

Installation 0001

Production capacity: 33.000 m³/d.

Seawater intake: beach wells.

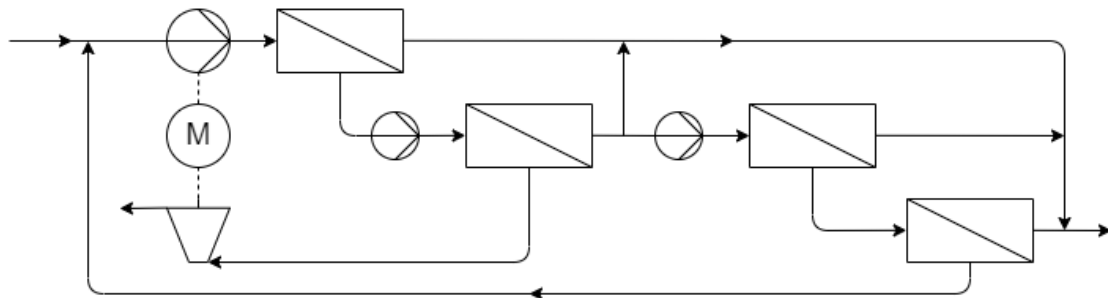
Physical-chemical pre-treatment: sand (installed but not used) and cartridge filtration (5μ).

Plant configuration: Four production lines with second stage (a group of two racks of 7,500 m³/day and newer group of two racks of 9,000 m³/day). It has a two stages second pass for each rack group that works at low pressures with a conversion rate of 85 % that process approximately the 30 % of the first pass permeate.

Recovery rate: 55%.

Energy recovery system: Pelton turbines.

Cadence of received data: one record every 32 seconds (daily sending).



Each one of the four racks have this configuration

Available variables:

Variable name	Units	Meaning
P_EntPret_B	kg/cm ²	Inlet pressure B
P_EntPret_A2	kg/cm ²	Inlet pressure A2
Qa_B	m ³ /h	Feed flow spare HPP A & B
Qa_C	m ³ /h	Feed flow HPP C
Qa_A2	m ³ /h	Feed flow HPP A2
Qa_B2	m ³ /h	Feed flow spare HPP A2 & B2
Qa_C2	m ³ /h	Feed flow HPP C2
Cond_alim1E_B	mS/cm	Inlet conductivity B (mS/cm)
Cond_alim1E_A2	mS/cm	Inlet conductivity A2 (mS/cm)
Pa_B	kg/cm ²	Rack inlet pressure B
Pa_A2	kg/cm ²	Rack inlet pressure A2
Pa_B2	kg/cm ²	Rack inlet pressure B2
Psalm_B	kg/cm ²	2nd stage inlet pressure B
Psalm_A2	kg/cm ²	2nd stage inlet pressure A2
Psalm_B2	kg/cm ²	2nd stage inlet pressure B2
Cond_prod1P_B	μS/cm	1st stage permeate conductivity B (μS/cm)

Cond_prod1P_A2	$\mu\text{S/cm}$	1st stage permeate conductivity A2 ($\mu\text{S/cm}$)
Cond_prod1P_B2	$\mu\text{S/cm}$	1st stage permeate conductivity B2 ($\mu\text{S/cm}$)
Cond_prod2P_B	$\mu\text{S/cm}$	2nd stage permeate conductivity B ($\mu\text{S/cm}$)
Cond_prod2P_A2	$\mu\text{S/cm}$	2nd stage permeate conductivity A2 ($\mu\text{S/cm}$)
Cond_prod2P_B2	$\mu\text{S/cm}$	2nd stage permeate conductivity B2 ($\mu\text{S/cm}$)
Cond_prod	$\mu\text{S/cm}$	Outlet permeate conductivity ($\mu\text{S/cm}$)
FC_B	%	Recovery rate B (%)
FC_A2	%	Recovery rate A2 (%)
FC_B2	%	Recovery rate B2 (%)
Ta_B	$^{\circ}\text{C}$	Temperature B
Ta_A2	$^{\circ}\text{C}$	Temperature A2
Ta_B2	$^{\circ}\text{C}$	Temperature B2
DifP_pret_B	kg/cm^2	Pre-treatment pressure loss B
DifP_pret_A2	kg/cm^2	Pre-treatment pressure loss A2
DifP_1E_B	kg/cm^2	1st stage pressure loss B
DifP_1E_A2	kg/cm^2	1st stage pressure loss A2
DifP_1E_B2	kg/cm^2	1st stage pressure loss B2
DifP_2E_B	kg/cm^2	2nd stage pressure loss B
DifP_2E_A2	kg/cm^2	2nd stage pressure loss A2
DifP_2E_B2	kg/cm^2	2nd stage pressure loss B2
Qp_bast1E_B	m^3/h	1st stage permeate flow B
Qp_bast1E_A2	m^3/h	1st stage permeate flow A2
Qp_bast1E_B2	m^3/h	1st stage permeate flow B2
Qp_bast2E_B	m^3/h	2nd stage permeate flow B
Qp_bast2E_A2	m^3/h	2nd stage permeate flow A2
Qp_bast2E_B2	m^3/h	2nd stage permeate flow B2
ConsBAM_AB	kW	Wells active power - A & B
ConsBAM_A2	kW	Wells active power - A2
ConsBAP_B	kW	HPP active power B
ConsBAP_C	kW	HPP active power C
ConsBAP_A2	kW	HPP active power A2
ConsBAP_B2	kW	HPP active power B2
ConsBAP_C2	kW	HPP active power C2
FrecBAP_B	Hz	HPP working frequency B
FrecBAP_C	Hz	HPP working frequency C
FrecBAP_A2	Hz	HPP working frequency A2
FrecBAP_B2	Hz	HPP working frequency B2
FrecBAP_C2	Hz	HPP working frequency C2

Installation 0002

Production capacity: 3,000 m³/d.

Seawater intake: beach wells.

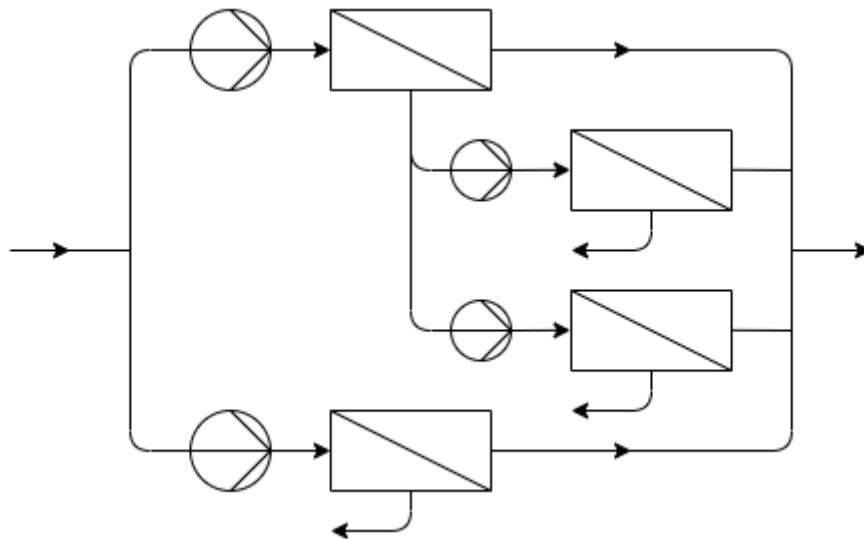
Physical-chemical pre-treatment: sand and cartridge filtration (5μ), no chemical dosing.

Plant configuration: four production lines; RO3 and RO4 of 1,000 m³/day each both fed with beach wells seawater; RO1 and RO2 of 500 m³/day each, both fed with brine coming from RO3.

Recovery rate: not available.

Energy recovery system: isobaric chambers (RO Kinetic).

Cadence of received data: one record every 15 seconds (daily sending).



Available variables:

Variable name	Units	Meaning
P_Ent_FA	bar	Sand filter inlet pressure
P_Sal_FA	bar	Sand filter outlet pressure
P_Sal_FC	bar	Cartridge filter outlet pressure
P_a	bar	HPP outlet pressure
P_prod	bar	Permeate pressure
P_salm	bar	Brine pressure
P_boos	bar	Booster pump outlet pressure
Q_a	m ³ /d	HPP flow
Q_prod	m ³ /d	Permeate flow
Q_salm	m ³ /d	Kinetic inlet flow
Cond_alim	mS/cm	Seawater conductivity (mS/cm)
Cond_prod	μS/cm	Permeate conductivity (μS/cm)
Cond_salm	mS/cm	Brine conductivity (mS/cm)
pH_a	-	Seawater pH

pH_prod	-	Permeate pH
pH_salm	-	Brine pH
T_a	°C	Seawater temperature
T_prod	°C	Permeate temperature
T_salm	°C	Brine temperature

Installation 0003

Production capacity: 6,000 m³/d.

Water intake: effluent of the WWTP secondary treatment.

Physical-chemical pre-treatment: addition of coagulant and flocculants, lamellar settling system and subsequent microfiltration.

Plant configuration: three RO racks of 2,000 m³/day.

Recovery rate: not available.

Energy recovery system: no system installed.

Cadence of received data: one record every minute (daily sending).

Available variables:

- Permeate conductivity (mS/cm²)
- Permeate temperature (°C)

Installation 0004

Production capacity: 10,000 m³/d.

Seawater intake: beach wells.

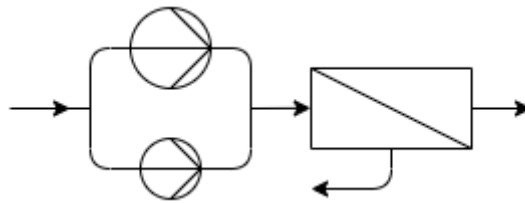
Physical-chemical pre-treatment: sand and cartridge filtration (5μ)

Plant configuration: one production line that can produce 7,500 or 10,000 m³/day depending on the HPP in service.

Recovery rate: 42%.

Energy recovery system: isobaric chambers (ERI PX).

Cadence of received data: one record every 30 minutes (daily sending).



Available variables for year 2018:

Variable name	Units	Meaning
Qa_4 / Qa_5	m ³ /d	HPP inlet flow
Cond_alim_4 / Cond_alim_5	mS/cm	Inlet conductivity (mS/cm)
Pasp_4 / Pasp_5	kg/cm ²	HPP intake pressure
Pa_4 / Pa_5	kg/cm ²	Membranes inlet pressure
Cond_prod_4 / Cond_prod_5	μS/cm	Permeate conductivity (μS/cm)
pH_alim_4 / pH_alim_5	-	Inlet pH
pH_prod_4 / pH_prod_5	-	Permeate pH
FC_4 / FC_5	%	Conversion rate (%)
Ta_4 / Ta_5	°C	Temperature
DifP_bast_4 / DifP_bast_5	kg/cm ²	Membranes pressure loss
DifP_FA_4 / DifP_FA_5	kg/cm ²	Sand filter pressure loss
DifP_FC_4 / DifP_FC_5	kg/cm ²	Cartridge filter pressure loss
Qp_4 / Qp_5	m ³ /d	Permeate flow

Currently available variables online (2019 and above):

Variable name	Units	Meaning
Qam	m ³ /h	Seawater inlet flow
Qa_BAP	m ³ /h	HPPs inlet flow
Qp	m ³ /h	Permeate flow
Qsalm	m ³ /h	Brine flow
Qa_ERI	m ³ /h	ERIs inlet flow

P_sal_FC	bar	Cartridge filters outlet pressure
P_BAP_A	bar	HPP A outlet pressure
P_BAP_B	bar	HPP B outlet pressure
Pa_memb	bar	Membranes inlet pressure
Pp	bar	Permeate outlet pressure
DifPmemb	bar	Membranes pressure loss
Psalm	bar	Brine outlet pressure
Psalm_ERI	bar	ERIs outlet pressure
Cond_am	mS/cm	Seawater conductivity (mS/cm)
Cond_alim	mS/cm	Membranes inlet conductivity (mS/cm)
pH_am	pH	Seawater pH
Cond_prod	μS/cm	Permeate conductivity (μS/cm)
pH_prod	pH	Permeate pH
Tam	°C	Seawater temperature
Talim	°C	Membranes inlet temperature
ConsBr	kW	Booster pump active power
ConsBAP_A	kW	HPP A active power
ConsBAP_B	kW	HPP B active power
Cons_boo	kW	Recirculation pump active power
Qp_Hon	m ³ /h	Distribution flow - zone A
Qp_Gal	m ³ /h	Distribution flow - zone B
Qp_Rep	m ³ /h	Distribution flow - zone C
PpHon	bar	Distribution pressure - zone A
PpGal	bar	Distribution pressure - zone A
PpRep	bar	Distribution pressure - zone A
Cons_CCM_Bprod	kW	Distribution pumps active power

Desaladora 0005

Production capacity: 15,000 m³/d.

Seawater intake: beach wells.

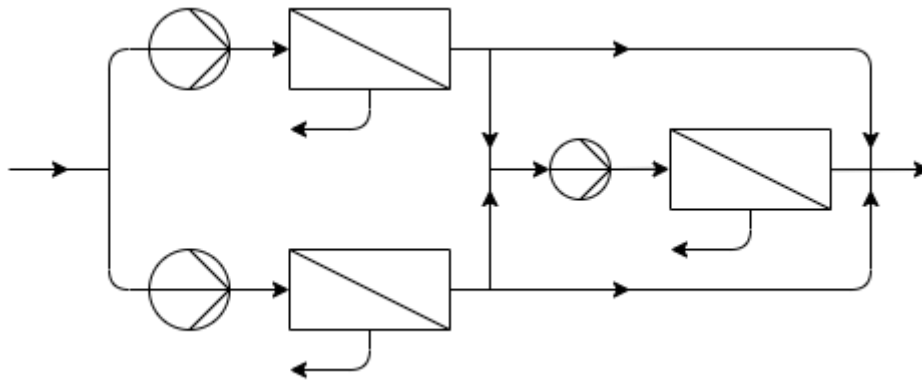
Physical-chemical pre-treatment: sand and cartridge filtration (5μ).

Plant configuration: two production lines of 7,500 m³/d. Second RO pass 50%.

Recovery rate: 45%.

Energy recovery system: isobaric chambers (ERI PX).

Cadence of received data: one record per day (only 2019 records available).



Available variables:

Variable name	Units	Meaning
Qa_A	m ³ /d	HPP inlet flow A
Cond_alim_A	mS/cm	Inlet conductivity A (mS/cm)
Pasp_A	kg/cm ²	HPP intake pressure A
Pa_A	kg/cm ²	Rack inlet pressure A
Cond_prod_A	μS/cm	Permeate conductivity A (μS/cm)
pH_alim_A	-	Inlet pH A
pH_prod_A	-	Permeate pH A
FC_A	%	Conversion rate A (%)
Ta_A	°C	Temperature A
DifP_bast_A	kg/cm ²	Rack pressure loss A
DifP_FA_A	kg/cm ²	Sand filter pressure loss A
DifP_FC_A	kg/cm ²	Cartridge filter pressure loss A
Qp_A	m ³ /d	Permeate flow A
Qa_B	m ³ /d	HPP inlet flow B
Cond_alim_B	mS/cm	Inlet conductivity B (mS/cm)
Pasp_B	kg/cm ²	HPP intake pressure B
Pa_B	kg/cm ²	Rack inlet pressure B
Cond_prod_B	μS/cm	Permeate conductivity B (μS/cm)
pH_alim_B	-	Inlet pH B

pH_prod_B	-	Permeate pH B
FC_B	%	Conversion rate B (%)
Ta_B	°C	Temperature B
DifP_bast_B	kg/cm ²	Rack pressure loss B
DifP_FA_B	kg/cm ²	Sand filter pressure loss B
DifP_FC_B	kg/cm ²	Cartridge filter pressure loss B
Qp_B	m ³ /d	Permeate flow B