



The Duperon[®] FlexRake[®] FP was commissioned in 1998 and has been running strong, and maintenance-free for over 20 years.

CITY OF ADRIAN

PROJECT-AT-A-GLANCE

FlexRake[®] in Adrian, Michigan celebrates 20 years of continuous operation and plant protection

SITE: *Wastewater Treatment Plant*

EQUIPMENT: *One (1) Duperon[®] FlexRake[®] FP*

INSTALLED: *January 1998*

“I HAVEN’T HAD TO REPLACE ANYTHING”

In 1997, back before text messaging and cell phones, Duperon Corporation installed the FlexRake[®] FP Full Penetration Coarse Bar Screen into its first wastewater treatment plant at the City of Adrian, Michigan. Twenty years ago, plant personnel were facing the rising cost of ownership of their existing aging equipment, which had been designed with lower sprockets—below the deck—that needed frequent replacement, a costly task requiring a three-person crew. The FlexRake was chosen as part of a joint development project, allowing Duperon to test the unit’s low-maintenance design and see how long the FlexRake would operate without any wastewater service support.

Ken Wesley, City of Adrian WWTP Superintendent at the time, confirmed the FlexRake has passed its tests with flying colors. “I love the design of the FlexLink[™]. It’s a simple piece of equipment that doesn’t need maintenance, doesn’t need a lot of energy, and no fancy controls. It doesn’t get any better... I haven’t had to replace anything.”

The same equipment is in operation today, with all of its original components, with the exception of a motor/drive head bearing replacement. The FlexRake continues to offer long-term cost savings thanks to reduced maintenance and energy costs. “This unit,” said current plant superintendent Ryan White, “has run almost continuously since it was installed. Other than cleaning, I would say we spend less than a couple of hours a year on maintenance on it.” People often spend more than two hours a season maintaining a lawn tractor that runs for 30 hours a year. Twenty years of real experience in Adrian demonstrates the advantages afforded by the low maintenance design of the FlexRake. It saves maintenance cost and effort as compared to other machines in the plant.

The FlexRake FP features no lower sprockets, bearings, or tracks to foul or jam and when maintenance is needed, it can be performed from the deck level. The simple, elegant design adapts to a wide range of debris variations and has full-range flexibility. And although Adrian is a wastewater plant, which traditionally has more controlled debris conditions, the site has experienced non-traditional debris like children’s toys, coffee cans and other odd-sized items.



Running for 24 hours per day, seven days a week for twenty years, the FlexRake has effortlessly managed flow ranges from 7 MGD with peak flows of up to 21 MGD. The machine has run for over 175,000 hours. A scraper on this unit has traveled 19,000,000 feet or 3,650 miles while doing it. The UHMW teeth and cir- cumference show no wear.

THE HIGH VALUE OF LOW MAINTENANCE

In addition to maintenance savings, electrical usage becomes significant when considering long-term operational cost. The Duperon FlexRake machines of twenty years ago (and today) have a basic design standard to use no more than is required to do the job well. It makes sense that when you follow this principle of design, lower maintenance costs will follow, but with the FlexRake motor and gearbox, electrical consumption is also kept to a minimum. Unlike attempting to assign value to the maintenance costs you didn't have, electric use savings is easier to calculate.

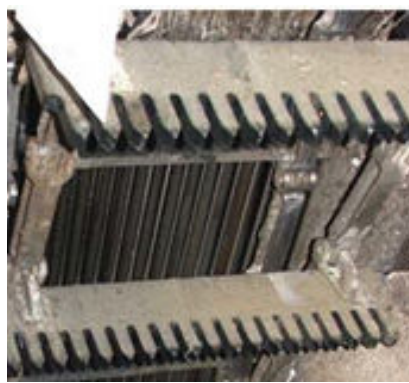
During a recent visit to assess the condition of the machine on the twenty-year mark, the motor current draw was measured at drawing only 1 amp at 230 volts, 3 phase. That equates to only 7.8kWh per day using an average motor power factor. Referencing the Department of Energy's twenty-year cost averages for commercial power, the FlexRake operating at 100% duty accrues a lifetime electric cost in the neighborhood of \$5,300. Contrasted with larger motors running only half as much (12 hours per day) and the savings is clear: 3hp at 50% duty = \$10,624 and 5hp at 50% duty is \$18,596 over the same twenty-year period. Not to mention, many other technologies equipment life expectancy decreases as the duty/usage increases.

In addition to operating successfully for twenty consecutive years, the screen at Adrian is still running strong and shows only minor wear as captured in these photos. In a world of throw-away products, it seems we could use more machines with reliability and longevity. The FlexRake has delivered on its promise of low maintenance and low operational costs for more than twenty years.

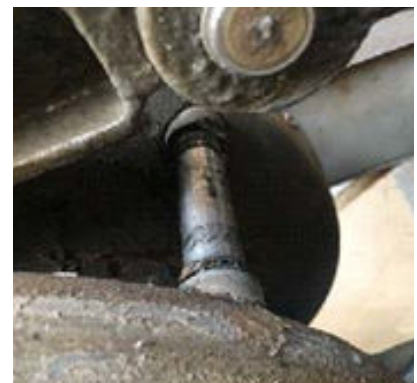
"... it saved tons of time and tons of maintenance costs because they are pretty much maintenance-free."



Link and pins



Scrapers and bars



Drive pins

ABOUT DUPERON

Duperon Corporation is the leader in innovative preliminary liquids/solids separation systems. For more than 35 years, Duperon has provided simple yet innovative solutions for a variety of screening and solids handling applications in the water and wastewater industry. Duperon technologies are designed and manufactured in Saginaw, Michigan.