Regulations under certain conditions applicable to MRFs. This is an evolving area of the regulations and changes are to be expected during the next year.

Contact(s) Bob Wickline, rgwickline@deq.state.va.us
John Ely, jeely@deq.state.va.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Businesses Specific regulatory authorities or exclusions for e-waste do not currently exist in federal or state regulations. One future option proposes e-waste management under a *Universal Waste* provision of the regulations similar to that currently applicable to waste lamps, rechargeable batteries, pesticides and mercury-containing switches. Other options being explored are a *universal variance* based on a recycling conditional exclusion. However, because there is *no class specific exemption* for discarded consumer electronics at present, we must default to the basic waste determination and management provisions of the regulations. The regulations do not define e-waste as a listed hazardous waste. Therefore, it is the generator's responsibility to determine if his devices may exhibit a characteristic of a hazardous waste. The generator will bear sole responsibility to determine if his e-waste or its subcomponents are hazardous wastes and manage them accordingly.

Hazardous Regulations: These regulations contain the text herein and several incorporated texts from Title 40 of the Code of Federal Regulations (cited as 40 CFR followed by a part number, section number and subsection reference numbers). They also reference the "Resource Conservation and Recovery Act," sections of "RCRA," "Subtitle C of RCRA," the "Act," and other citations of enabling federal statutes. Wherever in the incorporation by reference in these regulations of text from the Code of Federal Regulations there is a citation of authority from federal statutes, the authority and power of the analogous or related portions of the Virginia Waste Management Act shall be considered to apply in addition to the federal statutory citation and to support enforcement of the requirement.

261.4 Exclusions Shredded circuit boards being recycled are excluded as hazardous waste and are not considered scrap metal provided that they are:(i) Stored in containers sufficient to prevent a release to the environment prior to recovery; and (ii) Free of mercury switches, mercury relays and nickel-cadmium batteries and lithium batteries.

261.9 Requirements for Universal Waste. The wastes listed in this section are subject to regulation under 40 CFR part 273 and include *batteries* as described in 40 CFR 273.2; and *lamps* as described in § 273.5 of this chapter.

WASHINGTON

GOVERNMENT RESPONSE

Current Legislation

Most relevant acts are: The Hazardous Waste Management Act - Chapter 70.105 RCS. The Dangerous Waste Regulations - Chapter 173-303 WAC.

Pending Electronics Legislation

We have developed an interim enforcement policy that outlines management requirements for computer related wastes. As long as monitors and other components that are hazardous waste are recycled, they are subject to some reduced waste management requirements such as no manifesting, etc. This policy will be in place until we can adopt a regulation for this type of waste. Washington's future rule will probably be similar to the conditional exclusion that EPA is working on. We used the term "enforcement policy" to indicate that we will use enforcement discretion and not enforce against those who follow what is outlined in the policy even though their legal obligation is to follow what is required in the Dangerous Waste Regulations. CRTs and monitors are the main target for our policy.

Our rationale for the policy is that we believe that many people are stockpiling these wastes and that if we can encourage legitimate recycling, it will facilitate getting these wastes properly managed. This waste stream is different from many other waste streams and seems to be a likely candidate for management as universal waste, which is a category of waste created by EPA that recognizes that not all waste streams require the same management scenarios.

Although EPA itself is no longer considering universal waste management as an option, the conditional exclusion approach is a similar approach. We are also working with other states and local governments to negotiate a product stewardship agreement with computer manufacturers, so we are trying to work on this problem from different angles.

Export/Import

The Dangerous Waste Regulations incorporate EPA's export requirements. I don't really know much about importing wastes.

Transport

Transporters will be able to transport these wastes without a manifest. They will just have to comply with Washington Department of Transportation (and federal) requirements. The policy allows demanufacturing and disassembly of monitors and computers to facilitate recycling.

Electronic Recovery Programs

King County (the county Seattle is in) has developed a program to make it easier for households to take their computers to businesses that work with a local recycler.

Contact(s) Patricia Hervieux (Chipper), (360) 407-6756, pher461@ECY.WA.GOV

RELEVANT STATE LEGISLATION AND REGULATIONS

Dangerous Waste Regulations WAC 173-303-010

<http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=173-303>

WAC 173-303-071 Excluded categories of waste include PCB wastes whose disposal is regulated by EPA under 40 CFR 761.60 (Toxic Substances Control Act) and that are dangerous either because they fail the test for toxicity characteristic and, Shredded circuit boards being recycled provided that they are stored in containers sufficient to prevent a release to the environment prior to recovery; and free of mercury switches, mercury relays and nickel-cadmium batteries and lithium batteries.

WAC 173-303-073 Conditional exclusion of special wastes. (1) Purpose. Special wastes pose a relatively low hazard to human health and the environment. The department believes that special wastes can be safely managed with a level of protection that is intermediate between dangerous and non-dangerous solid wastes. This section establishes a conditional exclusion for the management of special wastes.

WAC 173-303-525 Special requirements for recyclable material utilized for precious metal recovery. (1) Applies and establishes requirements for generation, storage of recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination of these.

State and Federal Rule Differences, publication #96-401 This discussion paper outlines the regulatory differences between Washington State's *Dangerous Waste Regulations* and the federal RCRA program.

Hazardous Waste Plan The project's aim is to develop strategic plans for properly handling both hazardous and solid wastes. State law (RCW 70.105 and 70.95) requires Ecology to develop statewide solid- and hazardous-waste plans and to update them regularly.

Universal Waste Rule Some types of dry cell batteries, fluorescent light tubes, mercury vapor, high pressure sodium, neon tubes, etc. are classified as hazardous waste and must be managed as hazardous waste UNLESS they are recycled and other simple rules specified in the Universal Waste Rule for Hazardous Waste. Electrical equipment-related PCBs are regulated as state Dangerous Waste at 2.0 (or more) parts per million.

WEST VIRGINIA

GOVERNMENT RESPONSE

Electronic Legislation

I am sending you a copy of the Region III EPA ECOS agreement covering end-of-life-electronics recycling, along with a recent PowerPoint presentation on the issue. The Solid Waste Management section consists of the Permitting unit and the Environmental Restoration unit. The Permitting unit imposes technical and financial assurance on the collection, transportation, processing and disposal of all municipal wastes landfilled. The Environmental Restoration unit consists of an Open Dump Cleanup program, which reclaims hundreds of West Virginia's estimated 15,000 open dumps; and, a Landfill Closure Ass Assistance Program which properly closes the state's unlined landfills. The section also participated in the Make-It-Shine campaign to coordinate and support volunteer cleanup efforts.

US EPA Region 3 Waste Chemical/Mgmt Division & Electronics Collection sites: eCycling is a partnership among EPA Region III, Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia to recycle unwanted computers, computer equipment, and televisions. Environmental officials in these states will work with electronics manufacturers through the Electronic Industries Alliance, electronics retailers, waste management companies, and electronics recyclers to recycle obsolete equipment collected from residents and small businesses in the Mid-Atlantic States. The eCycling partners consist of EPA Region 3 and the Region 3 State Environmental Protection Agencies, Sony, Panasonic, Sharp, Envirocycle Inc., Waste Management Asset Recovery Group, Elemental Inc., the Electronic Industries Alliance (EIA), and the Polymer Alliance Zone of West Virginia.

The overall goal of eCycling is to develop an economically and environmentally sustainable collection, reuse, and recycling system for electronics that is based on the principle of shared responsibility among business (electronics manufacturers and retailers), government, and consumers. The U.S. EPA Region 3 and the Region 3 State environmental protection agencies signed a Memorandum of Understanding to manage eCycling end-of-life electronics as a solid waste throughout the Mid-Atlantic States. The Electronic Industries Alliance (EIA), a national industry trade organization and one of the eCycling partners, has contributed \$50,000 to the eCycling Project to help fund transportation and recycling of collected electronic waste. Region III EPA and the Region III States are close to completing an agreement through the Army Corps of Engineers for the transportation of eCycling to a recycling facility.

Contact(s) Carroll Cather, Env. Protection, (304) 558-2505, ccather@mail.dep.state.wv.us
Claudette Reed (Region III EPA), 1 215 814 2997
Amy Brezin, 1 215 814 3497

RELEVANT STATE LEGISLATION AND REGULATIONS

West Virginia is using the EPA Region III criteria for Recycling Electronic Waste. eCycling is a partnership among EPA Region III, Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia to recycle unwanted computers, computer equipment, and televisions. Environmental officials in these states will work with electronics manufacturers through the Electronic Industries, Alliance electronics

retailers, waste management companies, and electronics recyclers to recycle obsolete equipment collected from residents and small businesses in the Mid-Atlantic States.

Series 20 Hazardous Waste Management Rule 1.6 Incorporation by Reference -- Whenever either federal statutes or regulations or state statutes or rules are incorporated by reference into this rule, the reference is to that statute or regulation in effect on July 1, 1999, unless otherwise noted in the text of this rule. This incorporation by reference is not intended to replace or abrogate federal authorities granted the Resource Conservation and Recovery Act of 1976 2.1.a.3. "Universal Waste" means any of the following hazardous wastes that are managed under the universal waste requirements of 40 CFR part 273: 2.1.a.3, including: batteries as described in 40 CFR ' 273.2; 2.1.a.3.B; and, lamps as described in 40 CFR ' 273.5 and subparagraph 2.1.a.2.A. of this rule. 2.2. 40 CFR ' 260.2. -- The provisions of 40 CFR ' 260.2 are excepted from incorporation by reference.

WISCONSIN

GOVERNMENT RESPONSE

Current Legislation

Wisconsin's hazardous wastes are regulated under ch. 291, Wis. Stats., and chs. NR 600 to 690, Wis. Adm. Code. Wisconsin developed the Universal Waste Rules, ch. NR 690, Wis. Adm. Code. Chapter NR 690, Wis. Adm. Code, to provide reduced regulatory requirements for certain hazardous wastes identified in that rule chapter as "universal wastes" including: hazardous waste batteries, waste pesticides, and mercury thermostats. This list of wastes is consistent with EPA's list of Universal Wastes, found in 40 CFR, Part 273.

Wisconsin can add new hazardous wastes to the State's list of Universal Wastes, and Department staff intend to propose expanding this rule to include additional wastes, and appropriate management standards. This guidance memo identifies and discusses these wastes and their associated management standards. The expanded list of wastes is known as the Wisconsin-Specific Universal Wastes. They include; CRTs, mercury containers (holding less than 1 pound of liquid mercury removed from unsealed mercury-containing devices), sealed mercury containing devices (not limited to electrical relays/switches, thermometers) and spent lamps. Wastes that are not recycled, or are not managed in accordance with this memo, may be subject to full hazardous waste regulations.

Some of the wastes listed may not consistently be hazardous; however, as with all wastes, the generator must make this determination using analytical information or knowledge.

Exemptions

Since April 17, 1996, the Department has conditionally allowed CRTs to be managed as universal wastes in Wisconsin (enforcement discretion memo approved February 10, 2000). The memo says:

"Universal waste destination facilities, as defined in s. NR 690.03(2), Wis. Adm. Code, are facilities that treat, dispose, or recycle wastes covered by this memo. A facility at which a particular category of Wisconsin-specific universal waste is only accumulated is not a destination facility; rather it is a handling facility. Destination facilities are subject to requirements in chs. NR 600 to 685, Wis. Adm. Code (i.e., full hazardous waste regulation)."

Waste batteries removed from electronic equipment for off-site reclamation can be subject to reduced hazardous waste regulation as universal waste under ch. NR 690, Wis. Adm. Code.

Waste lead-acid batteries removed from electronic equipment can conditionally be exempt from hazardous waste regulation under ss. NR 615.04(3) and 625.12, Wis. Adm. Code.

Waste fluorescent lamps removed from waste laptop screens can be subject to reduced hazardous waste regulation as Wisconsin-specific universal waste, per the attached memo.

Waste circuit boards that are reclaimed can conditionally be exempt from hazardous waste regulation under s. NR 605.05(2)(a), Wis. Adm. Code.

Waste PCB capacitors removed from electronic equipment are subject to the requirements in ch. NR 157, Wis. Adm. Code, s. 289.53, Wisconsin Statutes, and 40 CFR 761.

CRTs which are not cut or intentionally broken but only stored before being treated at another location may be subject to reduced hazardous waste regulation as a Wisconsin-specific universal waste handler.

The exception for requiring a hazardous waste storage facility license is if the as-received, *partially disassembled CRT-containing devices or bare CRTs enter the recycling process within 24-hours* of arriving on-site (i.e., known to be waste when received), or if the as-received, *whole CRT-containing devices* enter the recycling process within 90 days of being determined to be hazardous waste.

Transport

Waste handlers, as defined in s. NR 690.03(11), Wis. Adm. Code, include generators and those persons who own or operate a facility that receives, accumulates and/or sends Wisconsin-specific universal wastes to other handlers, transporters, or destination facilities for recycling. Waste that is not recycled is subject to applicable solid and hazardous waste regulations that usually require storage, treatment, transport and other licenses or approvals. Waste transporters, as defined in NR 690.03(13), Wis. Adm. Code, include persons engaged in the off-site transportation of Wisconsin-Specific Universal Waste.

Contact(s) Cynthia Moore, Cynthia.Moore@dnr.state.wi.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Chapter NR 605, Identification/Listing Of Hazardous Waste: A solid waste which contains any of the hazardous constituents listed in this appendix shall be listed in s. NR 605.09 as a hazardous waste unless the department concludes, after considering the factors in s. NR 605.07 (2) (a) 3., that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

Pub WA-420 000 'Managing Used Computers A Guide for Businesses/Institutions: The DNR Waste Reduction and Recycling Demonstration Grant Program provides grants for innovative projects covering up to 50% of total costs. The Wisconsin Recycling Market Development Board (RMDB) funds projects that expand the markets for recyclable materials.

Department Of Corrections Computer Grant Program: The initial computer recycling grant had four main objectives:

- a) to develop a comprehensive program for recycling state information technology (IT);
- b) to research and develop non-traditional markets for refurbished equipment;
- c) to develop and document a training curriculum that can be used in future programs; and,
- d) to establish the feasibility of a prison industry to recycle information technology.

WYOMING

GOVERNMENT RESPONSE

Current Legislation

The Environmental Quality Act under W.S. 35-11 503(d) gives the Solid and Hazardous Waste Division within the Department of Environmental Quality the responsibility for assuming the hazardous waste program. There are 14 hazardous waste chapters.

Proposed Legislation

There is no current or Proposed Legislation aimed at recycling electronic wastes or provisions for including or exempting specific products, such as cathode ray tubes (CRTs), monitors or recyclable metals in legislation. In Wyoming, Some of these waste computer equipments, components or processed materials can be hazardous waste. Wyoming is in the process of adopting LDR Phase IV which addresses shredded circuit boards.

Exemptions

Historically, there have been no exemptions from hazardous waste or regulatory regimes that have been targeted towards improving or enhancing the recycling of waste electronic materials.

Export/Import

EPA developed an import/export rule dealing with import and export of hazardous waste to OECD countries. The Federal Register citation is 4/12/1996 61 FR 16289 entitled Imports and Exports of hazardous Waste: Implementation of OECD Council Decision. Wyoming adopted that rule and is in the process of removing it to refer to the Federal EPA program for import/export of hazardous waste.

Electronic Recovery Programs

There is the possibility that electronic recycling facilities may be subject to Solid Waste permitting requirements. At this point there are no electronic recycling facilities in Wyoming. There is no electronic product recovery program in my area that I am aware of.

Contact(s) Marisa Latady, MLATAD@state.wy.us
Jerry Breed, JBREED@state.wy.us

RELEVANT STATE LEGISLATION AND REGULATIONS

Wyoming Environmental Quality Act, Chapter 11 Deals with water quality, oil field, mining and commercial waste treatment, storage and disposal, including standards, permitting, etc. Article 5 covers rules for solid waste management facilities and hazardous waste management. Includes a ban on disposal of lead acid batteries and requires retailers to collect waste batteries at point of sale. Also covers requirements for generators and transporters of hazardous waste.

Hazardous Waste Management Rules and Regulations, Revision 4 In the process of being amended. Changes to RCRA require equivalent revisions to the state Hazardous Waste Management Rules and Regulations. The comment period on proposed rules was closed in April but no final decision was taken on the proposals at that time.

Chapter 2 Excludes *secondary materials arising from production and being reclaimed and re-introduced to the production process, shredded circuit boards, scrap/prompt metals for recycling.* RCRA provisions for *small quantity generators and household waste apply.*

Universal Waste

Batteries, pesticides, thermostats and mercury containing lamps are exempt subject to regulation under Chapter 14: 261.9(a) (A) Batteries as described in Chapter 14. 261.4(a)(14) (N)

Shredded circuit boards being recycled are exempt provided that they are: (i) (I) stored in containers sufficient to prevent a release to the environment prior to recovery; and (ii) (II) free of mercury switches, mercury relays and nickel-cadmium batteries and lithium batteries.

SECTION 5

Industry Responses

IBM CANADA

Relevant Legislation and Regulations

IBM has an internal asset program and also takes back some computers through its Take-Back Program and large customer lease returns, to deal with equipment that cannot be repaired or resold. The only manufacturing that IBM conducts in Canada is its superconductor manufacturing facility in Bromont, Quebec.

Computer Products

If whole, computers and related products are not considered a hazardous waste and may be transported without notification or manifest. As with the Basel Convention, in Canada, as soon as a computer or component is shredded, it is assumed to have the potential for encapsulated lead and other substances to be released and also likely to fail the TCLP and then has to meet the requirements for hazardous waste.

Batteries, outside of the Rechargeable Battery Recycling Program must be treated as a hazardous waste and require notification and a Manifest.

Processed Materials

For all computer products, the determinant is the intent and the level of processing. IBM ships waste computers for recycling to a broker who stores and consolidates the recyclable material and as a 'transfer station' is required to comply with the regulations governing hazardous waste, including the manifest system. Shipments direct to Noranda, for processing, are exempt, if the computers are whole.

Exemptions

As above, whole computers are not covered by hazardous waste regulations in Canada. The system in the US is much more flexible, with exemptions for shredded circuit boards, mercury containing lamps and a proposed EPA rule to exempt CRTs as Universal Waste.

Ontario's General Regulation 347, on Waste, deals with non-hazardous waste and recycling and affects the recycling of computer waste.

Manitoba is also introducing legislation requiring computer manufacturers to have an extended producer responsibility program in place as a condition to operate as a retailer in the province. Manitoba has asked industry to assist in the design of what would be essentially a system of depots for the collection of computers from the general public.

Barriers/Incentives

Currently, the US is easier environment in which to recycle computers, offering options and more recyclers. There are some issues with respect in dealing with hard plastics. There is a more developed infrastructure for recycling in the US, including the recovery of tubing, plate glass and re-manufacturing of glass for new monitors. Export to the US for recycling is the more attractive option for business (although IBM does not ship computer waste to the US) not only because the size of the Canadian market means an insufficient supply of feedstock, but also because of the more flexible and hospitable regulatory environment in the US which provides exemptions for shredded material, etc.

Canada's current and proposed amendments for the *Export And Import Of Hazardous Waste* regulations make it more difficult to ship computer recyclables across the border. It would appear that if customs made a determination that material designated hazardous in Canada, but not considered hazardous in the US, were

being transported across the border, that it would trigger a call to notify the US authorities, which would then require an investigation and occasion delays.

The impetus therefore, is to limit movement within the US and lessens the likelihood of increased streams of waste flowing out of Canada into the US for recycling. Given the small Canadian market, it may discourage collection/storage and transport of computer recycling facilities in Canada as well as the flow of material to the US which has the capacity for recovery in an environmentally sound fashion.

Electronic Product Recovery Programs

Manitoba is considering a depot approach, and looking for a proposal from industry in design of process. The Canadian Information Technology Association (ITAC) is considering development of a possible program, focusing on Ontario and Manitoba as the two jurisdictions furthest down the road in thinking along these lines.

Contact(s) Gary Travers (416) 410-6751 gtravers@ca.ibm.com
Tim Pomeroy (905) 316-1652 pomeroy@ca.ibm.com
Aron Hathaway (905) 316-4259 aronh@ca.ibm.com

INTERNATIONAL PRECIOUS METALS ASSOCIATION (IPMA)

Relevant Legislation and Regulations

The US has not been exactly a model of clarity. First, as a general matter, you no doubt know that "household waste" is not regulated as hazardous waste under federal law, no matter how hazardous. So the vast amount of used electronic equipment in homes is hardly regulated at all. Homeowners can and do put their personal computers and peripherals out to the curb for disposal in ordinary landfills. There are states which have banned this, notably Massachusetts with a ban on land disposal of CRTs, and many states and localities have attempted to facilitate separate collection and recycling of electronic equipment from households, but still the federal exemption for household hazardous waste is a significant factor in evaluating this issue. I doubt that it encourages any type of recycling, and, if anything, encourages the opposite. In any case, the regulation issues necessarily refer primarily to electronic equipment owned by businesses.

As a general matter, there is a reasonably well developed business infrastructure to manage end-of-life electronic equipment owned by large businesses. Large businesses tend to have large quantities, meaning there are economies of scale, and tend to be willing to pay reasonable fees as a normal cost of doing business. They are also more likely to respond to suggestions that if they do not do the right thing, they are vulnerable to charges of having violated the law. Small and medium enterprises are less responsive, and managing their small batches of electronic equipment can be expensive.

Computer Products

There seems to be widespread recognition now that because monitors and circuit boards will fail the TCLP, CPUs and monitors will be classified as hazardous waste when intended for disposal. (Printers and keyboards, with substantially less lead content, are likely to be non-hazardous waste if intended for disposal, but I have to say that I have not seen any test results.)

Having said that, the seemingly universal practice in the US, apparently accepted by state and federal agencies, is to deem all used electronic equipment as capable of reuse, perhaps after some repair, and thus not discarded and not waste. That is, a company will arrange for a batch of computers, and all peripherals, to be taken away, for reuse, or at least for evaluation of the possibility of reuse, repair or recycling. Until that evaluation has been performed, there is an assumption that the equipment can be used, and is therefore not waste. This assumption, I believe, facilitates reuse, by making it relatively easy for used electronic equipment to be removed from vast numbers of sites and moved to a much smaller number of sites where evaluation takes place.

As a practical matter, a great deal of business electronic equipment is still in perfect operating condition, and is sufficiently modern to have a market, so the assumption is not a blatant fiction.

Computer Components

Cathode ray tubes fall into two categories, TVs and computer monitors. I have little or no experience with TVs, but I suspect that there is little or no market for used TVs, and there is negative economic value in the constituent materials. There is no significant stream of TVs coming from business, so I cannot say from experience what the waste classification would be. I would assume that it is hazardous waste.

Computer monitors are initially assumed to be capable of reuse, and thus not discarded and not waste. They very often are in working condition, but there is not a significant market for used monitors, because they are often smaller than the prevailing standard size of new and ever-better, ever-cheaper monitors. The evaluation

sites will either dismantle them or send them for dismantling. A strict interpretation of US federal law would, I believe, dictate a hazardous waste classification, but no one seems to do it, pending federal clarification.

On the other hand, there is an exemption from classification as waste for a material which is used directly, i.e., without intervening reclamation, to make a product. Some monitors are being processed with relatively rigid separation of lead-to-glass concentrations so that they can be reused in new monitors, and thus may be classified as not waste.

In addition, there was a federal letter of interpretation several years ago that lead-contaminated foundry sand, when used as a substitute for silicate flux (i.e. sand) in a copper smelter in North America was not a waste, because it was used in substitution for a commercial product. The same interpretation should be applicable to leaded glass from CRTs, rendering them not waste.

Processed Materials

Shredded circuit boards, when destined for metal reclamation, are expressly classified under RCRA regulations as not waste. Shredded monitors, see above. The classification of precious metal sweeps is a long-standing question, in which the industry classified its sweeps as product, and the EPA does not interfere, but likewise has not officially endorsed the practice. In any case, the heart of that controversy is not likely to arise with electronic scrap. The suggestion that prepared sweeps must be classified as hazardous waste arised from the derived-from rule, which states (in essence) that if the source material is a listed hazardous waste, the listing stays with the material through its treatment until a product emerges. Electronic scrap is not listed under RCRA, and so there are no suggestions that prepared sweeps with electronic scrap as the source material would be hazardous waste under the derived-from rule. I do not know that there are any PM rich solutions arising from electronic scrap. There are, of course, electroplating solutions from the manufacturing of electronic equipment, and they are often classified as listed hazardous waste - cyanide solutions. That classification does not seem to have discouraged recycling. Nothing that is "PM rich" will fail to be recycled.

All of the above comments refer to RCRA and its regulations, specifically 40 CFR 261.

Barriers/Incentives

This is not an easily resolved issue. Every regulation that adds cost is a barrier. However, the largest "barrier" may be the unregulated status of household waste, permitting disposal. The unregulated status of used electronic equipment intended for reuse, repair and recycling facilitates export to China, which involved some measure of unsound management and disposal.

This is not to say that recycling does not occur. To the contrary, very low labor costs in China make dismantling and a very high degree of reuse, including at the component level, and reclamation possible. Notwithstanding that Chinese national law prohibits the import of used electronic equipment. Assuming that you want to have a sound recycling infrastructure that does not include export to China (or other low labor-cost, low environmental standard countries) I think that you need to have a strong regulation against landfill, and a correspondingly very lightly regulated start to recycling, so that you can get as much of this equipment into the system as possible.

Once in the system, I think that you can also regulate lightly, albeit with identification and monitoring, because businesses which are identified and overseen tend to comply with rules.

Exemptions

I do not know of any provisions which exempt CRTs. There is a proposal in the works at EPA to apply universal waste procedures to CRTs, but it has not yet been published. As set forth above, the rest seems to be a matter of interpretation. For circuit boards, there is an EPA interpretation that a whole circuit board can be classified as scrap metal (and thus not regulated) when intended for reclamation, and an express regulation of the same nature for chopped / shredded circuit boards. That seems completely logical to me, because circuit boards are a good source of non-ferrous metals, and particularly if the effort is made to chop circuit boards, their reclamation in a smelter seems certain.

With regard to *monitors*, I hope you can obtain something from the discussions above. With regard to recyclable metals, there are no exemptions that are specifically directed to the metals themselves, although there is occasionally discussion of the copper and precious metal content as the motivations for reclamation.

With regard to *plastics*, I have not heard of any material that causes them to be regulated. There is some concern about brominated fire retardants. The fire retardant used in circuit boards is tetrabromobisphenol A, which reacts into the resin (thus is not released) and has not been reported as toxic. The fire retardant most frequently used in plastic housing, i.e. monitor cases, is deca-brominated diphenyl ether. This seems to be substantially less hazardous than lesser brominated diphenyl ethers, such as penta-brominated, which are not used in computer monitor housings.

Transportation

A requirement that a recyclable material be transported as hazardous waste adds expense, and sometimes considerable expense, to a recycling transaction. I know of no environmental problem associated with transportation of electronic materials, whether new or used, intact or shredded. It would be far preferable to let transportation proceed under commercial rules, which already encompass the nature of transported materials, the integrity of packaging, the possibility of spills.

Contact(s) John Bullock
 203) 784-3181 johnbullock@worldnet.att.net

INSTITUTE OF SCRAP RECYCLING INDUSTRIES (ISRI)

Relevant Legislation and Regulations

Whole Computers and Components *Monitors* are regulated as hazardous waste for the characteristic of lead. Monitors (Cathode Ray Tubes) – 40 CFR 261.24 (D006, D008, D009, D010) – EPA is about to publish in the Federal Register a Proposed Regulation covering the management of Cathode Ray Tubes and Mercury-Containing Equipment that will Conditionally Exclude CRTs from RCRA and will add Mercury-Containing Equipment to the Universal Waste Rule which is a reduced set of requirements for management.

Circuit Boards are regulated as hazardous waste unless they meet criteria to be conditionally excluded. Circuit Boards – circuit boards may in fact fail the TCLP for several of the listed metals some of which are precious metals.

Processed Products/Materials If circuit boards are shredded and bound for recycling they are excluded from being defined as a Solid Waste at 40 CFR 261.4(a)(14).

Precious Metals are potentially characteristic hazardous waste unless they meet certain recycling criteria that exempt them from some of the hazardous management requirements. Precious Metals – precious metals that may otherwise be defined as hazardous are exempted from being a hazardous waste if bound for recycling referred by rule as a “recyclable material” at 40 CFR 261.6(a)(1) and (2), but are instead managed under the reduced standards at 40 CFR 266.70.

Others within your list may be regulated as hazardous waste if they by *Toxicity Characteristic Leaching Procedure (TCLP)* would fail for one of the heavy metals.

Barriers/Incentives

Beyond the hazardous waste regulations specifically called out above, the fact that IT equipment when no longer useable because it no longer functions or just the fact that someone has decided they no longer want the piece of equipment is currently considered a “discard” or “discarded” which in the RCRA Statute and the Hazardous Waste Regulations by definition makes the equipment a “Solid Waste” unless it has been “excluded” or “conditionally excluded” by RCRA regulation. Being considered a “Solid Waste” carries with it many regulatory requirements, some of which are quite onerous.

The EPA proposed CRT / Mercury-Containing Equipment regulation is an example of EPA’s attempts at facilitating the recycling of one component of the End-of-Life (EOL) IT Equipment universe.

The “Shredded Circuit Board” exclusion mention above is another example of a regulation facilitating recycling.

Rationale for Exemptions

The rationale for the discussed exemption/exclusions is that there are legitimate markets and techniques for recycling these commodities that have reached their EOL. In the case of the CRTs there is a very rapidly growing number entering the solid waste stream, creating at least a perceived waste management problem with a viable legitimate recycling opportunity which lead to US EPA proposing the exclusion for CRTs under RCRA.

Transport

Any of the IT equipment identified above as hazardous waste would be regulated under the US Department of Transportation (49CFR) as a hazardous material with the associated paperwork and in-transit management requirements.

Electronics Recycling Programs

There are several different approaches to the recycling of IT equipment ranging from B2B manufacturer take back programs to residential drop-off programs to retailer drop-off/collection programs. I would suggest you may want view the International Association for Electronics Recyclers (<http://www.iaer.org/aboutrecycling.htm>) for their coverage of the various types of program and the results of those efforts.

Contact(s) John Hayworth, Dir/Environmental Compliance
(202) 662-8533 johnhayworth@isri.org

NORANDA
Relevant Legislation and Regulations

<u>Product/Material</u>	<u>Regulated in Different Jurisdictions?</u>
Whole computers	Not in Canada if whole Not in USA if for recycling
CPU's	Not in Canada if whole Not in USA if for recycling
Circuit boards	Not in Canada if whole Not in USA if for recycling
Monitors	Not in Canada if whole US: Not regulated while intact and still working and destined for an assessment facility to determine whether it can be reused. Once the decision is made that it cannot be reused it is classified as a hazardous waste. Almost no one follows this rule. Authorities turn a blind eye. All waiting for Universal Waste designation anticipated in 2002.
Printers	Not in Canada if whole US: N
Keyboards	Not in Canada if whole US:
Mouse	Not in Canada if whole US:
Printer Ink Cartridge	Yes. Fails leachate for nitrates US:
Chips	Not in Canada if whole US:
Processed	
Shredded circuit boards	Yes in Canada – in general fails leachate for Pb, Cd under TDGR and EIHWR No in USA if destined for recycling
MSP streams*	Yes in Canada – in general fails leachate for Pb, Cd under TDGR and EIHWR No in USA if destined for recycling.
Crushed CRT glass	Yes in Canada – fails leachate for Pb under TDGR and EIHWR US: When CRT glass is crushed and destined for a lead smelter it is exempt under RCRA 261.1(c)(5) (i) and (ii), as it is a substitute for a raw material and used as an ingredient to make a product (similar to foundry sands)

Precious Metal Sweeps	Yes in Canada – in general fails leachate test for metals under TDGR and EIHWR
	US: There is an acknowledged disagreement on the legal interpretation of precious metal bearing prepared sweeps in the US. While the EPA has never stated that sweeps are not wastes, no one treats them as wastes. EPA is about to grant a variance to Metech stating that sweeps are not wastes as they are commodity like. IPMI (International Precious Metals Institute) also has a variance request submitted to EPA for all precious metal bearing prepared sweeps. EPA has been informed that the industry has not been shipping sweeps as wastes for the last 15 years and has chosen to ignore it.
Router Dust	Yes in Canada – in general fails leachate test for metals under TDGR and EIHWR
	US: No. A Router dust derived from an RCRA exempted material is generally also considered exempt.

* *Material Separation Plant - like Noranda's in Roseville where whole computers are sent through a mechanical separating line, ending up in specific non-pure material streams such as copper, aluminum, iron, plastics, packaging.*

Incentives

USA: RCRA – The Resource Conservation and Recovery Act

These regulations govern the generation, transportation, treatment and storage and disposal of hazardous wastes. Although the act was intended to encourage beneficial recycling EPA has amended its solid waste regulations to include many types of recycled materials and modified the regulation on recycled materials several times since. Consequently, the regulatory status of recycled materials has become a complex matter. Determining whether a recycled material is subject to, or exempt from, the regulation is an exercise in definitions. Depending on the material, its source, how it is processed and its intended use, recycled materials are regulated in one of 5 different ways:

- exempted from the regulations by being excluded from the definition of solid waste
- exempted from the regulation by being excluded from the definition of hazardous waste
- one of five categories (including spent lead acid batteries and precious metals recovery) subject to special, reduced rules that have significant advantages over the standard hazardous waste requirements
- subject to the Universal Waste Rule
- subject to all hazardous waste regulations

Specifically,

- scrap metal being recycled are excluded (40 CFR Part 261.4(a)(13))
- shredded circuit boards are excluded (40 CFR Part 261.4(a) (14))

Scrap Metal The regulatory definition of Scrap metal is “ bits and pieces of metal parts (eg. Bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (eg. Radiators scrap automobiles, railroad box cars), which when worn or superfluous can be recycled” (40 CFR Part 261.1(c)(6)).

Presently, three types of scrap metal are excluded from the definition of sold waste when they are recycled. These three types of scrap metal, together referred to as “excluded scrap metal” are:

1. “*Processed Scrap metal*” is scrap which has been manually or physically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials” (40 CFR Part 261.1(c)(10);
2. “Home scrap metal is scrap metal as generated by steel mills, foundries, and refineries such as turnings, cuttings, punchings and borings.” (40 CFR Part 261.1(c)(11);
3. “Prompt scrap metal is scrap metal as generated by the metal working/fabricating industries and includes such scrap metal as turnings, cuttings, punching and borings” (40 CFR 261.1 (c)(12).

Several memorandum have been issued by EPA clarifying whether certain materials fit the regulatory definition of scrap metal, notably here:

An August 26, 1992 memorandum which clarified that *unprocessed printed circuit boards* (not shredded, ground burned smelted etc.) are considered scrap metal

A September 26, 1992 memorandum that again clarifies that *unprocessed printed circuit boards* are considered scrap metal

September 8, 1997 memorandum clarifies that *whole circuit boards containing minimal quantities of mercury and batteries that are protectively packaged to minimize dispersion* of metal constituents would qualify for the scrap metal exemption of 261.1(a)3; shredded circuit boards must be free of mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries to qualify for the exclusion from the definition of solid waste in 261.4(a)(14)

Canada has no such equivalent measure to exempt electronics or other recyclables from waste regulations in order to encourage their recycling.

USA: Superfund Recycling Equity Act (SREA) of 1999

Essentially exempts anyone diverting a waste from a landfill to a recycler from Superfund liability. Interesting here is that 1) it was agreed that it had been a mistake to classify recycling as disposal and 2) that the US administration wants to create regulations that encourage recycling.

The following is a quote from ISRI’s (Institute of Scrap Recycling Industries - a US based recycling association) SREA Guidance Manual and gives the rationale for the exemption.

“ Prior to the passage of the *Superfund Recycling Equity Act* on Nov. 29, 1999 a misinterpretation of Superfund’s liability provisions did great harm to recycling. Many federal courts previously ruled that Superfund imposed potential liability on persons who sold secondary materials that had been diverted from the waste stream for recycling. These rulings were the result of an overly broad interpretation of the law’s provision, which imposed liability on those who “arranged for disposal” of wastes containing hazardous substances. Unfortunately, these courts ruled that arranging for recycling was a waste disposal transaction.

Recycling however is distinct from and in practice the opposite of disposal. Recycling involves the processing of material for the manufacture of a new product. This is in direct contrast to disposal activities which terminate the life cycle of a material. This unintended consequence of Superfund created a market distortion preferring virgin feedstocks over recycled feedstocks. At a site contaminated by a

third party through the use of both virgin and recycled materials, the suppliers of the recycled material were held liable for cleanup while the suppliers of the virgin materials were not held liable for cleanup costs. This was because the sale of a virgin material was not considered to be waste disposal and not subject to Superfund liability. Further, if a manufacturer used both virgin and recycled materials and contaminated his site with substances that could only have come from the virgin material, the supplier of the recycled materials could still be liable while the supplier of virgin materials remained exempt.

Over the last six years the recycling industry made significant progress in reaching agreement with virtually all relevant stakeholders that the prior interpretation of Superfund created a significant disincentive to recycling. Bipartisan legislation correcting this problem, supported by both large and small business, environmental community, the recycling industry and the Clinton administration was well received in both Houses in the past three Congresses. This legislation made it clear the sale of material for recycling is not equivalent to disposal. The passage of the Superfund Recycling Equity Act of 1999 was imperative for the future of the recycling industry. The Act corrects an unintended consequence of Superfund that actually discouraged legitimate recycling by classifying Superfund to state that recycling is not disposal, and shipping for recycling is not arranging for disposal. This necessary clarification removes an impediment to reaching America's recycling goals."

USA: Universal Waste Rules

As part of the U.S. Environmental Protection Agency's (EPA's) commitment to reinvent environmental regulations, the Agency issued the "Universal Waste Rule." This rule is designed to reduce the amount of hazardous waste items in the municipal solid waste (MSW) stream, encourage recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses that generate these wastes.

By reducing administrative requirements, this rule is expected to save companies more than \$70 million per year in compliance costs and reduce the amount of time spent on paperwork requirements by over 500,000 hours per year. Administrative reductions also would help encourage collection and recycling programs, thereby reducing the amount of these common hazardous items that are thrown into the trash by households and small businesses. Removing these materials from municipal landfills and incinerators will prevent a potential threat to public health and the environment.

This rule was promulgated by EPA as an amendment to the Resource Conservation and Recovery Act (RCRA) regulations. States that are authorized to implement the RCRA program are strongly encouraged to adopt this rule.

The *Universal Waste Rule* eases the regulatory burden on businesses that generate these wastes. Specifically, it streamlines the requirements related to notification, labeling, marking, prohibitions, accumulation time limits, employee training, response to releases, offsite shipments, tracking, exports, and transportation. For example, the rule extends the amount of time that businesses can accumulate these materials on site. It also allows companies to transport them with a common carrier, instead of a hazardous waste transporter, and no longer requires companies to obtain a manifest.

Canada has no such equivalent to encourage recycling.

USA: Recycling Facility Permitting

In addition to exempting electronics from waste regulations there are two other mechanisms that are used in US regulations to encourage recycling. If you are a TSD facility that handles hazardous wastes you would normally require a hazardous waste permit. The permitting process is very involved. However, if you recycle the hazardous waste under 40 CFR XXXX you do not need a permit. The second facility permitting relief

affects some electronics recyclers under 40 CFR 266 Subpart F. This part exempts a precious metal recycling facility from requiring a hazardous waste permit to treat hazardous wastes containing precious metals.

This facility exemption procedure does not exist in Canada.

USA: Reciprocity

In the US federal transport regulations espouse their own hazard classification. However, it is generally accepted that the Department of Transport acknowledges the exemptions granted by EPA. This generally does not exist in Canada.

Canada: Ontario Regulation 347

Electronics, whether whole or shredded, if shipped from a generator to a recycler in Ontario are exempt from Ontario Hazardous Waste Regulations if they are to be:

“wholly used at the site in an ongoing agricultural, commercial, manufacturing or industrial process or operation used principally for functions other than waste management if the process or operation does not involve combustion or land application of the waste”

Combustion here does not include smelting.

Canada: Quebec

The province of Quebec has exempted recyclables from requiring a hazardous waste manifest. Article 21 in the Matière Dangereuse regulation refers to Section 4, Article 7 of the provincial transportation of dangerous goods regulations. In those regulations the manifest can be replaced by a bill of lading or a shipping document.

Barriers

Canada: Export and Import of Hazardous Waste Regulations (EIHWR)

This is the regulation Canada created to meet its Basel and OECD international obligations. Canadian regulations have included valuable recyclables in the definition of hazardous wastes. Hazard is determined by the use of a leachate test designed to assess the risks when wastes are commingled in municipal landfills. This is not an appropriate measure of recycling risk. The EIHWR are currently being amended. We are 2 years into a 3-year amendment process. The new *Canadian Environmental Protection Act* provides the authority to decouple wastes from recyclables. Environment Canada has only gone as far as to decouple wastes from recyclables in definition, and not in management.

Impact on Electronics Recycling: Any electronic that is shredded, in many cases to undergo some separation to maximize material recovery, or simply to condense the material to minimize transportation costs thereby reducing greenhouse gas emission intensity, is subjected to the leachate test, whether it is destined for disposal or recycling. Almost all shredded electronics fail the leachate test, causing them to be classified as hazardous waste and discouraging their recycling by adding significant cost to transport, by adding the stigma of a hazardous waste classification for materials treated like valuable resources in the US where most of the material is sourced for recycling in Canada, and adding significant administration costs. These result in lost business and competitiveness for Canadian recyclers who must rely on the US for feed. A ton of copper produced from concentrates is no different than a ton of copper produced from recyclables, and neither can command a premium in the international market place. Noranda relies on imports for 75% of recyclable feed streams. 70% of metals recyclables that imported for metal recovery are classified as hazardous wastes in

Canada. This limits Noranda's ability to import recyclables because the regulatory requirements add both cost (3 times more costly to transport hazardous waste than non hazardous waste) and stigma to customers wanting to import into Canada. Our major trading partner, the US, deregulates most of the recyclables we import, so US customers are hesitant to ship a material classified as recyclable in the US to Canada where it will be classified as a hazardous waste.

Interprovincial Regulations

CEPA 99 authorized the promulgation of a new regulation, the *Regulations for the Control of Interprovincial/Territorial Movements of Hazardous Waste and Hazardous Recyclables*. This is essentially creating a new regulation that will control Interprovincial movements of recyclables like electronics, which are considered hazardous waste if subjected to a leachate test. So essentially if the province of Ontario exempts electronics from Ontario waste regulations (which it does) and Quebec exempts electronics from Quebec waste regulations (which it does), the electronics will still not be able to flow freely between Ontario and Quebec as the new federal regulation will insist on the application of a leachate test to determine hazard. Thus exempt electronics in Ontario flowing to Quebec will need to be manifested. This discourages recycling and also erects Interprovincial trade barriers.

Electronics Product Recovery Program

EIA State Summary – See summary of current and pending EPR legislation impacting the electronics industry in the American states.

Bill 90 in Ontario—In second reading. Will force electronics manufacturers to pay 50-100% of the cost of recycling electronics. Electronics are not a first priority, but will be tackled probably in 2004.

Manitoba regulations – Again will force manufacturers of electronics to submit a plan for environmentally sound disposal/recycling to the province prior to being allowed to sell their products in Manitoba.

ITAC- Information and Technology Association of Canada has put together a road map to encourage recycling of end of life IT products. The manufacturers have agreed to be responsible for recycling and disposal, if the municipalities will be responsible for collecting it.

National Electronics Product Stewardship Initiative. In the US 45 stakeholders have entered a dialogue to try to reach consensus on the e-waste issue. Stakeholders include industry, NGO's, government.

Metals In Electronics

See attached documents – One from the Electronics Industry Alliance and one from MCC. At the very least you should add iron, beryllium, palladium and arsenic.

Proposed

PM Sweeps Variance – Individual and an association have petitioned the US EPA for ruling that precious metal bearing prepared sweeps be classified as a product. A positive ruling on the individual submission is expected within months.

WRC Variance – A US company that produces a concentrate like (physically and chemically) material from electroplating sludges (FOO6 wastes) has applied for a EPA variance to declassify their material. The variance is very close to being granted (within the next few months).

CRT Universal Waste Rule – EPA will release a proposed rule in the federal register in June 2002 to classify CRT's as a Universal Waste if destined for recycling. The proposed rule will include smelting as recycling. This encourages recycling.

Office of Solid Waste EPA – The EPA is going to attempt to redefine wastes over the next year and expect to issue a proposed rule. The purpose of this rule making is to encourage recycling: the outcome will likely see further exemptions from waste regulations for materials that can be recycled. Part of the rationale comes from the RCRA 2020 Vision (a vision of where the US should be with respect to waste issues in the year 2020) where the concept of not calling anything a waste if it has a productive use: if a material can move into the economic productive market it should be taken out of RCRA.

Contact(s) Cindy Thomas (416) 982-7004 thomasc@normin.com

UNITED RECYCLING INDUSTRIES

As a close neighbor of Canada, United Recycling does business with some companies there and would be interested in any regulatory proposals that might either impede or facilitate our doing business with companies in Canada. Any information you can provide in this regard will be helpful.

Computer Products and Components

Not regulated

Processed Material/Scrap

Shredded circuit boards are exempt

Shredded monitors fail TCLP

Precious metal (PM) sweeps should not be regulated. PM rich solutions are covered only if they otherwise exhibit a hazardous characteristic like corrosivity, etc.

If strictly interpreted and tested, most electronics will fail a TCLP and thus would be hazardous waste under RCRA. The USEPA has chosen to ignore this fact as long as electronics are going for recycling or export and not to solid waste landfill or incinerator in the United States.

Regulatory Barriers/Incentives

Some of the most conservative generators are hesitant to recycle since the USEPA has neglected to clarify its position on exempting electronics that are recycled from RCRA.

Exemptions

Some states have Universal Waste exemptions for certain electronics. This exempts homeowners and allows for recycling of the electronics with an exemption from RCRA.

Transportation

In the US all electronics going for recycling are shipped on a straight bill of lading, not manifested as hazardous.

Contact(s) Lauren S.Roman, Vice-President
973-584-8859 Lroman@unitedrecycling.com

Addendum: In discussion with another firm, *HOB International*, it was noted that the fact that none of the materials they transport falls under hazardous waste transportation requirements "*is a significant factor in keeping the cost of the overall process in check*".

HEWLETT PACKARD

Relevant Legislation and Regulations

The following are excerpts from correspondence provided by HP, which represent the Company's views on the proposed amendments to Canada's *Export Import of Hazardous Waste Regulations* which respond to the questions asked of industry.

Hewlett Packard's interest is based on their "desire to promote the environmentally sound recycling of information technology products and our corresponding need to be able to move these materials in an efficient manner both inter Provincially and between Canada and the United States.

As a global provider of computing and imaging solutions and services, offers its customers a comprehensive, environmentally sound recycling service and is working to expand this service to Canada, based on the belief that " efficient recycling can contribute to the goal of sustainable development".

Incentives/Barriers

Achieving this goal requires government policies and regulations that facilitate, rather than impeding environmentally sound recycling. "One regulatory barrier to sound recycling is the classification of recyclable materials as wastes. This designation needlessly imposes added management, transportation and administrative costs and attaches a negative stigma to these materials, thereby creating a disincentive to recycling. Moreover, in many instances this classification is unnecessary for purposes of environmental protection. For example, metals destined for recycling pose little risk to the environment and can be managed in a manner similar to commercial products. Many recyclable materials are in a non-dispersible form, and the handling and transport of these materials pose little risk to human health or the environment. The proposed waste regulations, however, place restrictions and added costs on the handling and transportation of these products.

Canada's EIHWR are a key component of policy that could promote or impede recycling. Environmentally, economically and socially sustainable recycling requires significant investments, and therefore HP has established centralized processing facilities. HP's two large-scale electronics recycling facilities are located in the United States . We also work in partnership with the Canadian company Noranda for the processing many of our recyclable materials.

Import/Export

Accordingly, our Canadian & US recycling strategies rely on the ability to move materials efficiently across state borders in the United States, Provincial borders in Canada and across international boundaries between Canada and the U.S. This is a two-way process, in which some materials from Canada must be exported to the U.S., while some materials from the U.S. must be imported into Canada.

Under these circumstances, and given the integrated nature of the economies of Canada and the U.S., it is important that the EIHWR facilitate this process and not make it unduly burdensome to move materials between the two countries for environmentally sound management. *In the absence of economic cross-boundary shipments of recyclable materials, it is possible that recycling programs may not be viable and more materials may be disposed of instead of recycled.*

Canada engages in trading of waste and recyclables with developed countries with rigorous environmental regulations of their own. More than 90 percent of this trade is between the US and Canada, and substantially all other trade is between Canada and other OECD countries. Given the relatively narrow scope of trading

partners it would seem appropriate for Canada to determine its waste management and recycling policy objectives in this context.

Proposed Legislation

In order to improve the amendments to the EIHWR, HP has suggested that:

Recyclable Materials Should Be Differentiated From Wastes – The EIHWR should provide for different regulatory treatment of wastes and recyclables. Waste management and recycling are distinct activities that pose differing risks to human health and the environment, and therefore they warrant different regulatory treatment. Many recyclable materials are potentially valuable commodities, are similar to finished commercial products, or are in a non-dispersible form that poses little risk to the environment.

Unfortunately, the amendments to EIHWR do not go far enough in differentiating wastes from recyclables. By imposing the same control regime on the export and import of recyclables as is required for wastes, the regulations needlessly add costs, creates complexity, and establishes barriers to the efficient movement of these resources. Accordingly, the regulations should apply a *risk-based regime* that differentiates the management of hazardous wastes from potentially valuable raw materials and other recyclables.

Add an exemption from the leachate test for low risk recyclable materials – The CGSB leachate extraction procedure (or the proposed TCLP) is not an appropriate measure of hazard for recyclable materials destined for recycling. Both tests were developed and validated to assess the suitability of wastes for disposal in non-hazardous municipal solid waste landfills. While it may be appropriate to use such a procedure to characterize industrial and other waste streams destined for municipal solid waste landfill, there is no reason to use such a test to classify wastes destined for recycling, as it does not relate to the risks associated with recycling activities. The regulations should indicate that materials destined for recycling are not subject to these leachate test procedures.

Manifest Requirements – Imposing the same administrative and paperwork requirements associated with hazardous wastes on materials destined for recycling can reduce the cost efficiency of recycling and discourage some entities from engaging in recycling. In addition, some of the recyclable materials imported into Canada from the U.S. may not be subject to manifest requirements as a result of various exemptions or conditional exclusions. It can be burdensome to impose manifest requirements on materials being imported into Canada when these materials are not considered hazardous in their country of origin, because this requirement typically requires transport by a licensed hazardous waste transporter. Instead of requiring manifests, Canada should require that normal business records be kept on the importation of recyclable materials into Canada. This approach would ensure that new paperwork is not generated, but that appropriate records and tracking is maintained. Of course, recyclable materials would continue to be subject to all applicable requirements under Transport of Dangerous Goods Regulations.

ESM Criteria Should be Based on International Standards – HP strongly supports the principle that both recyclables and wastes should be managed in an environmentally sound manner. As you know, ESM criteria are in the process of being developed by several international bodies, including the OECD, the UN, and NAFTA. Because virtually all of Canada's trading in wastes and recyclables is conducted with the U.S. and other members of the OECD, particular attention should be given to the OECD guidelines that are nearing their final stage of development. In order to improve the efficiency of recycling and enable recyclable materials to move freely across borders, it is essential that Canada adopt the international consensus standards being developed by the OECD.

Contact(s) Frances Edmonds, Environment, Health and Safety,

HP Canada
(905) 206-4208
Jeff Kuyper, jeff_kuypers@hp.com

ANNEX A

Summary Tables

Products, components and materials which, when destined for recovery, are either:

- a) either regulated as equivalent to hazardous waste
- b) exempt from regulatory controls; or,
- c) for which exclusions or exemptions are proposed.

Table 1: Canada

Table 2: United States

Table 3: Proposed Changes to State Legislation/Regulations

Table 4: Proposed Changes to State Legislation/Regulations

TABLE 1

CURRENT LEGISLATION/REGULATION AFFECTING COMPUTER RECYCLING - CANADA²⁴

	Whole Computers/Products					Components						Processed Materials				
	CPU's	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury *Switches	Batteries	Printer Cartridge	Shredded Circuit Bds	Precious Metal (PM) Sweep	Shredded Computers (PM Stream)	CRT Glass (Crushed)	Router Dust
FEDERAL									■	■		■	■	■	■	■
PROVINCES																
British Columbia										E		E	E	E		E
Alberta										E						
Saskatchewan									■	E		■	■	■	■	■
Manitoba	P	P	P	P	P	P	P	P	■/P	E		■	■	■	■	■
Ontario	P	P	P	P	P	P	P	P	P	E		E	E	E	E	E
Quebec																
New Brunswick									■	E		■	■	■	■	■
Nova Scotia									■	E		■	■	■	■	■
Prince Edward Island									■	E		■	■	■	■	■
Newfoundland									■	E		■	■	■	■	■
Northwest Territories									■	E		■	■	■	■	■
Yukon									■	E		■	■	■	■	■
Nunavut									■	E		■	■	■	■	■

²⁴. Ontario, BC, Alberta and Quebec have enacted provincial legislation distinct from federal requirements. Prepared for Natural Resources Canada by Legwork Environmental Inc. www.legwork.ca August 2002

TABLE 2

CURRENT & PROPOSED LEGISLATION/REGULATIONS AFFECTING COMPUTER RECYCLING - UNITED STATES

	Whole Computers/Products					Components						Processed Materials				
	CPUs	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury Switches	Batteries	Printer Cartridge	Shredded Circuit Bds *	Precious Metal (PM) Sweats	Shredded Computers (PM Stream)	CRT Glass (Crushed)	Router Dust
FEDERAL - RCRA						■ / P	E	E	E	E		E		E	P	E
U.S. - STATES																
Alabama						■		E	■	E		E		E		E
Alaska						■	E	E	E	E		E		E		E
Arizona						■	E	E	E	E		E		E		E
Arkansas						■	E	E	E	E		E		E		E
California		P	P	P	P	P	E	E	E	E		E		E		E
Colorado		E	E	E	E	E	E	E	E	E	E	E		E		E
Connecticut		P	P	P	P	P	■ / P	E	E	E	E		E		E	E
Delaware ¹						■	E	E	E	E		E		E		E
DC ¹						■	E	E	E	E		E		E		E
Florida						■	E	E	E	E		E		E		E
Georgia						■	E	E	E	E		E		E		E
Hawaii ¹		P	P	P	P	P	■ / P	E	E	E	E		E		E	E

TABLE 2 cont'd

■ Regulated as HW E Exemption P Proposed	Whole Computers/Products					Components						Processed Materials				
	CPU's	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury Switches	Batteries	Printer Cartridge	Shredded Circuit Bds *	Precious Metal (PM) Sweeps	Shredded Computers (PM Stream)	CRT Glass (Crushed)	Router Dust
Idaho						■ / P	E	E	E	E		E		E		E
Illinois						■	E	E	E	E		E		E		E
Indiana						■	E	E	E	E		E		E		E
Iowa						■	E	E	E	E		E		E		E
Kansas						■	E	E	E	E		E		E		E
Kentucky						■	E	E	E	E		E		E		E
Louisiana ¹						■	E	E	E	E		E		E		E
Maine						E	E	E	E	E		E		E		E
Maryland			P			E	E	E	E	E		E		E		E
Massachusetts			E			E	E	E	E	E		E		E		E
Michigan						E	E	E	E	E		E		E		E
Minnesota ¹						■	E	E	E	E		E		E		E
Mississippi						■	E	E	E	E		E		E		E
Missouri						■	E	E	E	■		E		E		E
Montana						■	E	E	E	E		E		E		E
Nebraska		E	E	E	E	E	E	E	E	E		E		E	■	■
Nevada						■	E	E	E	E		E		E		E

TABLE 2 cont'd

■ Regulated as HW E Exemption P Proposed	Whole Computers/Products					Components						Processed Materials				
	CPU's	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury Switches	Batteries	Printer Cartridge	Shredded Circuit Bds	Precious Metal (PM)	Shredded Computers (PM)	CRT Glass (Crushed)	Router Dust
New Hampshire						E	E	E	E	E		E		E		E
New Jersey						■	E	E	E	E		E		E		E
New Mexico						■	E	E	E	E		E		E		E
New York		E	E	E	E	E	E	E	E	E		E		E		E
North Carolina			E			E	E	E	E	E		E		E		E
North Dakota						■	E	E	E	E		E		E		E
Ohio						■	E	E	E	E		E		E		E
Oklahoma						■	E	E	E	E		E		E		E
Oregon		E	E	E	E	E	E	E	E	E	E	E		E		E
Pennsylvania						■	E	E	E	E		E		E		E
Rhode Island			E			E	E	E	E	E	■	E		E		E
South Carolina		E	E	E	E	E	E	E	E	E		E		E		E
South Dakota						■	E	E	E	E		E		E		E
Tennessee						■	E	E	E	E		E		E		E
Texas						■	E	E	E	E		E		E		E
Utah						■	E	E	E	E		E		E		E
Vermont						■	E	E	E	E		E		E		E
Virginia						■	E	E	E	E		E		E		E

Recycling of Computers, Components & Processed Materials in Canada and the US: A Comparative Review

TABLE 2 cont'd

■ Regulated as HW E Exemption P Proposed	Whole Computers/Products					Components						Processed Materials				
	CPU's	Monitors	Printers	Keyboard	Mouse	CRT's	Circuit Bds	Lamps	Mercury Switches	Batteries	Printer Cartridge	Shredded Circuit Bds	Precious Metal (PM)	Shredded Computers (PM)	CRT Glass (Crushed)	Router Dust
FEDERAL - RCRA						■ / P	E	E	E	E		E		E	P	E
Washington	■	■	■			■	E	E	E	E		E		E		E
West Virginia						■	E	E	E	E		E		E		E
Wisconsin						E	E	E	E	E		E		E		E
Wyoming						■	E	E	E	E		E		E		E

OVERVIEW OF PROPOSED CHANGES TO STATE LEGISLATION & REGULATIONS

The following highlights the scope and nature of proposed changes to existing legislation/regulations across the United States, based on response received from government officials and the April 2002 Electronics Industry Alliance report. "R" = Regulatory Change; "P" = Program.

<u>State</u>	<u>Proposal</u>	<u>Intent</u>	<u>R</u>	<u>P</u>
1. Arkansas	1. Senate Bill (SB) 807 (2001) Procurement legislation	Rules and regulations banning the disposal of all computer and electronic equipment in Arkansas landfills.	●	
2. California	2. SB 1523 State Program for Recycling of CRTs/TVs	Establishes a state program to recycle CRT devices including computer monitors and television sets. Fee		●
	3. SB 1619 Recovery, Reuse, Recycling of Hazardous Electronic Scrap	Establishment of a state program		●
	4. SB 1619 (SW: Cathode Ray Tubes and CRT devices)	Only become operative if SB 1523 is enacted.		●
	5. Senate Bill 1523, Cathode Ray Tubes and CRT Devices	Recycling and Refurbishment		●
3. Colorado	6. HJR 1022 Encourages donation of used computers	Economically disadvantaged individuals/schools		●
	7. HB 1106, CRT Recycling Fund	Creates a CRT Recycling Account, a Pilot Program to encourage private industry research and development for recycling, disposal, and waste minimization of CRTs through grants and loans.		●
	8. Universal Waste Law	Proposed to include CRTs.	●	
4. Connecticut	9. Universal Waste Law	Exemptions for Used Electronics	●	
5. Delaware	10. SB 184 (Sept.2001) - Import of Recyclable Materials	Allows the Solid Waste Authority to accept out of State recyclable materials for recycling (includes computer components).	●	
6. Georgia	11. HB 2 Computer Equipment, Disposal/Recycling Council	Creation of a Council to address issues surrounding lead, mercury and heavy metals in used computers, components and peripherals.		⊕
7. Hawaii	12. HB 1283 Computer Recycling Program	An income tax credit for participation in the program		●
	13. HB 1508, Lead Battery Recovery Incentive	Waves surcharge at the point of sale of lead batteries		●
	14. HB 1638, Special Waste-Recycling Program	Disposal of CRTs would be banned from normal solid waste facilities and rules were to be established for recycling programs for CRTs, computers, TVs, scientific equipment.		●
	15. SB 812 CRT Recycling Program	Prohibit disposal of CRTs in mixed solid waste facilities and a program developed for CRT special waste recycling. Recommended for deferral		●

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<u>State</u>	<u>Proposal</u>	<u>Intent</u>	<u>R</u>	<u>P</u>
8. Idaho	16. SB 1416, Classification of Computer Monitors as Special Waste	Will requiring special treatment and handling of monitors after arrival at disposal site.	●	
9. Illinois	17. HB 983 (2001) Amends EPA	Adds PCs to definition of “white goods” and CRTs containing lead to the definition of “white good components” thereby creating a ban on disposal.	●	
10. Iowa	18. SF 305 (2001) Bill.	Includes computer monitors in the definition of household hazardous waste	●	
11. Maryland	19. HD 3154 Bill	Requires manufactures that produce products where a CRT is a component to have implemented a plan, approved by the department of Environmental Protection, for a collection system of the used products.		●
	20. HB 4454 HHW Collection	Provides grant program under Clean Environmental Fund for properly handling recycling and management. (<i>includes CRTs as Universal Waste, along with lamps</i>)		●
	21. HJ 752 Universal Waste Rule to include CRTs	Including CRTs.	●	
	22. HF 2302 Bill.	Strategy for the recycling of electronic goods and the disassembling and removing of toxic parts from all electronic goods	●	
12. Massachusetts	23. HD 3154 Bill	Requires manufactures that produce products where a CRT is a component to have implemented an approved DEP plan for a collection system of the used products.	●	
	24. HB 4454 Household HW Collection Centres	Establishes local household hazardous waste collection centers and includes CRTs as Universal Waste, along with lamps	●	
	25. HJ 752 State Universal Waste Rule including CRTs		●	
13. Minnesota	26. HF 2815, Ban on Electronic Products in Municipal Waste	No placing of "electronic products" in mixed municipal solid waste effective July 1, 2004.	●	
14. Nebraska	27. LR 115 Bill Environmental Impact Study	Computer Disposal	Study	
15. New Jersey	28. A1188 Recycling, reuse or disposal of computers/CRTs.	Report end result	●	
16. New York	29. A 531 Recycling content of computers	Unless there is a clear and conspicuous label indicating that the product contains or may have remanufactured, rebuilt or recycled parts.	●	
	30. S.7091 (Marcellino) and A.10147 (Colton)	Similar but not identical bills that direct the DEC to adopt regulations governing electronic recycling Govern "recycling, reuse and remanufacture	●	
	31. AB 5960 Bill CRTs.	Directs Department of Environmental Conservation to study the disposal and/or recycling of computer monitors, TVs and other Report	Study	

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<u>State</u>	<u>Proposal</u>	<u>Intent</u>	<u>R</u>	<u>P</u>
	32. AB 6286 Bans disposal of electronic equipment by 12/31/02.	Requires manufacturers of such equipment to provide centers for its collection and disassembly; provides for creation of a list of hazardous electronic materials and for a public information program		●
17. Oklahoma	33. HB 1155 Bill Bans disposal of CRTs in landfills	Environmental Quality Board shall promulgate rules concerning recycling or handling of CRTs		●
18. Oregon	34. Product Steward-ship Bill	Extended Producer Responsibility (EPR)		●
	35. HB 3301 Personal Computer Recycling Program	Requires registration and payment of fee at time of purchase of personal computer. Creates Personal Computer Recycling Account. Dedicates fees paid at time of purchase to account. Allows person to apply for refund of part of fee when person recycles personal computer P		●
	36. HB 3450 Ban on Disposal of Mercury Containing Products	Mercury thermometers, mercury thermostats, automotive Cell Phones, VCRs and CRTs, mercury light switches and fluorescent lights; Cathode ray tubes; Mobile telephones; and Video cassette recorders R	●	
19. Pennsylvania	37. S 341 Bill Tax credits	for computers, scientific and video and audio equipment and services donated to schools by businesses R	●	
	38. H 2206 Bill	Requires person or company selling CRTs to accept, at point of transfer, used CRTs from customers in exchange for new CRTs purchased.		●
20. South Carolina	39. SB 1031 Bill	Establishes the electronic equipment-recycling program		●
	40. 2002H 5009	Joint resolution to establish the electronic equipment recycling program and fee		●
21. Tennessee	41. SB 1180	The department of commerce shall donate its replaced and refurbished computers to public schools		●
TOTAL			17²⁵	21

²⁵ Total does not include 2 proposals to study issues related to electronic waste and computer recycling.

ANNEX B

Online Sources Of Information

Links to

- Canadian Federal Sites
- Provincial Sites
- US Federal Sites
- State Sites
- Other

ONLINE SOURCES OF INFORMATION

The following lists the major web sites of government and other sources of information available on line, which formed a major part of the research undertaken online to support the findings of this study. These links are provided to assist the reader in confirming or expanding on the description of federal and provincial or state legislation and regulations provided in this report. However, due to the frequent updating and movement of information on the Internet, these links may not be active, depending on how much time has elapsed since the list was compiled.

CANADA

FEDERAL

Canadian Environmental Protection Act (CEPA Registry)

http://www.ec.gc.ca/CEPARegistry/the_act/

Canadian Export and Import of Hazardous Waste (EIHWS) Regulations

<http://laws.justice.gc.ca/en/C-15.31/SOR-92-637/index.html>

Proposed Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations (Stakeholder Workshops)

http://www.ec.gc.ca/CEPARegistry/documents/part/eihwr_rep/toc.cfm

Transportation of Dangerous Goods Act and Regulations

<http://www.tc.gc.ca/actsregs/tdg/english/tdg.htm>

<http://laws.justice.gc.ca/en/T-19.01/>

Transportation of Dangerous Goods Regulations

<http://laws.justice.gc.ca/en/T-19.01/SOR-85-77/index.html>

Proposed Interprovincial Movement of Hazardous Wastes Regulations

http://www.ec.gc.ca/ceparegistry/documents/regulations/g1-13616_r1.pdf

PROVINCIAL

British Columbia

BC Ministry of Water, Land and Air Protection, Environment Branch

<http://wlapwww.gov.bc.ca/epd/epdpa/sw/sw.html>

Waste Management Act

http://www.qp.gov.bc.ca/statreg/stat/W/96482_01.htm

Special (Hazardous)Waste Regulation

<http://wlapwww.gov.bc.ca/epd/epdpa/sw/sw.html>

<http://wlapwww.gov.bc.ca/epd/epdpa/sw/updates/tsw.html#SpecialWastes>

http://www.qp.gov.bc.ca/statreg/reg/W/WasteMgmt/WasteMgmt63_88Special/63_88.htm

Transport of Dangerous Goods Act

http://www.qp.gov.bc.ca/statreg/stat/T/96458_01.htm

Environment Management Act

http://www.qp.gov.bc.ca/statreg/stat/E/96118_01.htm#section1

Alberta

Statutes of Alberta

http://www.qp.gov.ab.ca/display_acts.cfm

Regulations of Alberta

http://www.qp.gov.ab.ca/display_regs.cfm

Activities Designation Regulations

http://www.qp.gov.ab.ca/documents/regs/1996_211.cfm

Waste Management Website

<http://www.gov.ab.ca/env/waste/aow>

Fluorescent Bulb & Computer Recycling

<http://www3.gov.ab.ca/env/waste/aow/flcr/index.html>

Recycling, Disposal and Transport Of Hazardous and Non-Hazardous Waste (Reg. 192/96)

<http://www3.gov.ab.ca/env/waste/indhaz/legislation.html>

http://www.qp.gov.ab.ca/documents/regs/1996_192.cfm

Saskatchewan

Saskatchewan Environment and Resource Management (SERM)

<http://www.serm.gov.sk.ca>

Saskatchewan Provincial Regulations (Queens Printer)

www.qp.gov.sk.ca

Environmental Management and Protection Act

<http://www.qp.gov.sk.ca/publications/index.cfm?fuseaction=details&c=1710&id=2>

Hazardous Substances and Waste Dangerous Goods Regulations

<http://www.qp.gov.sk.ca/publications/index.cfm?fuseaction=details&c=2254&id=2>

<http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/E10-2R3.pdf>

PCB Waste Storage Regulations <http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/E10-2R6.pdf>

Ontario

Legislation on line

<http://www.gov.on.ca/MBS/english/publications/statregs/index.html>

Dangerous Goods Transportation Act

<http://192.75.156.68:81/ISYSquery/IRL2206.tmp/8/doc>

Environmental Protection Act

<http://www.e-Laws.gov.on.ca/tocRegs>

Transboundary Pollution Reciprocal Access Act http://192.75.156.68/DBLaws/Regs/English/901084_e.htm

Environmental legislation and information <http://www.ene.gov.on.ca>

<http://www.ene.gov.on.ca/programs/3922e.pdf>

Environmental Bill of Rights

http://www.ene.gov.on.ca/envision/env_reg/ebr/index.htm

Ontario Environmental Legislation and Information

<http://www.ene.gov.on.ca>

Rev. Regulations of Ontario, Environment Protection Act Regulation 347, General-Waste Management

http://192.75.156.68/DBLaws/Regs/English/900347_e.htm

Waste Diversion Act (Bill 90)

http://www.ontla.on.ca/documents/Bills/37_Parliament/Session2/b090_e.htm

Quebec

Laws and Regulations (French)

<http://publicationsduquebec.gouv.qc.ca/fr/frame/index.html>

Hazardous Materials Environment Quality Act

http://www.menv.gouv.qc.ca/matieres/dangereux-en/divisionVII_1.htm

Hazardous Materials Regulation

<http://www.menv.gouv.qc.ca/matieres/dangereux-en/index.htm#mate>

Chapter T12 Transportation Act

<http://publicationsduquebec.gouv.qc.ca/en/frame/index.html>

New Brunswick

NB Acts and Regulations

<http://www.gnb.ca/justice/asrlste.htm>

Overview of Environmental Regulations

<http://www.gnb.ca/0009/0355/0005/0029-e.html>

Clean Environment Act CHAPTER C-6 Environment Impact Assessment Act

<http://www.gnb.ca/0009/0377/0002/index-e.html>

Waste Reduction & Diversion Action Plan

<http://www.gnb.ca/0009/0372/0005/0001-e.html>

<http://www.gnb.ca/elg%2Degl/0372/0005/WRD-E.pdf>

Transportation of Dangerous Goods Act Chapter T-11.01

<http://www.gnb.ca/acts/acts/t-11-01.htm>

NB Acts and Regulations

<http://www.gnb.ca/justice/asrlste.htm>

Quebec/NB Agreement on Transboundary Environmental Impacts

<http://www.gnb.ca/0009/0001-e.pdf>

Clean Water Act

<http://www.gnb.ca/acts/acts/c-06-1.htm>

Clean Air Act

<http://www.gnb.ca/acts/acts/c-05-2.htm>

Nova Scotia

Environment Act

<http://www.gov.ns.ca/legi/legc/statutes/environ1.htm>

Solid Waste Resource Management Regulations

<http://www.gov.ns.ca/just/regulations/regs/envsolid.htm>

Dangerous Goods Transportation Act

<http://www.gov.ns.ca/legi/legc/statutes/dangerus.htm>

<http://www.gov.ns.ca/tran/trucking/transdangds.stm>

Dangerous Goods Management Regulations

<http://www.gov.ns.ca/just/regulations/regs/envdgm.htm>

PCB Management Regulations

<http://www.gov.ns.ca/just/regulations/regs/envpcb.htm>

Environmental Assessment Regulations

<http://www.gov.ns.ca/just/regulations/regs/envassmt.htm>

Prince Edward Island

Environment Protection Act

<http://www.gov.pe.ca/law/statutes/pdf/e-09.pdf>

Transportation of Dangerous Goods Act

<http://www.gov.pe.ca/law/statutes/pdf/d-03.pdf>

Newfoundland

Statutes and Regulations

<http://www.gov.nf.ca/hoa/sr/>

Yukon

Environment Acts and Regulations

<http://www.environmentyukon.gov.yk.ca/epa/enactreg.shtml>

Solid Waste Regulations

<http://www.environmentyukon.gov.yk.ca/epa/content/swregs.pdf>

North West Territories

Acts, Regulations and Guidelines

<http://www.gov.nt.ca/RWED/eps/leg.htm>

Consolidation of the Environmental Protection Act

<http://www.gov.nt.ca/RWED/library/eps/envirpro.pdf>

Recycling Disposal and Transport Of Hazardous/Non Hazardous Waste (RSNWT198, cE7)

<http://www.lex-nt.ca/loi/pdf/type39.pdf>

NWT Guideline for Industrial Waste Discharges

<http://www.gov.nt.ca/RWED/library/eps/inudstrialwastedischarges.pdf>

NWT Guideline for General Management of Hazardous Waste

<http://www.gov.nt.ca/RWED/library/eps/GenMgmtHazardousWaste.pdf>

Nunavut

<http://www.gov.nu.ca/gnmain.htm>

Nunavut Environment Protection Act

<http://www.nunavutcourtofjustice.ca/library/consol-stat/type061.pdf>

UNITED STATES

FEDERAL

Environmental Protection Agency (EPA), Office of Solid Waste

<http://www.epa.gov>

EPA Laws and Regulations

<http://www.epa.gov/epahome/rules.html>

Resource Conservation and Recovery Act (RCRA)

(US Code, Title 42, Chapter 82, Solid Waste Disposal)

<http://www4.law.cornell.edu/uscode/42/ch82.html>

Code of Federal Regulations, CFR-40, Protection of Environment

Title C, Solid Waste, Parts 239-282

<http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-I.htm>

RCRA Online

<http://www.epa.gov/rcraonline/>

Comprehensive Environmental Response, Compensation and Liability Act

(CERCLA/Superfund)

<http://www.epa.gov/region5/defs/html/cercla.htm>

Toxic Substances Control Act (TOSCA)

15 U.S.C. s/s 2601 et seq. (1976), Title 42, Chapter 103

<http://www4.law.cornell.edu/uscode/42/ch103.html>

STATE

Alabama

Alabama Dept. of Environmental Management

<http://www.adem.state.al.us/Land%20Division/LandDivisionPP.htm>

Statutes

<http://www.legislature.state.al.us/CodeofAlabama/1975/coatoc.htm>

Regulations

<http://www.adem.state.al.us/Regulations/Regulations/regulations.htm>

Fact sheets

<http://www.adem.state.al.us/Land%20Division/Guidance/industrial.pdf>

<http://www.adem.state.al.us/Land%20Division/SolidWaste/Reports/household.pdf>

Alaska

Alaska Department of Environmental Conservation Homepage

<http://www.state.ak.us/local/akpages/ENV.CONSERV/home.htm>

Title 18 Environmental Conservation Chapter 62. Hazardous Waste

<http://www.state.ak.us/local/akpages/ENV.CONSERV/title18/aac62ndx.htm>

Arizona

Dept. of Environmental Quality, Solid Waste Recycling and Data Management

<http://www.adeq.state.az.us/environ/waste/solid/recycle.html>

Arizona Revised Statutes, Title 49 Environment, Search

<http://www.azleg.state.az.us/ars/49/title49.htm>

Arizona Administrative Code, Title 18, Chapter 8

http://www.sos.state.az.us/public_services/Table_of_Contents.htm

Arkansas

Dept of Environmental Quality, HW Division

www.adeq.state.ar.us/hazwaste/default.htm

Arkansas Regulation 23 – Hazardous Waste Management

www.adeq.state.ar.us/regs/files/reg23.pdf

California

California Environmental Quality Act (*Pub. Res. Code §21000 et seq.*)

<http://ceres.ca.gov/ceqa/>

http://ceres.ca.gov/topic/env_law/ceqa/stat/

CA Universal Waste Rule

<http://www.dtsc.ca.gov/LawsRegulationsPolicies/CRTs/index.html>

CA Integrated Waste Management Board

<http://www.ciwmb.ca.gov/Electronics/RegIssues/default.htm>

CA Laws and Regulations

<http://www.dtsc.ca.gov/LawsRegulationsPolicies/index.html>

Colorado

Dept of Public Health and Environment

<http://www.cdphe.state.co.us/environ.asp>

Guidelines for the disposal of electronic equipment including CRTs

<http://www.cdphe.state.co.us/hm/electronics.pdf>

Handling, transportation, and disposal of solid and hazardous waste (6 CCR 1007-2)

<http://www.cdphe.state.co.us/op/regs/hazwaste/100702.pdf>

Connecticut

Connecticut Department of Environmental Protection

<http://www.dep.state.ct.us/>

Connecticut State legislation for HW. Title 22a Chapter 445

<http://www.cga.state.ct.us/2001/pub/Chap445.htm>

District of Columbia (DC)

Dept. of Health (Bureau of Hazardous Materials and Toxic Substances)

<http://www.dchealth.com/eha/services.htm>

<http://www.dchealth.com/eha/services.htm>

Delaware

Solid Waste Regulations

<http://www.dnrec.state.de.us/DNREC2000/Divisions/AWM/hw/sw/swreg.htm>

Delaware Hazardous and Solid Waste Regulations

<http://www.dnrec.state.de.us/DNREC2000/Divisions/AWM/hw/hw/drghw.htm>

Florida

Dept. of Environmental Protection

<http://www.dep.state.fl.us/>

Electronics Website

<http://www.dep.state.fl.us/waste/categories/electronics/default.htm>

Electronic Equipment covered by Legislation

http://www.dep.state.fl.us/waste/categories/electronics/pages/major_types.htm

Laws relating to Electronic Waste

<http://www.dep.state.fl.us/waste/categories/electronics/pages/laws.htm>

State contract: Recycling Services End of Life Electronic Equipment 991-705-00-1

http://fcn.state.fl.us/st_contracts/991705001/

Florida HW Legislation FAC 62-730

<http://www8.myflorida.com/waste/categories/hazardous/documents/hwsum97.pdf>

Georgia

Dept. of Natural Resources/Environmental Protection

<http://www.ganet.org/dnr/environ/>

Links to authorizing Statutes and State Rules on Environment, including HW

<http://www.dnr.state.ga.us/dnr/environ/>

Hawaii

Solid & HW Branch

<http://www.hawaii.gov/health/eh/shwb/index.html>

Solid & HW Rules

<http://www.hawaii.gov/health/eh/shwb/hw/index.html>

Title 11 Dept. of Health, Solid Waste Management, Chapter 58.1

<http://www.hawaii.gov/health/eh/shwb/sw/11-581.pdf>

Title 11 Dept. of Health

<http://www.state.hi.us/doh/eh/index.html>

Chapter 260

<http://www.state.hi.us/doh/rules/11-58.pdf>

<http://www.state.hi.us/doh/rules/11-260.pdf>

Ch 261 Materials Identification

<http://www.hawaii.gov/health/eh/shwb/hw/11-261.pdf>

Ch 261 HW Materials Transportation

<http://www.hawaii.gov/health/eh/shwb/hw/11-263.pdf>

Idaho

Idaho HW Management Act

<http://www3.state.id.us/idstat/TOC/39044KTOC.html>

Idaho HW Rules

<http://www2.state.id.us/adm/adminrules/rules/idapa58/0105.pdf>

HW Management in Idaho 2002

http://www2.state.id.us/deq/waste/HazWaste_01.pdf

Illinois

Illinois Environmental Protection Agency

<http://www.epa.state.il.us/>

Bureau of Land

<http://www.epa.state.il.us/land/other-laws-solid-waste.html>

Environmental Protection Act 415 ILCS 5/
http://www.ipcb.state.il.us/statutes/compiled_statutes.htm
Environmental Regulations, Title 35
http://www.ipcb.state.il.us/Title_35/main.htm

Indiana

Office of Land Quality
<http://www.in.gov/idem/land/>
Indiana Code
<http://www.in.gov/idem/land/rules/ic.html>
Article 19 SW/HW Management
<http://www.ai.org/legislative/ic/code/title13/ar19/index.html>
Article 20 Solid Waste
<http://www.in.gov/legislative/ic/code/title13/ar20/>
Article 22 HW Management
<http://www.ai.org/legislative/ic/code/title13/ar22/index.html>
Article 25 Hazardous Substances
<http://www.ai.org/legislative/ic/code/title13/ar25/index.html>

Iowa

Iowa Dept. of Environmental Protection
<http://www.state.ia.us/government/dnr/organiza/epd/>

Kansas

Bureau of Waste Management
<http://www.kdhe.state.ks.us/waste/index.html>
Hazardous Waste Management Act
http://www.kdhe.state.ks.us/waste/download/hw_laws_2000.pdf

Kentucky

Solid and Hazardous Waste Management, Chapters 30-39
<http://www.lrc.state.ky.us/kar/TITLE401.HTM>
Waste Management Division
<http://www.nr.state.ky.us/nrepc/dep/waste/dwmhome.htm>
Environmental Protection Statutes
<http://www.nr.state.ky.us/nrepc/dep/waste/regs/statutes.htm#224>
Waste Management Regulations
<http://www.nr.state.ky.us/nrepc/dep/waste/regs/regeffect.htm>

Louisiana

Department of Environmental Equality
<http://www.deq.state.la.us/>
Rules and Regulations
<http://www.deq.state.la.us/planning/regs/index.htm>
Title 33 Environmental Regulatory Code
<http://www.deq.state.la.us/planning/regs/title33/index.htm>
Environmental Quality Act

<http://www.deq.state.la.us/planning/regs/eqa.pdf>

Maine

Environmental Regulations

<http://www.maine.gov/portal/business/environment.html>

Waste Management

<http://www.maine.gov/portal/business/environment.html#waste>

<http://janus.state.me.us/legis/statutes/38/title38sec1319-o.html>

Bureau of Remediation and Waste Management

<http://www.state.me.us/dep/rwm/>

Computer Recycling Fact Sheet

<http://www.state.me.us/dep/rwm/computerrecy.htm>

Maine Rules

<http://www.state.me.us/dep/rwm/rules.htm#Haz%20Waste%20Rules>

Universal Waste Rules Ch 850 Section 3A

<http://www.state.me.us/dep/rwm/UWexcerpts.pdf>

Solid Waste Management and Recycling Program

<http://janus.state.me.us/legis/statutes/38/title38sec1302.html>

Maryland

Maryland Department of Environment

www.mde.state.md.us

Maryland/EPA Memorandum of Understanding on CRTs

<http://www.epa.gov/reg3wcmd/pdf/MOU.pdf>.

Region EPA III eCycling Project

<http://www.mde.state.md.us/was/recycle/ecycling/default.asp>

Massachusetts

Electronic Recycling Program-Ban on CRT Disposal

<http://www.state.ma.us/dep/recycle/crt/crthome.htm>

Facts Page CRTs

<http://www.state.ma.us/dep/recycle/files/crtreggd.doc>

DEP TV and Computer Monitor (CRT) Regulatory Guidance:

<http://www.state.ma.us/dep/recycle/files/crtreggd.doc>

Section 310 CMR 19.074(3)

<http://www.state.ma.us/dep/bwp/dswm/files/310cmr19.htm#173>

Section 310 CMR 19.017 (5)

<http://www.state.ma.us/dep/bwp/dswm/files/310cmr19.htm#175>

<http://www.state.ma.us/dep/recycle/files/crtreggd.doc>

Proposed Take Back Legislation

<http://www.state.ma.us/legis/bills/house/ht04716.htm>

Michigan

Hazardous Waste

http://www.michigan.gov/deq/1,1607,7-135-3312_4118---,00.html

Statutes

http://www.michigan.gov/deq/1,1607,7-135-3312_4118_4240-9167--,00.html

Electronic Equipment Recycling

http://www.michigan.gov/deq/1,1607,7-135-3585_4130_4192-12637--CI,00.html

UW Guidance

<http://www.deq.state.mi.us/documents/deq-ead-tas-univwast.pdf>

Part 111 of Act 451

<http://www.deq.state.mi.us/documents/deq-wmd-hwp-Part111Rules00.pdf>

Minnesota

Minnesota Pollution Control Agency

www.pca.state.mn.us

Minnesota Office of Environmental Assistance

<http://www.moea.state.mn.us/plugin/index.cfm>

Minnesota Pollution Control Agency Waste

<http://www.pca.state.mn.us/waste/index.html>

Regulations for Electronic Equipment

<http://www.moea.state.mn.us/plugin/index.cfm#regulations>

Minnesota Rules Index

<http://www.revisor.leg.state.mn.us/arule/index.numeric.html>

Mississippi

Mississippi State Legislation

<http://www.deq.state.ms.us/newweb/homepages.nsf>

Hazardous Waste Management Regulations

<http://www.deq.state.ms.us/newweb/homepages.nsf>

Directory of Electronic Equipment Recyclers

<http://www.deq.state.ms.us/newweb/homepages.nsf>

Office of Pollution Control (Hazardous Waste/RCRA)

<http://www.deq.state.ms.us/newweb/homepages.nsf>

Missouri

Natural Resources/Hazardous Waste Program

<http://www.dnr.state.mo.us/deq/hwp/homehwp.htm>

Missouri Laws and Regulations

<http://www.dnr.state.mo.us/env/laws.htm>

Montana

Dept of Environmental Quality

<http://www.deq.state.mt.us/index.asp>

Air and Waste Management Bureau

<http://deq.state.mt.us/pcd/awm/haz/index.asp>

Universal Waste Requirements

<http://deq.state.mt.us/pcd/awm/haz/hazUnivWstReq.asp>

Montana Hazardous Waste Act (Code Annotated Title 75, Ch. 10, Part 4)

http://data.opi.state.mt.us/bills/mca_toc/75_10_4.htm

ARM Title 17 Chapter 53 HW

<http://deq.state.mt.us/dir/legal/Chapters/Ch53-toc.asp>

MT Material Exchange Program

<http://www.montana.edu/wwwated/mme.shtml>

DEQ's Website on Hazardous Waste

<http://www.deq.state.mt.us/pcd/awm/haz/index.asp>

Guide to Transporter Rules

<http://www.deq.state.mt.us/pcd/awm/haz/hazTransReq.asp>

Montana Constitution and Laws

<http://leg.state.mt.us/services/legal/laws.htm>

Nebraska

Rules and Regulations, Titles 128 & 132

<http://www.deq.state.ne.us/>

MSDS information

<http://msds.pdc.cornell.edu/issearch/msdssrch.htm>

MSDS information

<http://www.msdssearch.com/>

Nevada

Environmental Protection, Bureau of Waste Management

<http://ndep.state.nv.us/bwm/bwm01.htm>

Statutes/Regulations

<http://ndep.state.nv.us/admin/nrs.htm>

<http://ndep.state.nv.us/sec/modplan.pdf>

<http://www.leg.state.nv.us/nrs/NRS-444A.html#NRS444ASec013>

<http://www.leg.state.nv.us/nrs/NRS-444.html#NRS444Sec490>

Recycle

<http://ndep.state.nv.us/recycl/recycle.htm>

<http://ndep.state.nv.us/sec/modplan.pdf>

New Hampshire

Waste Management Branch

http://www.des.state.nh.us/waste_intro.htm

NH's Solid Waste Rules

<http://www.des.state.nh.us/rules/swrules.pdf>

Hazardous Waste Rules

<http://www.des.state.nh.us/hwr/hwrules.pdf>

http://www.des.state.nh.us/hwcs/hwrulechange/adopt_101301.pdf

Universal Waste Rule requirements for CRTs

http://www.des.state.nh.us/hwcs/hwrulechange/adopt_101301.pdf .

NH Hazardous Waste Rules (Env-Wm 110, 211-216, 351-353, 400-1000)

<http://www.des.state.nh.us/hwr/hwrules.pdf>

NH Department of NH

<http://www.des.state.nh.us/pcas/recycle-electronics.htm>.

NH Revised Statutes

<http://gencourt.state.nh.us/rsa/html/indexes/147-A.html>

<http://gencourt.state.nh.us/rsa/html/indexes/147-B.html>

New Jersey

Regulations

<http://www.state.nj.us/dep/dshw/resource/rules.htm>

HW Regulations NAJC 7:26 G-1

<http://www.state.nj.us/dep/dshw/resource/njac726g.pdf>

Recycling Regulations

<http://www.state.nj.us/dep/dshw/resource/njac726a.pdf>

New Mexico

Environmental Regulations

http://www.nmenv.state.nm.us/Common/regs_idx.html

New York

Division of Solid and Hazardous Material

<http://www.dec.state.ny.us/website/dshm/index.html>

Hazardous Waste Regulations

<http://www.dec.state.ny.us/website/dshm/regs/370parts.htm>

Electronics Reuse & Recycling Market Information Oct 2001

<http://www.dec.state.ny.us/website/dshm/redrecy/elecrec.pdf>

<http://www.dec.state.ny.us/website/dshm/hzwstman/electron.htm>

North Carolina

Current Legislation

<http://wastenot.enr.state.nc.us/hwhome/webrules/nchwrule.html>

Pending Legislation

<http://www.ncga.state.nc.us/gascripts/SimpleBillInquiry/displaybills.pl>

Other Waste Regulations

<http://wastenot.enr.state.nc.us/laws.htm>

CRT Management

<http://wastenot.enr.state.nc.us/hwhome/guidance/guidance.htm>

1998 NC Markets Assessment of the Recycling Industry and Recyclable Materials

<http://www.p2pays.org/ref/02/01622.htm>

North Dakota

<http://www.health.state.nd.us/ndhd/environ/wm/>

Solid Waste Management

<http://www.health.state.nd.us/ndhd/environ/wm/regs/swrules.pdf>

<http://www.health.state.nd.us/ndhd/environ/wm/recycle/recycle.htm>

Regulations

<http://www.health.state.nd.us/ndhd/environ/wm/pubs.htm#rules>

Ohio

Environmental Protection Agency

<http://www.epa.state.oh.us/>

Division of Hazardous Waste Management

<http://www.epa.state.oh.us/dhwm/welcome.html>

Laws

<http://www.epa.state.oh.us/dhwm/laws.html>

Recycling

<http://www.dnr.state.oh.us/recycling/default.htm>

Electronics and Computers Recycling

http://www.dnr.state.oh.us/recycling/e_recy/default.htm

Manual – Electronics Recycling/Reuse Programs for Municipalities/Counties

<http://www.nerc.org/adobe/survey/index.html>

Hazardous Materials (chart)

http://www.dnr.state.oh.us/recycling/e_recy/Pages/hazmats.htm

Oklahoma

DEQ Regulations. Title 252. Chapter 205. Hazardous Waste Mgmt.

<http://www.deq.state.ok.us/rules/205.eme.pdf>

DEQ Regulations. Title 252. Chapter 520. Solid Waste Mgmt.

<http://www.deq.state.ok.us/rules/2001-520.pdf>

Oregon

Hazardous Waste Program

<http://www.deq.state.or.us/wmc/hw/hw.htm>

Cathode Ray Tube Interim Management Policy

<http://www.deq.state.or.us/wmc/hw/policy/2002-PO-001.pdf>

Revised Statutes

<http://www.deq.state.or.us/wmc/hw/reslibors.html>

Chapter 466 HW/Hazardous Materials Storage, Treatment, Disposal

<http://landru.leg.state.or.us/ors/466.html>

Dept of Environmental Quality Division 110 Polychlorinated Biphenyls (PCBs)

http://arcweb.sos.state.or.us/rules/OARS_300/OAR_340/340_110.html

Pennsylvania

Bureau of Land Recycling & Waste Management

<http://www.dep.state.pa.us/dep/deputate/airwaste/wm/default.htm>

Hazardous Waste Regulations

<http://www.dep.state.pa.us/dep/deputate/airwaste/wm/HW/Regs.htm>

Article VII Hazardous Waste Management

http://www.pacode.com/secure/data/025/articleIDVII_toc.html

Chapter 261a. Identification and Listing of Hazardous Waste

<http://www.pacode.com/secure/data/025/chapter261a/chap261atoc.html>

Household Hazardous Waste

<http://www.dep.state.pa.us/dep/deputate/airwaste/wm/HHW/HHW.HTM>

Household Hazardous Waste Collection and Management

http://www.dep.state.pa.us/dep/deputate/airwaste/wm/HHW/Facts/Collect_a.htm

Electronics Discards

<http://www.dep.state.pa.us/dep/deputate/airwaste/wm/HHW/Electronics/Home.htm>

eCycling website

<http://www.epa.gov/reg3wcmd/eCycling.htm>

Rhode Island

Office of Waste Management

<http://www.state.ri.us/dem/programs/benviron/waste/index.htm>

Rules and Regulations for Hazardous Waste Management

<http://www.state.ri.us/dem/pubs/regs/REGS/WASTE/HWREGS01.PDF>

Rules and Regs for Reduction and Recycling of Commercial and Non-Municipal Residential Solid Waste

<http://www.state.ri.us/dem/pubs/regs/regs/stratpol/commrecy.pdf>

Rules and Regulations for Hazardous Waste Management

<http://www.state.ri.us/dem/pubs/regs/REGS/WASTE/HWREGS01.PDF>

Hazardous Waste Compliance Workbook for Generators

<http://www.state.ri.us/dem/programs/benviron/waste/pdf/hwgenbk.pdf>

South Carolina

Bureau of Land and Waste Management

<http://www.scdhec.net/lwm/>

Bureau of Land and Waste Management Regulations

<http://www.scdhec.net/lwm/html/regs.html>

South Dakota

Environment & Natural Resources Waste Management

<http://www.state.sd.us/denr/des/wastemgn/wasteprg.htm>

Hazardous Waste Program

<http://www.state.sd.us/denr/des/wastemgn/HWaste/HWpage1.htm>

Chapter 11 Hazardous Waste Statute

<http://legis.state.sd.us/statutes/Index.cfm?FuseAction=DisplayStatute&FindType=Statute&txtStatute=34a-11>

ASRD Rules - 74:28 Hazardous Waste

<http://legis.state.sd.us/rules/rules/7428.htm>

Recycling Guide

<http://www.state.sd.us/denr/des/wastemgn/Recycling/recycgu.htm>

Tennessee

Department of Environment and Conservation Waste

<http://www.state.tn.us/environment/waste.htm>

Division of Solid/Hazardous Waste Management

<http://www.state.tn.us/environment/swm/index.html>

Solid Hazardous Waste Regulations

<http://www.state.tn.us/environment/swm/swmregs/index.html>

Waste Reduction and Recycling

<http://www.state.tn.us/environment/dca/recycle.htm>

Computers/Electronics Recycling

<http://www.state.tn.us/environment/dca/electronics.htm>

Texas

Texas Natural Resource Conservation Commission

<http://www.tnrcc.state.tx.us/>

Title 30, Environmental Quality, Part 1, Texas Natural Resource Conservation Commission

[http://info.sos.state.tx.us/pub/plsql/readtac\\$ext.ViewTAC?tac_view=3&ti=30&pt=1](http://info.sos.state.tx.us/pub/plsql/readtac$ext.ViewTAC?tac_view=3&ti=30&pt=1)

Utah

Solid and Hazardous Waste

<http://www.eq.state.ut.us/EQSHW/hwb-1> or <http://.hazardouswaste.utah.gov>.

Hazardous Waste Act

<http://www.deq.state.ut.us/EQSHW/ADOBE/rules/19-6p1.PDF>

Hazardous Waste Rules

<http://www.eq.state.ut.us/EQSHW/hwrules.htm>

Hazardous Waste Definitions and References

<http://www.deq.state.ut.us/EQSHW/ADOBE/rules/r315-001.pdf>

Standards for Universal Waste Management

<http://www.deq.state.ut.us/EQSHW/ADOBE/rules/r315-016.pdf>

Hazardous Waste Transporter Requirements

<http://www.deq.state.ut.us/EQSHW/ADOBE/rules/r315-006.pdf>

Guide to Household Hazardous Waste

<http://www.eq.state.ut.us/EQSHW/ADOBE/GUIDE1.pdf>

Vermont

Vermont Agency of Natural Resources Waste Management

<http://www.anr.state.vt.us/dec/wmd.htm>

Hazardous Waste Management Regulations March 2001

<http://www.anr.state.vt.us/dec/wastediv/rcra/hazregs/2001regs.htm>

Revised Solid Waste Management Plan

<http://www.anr.state.vt.us/dec/wastediv/solid/2001PLAN.pdf>

Vermont HWM Regulations, Subchapter 2: Identification/Listing Of Hazardous Waste

<http://www.anr.state.vt.us/dec/wastediv/rcra/hazregs/regs2001/2001sub2.pdf>

Virginia

Dept of Environmental Quality

<http://www.deq.state.va.us/>

Waste Management

<http://www.deq.state.va.us/waste/>

Chapter 60, Hazardous Waste Regulations

<http://www.deq.state.va.us/waste/wastereg60.html>

Part 261, Identification/Listing of Hazardous Wastes

<http://www.deq.state.va.us/waste/pdf/part261.pdf>

Electronics Waste Management Interim Recommendations

<http://www.deq.state.va.us/waste/ewaste.html>

Computer & Electronics Recycling in Virginia

<http://www.deq.state.va.us/recycle/collections.htm>

Washington

Hazardous Waste and Toxic Reduction Program

http://www.ecy.wa.gov/pubs/0101005/0101005_HWTR.htm

Department of Ecology

<http://www.ecy.wa.gov/>

Department of Ecology, Laws & Rules

<http://www.ecy.wa.gov/laws-rules/index.html>

WAC 173-303-071, Excluded categories of waste

<http://www.leg.wa.gov/wac/index.cfm?fuseaction=section§ion=173-303-071>

Hazardous Waste Plan

<http://www.ecy.wa.gov/beyondwaste/hwplan.html>

Environmental Information

<http://www.ecy.wa.gov/programs/eap/env-info.html>

Universal Waste Rule

http://www.ecy.wa.gov/programs/hwtr/reg_comp_guide/pages/specific_wastes.html

Publication: The Difference between State and Federal Universal Waste Rules

<http://www.ecy.wa.gov/pubs/98407.pdf>

West Virginia

Waste Management, Environment Protection

<http://www.dep.state.wv.us/item.dep?ssid=10>

Department of Environment Protection

<http://www.epa.gov/reg3wcmd/eCycling.htm>

Title 33, Office of WM/SWM Rule

<http://www.wvsos.com/csrdocs/wordDocs/33-01.doc>

Series 4, Lead Acid Battery Rule

<http://www.wvsos.com/csrdocs/wordDocs/33-04.doc>

Series 20, HWM Rule

<http://www.wvsos.com/csrdocs/wordDocs/33-20.doc>

Wisconsin

1999-2000 WI Statutes and Annotations

<http://www.legis.state.wi.us/rsb/stats.html>

Chapter 291, Hazardous Waste Management

http://folio.legis.state.wi.us/cgi-in/om_isapi.dll?clientID=276401&infobase=stats.nfo&jump=ch.%20291

Chapter 287, Solid Waste Reduction, Recovery/Recycling

http://folio.legis.state.wi.us/cgi-bin/om_isapi.dll?clientID=276413&infobase=stats.nfo&jump=ch.%20287

Chapter 299, General Environmental Provision

http://folio.legis.state.wi.us/cgi-bin/om_isapi.dll?clientID=276434&infobase=stats.nfo&jump=ch.%20299

Dept of Natural Resources

<http://www.dnr.state.wi.us/org/aw/wm/information/wiacssh.htm>

<http://www.legis.state.wi.us/rsb/code/nr/nr605.pdf>

DNR Waste Reduction/Recycling Demonstration Grant Program

<http://www.dnr.state.wi.us/org/caer/cfa/EF/RECYCLE/Grantees/deptcorr.html>

DNR Recycling Standards, Chapter NR 625

<http://www.legis.state.wi.us/rsb/code/nr/nr625.pdf>

DNR Hazardous Constituents, Chapter NR 605, Appendix IV

http://www.legis.state.wi.us/rsb/code/nr/nr605_app_iv.pdf

Wyoming

Wyoming Environmental Quality Act, Title 35, Ch. 11

<http://legisweb.state.wy.us/statutes/titles/title35/chapter11.htm>

Proposed Revisions to Hazardous Waste Rules

<http://deq.state.wy.us/shwd/index.asp?pageid=30>

OTHER SOURCES

Electronics Industry Alliance (EIA)

<http://www.eiae.org/>

Electronic Product Recovery and Recycling Project

<http://www.nsc.org/ehc/epr2.htm>

International Association of Electronics Recyclers

<http://www.iaer.org/iaerservices.htm>

National Electronics Product Stewardship Initiative (NEPSI)

<http://eerc.ra.utk.edu/clean/nepsi/>

National Recycling Coalition

<http://www.nrc-recycle.org/>

Northeast Recycling Council (NERC)

www.nerc.org

Western Electronic Product Stewardship Initiative

<http://www.recyclingadvocates.org/wepsi/index.htm>