



BAY COUNTY

DEPARTMENT OF WATER & SEWER

PROJECT-AT-A-GLANCE

The Washer Compactor Discharge Extension Option easily transports compacted screenings 35 ft vertically without additional mechanized conveyance. The screenings delivered to grade are cleaner, drier, and lighter weight.

SITE: *West Bay County Regional Wastewater Treatment Plant*
EQUIPMENT: *One (1) Duperon[®] Washer Compactor Discharge Extension Option*
INSTALLED: *August 2013*

“ALL THE MECHANICAL ABILITY IS ON ONE FLOOR”

In more than 25 years of service at the West Bay County Regional WWTP in Bay City, Michigan, Doug Koss has learned that a little bit of innovation will go a long way to solve the daily issues presented in wastewater treatment. Bay County recently partnered with Duperon Corporation, installing the Duperon[®] Discharge Extension Option for its Washer Compactor. The application was paired with two existing Duperon[®] FlexRake[®] FP screens, installed 35 feet below grade level in 2013.

The West Bay County WWTP, rated for 10 MGD and seeing an average flow of 4.5-6 MGD; prior to the installation of the Duperon[®] Washer Compactor, the plant collected approximately 20 yards of debris each week. Previously, the plant utilized a bar screen system that extended from the channel to the top floor of the building; debris was carried via conveyor belt to a dumpster.

Duperon proposed consolidating equipment and utilizing a Washer Compactor to eliminate the conveyance of debris while drying it to lower costs to the plant, which disposes of debris through landfill application. “Our superintendent was in contact with Duperon, and an engineer mentioned that we may be able to use a Washer Compactor to push the debris up to the floor for discharge. We decided to give it a shot, but we were honestly thinking that it would never work,” said Koss, Operations Supervisor for Bay County Water & Sewer. The application required a 90° angle of ascent on its chute, which travels directly up the wall for more than 30 feet before transitioning into a horizontal stretch, which travels through the wall for disposal.

Koss and his team were rightfully skeptical of such an application, as most Washer Compactors rely on the debris chute for the compaction of debris. Typically, debris plugs are “pushed” through a set orifice for compaction; once the debris is compacted, it must rely on a high-horsepower motor to continue to push along the chute. Since most Washer Compactors rely on the friction provided by screenings in the chute to provide resistance for compaction, introducing a tall, vertical chute would create a jam due to the weight of the screenings compounding into over-compaction.



The Duperon® Washer Compactor works differently. Debris forms into a column—a long “plug”—and is routed by the vertical chute. This plug has very little friction against the sides of the chute. The weight of the plug column is what provides the resistance for compaction. Since the debris is nearly fully compacted prior to its arrival in the chute, vertical elevations are achieved with little or no further resistance. The unit installed in Bay County requires only one 5 HP motor for operation, and Koss has found that it runs “easily”—a word that has described the entire application.

“It’s worked very well for us,” he shared. “We use the Duperon® Washer Compactor to push everything.” The West Bay County Regional WWTP was among the first to test the Duperon® Washer Compactor Discharge Extension Option in an alpha installation.

“Duperon has been very responsive to us. There have been enhancements to the equipment to fit our site throughout the process; we really worked the equipment to see how far we could push it. It’s working well, but it’s not working too hard,” Koss explained. “We expected the motor to be working a lot harder, pushing the upper amperage, but it’s managing it easily. It’s fully capable of pushing the debris, and the amperage draw shows that it’s easy for the unit. We could probably push it farther than we are now,” he concluded.

The resulting screenings have been an improvement on what the County was left with prior to the use of the Duperon® Washer Compactor Discharge Extension Option.

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“Our screenings are now very dried out by the time they reach the dumpster,” said Koss. “We’re seeing a light grey color to the debris, with most of the organics washed out in the augers. We’re really removing the debris and rags.”

Additionally, Koss has found value in the decreased volume of debris provided through the compaction process. “The debris is much more compressed than it was before, much drier and lighter weight,” said Koss. “We’re getting a few compressed chunks each week, usually about 16 inches in diameter and 12 to 18 inches long. Before we installed the Duperon® Washer Compactor, we’d fill a dumpster with wet garbage and rags.”

“It just makes a nice, dry discharge, and it’s all in one piece of equipment. All the mechanical ability is on one floor. We’re quite pleased with the application,” Koss concluded.

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ABOUT DUPERON

Duperon Corporation is the leader in innovative preliminary liquid/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.