NEBRASKA

DEPT. OF ENVIRONMENT AND ENERGY

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Waste Computers, Monitors, and Electronics

The purpose of this Guidance Document is to provide guidance on the correct procedures for disposal of electronics which include televisions, radios, mp3-players, DVD & Blue-Ray players, video game consoles, and many others including tablet, laptop and PC computers and monitors with Cathode Ray Tubes (CRTs). Some electronic equipment contains enough heavy metals, such as lead, to be considered hazardous waste if disposed. For example, lead in color CRTs causes these CRTs to exhibit a characteristic of hazardous waste. Title 128 – Nebraska Hazardous Waste Regulations is the primary source of regulatory guidance for waste electronics and computers disposal.

Waste electronics generated from **households** are not regulated as hazardous waste. Federal and State regulations specifically exclude waste generated at households from hazardous waste regulation. This means that your household E-waste could be legally disposed of in your local landfill. However, advances in recycling technology have pushed our electronics to be more recyclable consumables rather than the waste they used to be. The Nebraska Department of Environment and Energy (NDEE) therefore encourages, but does not require, households to recycle or reuse their electronics and computers rather than dispose of them in the trash.

Electronic Waste Reduction and Management:

- Management options for electronic items that exhibit hazardous waste characteristics (see this Guidance Document for additional explanation.)
    - Reuse computers and parts/keep in continued use.
    - Send to electronics recycler without managing as hazardous or universal waste (households and conditionally exempt small quantity generators (CESQG), small quantity generators (SQG), & large quantity generators (LQG) as allowed by Title 128).
    - Dispose to a municipal solid waste landfill (households and CESQGs only). Note: The NDEE encourages other options.
    - Send to legitimate refurbishment.
    - Manage as universal waste (usually by SQGs and LQGs).
    - Manage as hazardous waste.

- Try to reuse computer equipment and other electronic devices rather than dispose of them.
    - Reuse internally
        - For example dedicate an old analog TV for video games or movie viewing elsewhere in the home.

- Give away or sell to charities or other users
  - Many second-hand and thrift stores now have an electronics section or an entire store. Call to arrange pick-up or drop-off.
  - Many charitable organizations may not want older analog TVs. Call and check first.

- Have a refurbisher resell, refurbish, or use for parts. Some big box stores now accept E-waste for disposal and some small businesses like your local computer repair shop will accept items that can be repaired and resold.

- Computers, monitors, and other electronic items sent to a legitimate refurbisher as a "still usable product" to be "kept in continued use" as the original products are not considered waste. The equipment does not necessarily have to be in working condition to be considered a "still usable product." The refurbisher must be qualified to work on the equipment and is generally responsible for the disposition of the resulting material. The resulting material may be fully functioning computers or equipment, reusable parts, scrap metal, other non-hazardous scrap such as plastic, or waste. Any wastes generated from refurbishing operations are generally the responsibility of the refurbisher.
- Manage disposal of computer equipment and other electronic devices so that **no more than 100 kilograms (220 pounds) of *total* *hazardous waste* will be generated** from your facility during any given calendar month. For example, phase out old computer systems over time to avoid excess disposal in any one month. This can assist in keeping non-households in CESQG status. Another thing to consider is that a CESQG is only allowed to dispose of up to 19.5 kg (43 lbs) of hazardous waste per day. This is especially tricky as some large CRT monitors may exceed that weight limit by themselves.
  - Approximate weights of CRT computer monitors by diagonal screen size:
    - 14" 15 - 25 lbs
    - 15" 20 - 30 lbs
    - 17" 40 - 50 lbs ←May exceed daily weight limit this size and larger
    - 19" 60 - 75 lbs
    - 21" 80 - 90 lbs

    Actual weights vary by age of equipment, manufacturer, model, etc.

- Electronics accumulation or storage areas - management suggestions:
  - Ensure labels, if required, are secure and legible.
  - Arrange for the timely disposal of computers and other electronic devices that are no longer usable.
  - Maintain a file to document waste determinations and testing (if required), refurbisher transactions, disposal transactions, and hazardous waste manifests and land disposal restriction forms.

Disposal:

- Excess computer equipment and other electronic items should be re-used to the extent possible. Electronic equipment that is given away or sold as usable is **not** a solid waste. Electronic equipment that is sent to a legitimate refurbisher as still usable to be kept in continued use is **not** a solid waste. If the electronic equipment cannot be re-used within your agency, department, or company; property managers should attempt to place the equipment with a user or legitimate refurbisher. Always follow internal property accounting procedures. The following are examples of such placement:
  - Another state department or agency.
  - Another division of your company.

- Non-governmental entities such as Local Emergency Planning Committees who can use computers but who have very limited budgets.
- Schools and school systems.
- Charities.
- Volunteer or commercial organizations that legitimately refurbish used computers.
- The Keep Nebraska Beautiful Materials Exchange Program.
- Use a manufacturer "take back" program where available. There is some availability of this kind of program. It is definitely worth checking the vendor's current policy. Such information is usually available at the computer company's web site.
- Any refurbishing/repair company that takes in used electronics, examines all equipment for use, and keeps a meaningful percentage in continued use as the equipment that was received. It's assumed that some equipment would need repair to be kept in continued use.

- **Disposal Considerations:** If the computer equipment or other electronic items cannot be re-used, sent to a legitimate refurbisher, returned to the manufacturer, or is unserviceable, there are several disposal considerations.
  - Replacement of computer equipment and other electronic items for your individual facilities should be scheduled so that the equipment to be disposed (not re-used or refurbished) will not cause the conditionally exempt small quantity generator (CESQG) limit of 100 kg (220 lbs) per month of hazardous waste to be exceeded. Total *accumulated* hazardous waste to include CRTs or other hazardous waste electronic items must not exceed 1,000 kg (2,200 lbs) for the waste to be considered as CESQG waste.
  - The monitor or CRT and some other electronic items can contain materials that cause it to be hazardous waste if disposed. *(See Attachments 1 or 2 for a list of electronic items that are considered to exhibit hazardous waste characteristics. Other electronic items are not considered to exhibit hazardous waste characteristics as of the date of this publication unless there is evidence to indicate hazardous waste toxicity characteristics are present. Such evidence could be a MSDS or manufacturer's literature.)*
    - A CRT is **not** considered scrap metal. The monitor with the CRT cannot be considered scrap metal either. Even though the monitor does have some electronic components with potential scrap value, considering the entire assembly with the CRT as scrap metal is considered sham recycling in most instances. The NDEE recommends that only qualified technicians dismantle monitors. There are inherent risks involved with electrical shock. Other hazardous waste electronic items might be eligible to be considered scrap metal (e.g., some laptop computers, hard drives, etc.).
    - Used, intact CRTs are **not** considered solid waste unless they are disposed (Title 128, Chapter 2, §008.22A). What this means is CRTs that are recycled are not solid waste and, hence, not hazardous waste.
      - Used, broken CRTs are **not** solid wastes if they meet the requirements of Title 128, Chapter 3, §019.01 et seq.). These requirements are simple and include such basics as being stored in a building with walls, roof, & floor. Broken CRTs must be stored in a closed container and each container labeled "Used cathode ray tube(s)-contain leaded glass" or "Leaded glass from televisions or computers". It must also be marked: "Do not mix with other glass materials."
      - Used, broken CRTs are subject to speculative accumulation limitations.
      - Processing used, broken CRTs must be done in a building with walls, floor, and roof.
      - No activities allowed that use temperatures high enough to volatilize lead from the CRTs.

        - Processed CRT glass sent to CRT glass making or a lead smelter for recycling is **not** a solid waste.
        - If CRT glass materials will be used in a product to be applied to the land, then this is considered use constituting disposal and the requirements of Title 128, Chapter 7, §007 apply.

    - **Disposal of hazardous waste electronic equipment as a large quantity generator (LQG) of hazardous waste.** Most facilities would not generate 1,000 kg (2,200 lbs) or more of hazardous waste in a calendar month. However, if that should occur, contact the NDEE Waste Management Section for guidance.
    - **Disposal of hazardous waste electronic equipment as a small quantity generator (SQG) of hazardous waste.** If a facility generates over 100 kg (220 lbs), but less than 1,000 kg (2,200 lbs) of hazardous waste in a month, all that month's hazardous waste comes under full SQG hazardous waste regulation. *Note that **if** the weight of waste CRTs and other hazardous waste electronic items causes a facility to be a SQG, **all** hazardous waste generated in that month must also be managed as described under SQG Management Requirements.*
    - **Disposal of hazardous waste electronic equipment as a conditionally exempt small quantity generator (CESQG) of hazardous waste.** See the discussion of the CESQG exclusion in the Hazardous Waste Background Information section. CESQG CRT and other hazardous waste electronic item waste should be handled in a manner that is sensitive to environmental concerns. This means that, while not required, CESQG CRT and hazardous waste electronic item waste should be transported to a recycling facility when possible. See the NDEE Guidance Document – Waste Service Providers Directory for a listing that includes recycling facilities. This document is on the NDEE web site and can also be obtained by calling the NDEE Waste Management Section at (402) 471-4210 or the Waste Section Environmental Assistance Coordinator at (402) 471-8308.
    - **Disposal of cathode ray tubes (CRTs) as excluded hazardous waste.** As described in the Hazardous Waste Background Information section on exclusions and exemptions, materials are *not* solid wastes when used or reused as effective substitutes for commercial products. As of the date of this Guidance Document, there is at least one known secondary lead smelter that can take CRTs as flux for their smelting process. The Missouri Department of Natural Resources has deemed this process and the exclusion as a valid use of a commercial product. The smelter is the Doe Run Company. Contact information is as follows: The Doe Run Company, Buick Resource Recycling Division, 18594 Highway KK, Boss, MO 65440-9501. Phone: (800) 633-8566.

- **Computer equipment and other electronic items** have constituents that can cause them to be hazardous waste. *(See Attachments 1 or 2 for a list of electronic items that the department considers to exhibit hazardous waste characteristics. Other electronic items are not considered to exhibit hazardous waste characteristics as of the date of this publication unless there is evidence to indicate hazardous waste toxicity characteristics are present at or above regulatory limits. Such evidence could be a MSDS or manufacturer literature.)* However, they can usually be managed either as refurbishable products or **scrap metal** and be excluded from hazardous waste regulation so long as the scrap metal is not speculatively accumulated. The circuit boards in the electronic items can also be separately managed as usable parts or scrap metal once removed from the equipment.
    - Method 1: Send still usable electronic items to a legitimate refurbisher for processing.

- Method 2: Personnel managing electronic items as **scrap metal** should maintain documentation that demonstrates the equipment was managed as scrap.
    - Record the number and weight of hazardous waste electronic items on hand as scrap at the beginning and end of each calendar year. This will provide you documentation to refute speculative accumulation.
    - Record the date, number, and weight of each shipment.
    - Record the name, address, and phone number of the person receiving the scrap metal shipment.
    - Confirm the person receiving the scrap metal is a legitimate scrap metal dealer.

- Method 3: If computer equipment or other electronic items are not disposed as scrap metal or sent to a refurbisher, perform a waste determination on the items.
    - If the items are demonstrated to be non-hazardous, the devices may be disposed as routine trash and not counted towards the monthly hazardous waste generation total. Maintain a record to show how the waste determination was performed and any testing results as appropriate.
    - If the items are shown to be a hazardous waste **or** if no suitable method is available to prove the items are not hazardous waste, then the items must be managed as a hazardous waste and the weight counted towards the monthly hazardous waste generation total.

- Method 4: Electronic items that exhibit the characteristic of hazardous waste may be managed as **universal waste** in Nebraska. See Title 128, Chapter 25. If such items are managed as universal waste, they **do not count as hazardous waste to the generator**. If you manage electronic items as universal waste you are a small quantity *handler* of universal waste so long as the total amount of all universal waste accumulated at any time remains below 5,000 kg (11,000 lbs).
    - Contain any universal waste electronic items in containers that are structurally sound, adequate to prevent breakage, and compatible with the contents of the item.
    - Each universal waste electronic item or a container in which universal waste electronic items are contained must be labeled or marked clearly with any one of the following phrases: “Universal Waste – Electronic Item(s),” or “Waste Electronic Item(s),” or “Used Electronic Item(s).” The name of the electronic item may be substituted for the words “Electronic Item(s)” (e.g., “Universal Waste – Monitor(s)” or “Waste Circuit Boards”).
    - A small quantity handler of universal waste may accumulate universal waste for no longer than one year from the date the universal waste is generated, or received from another universal waste handler. A small quantity handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste or is received. The handler may make this demonstration in one of several ways, see Title 128, Chapter 25, §014.03.
    - A small quantity handler of universal waste is prohibited from disposing of universal waste.
    - A universal waste handler may disassemble universal waste electronic items provided the handler:
        - Ensures that the universal waste electronic items are disassembled in a manner designed to prevent the release of any universal waste or component of universal waste to the environment;

- Ensures that the disassembly operations are performed safely by developing and implementing a written procedure detailing how to safely disassemble each universal waste electronic item managed at the site;
- Ensures that a spill clean-up kit is readily available to immediately clean up spills or leaks of the contents of the universal waste electronic item which may occur during disassembly operations; and
- Ensures that employees are thoroughly familiar with the procedures for disassembling universal waste electronic items, proper waste handling, and emergency procedures relevant to their responsibilities during normal facility operations and emergencies; and maintains a system to ensure compliance with the written disassembling and management procedures.

  - If the disassembled universal waste electronic item or its components exhibit a characteristic of hazardous waste, they may continue to be managed as universal waste. If the disassembled universal waste item or its components are not managed as universal waste, then the handler is considered the generator of the newly generated hazardous waste and is subject to all applicable requirements of Title 128. If the disassembled universal waste electronic items or components become newly generated hazardous waste, the hazardous waste must be contained in containers that meet the requirements of Title 128, Chapter 10, §004.

- Note that the hazardous waste regulations do not require documentation of equipment serial numbers. However, many will choose to do so for other reasons. The department suggests that any information that is on recordable media be appropriately managed or destroyed.

RESOURCES:

Useful Websites:
- NDEE Website: http://dee.ne.gov
- MSDS Information: http://www.ilpi.com/msds/*

**NDEE does not endorse any public or private website, link provided as example*

NDEE Publications:
- Title 128 – Nebraska Hazardous Waste Regulations
- Title 132 – Integrated Solid Waste Management Regulations

Titles can be found on the NDEE Website under "Laws & Regulations"

- NDEE Guidance Document – Household Hazardous Waste Regulations
- NDEE Guidance Document – Waste Service Providers Directory (For recyclers)
- NDEE Report – Nebraska Recycling Directory

Guidance Documents can be found on the NDEE Website under "Publications & Forms"

Contacts:

• NDEE Main Line	(402) 471-2186
• NDEE Toll Free Number	(877) 253-2603
• NDEE Hazardous Waste Compliance Assistance	(402) 471-8308

- Keep Nebraska Beautiful, Materials Exchange Program** (800) 486-4562
  or in Lincoln: (402) 486-4622

Attachments:

1. **Definitions**
2. **Hazardous Waste Background Information**
3. **Sham Refurbishment Cues**

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ATTACHMENT 1

DEFINITIONS

- By-products: Materials that are not one of the intended products of a production process.
- Cathode Ray Tube (CRT): This is the glass vacuum tube portion of the computer monitor. The glass generally contains varying amounts of lead that causes hazardous waste concerns. The front panel usually contains approximately 3% lead; the back panel (or funnel) contains as much as 22% lead, and the "frit" material that joins the front and back panels is mostly lead.
- Commercial Chemical Products (CCPs): Unused or off-specification chemicals, spill or container residues, and other unused manufactured products that are not typically considered chemicals. For the purposes of hazardous waste listings, CCPs include only unused, pure chemical products or formulations. An unused piece of electronic equipment is also considered a CCP for hazardous waste regulatory purposes.
- Computer Box: The part of the computer that contains the CPU, drives, CD-ROM, video card, etc. exclusive of the monitor. The computer box contains materials that may be considered characteristically hazardous. The printed circuit boards in the computer box will usually exhibit the hazardous waste toxicity characteristic for lead (found in the solder) and sometimes for silver or chromium (found in connectors or plating).
- Conditionally Exempt Small Quantity Generator (CESQG): One who generates a total quantity of 220 pounds or less of hazardous waste in a calendar month.
- Electronic Item: Electronic equipment that contains one or more electronic boards or other complex circuitry, including but not limited to computer monitors, televisions, central processing units (CPUs), laptop computers, tablet computers, printers, terminals, keyboards, mainframes, stereo equipment, telephones, video game consoles, and audio/video recording/playback devices. Electronic items include components and subassemblies or other parts derived from the disassembly of electronic devices. While many waste electronic items do not fail the toxicity characteristic leaching procedure test for heavy metals if left intact, individual components generated by disassembly may fail the toxicity characteristic leaching procedure test. "Electronic items" does not include discarded household appliances as defined by Title 132 – Integrated Solid Waste Management Regulations, Chapter 1, §034.

    - The following electronic items are considered to exhibit the characteristic of hazardous waste unless testing or valid documentation demonstrates otherwise: *Color CRTs, circuit boards, laptop computers*, tablet computers, *computer mice, TV remote controls, cell phones,* and *smoke detectors. Other electronic items are not considered to exhibit hazardous waste characteristics as of the date of this publication unless there is evidence to indicate hazardous waste toxicity characteristics are present. Such evidence could be a MSDS or manufacturer's literature.*

- Large Quantity Generator (LQG): One who generates 1,000 kg (2,200 lbs) or more of hazardous waste in a calendar month.
- Monitor: The entire computer video assembly to include the CRT.
- Recycling: The separation and collection of wastes and their subsequent transformation or remanufacture into usable or marketable products or materials.
- Recyclable Materials: Under Title 128, Chapter 7, recyclable materials are hazardous waste that is recycled.
- Refurbisher: Individuals, companies, or other persons qualified to make electronic equipment use/reuse decisions and properly handle the resulting materials.
- Scrap Metal: Bits and pieces of metal parts or metal pieces that may be combined with bolts or soldering, which when worn or superfluous can be recycled.

- Secondary Materials: The five categories of solid wastes regulated under Title 128 that include spent materials, by-products, sludges, commercial chemical products, and scrap metal.
- Sham Recycling: Illegitimate activities done under the guise of recycling in order to be exempt from hazardous waste regulation or be subject to lesser regulation. This can include situations when a secondary material is ineffective or only marginally effective for the claimed use, when the secondary material is used in excess of the amount necessary, or when the secondary material is handled in a manner inconsistent with its use as a raw material or commercial substitute.
- Sham Refurbishment: Certain reclamation activities done under the guise of refurbishing in order to make a claim that an electronic item is not a solid waste and avoid hazardous waste regulation. See Attachment 3 for sham refurbishment cues.
- Small Quantity Generator (SQG): One who generates a total quantity of hazardous waste greater than 100 kg (220 lbs) and less than 1,000 kg (2,200 lbs) in a calendar month.
- Speculative Accumulation: A material is accumulated speculatively if it has no viable market or if the person accumulating the material cannot demonstrate that at least 75% of the material is recycled in a calendar year that begins on January 1. Under current regulations this only applies to materials that can be hazardous wastes.
- Spent Materials: Materials that have been used and can no longer serve the purpose for which they were produced without processing.
- Toxicity Characteristic Leaching Procedure (TCLP): A lab procedure designed to predict whether a particular waste is likely to leach chemicals into ground water at dangerous levels. This test is used in determining if a waste exhibits the toxicity characteristic of a hazardous waste as described at Title 128, Chapter 3, §010, Table 3.
- Universal Waste: A set of streamlined regulations to reduce the regulatory burden on certain specific wastes that would otherwise be hazardous wastes by allowing longer time for the storage of the wastes, reduced record-keeping requirements and consolidation off-site without a permit. See Title 128, Chapter 25 for the regulations and the eligible wastes.

ATTACHMENT 2

HAZARDOUS WASTE BACKGROUND INFORMATION

- Title 128, Chapter 4, §002, requires persons who generate waste to determine if the waste is a hazardous waste.
    - Determine if Title 128, Chapter 2, excludes the waste from regulation.
    - Determine if the waste is *listed* as a hazardous waste in Title 128, Chapter 3.
    - Determine if the waste *exhibits a characteristic of hazardous waste* as described by Title 128, Chapter 3 either *by testing* **or** *applying knowledge of the characteristic* in light of the materials or processes used. Note that if knowledge of process is used for the hazardous waste determination you are responsible for being correct.

- Most electronic items are not considered to be hazardous waste. However, color **cathode ray tubes** (CRTs) have been demonstrated by analytical testing to routinely fail the toxicity characteristic leaching procedure (TCLP) and be hazardous waste for lead. Other electronic wastes that are known to routinely fail a TCLP for lead are detached **circuit boards**, **laptop computers, tablet computers computer mice**, **TV remote controls**, **cell phones**, and **smoke detectors**. **Other electronic items are not considered to exhibit hazardous waste characteristics as of the date of this publication unless there is evidence to indicate hazardous waste toxicity characteristics are present. Such evidence could be a MSDS or manufacturer literature.** The devices above were tested with their batteries removed. At this time, the department does not have data that demonstrates other electronic devices fail a standard TCLP.
- Most electronic items are not required to have a material safety data sheet (MSDS) because they are articles. Therefore, most CRTs and other electronic items will not have any MSDS information available to demonstrate their lead levels.
    - There are some CRT manufacturers that provide a MSDS for CRTs. These MSDSs show lead oxide as high as 20% to 30%.
    - Assuming 100% leachable lead content from a toxicity characteristic leaching procedure (TCLP) and accounting for the molecular weight of the lead in lead oxide, the TCLP result from the above sample at 20% lead oxide *could* be as high as 8,800 mg/l of lead. The regulatory toxicity characteristic limit for lead is 5 mg/l (TCLP). There are many factors that could reduce a TCLP result, such as total mass of the sample and chemical actions that "tie up" the lead. For example, if the representative sample were the entire monitor, the mass is greater for the same amount of CRT and the TCLP result would decrease. In any event, the amount of lead present is still high enough to be suspect.

- Exclusions and exemptions from hazardous waste *pertinent to computers and CRTs*.
    - Materials are *not* solid wastes when used or reused as effective substitutes for commercial products. If a material is not a solid waste, it cannot be a hazardous waste.
    - *Household* hazardous waste is excluded from hazardous waste regulations.
    - Scrap metal managed under the scrap metal rule is hazardous waste if accumulated speculatively; otherwise it is not subject to hazardous waste regulation.
    - Conditionally exempt small quantity generator (CESQG) waste. If a person generates equal to or less than 100 kg (220 lbs) of total hazardous waste in a month, that month's waste is conditionally exempt. The waste is not subject to full hazardous waste regulation provided that:
        - No more than 1,000 kg (2,200 lbs) of hazardous waste is accumulated on-site.
        - The waste is sent to a permitted hazardous waste treatment, storage, or disposal facility (TSDF); a permitted, licensed, or registered municipal solid waste landfill; a facility which beneficially uses or re-uses, or legitimately recycles or reclaims the

waste; or a facility that treats the waste prior to beneficial use or re-use, legitimate recycling, or reclamation.

- Unless the cathode ray tube (CRT) or other known hazardous waste electronic items can be proven to be non-hazardous waste, it must be considered hazardous waste unless excluded under the used cathode ray tube exclusion (see immediately below).
- Used cathode ray tubes as defined in Title 128, Chapter 1 are not solid wastes (Title 128, Chapter 2, §008.22) unless they are disposed or speculatively accumulated as defined in Title 128, Chapter 2, §002.07.
- Hazardous waste from a conditionally exempt small quantity generator (CESQG) may be placed in a municipal solid waste landfill at a maximum rate of 19.5 kg (43 lbs) per day in Nebraska. Approximate weights of monitors are at page two of this Guidance Document. Although hazardous waste generated from a CESQG is considered a special waste, it does not require approval by NDEE prior to disposal in a landfill. However, local governments may restrict such waste. Contact your county and municipal waste agency for confirmation and always obtain the landfill's prior approval.
- Outdated computer equipment that is not a hazardous waste is not considered a "special waste" requiring prior approval from NDEE before disposal in a landfill. Title 132, Integrated Solid Waste Management Regulations, Chapter 13 covers special waste. Any permitted landfill may have more restrictive policies and should be contacted prior to waste delivery.

- Unless exempted, a recyclable material comes under Title 128 hazardous waste regulation. That is to say, the generator of hazardous waste must manage the waste as hazardous waste even though it will ultimately be recycled. Only the actual recycling process itself is exempt from regulation. Note that computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation.

  Small Quantity Generator (SQG) Management Requirements:
  - Unless the cathode ray tube (CRT) or other known hazardous waste electronic items can be proven to be non-hazardous waste or excluded hazardous waste, it must be considered hazardous waste.
  - Even though the CRT or other hazardous waste electronic item is destined to be recycled, if it does not meet or come under any exclusions such as the used cathode ray tube exclusion it could come under the universal waste rule. In order to be considered universal waste, the items must meet all the universal waste management requirements applicable to electronic items (see Title 128, Chapter 25). Computer equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT or other hazardous waste electronic item is waste and wants to send that waste to a recycler, then that waste comes under hazardous waste, used cathode ray tube exclusion, or universal waste regulation as appropriate.
  - CRT or other hazardous waste electronic item waste management must meet the requirements of Title 128, Chapter 9 (or Chapter 25 if managed as universal waste or Chapter 2 if managed under the used cathode ray tube exclusion).
  - The facility generating SQG waste must obtain a DEE/EPA Identification Number.
  - The CRT or other hazardous waste electronic item waste containers managed as hazardous waste must be labeled "Hazardous Waste" and there must be a start accumulation date clearly visible on each container. The date and label must be accessible to inspection at all times.
  - Containers holding CRTs not managed under the used cathode ray tube exclusion or other hazardous waste electronic item waste must be closed during storage, except when it is necessary to add or remove waste.
  - The areas where the waste containers are stored must be inspected at least weekly.

- The containers must be in good condition and handled in a safe manner.
- Hazardous waste familiarization training is required for personnel managing hazardous waste.
- An emergency coordinator must be designated. This person must be able to respond quickly to an emergency.
- The following information must be posted next to the telephone: the name and phone number of the emergency coordinator; the location of fire extinguishers, spill equipment and fire alarm(s) (if installed); and phone number of the fire department.
- Certain communications and emergency equipment requirements must be met. See Title 128, Chapter 17, §004, §005, and §006.
- Arrangements must be made with local authorities. See Title 128, Chapter 17, §007.
- The CRT not managed under the used cathode ray tube exclusion or other hazardous waste electronic item waste may not accumulate over 180 days (270 days if the closest TSDF is over 200 miles distant). The start accumulation date on the hazardous waste container is used for this purpose.
- A Uniform Hazardous Waste Manifest and the manifest system must be used for all shipments of hazardous waste. Hazardous waste manifest procedures may be found at Title 128, Chapter 10, §002. Universal waste shippers do not normally use a hazardous waste manifest when shipping universal waste (unless the shipment is going to or through a state that has no universal waste provision in their hazardous waste regulations). Maintain land disposal restriction documentation as described at Title 128, Chapter 20, §005.
- A regulated hazardous waste transporter must be used to transport hazardous waste.
- The CRT not managed under the used cathode ray tube exclusion or other hazardous waste electronic item waste must be transported to a permitted TSDF **or** a facility that recycles recyclable materials *without storing them before they are recycled*. Equipment sent to a legitimate refurbisher is still a product and not considered a waste and not yet subject to hazardous waste regulation. Once the refurbisher decides a CRT not managed under the used cathode ray tube exclusion or other hazardous waste electronic item waste is waste, that waste then comes under hazardous waste regulation.

If the total quantity accumulated exceeds 6,000 kg (13,200 lbs), the generator becomes subject to the permitting requirements of Title 128, Chapters 12 through 15 and Chapters 21 or 22.

ATTACHMENT 3

SHAM REFURBISHMENT CUES

This section applies to electronic wastes that could otherwise be hazardous waste or non-excluded used cathode ray tubes. Use this attachment to determine if the refurbishment is legitimate or is a sham.

- Working or presumed working monitors or other electronic items sent to a legitimate refurbisher are still considered to be in continuous use and are not a solid waste. Note that legitimate refurbishment is not an issue if the electronic items in question do not exhibit any hazardous waste characteristics. Some will choose to manage all their excess electronic items as refurbishable and if the following considerations are met, then the items will not be solid waste and hence cannot be a hazardous waste.
    - The refurbisher must have a system, process, or operation in place that maintains a meaningful percentage of the monitors or other electronic items in continued use. For example, a meaningful number of the monitors or TVs are resold as operating devices, are donated to charitable organizations as operating devices, or are rebuilt or upgraded as operating devices. The department understands that market conditions can dramatically influence the actual number of otherwise hazardous waste electronic items that are kept in continued use.
    - The refurbisher must have the technical expertise and capability to determine if the monitors/TVs they receive can be kept in or returned to continued use.
    - The refurbisher must have a system in place that examines every CRT or other electronic item they receive for potential continued use.
    - The monitors or other electronic items must be handled in a manner consistent with their continuing use as a monitor or electronic product. For example, storage of an open pallet of laptop computers in an open outside lot is not how usable laptop computers are stored and is indicative of sham refurbishing.
    - The refurbisher should not accept monitors or other electronic items that are obviously unable to be kept in or returned to continued use. For example, monitors with broken CRTs or shipments of crushed laptop computers are obviously unable to be kept in continued service. However, the presence of incidental breakage during shipment is not prima facie evidence that the monitor or electronic item was not intended for legitimate continued use. Similarly, the monitor or other electronic item does not necessarily need to be operative in order to be considered able to be kept in continued use. Legitimate refurbishment *includes repair* of the electronic equipment that is received. For example, routine acceptance of monitors and TVs with *broken CRTs* demonstrates the refurbishment operation is being used as a sham for disposal of CRTs.
    - Monitors or other electronic items may proceed via a third party such as a broker on the way to a legitimate refurbishment site.
    - Legitimate refurbishment includes facilities that accept monitors or other electronic items for *rebuilding*. Rebuilding has the intent of keeping the device in continued use. Accepting obviously broken monitors or other electronic items as described above would be evidence of sham recycling.

- Electronic items that do not exhibit hazardous waste characteristics are not affected by sham refurbishment considerations.