



# ***Electronic Waste Recycling Program Forum***

***EPA Programs: Compliance and Best  
Management Practices***



California Integrated Waste  
Management Board Workshop

Monday 26 January



# Overview of Topics

- Cathode Ray Tube (CRT) Rule
  - Overview/Applicability
  - Enforcement/Compliance
- (No) Funding
- “R2” Best Management Practices
- FAQs



# CRT Rule

- What is the CRT Rule?
  - Conditional exclusion from the federal hazardous waste management standards for CRTs and CRT glass destined for recycling.
  - Thus, if Rule is complied with, CRTs can be handled as non-waste
  - Non-compliance constitutes a violation of RCRA hazardous waste requirements



# CRT Rule

- What is the purpose of the CRT Rule?
  - Encourage collection and reuse of CRTs
  - Increase recycling of CRTs
  - Improve management of CRTs





# Volume and Health Risks

- In 2005, nationwide
  - 1.9-2.2 million tons of electronics were used or unwanted
  - **Only 345,000-379,000 tons were recycled (17-18%)**

<u>Compound</u>	<u>Components</u>	<u>Effects</u>
Cadmium	<i>Chip resistors, infrared detectors, semiconductors</i>	PBT, renal failure
Lead	<i>CRT glass, circuit board soldering</i>	Damage nervous systems, blood and kidneys. Child development. Leaching.
Mercury	<i>Circuit boards, mobile phones</i>	Brain damage from Methylated mercury
Chromium VI	<i>Anti-corrosive treatment</i>	DNA damage, asthmatic bronchitis link
BFRs	<i>Circuit boards, plastic housing &amp; cables</i>	Contaminant of concern: endocrine disruption, digestive & lymphatic cancers
Plastics	In various parts	Difficulty of recycling



# CRT Rule Exemptions

- **Used Intact CRTs** – not federal hazardous waste if:
  - Stored for less than 1 year by collectors or glass processors (75% of inventory reused or recycled)
  - Reused or Recycled





# CRT Rule Exemptions

- **Used Broken CRTs** – not federal hazardous waste if:
  - Recycled
  - Stored for less than 1 year (75% of inventory must be reused or recycled)
  - Comply with universal waste packaging and labeling requirements for storage and shipments





# CRT Rule Exemptions

- **CRTs Undergoing Processing** – not federal hazardous waste if:
  - Recycled
  - Stored for less than 1 year (75% of inventory must be reused or recycled)
  - Comply with universal waste packaging and labeling requirements for storage and shipments
  - Process inside building at temperatures that will not volatilize lead from glass



# CRT Rule Exemptions

**CRT Glass** – not federal hazardous waste if:

- Processed
- Stored for less than 1 year (75% of inventory must be reused or recycled)
- Recycled at CRT glass manufacturer or lead smelter





# CRT Rule Exemptions

- **What is CRT PROCESSING?**
  - Must do all three:
    - 1) Receive broken or intact CRTs; and
    - 2) Intentionally break or separate; and
    - 3) “Sorting or otherwise managing glass removed from CRT monitors”



# CRT Rule Limitations

- **Not Regulated:**
  - Households
  - CESQGs: Non-residential generator of less than 100 kg/month (approx. 7 to 9 CRTs)
  - User sending CRTs to collector or reseller for potential reuse or repair (product, not waste)



# Who is Affected by the CRT Rule?

- California Regulations vs. Federal Regulations
  - California authorized RCRA Hazardous Waste Program
  - California Code of Regulations are federally enforceable, i.e. both DTSC and EPA enforce CCR



# Who is Affected by the CRT Rule(cont)?

- California Regulations vs. Federal Regulations
  - CRT Management within CA follow CCR
  - CRT Management interstate follow CCR and other state's regulations
  - **Exporters of CRTs follow the CRT Rule**





# CRT Rule Export Requirement

- Used Intact CRTs for **REUSE** – one-time notification to EPA Region 9 and retain records for 3 years
- Used CRTs for **RECYCLING** – notice and consent process with EPA Headquarters





## Export Notice and Consent

- Exporter must send notification to EPA Headquarters 60 days prior to shipment
- Notice can cover 12 months of shipments
- EPA forwards notice to receiving country
- Receiving country consents in writing to EPA
- EPA forwards consent to Exporter
- Exporter **MUST** have consent to export



# ILLEGAL EXPORTS

- Results in returned shipments
- Fees from U.S. Customs
- Administrative Order and Penalty from EPA (recent case settled for \$10,300)





# CRT Rule Compliance

- Improving – Awareness of CRT Rule was slow to reach regulated community
- Brokers/Freight Forwarders completely unaware of CRT Rule
- EPA is receiving notifications from e-waste recyclers



# Compliance

- CRT Rule:

<http://www.epa.gov/epawaste/hazard/recycling/electron/index.htm>



## R9 Companies Approved for CRT Recycling Exports

<b>Exporter Name</b>	<b>Exporter Address</b>	<b>End Date for Approved Exports</b>
Eco International	Rancho Cucamonga, CA	<i>12/31/2008</i>
Intechra, LLC	North Casa Grande, AZ	<b>2/19/2009</b>
Tech Materials Group	Rowland Heights, CA	<i>12/31/2008</i>
Technologies Displays Americas, LLC	San Diego, CA	<i>12/31/2008</i>



## R9 Companies Approved for Reuse Export

<b>Exporter Name</b>	<b>Exporter Address</b>
CompuTrade, Inc.	Edison NJ
Westech Recyclers, Inc.	Phoenix, AZ
Pacific OneSource	Tarzana, CA
ARC International Corp.	City of Industry, San Diego, and Hayward, CA
HMR USA, Inc.	Brisbane, CA
Exports Express	Las Vegas, NV
ECO-International	Rancho Cucamonga, CA
Global Investment Recovery, Inc.	Tucson, AZ and Reno, NV



# No Funding

- The US EPA does not currently offer capacity-building recycling grants.
  - Competitive Grants occasionally offered
    - Not available to for-profit enterprises
- Accessing federal e-waste
  - Federal agencies have to comply with GSA policy.
    - A recycler should attempt to become a listed GSA vendor for this service. Perhaps working through a USD for *Computers For Learning* program.



# Responsible Recycler “R2” BMPs

- These Best Management Practices reflect many years working with all the stakeholders to develop common criteria to help consumers and businesses identify the best.
  - Some stakeholders disagreed and developed their own supplementary criteria which may appeal to consumers and businesses.
  - <http://www.epa.gov/epawaste/consERVE/materials/ecycling/r2practices.htm>



# FAQs

- **“EPA Certification” Does Not Exist**
  - R2 will include 3<sup>rd</sup> Party certification elements to satisfy customer need. In development.
- Beyond CRTs, what about CPUs, laptops, peripherals, cellphones, white goods?
  - Consult R2 for recycling of these non-CRT computer equipment.
  - LCDs and Laptops may have Hg backlights in screen.
  - Market for printer toner
  - Scrap value in microwaves, washer/dryers



## More FAQs (1)

- Cellphones?
  - Industry-lead takeback programs, via EPA Plug-in to eCycling
    - <http://www.epa.gov/cellphone/>
- Selecting a recycler?
  - R2, plus FEC checklists
    - <http://www.federalelectronicschallenge.net>



## More FAQs (2)

- No more circuit board & CRT glass smelters in North America?
  - A: Only 5 Cu/precious metal smelters in world equipped with dioxins-control equipment. 1 in Canada.
- More FAQ resources:
  - National:
    - <http://www.epa.gov/epawaste/conserves/materials/ecycling/index.htm>
  - R9:
    - <http://epa.gov/region09/waste/solid/ecycling/faq.html>



## ***Contact Information***

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