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SEWAGE SLUDGE SCREENING ELIMINATES OPERATING PROBLEMS

CASE STUDY

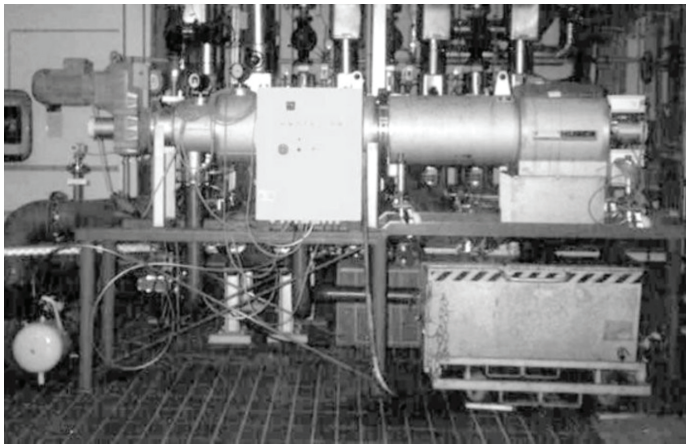
RESOLUTION WITH THE STAINPRESS®

Untreated screenings in the primary sludge at the STW Berlin-Waßmannsdorf caused tremendous operating problems, which could completely be eliminated by screening the primary sludge with the STRAINPRESS®. The continuous coarse material separator is an enclosed air-tight in-line system integrated in a suction pipe line that separates coarse material from the liquid and dewaters and discharges it in one operation.

The STW Waßmannsdorf has been upgraded to handle a future flow of 230,000 m³/day instead of the current 140,000 m³/day. Four traveling screens were installed in the STW's inlet but the 8 mm perforated plate segments were not able to prevent fibrous material like hair from passing into and settling in the preliminary and secondary clarification units. As part of the mixed sludge they clogged the heat exchangers and settled on the inflow edge of the plates in front of the sludge digestor. As a result, each of the four heat exchangers had to be opened and cleaned once a week, which is difficult, time-consuming and offensive smelling work. Installation of two SP4 STRAINPRESS® units eliminated the difficulties and the previously installed Mono Munchers were no longer needed.

STAINPRESS® DESIGN

The STRAINPRESS® is a horizontal pipe-shaped machine for continuous separation of solids from sewage sludge, which consists of an inlet and drive zone, screening zone, integrated press zone and discharge area with a pneumatic pressure-regulating cone. The liquid is pressed or sucked through the screening zone. The coarse material retained on the screen surface is transported to the press zone by the horizontally movable screw. Slowly increasing compression compacts the coarse material to a plug. The press filtrate and the filtrate from the screening zone are passed through an outlet pipe for additional wastewater treatment processes. Remote water supply for screen cleaning is not required.



The total mixed sludge is screened immediately before the heat exchangers. The fibrous material and hair are separated from the sludge flow and compacted. 60 m³/hour of mixed sludge are fed into the STRAINPRESS® by gravity or vacuum forced through the machine by pumps behind the coarse material separators. The inlet concentration of the primary sludge is between 2 and 3% DR.

Approximately 1 ton/day of screenings with roughly a 42% DR are separated as compacted screenings.

OUTCOME

Tests have shown that the efficiency of the STRAINPRESS® is excellent. Since the start-up in April 2000, the heat exchangers have not needed any maintenance.