

Case Study

Mannington WV WEC218008 TSF – Complete Plant



Overview

Marion County is located in north central West Virginia and is home to the City of Mannington and the North Marion Husky's. As a point of reference, major cities surrounding Mannington are Morgantown, Fairmont, Clarksburg and Wheeling. It is beautiful but rugged country.

The City of Mannington owns and operates its own .5 MGD wastewater treatment plant that serves 938 customers. In addition to this service area, the City recently added the North Marion High School to the system. The high school has operated its own small sewage plant since 1980. It was designed to handle 33,000 gpd. Since the high school's plant had reached the end of its service life, it made sense to connect it to the city.

Problem

The Mannington WWTP is also over 25 years old. Planning for the wastewater treatment plant upgrades began 10 – 12 years ago, but lack of funding slowed

down the project. In 2017, all the funding options fell into place and the City received a total of \$2.84 mil. to begin work on the plant.

While various components of the plant had reached the end of their service life, there were many replacement and rebuild targets that could extend operational efficiency for another 25 years. The key components identified for upgrade included the oxidation ditch and clarifiers. In addition, the grit chamber and various pumps and controls would be replaced.



Mannington WV



The Thrasher Group partnered with plant personnel to identify the upgrades that were required and evaluate equipment selection. One addition that was on the chief operator's wish list was a headworks screen. The only influent screening that was being done at the headworks was by a manual bar rack followed by a grit collector. The grit collector collected the grit, but the grit had to be shoveled out of the channel by hand. Much of the wear on the aeration equipment was due to debris and grit passing through the headworks.

The chief operator wanted a screen to capture the debris and a new grit removal system. There are many options on the market for both those functions but all of them required extensive civil work. It became an either/or issue. Either they purchased the equipment or they did the civil work. There was no room in the budget for both.

Solution

The decision was made to purchase a SPEC[®] Complete Plant from Saveco. The Complete Plant includes influent screening and grit removal in a self-contained tank. Debris is captured by the SPEC[®] screw screen as flow is pumped into the plant. Debris

is washed, dewatered and discharged into a dumpster. The screened flow then continues on to a grit chamber where the grit is settled and removed by a shafted spiral. Any grease is floated to the surface by aeration and skimmed off for disposal.

By rough calculation and based on dumpster loads, the operator believes they are removing about 4 cubic yards of debris per month. They are no longer seeing trash in the clarifiers or oxidation ditch. The operator was surprised at the small amount of grit being removed. However, only the smaller lift station is currently on line. When the replacement pump is installed at the main lift station, he expects to see a lot more grit and debris.

Results

The operator knows that there is more trash and grit in the collection system. The sewer lines are old and deteriorated, but there is no money left to repair or replace those lines. When those repairs are eventually done, the SPEC[®] complete plant will be there to handle the additional solid material and grit that will enter the headworks.



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