

Managing Used Computers and Other Electronic Equipment

A guide for businesses and institutions

Background

The use of computers and other electronic equipment such as televisions, cell phones, fax machines and copiers rapidly expanded during the 1990s. Because this becomes obsolete after just a few years of use, disposal volumes of these items have risen rapidly. Many people do not realize that this equipment may contain toxic metals that may leak to the environment if not properly managed. In addition, their toxicity can make these items subject to full state and federal hazardous waste regulations when disposed in landfills or incinerated.

In May 2002, the Oregon Department of Environmental Quality adopted an interim policy for businesses and institutions to encourage reuse and recycling of electronic equipment, specifically the cathode ray tubes (CRTs) found in computer monitors and televisions. If CRTs are reused or recycled, they may be exempted from hazardous waste regulation. In order to qualify for this exemption, businesses must be able to demonstrate legitimate reuse or recycling.

Why computers can be regulated as hazardous waste

Items such as computers can be measured for their "hazardous waste toxicity characteristic." Regulatory levels of toxicity have been established for 40 chemicals, including eight metals. Computer monitors, central processing units, keyboards and printers all have printed circuit boards that contain toxic metals. In addition, lead in the computer monitor's cathode ray tube generally causes it to exceed the toxicity characteristic for lead. (Lead usually makes up about 25% of the monitor's total weight.)

All businesses and institutions disposing of waste materials in solid waste landfills and incinerators must determine if their wastes are hazardous waste. If computers or electronic equipment are burned or landfilled, heavy metals can be released, threatening human health and the environment. Businesses and institutions that dispose of their computers and other electronic equipment in a landfill or by incineration are subject to applicable solid waste and hazardous waste rules, including hazardous waste generator requirements.

Oregon hazardous waste regulations prohibit businesses and institutions producing more than 220 pounds of hazardous waste per month from disposing computers and other electronic equipment in solid waste landfills and incinerators, if these items exceed toxicity characteristic levels.

Reuse/recycling of electronic equipment

Reuse: Although used computers and electronic items such as televisions contain toxic and hazardous substances, they can be given another life when reused or recycled. A computer or other electronic device that is fully functional, or can be repaired and used for its intended purpose, is *not* a waste and therefore not regulated by DEQ.

Recycling: Computers and other electronic devices that are legitimately recycled are not subject to management as hazardous waste. *(Please note that businesses may be responsible for environmental damage and hazardous waste requirements when the recycling is not safely performed.)*

Legitimate recycling means dismantling of the computers and other electronic equipment into recyclable components for resource recovery.

- Businesses and institutions should store and recycle their used computer monitors and electronic equipment in a manner that will prevent breakage and release of hazardous substances into the environment.
- Businesses and institutions may collect and safely transport their own used computers and other electronic equipment to a central location for consolidation prior to reuse or recycling without a solid or hazardous waste transporter's license or hazardous waste listing.

Regulations for transporters and recyclers of used computers

Businesses and institutions that transport used computers and other electronic equipment should check with the Oregon Department of Transportation about the applicability of the hazardous material transportation regulation. It is not necessary to have a solid or hazardous



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waste transporter's license for moving used computers to a recycling or reuse facility. Depending on the complexity of their recycling operation, computer recyclers *may* need a DEQ solid waste permit for operation.

Recycling facilities that receive electronic equipment from businesses, institutions, or households cannot legally dispose of hazardous waste components or parts at a solid waste facility if they produce more than 220 pounds of hazardous waste (including waste electronics) per calendar month. The waste parts or components containing hazardous materials are subject to applicable hazardous waste determination and other applicable hazardous waste regulations.

Options for managing used computers and other electronics

Options are available that give old equipment a new lease on life, reduce the expense and regulatory burden of managing them as fully-regulated hazardous waste, and safeguard the environment. Electronic product management company information and DEQ's CRT Policy are available on DEQ's Web site at:

<http://www.deq.state.or.us/lq/electronics.htm>

Management options include:

- **Donation:** Donating usable equipment to a school or nonprofit group benefits both the receiving organization and the company making the donation. Check first with the potential recipients to make sure they can use your equipment.
- **Resale:** Some companies sell or offer their used computers to employees. Others sell or give them to computer repair/resale businesses.
- **Return to manufacturer:** Original equipment manufacturers such as IBM, Apple, Dell, Compaq and Gateway have programs to take back computers they produced.
- **Asset management:** Asset management companies provide full-service surplus electronics collection, component recovery and equipment refurbishing for corporations and environmentally acceptable disposal.
- **Recyclers:** There are several computer recycling centers and electronics de-manufacturers in the Pacific Northwest. These businesses disassemble computers, salvage parts and sell reclaimed materials. Businesses and institutions are responsible for choosing a recycler that will recycle the electronic equipment in a manner that does not release hazardous constituents into the environment. The business or institution

having the equipment recycled should maintain documentation showing that the material was recycled. Ask the following questions when selecting a computer recycler:

- What type of certification is available to document that the equipment was properly recycled?
 - Does the firm have necessary state and local permits?
 - How does the facility manage the used computer equipment and electronic equipment and waste?
 - Does the firm have contracts with foundries and scrap dealers for its metals, or with precious-metal refiners for its circuit boards? Has the company completed an environmental audit of these facilities?
 - What is the firm's program for dealing with cathode ray tubes?
 - Can the firm track the materials that it processes?
 - 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?
- **Used computers from households:** Used household computers are not subject to hazardous waste regulation if they are managed together with household wastes. However, businesses that accept household computers may be subject to hazardous waste management requirements if the computers are not reused or recycled.

Technical assistance

DEQ technical assistance is available to businesses and institutions for free on-site visits, free telephone consultations, and hazardous waste training.

Technical assistance can help businesses and institutions understand how hazardous waste regulations apply to their operation, determine which wastes are hazardous, complete reporting forms, manage wastes better, reduce disposal costs, minimize waste produced, and determine areas needing improvement.

Businesses and institutions seeking DEQ technical assistance or having questions about waste management may visit the DEQ Web site <http://www.deq.state.or.us/lq/hw/index.htm> or contact the nearest DEQ field office:



- Bend, (541) 388-6146
- Medford, (541) 776-6010
- Portland, (503) 229-5263
- Salem, (503) 378-8240

For more information

See DEQ's Web page at:

<http://www.deq.state.or.us/lq/electronics.htm> or contact the regional office nearest to you at the number listed above.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

