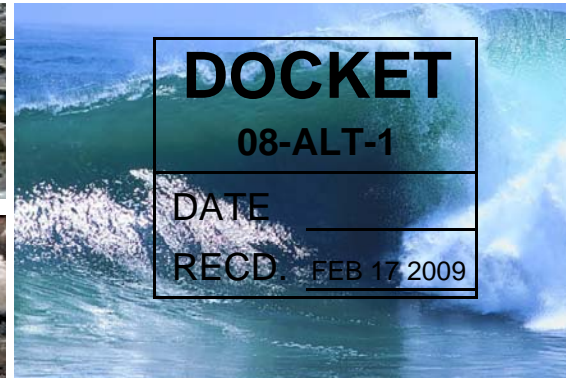


# San Francisco's Future Bioenergy Park

## Phase I: FOG-to-Biodiesel



# Grease clogs our sewers



- Increased maintenance costs (often grease must be removed by jackhammer)
- Decreases System Capacity
- #1 Cause of Sanitary Sewer Overflows - >75% of all SSOs annually



# Where does it come from?

## ■ #1 Culprit is Restaurants

- Disposal is complicated and expensive
- Storage Attracts Nuisances (rats)
- Fast and Simple Solution:
  - Pour it down the drain



Grease Trap



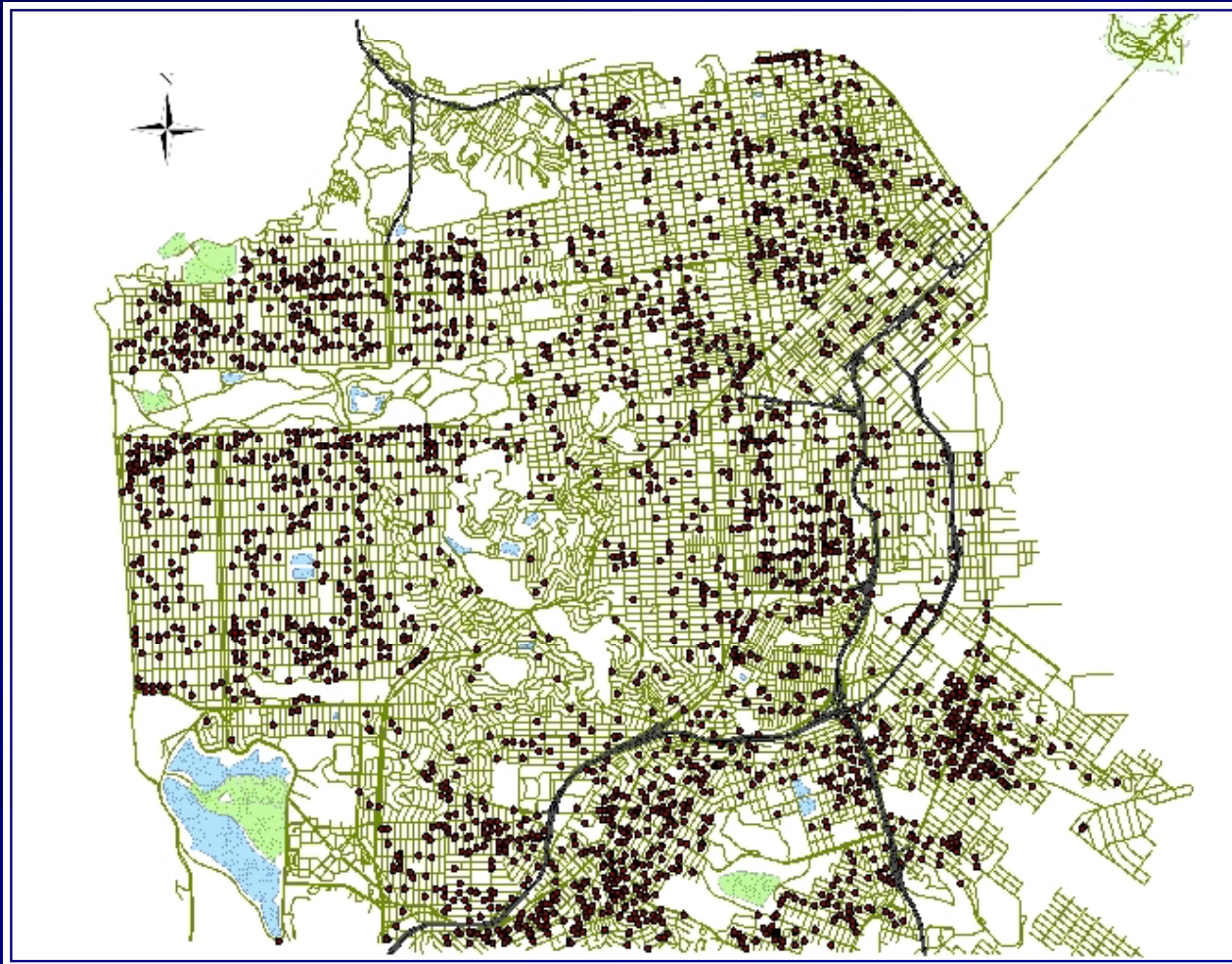
Grease Interceptor



Automatic Grease  
Recovery Device



# Snapshot of Grease-Related Incidents in SFPUC's Collection System



>\$3.5 million/year  
on grease-related  
collection system  
maintenance



# Program Drivers

- All POTWs must prevent/reduce SSOs (Fed & State)
- Future regulations will prohibit landfill disposal of grease
- Governor's Executive Order S-06-06
  - State to produce biofuels within CA:
    - 20% by 2010, 40% by 2020, 75% by 2050
- Bioenergy Action Plan
  - Bioenergy Interagency Working Group
  - AB 32: California Global Warming Solutions Act
- Governor's Ten Point Electricity Plan
- Energy Action Plan II
- Western Governor's Assoc.'s goals for a clean & diversified energy supply



# SFPUC Current Efforts



## New Sewer Ordinance

- Restaurants must upgrade to Automatic Grease Recovery Device within 3 years
- Haulers must service devices every 90 days

## FOG-to-Biodiesel Demonstration Project

- Validate Technologies
- Establish Engineering Design Standards
- Document Benefits of Co-location



All SF Municipal Diesel Vehicles use B20 since January 1, 2008

# Benefits of Co-location

Locating brown grease recovery and biodiesel facilities at a WWTP allows streams to be shared between processes, utilizing wastes and conserving energy and materials



Project Site: Oceanside WWTP

- WWTP provides steam heat, electricity
- WWTP will receive less FOG in headworks
- Brown Grease Recovery provides high BOD wastewater for anaerobic digestion
- Biodiesel Process provides glycerol, a degreaser



An aerial photograph of San Francisco, showing the city's dense urban landscape, the Golden Gate Bridge, and the surrounding hills and water. The image serves as a background for the text overlays.

# FOG-to-Biodiesel Demonstration Project

**Overall Goals: Reduce FOG discharges to sewers; Recover energy value of FOG & reduce San Francisco's reliance on fossil fuels;  
Reduce greenhouse gas emissions**

**Project Technical Goals: Recover brown grease at <2% MIU;  
Convert brown grease to ASTM quality biodiesel;  
Establish engineering design standards**

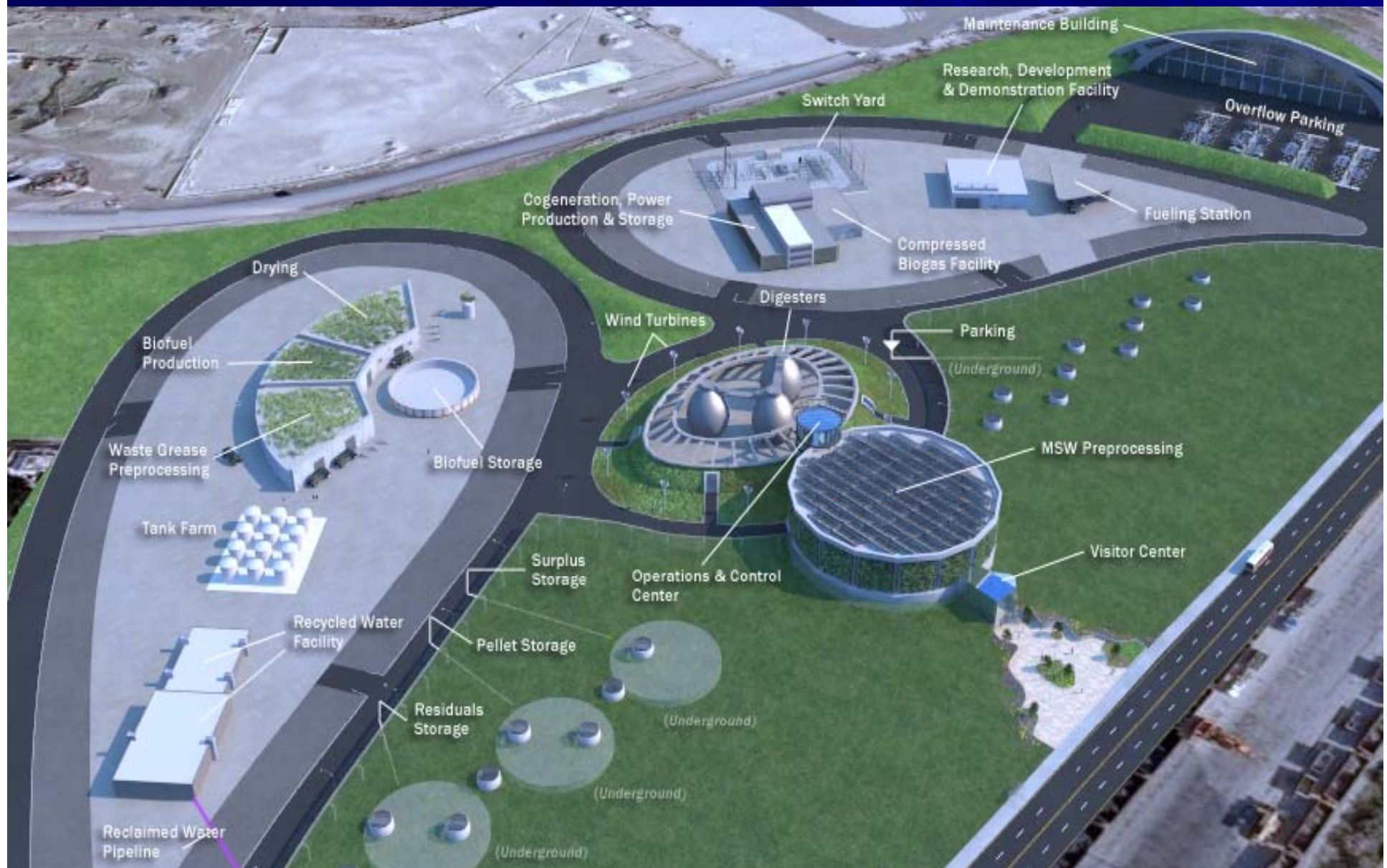
**Project Economic Goals: Develop business model to enable project  
to be replicated by other municipal agencies**



# Future Bioenergy Park

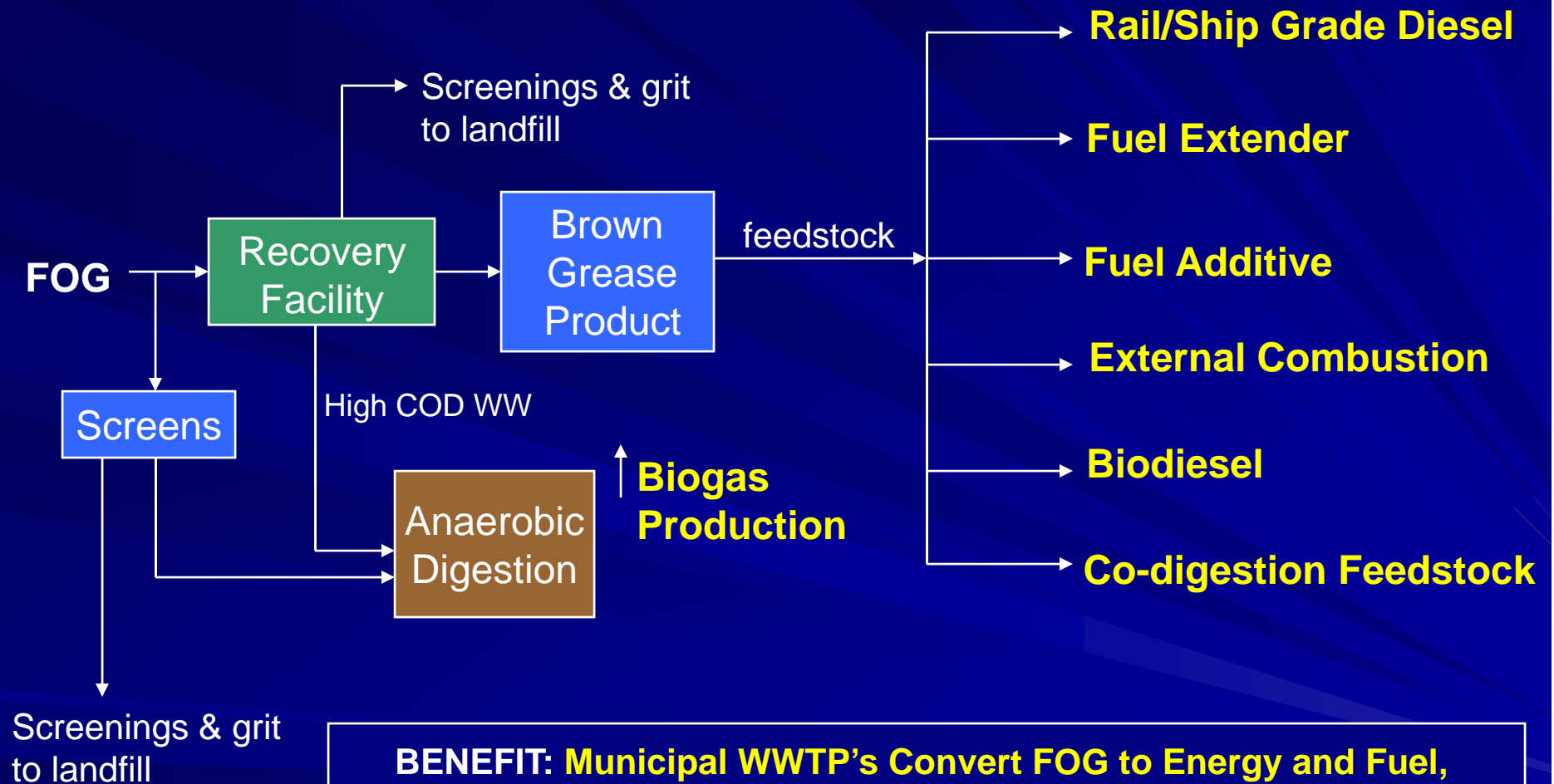
VIDEO

# FOG-to-Fuel is Phase 1 of Future Bioenergy Park



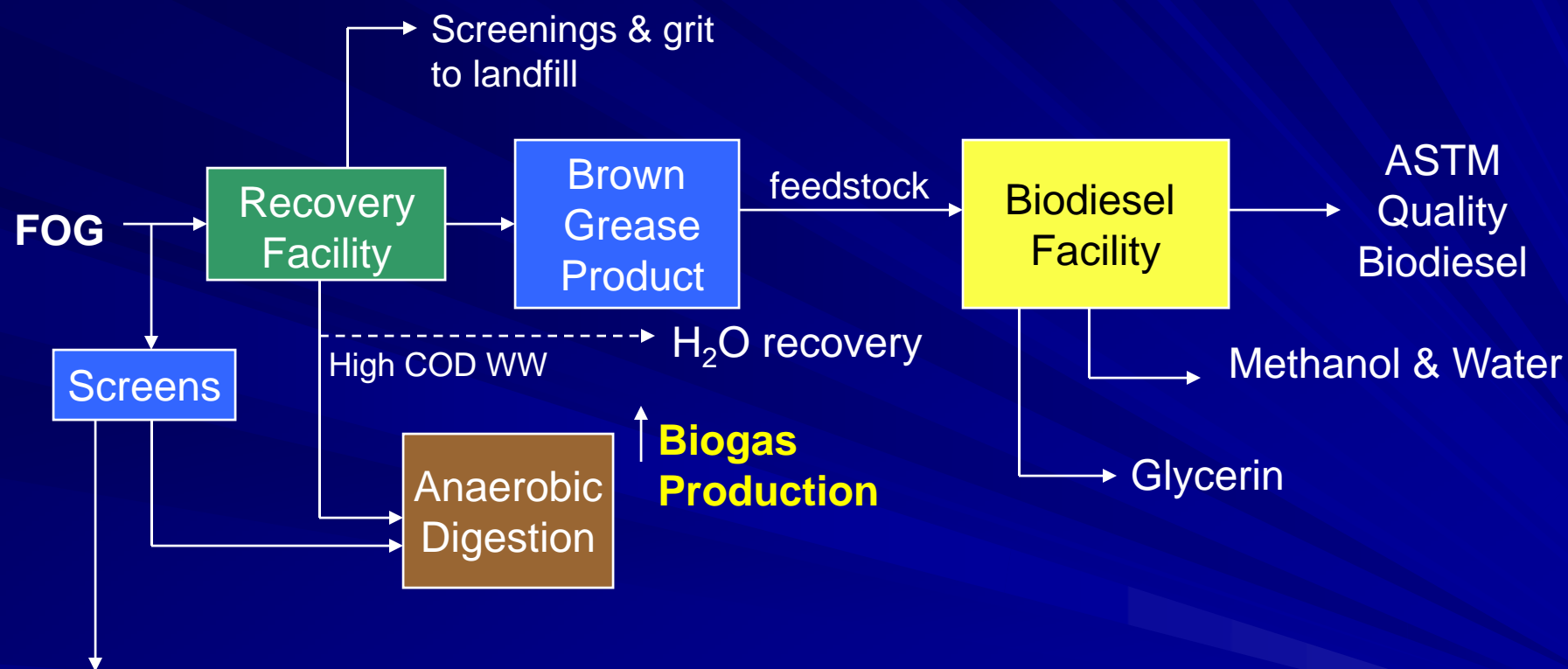


# FOG Recovery Facility



**BENEFIT: Municipal WWTP's Convert FOG to Energy and Fuel, Reduce Fossil Fuel Use, Greenhouse Gases, and Waste Hauling Costs, and Extend Life of Landfills**

# FOG-to-Biodiesel Demonstration Project



Glycerin: research use as collection system degreaser  
Low grade methanol: research use as carbon source for denitrification  
Water recovery: cost of recovery for reuse applications



# Future: All San Francisco Municipal Fleets will run on FOG-Derived Biodiesel



All SFGreasecycle trucks currently run on B99 produced from waste grease collected from San Francisco Restaurants

# Contact Information



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