

Oregon DEQ Electronics Waste Facility Site Visit Checklist



Facility Name: Free Geek

Physical Address: 1731 SE 10th Ave, Portland 97214

Mailing Address: _____

Facility Contact Name: Liane Kocka, Darryl Kan, Recycling Coordinators

Facility Contact Phone Number: 503-232-9350

Visit Date: 3/17/2011 **Start Time:** 12:15pm **End Time:** 1:20pm

Facility Staff Present: Darryl Kan, Recycling Coordinator

DEQ Staff Present: Amanda Romero, Chris Pickens

Previous DEQ Site Visit Date: n/a

Inspection Basis:

- Technical Assistance
- Citizen Complaint
- Field Siting
- Enforcement Follow-Up
- Other (specify)

E:Cycles Participation:

- Not Participating
- E-cycles Collector (add questions 18-21)
- E-cycles Recycler (add questions 18-21)

E-waste Facility Type:

- | | | |
|--|--|---|
| <input type="checkbox"/> Collection Only | <input checked="" type="checkbox"/> Dismantling, Disassembly,
Remanufacturing | <input type="checkbox"/> Shredding/Grinding |
| | <input type="checkbox"/> Other (specify) | <input type="checkbox"/> Smelting/ Transforming |

Site Visit Summary:

Chris Pickens and I met Darryl Kan upon entering the facility. Mr. Kan showed us the flow of e-waste through the facility from acceptance to resale or recycling. Free Geek is an Oregon E-cycles collector for all CEDs and an Oregon E-cycles processor for computers only.

Free Geek accepts a wide range of electronics wastes including computers, monitors, computer peripherals, VCRs, DVD players and stereo equipment. Re-use is a primary focus for materials. Items that are not reusable are dismantled to base material categories such as copper-bearing material, steel, batteries, plastics, high and low grade circuit boards, and various kinds of wires among other categories.

Most of the dismantling is conducted by volunteers supervised by Free Geek staff or senior volunteers. All operations and storage occur inside of a building except for one drop box for metals stored outdoors.

Wastes such as spent fluorescent lamps (from their own operations) and batteries are managed as Universal Waste.

At the end of the site visit Mr. Kan showed us records which showed detailed record keeping of facility throughput.

Overall, facility operations appear controlled and orderly.

Oregon DEQ Electronics Waste Facility Site Visit Checklist

GENERAL OPERATIONS

1. Operating Hours

- Yes No Is there adequate signage informing the public of the operating hours of the facility?
- Yes No Is facility staff present during operating hours?
- Yes No Is there adequate signage informing the public of what is accepted at the facility?

Notes: Staff are present to receive all donations. Unacceptable materials are rejected at time of delivery.

2. Access Control

- Yes No Was public access to the facility being controlled in order to prevent unauthorized entry?
- Yes No Did the facility have security fencing, gates and locks?
- Yes No Did the facility have a procedure to manage visitors?
- Yes No Did the facility have a signage or other methods to prevent unauthorized dumping?
- Yes No Is there signage informing the public about the E-waste disposal ban?

Notes: E-waste is accepted indoors in the receiving area. A metal storage drop box is stored outdoors behind the facility it is closed and locked nightly. Staff and volunteers are present in each operational area.

References: Some e-waste components are targeted by thieves-- valuable metals such as copper, potentially valuable data on hard drives. CRTs are often subject to vandalism if kept unsecured (smashing). These items should be kept secure to prevent unauthorized disposal and environmental and human health impacts of broken CRTs (lead dusts).

3. Facility Buildings

- Fully enclosed building
- 3-Sided building
- Roof structure (no walls) over concrete pad
- Roof structure (no walls) over dirt or gravel
- Concrete pad (no structure)
- Dirt or gravel base (no structure)
- Includes Off-site storage at another facility or storage area
- Other _____

Notes: The Free Geek building is comprised of several rooms and operational areas. The only materials stored outdoors are inside the metal recycling drop box which has a lid that is closed and locked when the facility is not operating.

References: According to the E-waste Facility Regulation Internal Management Directive (IMD), facilities which process materials outdoors, or store e-wastes exposed to the elements may be required to obtain a DEQ solid waste permit. Conditions would be placed in the permit to ensure operations do not impact the environment. E-wastes contain hazardous materials such as lead, mercury, cadmium. Collection, storage and processing should all occur inside an enclosed structure. This eliminates potential exposure to stormwater, and allows for adequate spill clean-up.

4. Facility Operations (Check all that apply.)

- Collecting electronic waste
- Transferring whole electronic waste devices for further processing
- Cutting cords off of devices
- Dismantling devices using hand tools to recycle devices or component parts
- Taking apart devices in order to do repairs
- Taking apart devices to recover parts to put into other devices or for sale
- Shredding whole devices
- Shredding component parts
- Dismantling or breaking open CRT devices

Oregon DEQ Electronics Waste Facility Site Visit Checklist

- Breaking or grinding CRT glass
- Smelting, melting, burning, or transforming materials
- Other Testing devices for reuse.
- Other _____

Notes: _____

References: According to the IMD, higher risk facilities (those that shred, grind or break CRTs) require DEQ permits automatically, Other activities such as smelting, or significant dismantling may require a solid waste permit if DEQ determines that the environmental risk is sufficient and/or is not addressed by other types of DEQ permits.

WASTE ACCEPTANCE, HANDLING, SORTING & STORAGE

5. Accepted E-waste

- | | |
|--|---|
| <input checked="" type="checkbox"/> Desktop computers | <input checked="" type="checkbox"/> Keyboards, mice, speakers or other computer peripherals |
| <input checked="" type="checkbox"/> Portable computers | <input type="checkbox"/> Copy machines |
| <input checked="" type="checkbox"/> CRT monitors | <input checked="" type="checkbox"/> DVD players |
| <input checked="" type="checkbox"/> CRT televisions | <input checked="" type="checkbox"/> VCRs |
| <input checked="" type="checkbox"/> LCD monitors | <input checked="" type="checkbox"/> Plasma televisions |
| <input checked="" type="checkbox"/> LCD televisions | <input checked="" type="checkbox"/> Other <u>Routers</u> |
| <input checked="" type="checkbox"/> Cell phones | <input type="checkbox"/> Other _____ |
| <input checked="" type="checkbox"/> Printers | |
| <input checked="" type="checkbox"/> Fax machines | |

Notes: _____

References: Facilities participating in Oregon E-cycles collect computers (desktop and portable), televisions, and monitors. If the facility accepts additional items, they must be handled and stored according to solid waste, hazardous waste, and universal waste rules.

6. Other Accepted Wastes

- | | |
|---|---|
| <input checked="" type="checkbox"/> Batteries (lead-acid) | <input type="checkbox"/> Source separated recyclables (ie: curbside collection) |
| <input checked="" type="checkbox"/> Batteries (alkaline) | <input type="checkbox"/> Lamp ballasts (PCB or Non-PCB) |
| <input checked="" type="checkbox"/> Batteries (other) | <input type="checkbox"/> Other _____ |
| <input checked="" type="checkbox"/> Fluorescent lamps | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Household goods for resale (not electronics) | <input type="checkbox"/> Other _____ |

Solid Waste, other types of wastes

Notes: Fluorescent lamps are collected from their own operations only. Free Geek also accepts other types of equipment for resale such as digital projectors and overhead projectors. Computer accessories such as laptop carrying cases are also accepted.

References: Batteries can be managed as universal waste or as hazardous waste. Universal waste requirements are explained here:

<http://www.deq.state.or.us/lq/pubs/factsheets/hw/ManagementWasteBatteries.pdf>
<http://www.deq.state.or.us/lq/pubs/factsheets/hw/LampsBallasts.pdf>

7. Waste Amounts

1100 Tons/Year (estimate, or from records, 1 ton = 2,000 lbs)

Sample Average Weights:

CRT Monitor 40 lbs (0.02 T)

Desktop Computer 22 lbs (0.011 T)

Flat Panel Monitor 24 lbs (0.012 T)

Portable Computer 7 lbs (0.0035 T)

Oregon DEQ Electronics Waste Facility Site Visit Checklist

CRT TV < 19 Inches Diagonal 41 lbs (0.0205 T)
 CRT TV > 19 Inches Diagonal 73 lbs (0.0365 T)

Flat Panel TV 29 lbs (0.0145 T)

Notes: Tonnage estimate from Electronic Waste Collector and Processors Facility Survey received December 5, 2010.

References: According to the IMD, facilities that receive over 100 Tons of e-waste a year may be required to obtain a solid waste permit. Facilities with a higher volume throughput have a higher potential to impact the environment and/or leave costly messes if operators abandon the enterprise.

8. Waste Sources

- Household
- Conditionally Exempt Generators (generate < 220 lbs of HW a month)
- Small Quantity Hazardous Waste Generators (generate > 220 lbs but < 2,200 lbs of HW a month)
- Large Quantity Hazardous Waste Generators (generate > 2,200 lbs of HW a month)
- Other: _____

- Yes No If facility accepts from multiple sources, are materials kept separate?
 Yes No Are records kept that distinguish waste sources?

Notes: As an E-cycles collector, Free Geek keeps separate covered electronic devices collected from covered and non-covered entities.

References: E-waste collected from HW Generators for a feasible means of recycling that is not speculatively accumulated (>180 days) is exempted from hazardous waste regulations. E-waste from households is not regulated as hazardous, unless the e-waste recycling facility processes the waste and the resulting material is destined for disposal (NOT recycling) and designates as hazardous waste. If facilities cannot prove that all of their incoming waste is from households, and it is being speculatively accumulated or disposed (not recycled), the facility must adhere to all hazardous waste rules. (This includes making a hazardous waste determination, keeping receipts for incoming waste, bills of lading, shipping receipts, disposal receipts, and HW manifests.) Source: E-waste Inspector Guidance

9. Collection, Processing Activities and Storage

<u>Materials of Concern</u>	<u>Storage Method/ Location</u>	<u>Processing Description</u>	<u>Storage Duration</u>
Desktop Computers	In stacks before processing/ Intake Area and Dismantling Room	Tested, if salable, data wiped, software uploaded transferred to retail area. If not salable, dismantled with hand tools. Component pieces sorted and stored for recycling or resale.	
CRT Monitors	In Gaylord boxes or shrink wrapped on pallets/ Storage Room	Tested, if reusable transferred to retail area. Transferred to recyclers whole. No processing. Covered and Non-covered entity devices kept separate.	
CRT Televisions	In Gaylord boxes or shrink wrapped on pallets/ Storage Room	Tested, if reusable transferred to retail area. Transferred to recyclers whole. No processing. Covered and Non-covered entity devices kept separate.	

Oregon DEQ Electronics Waste Facility Site Visit Checklist

Portable Computers	In Gaylord boxes or stacked / Intake Area and Dismantling Room	Tested, if salable, data wiped, software uploaded transferred to retail area. If not salable, dismantled with hand tools. Component pieces sorted and stored for recycling or resale.	
LCD or Plasma Monitors or Televisions	In Gaylord boxes or shrink wrapped on pallets/ Storage Room	Tested, if reusable transferred to retail area. Transferred to recyclers whole. No processing. Covered and Non-covered entity devices kept separate.	
Peripherals	In Gaylord Boxes/ Storage and Dismantling Rooms.	Tested, if reusable and salable transferred to retail area. Dismantled into component parts, plastics, metals, circuit boards.	
Fluorescent Lamps	In closed boxes/ Dismantling Room	Transferred to recyclers whole.	
Batteries	In buckets, crates, or bins/ Dismantling Room.	Sorted by battery type. Stored until transferred to battery recycler.	2 weeks
Component Parts	In Gaylord Boxes/ Storage and Dismantling Rooms.	Sorted into material types by recycler.	1 month
Shredded Materials	N/A	N/A	N/A
Printers	In Gaylord Boxes/ Storage and Dismantling Rooms.	Tested, if reusable and salable transferred to retail area. Dismantled into component parts. Bulbs, toner and ink cartridges recovered. Plastics, metals, circuit boards sorted for recycling.	
Stereos, VCRs, DVD players etc.	In Gaylord Boxes/ Storage and Dismantling Rooms.	Tested, if reusable and salable transferred to retail area. Dismantled into component parts. Plastics, metals, circuit boards sorted for recycling.	

Handling and Storage Recommendations:

(ALL Items should be stored out of the elements and in a manner such that a spill could be cleaned thoroughly without impact to the ground or nearby water. Monitors and televisions should not be stored where accidental breakage is likely.)

Desktop Computers: If transferring whole, stored on pallets or in Gaylord boxes, keep containers out of the elements. If dismantling, separating metal or plastic housings from component parts, (hard drive, fan, circuit boards etc.), will likely be stored in separate containers. If they are all together, then additional sorting is necessary before ultimate recycling.

CRT Monitors and Televisions: If transferring whole, store on pallets in a manner to prevent breakage, and shrink wrapped before loading onto a truck. To prevent accidental breakage, there should be an easy unloading option for the public in the case that the person cannot safely lift the unit into the box, or place it on a pallet. If disassembling, CRTs separated from plastic housings should be handled carefully and stored in containers that would protect against a spill should the CRT break or get crushed inside the container.

Oregon DEQ Electronics Waste Facility Site Visit Checklist

Portable Computers: Store in Gaylord boxes or other containers that protected from breakage.

LCD or Plasma Screens: Store on pallets or Gaylord boxes, in a manner to prevent breakage.

Peripherals: Store in Gaylord boxes, or in secured bales. Printers, fax machines, copiers (anything with ink or toner) should have the ink or toner removed prior to shipping to plastics recyclers. This material can designate as hazardous waste and if it is disposed, a hazardous waste determination needs to be made.

Flouorescent Lamps: Store unbroken in closed, labeled containers. Labels should say "Universal Waste" or "Waste Lamps" and must show an accumulation start date.

Batteries: Store in closed leakproof containers that are labeled "Universal Waste- Batteries." Batteries from households, CEG's or those that do not exhibit hazardous characteristics, such as alkaline batteries, are exempt from management as Universal Waste. Batteries can still hold a charge and should be stored to prevent terminals from contacting one another (individually packaged, or taped terminals).

Shredded E-waste materials containing lead: Store in closed, labeled, leakproof containers. If not recycled, this material requires a hazardous waste determination prior to disposal.

POTENTIAL ENVIRONMENTAL IMPACTS (ON-SITE)

10. Stormwater Pollution

Yes No Is there a surface water body close to the waste storage area? If so, name and distance to closest surface water: Closest surface water body is more than ½ mile from the facility.

Yes No Are wastes stored or processed in a manner that could be exposed to stormwater?

Yes No Are floor drains that flow to surface or ground water present in the operational areas?

Yes No Is process water discharged?

Notes: All operations occur indoors. Free Geek does not generate process water.

References: Channelized discharges to surface water or wetlands; potential underground injection control points, stormwater sheet flow runoff, construction runoff and discharge to wastewater treatment systems could require DEQ Water Quality Staff or designated local government authority attention. Permits may be required. Check with regional DEQ WQ staff if concerns are noted. Source: E-waste Facility Inspector Guidance.

11. Air Pollution

Yes No Does the facility operate any shredding, crushing, grinding or smelting equipment?

Yes No Are dust, vapors, or odors present?

Yes No Does the facility conduct any burning, melting or heating of materials?

Notes: _____

References: No facility is allowed to have visible offsite dust after DEQ documents the first occurrence. OAR 340-208-0450 Any newly installed emission units should have been reviewed by DEQ's AQ program. Notice of Intent to Construct OAR 340-0210. Source: E-waste Facility Inspector Guidance No open burning of any e-waste materials is allowed. Melting, burning, gasifying etc. may be activities that require DEQ solid waste treatment or other applicable permits.

12. Illegal Disposal, Waste Treatment

Yes No Does the facility store e-waste in a manner that could constitute disposal?

Yes No Has the facility made hazardous waste determinations on residual wastes going to a landfill?

Yes No Is there evidence that covered electronic devices are being sent to a landfill for disposal?

Yes No Does the facility keep records on amount of waste disposed at a landfill or incinerator?

Oregon DEQ Electronics Waste Facility Site Visit Checklist

Notes: Free Geek has an extensive reuse and recycling program. Materials are dismantled such that maximum reuse and recycling is possible.

References: No facility or person can dispose of a covered electronic device at a landfill or incinerator. Covered electronic devices include whole computers and, televisions and monitors, with a viewable screen greater than 4 inches diagonally. ORS 459A.305(12)(b)(A) and (5)(a). Source- E-waste Facility Inspector Guidance.

13. Speculative Accumulation

- Yes No Does the facility store e-waste for longer than 180 days?
 Yes No Can the facility provide a feasible means of recycling for collected e-waste?

Notes: _____

References:

Solid Waste- A facility can be regulated as a disposal site if wastes have been stored for more than six months, and there is not clear evidence that the wastes will be used productively or the waste constitutes a potential environmental problem. Source- Solid Waste Storage and Speculative Accumulation Directive (02/06/2008)

Hazardous Waste- In order for materials that would otherwise be considered hazardous to maintain exemption from management as hazardous waste, the material must be potentially recyclable, have a feasible means of being recycled, and during the calendar year at least 75% of the material needs to be recycled. Source: ORS 466.095(a) Pursuant to 40 CFR 261.2(c)(4) and 261.1(c)(8). There is EPA guidance on HW speculative accumulation regarding when you start counting storage on site – a company cannot be determined to have speculatively accumulated until over a calendar year has passed. If you suspect there is HW speculative accumulation, please review EPA's guidance and discuss with OCE prior to making this determination.

DOWNSTREAM IMPACTS

14. Waste Destinations

- Check all that apply
- | | |
|--|---|
| <input checked="" type="checkbox"/> Material recovery facilities | <input type="checkbox"/> Brokers |
| <input checked="" type="checkbox"/> Smelters, retort facilities | <input type="checkbox"/> Energy recovery facilities |
| <input type="checkbox"/> Manufacturers | <input type="checkbox"/> Landfill |
| <input type="checkbox"/> Re-use markets or retailers | <input type="checkbox"/> Recycling facilities |
| | <input type="checkbox"/> Other _____ |

- Whole devices are exported out of the U.S.
 Components/materials are exported out of the U.S.
 Whole devices, components or materials are sent only to facilities in the U.S. or North America.
 Whole devices are sent to brokers, don't know next destination
 Components are sent to brokers, don't know next destination

References: Facilities should be able to document disposition of their wastes.

15. Export Requirements

- Yes No Has the US Environmental Protection Agency (EPA) been notified?
 Yes No Does the facility have documentation from the receiving country's Competent Authority stating that the country legally accepts such imports or documentation from the importing country that demonstrates the legality of the import?

Oregon DEQ Electronics Waste Facility Site Visit Checklist

Notes: Free Geek does not export materials out of the country.

References: DEQ has adopted EPA rules regarding export of CRTs. To export used CRTs for recycling, facilities must notify EPA 60 days prior to shipment. CRT's exported for reuse require a one-time notification to EPA. CRT glass that is processed does not require EPA notification. Contact Xiangyu Chu at EPA Region 10 for more information. (206) 553-2859. Source- 40 CFR 261.39(a)(5).

16. Export Records

- Yes No Are records maintained for at least 2-3 years for all transfers of equipment, components and materials into and out of the facility?

Notes: _____

References: DEQ has adopted EPA rules regarding export of CRTs. To export used CRTs for recycling, facilities must notify EPA 60 days prior to shipment. CRT's exported for reuse require a one-time notification to EPA. CRT glass that is processed does not require EPA notification. Contact Xiangyu Chu at EPA Region 10 for more information. (206) 553-2859. Source- 40 CFR 261.39(a)(5).

WORKER SAFETY AND PERSONNEL TRAINING

17. Worker Safety

- Yes No Are safety procedures in place for entering & leaving waste handling areas?
 Yes No Are adequate levels of safety protection established for employees and contractors?
 Yes No Are there easily accessible and well-signed areas for the storage of safety equipment?
 Yes No Is there a plan in place for isolating, packaging and cleaning unintentionally broken CRTs?
 Yes No Do personnel receive e-waste specific safety training?
 Yes No Has the facility undergone an OSHA compliance inspection or consultation?

Notes: Free Geek operates using volunteer labor. The volunteers are given an extensive orientation, training and are supervised while they dismantle computers. In the dismantling area workers are required to wear safety glasses, or other protective eyewear and gloves.

References: Workers should be provided adequate safety and personal protective equipment. E-waste contains many substances which are hazardous. The more processing that occurs, the higher the human health and environmental risk. DEQ strongly recommends that facilities processing E-waste ask for an OSHA consultation to assist them with health concerns, choosing proper PPE, and with ergonomic concerns. Contact 1-800-922-2689 to set up a consultation.

Questions 18-21 are for collection facilities participating in Oregon E-cycles:

18. Yes No (Collectors) Are covered electronic devices (CED) being shipped whole to recyclers?
19. Yes No Is there a sign posted informing customers that CEDs are screened for reuse or refurbishment;?
20. Yes No Is the facility collecting data for Material Recovery Surveys, and E-cycles Reporting?
a) Tracks CEDs, by weight or number of units;
b) Tracks CEDs from covered entities separately from non-covered entities;
c) Tracks and maintains documentation where outgoing CEDs are sold, shipped or transferred;
d) Maintains records of the weight or number of CEDs collected separately for each E-cycles Plan.
21. Yes No Does the facility have of adequate comprehensive or commercial general liability insurance?

Notes: _____

References: E-cycles collectors must not be recovering parts from covered electronics devices prior to sending to an E-cycles recycler.

Oregon DEQ Electronics Waste Facility Site Visit Checklist

DEQ Representative Signature:

Amanda Romero

Date

3/21/2011

Photos:



P051 Intake area. Boxes labeled for each item.



P052 Intake and testing area for speakers.



P053 Computers to be dismantled.



P055 Manual drill to punch hard drives.

Oregon DEQ Electronics Waste Facility Site Visit Checklist



P056 Power supplies. Sorted for reuse



P060 Dismantled printer parts in Gaylord.



P061 Covered entity CRTs inside Gaylord.



P062 Covered entity TV shrink wrapped on pallet.



P063 Power cords and keyboards for recycling.



P064 Metal housings inside Schnitzer drop box.

Oregon DEQ Electronics Waste Facility Site Visit Checklist



P065 Schnitzer drop box, outside facility.



P066 Hard drives for recycling inside Gaylord.



P067 Circuit boards for recycling inside Gaylord.



P069 Batteries, sorted, stored in buckets, crates.



P070 Batteries. Sorted in dismantling area.



P073 Storage for "covered", "non-covered" entities.

Oregon DEQ Electronics Waste Facility Site Visit Checklist



P074 Testing for reuse area.