



CASE STUDY:

TESORO VIEJO MASTER-PLANNED COMMUNITY

250,000 GPD MEMPAC™ -M & DRYPAC™
Madera County, CA



DESIGN PARAMETERS

MODEL SUPPLIED: **MEMPAC-M**

INFLUENT PARAMETERS

AVERAGE DAILY FLOW	250,000 GPD
BIOCHEMICAL OXYGEN DEMAND	350 MG/L
TOTAL SUSPENDED SOLIDS	350 MG/L
INFLUENT TYPE	DOMESTIC WASTEWATER

EFFLUENT QUALITY

BIOCHEMICAL OXYGEN DEMAND	< 10 MG/L
TOTAL SUSPENDED SOLIDS	< 10 MG/L

PROJECT TEAM

SENIOR PROJECT MANAGER

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PRINCIPAL ENGINEER

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EQUIPMENT SALES REP

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PROJECT DETAILS



OVERVIEW

Cloacina designed and built a 250,000 Gallon Per Day (GPD) MEMPAC-M™ package membrane bioreactor that will reclaim 100% of the development's wastewater for unrestricted, beneficial re-use. During Phase One, plant capacity will ramp up from 10,000 to 250,000 GPD commensurate with the growth of the development. At approximately 100,000 GPD, the plant will switch configurations from "low-flow" to "full-plant" programmatically and by simple valve actuation. The MEMPAC-M is complemented by a Cloacina DRYPAC™ for the dewatering and disposal of sludge produced as a byproduct of the MBR system. The modular design of the Phase One MEMPAC-M enables it to be readily and economically expanded to Phase Two which will double its treatment capacity to 500,000 GPD.



For project videos, additional photos and more information, visit cloacina.com/tesoroviejo



CLOACINA SUPPLIED THE FOLLOWING FOR THIS PROJECT:

SERVICES: *Process modeling of all flows, structural engineering and general arrangement drawings. Complete biological process modeling from 10,000 GPD to 250,000 GPD to ensure the system will meet nutrient removal requirements through the entire project life, hydraulic modeling and peak flow management.*

EQUIPMENT: *MEMPAC-M membrane bioreactor and DRYPAC Sludge Handling System*

LIFT STATION: *Provided by the client*

INTEGRATION: *Integrated Cloacina controls package with third party vendors of the lift station, sludge dewatering press and UV disinfection equipment*

HEADWORKS: *Automated auger with washer/compactor. Mechanical screen with 2 mm perforated mesh along with 1/4" manual bypass screen.*

SECONDARY TREATMENT: *Anoxic basins, ORP monitoring for denitrification, level transducers for level monitoring and submersible mixers. Aeration basins with fine bubble diffusers, DO probes and positive displacement blowers equipped with VFDs to provide energy efficiency and ensure nutrient removal.*

CLARIFICATION: *2 Fibracast FPC400-S 3x10 membrane arrays, Fibracast submerged membranes, level transducers, permeate pumps with special turn down capacity for use throughout the community's build-out period, RAS pumps equipped with VFDs to provide energy efficiency, ensure nutrient removal and use throughout the community's build-out period*

CONTROLS: *Allen Bradley PLC with Cloacina's integral HMI and operations and maintenance program. Stainless steel MCC, touch screen HMI and Cloacina's O&M and statistics modules*

SLUDGE HANDLING: *WAS pump, packaged sludge holding tank with level transducer and fine bubble aeration, positive displacement aeration blower and dewatering press*