



State of Oregon
Department of
Environmental
Quality

Directive

Title:	E-Waste Handling Facility Permitting & Compliance	FORM C
Original Author:	Audrey O'Brien	Pages:4
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Approval:	<i>Wendy Wilson</i>	

Scope:

This directive defines e-waste, categorizes e-waste handling facilities, describes potential environmental concerns at these facilities, determines when an e-waste handling facility needs a solid waste permit, describes what should be in the permit, and outlines inspection and technical assistance guidelines.

Purpose/Need:

The purpose is to address potential environmental concerns at e-waste handling facilities and coordinate permitting and compliance work done by solid waste and hazardous waste staff.

This directive applies to e-waste handling facilities but does not apply to transporters of e-waste (regulated by ODOT, local hauling franchises, etc.). Facilities that only repair electronics for resale are not defined as handling waste. This IMD is not intended to address some types of electronic waste such as white goods (household appliances containing circuit boards). These materials must still be managed appropriately to address potential hazardous waste or other environmental concerns. If some time in the future DEQ determines that white goods require more scrutiny, DEQ will amend this IMD or create a new one.

Legal Authority:

ORS 459, 465, and 466; OAR 340-093, 095-097, 102. See Attachment A, Guidance for Inspectors Regarding Management of Electronic Waste, for details on relevant statutes and administrative rules.

Discussion:

Electronics waste recycling is a growing sector in Oregon. The electronics waste stream is expected to grow due to increasing electronics in the marketplace as well as Oregon's E-cycle program initiated in January 2009 and the landfill ban on covered electronic devices slated to go into effect in January 2010. Since electronics contain hazardous materials such as lead, mercury and cadmium, storage and handling must meet solid and hazardous waste requirements to protect human and environmental health. This sector has been under scrutiny for sham recycling. HW and SW Inspectors have discovered several instances of mismanagement of e-waste through complaints. In addition, DEQ has not had a systematic, consistent approach to solid waste permitting and inspecting e-waste facilities and to hazardous waste regulation of small and large quantity generators who generate hazardous waste from e-waste. This IMD identifies a methodical approach that DEQ staff will use to address potential threats to Oregon's environment and human health regarding the safe collection and handling of e-waste.

Directive:

Definition of e-waste: E-waste is defined as electronic devices used in the work-place and at home that have been discarded or are intended to be discarded by the owner. These devices may contain toxic or hazardous substances such as lead or mercury. E-waste includes televisions, computer monitors, computers, printers, facsimile machines, copying equipment, calculators, VCRs, cell phones, telephones, radios, DVD players, portable DVD players with video screens, and any other existing or future types of equipment that are designed primarily to store or convey information electronically and any accessories to such equipment.

Categories of e-waste handling facilities: DEQ is categorizing e-waste handling facilities by their activities. Environmental concerns increase as facilities carry out more activities. The categories are listed in order of increasing potential for environmental concern.

Collector: A collector takes e-waste in and prepares it for shipping out with minimal handling and may store it for some period of time.

Disassembly, dismantling and remanufacturing (DDR): A DDR facility disassembles devices by taking them apart, dismantles devices by popping rivets, breaking or cutting components apart, or reconfiguring them, and/or remanufactures devices by mining them for parts or putting devices back together using parts from various units. Residual waste is sent for disposal or additional recycling.

Shredding, grinding, or breaking CRTs and other e-waste: These facilities intentionally break CRTs, computers and other e-waste most often through grinding or shredding for the purpose of material recovery. Residual waste is sent for disposal or additional recycling. Shredding for purposes of disposal may require a SW treatment permit.

Transformers: These facilities use processes such as smelting or refining to recover materials.

Environmental concerns according to e-waste categories:

Environmental Concerns & Regulatory Compliance	Collectors	DDRs	Shredder or Grinder	Transformer
Exposure to stormwater contributing to water quality impacts	X	X	X	X
Exposure to elements that could result in breakage and exposure to hazardous substances or water quality impacts	X	X	X	X
Fire hazards	X	X	X	X
Vectors (similar to those seen at landfill or other disposal sites) such as rats, mice, insects, birds, or bats. These vectors could cause exposure to diseases or viruses harmful to humans or other animals. If materials accumulate water, they may become breeding grounds for mosquitoes.	X	X	X	X
Inadvertent breakage may create HW that must be handled & disposed of properly	X	X	X	X
Security of the facility	X	X	X	X
If the facility activities generate HW, HW may not be appropriately or adequately labeled or there may be no labeling.	X	X	X	X
Volume of material stored: Speculative accumulation is treated slightly differently between SW and HW. For SW purposes, speculative accumulation occurs if material is onsite longer than 6 months. For HW purposes, speculative accumulation occurs when <75% of material on site has been sent for recycling since the start of the calendar year and no markets are identified for the materials.	X	X	X	X
Lack of appropriate documentation to substantiate recycling activities. Minimum required is where, what, how much, and when e-waste was received and where it went, how, and to whom.	X	X	X	X
If CRT's are shipped out of the country for recycling, the facility needs to inform EPA and receive EPA confirmation. If shipped out for reuse, facility needs to notify EPA.	X	X	X	X
Possible illegal disposal of source separated recyclables or sham recycling	X	X	X	X
Potential for creating lead or other metal dust		X	X	X
Possible air or wastewater discharges		X	X	X
Other toxic dust, gels, or liquids		X	X	X
Could become HW generator by activities at facility		X	X	X
More likely breakage, shredding/grinding or transforming activities that could cause air quality or water quality problems			X	X
Fluff or dust from grinding or transforming may create HW &			X	X

require HW characterization				
May have sufficient air emissions to need an air quality permit			X	X
May have offsite dust			X	X
Generation & disposal of non-recyclable residues from processing source separated recyclables		X	X	X

Solid waste permit determinations: DEQ has determined permit needs based on each type of facility.

Collector: If the collector has a solid waste permit already, it will be amended to address e-waste handling. If the collector does not have a solid waste permit, DEQ will not require one unless a complaint response or site visit uncovers environmental concerns that are not addressed. A transfer station or material recovery facility (MRF) permit may be issued if the facility does not address environmental concerns. (OAR 340-093-0050(3)(f)).

DDR: If a DDR has a solid waste permit, it will be amended to address e-waste handling. If a DDR does not have a solid waste permit, DEQ will evaluate each facility and will require a MRF permit if, after considering all of the following criteria, DEQ staff determine the facility's activities have potential for environmental impact.

- (1) The facility processes more than 100 tons of e-waste per year.
- (2) The facility processes or stores e-waste outside or not under cover and near waterways or wetlands or near a public drinking water supply. Tarping is not considered cover sufficient to protect e-waste from environmental exposure. Materials are exposed to ambient conditions including precipitation, flooding, wind, or other atmospheric conditions.
- (3) The facility is near or in a residence, school, daycare facility, park, or playground or any other locations where children are regularly present. Schools using computer repair and recycling activities as an education tool may not need a permit.
- (4) The facility has had a notice of noncompliance, warning letter, pre-enforcement notice, or penalty order for a WQ, HQ, or SW violation in the past five years, unless the facility is under new ownership and violations occurred under past owners.

Shredder or Grinder: A shredder or grinder will need to get a solid waste MRF permit.

Transformer: DEQ will evaluate each transforming facility on a case-by-case basis to determine if SW MRF or treatment permit is needed. Environmental concerns may be adequately addressed under an AQ or WQ permit or existing facilities may comply with all HW requirements.

New SW permits: DEQ will communicate the requirements for a new permit to existing unpermitted e-waste facilities starting in April 2009 and will work with these facilities in a technical assistance role to help them apply for permits and make sure they are managing e-waste appropriately. By January 1, 2010, any existing or new facility not currently accepting e-waste that wants to start accepting e-waste and meets the criteria requiring a SW permit, must obtain a new permit or obtain a permit amendment before accepting e-waste.

DEQ has prepared a draft permit template and draft operations plan template that are attached to this IMD. In addition to typical solid waste requirements for safe management, storage, and processing, the SW permit will include:

1. Generic HW requirements, downstream due diligence for all e-waste recyclers that generate HW, and e-waste specific requirements.
2. The landfill ban for E-Cycles Program covered devices (televisions, computers, laptops, monitors).
3. An operations plan to be reviewed by both SW and HW staff that includes any special waste management plan requirements to address spills, breakage or accumulation.
4. Facility closure plans
5. After 2009 rule changes become effective that broaden the requirement for financial assurance, DEQ will require financial assurance for all facilities that shred, grind, or break CRTs and other e-waste. Other facilities will be evaluated on a case-by-case basis.
6. Record keeping and reporting requirements to avoid speculative accumulation and for material recovery survey purposes.

7. Other requirements appropriate for the specific facility.

Existing SW permits: Existing SW permits for collectors and DDRs will be modified to include any appropriate requirements identified above (DEQ does not know of any permitted shredders or transformers in Oregon). DEQ will determine if any permit changes warrant public comment.

Site visits: DEQ will decide priority order of site visits depending on the facility activities, whether it has or needs a SW permit, and its HW generator status. Regional SW and HW managers will consult and determine which program leads all site visits. Many visits during 2009 will be in a technical assistance mode, unless egregious violations of environmental requirements for e-waste are found. Beginning in 2010, site visits will shift to compliance inspections, although any type of facility may request HW TA at any time.

SW permitted facilities will be inspected at least annually (collectors, DDRs, and shredders/grinders).

Non permitted facilities will be inspected periodically according to the priority assigned to the facility (considering, for example, their HW generator status) and DEQ workload and resources available. Regional managers will confer and agree on which program, HW or SW, takes lead, if inspections will be joint inspections, whether TA staff or inspectors will do site visits, etc. At unpermitted DDRs, HW will lead inspections but will consult with SW. These facilities may warrant a joint inspection to determine whether they need permits. For collectors that do not have an existing permit but are in the Oregon E-Cycles Program, DEQ will rely on plan representative audits to determine if site visit follow-up is needed. These will be lower priority for DEQ inspections. Collectors not participating in the Oregon E-Cycles Program will be higher priority for DEQ inspections or site visits. DEQ intends to conduct a site visit at each of these facilities by 2011.

Inspector guidance. Hazardous Waste, Solid Waste and E-Cycles staff and inspectors will share and exchange information and consult one another on facilities and compliance information." SW and HW Inspector guidance about the types of e-waste facilities and the kinds of violations to look for during site visits is Attachment A to this IMD. DEQ's enforcement guidance covers these violations. This IMD does not intend to enforce the Oregon E-Cycles Program, so no E-Cycles Program-specific violations are identified in the guidance.

Implementation Plan and Schedule:

Implementation of this IMD will start upon signature and will follow the attached implementation plan and schedule.

Review Schedule:

The periodic review schedule will apply.

Contact Person:

Audrey O'Brien, 503-229-5072, obrien.audrey@deq.state.or.us.

Disclaimer:

This directive is intended solely as guidance for DEQ employees. It does not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create an enforceable right or benefit, substantive or procedural, enforceable at law or in equity, by any person. DEQ may take action at variance with this policy.