



Danish Clean Water

PROCESS WATER DISINFECTION

The Installation: Potable water plant supplying well water.



The Problem: After testing it was discovered that the water supply at the point of delivery to the process contained dangerous levels of pathogenic bacteria. The well supplying the Water Plant (average 45 cubic meters per hour) was tested and found to be safe. In addition the buffer tanks storing the extracted water were also given a clean bill of health. From this it was deduced that the problem lay within the pipework distribution system. The plant was closed and the system flushed with high doses of Sodium Hypochlorite which gave a reduction in the bacteria count to safe levels. This was however temporary as within a short period of time the bacteria levels had again risen to dangerous levels. The pipe distribution system ran through an industrial processing area and was subject to relatively high ambient temperatures and these experiences led us to believe the core problem was being caused by Biofilms.

The Solution: A DCW 120 liter per hour disinfectant generator was installed along with a dosing pump controlled by a flow meter and a buffer tank. The initial dosing was started at a dosing rate of 1:1000 and this gave immediate results with a sharp decline in bacterial counts as can be seen from the graph. As the bacteria counts have reduced the level of dosing has also been reduced to 1:1700.



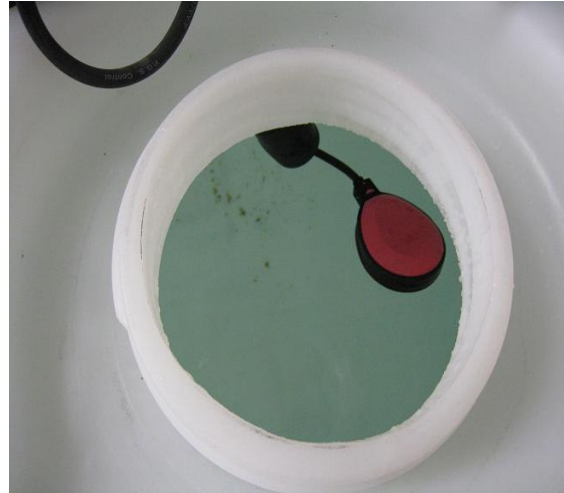
The generator



The dosing pump

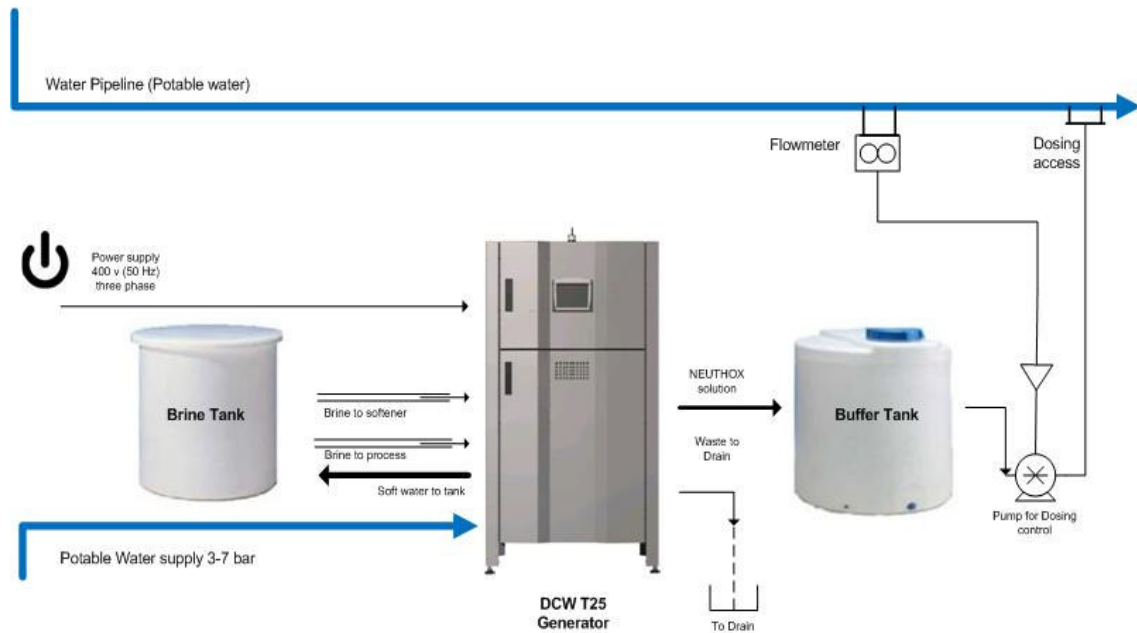


The flow meter



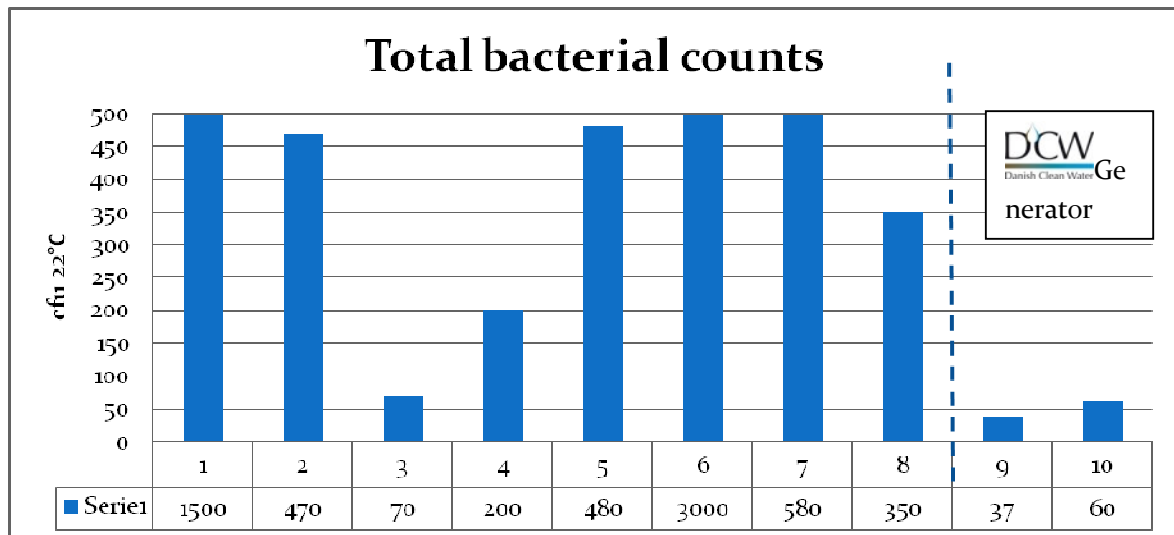
Neuthox and level sensor

Below can be seen a schematic of the systems layout.



The Results:

Tests were made every week in accredited lab before and after the installation. The results clearly show bacteria counts inferior to log 2 since week 9 when the machine was installed. The previous dip in bacteria count (week 3) was the point at which the system was cleaned using high doses of Sodium Hypochlorite.



The Benefits:

- **Safety**
 - no need to mix or dilute hazardous chemicals
 - environmental friendly solution
- **Efficiency**
 - elimination of biofilms and inactivation of pathogenic microorganisms including Legionella species, and nil or low bacteria counts
 - creates a longer-lasting residual than traditional chlorination, often at a lower dosage
 - right dosage, no more no less – corrosion is reduced
- **Cost reducing**
 - the system is fully automatic and only requires a minimal operator attention
 - no need for transport, handling or storage of chlorine gas or hypochlorite.