

Everybody Wins At Wisconsin's Ho-Chunk Casino

At the Ho-Chunk Casino (near Wisconsin Dells, WI), owned and operated by the Ho-Chunk Nation Indian Tribe, thousands of people try their luck. However at the wastewater treatment facility customers, suppliers and engineers all win.

With the increase in tourism and the development of residential communities, the Ho-Chunk Nation Indian Tribe realized they would need to install a new wastewater treatment facility to meet their future and current requirements.

Prior to installing their new wastewater treatment system, their process included septic tanks and drain tile fields. With the strength of the waste almost three times above the norm for domestic waste streams the existing system was in jeopardy of failure.

With the need for nutrient removal and the requirement to handle widely varying biological loads, the OMNIFLO® Sequencing Batch Reactor (SBR) process was the logical choice. Additionally, the OMNIFLO® SBR process was a beneficial option because of the ability to operate the plant off-site via a computer SCADA system, thus reducing staff required on-site for operation.

Several design-build options were considered, however the Siemens sales representative, formed a unique approach to this project. The Ho-Chunk Nation was asked to sign separate agreements for equipment supply, engineering design and general construction. This differed from the conventional approach where a single entity takes all the proposals and assumes multi-party responsibility. It was shown how reduced layers in project costing and accountability can actually improve project performance."

The Ho-Chunk nation agreed to go forward with this contract based on the trust of the companies involved

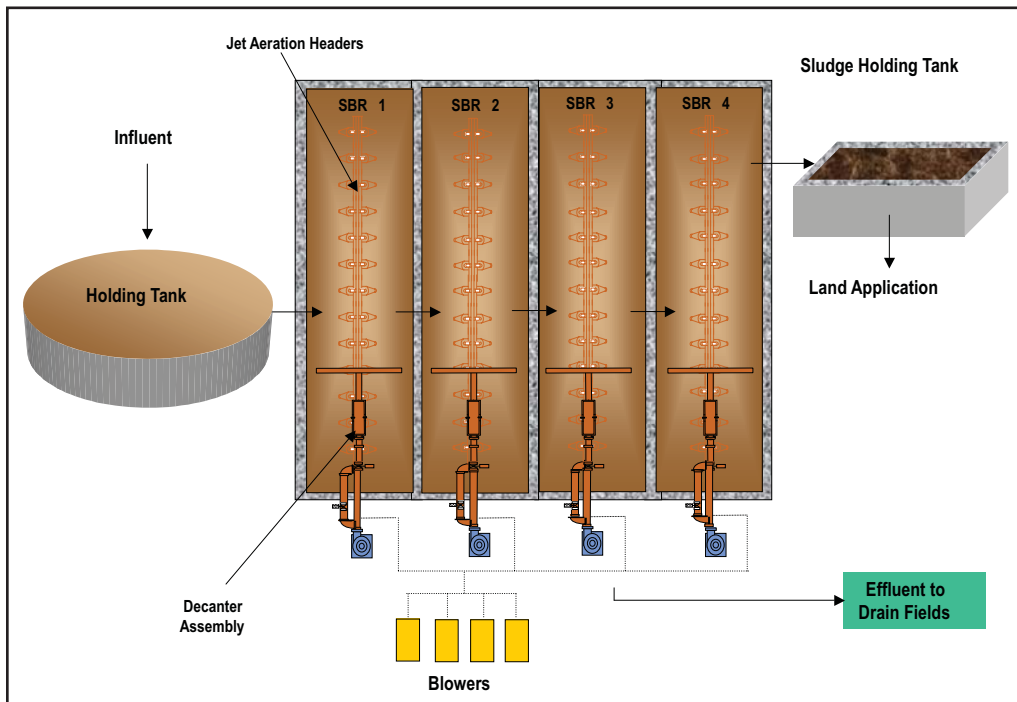


Ho-Chunk Nation Wastewater Treatment Facility

and the experience the suppliers had on previous projects. The tribe also saved nearly 20 percent in installation costs by signing separate agreements with suppliers.

The original two-tank OMNIFLO® SBR was designed to treat 150,000 gallons-per-day (gpd). In the year 2000 the facility was upgraded by adding two more SBR tanks, which increased their treatment capacity to 300,000 gpd.

The treatment process begins with the influent wastewater being pumped from the Ho-Chunk Nation Casino to the OMNIFLO® SBR facility. The system includes an influent holding tank, SBR tanks equipped with jet aeration, and a sludge holding tank fitted with coarse bubble diffusers. In the SBR, equalization, aeration, clarification, and decanting occur in a timed sequence. By varying the operational strategy, aerobic, anaerobic, and anoxic conditions can be achieved. The design can handle a wide range of loadings and achieve nitrification, denitrification, and biological phosphorus removal. This is critical in this application since the wastewater is high in biochemical oxygen demand (BOD) and total nitrogen.



Performance Results					
	Flow	BOD		Nitrogen	
	Average Flow (GPD)	Influent mg/l	Effluent mg/l	Influent mg/l (TKN)	Effluent mg/l (TN)
Design	300,000	510	50	100	10
Actual	90,000	530	16	105	9

A key feature in the OMNIFLO® SBR is the use of a single pump per basin for recirculation, backflushing, and transferring waste sludge to the digester. Following the biological and clarification process, effluent is discharged into drain fields adjacent to the wastewater facility. Sludge is aerobically digested, stored during winter months, and then spread on farm fields.

The design consultant for the initial phase of this project was Schneider Consultants, Schofield, WI and the contractor was Staab Construction, Marshfield, WI. The facility upgrade design was completed by MSA Professional Services, Baraboo, WI and the contractor was Miron Construction, Appleton, WI. Inspection services for the Ho-Chunk Nation were contracted separately through the Indian Health Services Engineering staff. The plant is operated by MSA Professional Services.

The project moved from concept to completion in six months with start-up of the facility in March 1998.

We were pleased that the project went so smoothly. Even though we made some changes along the way, the design build concept was very effective.

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