



Colorado's Regulatory Framework for E-waste Recycling and Disposal

Electronic Device Recycling Taskforce

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of Public Health
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Colorado's Regulatory Framework for E-waste Recycling and Disposal

1. Hazardous Waste Regulations
(Universal Waste Rules)
2. Solid Waste Regulations



When do the regulations apply?

- When the Electronic devices and components become waste:
 1. when the electronic devices will not be (or cannot be) repaired, refurbished or reused
 - i.e., the devices and/or components will no longer be used for their intended purpose
 2. the electronic devices are discarded

“Electronic device” - computer monitors, mice, keyboards, televisions, central processing units (CPUs), laptops, printers, mainframes, cell phones and telephone switching equipment.

“Electronic component” - subassemblies, components, or other parts of electronic devices



When do the regulations apply?

- Computers and some electronics may not be useful to original generator, but can still be used by someone else for intended purpose
- Who makes the waste determination?
 - If generator sends electronics for disposal
 - Then generator has made waste determination and regulations apply to generator (if commercial) and all subsequent handlers
 - If generator sends electronics to a recycler
 - Then recycler decides if reused or recycled
 - If reused, then not a waste and regulations do not apply
 - If recycled, then regulations apply to recycler

When do the regulations apply?

Yes!



Maybe Yes; Maybe No





Which regulations apply?

- Commercially-generated E-waste: Hazardous Waste/Universal Waste regulations
 - Exempt: Residential E-waste (unless mixed with commercial)
- Residentially-generated E-waste: Solid Waste regulations

Commercial E-waste



Universal hazardous
waste

Solid waste landfilling
prohibited

Recycled

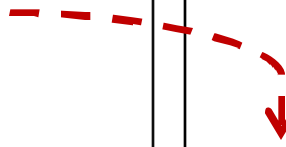
Residential E-waste



Solid waste

Solid waste
landfilling
allowed

Recycled





Commercially-generated E-waste

- Almost all commercially-generated E-waste is hazardous waste
 - due to toxicity of metals content (primarily lead in glass and lead on circuit boards)
- E-waste is designated as a “Universal Waste” under the hazardous waste regulations
 - due to its wide-spread occurrence and straight-forward storage.
- Requirements for Universal Waste are lesser than for normal hazardous waste, but apply to generators, transporters, and recyclers (cradle to grave)
 - Less labeling, longer accumulation times, less employee training, less stringent containerization, etc.
 - Incentivize recycling and proper disposal
 - **Disposal in solid waste landfill is prohibited!!**



Residentially-generated E-waste

- All residentially-generated E-waste is exempt from hazardous waste regulations (unless it gets mixed with commercially-generated E-waste)
- Therefore, it is solid waste
- Generators (you and me) are not regulated
- Transporters and collectors are not regulated
 - Drop-off sites; collection sites
 - Unless “storage” becomes “disposal”
- Destination facilities are regulated (end-point only)
 - Landfills
 - Recycling facilities



Current SW Recycling Regulations

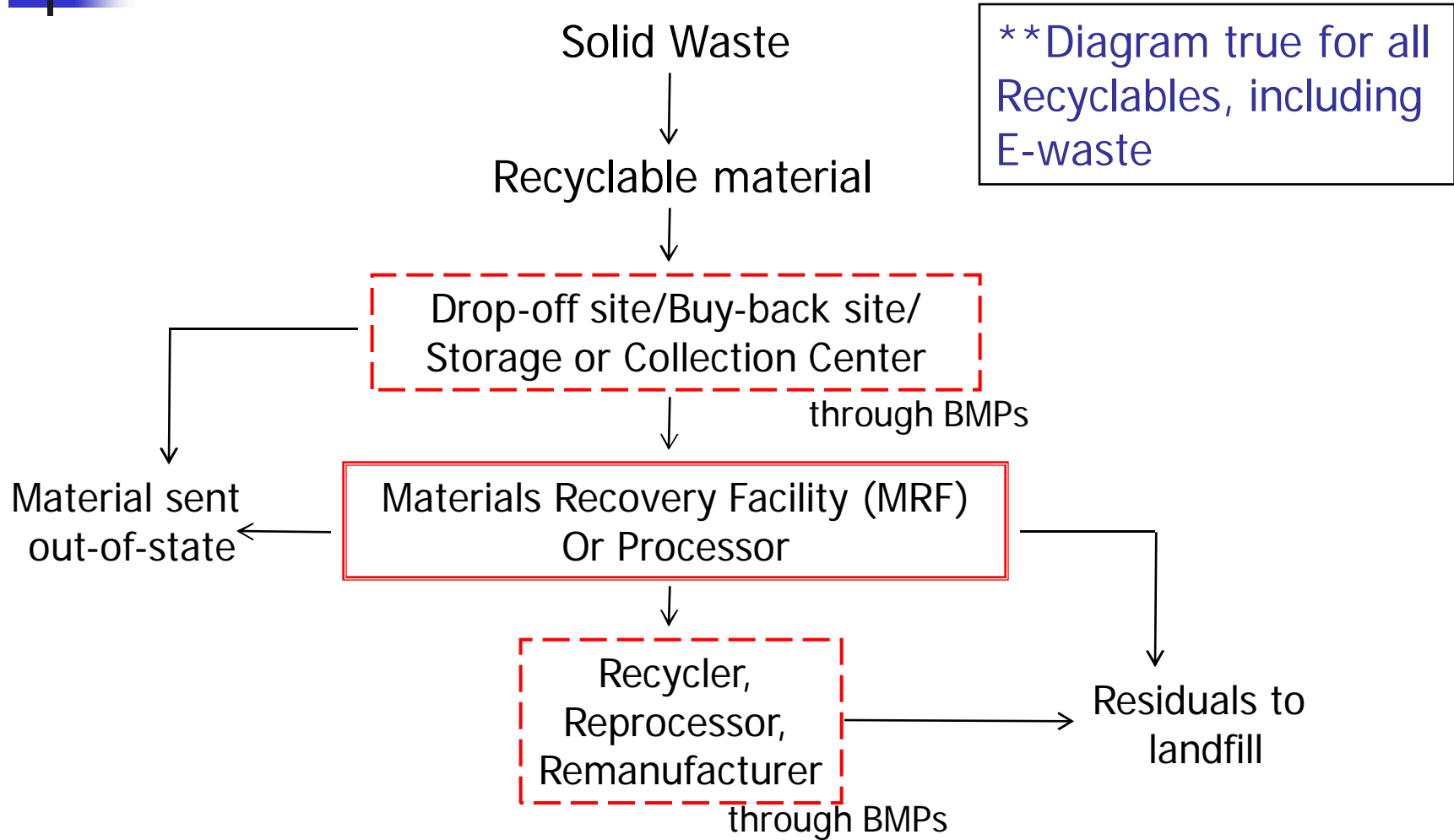
- We only regulate recycling facilities:
 - “A facility where recyclable materials may be separated from other materials for further processing or marketing”
 - E-waste processors and disassemblers
- Requirements for recycling facilities:
 - Notify CDPHE upon opening, no permit required
 - Submit Annual Recycling Facility Report on or before May 1st of each year
 - Document that at least 75% of material collected is recycled based on a 3 year rolling average
 - Document amount of each recyclable material collected or processed
 - Operated to minimize potential for releases of contamination
 - Adequately fenced and secured



Current SW Recycling Regulations

- Exempt from solid waste regulations:
 - Drop-off locations
 - Buy-back locations
 - Storage locations
 - On-site recycling locations
 - Scrap metal
 - Shredded circuit boards

Concept for New Solid Waste Recycling Regulations





Beyond the regulations

- Generator liability
 - Legitimate recyclers vs consolidators (drop-off sites; collection sites)
- International shipments
 - Universal waste handlers and consolidators can send E-waste overseas for “recycling”



What do we know about E-waste recycling in Colorado?

- 2007

- 9 recycling facilities reported processing a total of 6,809 tons of E-waste for the year
- 22 recycling facilities reported handling E-waste

- 2008

- 14 recycling facilities reported processing a total of 8,029 tons of E-waste for the year
- 27 recycling facilities reported handling E-waste
- We know of 55 entities collecting E-waste
 - Many with multiple locations (Best Buy, Staples, etc.)



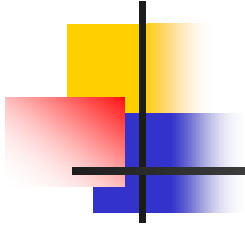
What do we know?

- 2008
 - 4 large recycling facilities differentiated residentially and commercially-generated E-waste
 - 1,090 tons residentially generated (27%)
 - 2,920 tons commercially generated (73%)



CDPHE Concerns

- Current lack of data/information
 - State-wide/Regional E-waste generation rates
 - State-wide/Regional E-waste recycling capacity
 - State-wide/Regional E-waste recycling rates
 - Urban/Suburban vs Rural
- E-waste recycling needs to be incentivized
 - One way: Reduce or eliminate drop-off fees paid by public at collection centers or events
- Recycling capacity might need to be expanded
 - Before a landfill ban implemented



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