Do you know...

How much of the pie goes in the trash at your favorite restaurant?

Pie Chart
Presentation

- Who we are and what we do

- How food waste digestion fits into solid waste management

- Project details…
  - Program design
  - Integration into wastewater treatment plant
  - Results to date
Organics in LA County Waste

- LA County generated 21 million tons of solid waste in 2012...
- 32% of solid waste is organic
- 50% of organics is food waste
  - 3.5 million tons/year of food waste
Districts’ Solid Waste Facilities

- **Materials Recovery Facilities/Transfer Station**…
  - Puente Hills MRF
  - Downey Area Recycling & Transfer
  - South Gate Transfer Station

- **Refuse-to-Energy Facilities**…
  - Commerce REF
  - SERRF

- **Landfills**…
  - OPEN: Calabasas, Scholl Canyon
  - CLOSED: Puente Hills, Spadra, Palos Verdes, Mission Canyon
Districts’ Wastewater Facilities

- Joint Water Pollution Control Plant…
  - 280 mgd treated
  - 24 active digesters

- Ten water reclamation plants

- Approximately 1,445 miles of main trunk sewer lines

- Districts operate 49 active pumping plants
Food Waste Recycling Steps

1. Food Waste
2. Pre-Processing
3. Anaerobic Digestion
4. Post-Treatment
5. Digester Gas
6. Fertilizers/Composting
7. Heat/Steam
8. Electricity
9. Biomethane
10. Vehicle Fuel
What a Digester Looks Like
How a Digester Works

Input – Organic Materials
Food scraps, yard trimmings etc.

Output – Biogas
Used for energy production

Hydrolysis
Acidogenesis
Acetogenesis
Methanation

Output – Natural Fertilizers
Food Waste Bench Scale Testing
Biogas Production

Adding 10-12% (v/v) food waste slurry to sludge could double biogas production

Food Waste Slurry characteristics: Total Solids ~ 14% by wt., Volatile Solids ~ 92% by wt., COD ~ 222,000 mg/L
Digesting Organic Waste Streams at Wastewater Treatment Plants (WWTPs)

● Advantages:
  – Digester already exists
  – Energy recovery equipment already exist
  – California WWTPs have capacity for up to 75% of California’s food waste stream

● Concerns and challenges:
  – Can accept only relatively clean feedstock
  – Impact of additional residuals on biosolids
  – WWTPs have an important public health mission
The Districts and Waste Management entered into a program agreement, with food waste specifications being a key development.

WM processes food waste slurry at off-site location and delivers to JWPCP, with target feed rate of 61 diverted tons (or 20,000 gallons-slurry) per day.

AT JWPCP, the slurry is injected into one digester for co-digestion at 9% food waste slurry on a liquids basis and 30% food waste on a solids basis.

WM and JWPCP’s testing team are monitoring the program to evaluate the impacts and performance of food waste when co-digested at a WWTP.
WM’s CORé® Solution in Orange

- WM collects food waste from sources such as restaurants, food processing plants, cafeterias and grocery stores. Tipped material is inspected prior to processing.
- Food waste is processed to remove physical contamination (e.g., utensils, cans, packaging, and heavies) using WM’s patented CORé® process.
- The processed food waste is blended and tested to manufacture a high quality, consistent Engineered BioSlurry (EBS™) product.
- Manufactured EBS™ is loaded into tanker trucks for delivery to JWPCP.
Food waste is pumped from WM tanker trucks into closed, sealed storage tanks, controlling odors.
JWPCP Demonstration Update

Food Waste Tonnage

![Graph showing food waste tonnage from 2014 to 2016. The graph displays two lines: one for tons projected and one for tons received. The line for tons received shows a steady increase, while the line for tons projected remains flat.]
**Use of Digester Gas from Food Waste**

- **Current usage of digester gas**
  - Treatment plant is currently using some of the additional biogas for electricity generation
  - As food waste receipts increase, we will need to add more energy recovery capacity

- **Future options…**

  - **Electricity**
  - **Vehicle Fuel**
  - **Biomethane**
  - **Biosolids Drying**
Key Results to Date

- Food waste handling and storage systems have worked as designed
- No major impacts on treatment plant operation seen to date
- Biogas production has increased as expected
- Districts developing plans for expansion to accept up to 500 tpd diverted food waste
Thank you.

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“So, this Humpty Dumpty guy falls off the wall and I think, Dang, ain’t lettin’ this go to the food waste bin.”