

Rahr Malting Installs Cost-Saving OMNIFLO® SBR Wastewater Treatment Process

When the largest malting plant in the world needed to reduce its wastewater discharge costs, it chose the OMNIFLO Sequencing Batch Reactor (SBR) system from Siemens Water Technologies and a five-year outsourcing contract .

The Rahr Malting Company, located in Shakopee, Minnesota produces malt for brewing, providing approximately 20 percent of the commercial malt produced in the United States. The company was discharging its effluent to the city's wastewater treatment plant, paying sewer access charges of \$1.5 million a year. As part of its long-term cost control plan, Rahr decided to install a 1-million-gallon-per-day (MGD) wastewater treatment plant next to its malting facility, so it could discharge directly into the Minnesota River.

The Minnesota Pollution Control Agency (MPCA) initially rejected this idea because it feared that oxygen-depleting compounds would still remain in the water after treatment. The stretch of water immediately downstream from the malting plant already contained low levels of dissolved oxygen. With the depletion of even more oxygen, fish and other aquatic life could be harmed.

An environmentally conscious company, Rahr offered to work with the MPCA to help clean up the river. They pledged to remove approximately twice as many oxygen-consuming compounds from the river as discharged from the treatment plant. The MPCA accepted Rahr's offer and issued the wastewater treatment permit. This arrangement is the first of its kind in Minnesota history, and is one of the first examples of pollution-credit trading in the country.



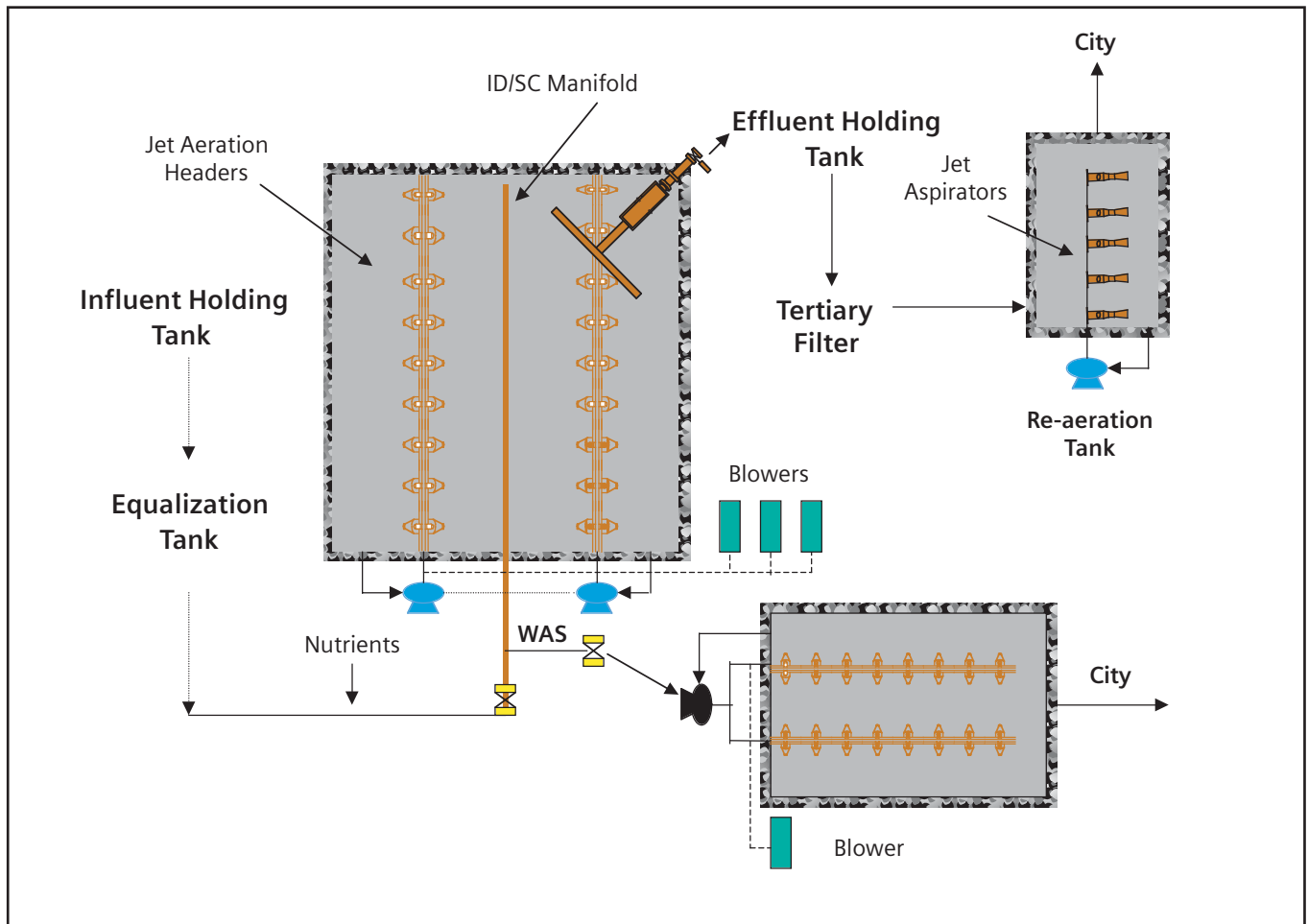


Figure 1 – Schematic of Rahr Malting facility

With permit in hand, Rahr worked with Siemens, representatives at VESCO, Inc.; Bolton & Menk Engineers, and Rice Lake Contracting, to design and install a system that would treat 1.0 MGD of influent, and reduce their BOD from 850 mg/L to the 12 mg/L specified in the MPCA permit.

The system incorporates an OMNIFLO® SBR system and a Gravisand® Traveling Bridge Filter from Siemens Water Technologies. The OMNIFLO® SBR is an activated sludge process that removes dissolved and suspended organic materials and biological nutrients. In a single reactor basin the

OMNIFLO® SBR accomplishes equalization, aeration, and clarification in a timed sequence. A single cycle for each reactor consists of five discrete periods, Fill, React, Settle, Decant, and Idle. The OMNIFLO® SBR is unique in its ability to handle influent flows and a wide range of organic loads and industrial pollutants. The traveling bridge filter is a down flow filtration system designed to reduce suspended solids, turbidity, and remove phosphorous and algae.



Gravisand® Traveling Bridge Filter

"This application was an ideal fit for an OMNIFLO® SBR, given the high variations in flow and waste strength," says Brad Linsey, OMNIFLO® SBR Applications Engineering Manager. "The system is also designed to be expanded by simply adding additional reactor basins, allowing the client to further reduce treatment costs in the future." Bob Micheletti, Vice President of Operations at Rahr Malting agreed that the OMNIFLO® SBR was ideal for their application. "We did extensive research and concluded that it was not only conducive to our batch process, but was an extremely reliable process as well."

The wastewater treatment plant was placed on line in May of 1999, 4 days ahead of schedule. Upon start-up it met the 500,000 gallons-per-day flow rate specified in the MPCA permit.

The plant is in operation 24 hours a day, 7 days a week. At night and on weekends, an alarm system and pager will alert the operators of any problems with the system.



Rahr Malting Facility

Performance Parameters									
	Flow	COD		CBOD		TSS		PO4-p	
	MGD	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.
Design	1.0	1,600	100	851	10	251	10	20	1
Actual	1.2	1,275	81	850	5	100	10	16	0.7

“So far, there have been no problems,” says Bob Micheletti. “We’re very happy with the system. We’ve received good support from Siemens and they’ve fulfilled all our expectations. Whenever we needed technical support, they were there.”

The system has consistently met MPCA permit specifications, with effluent BOD below the 12mg/L limit. On March 22, 2000 an award from the MPCA was accepted on behalf of Rahr Malting for complying with all permit requirements since the system went on line.

As for reducing expenses, the wastewater plant has passed with flying colors. “We’re saving about \$450,000 a year in discharge costs,” says Micheletti.

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