CITIZENS WATER ACADEMY

Wastewater 101

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Wastewater Treatment Plant Supervisor

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Dublin San Ramon Services District
Water, wastewater, recycled water

Protecting Public Health and the Environment

PURPOSE OF WASTEWATER TREATMENT

Protect Water Supplies

Ensure water bodies are safe for recreational purposes

Protect all aquatic dependent organisms

Protect groundwater sources

Wastewater Treatment

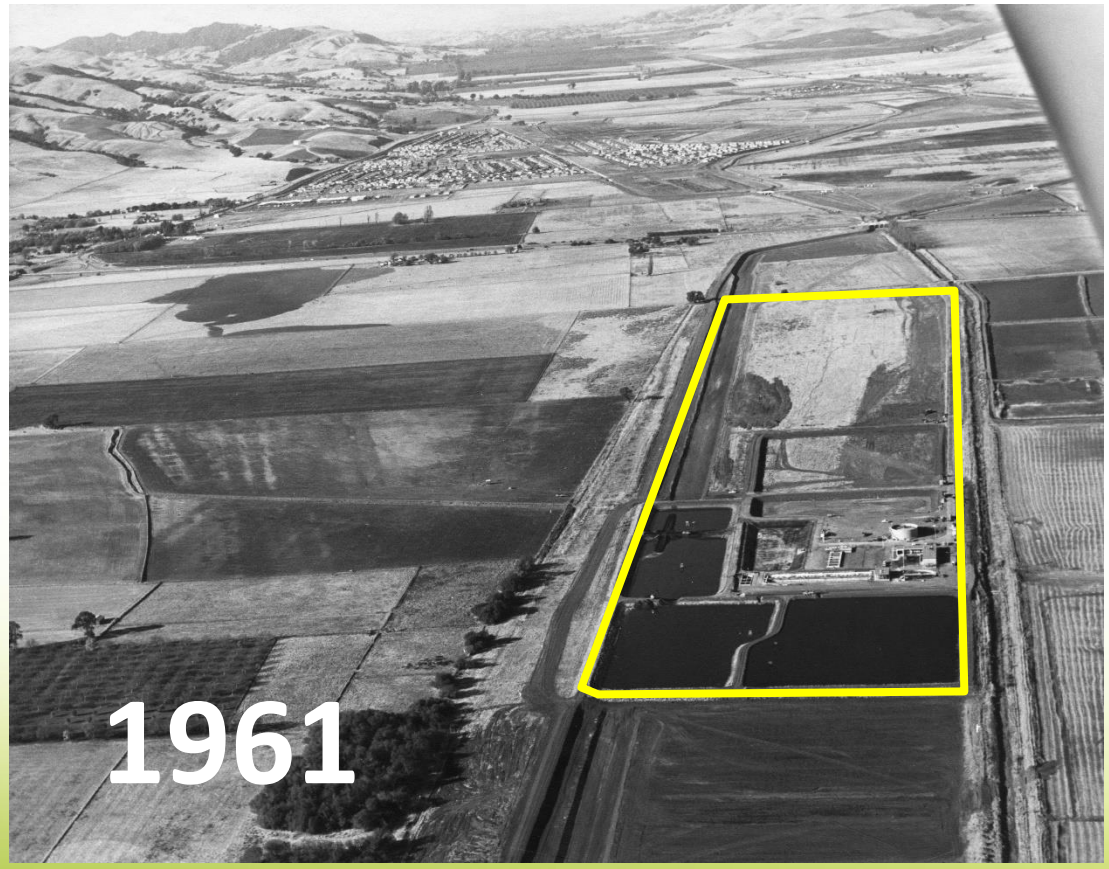
- Remove a “minimum” 85% of contaminants in the form of particulate matter and oxygen consuming constituents. DSRSD typically achieves > than 95% removal
- Ensure wastewater effluent does not increase the level of over 200 chemicals of concern in receiving waters (San Francisco Bay)

DSRSD Sewer Mains

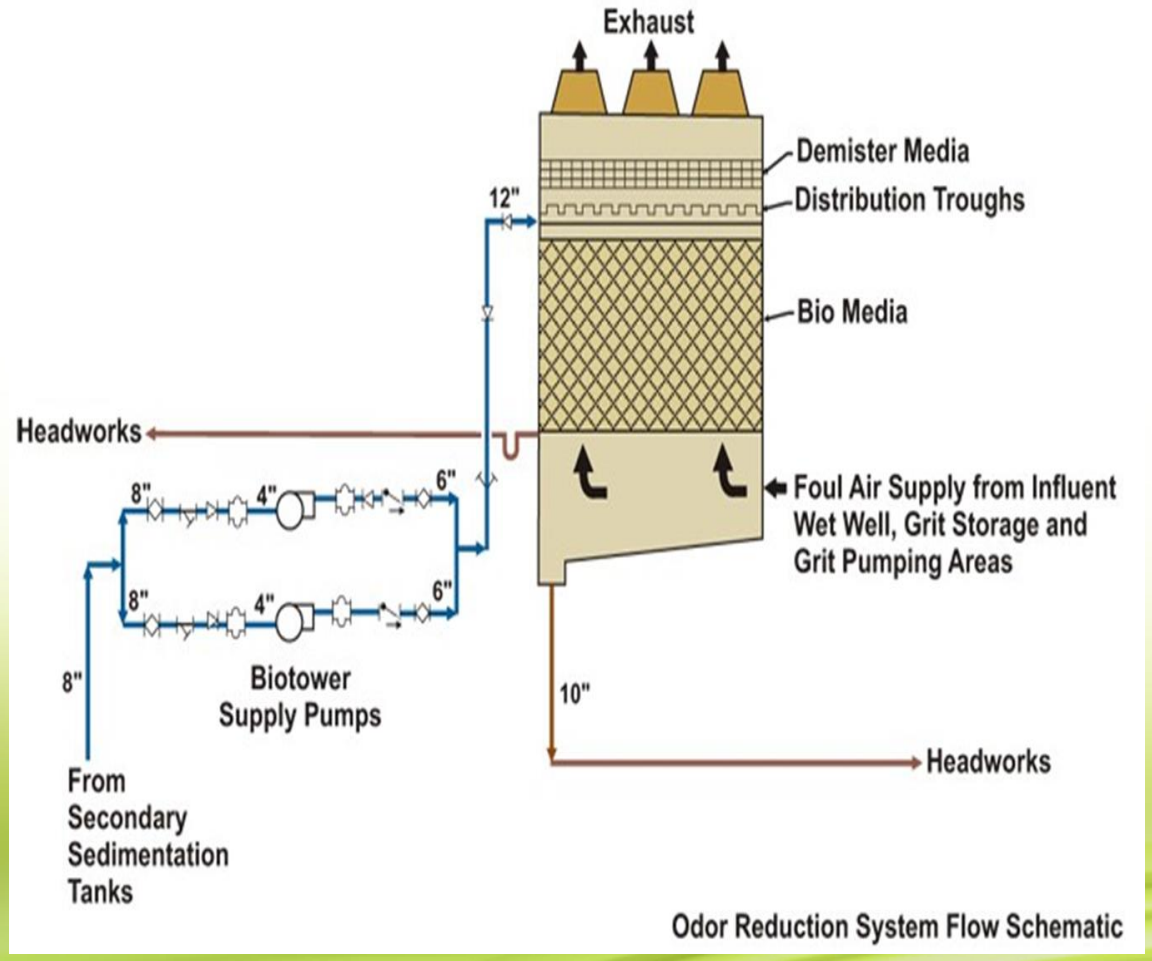
- City of Dublin ~ 40 %
- City of San Ramon ~ 8%
- City of Pleasanton ~ 52%

- Dublin/San Ramon Line
- Pleasanton Lines
  - East Amador
  - Highland Oaks
  - Sewer line 6
  - Sewer Line 8

Growth in Our Area



Odor Control



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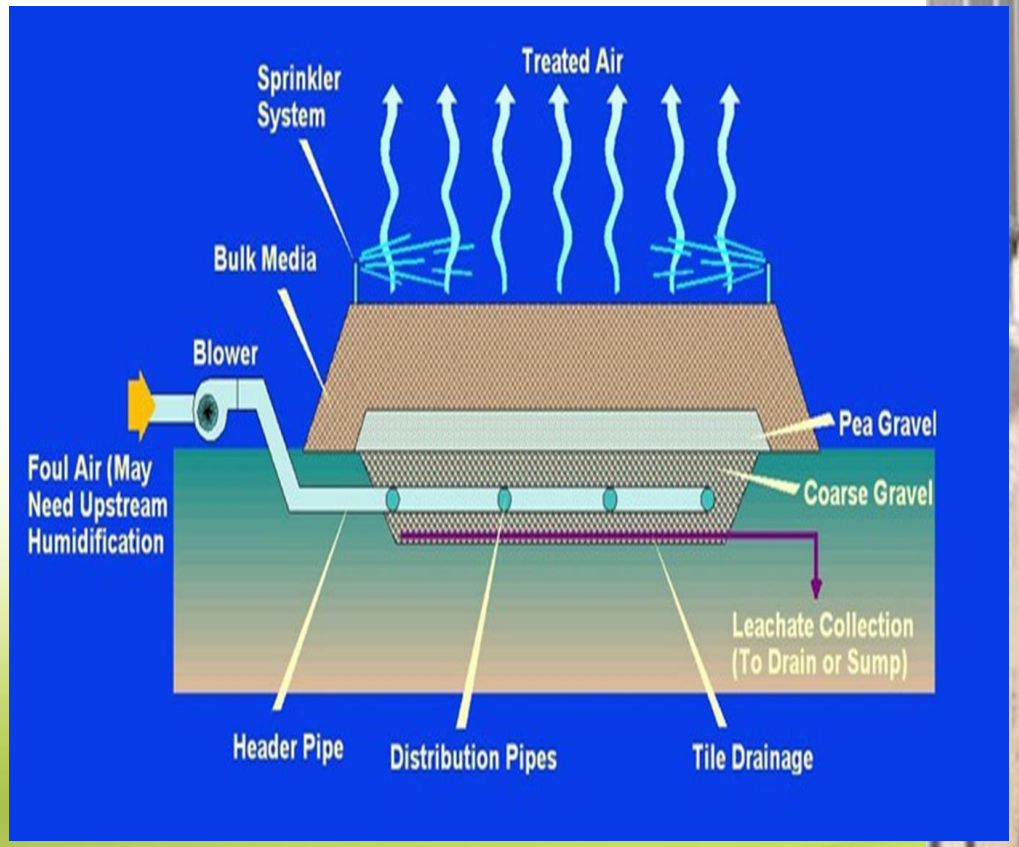
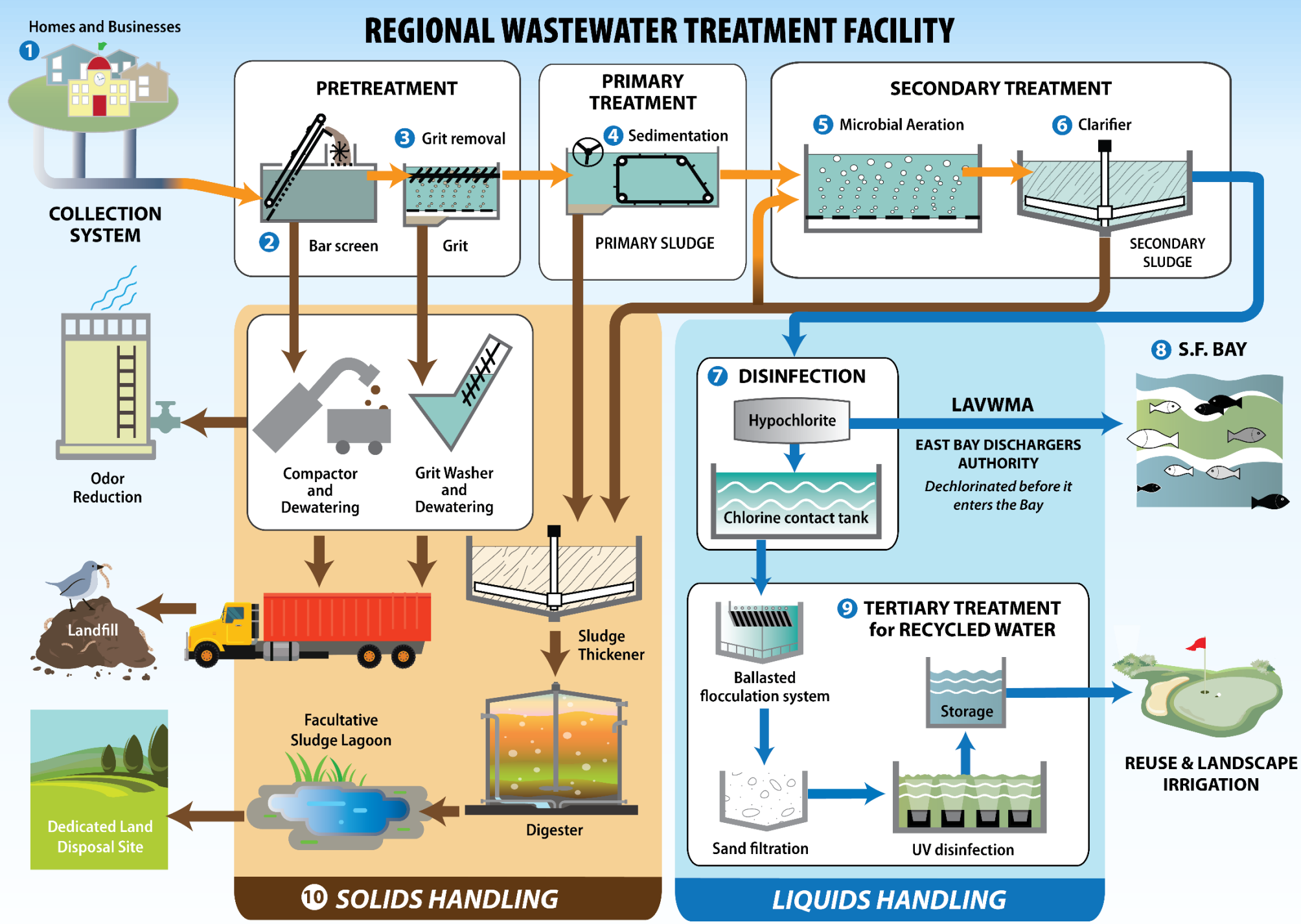


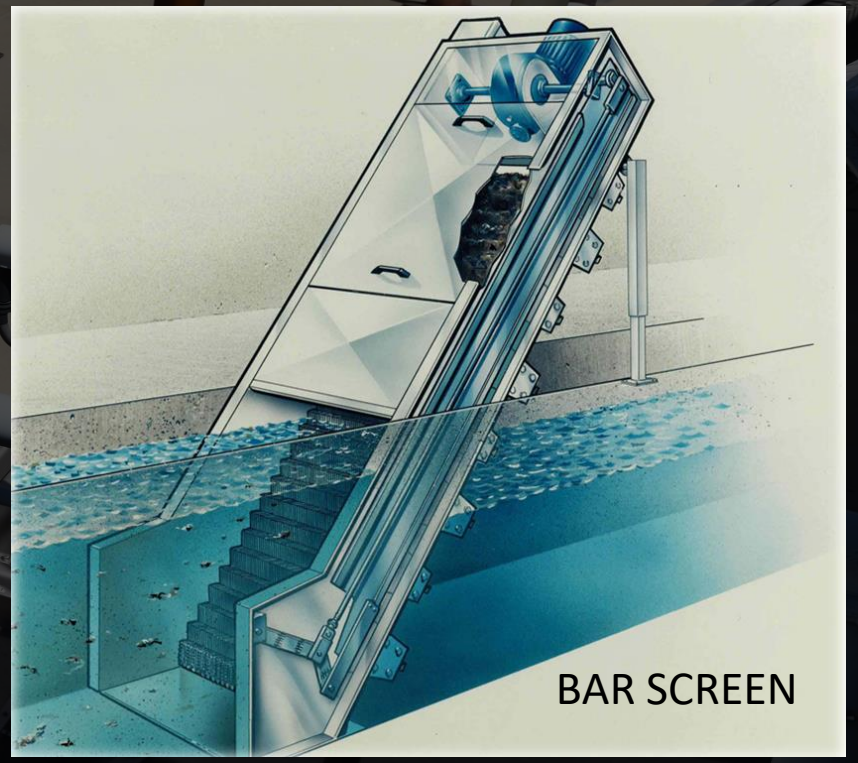
REGIONAL WASTEWATER TREATMENT FACILITY



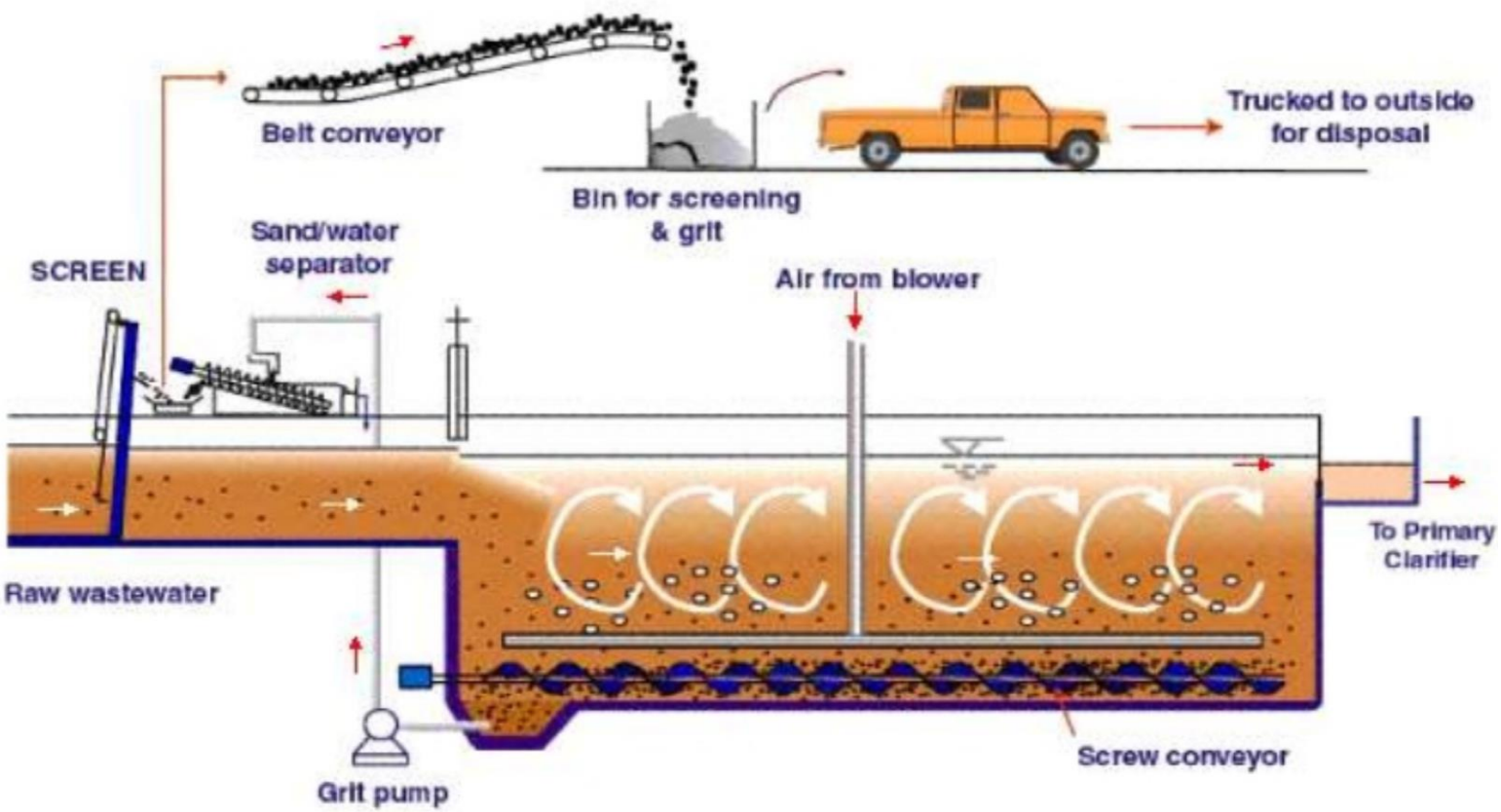
Preliminary Treatment

» Screening

- Removal of rags and other debris (screenings)



Grit Removal in Grit Chamber



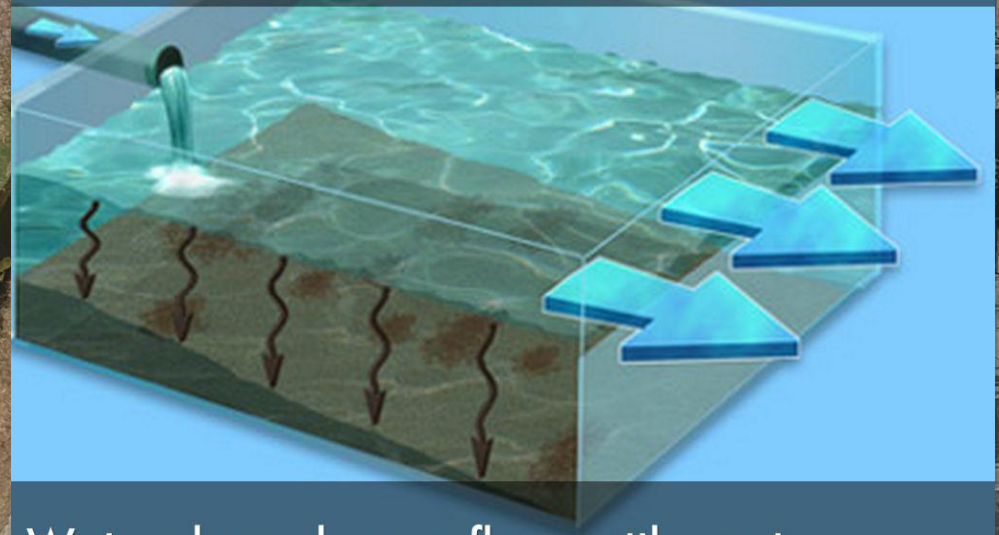
SCHEMATIC OF HEADWORKS (Screen & Aerated Grit Chamber)

Screenings

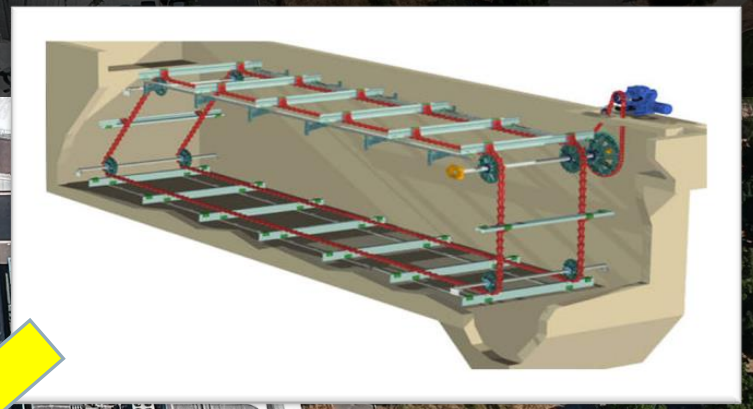
Grit

Primary Treatment

SEDIMENTATION

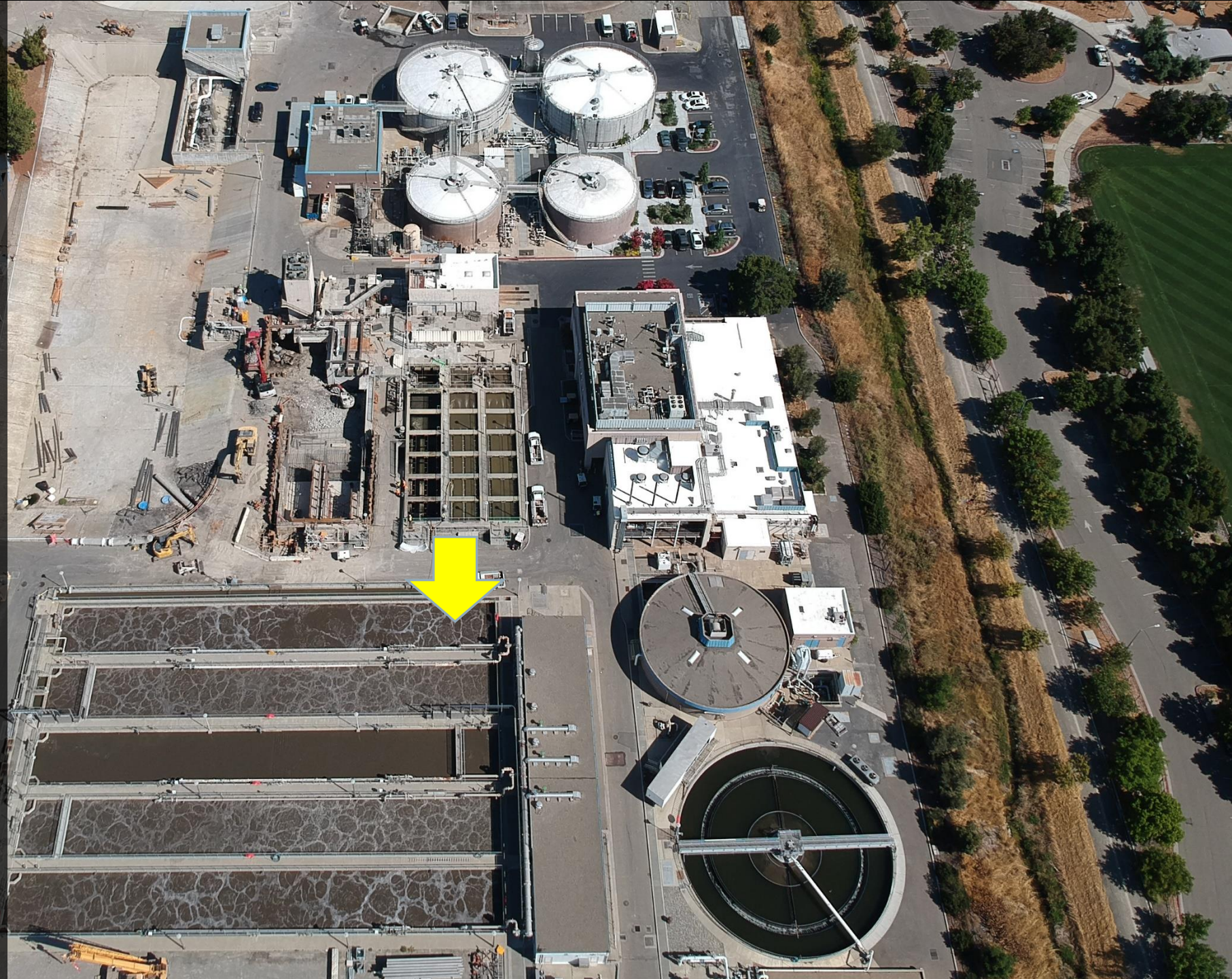


Water slows down→ flocc settles out



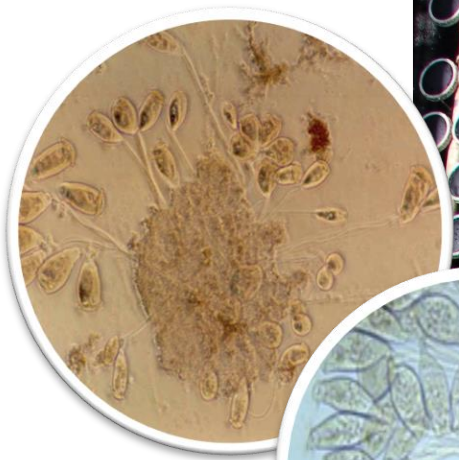
Secondary Treatment Process

- Wastewater containing dissolved materials is sent to aeration basins

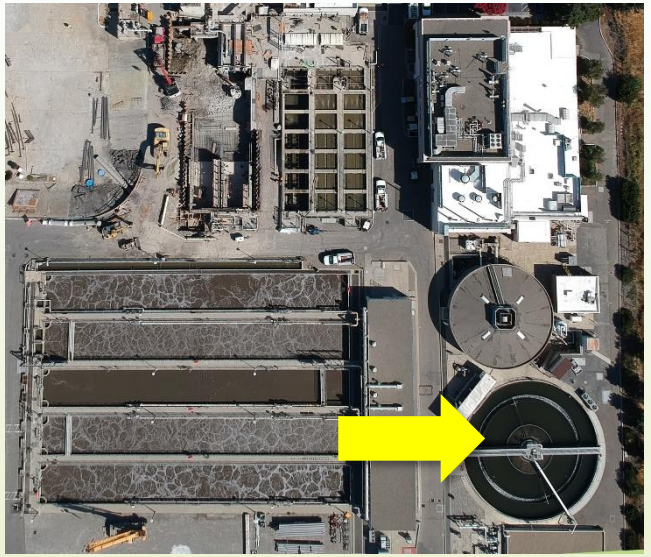


Aeration Basins

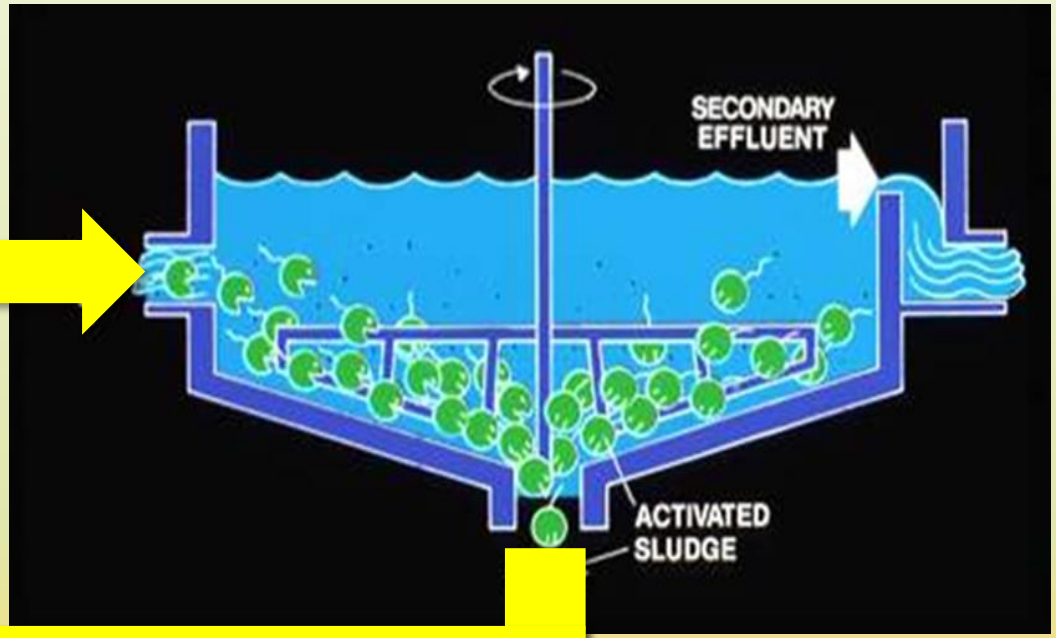
- Naturally occurring micro-organisms consume wastewater contaminants
- Dissolved materials in the wastewater is their food source
- Supply microbes with oxygen for respiration



Secondary Treatment Process

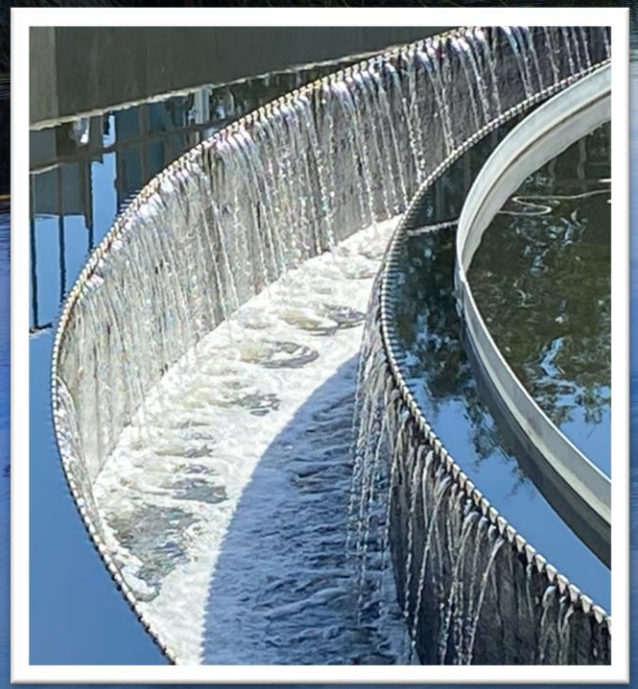


- **Aerobic bacteria removes wastewater contaminants reducing:**
  - Total suspended solids
  - Biological oxygen demand
  - Microbes are separated from liquid and returned to aeration



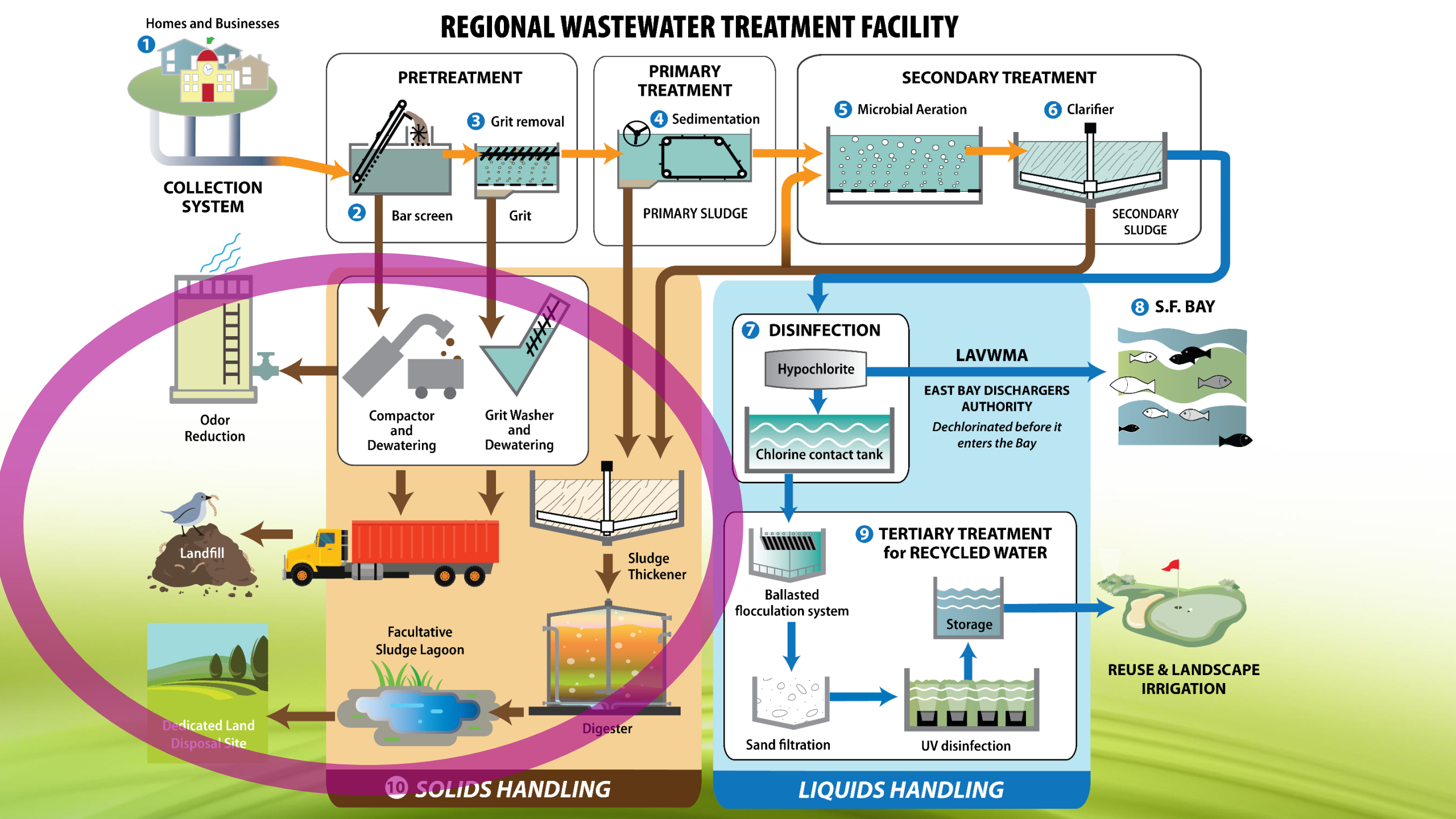
Wastewater Treatment Disinfection

Effluent Disinfection and Disposal

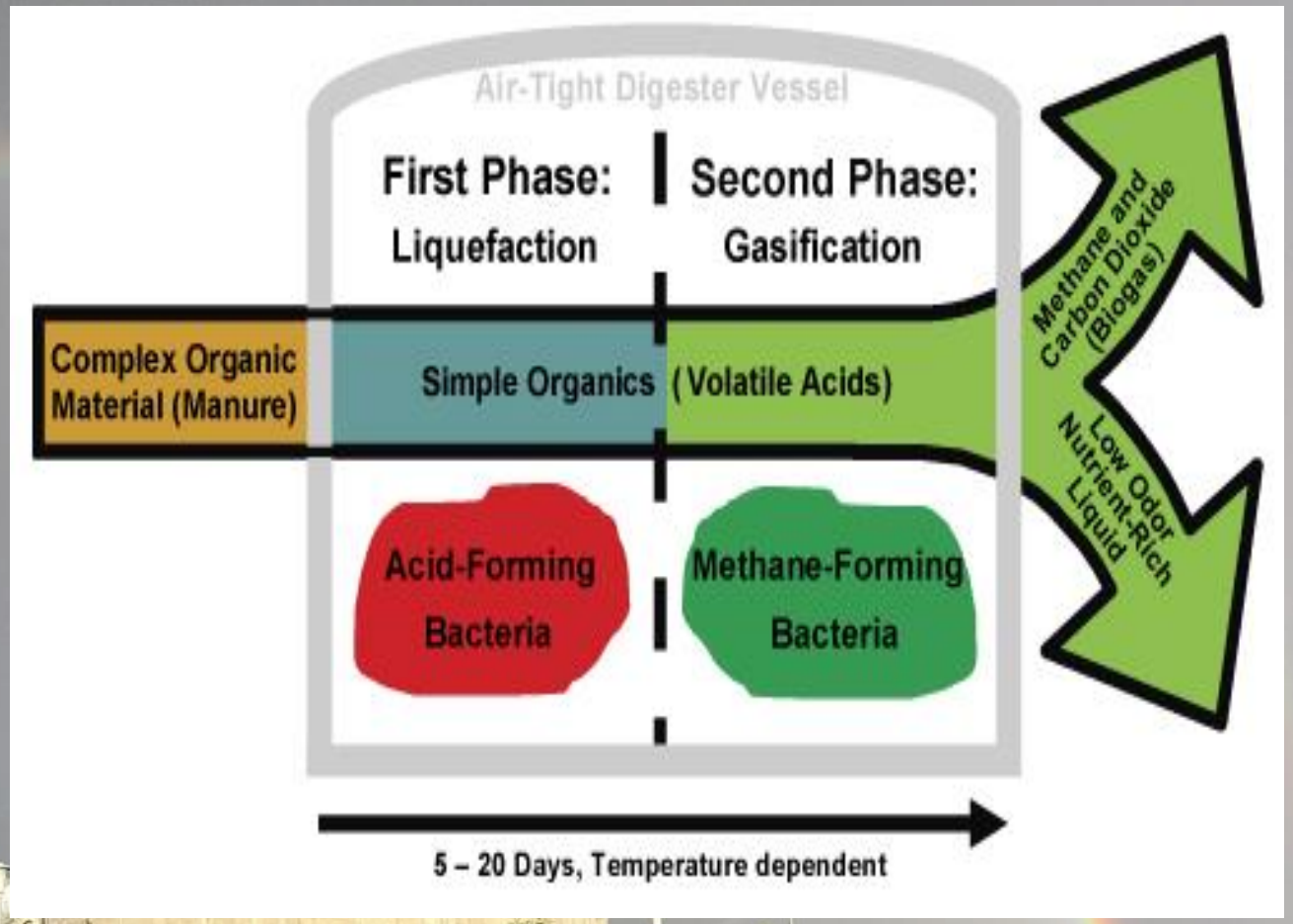


- **Wastewater is disinfected (removal of pathogens)**
- **Chemicals of concern are below discharge levels**
- **Final treated effluent is either recycled or pumped to San Francisco Bay**
  - Recycled water – DERWA
  - Effluent disposal – LAVWMA and EBDA effluent pumping systems

REGIONAL WASTEWATER TREATMENT FACILITY



Anaerobic Digesters

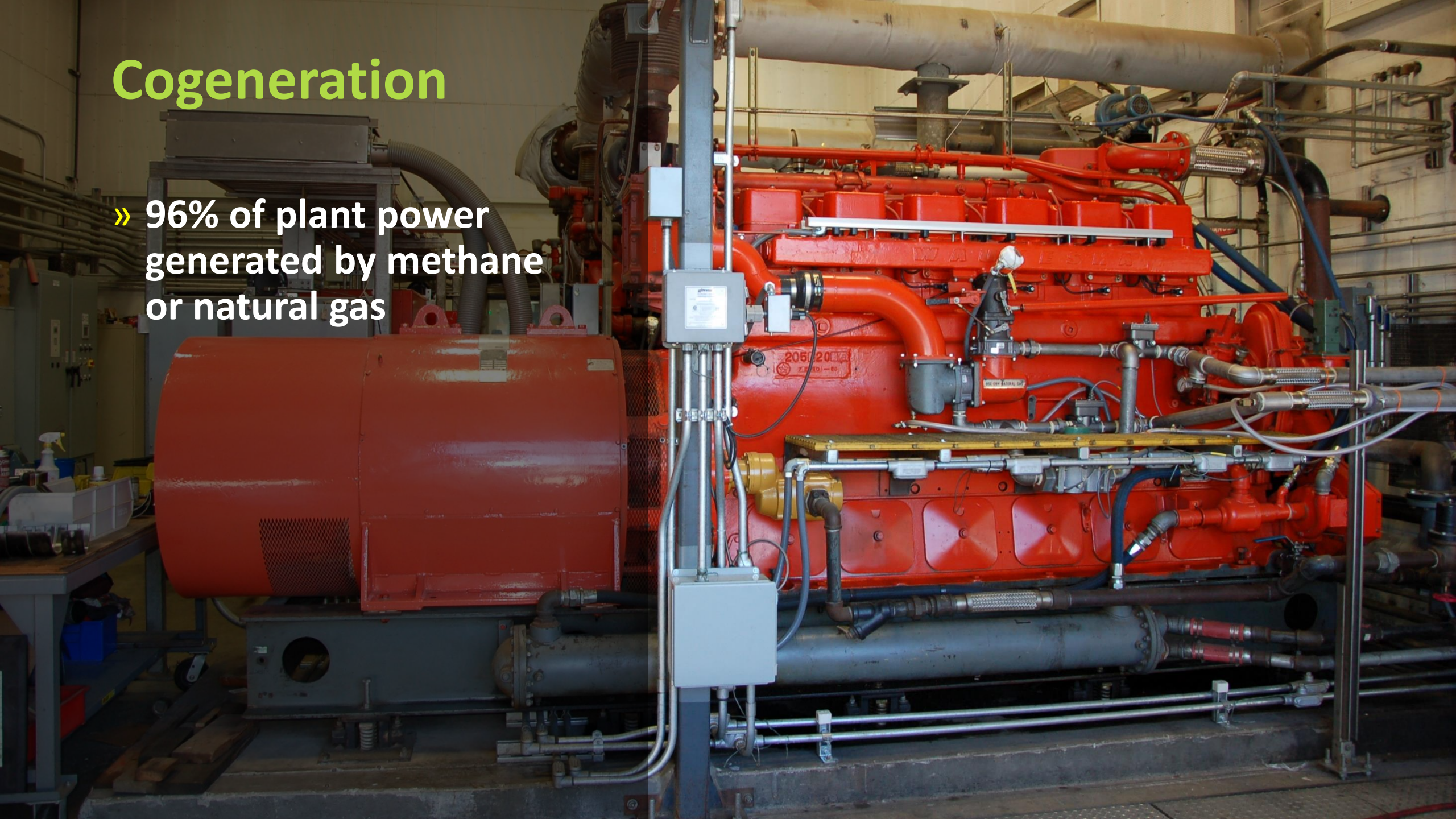


Digester Gas Production

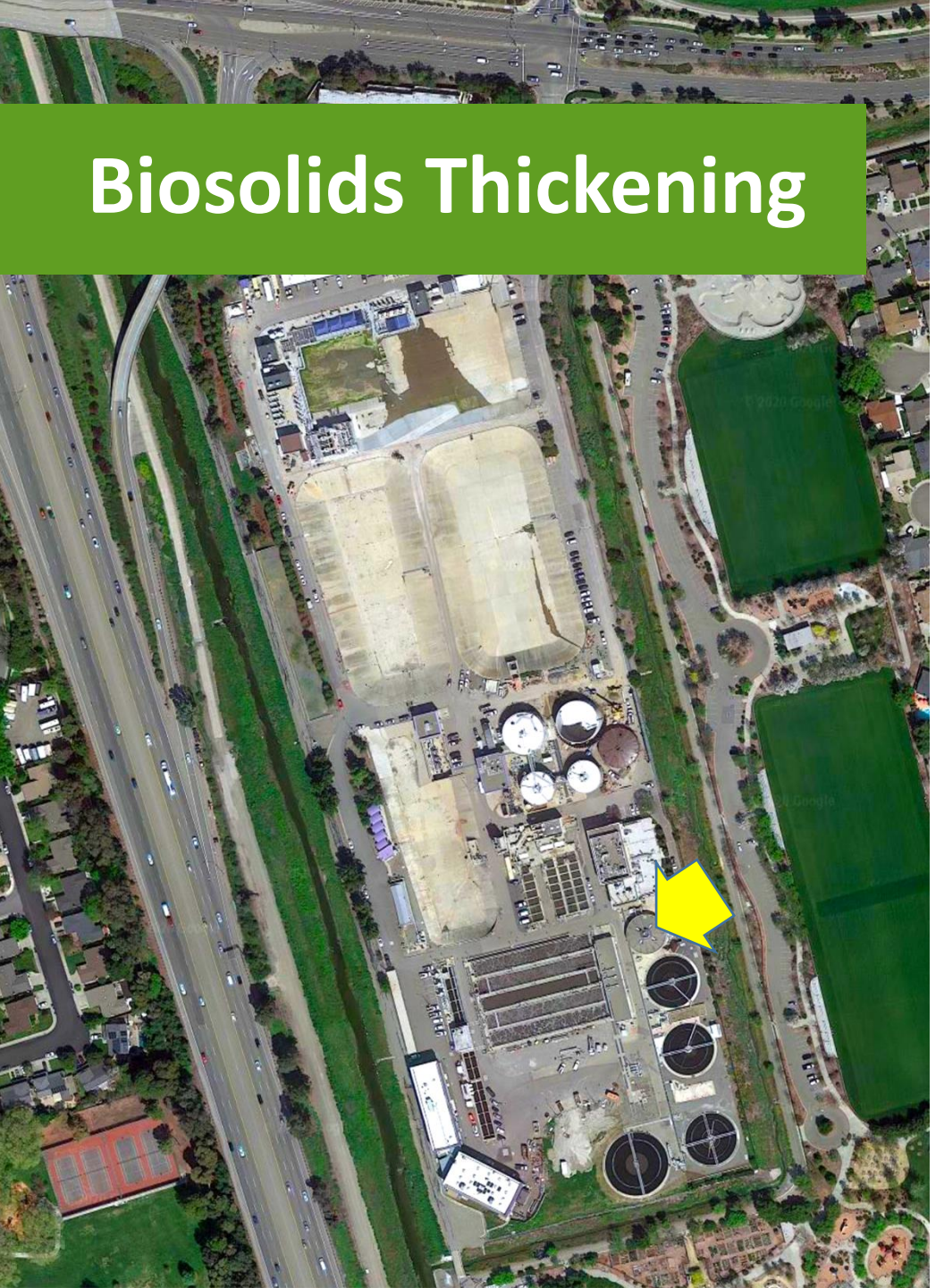
- 60 to 70% methane production
- 30 to 35% CO2 production
- Digester gas about 500-600 BTU (natural gas BTU value of 950 – 1150)

Cogeneration

- 96% of plant power generated by methane or natural gas



Biosolids Thickening



Biosolids Treatment

Facultative Lagoons

Dedicated Land Disposal Area

STONERIDGE DRIVE

Bio-solids Harvesting

- Annual dredge and inject 30,000 to 40,000 yds^3 of biosolids from a lagoon to the land disposal area
- All Bio-Solids meet Class “A” standards – Class “B” in what is required by regulations

Questions?

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