



COVANTA
**Environmental
Solutions**

Workshop on Application of Electron Beam
Technology to Wastewater & Biosolids
Treatment

MAY 10, 2018

Covanta

North America's Largest Energy-from-Waste Facility Operator



Our plants convert residential trash, industrial by-products, unwanted and outdated inventory, medical and other wastes to steam through a thermal, boiler-driven process. This steam is sold to cities and industrial facilities with whom we partner, or else converted into electricity.

Covanta Environmental Solutions

Subsidiary of Covanta

We are fast becoming one of North America's largest operators of Centralized Waste Treatment (CWT) facilities. These facilities receive, treat and recycle wastewater, the majority of which is generated through a wide range of manufacturing processes.



Covanta Environmental Solutions

Treatment Process



- Waste is picked up at client locations and primarily delivered in bulk tankers
- First step is to offload through screen to remove debris and large solids.

Covanta Environmental Solutions

Treatment Process, cont'd.



Treatment Technology:

- Oil Separation
- Sludge Dewatering
- Testing of Treated Water
- Chemical Precipitation & Flocculation
- Oil Dewatering
- Discharge to Local POTW

Covanta Environmental Solutions

Effluent Limits



- Effluent is required to meet federal limits developed by US EPA;
- In addition, local limits developed by state and local POTWI;
- Local limits can vary widely;
- Limits usually address:
 - a) Heavy Metals
 - b) Volatiles & Semi-Volatiles
 - c) Fats, Oils & Greases
 - d) Strength Pollutants – BOD/CBOD/TSS/TKN/Ammonia/Phosphorus
 - e) PCB's Mercury are generally not permitted for discharge

Covanta Environmental Solutions

Limitations

The majority of our facilities (and the majority of all CWT facilities in the US) rely on physical separation and chemical flocculation technologies. They are generally effective at removing heavy metals, petroleum-based oils and volatiles/semi-volatiles with specific gravity or other chemical properties that keep them attached to the petroleum oil fraction.

Where CWT's struggle are pollutants that are easily soluble in water:

- Certain Volatiles & Semi-Volatiles
- Animal & Vegetable Oils
- Strength Compounds – BOD/TSS/CBOD/TKN/Ammonia/ Phosphorus
- Regulatory Limits continue to tighten due to aging equipment and increased focus on water quality.



Covanta Environmental Solutions

CAPT Technology

- Could help to reduce/destroy strength pollutants;
- Remove Volatiles & Semi-Volatiles;
- Remove Animal & Vegetable oil/greases;
- Reduce chemical usage/pretreatment steps.





COVANTA
Environmental
Solutions

Thank You