Sustainable Recycling Programs: What it Means to the Recycling Industry

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Recycling Services

88%  
Increase in amount of recyclables managed since 2007

30.5M  
Tons of recyclables extracted from the waste stream since 2012

100  
Materials recovery facilities owned/operated by Waste Management (12/2015)

WM has invested over $1 billion in recycling infrastructure.
The Evolving Ton
Change in Materials: 1990-2012

Declining prevalence

Increasing prevalence

% Change from 1990

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Does more tons = more recycling?

- Around 9,800 recycling programs in US
- Differ in materials collected, color of containers, type of collection,
- Diversity of communities; languages, background, education
- Recycling Rates and Diversion stats but very little information on composition information.
- Differences in frequency of communication; educational materials; Tight budgets, small staff, minimal enforcement and few structured enforcement programs
- Does larger and more recycling containers always = more recycling? What are the unintended consequences?
Single Stream = Contamination
Issue: Increasing Contamination

- Contamination on average 16%
- Contamination up to 50% in some cases
- Contamination reduces yield > demand
- Processing costs increase, up 20% in two years > driving up cost to customers
## Common Contaminants

<table>
<thead>
<tr>
<th>What</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Bags w/ food waste, trash, recyclables</td>
<td>Can’t tell what’s in them have to discard</td>
</tr>
<tr>
<td>White Bags w/ food &amp; bathroom waste, recyclables</td>
<td>Can’t tell what’s in them have to discard</td>
</tr>
<tr>
<td>Clear bags w/ food &amp; bathroom waste, recyclables</td>
<td>Takes time on line to open, miss other hazards, discard</td>
</tr>
<tr>
<td>Tarps, kiddie pools, large plasticsheets</td>
<td>When remove from line, sweep all other recyclables</td>
</tr>
<tr>
<td>Flexible film packaging, plastic bags</td>
<td>Wrap around stars and contaminate paper</td>
</tr>
<tr>
<td>Wood, green waste, dirt, concrete, floor board</td>
<td>Can’t remove from line, contaminate other products</td>
</tr>
<tr>
<td>Electronics, small appliances, car parts, propane tanks</td>
<td>Heavy, damage screens, explosions, fires</td>
</tr>
<tr>
<td>Textiles, bed spreads, sheets, shoes</td>
<td>Wrap around screens and/or get into paper</td>
</tr>
<tr>
<td>Hoses, wires, hangers, holiday lights, extension cords</td>
<td>Wrap around screens, sweep all other recyclables</td>
</tr>
<tr>
<td>Carpet</td>
<td>Heavy, when remove sweep all other recyclables</td>
</tr>
<tr>
<td>Paper plates, cups, tissue, paper towels,</td>
<td>Contaminate paper</td>
</tr>
<tr>
<td>Food and Liquids</td>
<td>Contaminate products</td>
</tr>
<tr>
<td>Diapers and Animal Waste</td>
<td>Contaminate products; health hazard</td>
</tr>
</tbody>
</table>
Contamination

Inbound Stream

Common Contaminants:
- Film, bagged material (recyclables and trash)
- Textiles, Shoes, Blankets
- Small Appliances
- Food Waste, Yard Waste, Wood
Why is Contamination a Problem?
Increasing Demands on MRF Labor and Technology while Decreasing Equipment Performance
• More Sorters Required to Remove Contaminants throughout
• Contaminations Prevent Equipment from Performing Effectively
• Increases the Cost of Recycling
Increased Outbound Contamination
• MRFs designed to separate recyclables from recyclables
• MRFs cannot remove all contamination > gets into other products (i.e. paper, PET,)
• Reduces yield of outbound materials
• Reduces value of outbound materials
Reduced Market Opportunities
• Buyers Reject Loads; Reduce Price; Can’t compete with virgin materials, Stop Buying Materials altogether
Example – Green Fence

Jeopardizing Viability of Recycling Long-Term and Reducing Opportunities for Greater Market Penetration and the
Impact of Contamination

Pre-Sort

✓ Sorters Remove Film and Other Contaminants
✓ Sorters are an Investment
✓ Sorters Could be Used to Extract Higher Value Commodities or to Improve Quality of Outbound Materials
✓ Investment in Bag Vacuum Technology to Capture Material
✓ Removed Material Has No Value
Impact of Contamination

Equipment-Design vs. Processing/Separation State

✓ How Stars are Designed to Function
✓ Containers/Smaller Items Drop through Openings

✓ Shortly After Processing
✓ Pre-Sort Can’t Remove Everything
✓ Contamination Wraps Around Stars
✓ Openings are Blocked
✓ Containers Can’t Fall Down >Flows into Fiber
Impact of Contamination

Equipment-Post-Processing

✓ Just Some of the Material Removed from the Stars
✓ Sorters/Staff Need to Remove this Material Regularly to Prevent Contamination
Impact of Contamination

Outbound Products – Quality

- Ex. of Materials Removed from Final Product
- Contaminated Recyclables/Reduced Quality
- More Labor Required to Remove Contamination
- Risk of End Market Loss
Sustainable Materials Management: Quality over Quantity

- The U.S. recycling industry must rely on both domestic and overseas markets.
- Pricing and quality are critical to keep U.S. recovered materials competitive in the global market.
- We must all work to improve the overall quality of recyclables.
- MRFs are increasing their processing to reduce the amount of non-recyclable plastics and other contaminants.
- There is a need for superior, customized public education programs, community involvement, and enforcement.
- There is a need to ensure we Recycle Often but Recycle Right®.
- There is a big push for diversion. But if more “diversion” results in worse and worse quality, it can jeopardize the long-term viability of the recycling industry.
Call to Action:

- Need to understand what’s happening in our recycling programs
- Need to proactively manage our recycling programs
- Need to ensure education is happening often and correctly
- Need to have enforcement
- Need to be a part in ensuring the viability of recycling.
Thank you!

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