

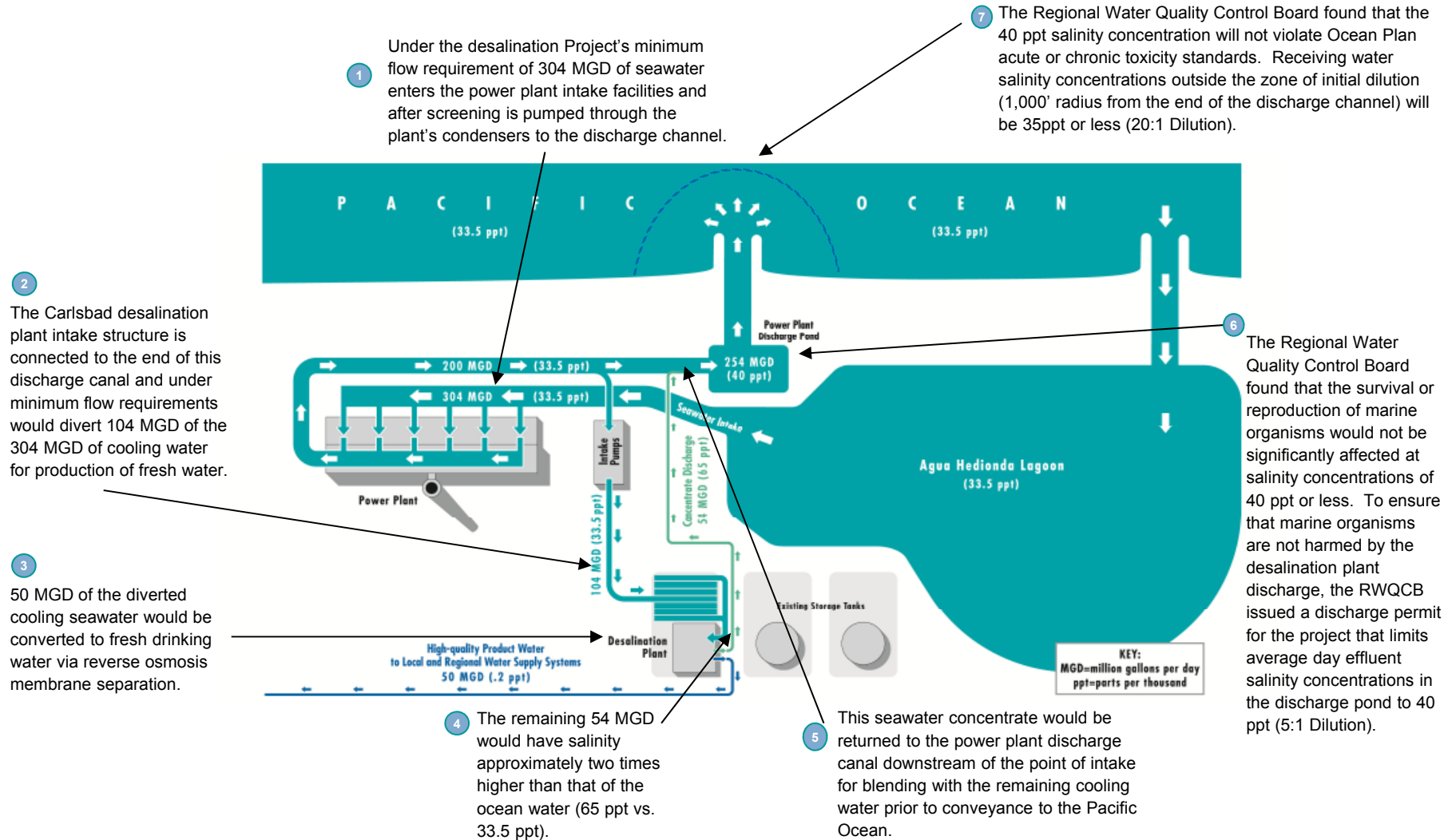




Carlsbad Desalination Project



Existing NPDES Permit Requirements



Plant Construction — *Intake Pump Station*



Plant Construction — *Pretreatment*



Plant Construction — *Pretreatment*



Plant Construction — *Pretreatment*



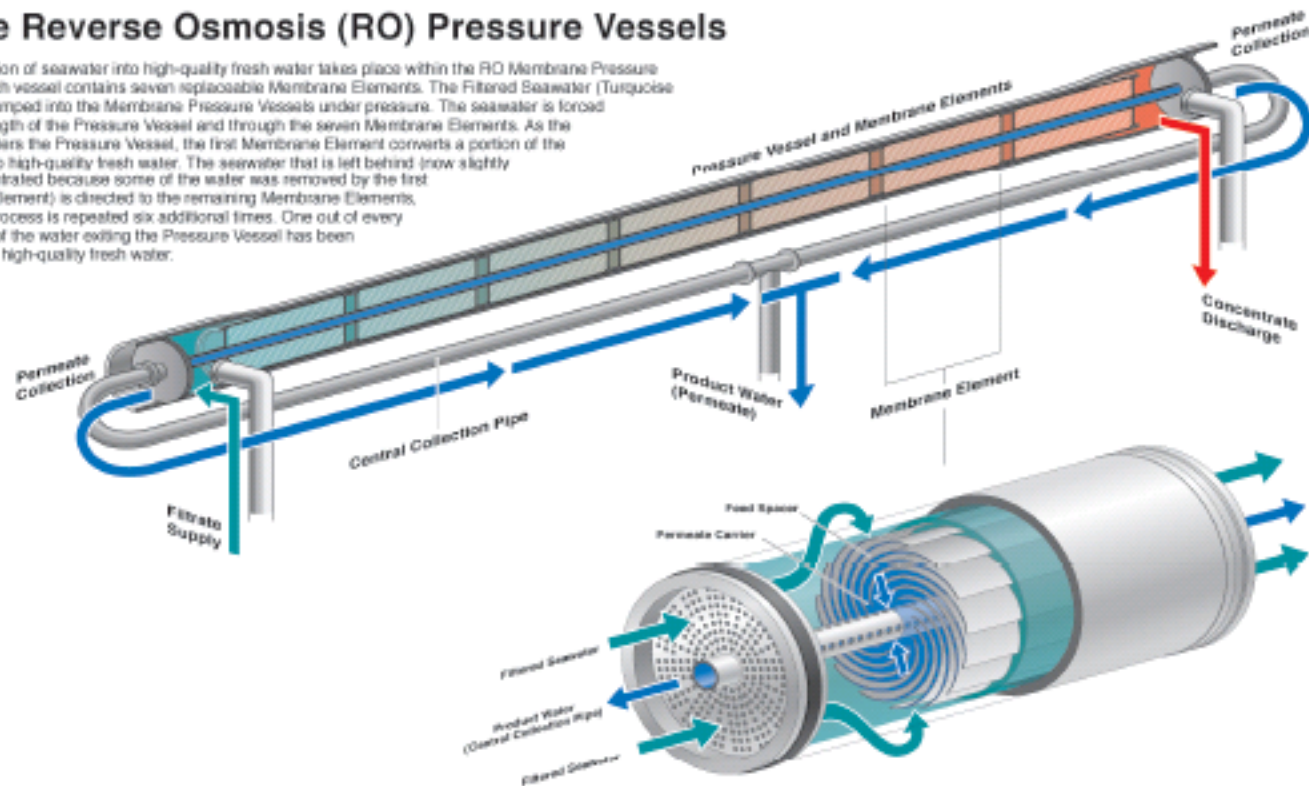
Plant Construction — *RO Building*



SWRO Technology

4-The Reverse Osmosis (RO) Pressure Vessels

The conversion of seawater into high-quality fresh water takes place within the RO Membrane Pressure Vessels. Each vessel contains seven replaceable Membrane Elements. The Filtered Seawater (Turquoise arrow) is pumped into the Membrane Pressure Vessels under pressure. The seawater is forced along the length of the Pressure Vessel and through the seven Membrane Elements. As the seawater enters the Pressure Vessel, the first Membrane Element converts a portion of the seawater into high-quality fresh water. The seawater that is left behind (now slightly more concentrated because some of the water was removed by the first Membrane Element) is directed to the remaining Membrane Elements, where this process is repeated six additional times. One out of every two gallons of the water exiting the Pressure Vessel has been converted to high-quality fresh water.

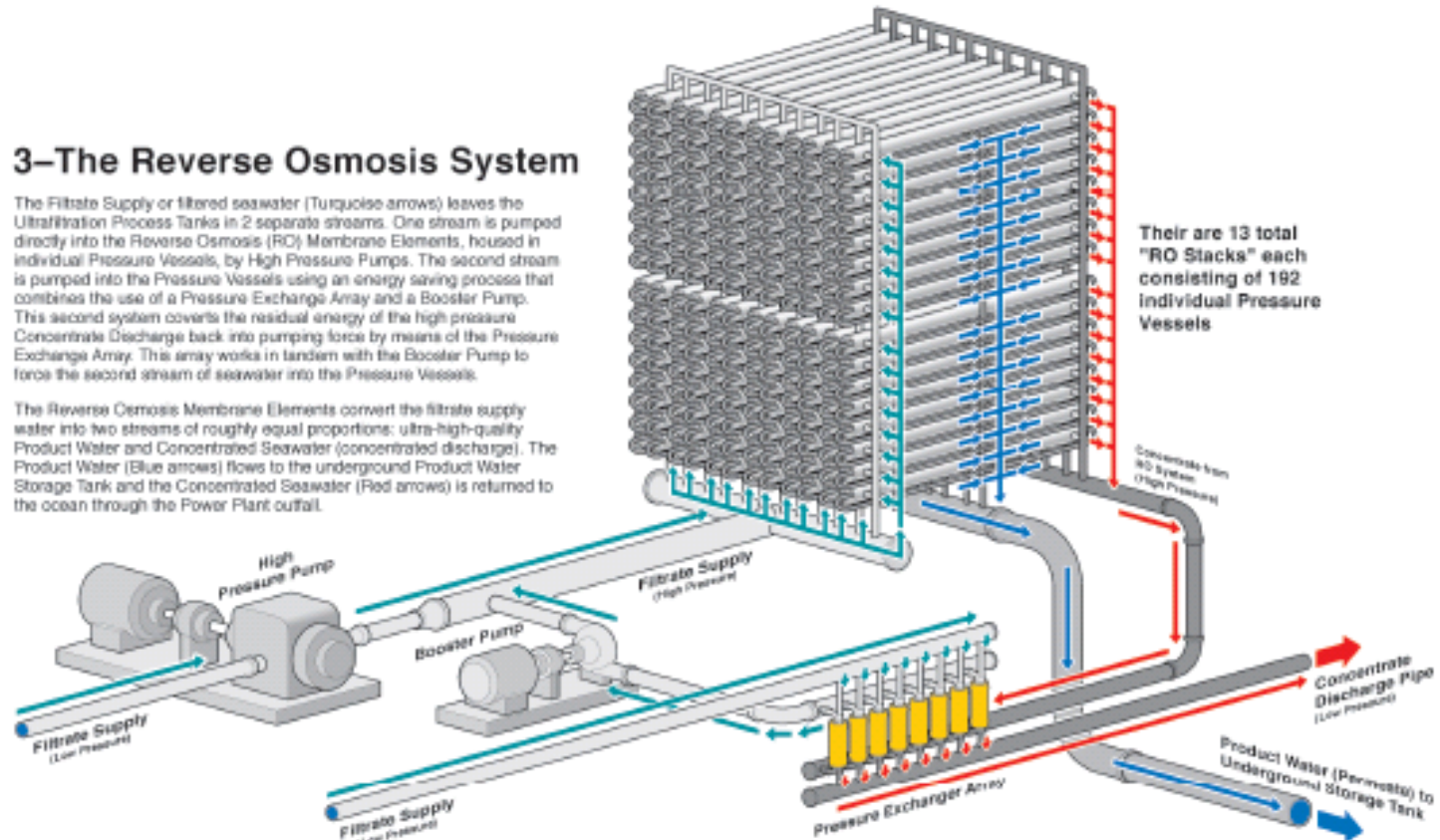


SWRO Technology

3-The Reverse Osmosis System

The Filtrate Supply or filtered seawater (Turquoise arrows) leaves the Ultrafiltration Process Tanks in 2 separate streams. One stream is pumped directly into the Reverse Osmosis (RO) Membrane Elements, housed in individual Pressure Vessels, by High Pressure Pumps. The second stream is pumped into the Pressure Vessels using an energy saving process that combines the use of a Pressure Exchange Array and a Booster Pump. This second system covers the residual energy of the high pressure Concentrate Discharge back into pumping force by means of the Pressure Exchange Array. This array works in tandem with the Booster Pump to force the second stream of seawater into the Pressure Vessels.

The Reverse Osmosis Membrane Elements convert the filtrate supply water into two streams of roughly equal proportions: ultra-high-quality Product Water and Concentrated Seawater (concentrated discharge). The Product Water (Blue arrows) flows to the underground Product Water Storage Tank and the Concentrated Seawater (Red arrows) is returned to the ocean through the Power Plant outfall.



Plant Construction — *Post treatment*



Plant Construction — *Product water storage*



Wetlands Restoration Project



Carlsbad Desalination Pipe Installation

Agua Hedionda Lagoon

Cannon Rd.

Faraday Ave.

College Blvd.

El Camino Real

Faraday Ave.

Lionshead Ave.

S. Melrose Dr.

Business Park Dr.

W. Linda Vista Dr.

Las Flores Dr.

9th St.

Rancho Santa Fe Rd.

Macario Tunnel

Desalination Plant & Pipeline

LEGEND

- Desalination Plant
- Approved Conveyance Facilities
- Completed Pipeline Installation
- Desalination Conveyance Pipeline Mainline (City of Carlsbad)
- Desalination Conveyance Pipeline Mainline (City of Vista)
- Desalination Conveyance Pipeline Mainline (City of San Marcos)
- Biological Dredged

Pipeline Construction



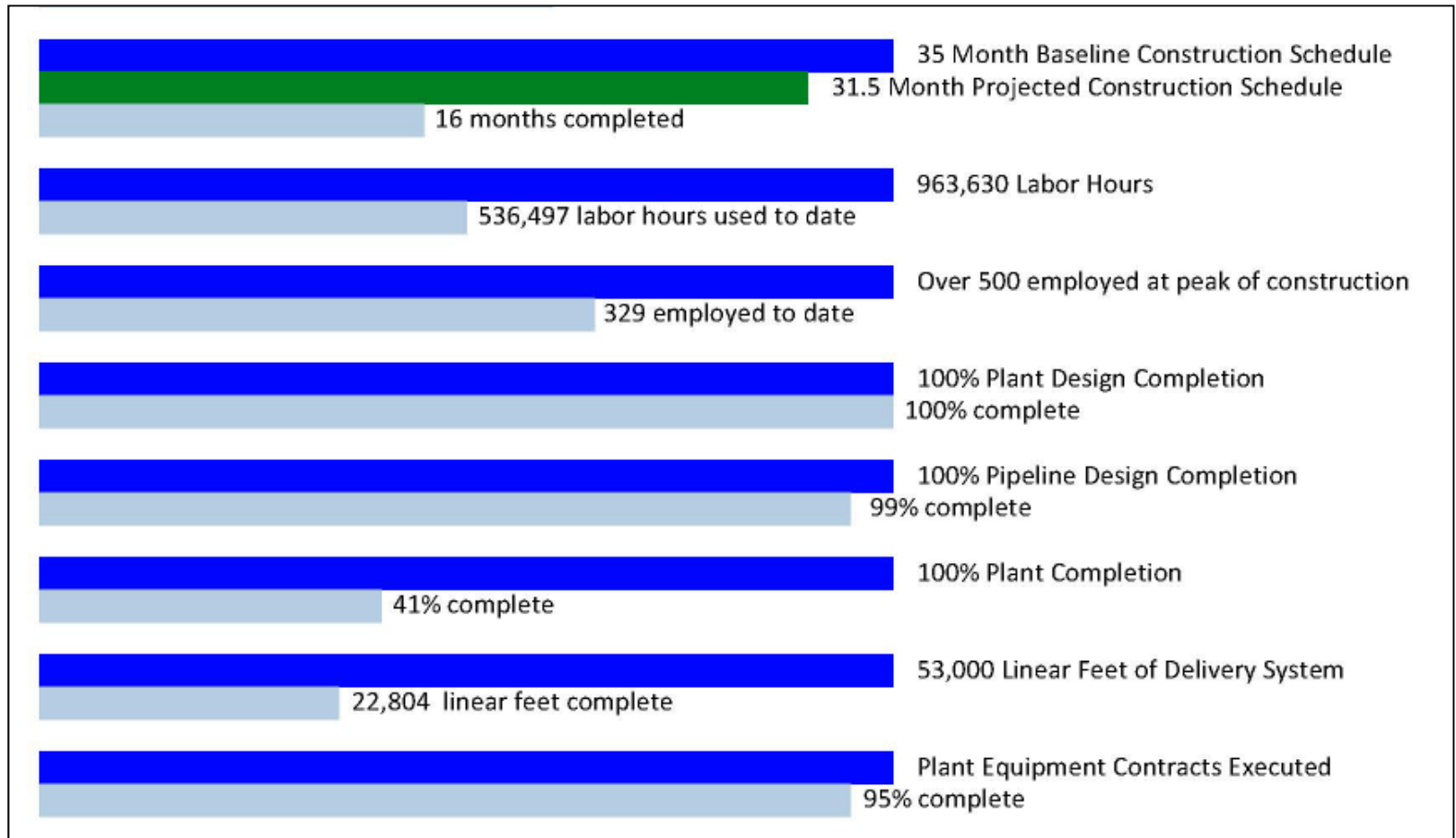
Pipeline Construction – *Cannon Road*



Pipeline Construction



Project Status – 55.9 % Complete as of June 1





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