

Colorado Product Stewardship Workshop

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PRODUCT STEWARDSHIP SESSION:

A Case for Addressing Mercury Thermostats in Colorado

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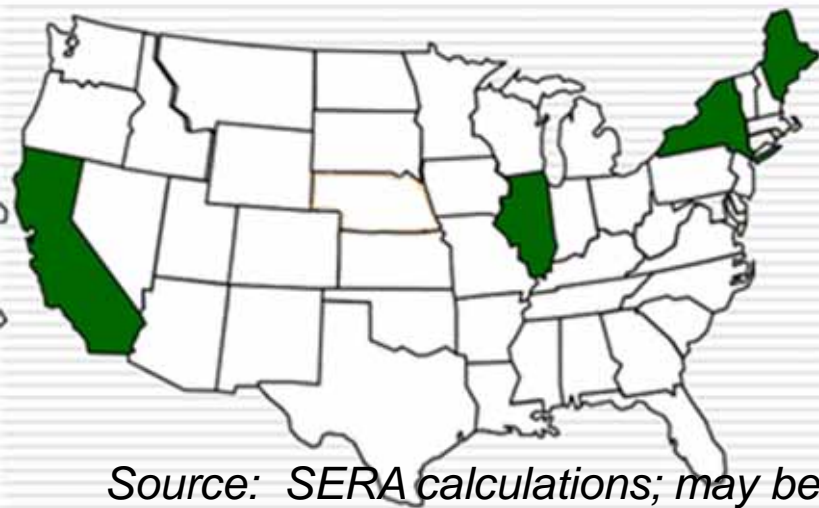
THE PROBLEM WITH HG: MERCURY IN THE ENVIRONMENT

- Dangers:
 - Can enter leachate and migrated to groundwater systems
 - Exit landfills as vapor (working face & vents) and harm kidneys & respiratory failure
 - Toxic and biomagnification into food web
 - Neurotoxin affecting liver, kidneys, developmental disorders
 - Factors affecting release: age, hot spots, venting of LFG, flaring.
- AND Hg thermostats are NOT currently being recycled in large numbers.
 - <2000 in 2013 in Colorado
 - <1% of total flowing out per year
 - Ending up in state / county / private landfills
- Harmful Levels:
 - EPA says safe is 0.1 µg/kg body weight/day
 - Elemental mercury vapor long term 20 µg/m³ of air => toxic effects on nervous system

THE SIZE OF COLORADO'S MERCURY PROBLEM

- Based on SERA studies in 5 states (but none THAT similar to CO)
 - ESTIMATE ONLY: varies based on res / com'l mix, development years, utility programs, and other drivers...

| | # Hg T-stats | MT Hg in CO | Outflows next 10 yr | Outflows 20 years | % Re-covered |
|-------|--------------|-------------|---------------------|-------------------|--------------|
| Total | 3.5-6 mill | 3.5-9 MT | 151-400K | 290-600K | <1% |



Source: SERA calculations; may be used with permission of author

THERMOSTAT LEGISLATION IN PLACE NATIONALLY

- Bans – sales, installation, or disposal
 - 21 states (21 / 11 / 16)
- Recovery mandates –
 - Wholesale / distributor collection (12)
 - Manufacturer funded collection / recycling (13)
 - Contractor recycling (13)
 - Web & catalog sales take-back (3)
- Numeric or percentage goals – 4+
- Enforcement- Various state departments
- Sunsets – 2021-2024

- Not much teeth without numbers or enforcement
- What is goal behind recovery?

WHAT WOULD BE NEEDED

- Meetings with stakeholders
 - Policy goals / objectives
- Decisions on bans
 - What place(s)
- Decisions on recovery mandates
 - At what point(s) in chain?
- Data on Number with Hg, estimated outflows for goal-setting (inexpensive study)
- Decision on numeric goal
- Enforcement mechanism and agency
- Sunset decision
- Metrics/ tracking

PROS / CONS OF CONSIDERING Hg LEGISLATION

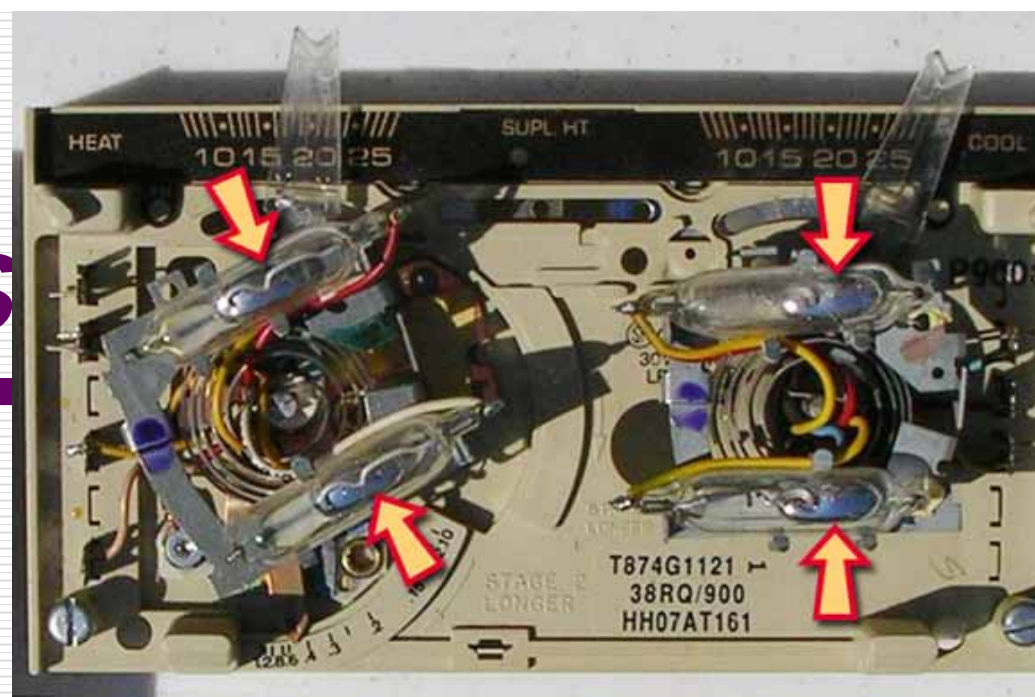
PROS

- Literature on harm; multiple media
- Precedent elsewhere, multiple states
- Industry funded recovery program model common
- State seems more willing to act on hazardous materials than other types...
- Lost opportunity
- Joint benefits (energy too)

CONS

- Champion?
- Responsible entity
- Others

Hg ISSUE / THERMOSTATS



QUESTIONS/DISCUSSION?

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THE CASE FOR ELECTRONICS LEGISLATION



Presented by Janice Oldemeyer,
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ELECTRONICS RECYCLING HISTORY IN COLORADO

- Prior to the passage of the landfill ban, e-waste recycling was voluntary for residential waste, recycled volumes ranged from 6,000 to 12,000 tons per year
- Following the passage of this ban, recycled volumes increased to 23,819 tons per year in Colorado in 2015
- Generators, including residents and jurisdictions, pay the cost of recycling (typically anywhere from \$0.15 - \$0.50/lb)
- Manufacturers have NO responsibility

WHY ELECTRONICS ARE A GOOD CANDIDATE

- Volume – Electronics are one of the fastest growing wastestreams
- Hazardous nature – Electronics contain many hazardous components (lead, mercury, cadmium, beryllium, batteries), which when improperly managed contaminate the environment and cause human harm
- Non-Renewable Resources – Electronics are primarily made of non-renewable, yet valuable resources including gold, silver, palladium, copper, and rare earth metals.
- High cost of recycling – while containing many items of value, the transportation and high labor costs make most electronics expensive to recycle properly.
- High Propensity for Mismanagement – Due to the value of many components (gold, silver, copper, palladium), electronics have a history of mismanagement, including export to developing countries

LANDFILL BAN – WHAT'S NOT WORKING

- No consistency among recycling options/funding mechanisms throughout State – can be confusing to residents
- Illegal Dumping
- Decrease in Certified Companies (from 25% IN 2013, TO 21% IN 2017)
- Lack of knowledge on Disposition/possible Improper Disposition??
- No Producer Responsibility

LANDFILL BAN – POSSIBLE IMPROVEMENTS

- Create funding mechanism to cover costs of illegal disposal and to aide rural jurisdictions
- Create Producer Responsibility funding mechanism to cover cost of all e-waste recycling
- Create Advanced Recycling Fee funding mechanism to cover cost of all e-waste recycling
- Create hybrid funding mechanism
- Do Nothing, let the market work out the problems

GENERAL SUGGESTIONS

- Do not leave recycling decisions/funding to Manufacturers
- Keep government involvement in setting recycling costs to ensure appropriate funding
- Keep transparency in recyclers utilized, costs, disposition
- Support Certifications (though certification is not a guarantee)
- More involvement by State/Jurisdictions in responsible disposition
- Regulate/oversight of CRT disposition – is sending it “away” really the best option?
- Hold Stakeholder meetings involving recyclers, jurisdictions, State and manufacturers
- Learn from other State’s successes and mistakes



Thank you

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