



# Managing Electronic Wastes From Business Sources

Waste/Hazardous Waste #4.15 November 2004

## Contents

Background.....	1
What is e-waste? .....	1
What does an e-waste generator need to know? .	1
How does a generator know a collector or recycler is legitimate?.....	2
What is required of an e-waste collector?.....	3
What is required of an e-waste facility? .....	3
More Information.....	4

## Background

The regulations that apply to businesses that generate, collect or process electronic waste (e-waste) are complicated. There are many different types of e-waste and many types of recycling processes. It can be very difficult to determine how e-waste must be managed at various steps of the recycling/disposal process. This fact sheet explains the current regulatory status of e-waste generated from business sources and the Minnesota Pollution Control Agency's (MPCA) recommended best management practices.

*Note: In the Twin Cities metropolitan area e-waste may be additionally regulated through county ordinances. Generators and handlers of e-waste in the seven-county metropolitan area should check with their county hazardous waste program for additional requirements.*

## What is e-waste?

E-waste is any waste that has a circuit board or a cathode ray tube (CRT). This includes items that businesses use every day, such as computers and their peripherals, televisions, telephones and fax machines. CRTs and the circuit boards within electronic equipment contain lead at levels that can cause the item to exceed Toxicity Characteristic Leaching Procedure (TCLP) criteria, resulting in a hazardous waste.

Minnesota's hazardous waste rules require all businesses that generate a waste to determine whether it is hazardous. In the case of e-waste, most generators will evaluate their waste without sampling and analysis. Some testing research has found that CRTs, CPUs and mercury-containing flat screen displays will fail the criteria for hazardous wastes. These types of e-waste are presumed to be hazardous unless a

generator can produce supporting test data. Other types of electronics (keyboards, printers, cell phones, etc.) may or may not fail the hazardous waste criteria and the generator must make a decision about whether it is a hazardous waste. Because the process of testing e-waste may be more expensive than simply managing it as a hazardous waste in the first place, most generators assume that their e-waste is hazardous. A generator who wants to have a waste tested (which may only be practical for large amounts of the same type and brand) should contact a testing laboratory. (See hazardous waste fact sheet #6.05, [Hazardous Waste Consultants and Testing Laboratories](#).)

## What does an e-waste generator need to know?

**Determine whether it is a waste.** The MPCA encourages businesses to avoid generating e-waste. Repair or upgrade electronic equipment whenever possible or consider donating electronic equipment that is still useable. If there is no further use for the equipment and it is a waste, the MPCA encourages responsible recycling.

**Manage it correctly.** A generator who complies with the requirements of this fact sheet will be considered to be in compliance with the state hazardous waste rules.

### Be aware –

- 1) Under the State Superfund law, businesses are liable for any mismanagement of their waste even after it leaves their control. It is much more expensive to be a party to a cleanup than to pay to properly recycle the waste; and



- 2) E-waste regulations are very likely to change in the future. Generators should monitor changes in the requirements at the county, state and federal levels.
- As a generator of e-waste, you do not need to report e-waste to the MPCA or obtain a hazardous waste license if e-waste is the only hazardous waste you generate. If you are located in the seven-county Twin Cities area, contact your county environmental department to determine if licensing is required.
  - There is no storage time limit for a generator accumulating e-waste on-site. However, the MPCA recommends that e-waste be stored indoors. If you must store outdoors, place it in containers that will prevent release of hazardous components to the environment. Protect stored e-waste from vandalism and inadvertent damage.
  - The MPCA recommends that generators do **not** dismantle e-waste. Dismantling, especially of CRTs, can pose a safety hazard and may diminish the recycling potential. Also, generators should not break CRTs.

**Dispose of it correctly.** Hazardous e-waste may not be disposed of as a solid waste (e.g. landfilling or incineration). Either recycle hazardous e-waste or send it to a hazardous waste disposal facility.

**Transport it correctly.** E-waste may be transported in Minnesota without a manifest. However, if e-waste is being transported outside of Minnesota, check the regulations in the receiving or pass-through states. If e-waste is being disposed of as hazardous waste, the receiving facility may require the use of a hazardous waste manifest.

- Generators may either transport e-waste themselves or have it collected by a commercial transporter. A transporter of intact e-waste does not need to be licensed as a hazardous waste transporter in Minnesota.
- Generators must provide a shipping paper to the collector or transporter of their e-waste and must retain a copy of it for three years. The shipping paper must identify the quantity and type of e-waste and its destination.

### How does a generator know a collector or recycler is legitimate?

Improperly managed e-waste can become a liability to the generator. There have been instances where e-waste was collected for a fee and then abandoned, requiring the generator or taxpayer to pay for the cleanup. A generator should give as much thought to the selection of a collector/recycler for e-waste as they would give to any other hazardous waste handler.

**Remember: if you are identified as the source of an abandoned waste, you will be a responsible party in the cleanup.**

**Be realistic.** At this time there is a limited recycle market for e-waste and legitimate recyclers will charge a substantial fee to accept it. The price a generator will pay will vary depending on the transport distance and the type of e-waste being collected. *Be suspicious of bargains.* A legitimate collector who must cover their own costs, plus pay the recycler will certainly cost more than a collector who intends to collect and abandon the waste.

#### Check it out –

- Ask the collector for references, then check up on them.
- Find out where the collector sends e-waste to be recycled and verify that the collector has a contract with that recycler.
- Investigate the recycling facility; visit it if possible and assure yourself that the wastes are being properly managed. This may include asking about local licensing, evidence of insurance and financial stability and whether the recycler has a documented process (an Environmental Management System) that explains the recycling process and subsequent management of all e-waste components and wastes. Ask how all hazardous components are managed after disassembly.

The Minnesota Office of Environmental Assistance (MOEA) maintains a list of e-waste collectors/recyclers. The list is not an endorsement, nor does it imply that the businesses are in compliance with applicable laws. See the MOEA Web site at:

<http://www.moea.state.mn.us/plugin/recyclers-household.cfm>



**Exports** – Be cautious about recyclers who export. At this time, a great deal of e-waste is sent overseas for recycling and there have been many cases of mismanagement.

### What is required of an e-waste collector?

Many businesses collect but do not recycle e-wastes themselves. They may only collect and then arrange for transport of e-waste or they may be the transporter who takes e-waste to a recycler or dismantler located either inside or outside of Minnesota. This section only applies to collectors who do not also store, dismantle or recycle e-waste.

Collectors or transporters who store waste for more than 10 days (even in a parked truck trailer) must meet the requirements of an e-waste facility.

**Licensing** – At this time the MPCA does not require that collectors be licensed. Collectors located in the seven metropolitan counties should contact their county environmental department to determine whether local regulations apply to their operation.

**Accumulation – DO NOT accumulate waste without having an outlet for it.** Collectors that cannot recycle or dispose of collected waste can be prosecuted for hazardous waste violations. E-waste collectors must, within 10 days, transfer e-waste to a recycling facility, a disposal facility or to another transporter. Collectors must be able to document the source and date of receipt of all e-waste in their possession.

**Disposal** – The collector is responsible for delivering e-waste to a recycler or hazardous waste disposal facility. E-waste must not be disposed as solid waste, either at landfills, incinerators or out-of-state solid waste facilities. E-waste from household sources becomes a regulated waste at the point it is collected and must be recycled or properly disposed of in the same way as e-waste from business sources.

**Recordkeeping** – Collectors must complete a shipping paper or bill of lading for each shipment of e-waste and give a copy to the generator. The shipping paper must identify the quantity and type of e-waste collected and its origin and destination. The collector must retain the shipping paper for three years.

**Transportation** – United States Department of Transportation (USDOT) hazardous materials requirements do not apply to the transportation of intact electronics or CRTs in Minnesota. USDOT hazardous materials regulations may apply to crushed CRTs,

[Managing Electronic Wastes from Business Sources](#)

shredded circuit boards or other hazardous components of dismantled electronics. Contact MnDOT for further information on what regulations may apply.

Collectors who transport e-waste outside of Minnesota must check for applicable regulations in other states.

### What is required of an e-waste facility?

Anyone who collects e-waste and either stores it for more than 10 days, or who dismantles, recycles or disposes of e-waste from others (either from other businesses or households) is considered to be an e-waste facility.

The management requirements in this fact sheet apply only to e-wastes as they are being stored and processed. In the course of dismantling and recycling, a facility operator will also generate materials that are commodities, solid wastes, or hazardous wastes. Wastes generated during the recycling process are fully regulated and the facility operator must comply with all applicable rules.

- **Commodities** – Many components of e-waste have value and are not required to be managed as waste. Some components, such as copper wiring and certain precious metal components are clearly marketable. However, the value of components (circuit boards, lead solder) may fluctuate, so that what is a commodity at one point may later become a waste. For all e-waste components being managed as commodities, the facility operator must be able to demonstrate a legitimate market and maintain records to prove that they are not hazardous wastes that are being speculatively accumulated.
- **Hazardous Wastes** – A number of components of e-waste become regulated as hazardous waste during the recycling process. Although some types of hazardous wastes, such as lamps, batteries (e.g. nickel-cadmium, silver oxide, mercury oxide, lithium and lead-acid) and mercury switches may be managed under the requirements of the state universal waste rules (Minn. R. 7045.1400), the facility operator must obtain a hazardous waste generator license and report all other types of hazardous wastes generated (e.g. solvents).
- **Solid Wastes** – Non-hazardous components of e-waste may be disposed as solid waste at a landfill or incinerator if that disposal is in accordance with



the disposal facility's industrial waste management plan. The recycling facility operator must obtain necessary approval from the disposal facility operator and must comply with solid and industrial waste requirements. Minnesota Statute § 115A.915 requires the removal and proper management (recycling) of the hazardous waste battery types listed above, before disposal of the device in the solid waste stream.

**Licensing** – A hazardous waste facility permit is not required at this time for storing, dismantling or recycling of e-waste. However, when the recycling process generates hazardous wastes (other than universal wastes) the facility operator is required to obtain a hazardous waste generator's license.

The operators of facilities located in any of the seven metropolitan counties, should contact the county environmental department to determine whether additional regulations apply.

**Accumulation** – E-waste may not be stored for more than one year at a facility. In order for state and local inspectors to verify that a facility is actively managing and recycling e-waste the facility operator must be able to document the receipt and shipment of materials.

**Storage** – Follow good management practices to ensure that e-waste is not damaged during storage or contaminated so that it is not recyclable. You may store uncrushed CRTS in open containers; however, crushed CRT glass must be contained in covered containers to prevent the release of particles. Store small items in closed containers; store large items in a way that will prevent vandalism and enhance recovery. Roll-offs, gaylords and cargo boxes are acceptable storage for large e-waste. If e-waste is stored outdoors, cover it (tarps, shrink wrap) or otherwise manage it to keep out precipitation and prevent damage and the release of hazardous components.

**Safety** – OSHA safety and health standards may apply, especially if the facility is dismantling e-waste. Specifically, facilities that shred circuit boards or crush CRTs must meet OSHA 29 CFR 1910.134 requirements and the activity should be done in a negative pressure room. Uncrushed CRTS can be handled in open containers but crushed CRT glass must be stored in covered containers that will prevent the release of particles.

**Recordkeeping** – The operators of e-waste facilities must maintain records for three years of shipments received at the facility and wastes transported from the facility.

**More Information**

Your metropolitan county and the Minnesota Pollution Control Agency have staff available to answer waste management questions. For more information, contact your metropolitan county hazardous waste office or the MPCA office closest to your county. Contact the Minnesota Department of Transportation for transport-related questions. Contact the Minnesota Technical Assistance Program for ideas on how to reduce waste.

**Metro County Hazardous Waste Offices**

- Anoka County..... (763) 422-7093
- Carver County ..... (952) 361-1800
- Dakota County..... (952) 891-7557
- Hennepin County ..... (612) 348-3777
- Ramsey County ..... (651) 773-4466
- Scott County ..... (952) 496-8475
- Washington County..... (651) 430-6655

**Minnesota Department of Transportation**

- Office of Freight and Commercial Vehicle
- Operations..... (651) 405-6060
- E-mail .....motorcarrier@dot.state.mn.us
- Web site . <http://www.dot.state.mn.us/motorcarrier>

**Minnesota Pollution Control Agency**

- Toll free ..... (800) 657-3864
- Brainerd..... (218) 828-2492
- Detroit Lakes ..... (218) 847-1519
- Duluth..... (218) 723-4660
- Mankato..... (507) 389-5977
- Marshall ..... (507) 537-7146
- Rochester ..... (507) 285-7343
- St. Paul ..... (651) 297-2274
- Willmar ..... (320) 214-3786
- Customer Assistance Center..... (800) 646-6247
- Small Business Assistance Program (651) 282-6143
- ..... (800) 657-3938
- SBAP Web site
- [http://www.pca.state.mn.us/programs/sbap\\_p.html](http://www.pca.state.mn.us/programs/sbap_p.html)
- MPCA Web site.....<http://www.pca.state.mn.us>

**Minnesota Technical Assistance Program (MnTAP)**

- Toll free ..... (800) 247-0015
- Minneapolis ..... (612) 624-1300
- Web site..... <http://www.mntap.umn.edu>

**Minnesota Office of Environmental Assistance**

- Toll free ..... (800) 657-3843
- Minneapolis ..... (651) 296-3417
- Web site.....<http://www.moea.state.mn.us>