

# Membrane Processes

## ● R\_\_\_\_\_o\_\_\_\_\_ (RO)

- primarily used to remove s\_\_\_\_\_ from brackish water or seawater desalination. Has a high rejection of synthetic organic chemicals (SOCs)

## ● N\_\_\_\_\_filtration (NF)

- often used for water softening and to remove precursors to d\_\_\_\_\_ byproducts.

## ● E\_\_\_\_\_ (ED)

- demineralize b\_\_\_\_\_ water and seawater, also water softening.

## ● U\_\_\_\_\_filtration (UF)

- t\_\_\_\_\_ and p\_\_\_\_\_ removal

## ● M\_\_\_\_\_filtration (MF)

- turbidity and pathogen removal

## ● Cost of treatment increases as s\_\_\_\_\_ of solute decreases

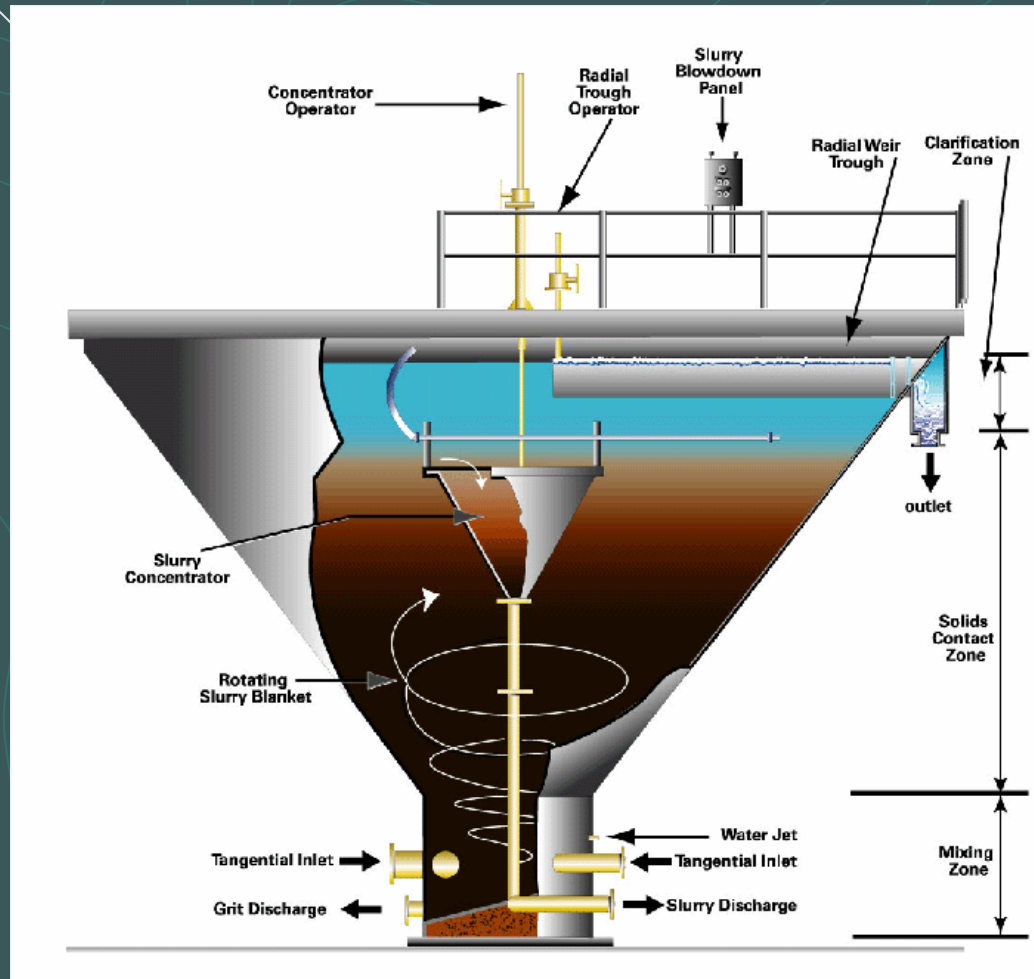
# Membrane Processes

	IONIC RANGE	MOLECULAR RANGE	MACRO RANGE	MICRO PARTICLE RANGE	MACRO PARTICLE RANGE
SIZE, MICRONS	0.001	0.01	0.1	1.0	100
APPROXIMATE MOLECULAR	100 1,000	20,000 100,00	500,000		
RELATIVE SIZE OF VARIOUS MATERIALS IN WATER	<p>AQUEOUS SALTS</p> <p>METAL IONS</p> <p>MOLECULES</p>	<p>VIRUSES</p> <p>HUMIC ACIDS</p> <p>NOM</p>	<p>COLLOIDS</p>	<p>CLAYS</p> <p>ASBESTOS FIBERS</p>	<p>BACTERIA</p> <p>ALGAE</p> <p>CYSTS</p> <p>SILT</p> <p>SAND</p> <p>SUSPENDED</p>
PROCESSES	<p>REVERSE OSMOSIS</p> <p>PERVAPORATION</p> <p>NANOFILTRATION</p> <p>ELECTRODIALYSIS</p>	<p>ULTRAFILTRATION</p>	<p>MICROFILTRATION</p>	<p>CONVENTIONAL FILTRATION</p>	<p>SAND, ACTIVATED CARBON (grains)</p>

# Boone Water Treatment Plant

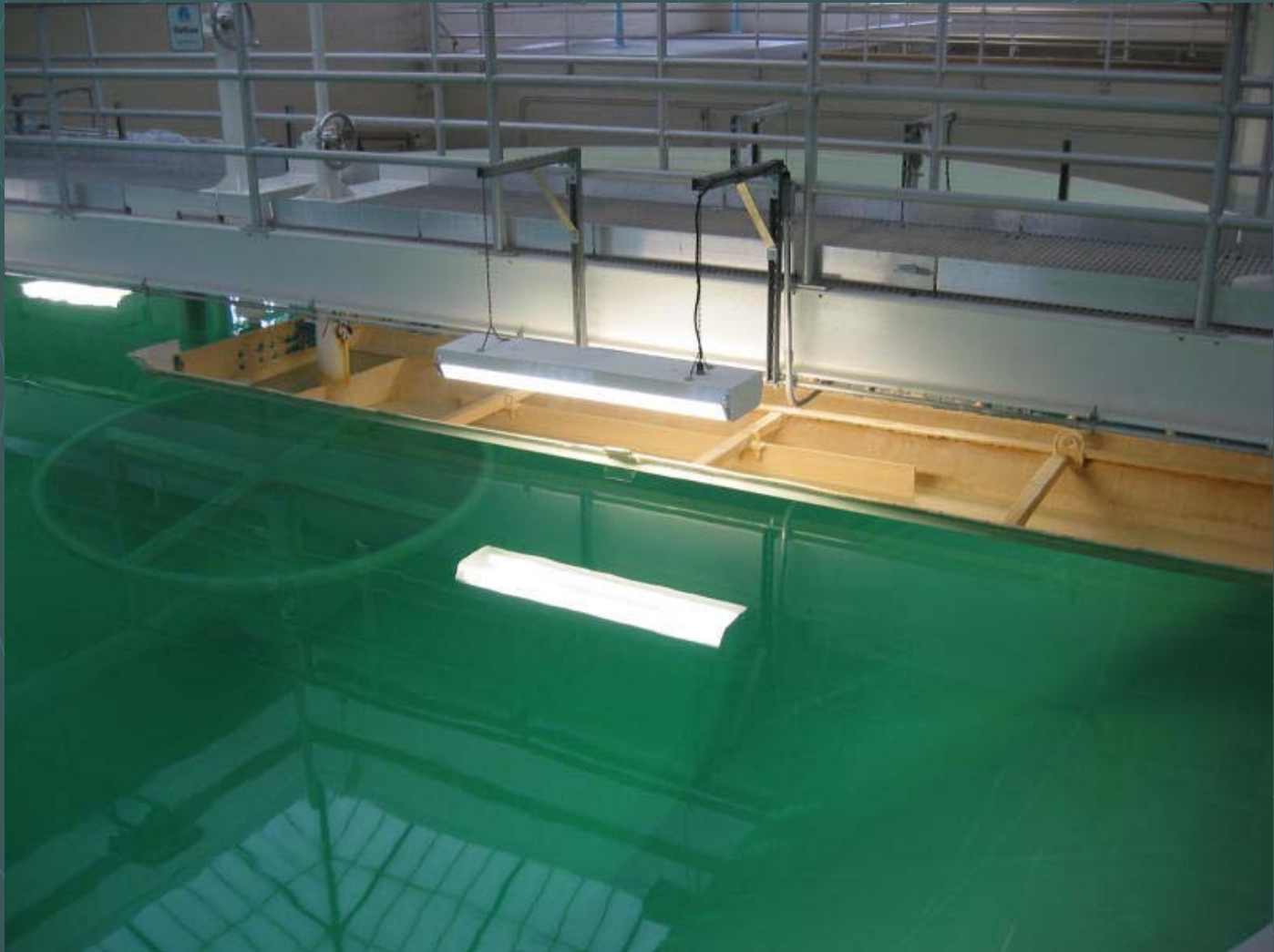


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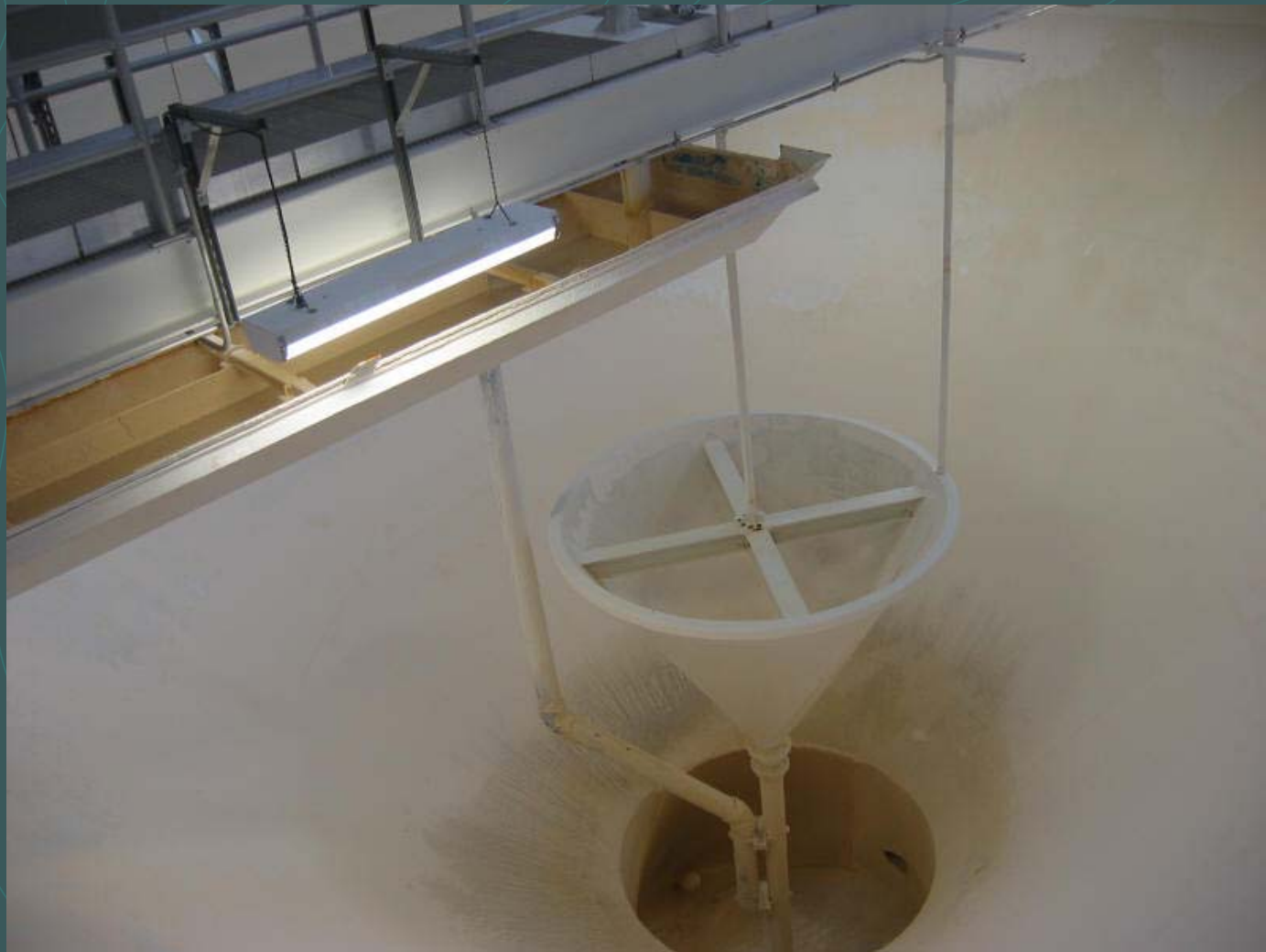




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