enhanced effluent treatment and automated control saves dairy US$122,710

challenge

This integrated plant in Australia manufacturing milk powder, butter and lactose combined the effluent streams from these operations in an equalization tank. The effluent was then pumped to a reaction tank where a poly-aluminum chloride coagulant was added and the pH adjusted. The overflow was gravity fed into the dissolved air flotation (DAF) unit. Some of the clean DAF discharge was air saturated, treated with an anionic flocculant and returned to the effluent supply, creating sludge for collection and disposal.

This coagulant and flocculant dosing program could not be adjusted quickly to accommodate variations in effluent quality, resulting in higher charges for exceeding governmental effluent disposal restrictions. In addition, excessive amounts of acid and caustic were needed to hold the pH at 4.3.

solution

SUEZ recommended changing to KlarAid* PC1190, a liquid polymeric coagulant that not only improved performance but also allowed the reaction to occur at a near neutral pH level. In addition, a PaceSetter* Plus automated control system was installed to adjust the chemical dosage according to the turbidity of the incoming effluent. A discharge turbidity signal was used to confirm the results and trim the dosage rate.

result

Control of the wastewater treatment process was significantly enhanced, acid and caustic consumption declined, sludge transportation and disposal costs were reduced, and the lower levels of BOD, oil, grease and suspended solids improved effluent quality and resulted in additional savings. Final effluent disposal charges were reduced by 18%. The net annual savings from these improvements totaled US$122,710.

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