HAGER+ELSÄSSER

Case History

Shin-Etsu Handotai, Livingston

Shin-Etsu Handotai is the world's largest producer of semiconductor materials, with factories worldwide. Their factory in Livingston was opened in 1984 to manufacture silicon wafers for the semiconductor industry.

The manufacture of silicon wafers requires large volumes of high purity (so-called "Ultrapure") water and all work is carried out in clean room conditions in order to avoid contamination of the highly sensitive products.

Organic Traps

Organo / H+E designed and supplied the water treatment plant for Shin-Etsu and, since its first commissioning, we have provided continuous technical and engineering support services and minor upgrades. There is also an

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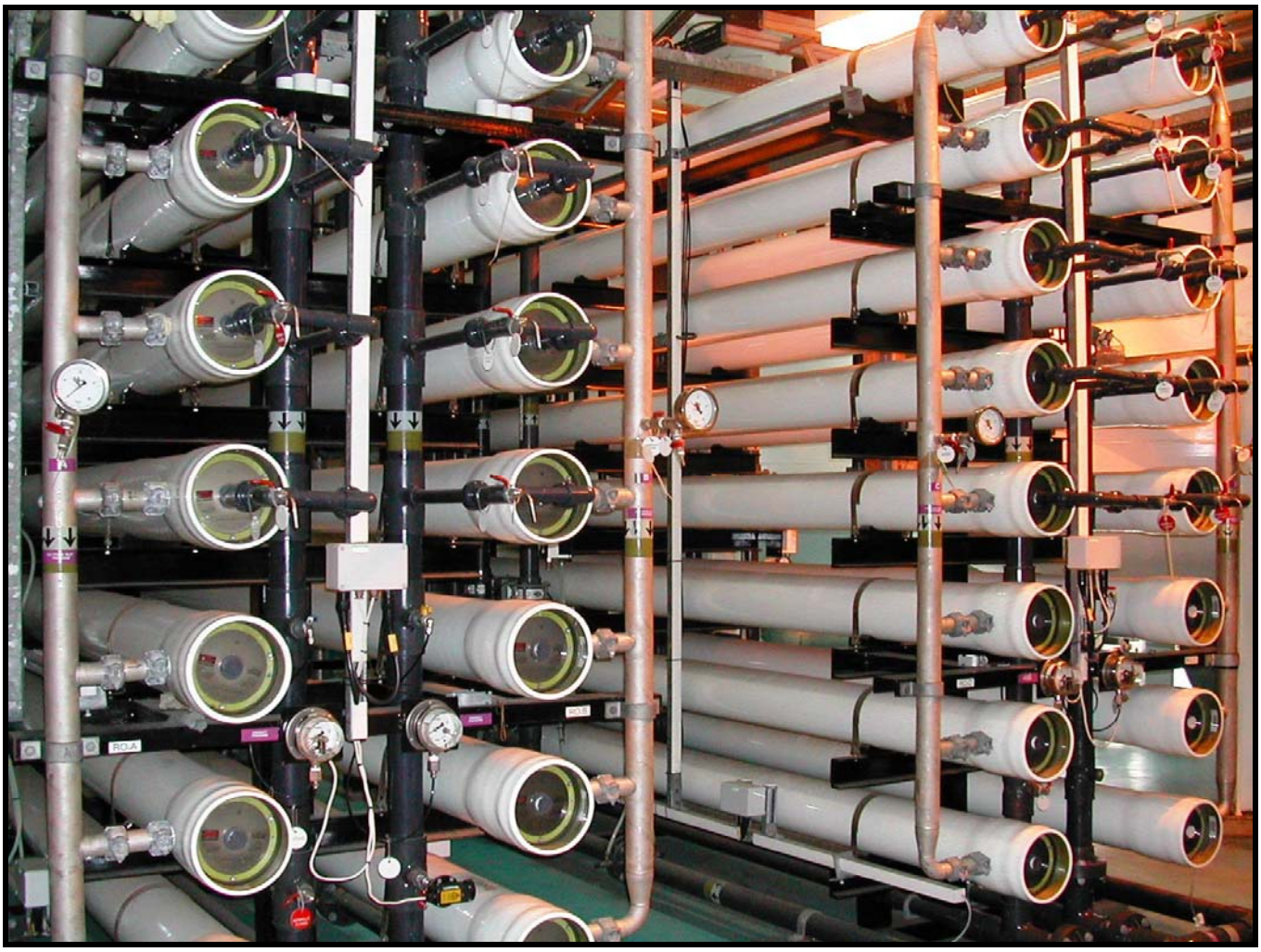
ongoing process of system re-evaluation, which has resulted in many improvements in the system (some small and some large), thereby continually reducing operating costs. Some of these innovations result from work done in our R&D Laboratories, and others from the on-site engineers' detailed understanding of the operational requirements of the facility. Whatever, the source, this factory remains a testament to what can be achieved by ongoing cooperation between the client and the supplier. In many cases, system developments and savings realised in one of Shin-Etsu's factories can be implemented in the other Shin-Etsu facilities, whether in the USA, Japan, Malaysia or Taiwan, all of which have water treatment plants built by Organo / H+E.



Primary Reverse Osmosis Units

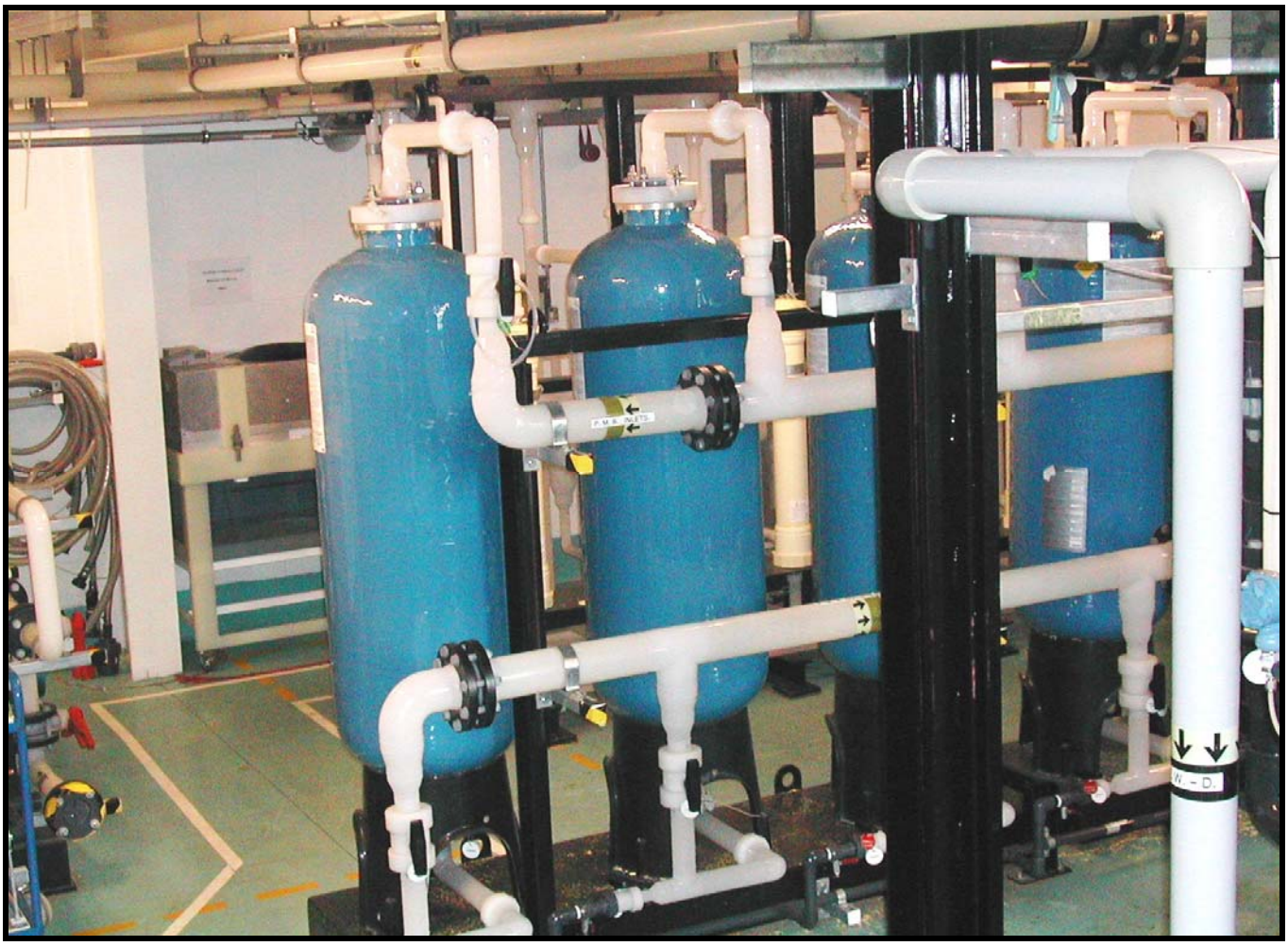
This is typical of our approach to creating long-term relationships with our clients wherever possible. Our experience is that ultimately such relationships are to the benefit of both parties: Our clients ensure their plants continue to operate at peak efficiency and obtain periodic reductions in operating costs. For H+E the benefits are to ensure that the plants we build continue to operate properly, that our customers are content, and that our reputation as a supplier of high quality systems is maintained.

Like all ultrapure water plants, the system includes a number of different treatment stages, each of which contributes to an ever improving water quality until the finally required ultrapure water is obtained.

The treatment stages include:

1. coagulation
2. turbidity removal filters
3. granular activated carbon filters
4. organic traps
5. degassing
6. ultraviolet sterilisation
7. pre-filtration
8. primary RO systems
9. Mixed bed polishers
10. Secondary RO systems
11. Ultrafiltration

This system produces very high purity deionised water, which is thereafter continually recirculated through the facility, supplying the essential ultrapure water to various stages of production. At these points of use, the ultrapure water has a Resistivity of 18.2MΩ and contains only tiny concentrations of trace elements measured in low **P**arts **P**er **T**rillion (PPT).



High Purity Ion Exchange Polishers

A number of internal re-treatment and recirculation systems are also included to minimise the actual consumption of water. This not only saves the cost of the water itself, but also reduces the cost of its treatment, which is expensive.

For more information, please contact H+E UK Ltd.