COVANTA
ENERGY
*for a cleaner world*

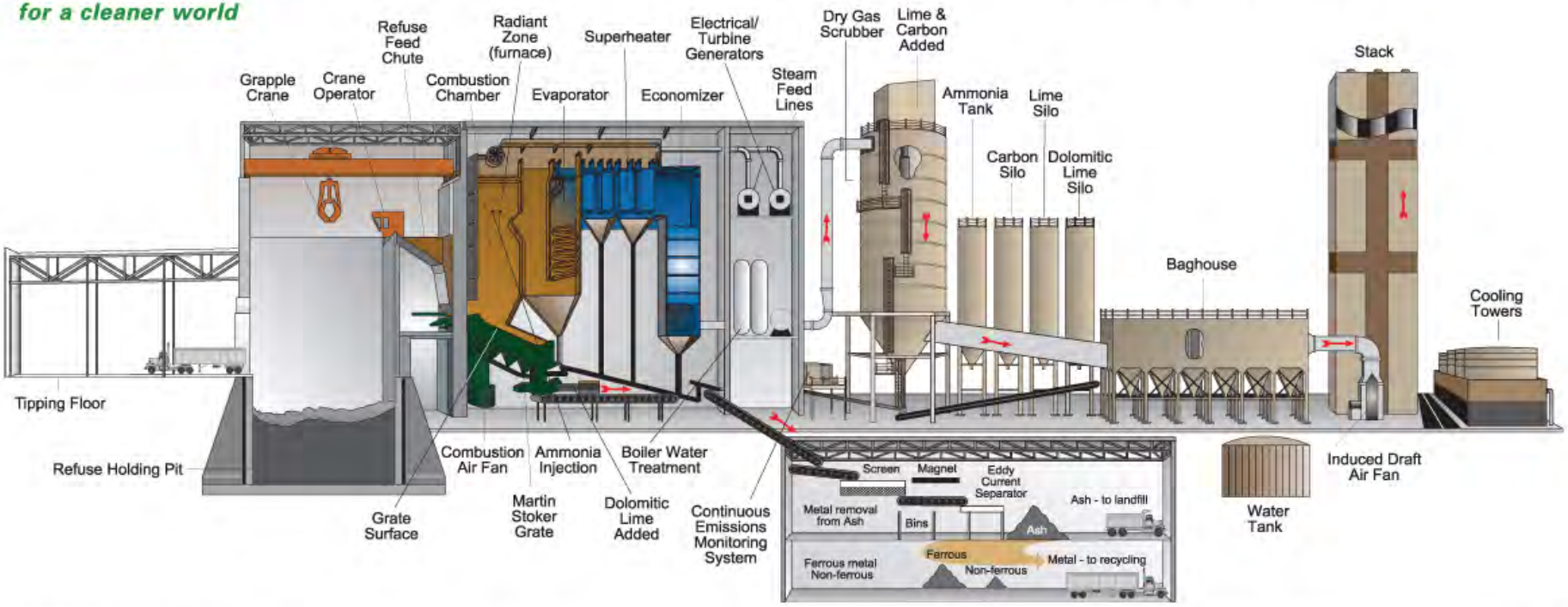


# Covanta Indianapolis

## Waste Water Reductions

COVANTA ENERGY
for a cleaner world

# COVANTA Energy-from-Waste Process



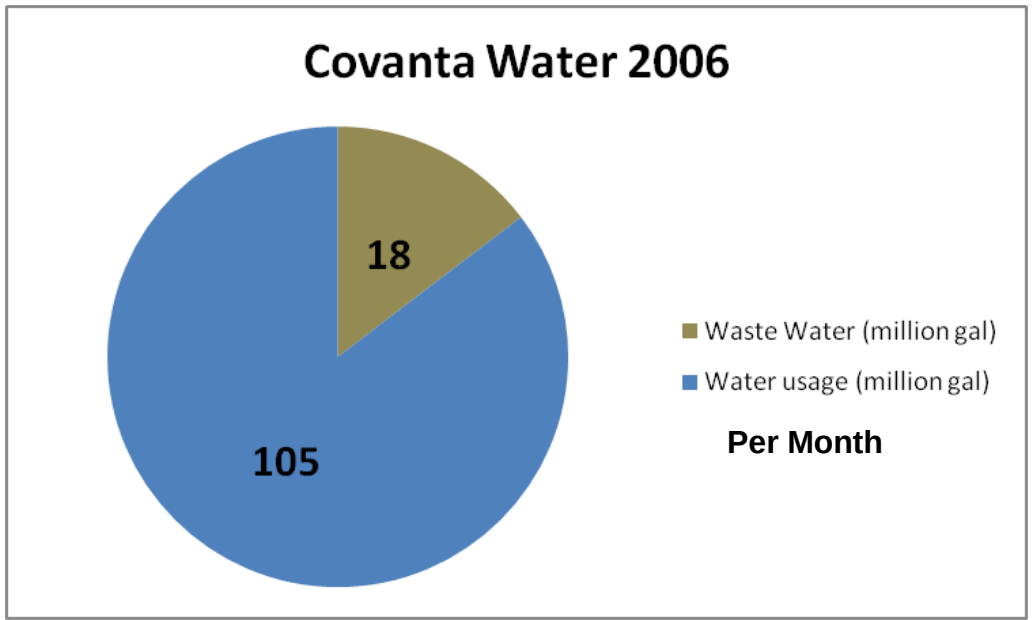

Refuse volume is reduced 10:1

Refuse weight is reduced 4:1

Not to Scale (typical layout)

# Waste Water – Prior

- 1,600 gal min potable water usage
  - 15% boiler blow down rate (240 gal min)
  - 15-22 million gallons per month of waste water discharge



# Waste Water Reduction Systems- Current

- Installation of Reverse Osmosis (RO) System
  - Lowered boiler blow down rate to 5% (80 gal/min)

# Waste Water Reduction Systems- Current

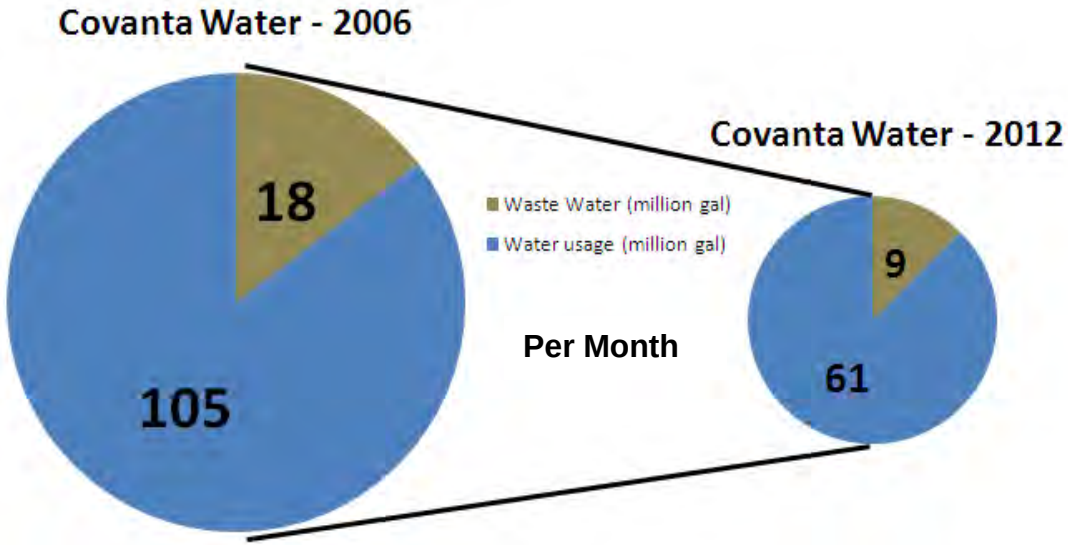
- Installation of Concentrate RO Reject Recovery System (CRRO)
  - Receives 336 gallons / min from RO
  - Returns 50% (168 gallons / min) as beneficial reuse and reduces potable water consumption
  - Discharges 168 gallons / min as wastewater


# Waste Water - Current

- 168 gallons / min from CRRO
  - Up to 90 gals / min rejected from CRRO sent to LDI when system is not injecting permitted liquid waste waters
  - 78 gals / min sent out as waste water
- Represents a nearly 70% reduction in waste water discharge from the Plant (78 gallons per min versus 240 gallons per min)

# Potable Water Use - currently

- 1440 gallons per min potable water
- 168 gallons per min recovered from CRRO beneficial reuse project
- Reduction of potable water usage by 10% as a result of beneficial reuse




# Future Waste Water Reductions

- Waste Water Reclaim Project
  - Potential to reduce waste water discharge to near zero
  - Reduce potable water usage by 150 gallons / min or more
    - Would result in an up to an additional 20% reduction (over 300 gallons / min) in potable water usage


# Future Potable Water Reductions

- LSR (Liquid Separation Recovery)
  - Dewatering current LDI waste streams
  - Recovered petroleum sent for recycling
  - Sending solids/semi-solids to refuse pit for energy recovery
  - Recovering water to be use for beneficial reuse
    - Potential savings of 60,000 gal / day (or 50 gallons / min) of potable water usage

COVANTA ENERGY
for a cleaner world

# Liquid Separation Recovery

Permitted Liquid Waste

Concentrated Waste

Recovered Oil Backhauled to Refinery

Waste Solids Are Fed In Refuse Pit

$H_2O$ Beneficial Reuse

Clean Water Beneficially Reused in Facility Process

# Indianapolis Water History