TREATMENT PLANT OPERATOR

WATER TREATM

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Range in the Business

DEDICATED TO WASTEWATER

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Reliable Replacements

AN EFFICIENT FINE SCREEN AND A PERIPHERAL-FEED CLARIFIER PLAY IMPORTANT ROLES IN A NEW YORK COMMUNITY'S MAJOR PLANT UPGRADE

By Chris French

orking alone in the Addison Village Wastewater Treatment Plant, plant operator Chuck Wright depends on high-performing and reliable equipment.

After a \$3.34 million upgrade to bring the 34-year-old facility up to code and meet New York State Department Environmental Conservation (DEC) requirements, Wright is proud of his clean and well-maintained plant, about 100 miles south of Rochester.

The equipment at the plant (220,000 gpd average flow, 420,000 gpd permitted) includes a Spiraflo clarifier and a Raptor fine screen, both from Lakeside Equipment Corporation. The clarifier was retrofitted into an existing concrete structure to replace an old center-feed peripheral take-off clarifier. The fine screen, besides removing debris in the headworks, also washes, compacts and transports the screenings.

MAJOR IMPROVEMENTS

For its plant upgrade, the village retained the Larson Design Group (LDG) for design and construction, developing the project scope and funding applications for rehabilitation of the anaerobic digester, replacing a wastewater pumping station, and installing a standby emergency generator and a mechanical bar screen.

Other improvements under the contract included the major task of replacing the clarifier internals and raw wastewater pumps, and upgrades to the trickling filter recirculation and HVAC systems. Larson has also provided engineering for the village's water supply and treatment system, street projects and drainage remedies.

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Apart from occasional oil changes and a few squirts



The new Spiraflo clarifier at the Addison Village plant (Lakeside Equipment Corporation).

and 8.5 feet deep) for effective solids settling.

Wastewater enters the clarifier at the periphery of the tank and is directed along the narrow raceway formed by the baffle skirt and the outer wall. This dissipates the wastewater's hydraulic energy as it flows around the raceway and eventually spirals down under the skirt. Wastewater enters the main settling area from the full circumference of the skirt and slowly rises to pass over the centrally located effluent weirs.

The inflow is prevented from flowing directly to the effluent weir by the specially designed race baffle skirt, which extends down to

"I do my best to keep everything clean and running smoothly," says Wright. "I have no problems at all with the clarifier or the screen. Apart from occasional oil changes and a few squirts of grease, they keep working very well. Lakeside's seals and bearings are of exceptional quality. Nothing gums up or clogs. The fine screen does a great job getting rid of the paper and heavier particles before they can get to the clarifier."

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EFFECTIVE SETTLING

CHUCK WRIGHT

The Spiraflo clarifier is a peripheral-feed, center take-off unit that eliminates short-circuiting. The flow spirals around the baffle skirt and under the skirt to ensure maximum use of the tank volume (26 feet in diameter about 2 feet above the tank floor. The hydraulic flow pattern is in the same direction (inward) as the sludge collector is rotating and moving the solids (inward) to the sludge draw-off pit. Gregory Cummings, P.E., twin tiers director of Larson's operations (Civil Division) observes "Before the upgrade, the previous clarifier was getting

Division), observes, "Before the upgrade, the previous clarifier was getting overloaded and had started exceeding recommended values, so we had to act to keep the plant in compliance. We'd had experience with Lakeside and always found them good to work with. We also knew of the advantages of the Spiraflo clarifier and the raptor screen. Nine years after installation, the equipment meets the 'fit and forget' description."



SCREENING EFFICIENCY

The Raptor screens have diameters of 26 to 71 inches and flow capacities above 20 mgd. Water flows through a three-plane screening basket, and solids are efficiently trapped by the screen bars that form the circular basket. When the water rises to a predetermined level, the rake begins to rotate, cleaning the screen bars.

The rake's teeth pass between screen bars to remove captured materials. When the rake reaches the top of the screen, the material drops into a central screw conveyor. For complete cleaning, the rake reverses direction and passes through a hinged comb. The central screw conveyor

Control panel (left) and inside view (below) of the Raptor screen (Lakeside Equipment Corporation).



then transports the material as it is washed, compacted and dewatered on its way to the discharge chute. Dewatered screenings have a solids content above 40 percent.

Screenings are initially washed as they are deposited in the collection trough. In the upper section of the transport tube, screenings are washed a second time. The macerating action of the screw breaks down large organic particles, which are then washed back into the flow stream. A spray wash system in the dewatering chamber removes any collected material to ensure free drainage of water, which is then removed during compaction.

I&I CONTROL

Larson is now working with the village to address I&I issues. During wet weather, the flow through the system can triple. Work includes uncovering buried manholes, televising the entire collections system, and rehabilitating portions where I&I is the most severe.

Cummings observes, "We very much embrace innovation and welcome cutting-edge new approaches, but the tried-and-tested design and cost-effectiveness of the Spiraflo clarifier is hard to beat. The Raptor screen is also well designed and extremely durable. We are happy as the village's adviser to provide high-quality, long-lasting solutions." **tpo**



LET'S MAKE THIS PERFECTLY CLEAR!

The heart of any biological process is the operation and performance of the final clarifiers and the Lakeside design is clearly superior. Our Spiraflo Clarifier's peripheral-feed design provides the best hydraulic flow pattern and performs two to four times better hydraulically than centerfeed clarifiers. The Spiraflo produces the highest quality effluent, and eliminates short-circuiting and sludge wall creep, problems associated with competing centerfeed designs. Our Spiravac Clarifier offers rapid suction removal of activated sludge. Compare performance, warranty and cost, and you'll see why Lakeside is clearly your best choice!

Speak to one of our experts at 630.837.5640, email us at sales@lakeside-equipment.com, or visit www.lakeside-equipment.com for more product information.



Cleaner Water for a Brighter Future®

Clarification and Filtration

Spiraflo Clarifier Spiravac Clarifier Full Surface Skimming MicroStar® Filter

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