Tires, Televisions & Measuring Recycling

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Recycling Measurement

• PA 55 of 2016 – Recycling Reporting
• AKA - Part 175 of Act 451 of 1994.

The possibilities are endless.
Part 175 Requirements

Sets forth a method for DEQ to start to quantify the amount of recycling going on in the state.

– Recycling rate is 15.3% (calculated)

• Specifies recycling establishments that must register and report

• Allows voluntary reporting
Recycling Reporting

- Defines “recycling establishment”
- Identifies facilities exempt from reporting
- Creates reporting requirements for a “recycling establishment”
- Defines reportable material
  - Seven materials identified
- Requires the DEQ to annually report on Recycling Progress
Recycling Reporting

• Implementation
  – July 1, 2016 initial registrations due
    • Paper system
  – Electronic registration and reporting system
    • October 1, 2016 (ReTRAC)
  – Allows for annual and quarterly reporting
  – Allows for aggregate reporting
  – New facilities: Register within 30 days of establishment.
Recycling Reporting

- All data submitted is FOIA protected
  - State can only report aggregated data - no facility specific data

- Department must post recycling achievements on annual basis

- Annual legislative reports start in 2018

- Website: http://www.michigan.gov/deq/0,4561,7-135-70153_69695---,00.html
QUESTIONS
Electronics Recycling
The Michigan Program

- One of 24 states with an extended producer responsibility program
- Implemented in 2009
  - Applies to residential and small business equipment (small = < 10 people)
- Voluntary goals
- Three main parts to the law
  - Manufacturers, Recyclers and Retailers
Manufacturer Requirements

❖ Register annually when selling covered electronic devices in the state
  • CED = Covered Electronic device
    ✓ Computer, Tablets, Monitors, Printer, Television

❖ Establish a free and convenient takeback program.
  • 60% non-binding goal for television manufacturers:
  • No goal for computer manufacturers (computers includes monitors)
  • Four program options: mail, collection days, permanent sites, retailers
Recycler Requirement

Recyclers must register annually with MDEQ

- Recycling a CED
  - Recycling = any dismantling other than data security reasons
  - Accepting material from covered sources

- Meet certain operational standard
  - Certification
  - Health and Safety Plan
  - Recordkeeping
  - Proper management of the material
Retailer Requirements

- Retailers - Don’t sell unregistered CEDs
DEQ Requirements

- Review applications for completeness
- Post registration lists
- Inspect recyclers
- Post registered brands list
Why should we care?

- Electronics contain several different types of heavy metals
  - Monitors and Televisions = Lead & Barium
  - Flat Panel (LCD) Monitors & Televisions = Mercury
  - Computers = Lead, Silver and Barium
- Unwanted electronics from a business needs to be managed the same as other wastes generated by that business.
Electronics General Regulations

• Electronics are classified as a Universal Waste
• Regulated under hazardous waste rules (commercial or industrial sources)
• Part 111 contains specific regulatory exemptions for universal wastes.
• Exemptions apply if the material is being recycled.
• Waste managed outside of the exemptions: material is a fully regulated waste.
How is it working?

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Manufacturer Reported</td>
<td>7,364,767</td>
<td>19,147,536</td>
<td>27,534,441</td>
<td>29,202,499</td>
<td>25,004,148</td>
<td>20,666,692</td>
</tr>
<tr>
<td>Total Actual Pounds Recycled</td>
<td>22,679,618</td>
<td>28,756,326</td>
<td>41,592,087</td>
<td>50,367,727</td>
<td>39,253,900</td>
<td>23,933,680</td>
</tr>
<tr>
<td>Total Pounds Recycled for Manufacturers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17,485,480</td>
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Amount Recycled (lbs) in Michigan
Participation

Manufacturer Registrations

Program Year

Amount Registered

Total Registrations
VDD Registrations
Compliance

Compliance Rates

Program Year

Percentage of VDD Manufacturers

- Compliant
- Non compliant
Challenges for our Program

- **Collection infrastructure**
  - Expectations - Lowest price wins
  - Limited funding

- **Weak law**
  - Voluntary goals
  - Vagueness in the law
  - Limited enforcement
    - Unregistered Recyclers
    - Unregistered Manufacturers
Program Challenges

- Limited staffing
  - Education and enforcement are key

- Commodity Prices
  - Increased cost to recycle material

- Reduced Opportunity
  - Communities are cutting back due to cost
## Commodities by waste stream

<table>
<thead>
<tr>
<th>CRT plastic case TV</th>
<th>Other electronics</th>
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<tbody>
<tr>
<td>Glass</td>
<td>Steel</td>
</tr>
<tr>
<td>63%</td>
<td>29%</td>
</tr>
<tr>
<td>Plastic</td>
<td>Plastic</td>
</tr>
<tr>
<td>20%</td>
<td>28%</td>
</tr>
<tr>
<td>Steel</td>
<td>Copper</td>
</tr>
<tr>
<td>9%</td>
<td>19%</td>
</tr>
<tr>
<td>Boards</td>
<td>Boards</td>
</tr>
<tr>
<td>5%</td>
<td>17%</td>
</tr>
<tr>
<td>Copper</td>
<td>Aluminum</td>
</tr>
<tr>
<td>4%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Economics

2011-2015 commodity prices crashed

- Copper (lb): -38%
- Silver (ton): -55%
- Gold (oz t): -25%
- Steel (oz t): -32%
- Aluminum (lb): -24%
- Oil (barral) - Plastic proxy: -55%
Other challenges

- Limited outlets for hard to recycle material
  - 20+- outlets for CRT Glass to Glass in 2003
  - 2 outlets for CRT Glass to Glass in 2014
  - New option available: limited volumes

- Estimated 4-5 billion pounds of CRT style televisions and monitors remain in households and small businesses.
  - Reduced support from manufacturers
Where is the Lead?

Figure 2
Where's the lead in a cathode ray tube (CRT)?
(Courtesy of Robin Ingenthron,
Massachusetts Department of Environmental Protection)
Management of CRT glass

- Acceptable options for managing CRT glass under the Michigan program.
  - Glass to Glass – Recycling
  - Lead smelting - Funnel Glass
  - Reuse in construction – aggregate replacement
  - Landfilling
    - Reuse (ADC) and disposal (household wastes)
  - Other- Ceramic tiles, radiation protection, etc.
National Challenges

Colorado electronic recycling company closes down and abandons tons of hazardous CRT glass

E-recycling company dumps tons of CRT glass

9 million lbs. of CRTs in AZ

1.5 million lbs. of CRTs in CO

3,000 Gaylords of CRTs in MD

Abandoned cathode ray tubes found in Arizona

UPDATED: Abandoned Baltimore warehouse is full of CRTs

Baltimore warehouse is full of CRTs

By Jeremy Carroll

Wednesday, September 11, 2013

Approximately 9 million pounds of abandoned cathode ray tubes have been found in Arizona, the Basel Action Network announced.

The organization said that Dow Management, the alleged recycling company that held the glass in three warehouses in Yuma, Ariz., has disappeared, along with the company’s executives. Dow Management was paid $881,000 from California recyclers to take the glass, the organization said.

Consumers in California pay an advanced recycling fee for various electronics to fund an electronics recycling program.

“Dow Management has tricked California consumers of at least half a million dollars,” said Jim Puckett.

And what is truly amazing is that we have seen no evidence of the products of Dow or California conducting any effort to prosecute the

processing of electronics, and simply "took the money and ran." Not one of the warehouses was registered with the State of California.

“Bailey is the business of empty trailers. Right now we have none. We are currently the largest exporter of glass to the United States, but eventually we were unable to get purchase orders to ship

milling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smelters, Xstrata in New Mexico and eventually sold the millling glass to two primary lead smel...
In our backyard
Addressing the Problems

- DEQ led a stakeholder process to review the law.
- Five main issues identified:
  - Declining manufacturer support for the program
  - The shifting of the cost onto the local communities.
  - Better data
  - More education
  - LCD situation
Cost to Recycle

- Factors that increase the cost of recycling electronics for residents
  - Transportation
  - Additional handling
  - Low quality of the material
  - Quirky requirement of the collectors
  - Michigan’s law – FREE provisions
Long Term Industry Issues

- Amend programs to allow alternate methods of glass management
- Focus program on Hard to recycle items?
- Do voluntary goals work?
- Address proper recycling of LCDs
Proposed Amendments

- General updates: definitions, clarifications
- Increases reporting by manufacturers
  - Stewardship plans
- Rural collection incentive
- Establish an advisory/oversight committee
- Increase fees
  - Expand education and outreach
  - Grant program to support recycling of electronics & address dumping.
Summary

❖ Michigan has a successful program.
  • Average 25+ million pounds/yr. recycled

❖ Law needs to be updated to address changes in the industry.
  • Better data collection to make an accurate assessment of the benefit of the system.
  • More education about where to recycle.

❖ Whole system of electronics recycling needs attention.
QUESTIONS

KEEP CALM AND RAISE YOUR HAND
Scrap Tires
Scrap Tires

• Regulated under Part 169 of Act 451 of 1994 as amended.
• Program is funded by state title transfer tax.
• Transporters and collection sites must register annually.
• Scrap Tire Webpage: http://www.michigan.gov/deq/0,4561,7-135-3312_4123_4122---,00.html
Why Regulate Scrap Tires?

- Runoff from tire fire sites can contaminate ground water
- Smoke from tire fire
- Mosquitoes

- Landfilling whole tires:
  - Required that they be “size reduced”
  - Each landfill has their own rule as to how much reduction is required.
Scrap Tire Program Grants

Cleanup Grants
- Primary focus of the Grant Program
- Most widely known about
- Available annually (Nov.)
- Drop off days = great way to make CHEAP and CONVENIENT disposal available to citizens.

Market/Research Development
- Direction to move for Program now that large piles are cleaned up.
- Ensures that new end uses are created to maintain flow.
- Essential to prevent new and illegal piles.
- Products
- Rubber Modified Asphalt (RMA)
Cleanup Day Requirements

- Must be taken to registered Collection Site or Processor
- Location cannot have tires stored on site.
- Registered Hauler must transport tires
Collection Site/Processor Requirements

• Complete required Registration
• Meet local zoning requirements
• Emergency Plan
• Site Map
• Bonding for storage area (if required)
Products Made from Recycled Tire Rubber

- Tire Derived Fuel (TDF)
- Rubber Modified Asphalt (RMA)
- Crumb Rubber
- Molded Products
Contact Information

• Rhonda Oyer- 517-284-6591
  oyerr@michigan.gov

• More information: DEQ Scrap Tire Webpage
  http://www.michigan.gov/deq/0,4561,7-135-3312_4123_4122---,00.html
Questions?
Thank you for protecting Michigan’s environment!