

Managing Used Computers A Guide for Businesses & Institutions

Computers everywhere!

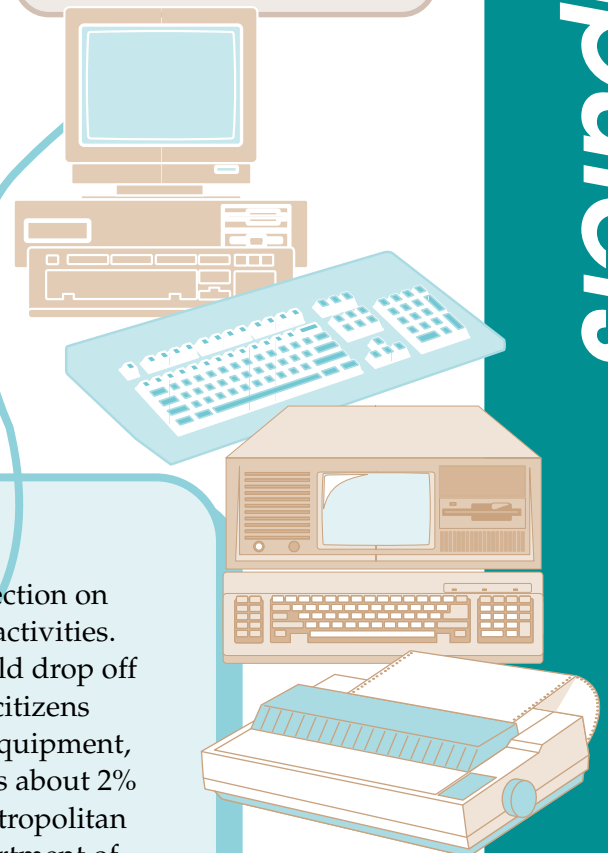
The computer, not very long ago an exotic addition to the workplace, has become an indispensable part of daily life. Computers are getting faster, smarter and cheaper. Some studies conclude that a new generation of computers is born every 18 to 24 months.

The rapid turnover in computer technology is having a troubling side effect: each year millions of computers come to the end of their useful life. A recent study estimates that about 21 million computer systems became obsolete in the U.S. in 1998. By 2007, about 500 million PCs will likely have become obsolete!

It's estimated that three-quarters of all computers ever purchased in the U.S. are currently stored in warehouses, attics and office closets. Some are being recycled. Of those 21 million computers that became obsolete in 1998, only 11% were recycled. The rest are ending up in landfills or incinerators.

Examples of Used Computer Components:

- Central Processing Units (CPUs)
- Monitors
- Printers
- Keyboards
- Laptops
- Peripherals (modems, mice, storage drives, etc.)
- Terminals
- Mainframes



Madison Rounds Up Old Computers

The City of Madison held a one-day computer collection on November 14, 1998, as part of America Recycles Day activities. Radio and TV ads alerted area residents that they could drop off their used computer equipment for free. In six hours citizens brought in approximately **24 tons** of used computer equipment, mostly from residences. That amount likely represents about 2% of the stored computer equipment in the Madison metropolitan area. The computers collected were taken to the Department of Corrections' Computer Recycling Project where usable components will be upgraded into new systems for sale to schools and non-profit groups. The remaining components will be disassembled and sold as scrap or properly disposed.



Why are used computers a potential problem for businesses & institutions?

Businesses and institutions need to be concerned about what happens to their used computers because they contain toxic metals which may make them subject to full hazardous waste regulation if landfilled or incinerated. However, the good news is that these same computers are subject to reduced hazardous waste regulation if they are reused or recycled.

Why can used computers be regulated as hazardous waste?

The hazardous waste toxicity characteristic is defined by a common laboratory test known as the toxicity characteristic leaching procedure, or TCLP, and by regulatory levels for 39 chemicals, including 8 metals. Computer monitors, central processing units (CPUs), keyboards and printers all have printed circuit boards that contain metals and likely exceed toxicity characteristic levels. In addition, lead in the monitor's cathode ray tube (CRT) generally causes it to exceed the toxicity characteristic level for lead. (Lead usually makes up about 25% of the total weight of the monitor.)

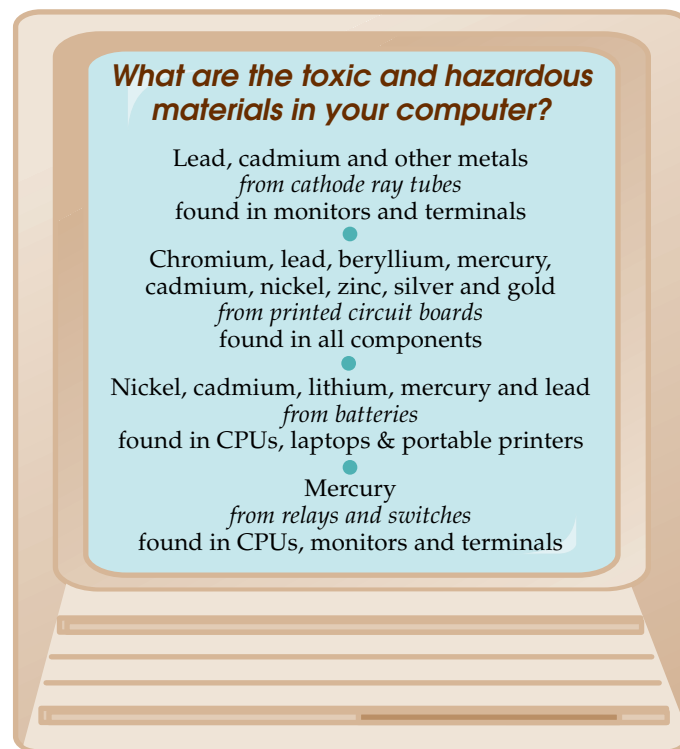
Wisconsin's hazardous waste regulations prohibit businesses and institutions from disposing waste computers in solid waste landfills and incinerators if they exceed toxicity characteristic levels. If computer components are burned or landfilled, the heavy metals in them can be released to the environment and threaten human health and the environment. A 1986 study attributed 24% of all lead in landfills to CRTs.

Businesses and institutions that do not recycle their used computers are subject to applicable solid and hazardous waste rules, including the hazardous waste generator requirements in chapters NR 610 and 615, Wisconsin Administrative Code. They may also be required to obtain licenses for storage and transportation of their waste computers from the Department of Natural Resources (DNR).

How are regulations reduced for businesses and institutions that recycle their used computers?

Although used computer components contain toxic and hazardous substances, they can be given another life when reused or recycled. (A computer component that is fully functional and is used for its original intended purpose is not a waste and therefore is not regulated by DNR.) Wisconsin has reduced the hazardous waste regulation of used computers when they are legitimately recycled.

- Businesses and institutions may store and recycle their used computer monitors and terminals in a



manner similar to the Universal Waste Management Standards in ch. NR 690, Wis. Adm. Code. The Universal Waste Standards do not specifically apply to computer monitors and terminals. However, the DNR, by using its enforcement discretion, is allowing this type of reduced regulation to apply to monitors and terminals to encourage their recycling.

- Businesses and institutions may safely collect and transport their own used computers from several locations to a central facility, or to a Wisconsin recycler, without a solid or hazardous waste transporter's license or a hazardous waste manifest. However, if the computers are transported out-of-state, those states may require a transporter's license, manifest and compliance with any other applicable solid and hazardous waste requirements.

What regulations apply to a used computer transporter or recycler?

It is not necessary to have a solid or hazardous waste transportation license from the DNR in order to transport used computers to a recycler. Used computer transporters should check with the Wisconsin Department of Transportation about the applicability of Hazardous Materials Transportation regulations.

Regulations affecting computer recyclers are reduced to encourage recycling:

- To be exempt from full hazardous waste regulation, monitor, terminal and cathode ray tube recyclers should manage their CRTs in a manner similar to the Universal Waste Management Standards in ch. NR

690, Wis. Adm. Code. (Computer components that have the hazardous waste toxicity characteristic are subject to full hazardous waste regulation if they are not recycled.) Wisconsin facilities that process CRTs for recycling are subject to the hazardous waste recycling requirements in ch. NR 625, Wis. Adm. Code.

- Computer components other than monitors and terminals are exempt from full hazardous waste regulation if the circuit boards they contain are recycled as scrap metal and if the generator complies with s. NR 605.05 (2) (a), Wis. Adm. Code. Wisconsin facilities that process circuit boards may be subject to the reduced hazardous waste recycling requirements in ch. NR 625, Wis. Adm. Code. However, materials produced by circuit board processing may no longer be exempt from full hazardous waste regulation.

Recycling facilities that receive computers from businesses, institutions or households cannot legally dispose components or parts, which have the hazardous waste toxicity characteristic, in solid waste landfills or incinerators.

What are the management options for used computers?

Options are available that give old computers a new lease on life, spare the expense and hassle of managing them as fully-regulated hazardous waste and safeguard the environment. The following list provides some ideas to get you started.

Computer Donation: Donating usable computers to a school or nonprofit group benefits both the receiving organization and the company making the donation. The depreciated value of the donated equipment may be tax deductible. Check with your tax consultant or the IRS. A new provision in the tax code allows for a full deduction of the purchase price of equipment up to two years old, plus deductions of installation and transfer costs, if the equipment is donated to K-12 schools or foundations supporting those schools. Check first with the potential recipients to make sure they can use your equipment. A list of international refurbishing programs (East-West Foundation, Detwiler Foundation, etc.) and local club programs can be found on the Internet at: <http://www.libertynet.org/share>

Resale: Some companies sell or offer their used computers to employees. Others sell or give them to computer repair/resale businesses. Check the Yellow Pages listings for "Computers: Sales and Service" to find these companies.

Leasing Companies: Original equipment manufacturers (OEMs), such as IBM, Digital, Dell, Compaq and Gateway, offer leasing options. Many third party leasing operations, that purchase and then lease

The Universal Waste Standards (ch. NR 690, Wis. Adm. Code) reduce the following hazardous waste requirements: notification, labeling, marking, prohibitions, accumulation time limits, employee training, response to releases, off-site shipments, tracking, exports and transportation.

The Hazardous Waste Exemption for Scrap Metal that is Recycled (ss. NR 605.05(2)(a) and 600.03(211), Wis. Adm. Code) requires:

- The generator to provide, at the DNR's request, information about the scrap metal being recycled, the recycling facility and the market for the scrap metal;
- That scrap metal not be used in a manner constituting disposal, or used to produce products that are applied to the land; and
- 75% of the scrap metal to be recycled, or transferred to a different site for recycling, each calendar year.

OEM equipment, are listed on the Internet at: <http://www.remarketing.com/html/leasing.html>. Contact companies directly for more information.

Asset Management: Asset management companies provide a full-service surplus electronics collection, component recovery and refurbishing program for corporations. A list of these companies can be found at: <http://www.remarketing.com/html/user/list-brokers.cgi>

Materials Exchange: List the items on a materials exchange that finds users for surplus materials. In Wisconsin, contact the Business Materials Exchange (BMEX) at (800) 364-3233.

Computer Recyclers: There are a number of computer recycling centers and electronics demanufacturers in Wisconsin and the Midwest. These businesses disassemble computers, salvage parts and sell reclaimed materials. Before choosing a computer recycler, check to make sure the firm meets applicable regulatory requirements; has the appropriate environmental, safety and health programs; and has disposal and recycling outlets for the recovered materials. To protect your company, make sure the facility handling your obsolete computers is managing them in an environmentally safe way. A listing can be found in the DNR's Wisconsin Recycling Markets Directory. (See *Resources* on back page.) Note: Being listed in the Directory does not imply endorsement by the DNR. Contact your local DNR regional waste management specialist to find out if any enforcement actions may have occurred or are pending against a specific Wisconsin recycler.

Used Computers from Households

Used household computers are not subject to hazardous waste regulation if they are managed together with other household wastes. However, in Wisconsin, used household computers that are managed separately by a person who is not a member of the household are subject to full hazardous waste regulation if they are not reused or recycled. Check with your municipal government to see if there are local restrictions on waste computer management. (Massachusetts has banned landfilling or incinerating CRTs from any source, including households. Florida is considering a similar regulation.) Homeowners are *strongly* encouraged to recycle their used computers by taking advantage of the options described for businesses.

Resources

Regulatory Questions: Contact DNR regional waste management staff with questions about computer recycling or disposal.

Fitchburg – (608) 275-3266

Milwaukee – (414) 263-8500

Green Bay – (920) 492-5916

Spooner – (715) 635-2101

Rhineland – (715) 365-8900

Eau Claire – (715) 839-3700



List of Computer Recyclers :

A current list of businesses and nonprofits that accept computers for reuse or recycling information is available on the Internet at:

<http://www.dnr.state.wi.us/org/aw/wm/recycle/md/marketsdirectory.htm>

You may also call the Department of Natural Resources at (608) 267-7566 for a copy of the list or to order a Wisconsin Recycling Markets Directory.

The DNR Waste Reduction and Recycling Demonstration Grant Program provides grants for innovative projects covering up to 50% of total costs. For more information call (608) 266-9426.

The Wisconsin Recycling Market Development Board (RMDB) funds projects that expand the markets for recyclable materials. If you have a project idea for increasing the reuse and recycling of computers and electronics, call (608) 267-9548 for more information on RMDB programs.

What to Ask When Selecting a Computer Recycler

- Does the firm have the necessary state and local permits?
- How does the facility manage the materials and wastes?
- Does the firm have contracts with foundries and scrap dealers for its metals? With precious metal refiners for its circuit boards? Has the company completed an environmental audit of these facilities?
- Is there a program in place for dealing with cathode ray tubes?
- Can the firm provide traceability of the materials it processes? Can this be audited by customers?
- Does the firm have sufficient liability insurance coverage?
- Does the firm have a Hazard Communication Plan, Worker Safety Training Program and Right to Know Training Program?
- Is proper protective equipment available and used by employees?

Taken from "Recycling Used Computers and Electronics," Solid and Hazardous Waste Education Center, Waste Education Series, 725.JK.9801

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