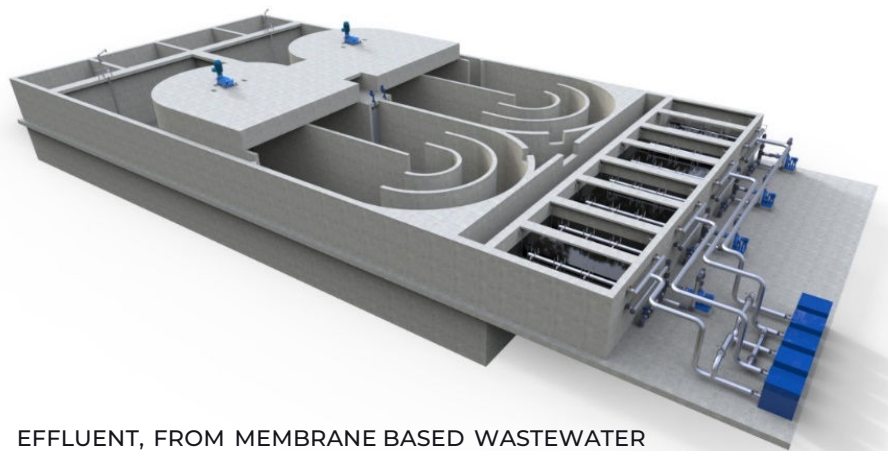


SiC | Beyond MBR

THE COMBINATION OF SiC TECHNOLOGY WITH OVIVO'S SYSTEM INTEGRATION AND PROCESS EXPERTISE, HAVE CREATED A POWERFUL FLOW SHEET THAT GREATLY IMPROVES UPON CAPEX AND OPEX OVER A TRADITIONAL MBR. THE PREMISE OF THIS FLOW SHEET IS TO MOVE MEMBRANES OUT OF THE TURBULENT, HIGH MIXED LIQUOR, HIGH FOULING ENVIRONMENT.



EFFLUENT, FROM MEMBRANE BASED WASTEWATER TREATMENT PLANTS, WHETHER A MBR OR AN INTEGRATED SOLUTION MEMBRANE FLOW SHEET, IS A READILY AVAILABLE WATER SOURCE FOR DIRECT/INDIRECT REUSE AND GROUNDWATER RECHARGE APPLICATIONS IN WATER STRESSED AREAS.

An Integrated Solution System utilizing Silicon Carbide Membrane Technology is the most versatile and advanced membrane system for creating clean, pure, and safe water.

At the heart of the system is a robust low pressure Silicon Carbide (SiC) membrane. Second in hardness to diamonds, SiC is an extremely hard, sintered, monolithic plate that eliminates membrane peeling and damage. It has ultra small 0.1 micron pores that creates a physical barrier against Metals, Total Suspended Solids (TSS), Pathogens and other trace contaminants performing filtration and disinfection in single step reducing the cost of advanced reuse.



Membranes are a fantastic technology that we need – they provide a level of water and wastewater treatment that no other technology can. However, lessons learned reveals MBRs too often face operational challenges or difficulties. Let's remember that membranes in an MBR are in a turbulent, high mixed liquor, high fouling environment which can place tremendous stress on any membrane. The operation skill level required for an MBR must be high, with CAPEX & OPEX that are generally the highest amongst our Municipal treatment plants.

THE SOLUTION

SiC is in a class of its own when it comes to water. The reality is that membranes are one of many subsystems that go into any water or wastewater treatment plant. While the membranes are often the workhorse of a treatment system, they can only be successful if the rest of the system is designed properly.

The combination of SiC Technology with Ovivo's system integration and process expertise, have created powerful flow sheets that greatly improves upon CAPEX and OPEX over a traditional MBR. The premise of this flow sheet is to move membranes out of the turbulent, high mixed liquor, high fouling environment.

This Ultrafiltration Membrane Treatment System will produce high quality water to meet today's stringent reuse quality requirements.

THE OVIVO DIFFERENCE

SiC Technology from Ovivo opens limitless possibilities of advanced treatment in minimal unit process and smallest footprint reducing overall treatment costs.

BEYOND MBR COMPARISON

A recent 0.795 MGD Greenfield 20-yr NPW evaluation between traditional MBR systems and our IFAS/MBBR → DAF → SiC Integrated Solution, included the major critical items such as equipment cost, concrete cost, energy, chemicals and membrane replacement.

20-year NPW			
System	CAPEX	OPEX	Total
Ovivo Integrated Solution	\$4.4M	\$2.9M	\$7.3M
Traditional MBR #1	\$4.7M	\$4.1M	\$8.8M
Traditional MBR #2	\$4.5M	\$4.7M	\$9.2M

RESULTS AND BENEFITS

Multiple Integrated Solutions flow sheets are available to meet required treatment goals. Shown below are these flow sheets.

