*Scale*watcher® *News Flash 15, August 2001*
Section: Paper factories: No. 1 for de-inking

THE PREVENTION AND REMOVAL OF CALCIUM DEPOSITS AT PARENCO PAPER FACTORIES BY USING THE "**SCALE***WATCHER*™"

PARENCO krantenpapier

The simplest way to eliminate calcium deposits

Scale*watcher*™ makes paper production cheaper and more environmentally friendly

With an annual production of around 400,000 tons of paper, Parenco is one of the Netherlands' largest paper suppliers. Parenco processes primarily recycled paper that has to undergo several treatments before it can be used to manufacture "new" paper. The equipment used in this recycling process, however, was being adversely affected by accumulations of calcium deposits. With the Scale*watcher*™, Parenco could reduce its calcium deposit problem in an environmentally responsible way.

Recycling process
For its manufacture of newsprint, Parenco uses more than 80% recyclable paper and only 20% new raw materials. (See the woodpile, photo 2.) Parenco receives its collected paper in a large shed (photo 2) from where it is transported to
de-inking plants. This old paper consists of a mixture of newspapers and magazines. The recovery of deinked fibres is accomplished in three modern Flotation De-inking Plants (FDPs). These plants shred the old paper into a pulp and mix it with water and chemicals in rotating drums.

Ingenious production process
Cleaning units separate the pulp from unwanted substances such as staples and bits of plastic (photo 3). Next, this fibre pulp is mixed with air, thus forming a foamy layer containing the ink. Parenco removes this foamy layer that is then stripped of its water content in centrifuges. Later, the residue – in the form of sludge - can be incinerated in the company's own fluid bed furnace. The steam generated during incineration can be used later in the manufacturing process. The paper fibres remaining after the de-inking process are then cleaned and sieved. Thickeners and presses provide a high-quality pulp: the most important raw material for making newsprint.

A lot of trouble with calcium deposits
Included in the deinked pulp are oxalate**s**, silicates and calcium and magnesium carbonates that have been released by the chemicals used in the de-inking process. For this reason, the filters used in pre-filtration and post-filtration (photo 6) were accumulating vast quantities of calcium deposits. The same deposits could also be seen throughout the factory's pipe system. Parenco had to clean the sieves (photos 4 and 5) of these filters and the membrane filters every three weeks. A special maintenance company was being hired to keep the pipes open by means of a high-pressure flushing procedure. The pumps, boilers and coolers were also encountering serious problems due to calcium deposits on their heating coils (photos 7, 8 and 9).

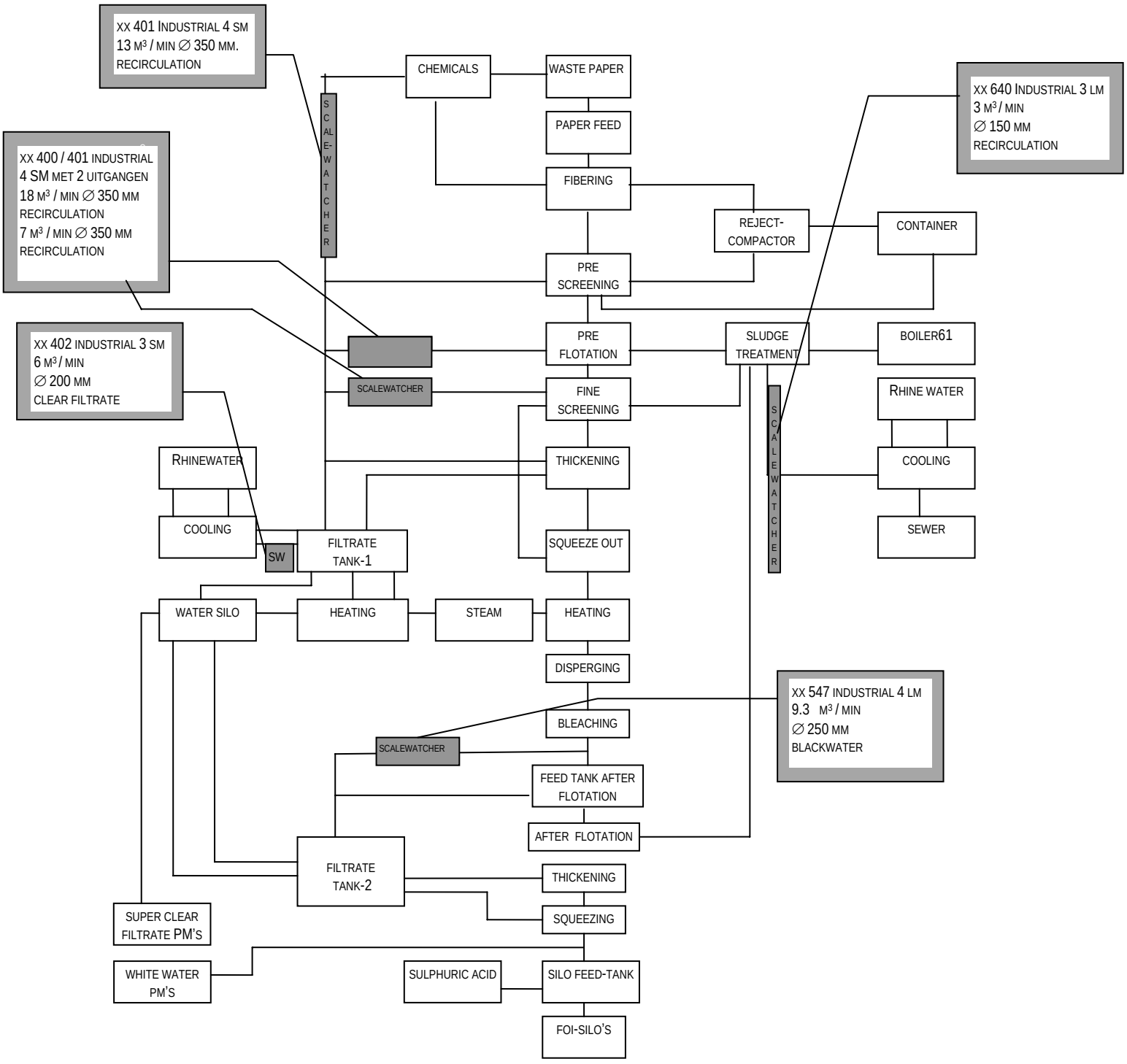
Major improvements in environmental protection

Parenco decided to run a test of the effectiveness of the **Scale***watcher*™ in one of its de-inking plants (FDP-1). This trial run involved installing a **Scale***watcher*™ on the water supply leading to the surge tank. During the first three months, it was clear that the **Scale***watcher*™ was a tremendous success. First of all, the sieves remained open much longer, and Parenco no longer needed to clean them with acids. An ultrasound cleaning was all that was needed to loosen the fibres encrusting them. What's more, the existing calcium deposits that had accumulated in the pipes gradually disappeared so that the company no longer had to contract the services of the special high-pressure flushing crew. And it could quickly be seen that the membrane filters and the heating coils remained free of calcium deposits.

Considerable cost reductions

After a six-month test period, Parenco decided to equip all of its FDPs with **Scale***watcher*™ units (photos 10 – 14). For its recently opened fifth FDP, the Netherlands' largest paper factory had counted on installing five **Scale***watchers*™ even during the planning stage (see diagram).

By supplying Parenco with this equipment, **Scale***watcher*™ could play a major role in reducing Parenco's maintenance costs. Yet another benefit, however, was the enormous increase in the operational reliability of the process. After installing **Scale***watchers*™, Parenco could announce a 10% increase in its production returns.



SCHEME OF DEINKING INSTALLATION

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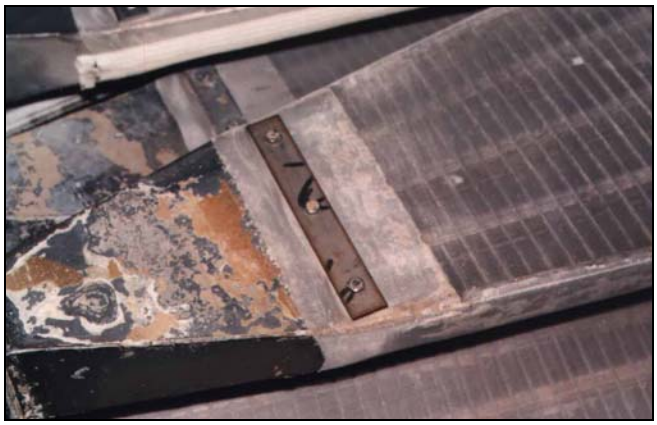

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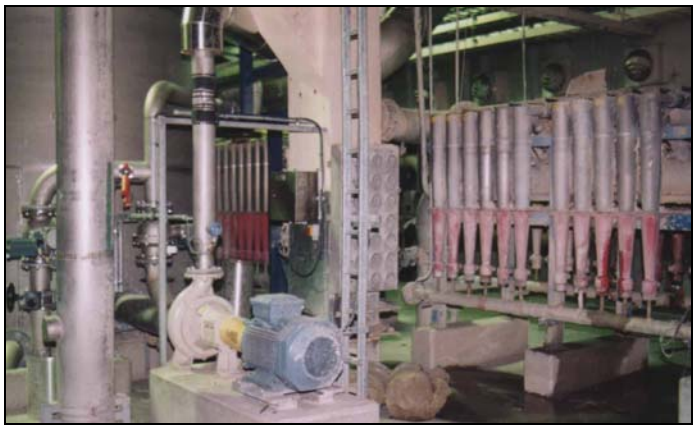

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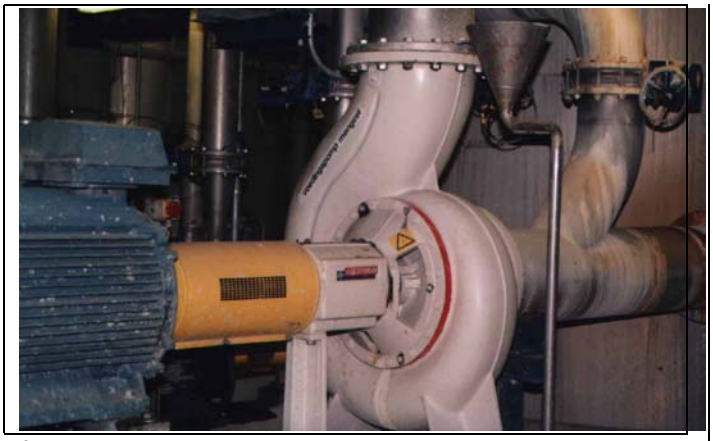

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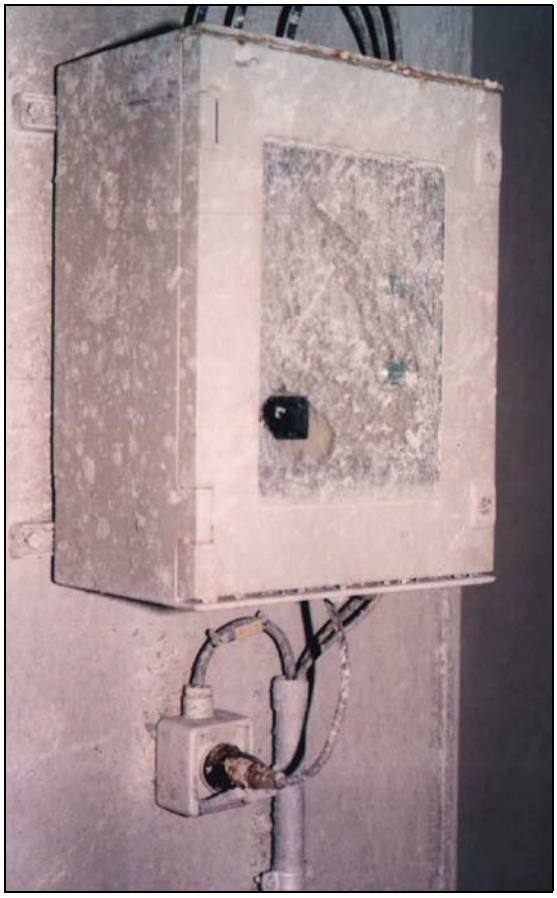

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