What It Takes to Bring Water to the Driest Place on Earth

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PROJECT LOCATION
WATER USE IN COPPER MINING

- Copper mining & processing
  - Concentrators (Flotation)
  - Electrowinning
  - Transportation
  - Dust suppression
- Limited fresh water supplies
ESCONDIDA WATER SUPPLY OVERVIEW

**Water Production:**
- Marine Works – 181 mgd hyd. cap
- SWRO – 57 mgd initial phase
- Infrastructure sized for 91 mgd

**Water Conveyance/Storage:**
- 4 high pressure pump stations
- Two parallel pipelines, 110 mi long
- 129 MG Storage Reservoir

**Energy Infrastructure:**
- High voltage substations
- High voltage transmission lines
SEA WATER REVERSE OSMOSIS (SWRO) PROCESS
Intakes and Outfall - Microtunneling
Marine Works Sea Water Intake Structure Excavation
Sea Water Intake and Brine Discharge Diffuser
Sea Water Influent Pump Station Excavation

Hard rock required blasting! >>> Mucho dinero
• 9 Vertical Diffusion Vane Pumps
  • 9 pumps, each 540 l/s (8,560 gpm)
  • 16m (52.5ft) pump column
  • Super Duplex Stainless Steel
  • 900 kW (1200 hp) motors

• Traveling Band Screens
  • Max flow rate = 4,256 L/s (97 MGD)
  • Super Duplex Stainless Steel
Pretreatment: Dual Media Filtration

- 2 Stages
  - 1st Stage: 36 pressure filters
  - 2nd Stage: 24 pressure filters

- Carbon Steel Vessels
  - 14 m (46 ft) total length
  - 4 m (13 ft) diameter

- Media: Anthracite/Sand
- Ferric chloride and polymer
Reverse Osmosis

- Horizontal Split Case high pressure pump, 540 l/s (8,560 gpm) at 75 bar (1100 psi)
- 9 RO racks (275 pressure vessels/rack)
- 270 l/s (4,280 gpm) permeate per RO Rack
- 50% Recovery
As Modeled
As Built
Gracias!

Preguntas?