

Hydrogen and Water - AHC webinar

20 October 2022

Scott Murphy - Manager Operational Excellence

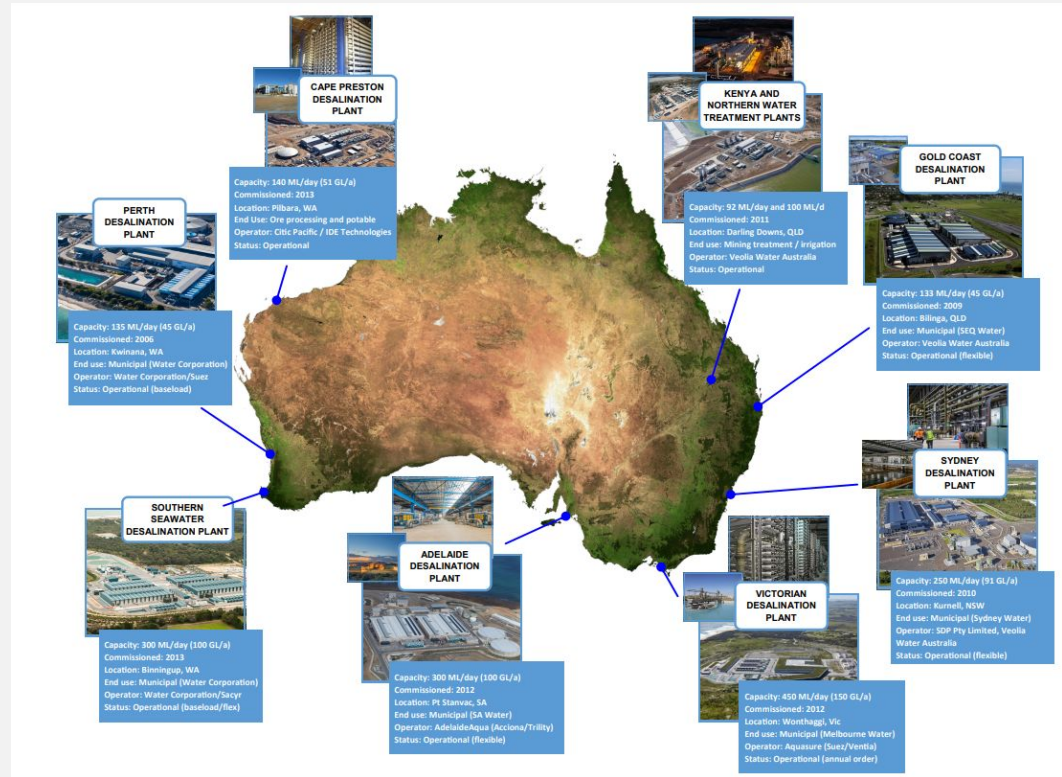
ACKNOWLEDGEMENT OF COUNTRY

Veolia acknowledges the Traditional Custodians of the lands and waters in which we live and work and where we meet today the Bundjurlung lands, their continuing connection to land, waters, and community. We pay our respects to their Elders, past, present.



MANUFACTURED WATER AUSTRALIA

Australia's capacity for manufactured water from seawater: >1.5 GL/day



MANUFACTURED WATER SEAWATER SOURCES

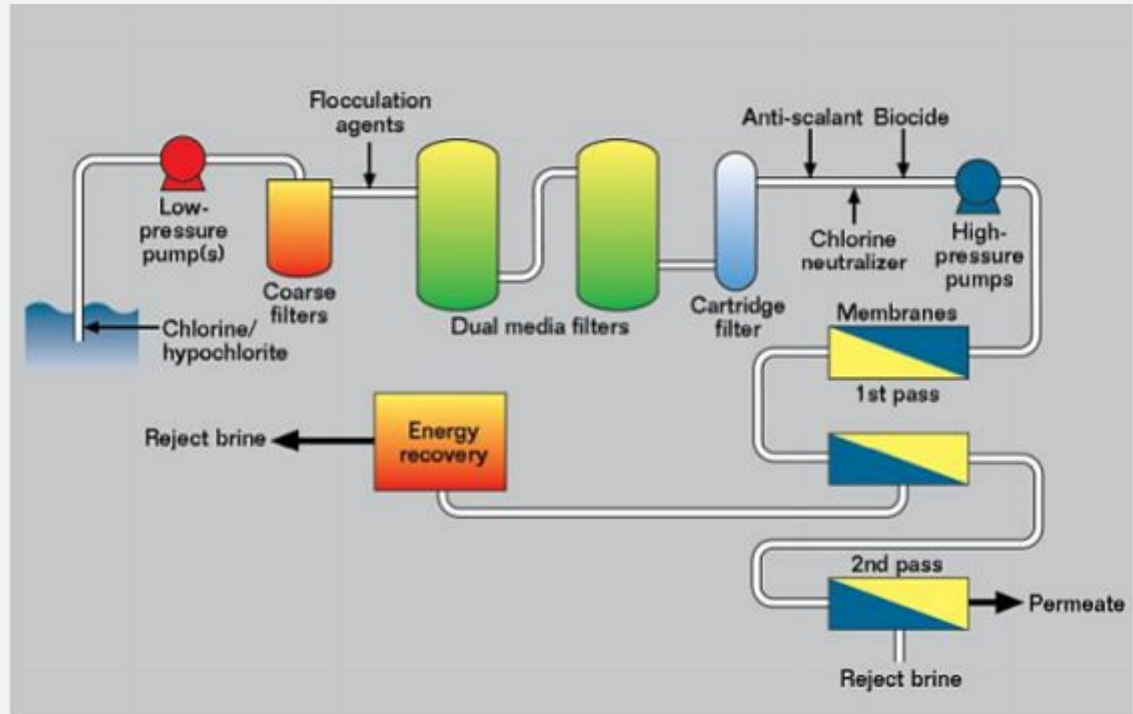


TDS: 35,000 mg/L +

SEA WATER DESALINATION PLANT GOLD COAST DESALINATION



MANUFACTURED WATER SEAWATER SOURCE



MANUFACTURED WATER RECYCLED WATER SOURCES

- wastewater treatment plants
 - areas with population density - cities
- industrial process
 - large concentrated industries - mines, CSG

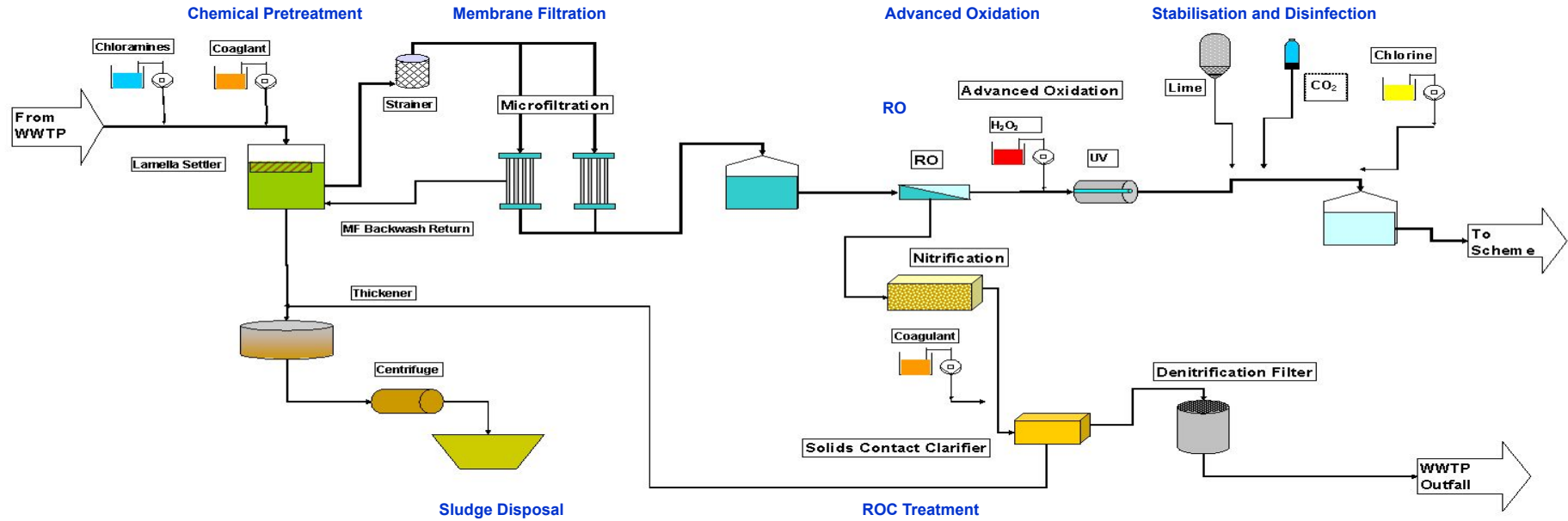
TDS: 100 - 1000's mg/L



RECYCLED WATER TREATMENT PLANT LUGGAGE POINT AWTP

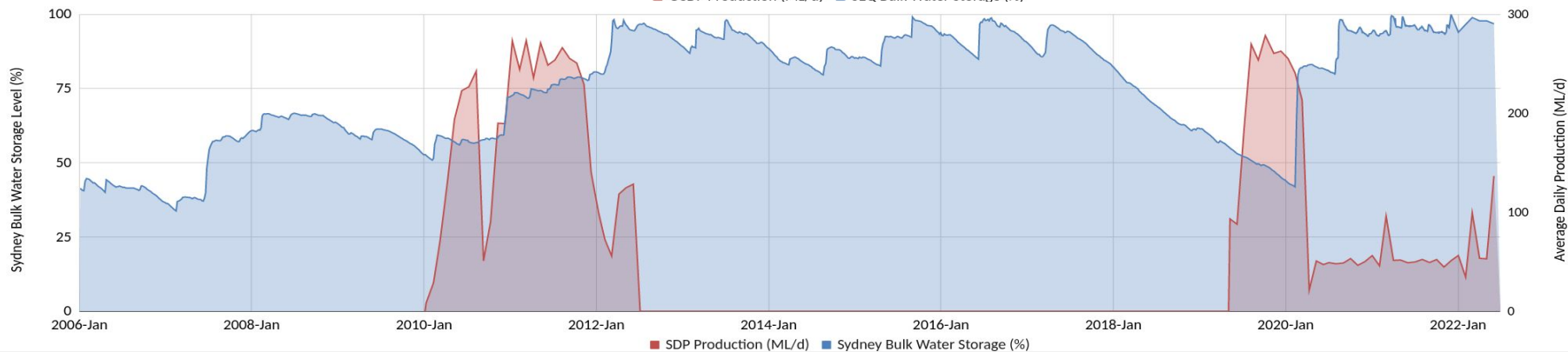


MANUFACTURED WATER RECYCLED WATER PROCESS



MODES OF OPERATION

FULL THROTTLE, CONTINUOUS, HOT STANDBY, MOTHBALLED



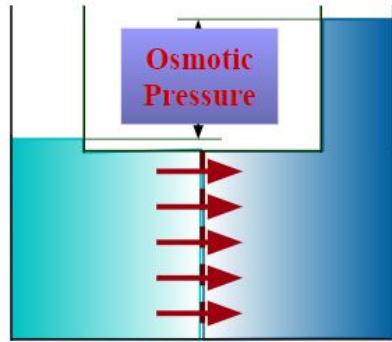
MARINE INTAKE MARINE LIFE

[LINK](#)



BRINE

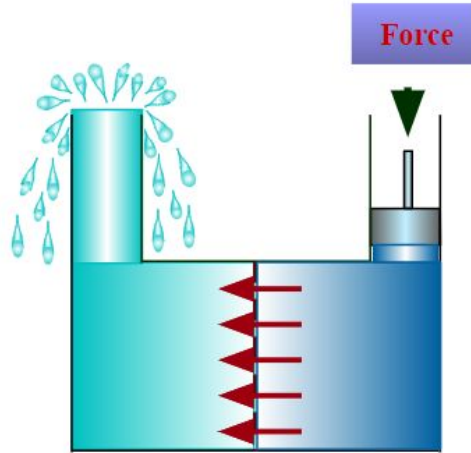
Osmosis



Fresh Water

Saline Water

Reverse Osmosis



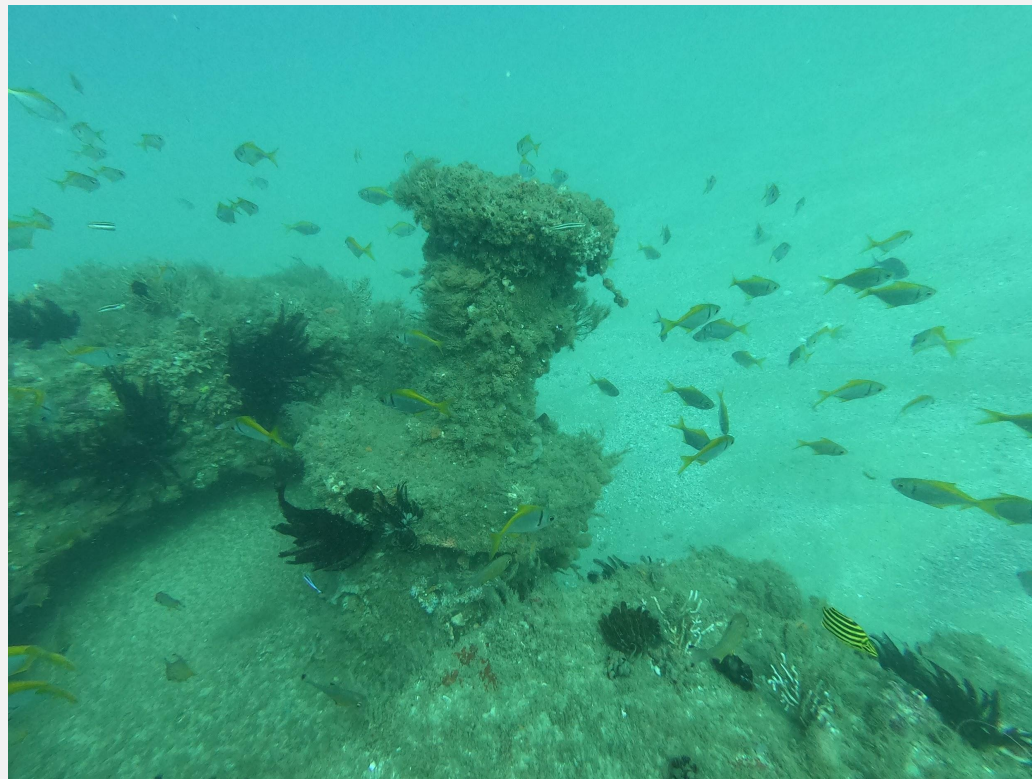
Fresh Water

Saline Water

Seawater: <50% recovery
Recycled water: >80% recovery

BRINE SEAWATER - DIFFUSER

[LINK](#)



BRINE CONCENTRATE STORAGE



ENERGY LARGE CONSUMERS

Seawater desalination - 2.5 to 4.0 kWh/kL (large scale)*

Recycled water - 0.2 to 0.9 kWh/kL (large scale)*

*not including transport

>50% cost of water is pumping energy



TIME IDEA TO OPERATION

Social licence	?????
Approvals	1 yr ???
Design	9 mths to 1.5 yrs
Procurement	membranes 9 mths
Construction	1 to 1.5 yrs
Commissioning	0.5 yr
First Water	best yet 2.5 yrs (fast track with legislative support). Normal pace 6yrs.

SEAWATER vs RECYCLED SOURCE WATER

PROs and CONs

	Seawater Source	Recycled Water Source
Availability	Endless - near coastlines only	Limited - concentrated
Treatment Energy Intensity	Higher <small>(don't forget transport)</small>	Lower <small>(don't forget transport)</small>
Brine Disposal	Environmental considerations	Often Difficult
Source water stability/quality	High quality - relatively stable	Location specific - often variable
Community Acceptance <small>(not for drinking)</small>	Resistance	More readily accepted

WHAT'S NEXT - QUESTIONS

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