Overview of Incineration and Anaerobic Digestion Treatment Options

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Incineration

Two facilities in Connecticut operated by Synagro

- **New Haven, CT – Multiple-Hearth**
- **Waterbury, CT – fluidized-bed**

Multiple-Hearth

New Haven, CT

Capable of accepting 12,000 gallons per day of un-concentrated material

- straight grease trap waste

Regenerative Thermal Oxidizer (RTO)

- used to achieve air emission limits

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Fluidized-Bed

Waterbury, CT

Capable of accepting 12,000 gallons per day of un-concentrated material

- straight grease trap waste

Can also take concentrated material (decanted gray water)

– up to 1000 gallons per day

Contact Information

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Synagro

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Anaerobic Digestion

Program Highlights from Two California Facilities

- South Bayside System Authority (SBSA)
  Redwood City, CA

- Oxnard, CA

South bayside Highlights

Have been accepting grease for digestion since early 1990's.

Two primary digesters

-1.7 million gallons, each

- mesophilic (98 degrees F.)

- equally loaded - gravity thickener

Grease is only fed to one digester, the other is used as a control.

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South bayside Highlights

Typical Waste Load – 13 permitted haulers

1500-3000 gal per delivery

18 percent solids

One gallon yields about 1.5 pounds of volatile solids

One gallon of grease load introduces about 20 cubic feet of digester gas (60% CH_4)

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South bayside Highlights

Key to success – MIXING

50 HP axial flow pump

- **fed directly into suction of the pump**
- **8,000-10,000 gpm**
- **7-8 turnovers per day**
- **immediate and complete contact**

South bayside Highlights

Start slow and allow the right bugs to populate

Have fed over two million gallons of grease over a year with no grease mat, when taken down for cleaning

No sign of upset to digester chemistry

South bayside Highlights

Prior to FOG	No. 1	No. 2
Volatile Acid	34	38
Gas Production	110	105
Vol. Solids Destruction	8,400	8,400
After FOG		
Volatile Acid	140	74
Gas Production	182	130
Vol. Solids Destruction	12,200	8,300

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SBSA Contact Info

Bob Donaldson

Operation Manager

South Bayside System Authority

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Oxnard, CA Highlights

Background:

- 32 MGD plant
- Three digesters (2.3 MG each)
- 16 lift stations
- 540 food establishments
- Required to install grease interceptors
- Adversarial relationship
- High inspection rate
- High collection system maintenance

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Oxnard, CA Highlights

Municipal crew services grease traps:

- Modified vacuum truck
- 3,000 gallon capacity
- Cost of conversion - $55,000

- VOLUNTARY
- $200 per visit
- 150 participants

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Oxnard, CA Highlights

Added Grease Receiving Station:

- Grease feed pump
- horizontal chopper pump
- VFD control
- Digester heat exchanger

Oxnard, CA Highlights

Results:

- Increased gas production
- No scum blanket
- Grease digest very efficiently
- No significant change
- Less grease in collection system
  - less blockages / overflows
- 19 month payback period

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Oxnard, CA – Contact Info

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Other Digestion Activities

Workshop at 2005 WEF Residuals and Biosolids Management Conference in Nashville, TN – April 2005

Bioenergy: High Performance Anaerobic Digestion

"There is an increased interest in using existing digester capacity to produce more biogas through co-digestion of wastewater solids with other organic wastes, such as FOG"

Other Digestion Activities

WEF Residuals and Biosolids Committee

- **Bioenergy Technology Subcommittee**

Bioenergy Summit

Aug 14-15, 2003

Tulane University

Proceedings available from WEF

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Other FOG Management Information Opportunities

NEWEA Residuals Management Committee

November 2005

FOG Technical Session

NEIWPCC Website (www.neiwpcc.org)

Building FOG page

Workshop presentations

Web resources

QUESTIONS??

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