

## Corona Wastewater Treatment Plant

**Application:** Wastewater treatment that meets California Title 22 discharge criteria for water reuse

**Capacity:** 1.0 MGD (3,785 m<sup>3</sup>/d)

**Location:** Corona, California, United States

**Commissioned:** December 2001



### Process Overview

In 1998, CH2M Hill awarded a contract to GE Water & Process Technologies, to supply a ZeeWeed\* MBR (membrane bioreactor). The system incorporates reinforced ZeeWeed 500 immersed membranes, which provide a physical barrier for separating bio-solids from the treated wastewater. The process combines aeration and solids separation (filtration) into a single-step, resulting in a compact treatment facility.

One major reason for the selection of the ZeeWeed MBR process was the small footprint. The ZeeWeed MBR occupied only 25% of the land area required by alternative conventional processes.

The ZeeWeed MBR system is designed to meet the following discharge criteria: biological oxygen demand < 5 mg/L; total inorganic nitrogen < 10 mg/L; total suspended solids < 5 mg/L; and turbidity of < 0.2 NTU.

### Solution

The facility consists of three separate process trains. The process trains are divided into two distinct zones: anoxic and aerobic/membrane filtration.

The pre-screened wastewater is fed directly to the anoxic zone, where denitrification occurs. The mixed liquor then flows by gravity to the aerobic zone, where BOD oxidation and nitrification occurs.

The ZeeWeed immersed membranes are located in the aerobic zone. The membrane modules are connected to a permeate pump, which creates a low-pressure suction of -1 to -8 psi (-6.9 to -55 kPa). Water is drawn from the mixed liquor through the surface of the membrane in an "outside-in" flow path. From there, the effluent is pumped through the discharge system. Air is supplied to the membranes, where it emerges as a coarse bubble stream from the bottom of the membrane module. This membrane aeration performs several key functions, including mixing of the biomass, membrane surface cleaning, and provides a portion of the aeration required of the biomass.

### Results

The effluent from the plant is designed to meet California Title 22 standards, and is suitable for reuse on a nearby golf course for landscape irrigation, or can be safely discharged to a local creek bed

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