

Managing Unwanted Electronics and Component Parts

Regulatory Guidance for Business and Institutional Generators, Collectors, Transporters, Refurbishers and Recyclers

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To encourage reuse, recycling and proper management of unwanted electronics and component parts, the U.S. Environmental Protection Agency (EPA) developed reduced requirements for managing them. The Department of Natural Resources (DNR) has adopted those requirements to make them available to businesses and institutions that generate, collect, transport, refurbish and recycle unwanted electronics and parts in Wisconsin.

The reduced requirements are based on the types of unwanted electronics and parts, how they will be or are being managed, or who is managing them. The reduced requirements include conditional exclusions from hazardous waste regulation and alternative requirements. Unwanted electronics and parts that do not meet any of the exclusions or alternative requirements may be regulated more stringently as hazardous waste.

Unwanted electronics/parts destined for reuse

There are no solid or hazardous waste requirements for managing unwanted electronics and parts that are destined for reuse, except for exporting cathode ray tubes (CRTs) for reuse. Before exporting any used intact CRTs or CRT-containing electronics for reuse, the exporter must send a one-time notification to the EPA.

The DNR recommends that businesses and institutions with unwanted electronics and parts destined for reuse be able to do the following:

- identify the reuse vendors they plan to use;
- show that the vendors accept those electronics and parts for reuse; and
- show that the electronics and parts meet any vendor-specific conditions for acceptance for reuse.

What is reuse and recycling?

Reuse means continued use of electronics and parts for their originally intended purpose by someone else. Examples include direct donation of working electronics and parts, and sending electronics and parts to a refurbisher for evaluation, testing or repair to determine reuse potential. Direct donation collectors and refurbishers may limit the types and condition of electronics and parts they accept for potential reuse.

Recycling means processing electronics and parts to recover usable materials. Recycling usually begins with disassembling electronics and parts into smaller parts for recovery of different types of metal, glass and plastic.

What are cathode ray tubes (CRTs)?

CRTs are glass vacuum tubes (picture tubes) that function as the video display component of some electronics. They are commonly found in older style, non-flat panel televisions and computer monitors.

Unwanted electronics/parts not destined for reuse

For unwanted electronics and parts not destined for reuse, the following exclusions and other reduced requirements may apply:

- conditional hazardous waste exclusion for used CRT-containing electronics, CRTs and CRT glass destined for recycling;
- hazardous waste exclusions for scrap metal destined for recycling;
- conditional hazardous waste exclusion for shredded circuit boards destined for recycling; and
- universal waste management standards for batteries, lamps and mercury-containing equipment.

Unwanted electronics and parts that do not meet the above hazardous waste exclusions or other reduced requirements must be managed as hazardous waste, if they have any hazardous waste characteristics. If they do not have any characteristics, they must be managed as solid waste.

More information on above requirements

For more information on the above requirements, see the regulatory flow chart and requirements summary tables in the Appendix.

Environmental Compliance Tool

You can use the [DNR Inspection Checklist for Universal Waste Handlers](#) to improve your compliance.

Other requirements may apply to managing unwanted electronics/parts

Occupational safety and health

The [U.S. Department of Labor Occupational Safety and Health Administration \(OSHA\)](#) regulations in 29 CFR Part 1910 require private employers to protect their workers from safety and health hazards. The [Wisconsin Department of Commerce Public Employee Safety and Health](#) standards in ch. Comm 32, Wis. Adm. Code, require public employers to do the same.

Hazardous materials transportation

Hazardous materials are substances or materials that the U.S. Department of Transportation (DOT) has determined are capable of posing an unreasonable risk to health, safety and property when transported in commerce. Hazardous material, as defined in 49 CFR 171.8, is subject to the applicable [Hazardous Materials Regulations \(HMR\) in 49 CFR Parts 171 to 180](#). Those regulations apply to the classification, packaging, hazard communication, incident reporting, handling and transportation of hazardous materials.

Hazardous substance discharges

[Wisconsin's hazardous substance spills law](#) requires persons to immediately notify the DNR [by calling (800) 943-0003] of all discharges of hazardous substances that adversely impact or threaten to adversely impact public health, welfare or the environment, and to restore the environment to the extent practicable and minimize the harmful environmental effects.

Where can I get more information?

DNR Managing Used or Discarded Electronics:
<http://dnr.wi.gov/org/aw/wm/ewaste>

EPA Electronics Recycling (eCycling):
www.epa.gov/osw/conserves/materials/ecycling

EPA Identification Number – Instructions and form booklet and other application information (EPA Form 8700-12):
www.epa.gov/osw/inforesources/data/form8700/forms.htm

EPA Responsible Recycling (R2) Practices:
www.epa.gov/osw/conserves/materials/ecycling/r2practices.htm

Institute of Scrap Recycling Industries (ISRI):
www.isri.org

Basel Action Network e-Stewards:
www.e-stewards.org

DNR contacts

Waste and Materials Management Program – Other Hazardous Waste Requirements contacts by County:
<http://dnr.wi.gov/staffdir/dynamic/hazwaste.asp>

General program phone: (608) 266-2111
General program e-mail:
DNRWasteMaterials@wisconsin.gov

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The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240.

This publication is available in alternative format upon request. Please call (608) 266-2111 for more information.

Appendix: Regulatory Flow Chart and Requirements Summary Tables

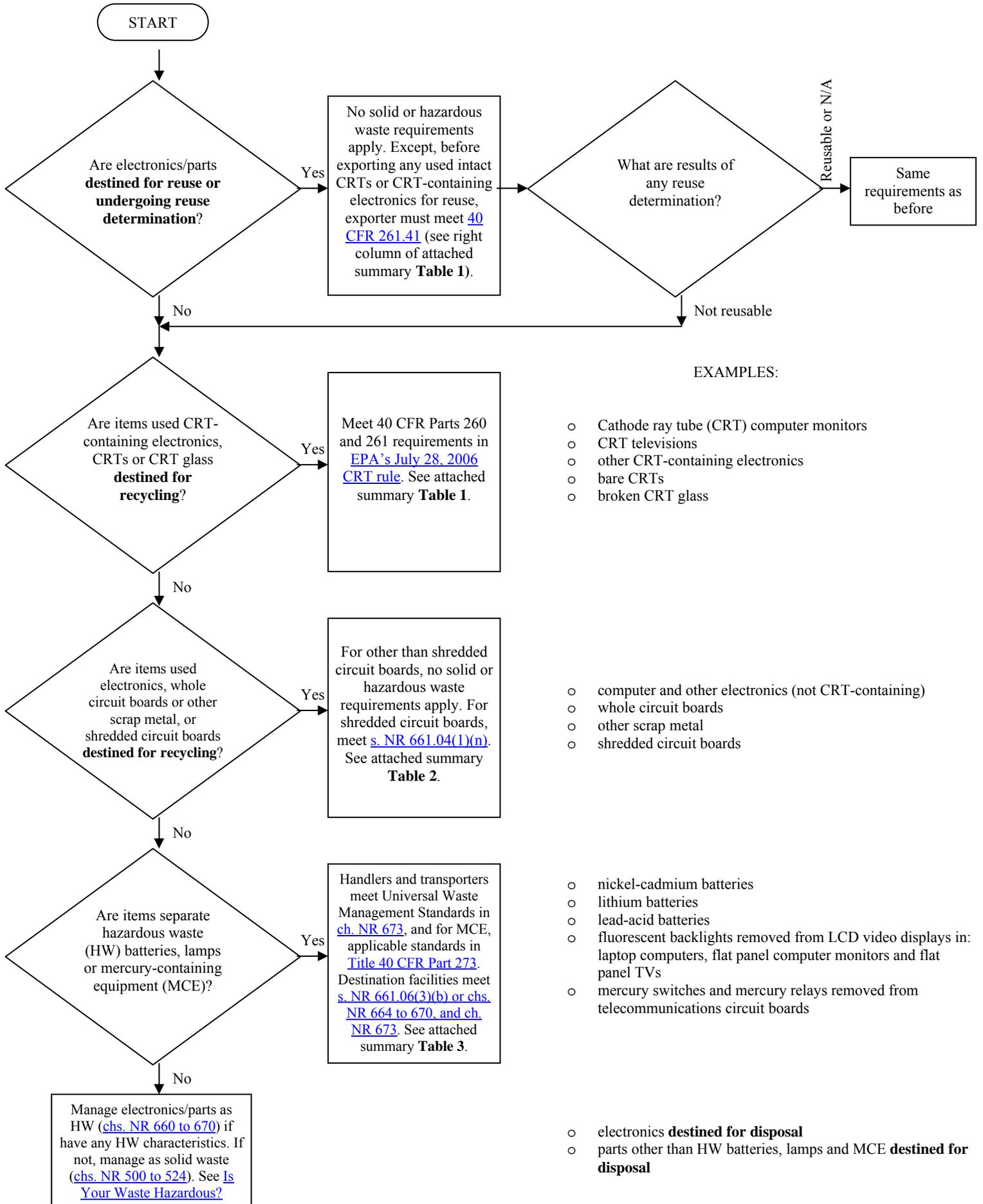


Table 1

**Requirements for Used CRT-Containing Electronics, CRTs and CRT Glass
Destined for Reuse or Recycling¹**

Handling CRTs	Exporting Used Broken or Used Intact CRTs for Recycling	Exporting Used Intact CRTs for Reuse Only
<p><i>Used intact CRTs are not regulated as hazardous waste unless they are stored for more than one year by CRT collectors or glass processors. See 40 CFR 261.4(a)(22)(i).</i></p> <p><i>Used broken CRTs are not regulated as hazardous waste if the following conditions are met:</i></p> <ul style="list-style-type: none"> ➤ CRT containers are clearly labeled regarding contents. ➤ CRTs are safely transported in containers designed to minimize releases of CRT glass. ➤ CRTs are stored in a building or container designed to minimize releases. ➤ CRTs are stored on site less than one year before recycling them. ➤ CRTs undergoing glass processing must follow the above requirements, except they must be processed inside a building, at temperatures not high enough to volatilize lead from the glass. ➤ CRT glass that has been processed and sent to a CRT glass manufacturer or a lead smelter also is unregulated unless it is stored for more than one year or used in a manner constituting disposal (applied to the land). CRT glass going to any other kind of recycler may be eligible for exemption under existing regulations. ➤ See 40 CFR 261.39 for more details. 	<p><i>If you are exporting used broken or used intact CRTs FOR RECYCLING (disassembly), you must:</i></p> <ul style="list-style-type: none"> ➤ Notify EPA and receive written consent from the receiving country, through EPA, before shipments can be made. This federal requirement is located at 40 CFR 261.39(a)(5), and is similar to those applicable to exporters of hazardous waste, which are found at 40 CFR 262.53. <p>Notifications of intent to export used broken or used intact CRTs for recycling must go to:</p> <p style="padding-left: 40px;">Office of Enforcement and Compliance Assurance U.S. EPA 1200 Pennsylvania Ave NW Washington DC 20460-0001</p> <p>Written inquiries about the intent to export CRTs for recycling should also go to the same address.</p> <p>This applies whether or not the state you operate in has adopted the CRT rule handling requirements.</p>	<p><i>If you are exporting used intact CRTs FOR REUSE ONLY, you must:</i></p> <ul style="list-style-type: none"> ➤ Send a one-time notification to the EPA Regional Administrator stating that “you plan to export used, intact CRTs for reuse only.” <p>The notification must also contain your contact information.</p> <p>This applies whether or not the state you operate in has adopted the CRT rule handling requirements.</p> <p>Send notifications of intent to export CRTs for reuse only to:</p> <p style="padding-left: 40px;">Regional Administrator U.S. EPA Region 5 Attn: William Damico Land and Chemicals Division 77 W Jackson Blvd. Chicago IL 60604-3511</p>

1. The information in this table is based on the EPA Region 5 Notice on Cathode Ray Tube (CRT) Rule Requirements, which the DNR received on October 23, 2008. The [November 11, 2008 DNR memo on Management of Used Cathode Ray Tubes in Wisconsin](#) allows businesses and institutions to meet the federal 40 CFR Parts 260 and 261 requirements in the [July 28, 2006 EPA CRT rule](#), until those requirements can be adopted into the Wisconsin hazardous waste management rules.

Table 2

Requirements for Used Electronics (not CRT-containing), Circuit Boards and Scrap Metal¹ Destined for Recycling²

Material	1. Generating, Collecting or Storing	2. Transporting	3. Disassembling	4. Processing³
A. Used electronics (not CRT-containing), used whole circuit boards and other scrap metal destined for recycling	Not regulated as hazardous waste (HW).	Not regulated as HW.	Not regulated as HW. Manage any removed HW batteries, lamps and mercury-containing equipment per applicable universal waste standards (see Table 3).	Not regulated as HW.
B. Shredded circuit boards destined for recycling	Not regulated as HW if: <ul style="list-style-type: none"> ➤ before shredding, boards were free of nickel-cadmium and lithium batteries, and mercury switches and relays; and ➤ after shredding and before recovery, boards are stored and transported in containers that prevent releases to the environment. 		Not Applicable.	Not regulated as HW if, prior to processing, material meets applicable exclusion conditions in this row.
C. Solid waste (SW) management requirements for materials in rows A and B	No SW storage license required per s. NR 502.05(3)(d).	No SW transportation license required per s. NR 502.06(2)(a) [“salvageable material”].	No SW processing license required per s. NR 502.08(2)(f).	No SW processing license required per s. NR 502.08(2)(f).

1. “Scrap metal” is defined in [s. NR 661.01\(3\)\(f\)](#). The related terms “excluded scrap metal,” “processed scrap metal,” “home scrap metal” and “prompt scrap metal” are defined in s. NR 661.01(3)(i) to (L).
2. This table summarizes the hazardous waste exclusions for scrap metal and shredded circuit boards that are destined for recycling [ss. NR 661.06(1)(c)2. and 661.04(1)(m) and (n)]. Electronics, circuit boards and scrap metal that are recycled, by being used in a manner constituting disposal, must be managed per [subch. C of ch. NR 666](#).
3. For this table, processing includes baling, shredding, shearing, chopping, crushing, flattening, cutting and melting. This description is based on the definition of “processed scrap metal” in s. NR 661.01(3)(j).

Table 3
Requirements for Separate Electronic Component Parts – Hazardous Waste Batteries, Lamps and Mercury-Containing Equipment¹

Material	1. Generating, Collecting or Storing	2. Transporting²	3. Disassembling³	4. Treating, Disposing or Recycling
<p>A. HW batteries, lamps and mercury-containing equipment - general universal waste (UW) requirements</p>	<p>To be exempt from hazardous waste (HW) regulation, a Small Quantity UW Handler (stores < 11,000 lbs. UW at any time) must:</p> <ul style="list-style-type: none"> ➤ not dispose UW, or dilute or treat it, except by responding to releases or doing any activities described in column 3; ➤ store UW no more than 1 year, except as allowed under s. NR 673.15(2); ➤ inform employees of proper UW handling and emergency procedures; ➤ immediately contain UW and component releases, determine whether released material is HW, and manage it properly; ➤ send UW to only another handler, a destination facility or a foreign destination; ➤ package, label, mark and placard off-site shipments and prepare shipping papers per applicable U.S. DOT Hazardous Materials Regulations in 49 CFR Parts 171 to 180; ➤ meet requirements for rejected shipments, and receipt of wastes that are not UW [s. NR 673.18(5) to (8)]; and ➤ if sending UW to foreign destination, meet export requirements in s. NR 673.20. <p>To be exempt from HW regulation, a Large Quantity UW Handler (stores ≥11,000 lbs. UW at any time) must:</p> <ul style="list-style-type: none"> ➤ meet above small quantity handler requirements, except employee training; ➤ have EPA identification number; ➤ ensure employees are thoroughly familiar with proper UW handling and emergency procedures; and ➤ keep records of shipments received and sent off-site for at least 3 years. 	<p>To be exempt from HW regulation, a UW Transporter must:</p> <ul style="list-style-type: none"> ➤ not dispose UW, or dilute or treat it, except by responding to releases; ➤ meet applicable U.S. DOT Hazardous Materials Regulations in 49 CFR Parts 171 to 180; ➤ only store UW at a UW transfer facility for 10 days or less; ➤ immediately contain UW and component releases, determine whether released material is HW, and manage it properly; ➤ transport UW to only a handler, destination facility or foreign destination; and ➤ if transporting UW to foreign destination, meet export requirements in s. NR 673.56. 	<p>No general requirements. See rows B, C and D for waste-type specific requirements.</p>	<p>A UW Destination Facility is subject to HW regulation as follows:</p> <ul style="list-style-type: none"> ➤ A destination facility that only recycles UW, and stores UW received from off-site for ≤24 hours before putting it into the recycling process⁴, must meet s. NR 661.06(3)(b). ➤ All other destination facilities must have a HW facility license and comply with chs. NR 664 to 670. <p>A UW destination facility must also:</p> <ul style="list-style-type: none"> ➤ Send UW to only a handler, another destination facility or a foreign destination. ➤ Meet requirements for rejected shipments, and receipt of wastes that are not UW [s. NR 673.61(2) to (4)]. ➤ Keep records of shipments received for at least 3 years.

Table 3 (continued)
Requirements for Separate Electronic Component Parts – Hazardous Waste Batteries, Lamps and Mercury-Containing Equipment¹

Material	1. Generating, Collecting or Storing	2. Transporting²	3. Disassembling³	4. Treating, Disposing or Recycling
B. HW batteries - additional specific UW requirements	Not regulated as HW if: <ul style="list-style-type: none"> ➤ contain any batteries that show signs of leakage, spillage or damage in containers that are closed, structurally sound, and compatible with battery contents; and ➤ properly label or mark each battery, or container of batteries, per s. NR 673.14(1). 	No additional requirements.	A UW handler may do the following, without being regulated as a destination facility, as long as each individual battery cell casing remains intact and closed: <ul style="list-style-type: none"> ➤ sort batteries by type; ➤ mix battery types in one container; ➤ discharge batteries to remove electric charge; ➤ regenerate used batteries; ➤ disassemble batteries or battery packs into individual batteries or cells; ➤ remove batteries from consumer products; or ➤ remove electrolyte from batteries. If waste is generated from above activities, it must be characterized and managed per s. NR 673.13(1)(c).	No additional requirements.
C. HW lamps - additional specific UW requirements	Not regulated as HW if: <ul style="list-style-type: none"> ➤ contain lamps in containers or packages that are closed, structurally sound, adequate to prevent breakage, and compatible with lamp contents; ➤ immediately clean up and place in a similar container any lamp that is broken or shows signs of breakage, leakage or damage; and ➤ properly label or mark each lamp, or container or package of lamps, per s. NR 673.14(5). 	No additional requirements.	A UW handler is not allowed to perform any treatment or recycling activities on HW lamps. A person who treats or recycles HW lamps is regulated as a UW destination facility (see row A in column 4).	No additional requirements.

Table 3 (continued)
Requirements for Separate Electronic Component Parts – Hazardous Waste Batteries, Lamps and Mercury-Containing Equipment¹

Material	1. Generating, Collecting or Storing	2. Transporting²	3. Disassembling³	4. Treating, Disposing or Recycling
D. Mercury-containing equipment (MCE) - additional specific UW requirements	Not regulated as HW if: <ul style="list-style-type: none"> ➤ contain any MCE with non-contained elemental mercury, or that show signs of leakage, spillage or damage, in containers that are closed, structurally sound, compatible with device contents, and designed to prevent mercury escape by volatilization or other means; and ➤ properly label or mark each mercury-containing device, or container of devices, per 40 CFR 273.14(d). 	No additional requirements.	A UW handler may do the following without being regulated as a destination facility: <ul style="list-style-type: none"> ➤ remove mercury-containing ampules from MCE, if handler meets 40 CFR 273.13(c)(2)(i) to (viii); and ➤ for MCE in which mercury is not contained in an ampule, remove open original housing holding mercury from MCE, if handler meets 40 CFR 273.13(c)(3)(i) and (ii). If waste is generated from above activities, it must be characterized and managed per 40 CFR 273.13(c)(4).	No additional requirements.
E. HW batteries, lamps and MCE - solid waste (SW) management requirements	No SW storage license required per s. NR 502.02(1).	For UW destined for recycling, no SW transportation license required per s. NR 502.06(2)(a) [“salvageable material”]. If not destined for recycling, license may be required per s. NR 502.06.	No SW processing license required per s. NR 502.02(1).	No SW processing license required per s. NR 502.02(1).

1. This table summarizes the universal waste management standards for HW batteries and lamps in [ch. NR 673](#), and for mercury-containing equipment in [Title 40 CFR Part 273](#). The [November 11, 2008 DNR memo on Management of Universal Wastes in Wisconsin](#) allows businesses and institutions to meet the federal universal waste management standards that apply to mercury-containing equipment in 40 CFR Part 273, until those standards can be adopted into the Wisconsin universal waste management standards rule (ch. NR 673). HW batteries, lamps and mercury-containing equipment that are recycled, by being used in a manner constituting disposal, must be managed per [subch. C of ch. NR 666](#).
2. A transporter who stores UW for more than 10 days must meet the applicable handler standards, summarized in columns 1 and 3, while storing the UW.
3. Disassembling includes only the activities described in column 3 for HW batteries and mercury-containing equipment.
4. For more information, see the DNR frequently asked question “[How long can my recycling facility store universal waste from the time it is received?](#)”.