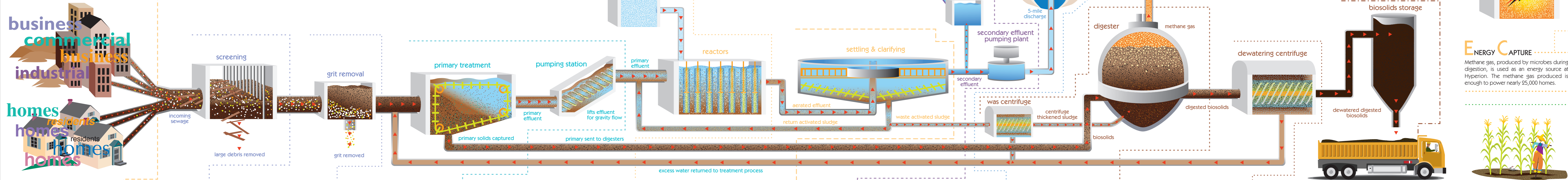


HYPERION WATER RECLAMATION PLANT – TREATMENT SYSTEM



WASTEWATER SOURCES
The sewer system brings wastewater from commercial businesses, manufacturing industries and inside homes (e.g. sinks, dishwashers, showers, toilets and washing machines) to Hyperion Water Reclamation Plant to be cleaned.

SCREENING
The first materials removed from wastewater are visible solids such as sticks, plastics and rags. Barscreens are used to catch large objects and to allow the water to flow through.

GRIT REMOVAL
Small and grainy heavy solids such as sand, seeds and eggshells, referred to as grit, are also removed. Ten tons of grit are removed daily.

PRIMARY TREATMENT
Chemicals, called coagulants and flocculants, are added causing solids to clump and settle to the bottom. The settleable solids are pumped and sent to the digesters for more treatment. Also oil and grease that has been skimmed off the top are sent to the digesters for more treatment. The remaining liquid is sent to secondary treatment.

REACTORS
Microbes are added to the water to eat the leftover organic solids, such as proteins and sugars. These microbes get bigger, heavier and multiply from plenty of oxygen and consuming the organic solids. It takes the microbes about 2 to 3 hours to eat all the organic solids.

SETTLING & CLARIFYING TANKS
When the organic solids are depleted, the water flows into round clarifying tanks. Here, the microbes settle to the bottom and are pumped out to be used again in the reactors to eat more solids or are sent to the digesters. By this point, 98% of the solids are removed and the treated water is clean enough to enter Santa Monica Bay or be recycled.

RECYCLED WATER
A portion of the water cleaned at Hyperion is pumped to West Basin's water reclamation plant for additional treatment. Recycled water from West Basin is used to water golf courses, parks and for industrial use. A small portion returns to Hyperion for irrigation.

WATER DISCHARGE to SANTA MONICA BAY
Most of Hyperion's highly treated water flows 5 miles out to Santa Monica Bay (Pacific Ocean) to a depth of 195 ft. At this distance and depth, the treated water blends with ocean water and is safe for creatures that live there.

DIGESTION
The solids removed from the primary and secondary treatment are pumped to huge, egg shaped tanks called digesters. The digesters contain no oxygen and are heated to 128° F for 15 days to destroy any disease-causing microbes (pathogens). This process creates methane gas which can be used for energy.

DEWATERING
Biosolids are placed in spinning machines, called centrifuges to remove more than 75% of water, leaving biosolids as thick as toothpaste. In this state, they can be easily transported to their beneficial reuse location.

BENEFICIAL REUSE
Biosolids are the solid end product of wastewater treatment. Class A biosolids from Hyperion are transported to Los Angeles's Green Acres Farm in the Central Valley and are used to grow non-food crops like corn for livestock and alfalfa.

LAND APPLICATION
Green Acres Farm is 4,688 acres of land that is owned and operated by the City of Los Angeles. The farm has been utilized for land application of nutrient rich biosolids, which help improve soil structure, crop growth, and quality. There are a variety of feed and grain crops including wheat, corn, milo, alfalfa and sudan that are harvested and sold to dairies in the surrounding area for stock feed. Approximately 80,000 dry tons of biosolids are applied annually.

TREATING LIQUIDS

PRELIMINARY TREATMENT PROCESSES

PRIMARY TREATMENT PROCESSES

BIOLOGICAL/SECONDARY TREATMENT PROCESSES

WATER REUSE and DISCHARGE

TREATING BIOSOLIDS

ENERGY CAPTURE
Methane gas, produced by microbes during digestion, is used as an energy source at Hyperion. The methane gas produced is enough to power nearly 25,000 homes.

