



BACWA Air Meeting November 12, 2014

Presenters

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Agenda

- **EBMUD Overview**
- **Air Permits**
 - ◆ Existing
 - ◆ Pending
- **Energy Program**



History

1944	Voters elected to create Special District No. 1 (SD-1)
1951	Wastewater treatment begins (primary treatment)
1970	\$60 million bond for advanced treatment
1978	Construction of secondary treatment facilities completed
1980	Sludge dewatering expansion
1998	Construction of Wet Weather Facilities completed



EBMUD Wastewater Facts

💧 Wastewater services provided for seven “satellite” communities

- ❖ Alameda
- ❖ Albany
- ❖ Berkeley
- ❖ Emeryville
- ❖ Oakland
- ❖ Piedmont
- ❖ Stege Sanitary District
 - El Cerrito
 - Kensington
 - Part of Richmond

FACTOIDS
bet you didn't
know this...

💧 88 square miles (325 sq. miles in Water)

💧 650,000 people in service area (1.3 million in Water)

💧 283 employees (1,809 in Water)

Wastewater Service Area



- 💧 MWWTP
- 💧 Three wet weather facilities
- 💧 15 pumping stations
- 💧 29 miles of gravity sewer interceptors
- 💧 8 miles of sewer force mains

Existing Major Permitted Sources



Engines (S-37, S-38, S-39)

- 💧 25 MMBtu/hr per engine limit
- 💧 NOx limit 70ppm (S-37, S-39)
- 💧 CO limit 2000ppm (S-37, S-39)
- 💧 Combined hours (all engines) <25,316 hours/year
- 💧 Annual source testing, quarterly checks
- 💧 Fired on digester gas, ok to use natural gas
- 💧 Diesel only for pilot, transient, or emergencies



Turbine (S-56)

- 💧 **389,820 MMBtu/yr limit**
- 💧 **NOx limit 23ppm**
- 💧 **CO limit 100ppm**
- 💧 **SO2 limit 150ppm**
- 💧 **Annual full emissions test**
- 💧 **Monthly checks – NOx, CO**
- 💧 **Digester gas BTU content testing (weekly or monthly)**



Boiler (S-55)

- ❖ Cannot operate when all three engines are operating
- ❖ 20.41MMBtu/hr limit
- ❖ NOx limit 30ppm
- ❖ CO limit 50ppm
- ❖ Annual performance test



Digesters (S-180)

- 💧 **No venting of gas except for certain M&T activities**
- 💧 **Total sulfur content 340ppm or less (test weekly)**
- 💧 **Emissions “abated” by engines, turbine, boiler**
- 💧 **Flares only to be used if gas production > available combustion devices**
- 💧 **Flares are abatement devices to S-180 in our permit**



New Flares

- Two new, enclosed flares 1500 cfm each to be installed in 2015-16
- Flares selected, purchased
- Construction RFP being developed
- Permit application submitted 10/20/14



Blend Tanks & Receiving Station

- **Two 200,000 gal tanks for solids blending constructed**
 - ❖ **FOG, High Strength Waste, Primary Sludge, Thickened Waste Activated Sludge**
 - ❖ **Dampens peaks and valleys in digester gas production**
 - ❖ **Odor control unit**
- **Receiving station for high strength wastes**
 - ❖ **Upgrade from existing station**
 - ❖ **Better access, controls**
 - ❖ **Odor control unit**
- **Air permit applications submitted 6/5/14**

Future Air Challenges for EBMUD

- 💧 **Digester gas generation increases**
- 💧 **Biofilters for odor control**
- 💧 **Storage basin status**
- 💧 **Offsets**
 - ❖ **Increased project costs**
 - ❖ **Relationship to partner facilities**
- 💧 **Title V permit updates**
- 💧 **Food waste initiatives**

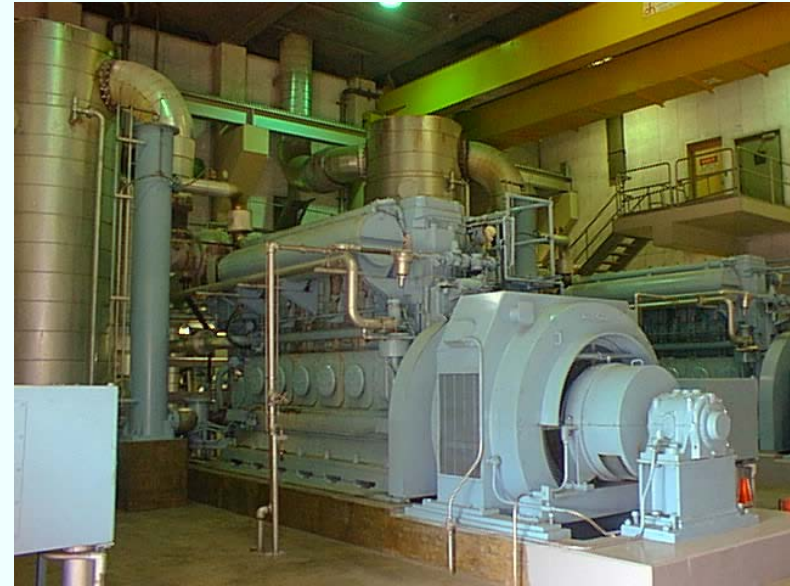
Resource Recovery (R2) Program

Trucked Waste Overview

- **EBMUD's commercial and industrial base has decreased over the past 15 to 20 years**
- **Opportunity to make use of excess treatment capacity**
- **Scope of Program**
 - ❖ **Acceptance of trucked wastes**
 - ❖ **Energy generation**
 - ❖ **Environmental benefits**
- **Wastes accepted include: septage; fats, oils, and grease (FOG); poultry and dairy wastes; food processing byproducts and high salinity wastes**
- **High strength material is received at receiving stations and/or directly to digesters – now blended in blend tanks**



Biogas Cogeneration



R2 Program Benefits

- 💧 **Provide a sound, environmentally-responsible discharge option for trucked wastes**
- 💧 **Utilize ratepayers investments in existing infrastructure for financial and environmental benefits**
- 💧 **Key to regional FOG control**
- 💧 **Diverts waste from landfills**
- 💧 **Creates renewable “green” power**

R2 and The Future

Food Waste Initiative

- 💧 **Commercial Food Waste**
 - ❖ Bay Area generates ~ 1,700 tons/day
 - ❖ Sustainable, local, high methane value feed stock
 - ❖ Working to expand pilot with long-term contracts



- 💧 **Significant interest from local communities regarding landfill diversion, renewable energy**
- 💧 **Working with local entities to facilitate the digestion of processed food waste**

Power Generation Station

Renewable Energy Expansion Project

- Added one low-emissions 4.5 MW gas turbine
- Became 100% energy self-sufficient + sell power back to Port of Oakland and ISO
- Increased electrical power reliability

