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GOOD CHEMISTRY

LESSONS LEARNED: THE IMPORTANCE OF CUSTOMER STEWARDSHIP

MIR Programme
(Manejo Integral del Riesgo)

Efice - OSE

2006 - 2016

OSE

**Governmental Enterprise
responsible for providing
drinking water and
sanitization services
in the whole Country.**

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MISSION

"Contribute to the protection of health and improving the quality of life of society by providing public drinking water nationwide , and collective sanitation networks , efficiently , sustainably managed , guarding the environment".

VISION

"Being a public company of excellence , committed to the provision of water and sanitation , that seeks universal access and user satisfaction , in an efficient and sustainable way with social and environmental responsibility and citizen involvement".

EFICE

**Good Chemistry
with Health and
Environment.**

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Good Chemistry with Health and Environment.

- Small chlor-alkali producer in Uruguay.
- Present facility established in 1959 – mercury tech – 900 mton/y Chlorine Capacity.
- History starts at the end of XIX Century with Prof. Domingo Giribaldo.
- 100% national family owned, 4th generation.
- Actually 15.000 mton/y of Chlorine capacity.
- ISO9001 since 2000, Responsible Care® since 1998, CI Oversea Member since 1996, Clorosur Founder Member (1997).
- 2011 Uruguay Project – WCC – UNEP Partnership.

OSE WAS THE OWNER OF TON CONTAINERS AND CYLINDERS

- Most of them without valid hydrostatic test.
 - Lack of maintenance.
 - Valves did not comply with CI recommendations.
 - Some cylinders were not DOT standard and did not have emergency kit.
 - Eface proposed a plan to comply with all CI recommendations.
-



OSE WAS THE OWNER OF TON CONTAINERS AND CYLINDERS

- **General agreement.**
 - **Because of the necessary investment, an agreement should be made to assure the provision of chlorine in ton containers and cylinders for at least 5 years.**
 - **The assignment of the contract was delayed.**
-

FINALLY: ACCIDENT INVOLVING A CHLORINE CYLINDER OCCURRED

3TH September 2010

- General agreement.
- Because of the necessary investment, an agreement should be made to assure the provision of chlorine in ton containers and cylinders for at least 5 years.
- The assignment of the contract was delayed.

Escape de cloro dejó tres heridos

► Evacuan vecinos
de una planta de
OSE en Piriápolis

MALDONADO ■ M. GALLARDO
Tres personas se vieron
afectadas por el escape de
cloro en estado gaseoso en
la tarde del viernes en Piriá-
polis, en una instalación de

ACCIDENT WITH CHLORINE SEPTEMBER 2010



COMMERCIAL CONTRACT SIGNED OCTOBER 2010

2.4. Safety

Since handling of liquid chlorine is both a high-risk activity and one of a strategic importance, both companies are committed to developing a set of safety policies and practices and a continuous improvement program that should include the recommendations of the Chlorine Institute and the best industry practices.

MIR

COMMERCIAL CONTRACT SIGNED OCTOBER 2010

Two levels committee was formed with directly involved people of both companies:

- Operative Committee
- Follow up Committee

EFICE:
Commercial Manager, Operations Manager, EHS Responsible.

OSE:
Purchase Manager, Operations Manager, EHS Responsible, Chlorine manipulation Referent.

For some issues other people involved: Human Resources Manager, CEM, Transportation Company.

COMMERCIAL CONTRACT SIGNED OCTOBER 2010

Chlorine manipulation, storage and transportation from the production till the final use, including the handling of empty containers through the whole life cycle until appropriate condemnation.



- 1. Establishment of minimum safety requirements for the provision according to the specific guidelines of the Chlorine Institute (including Safety Policy, Emergency Plans, Training Program)**
- 2. Establishment of agreement on minimum infrastructure requirements in the interface Supplier - Carrier - Customer**
- 3. Establishment of minimum agreement on operating procedures in the interface Supplier - Carrier - Customer**
- 4. Establishment of a Permanent Training Program**
- 5. Establishment of Operational Audit Plans and compliance with minimum requirements**

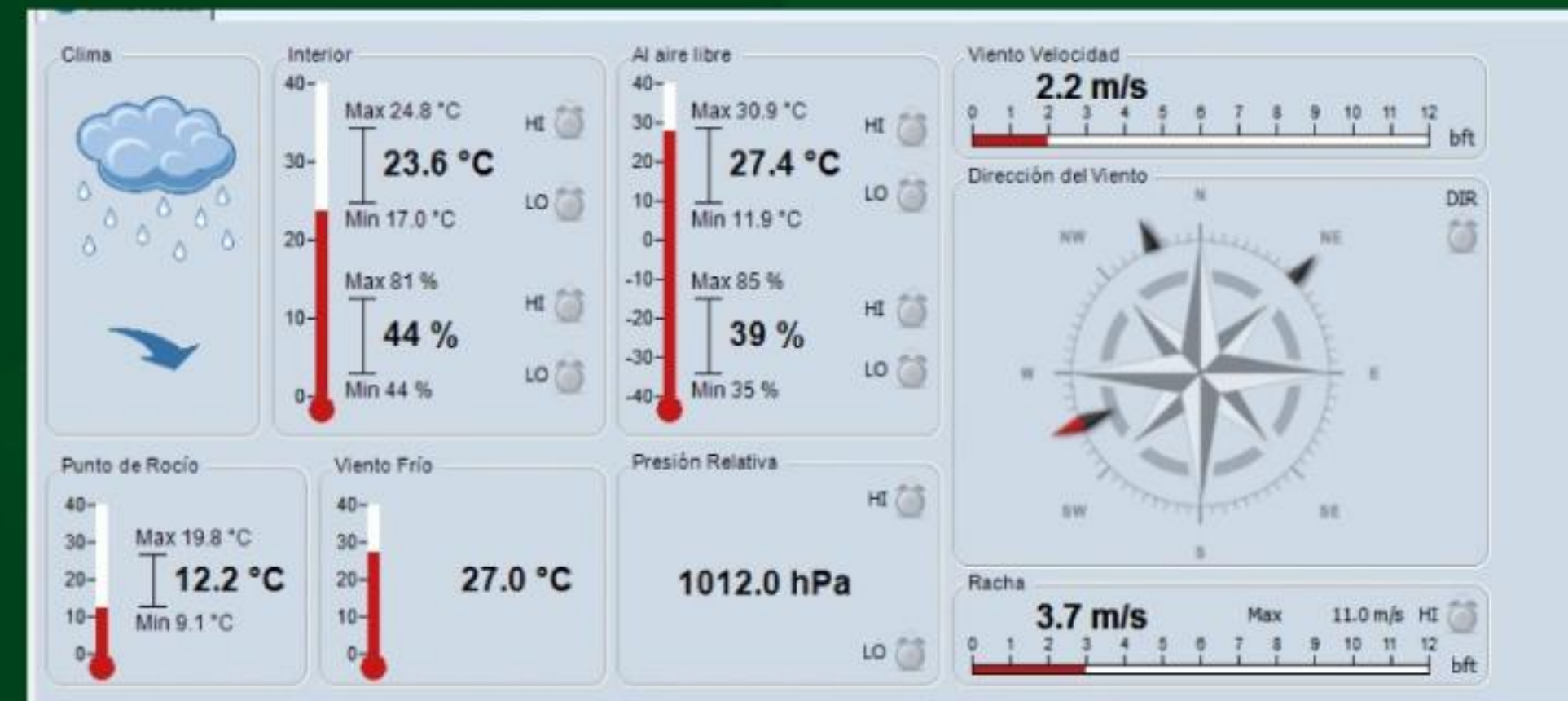
Geographical localization of waterworks plants



MIR PROGRAM 2011-2015



MIR PROGRAM 2011-2015



MIR PROGRAM 2011-2015



NEW DOCUMENTS UNTIL NOW

- Facilities check list.
- General guidelines for risk analysis.
- Risk matrix of all plants which manipulate chlorine in the country.
- Instructive for maintenance fo SCBA.
- Instructive for chlorine cylinders replacement.
- Instructive about signals.
- Procedure for chlorine leak.
- Guidelines for emergency plans.

Lessons learned

- ✓ Time and perseverance
- ✓ FOCUS: Medium and long-term goals
- ✓ Flexibility and teamwork
- ✓ Concrete results
- ✓ Prevention is better than cure

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