

VICTORIAN DESALINATION PROJECT

FACT SHEET

**WATER NOW
AND FOR THE FUTURE.
FOR SURE.**

THE DESALINATION PROCESS

What is Desalination?

Desalination is the process of removing salinity (dissolved salts) from a salt water source.

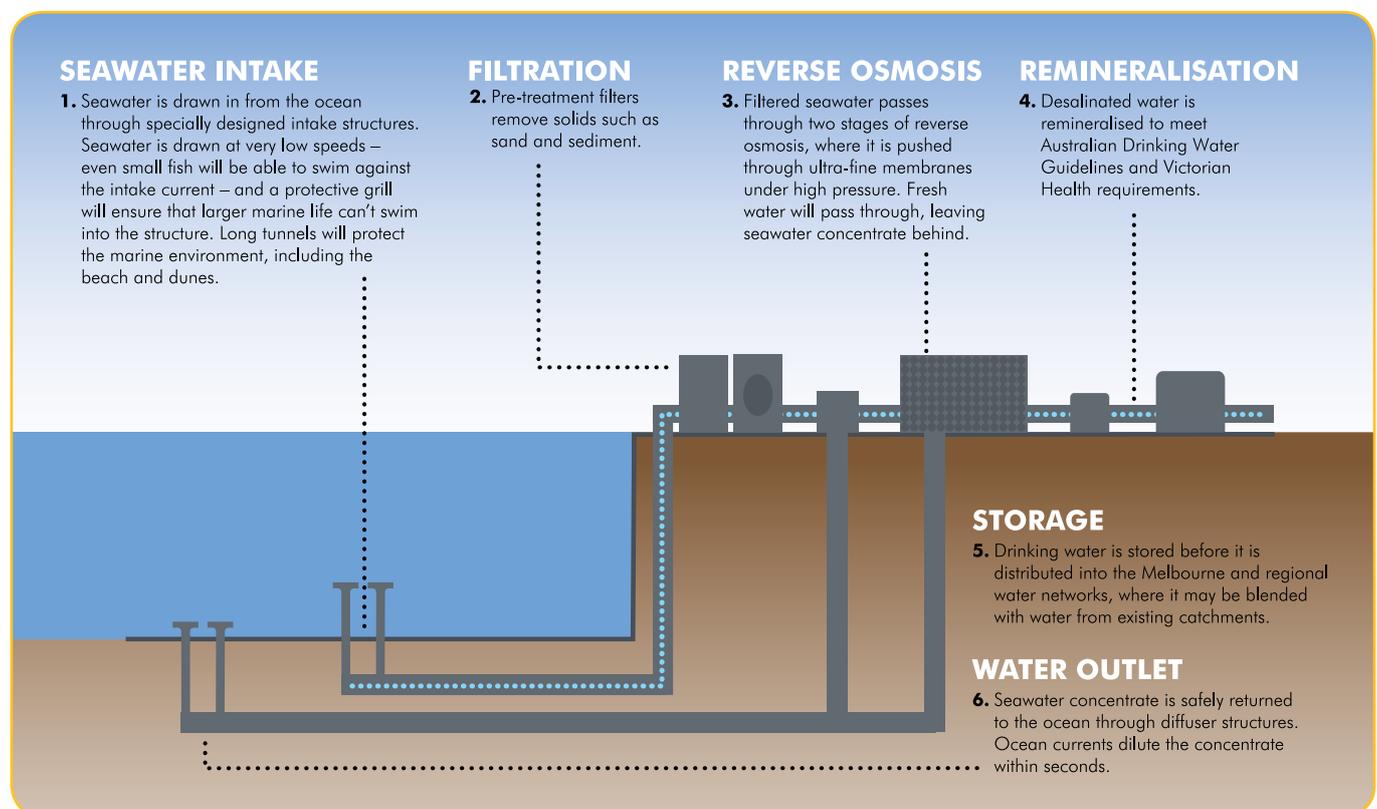
It has been commonly used for more than 100 years in dry climates such as the Middle East, Spain, Malta, Cyprus and parts of the United States where access to traditional water supplies is limited.

In response to climate change and drought in Australia, desalination plants are becoming more

common. They now exist or are currently being built in Sydney, Perth, the Gold Coast and Adelaide.

Various methods can be used to desalinate seawater; reverse osmosis technology will be used at Victoria's new desalination plant. It is more energy efficient and less visually intrusive than other methods.

The major benefit of desalination is that it can continue to deliver high quality drinking water even if there is no rain.



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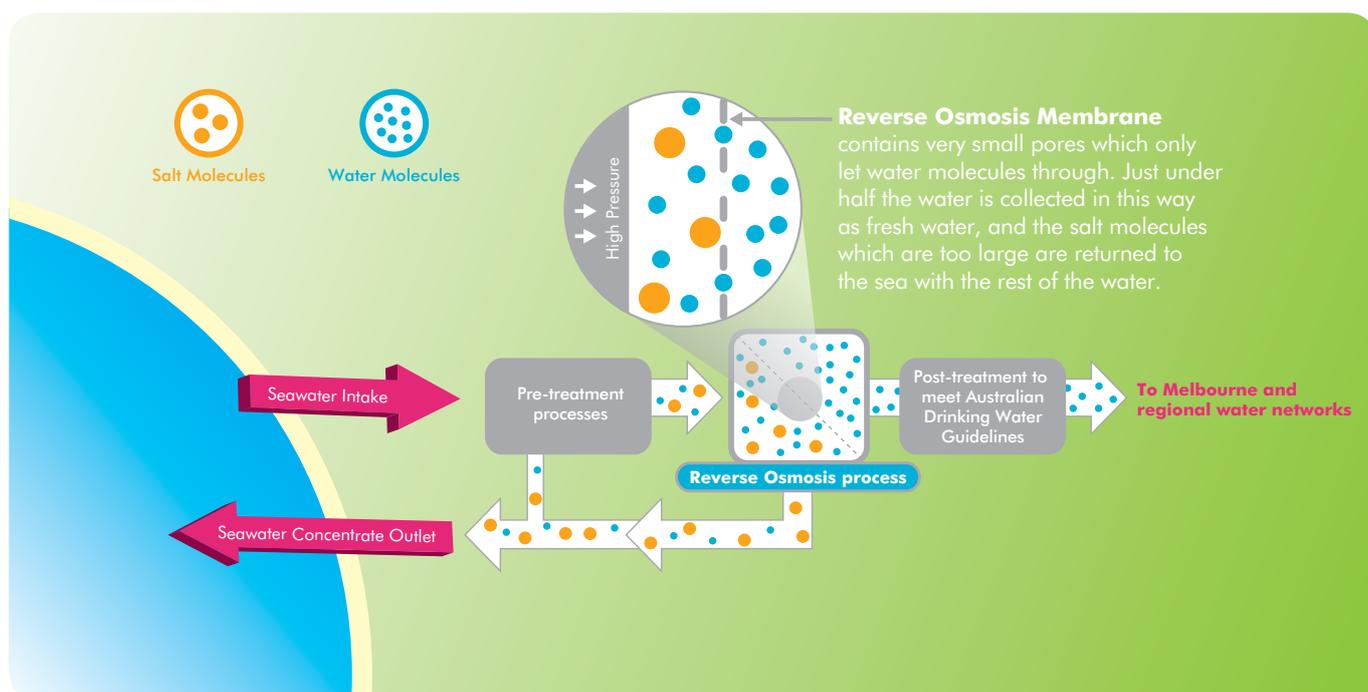
Why is it called Reverse Osmosis?

Osmosis is the process where water molecules move across a semi permeable membrane from an area of lower salt concentration to an area of higher concentration. The process does not use any energy. An example of this in nature is the movement of water from the soil into plant roots. It is also how flowers take in water when they are in a vase.

Reverse osmosis is the opposite process. Energy is used to apply pressure to water to force it to move from an area of higher salt concentration (in seawater) to an area of lower salt concentration.

Reverse Osmosis membranes

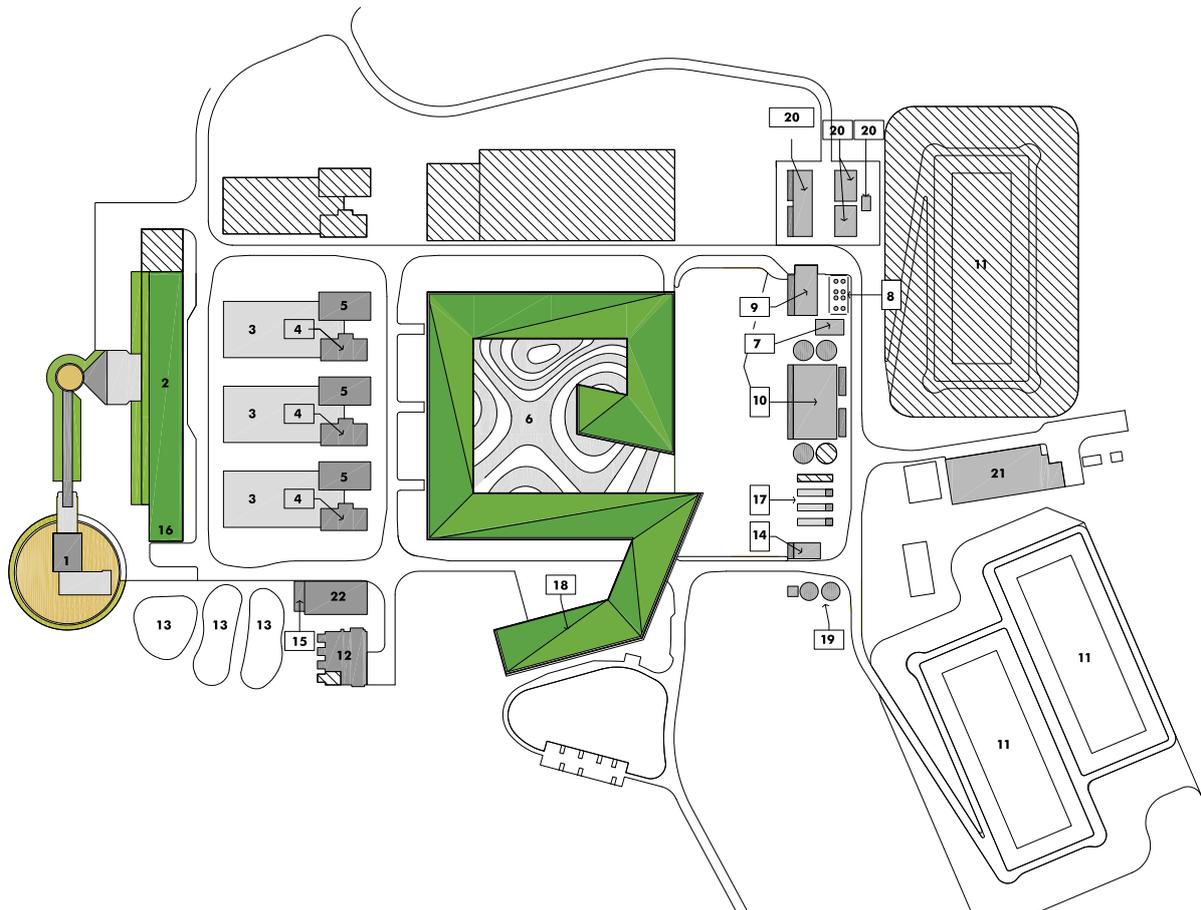
Each reverse osmosis membrane has a surface area of 40.9 square metres. The membrane material is wrapped rather like a closed umbrella inside each cylinder.



Simple outline of Reverse Osmosis Process

Reverse Osmosis Processing Plant

This is a plan view of the layout of the reverse osmosis processing plant. Water moves through the process from left to right. It takes about one hour for a water drop to move through from the seawater lift pump station (1) through the plant to the treated water storage (11).



1 SEAWATER LIFT PUMP STATION

Transfers seawater to the pump station via intake structures located on the seabed.

2 SCREEN & FEED PUMP STATION

Houses screen filters that remove large particles from seawater.

3 PRETREATMENT DMPF

Houses Dual Media Pressure Filters (DMPF) to remove fine particles from seawater.

4 DMPF BACKWASH

Collects backwash from the DMPFs and pumps it through to the Backwash Treatment Building.

5 BACKWASH TREATMENT BUILDING

Treats and stores backwash from the DMPF process before it is pumped to the Solids Treatment Building.

6 REVERSE OSMOSIS BUILDING

Water passes through two stages of reverse osmosis where minerals and salts are removed.

7, 8 AND 9 CHEMICAL BUILDINGS

House chemicals like fluoride and carbon dioxide used to potabilise the desalinated water.

10 LIME STORAGE AND SATURATION

Houses lime used to remineralise the desalinated water.

11 TREATED WATER STORAGE

Stores potable water prior to distribution.

12 SOLIDS TREATMENT BUILDING

Settlement and centrifuge process used to dewater the backwash waste prior to transfer offsite.

13 STABILISATION PONDS

Treatment ponds used for the stabilisation and treatment of outfall waters.

14 UTILITIES BUILDING

15 AND 16 ELECTRICAL ENCLOSURES

17 POTABILISATION SYSTEM

Point for mixing of chemicals to produce safe drinking water.

18 ADMINISTRATION COMPLEX

Contains reception, offices, meeting rooms and plant control room.

19 FIRE SERVICES BUILDING

20 SUBSTATIONS

Contain electrical equipment and transformers.

21 TRANSFER PUMP STATION AND SURGE VESSELS

Pumps potable water into the transfer pipeline.

22 PROCESS BUILDING

Houses chemicals used to assist the reverse osmosis process.

FUTURE PLANT EXPANSION
ZONES TO 200GL

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Reverse Osmosis building

CONTACT US

Visit the Victorian Desalination Project Community Information Centre
Shop 2, 33–35 Murray St, Wonthaggi

Opening hours

Tuesday–Friday 9.30am–4.30pm, Saturday 9am–12pm.



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