Co-digestion of Organics
Overview, Practices, Lessons Learned

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R2 Program Overview
Trucked Waste

- Began accepting trucked waste in 2002 to utilize excess digester capacity
- 4,000 trucks/month
- 20 million gallons/month non-hazardous liquids
- Trucked wastes received 24-7, 365 days/year

2002
Septage Receiving $1M

2004
Solid-Liquid Receiving $7M

2014
Blend Tank Receiving $13M
R2 Program Overview
High Strength Waste Portfolio

FY 2016 High Strength Wastes
(by volume)

Food Waste
Rendering/Blood Waste
Beer/wine/soda wastewaters
Other food processing wastewaters
Dairy/Cheese Processing wastewaters
Fats, Oil and Grease (FOG)

Food Waste: A small part of our [bugs] pie, why the fuss?

Opportunities:
- Local/Less Hauling
- Energy Rich
- Statewide need for capacity
- Growth opportunity

Challenges:
- Contamination
- Sampling methods
- Technology still relatively new

Variety of Approaches:
- CSSO vs MSW
- Processing Equipment
- Hauled as liquid/solid
Co-digestion Opportunities
BMP Test Comparison

- CSSO
- Current Digester
- Feed Blend
- Pressed MSW
- PS/TWAS
- (MWWTP Sludge
- Coffee –
- Fine Grind
- Coffee –
- Coarse Grind
- Seed – Digested
- Sludge
Co-digestion Challenges
Types of Contamination

Metal:
- Severe Problem
- Breaks Equipment
- Breaks Pumps
- Hard to sample
- Can be removed at high TS%

Light Contamination (plastic):
- Clogs Equipment
- Doesn’t Settle Out
- Can be removed at high TS%

Heavy Contamination (grit):
- Settles out, expensive to remove from tanks
- Increases equipment wear and tear
- Can be removed at low TS%
# Co-digestion Approaches

## Sources Comparison

<table>
<thead>
<tr>
<th>Receiving Method</th>
<th>Description</th>
<th>Contamination Control</th>
<th>Full Scale Experience</th>
<th>Contamination (dry weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solids (end dump)</strong></td>
<td>CSSO - Ground to 2&quot; minus</td>
<td>Customer Education</td>
<td>Very difficult to process</td>
<td>Light: 4.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rejecting loads at pickup</td>
<td>Metals (cutlery) an issue</td>
<td>Heavy: 4.6%</td>
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<tr>
<td></td>
<td></td>
<td>Magnet after grinding</td>
<td>Not cost-effective</td>
<td></td>
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<tr>
<td></td>
<td>Pressed MSW</td>
<td>Press through screen</td>
<td>Limited experience</td>
<td>Light: 7.0%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Requires polishing</td>
<td>Heavy: 5.0%</td>
</tr>
<tr>
<td></td>
<td>CSSO - preprocessed</td>
<td>Hammermill</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Liquids</strong></td>
<td>CSSO - Processed to liquid</td>
<td>Screw Press</td>
<td>Easy to process</td>
<td>Light: 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8th Inch shaker screen</td>
<td></td>
<td>Heavy: 1.5%(^1)</td>
</tr>
<tr>
<td></td>
<td>Ground to liquid at generator site</td>
<td>Generator sorted (via “weak” grinder)</td>
<td>Limited experience</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Seems easy to process</td>
<td></td>
</tr>
</tbody>
</table>

1. Mostly eggshells
Co-digestion Approaches
FW Business Model: Separation

Sort at the generator?

CSSO may start nice

Easy to handle liquid

Needs to be unmixed ....

Gets mixed....
Co-digestion Approaches
FW Business Model: Mix it all

Anaergia Press (San Francisco)

Zero Waste (San Jose)
Co-digestion Challenges
Lessons Learned

- Source Separation is helpful, but may not be enough
- Liquids can be handled easily, but greater hauling costs
- WWTP may be able to cost effectively remove grit, EBMUD planning grit removal pilot
- EBMUD still actively exploring and is interested in a variety of approaches
Q&A

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