

Sample Environmental Management Standard (EMS) Guidelines

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Quick Comparison of Sample Environmental Management Standard (EMS) Guidelines

Note: This is a cursory overview and NERC's interpretation of each standard. To fully understand the principles and requirements in each standard, please refer to the details on the following pages.

	R2	Plug-in	Maine	eStewards	CHWMEG
1. Environmental, health, worker safety management system in place	x		x	x	x
2. Determine the facility's promotion of reuse & recycling	x	x			x
3. Comply with environmental, health, & safety legal requirements, both domestically & internationally	x	x	x	x	x
4. Use practices to reduce exposures & emissions during recycling operations	x		x	x	x
5. Export (or arrange for the export of) only to foreign countries that accept them	x		x	x	x
6. Send EOL equipment & all material derived from this equipment only to facilities that are properly licensed to receive these materials, whether in the U.S. or another country	x	x	x	x	x
7. Determine whether an electronics recycler uses energy recovery, incineration, or land disposal as a management strategy	x			x	x
8. Exercise due diligence in ensuring that downstream recyclers & processors manage recycled materials appropriately, throughout the downstream recycling chain	x		x	x	x
9. Ensure that materials going for reuse are refurbished & tested for functionality, & residual focus materials are managed responsibly	x	x	x		x
10. Track throughput & keep records; store & transport material securely & safely; & possess insurance, closure plans, & financial mechanisms to cover the potential risks of the facility	x		x	x	x
11. Establishes whether prison labor is employed by the facility, & if so clarifies the aspects of the programs				x	x
3rd Party Certification available	Pending 2009	No	No	Pending 2010	Comprehensive Review Only*

* CHWMEG makes no declaration about the facility, but gathers sufficient information concerning the facility that the member can review the information and determine "acceptability" based upon their own criteria

Responsible Recycling (R2) Standards

The [Responsible Recycling \(R2\) Practices for Use in Accredited Certification Programs \(PDF\)](#) is a set of guidelines for accredited certification programs to assess electronics recyclers' environmental, worker health and safety, and security practices.

The voluntary R2 practices include general principles and specific practices for recyclers disassembling or reclaiming used electronics equipment including those electronics that are exported for refurbishment and recycling. The practices are set forth below.

- Develop and use a management system that covers environmental, worker safety and public health practices on-site and downstream management of end-of-life (EOL) equipment and materials;
- Establish a policy that promotes reuse and materials recovery for EOL equipment and materials;
- Comply with environmental, health, and safety legal requirements, both domestically and internationally, that are applicable to the recyclers' operations;
- Use practices to reduce exposures and emissions during recycling operations;
- Export (or arrange for the export of) focus materials only to foreign countries that accept them.
- Focus materials are: cathode ray tubes (CRTs) and CRT glass; circuit boards (unless they have had batteries and mercury-containing items removed and are lead free); batteries; and items containing mercury and/or polychlorinated biphenyls (PCBs), both in EOL equipment and when separated as components;
- Send EOL equipment and all material derived from this equipment, that contain focus materials only to facilities that are properly licensed to receive these materials, and use technology designed to safely and effectively manage these materials - whether in the U.S. or another country;
- Ensure that an electronics recycler does not use energy recovery, incineration, or land disposal as a management strategy for focus materials or equipment and components containing focus materials. However, if circumstances beyond the control of the R2 recycler disrupt its normal management of a focus material, it may consider these technologies to the extent allowed under applicable law;
- Exercise due diligence in ensuring that downstream recyclers and processors manage recycled materials appropriately, throughout the downstream recycling chain;
- Ensure that materials going for reuse are refurbished and tested for functionality, and residual focus materials are managed responsibly;
- Ensure that personal data on EOL electronics going to reuse or recycling are cleared or destroyed; and
- Track throughput and keep records; store and transport material securely and safely; and possess insurance, closure plans, and financial mechanisms to cover the potential risks of the facility.

The R2 practices are not legal requirements and do not replace electronics recyclers' legal obligations. Electronics recyclers that adhere to this set of R2 practices are doing so on a voluntary basis. If a requirement of this document conflicts with an applicable legal requirement, the recycler must adhere to the legal requirement.

State of Maine
**Guidelines for the Environmentally Sound Management of Televisions and
Computer Monitors**

Pursuant to [38 MRSA §1610.5\(C\)](#), the Maine Department of Environmental Protection has developed the following guidelines for recycling and dismantling facilities engaged in the handling, processing, refurbishment and recycling of televisions and computer monitors generated as waste by Maine households. These guidelines provide a framework for environmentally sound management of these wastes. Consolidators operating in Maine may not transport these electronic wastes to a recycling or dismantling facility unless the facility has provided a sworn certification to the consolidator that the facility substantially meets these guidelines.

MEDEP reserves the right to revise these guidelines in response to developments within the electronics manufacturing and recycling industries and federal and state programs that impact these industries, and will provide notice to recyclers and dismantlers with adequate time to allow for implementation of any changes necessary to meet the revised guidelines.

1. The facility must comply with federal, state, and local laws and regulations, including federal and state minimum wage laws, specifically relevant to handling, processing, refurbishment and recycling of televisions and computer monitors, and proper authorization by all appropriate governing authorities to perform such handling, processing, refurbishment and recycling.

2. The facility must implement appropriate measures to safeguard occupational and environmental health and safety, through the following:

a. Environmental health & safety (EH&S) training of personnel, including training with regard to material and equipment handling, worker exposure, controlling releases and safety and emergency procedures.

b. An up-to-date, written hazardous materials identification and management plan.

c. An up-to-date, written plan for reporting and responding to exceptional pollutant releases, including emergencies such as accidents, spills, fires, and explosions.

d. Maintenance of Commercial General Liability Insurance or equivalent corporate guarantee for accidents and other emergencies with limits of not less than \$1,000,000 per occurrence and \$1,000,000 aggregate. Additionally, maintenance of Pollution Legal Liability Insurance with a limit of not less than \$1,000,000 per occurrence for companies engaged solely in dismantling activities and \$5,000,000 per occurrence for companies engaged in processing of recyclable materials.

e. Documentation that completion of an EH&S audit is completed and certified by a

competent internal or external auditor on a periodic basis (generally annually). A competent auditor is an individual who through professional training and/or work experience is appropriately qualified to evaluate the environmental health and safety conditions, practices, and procedures of the facility. Documentation of the auditor's qualifications must be available for inspection by government officials and third party auditors.

f. The facility must maintain on file proof of procurement of workers compensation/employers' liability insurance.

3. The facility must provide adequate assurance (e.g. bonds, corporate guarantee) to cover environmental and other costs of the closure of our facility, including the cleanup of stockpiled equipment and materials.

4. The facility must apply due diligence principles to selection of facilities to which components and materials (e.g., plastics, metals, circuit boards, CRTs) from televisions and computer monitors are sent for reuse and recycling.

5. The facility must establish a documented environmental management system (EMS), appropriate in level of detail and documentation to the scale and function of the facility, including documented regular self-audits and/or inspections of its environmental compliance.

6. The facility must use appropriate equipment for proper processing of incoming materials as well as controlling environmental releases. The facility must manage all materials to minimize adverse exposures to workers and releases to the environment. Dismantling operations and storage of television and computer monitor components that contain hazardous substances must be conducted indoors and over impervious floors. Storage areas must be adequate to hold all processed and unprocessed inventory. When heat is used to soften solder and when televisions and computer monitors, or components thereof, are shred, operations must be designed to control indoor and outdoor hazardous air emissions.

7. The facility must establish a system for identifying and properly managing components that if waste may be hazardous (e.g., circuit boards, batteries, CRTs, mercury phosphor lamps, etc.) that are removed from televisions and computer monitors during disassembly. The facility must properly manage all hazardous and other components requiring special handling from televisions and computer monitors consistent with relevant federal, state, and local regulations. The facility agrees to provide visible tracking (such as hazardous waste manifests or Bills of Lading) of hazardous components and materials from the facility to the destination facilities and documentation (such as contracts) stating how the destination facility processes materials received. The facility must not send, either directly or through intermediaries, hazardous wastes to solid waste (non-hazardous waste) landfills or to non-hazardous waste incinerators for disposal or energy recovery. For the purposes of these

guidelines, smelting of hazardous wastes to recover metals for reuse in conformance with all applicable laws and regulations is not considered disposal or energy recovery.

8. The facility must use a regularly implemented and documented monitoring and record keeping program that tracks inbound material weights (total) and outbound material weights (total to each destination), injury and illness rates, and compliance with applicable permit parameters including monitoring of effluents and emissions. The facility must maintain contracts or other documents, such as sales receipts, suitable to demonstrate: (a) a reasonable expectation that there is a downstream market or uses for designated electronics (such uses may include recycling and/or reclamation processes such as smelting to recover metals for reuse); and (b) that any residual from recycling and/or reclamation processes are properly handled and managed to maximize reuse and recycling of materials to the extent practicable.

On an annual basis, the facility must provide a statement to consolidators operating in Maine that ship televisions and computer monitors from Maine households to the facility with a description of how televisions and computer monitors are recycled, including the following data as a percent of the total number or weight of units received by the facility:

- Percent each of televisions and computer monitors that are sent for reuse;
- Percent of components recovered for reuse;
- Percent of materials recycled;
- Residual rates by material; and
- Fate of materials not recycled

The facility may calculate these numbers based on the proportion of these waste categories received from Maine and the total electronic waste stream handled by the facility. The facility must maintain on file these statements to consolidators for a minimum of 3 years for inspection by government officials and relevant auditors.

9. The facility must comply with federal and international law and agreements regarding the export of used products or materials. In the case of export of televisions and computer monitors, compliance with applicable requirements of the U.S. and of the import and transit countries, and maintenance of proper business records documenting such compliance. The facility agrees not to establish or utilize intermediaries for the purpose of circumventing these U.S., import, and transit country requirements.

The facility must conduct transactions that involve the transboundary shipment of used televisions and computer monitors based on contracts (or equivalent commercial arrangements) made in advance that detail the quantity and nature of the materials to be shipped. For the export of materials to a foreign country (directly or indirectly through downstream market contractors):

- Shipment of intact televisions and computer monitors destined for reuse include only whole products, tested and certified as being in working order or requiring only minor repair (e.g., not requiring replacement of circuit boards or CRTs), that

are destined for reuse with respect to their original purpose, where the recipient has verified a market for the sale or donation of such products for reuse;

- Shipments of televisions and computer monitors for materials recovery are prepared in a manner appropriate for processing, , including smelting where metals will be recovered, plastics recovery, and glass-to-glass recycling; and/or
- Export to companies or facilities owned or controlled by the original equipment manufacturer (OEM).

Also, the facility must maintain the following export records on file for a minimum of three years:

- a. Destination (including facility name and address) to which shipment is exported.
- b. Shipment contents and volumes.
- c. Intended use of contents by the destination facility.
- d. Specifications required by the destination facility in relation to shipment contents.
- e. Assurance that all shipments for export, as applicable to the _____ (name of company) _____, are legal and satisfy all applicable laws in the destination country.

Recycling and Dismantling Facility Certification Form ([MS Word format](#)) ([pdf format](#))

<http://www.maine.gov/dep/rwm/recycle/tvcomputerguidelines.htm>

eStewards

Electronics Recycler's Pledge of True Stewardship

We, the undersigned recycling company, agree to uphold the following as a pledge of true stewardship of electronic wastes:

I. We will not allow any hazardous e-waste* we handle or control to be sent to solid waste (nonhazardous waste) landfills or incinerators for disposal or energy recovery, either directly or through intermediaries.

II. Consistent with decisions of the international Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, we will not allow the export of hazardous e-waste we handle or control to be exported from developed to developing countries**, either directly or through intermediaries, throughout final disposition.

III. We will not allow any e-waste we handle to be sent to prisons for recycling either directly or through intermediaries.

IV. We assure that we have an “environmental management system” in place that is either certified or otherwise adequate for the nature and size of the company’s operations, and that our operation meets best practices.

V. We commit to ensuring that the entire recycling chain, including downstream intermediaries and recovery operations such as smelters, are meeting all applicable environmental and health regulations. Every effort will be made to only make use of those facilities (e.g. smelters), which provide the most efficient and least polluting recovery services available globally.

VI. We agree to provide visible tracking of hazardous e-waste throughout the product recycling chain. The tracking information should show the final disposition of all hazardous e-waste materials. If there is a concern about trade secrets, an independent auditor acceptable to parties concerned can be used to verify compliance with this pledge.

VII. We agree to provide adequate assurance (e.g. bonds) to cover environmental and other costs of the closure of our facility, and additionally to provide liability insurance for accidents and incidents involving wastes under our control and ownership. Additionally we will ensure due diligence throughout the product chain.

VIII. We further agree to support design for environment and toxics use reduction programs and/or legislation for electronic products.

****“Hazardous electronic waste” or “hazardous e-waste”** means electronic equipment, parts, and materials destined for recycling or disposal but not for direct reuse, that contain, consist of, or are derived from:

- Cadmium-, lead- or beryllium-containing circuit boards;
- Cathode ray tubes (CRTs);
- CRT glass (processed and unprocessed);
- Batteries containing lead, mercury, and/or cadmium and/or are flammable;
- Mercury-, beryllium- and Polychlorinated Biphenyl-containing materials, components, lamps and devices; and/or

- Non-working parts and whole equipment or devices exported for repair or reuse unless assurances exist that hazardous electronic waste (such as CRTs, batteries, mercury lamps, or circuit boards) will not be disposed of in the importing country as a result.

The definition of “hazardous electronic waste” does not include:

- New equipment going for use or sale (as opposed to recycling or disposal); or
- Fully functional equipment and parts that are adequately tested, certified and labeled as working, packaged to protect reusability, and that are not intended for disposal or recycling, but for donation, reuse and/or resale; or

- Non-hazardous waste such as copper unless it is contaminated with a Basel Convention hazardous waste such as lead, cadmium, beryllium, PCBs, mercury, etc. (constituents listed in Basel Annex I); or

- Electronic equipment or materials that are to be used as a direct feedstock in manufacturing without further processing or preparation (e.g. cleaned, furnace ready, CRT cullet), and the ‘competent authority’ of an importing country makes a written determination that the material is not a waste, and therefore not a regulated waste under Basel. Such a determination provided in writing by the legitimate ‘competent authority’ and provided to BAN will be required to exercise this exemption.

The term 'hazardous electronic waste' as used in this Pledge does not pertain to, nor is synonymous with any current legal US or other national definitions of 'hazardous waste', but is meant for the purposes of this

Pledge only.

** Developing countries: Following the definitions of the Basel Convention and its Basel Ban Amendment, developing countries are any country not belonging to either the European Union, the Organization for Economic Cooperation and Development (OECD) or Liechtenstein.

CHWMEG

[CHWMEG, Inc.](#) is a non-profit trade association comprised of manufacturing and other "industrial" companies (and now also including educational and research institutions and individual government installations/entities). CHWMEG conducts comprehensive, third-party reviews of commercial facilities that treat, store, dispose, recycle, or transport waste - including electronics recyclers - on behalf of its members. CHWMEG provides third-party reviews of spent materials and waste processing, recycling, and treatment/disposal facilities on behalf of its members.

CHWMEG's membership is interested in controlling and reducing potential environmental liability related to their wastes and spent materials (including e-goods and e-scrap) that are inherently generated by their companies' manufacturing processes and regular use.

CHWMEG does not certify or approve facilities; rather, CHWMEG's reviews allow members to leverage their resources for gathering key information about a vendor's attributes/aspects. Independent evaluation of the facility is required and supports the individual member's programs/needs. Members can use CHWMEG's report to evaluate the facility's conformance with other established programs (e.g. R2, Plug-in, etc.).

The facilities reviewed by CHWMEG are determined by the members annually, and the reviews are performed according to a standard protocol by independent and experienced environmental firms under contract to CHWMEG, Inc. and which are qualified/selected by CHWMEG's members. The protocol represents the comprehensive information needs of CHWMEG's membership – the CHWMEG review is intended to replace the need for gathering of this information (but not the independent evaluation of that information).

The overall focus of CHWMEG's reviews is supplier business risk, and includes review of the following:

- Operational risk (including intellectual property procedures related to e-goods/e-scrap, and managing/wiping standards employed as relates to data on hard drives)
- Permit status
- Status of certifications/accreditations and findings from related surveillance audits
- Historical compliance
- Uncontrolled releases and incidents
- Employee turnover and training
- Waste/material delivery and receipt
- Management experience and longevity
- Proximate activities
- Materials handled
- Trans-ship activities
- Regulatory standing and regulatory framework (location specific)

- Susceptible and exposed populations
- Site history
- Waste acceptance and screening
- Closure and post closure funding status
- Financial strength
- Insurance coverages
- Facility security
- Public perception
- Pending or ongoing litigation
- Worker injury/illness records (and comparison with established NAICS benchmarks)
- Management of residuals (including program review for the selection and retention of the facility's off-site vendors)