CENTRAL STATES WALLSTATES

The Official Magazine of the Central States Water Environment Association, Inc.

95TH ANNUAL MEETING

PLANT PROFILE:

Heart of the Valley Metropolitan

Sewerage District



PLUS:

2022 Officer Nominations

Mark Doneux Named
Stormwater Committee Chair
Striving for Equity at the Source



Heart of the Valley Metropolitan Sewerage District, 1969.



HEART OF THE VALLEY METROPOLITA SEWERAGE DISTRICT

KAUKAUNA, WISCONSIN

Metropolitan Sewerage District (HOVMSD) is located in

The Heart of the Valley

Wisconsin's Fox River Valley and provides treatment of domestic, commercial and industrial wastewater from the city of Kaukauna, villages of Combined Locks, Kimberly, Little Chute, and the Darboy Sanitary District.

HOVMSD was formed in 1974 to meet growing demand as the region's business and residential areas flourished. The new regional approach included the City of Kaukauna Wastewater Treatment Facility, which was constructed in 1939 and is located in Kaukauna, WI, on an island adjacent to the Ahlstrom-Munksjo-Thilmany Mill.

To achieve its mission, the district is governed by a five-member commission. with each member community represented by a commissioner. Member community commissioners are officially appointed by the Outagamie County Executive to fiveyear terms. The Commission oversees the interceptor system and treatment facility through the district director, utility staff, and O&M crew that perform the daily operation and maintenance duties.

HOVMSD utilizes a 5.5-mile gravity interceptor sewer to transport wastewater from the communities it serves to the wastewater treatment facility. The interceptor receives flow through seven metering stations with an additional two-meter stations discharging directly to the plant headworks. The meter stations totalize daily flows and a composite sampler collects representative samples that are analyzed for member community billing.

The district also accepts and treats hauled waste discharged by local holding and septic tank pumpers. Permitted haulers are issued a code that allows



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them access to the plant receiving station. Hauled waste is stored in a tank outfitted with pumps that allow the waste to be slowly fed into the headwork flow stream.

Since the creation of the Heart of the Valley Metropolitan Sewerage District in the 1970s, several major upgrades representing significant investment have been made to the interceptor and treatment facility. The treatment facility footprint is compact as the facility site is constricted which has proven to be a major factor in the selection of treatment technologies. HOVMSD completed its most recent major upgrade in 2007. Extensive rehabilitation of existing infrastructure and equipment including new processes were constructed and placed into service.

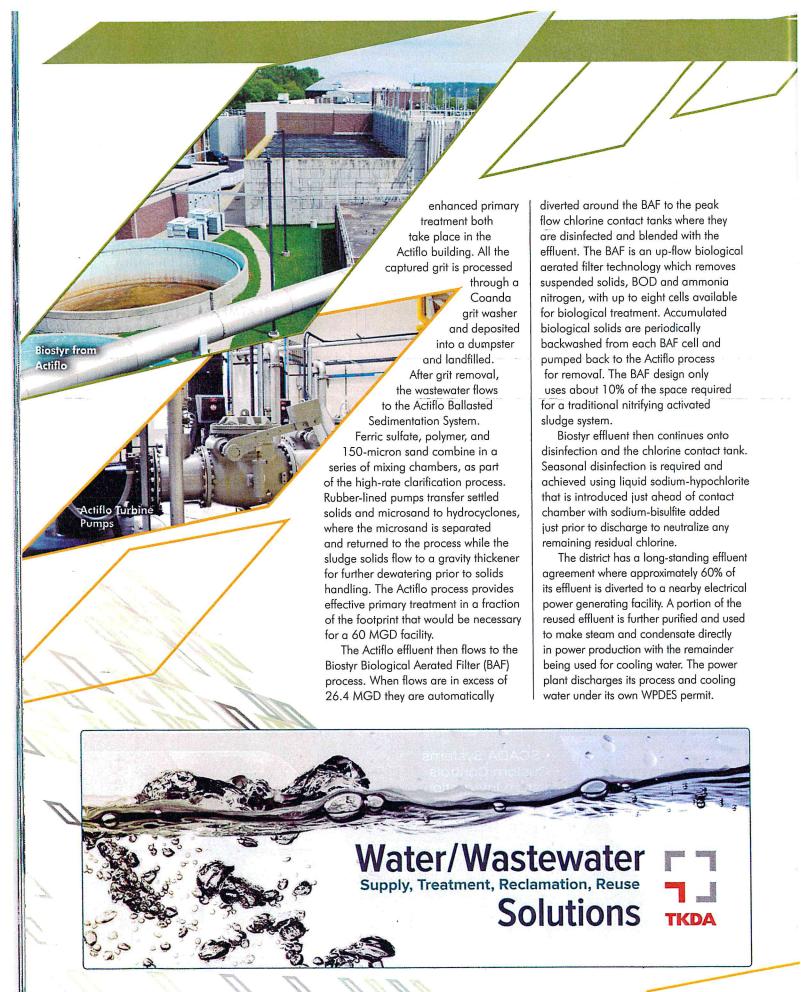
The Commission, utility staff, and O&M crew take pride in the operation of the treatment facility ensuring effluent meets or exceeds WDNR permit requirements while protecting the environment for future generations.

CURRENT FACILITY AND TREATMENT PROCESSES

The influent wastewater enters the headworks building where it is metered, screened, and flow proportionally composite sampled. Influent flows in excess of 25 MGD are diverted to the peak flow headworks which has an additional 35 MGD design. Each of the headworks are equipped with 36' Parshall flumes and all influent flow measurement, sampling and screening is conducted at these two locations.

With preliminary treatment complete, the influent flow enters the wet well in the Actiflo building. Three 20-inch vertical turbine pumps, each rated at 10,000 GPM, deliver normal flow and four 14-inch refurbished primary effluent pumps are used to deliver peak flows to the upper floor of the Actiflo building. The wastewater is pumped once and moves through the remainder of the facility by gravity. Grit removal and chemically





The comingled primary and secondary biological solids are pumped from the gravity thickener to one of two Dissolved Air Floatation units where it is further thickened and pumped to a batch day tank prior to conditioning and digestion. HOVMSD utilizes the Auto Thermal Aerobic Digestion (ATAD) process that after a 14-day HRT produces a Class A biosolids. Post ATAD Reactors provide nitrification/denitrification of biosolids, and a 10% to 15% reduction in ammonia nitrogen. Together, the system provides 65% VSS destruction and uses less than one half of the footprint required for conventional anaerobic digestion. Biosolids are land applied annually on local agricultural cropland.

Past district projects and improvements have served the district well ensuring that HOVMSD continues to provide quality service as growth in the region continues. Two additional projects are currently underway that will continue that mission.

EFFLUENT DISK FILTER PROJECT

Installation of tertiary level treatment is necessary for the district to meet its suspended solids and phosphorus TMDL allocations. Six existing sand filters that have been out of service since 2006, will be rehabbed to house the effluent disc filter equipment. Two filter basins will be repurposed for chemical feed and flocculation and the remaining four basins will house the new disk filters. A splitter structure will be added for Biostyr effluent to be either directed straight to the disk filters or to chemical treatment prior to filtration, or finally to bypass effluent filtration and direct it to disinfection and then discharge. This project is scheduled to go to bid in the first guarter of 2022 and will be funded with a below market interest rate Clean Water Fund loan.

INTERCEPTOR REHABILITATION PROJECT

The 5.5-mile interceptor system, which was originally installed in 1974, has experienced microbial induced corrosion (MIC) of the concrete pipe and manhole structures. The interceptor is televised every five years and video inspections have shown extensive surface corrosion of the pipe which if left unchecked will greatly reduce the longevity interceptor. The interceptor pipe remains structurally sound and has the flow capacity to serve the district and its communities for many years. The rehabilitation project involves installation of a new cured in place pipe (CIPP) liner and the application of acid resistant coatings

to the manhole structures. The district is moving forward with this project with the knowledge that more widespread damage is certain and it would require even more expensive and costly renovation or even full replacement if left unchecked. The interceptor rehabilitation is expected to take two construction seasons and be completed in 2024.

As the 2021 Operations Award winner for Wisconsin, district Director Brian Helminger says it's great to be recognized for the work we do that most of the time goes unnoticed. We are lucky to have a dedicated staff of wastewater professionals and they deserve the credit for a job well done! CS

