FORSTA FILTERS
Self Cleaning Water Filters

FORSTA FILTERS CASE STUDY:

City of Steamboat Springs and Lackawanna River Basin use Forsta Self-Cleaning Filters to Ensure Quality of Non-Potable Water (NPW) in Wastewater Treatment Plants

Case #1: City of Steamboat Springs Wastewater Treatment Facility

City of Steamboat Springs, Colorado. After extensive processing, the city's treated effluent is discharged into the Yampa River. Digested sludge from the aerobic process (biosolids) are applied to the land as soil conditioner for grass hay crops.

Forsta A2-90 model filter at the City of Steamboat Springs WWTP. The treatment plant handles approximately 3 MGD with a design flow capacity of 5MGD, enough to serve a population of about 50,000.

The Wastewater Treatment Plant of the City of Steamboat Springs, Colorado, needed a solution to reduce solids in the non-potable water (NPW). The plant's superintendent for over 20 years, Gilbert Anderson explained that in Steamboat Springs, treated effluent from a secondary wastewater treatment plant is stored in an open pond and is then used for plant water i.e. non-potable water (NPW).

Anderson said that, "previously, solenoids that control water flow for wash water on the bar screen would become inoperable due to solids in the NPW." The filters they had added to keep solids out of the solenoids required frequent filter replacement and were costing the facility money and excessive labor.

They sought a way to improve NPW quality that was cost effective, reliable and required a minimum amount of labor. After some research, they decided to try a Forsta Self Cleaning Filter. Anderson said, "We now utilize a Forsta A2-90 model filter to enhance the quality of the NPW for use as wash water on a bar screen. The system has been in service for several years with no solenoid failures and almost no maintenance, problem solved." The A2-90 model filter offers one sq. ft of screen area, uses a one inch flush valve, has a cleaning

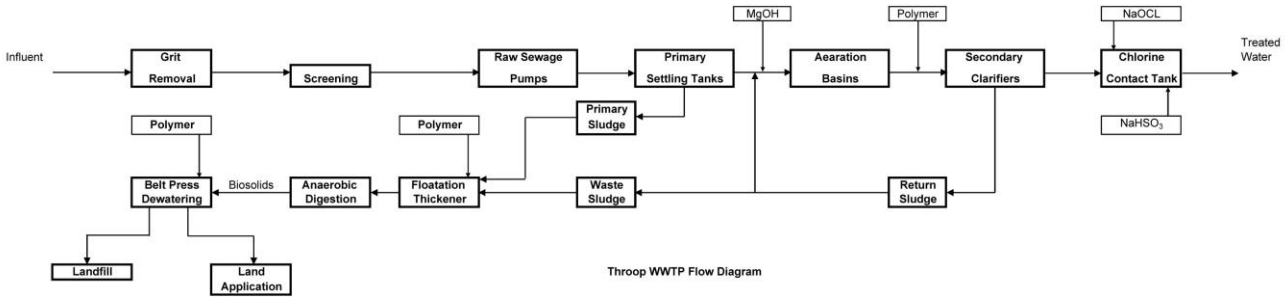
duration of approximately six seconds, and requires roughly 4 gallons of water per cleaning cycle.

The quality of the NPW going into the Forsta Self Cleaning Filter at Steamboat is variable due to solids such as duck weed, algae, etc (various fauna and flora blooms) that originate in the open pond. In In light of this, the filter came equipped with a stainless steel 100 micron screen. The filtration degree was selected to be tight enough to prevent the passage of particles that were clogging the solenoids, and coarse enough to easily withstand the fluctuations in solid concentration of the NPW at the inlet.

Case #2: Lackawanna River Basin Sewer Authority

Susquehanna River Bank. The Lackawanna River is a 40.8 mile tributary of the Susquehanna in northeastern Pennsylvania.

Forsta A6-LP180I-CS model filter at the Throop WWPT. Throop is a 7.0 MGD capacity treatment plant and is one of the three sewage treatment plants of the Lackawanna River Basin's Sewer Authority.



http://www.lrbsa.com

The Throop Wastewater Treatment Plant at the Lackawanna River Basin Sewer Authority went through a series of upgrades in 2012 that called for an amplified usage of non-potable water (NPW). It became increasingly important to ensure that the NPW did not contain particles that would clog equipment. After a thorough analysis of various filter manufacturers, design engineers selected Forsta Self Cleaning Filter for the job.

The Forsta Self Cleaning Filter at Throop was sized to treat effluent for use throughout the plant. Cleaning of equipment through sprayers at the plant includes the spray water in treatment tanks to clean foam, a spray nozzle system to clean the belt press, cleaning of the gravity belt thickener and a mechanical bar screen. All of these cleaning locations utilize the non-potable water that goes through the Forsta Filter, a total flow of approximately 200gpm (with capacity for a maximum flow up to approximately 800gpm).

The A6-LP180I model filter that was selected offers three sq. ft of screen area, uses a one inch flush valve, has a cleaning duration of 15-20 seconds, and requires roughly 13 gallons of water per cleaning cycle. The filter came equipped with a stainless steel 250 micron wedge-wire screen well suited to handle the fibrous particles that originate intermittently from the source water.

Water coming into the filter flows from a chlorine contact tank. Total suspended solid concentration at the inlet of the filter averages at <10ppm with the large majority of particles too small to see. Occasional strands of algae and other larger particles are the primary concern in consideration of clogged equipmet. Pressure pumps are upstream of the Forsta Self Cleaning Filter which sends water into a pneumatic tank, and from which water is distributed to the various cleaning requirements.

The filter is set to clean on a timer at thirty minute intervals or when differntial pressure is reached (though according to Plant Operators the filter rarely, if ever, reaches differential prior to the pre-set cleaning cycle.) This is a good indication that the filter was sized properly for the maximum flow and outfitted with an appropriate screen to trap hazardous particles. Treated water from the Throop Plant is ultimately discharged into a receiving stream.

Conclusions:

The City of Steamboat Springs and The Lackawanna River Basin Sewer Authority Wastewater Treatment Plants offer excellent examples of the ability of Forsta Self Cleaning Filters to ensure the quality of NPW in WWTP applications.

The automatic nature of the cleaning cycle (which does not interrupt a main system's flow) makes the Forsta Self Cleaning Filter an excellent choice for Wastewater Treatment Plants seeking to eliminate downtime and excessive labor. The reliability of the filtration mechanism to capture unwanted particles during normal operation coupled with the highly efficient and automated cleaning cycle further corroborate the case for Forsta Self Cleaning Filters in WWTPs.

In the case of Steamboat Springs and Lackawanna, care was taken to understand the nature of incoming particulate such that each filter could be sized to impede unwanted particles. It was important not to compromise operations with an unnecessarily fine degree of filtration so as to require excessive amounts

of screen area to accommodate the flow of NPW. In other words, the 100 micron and 250micron screens each offered the operators insurance against clogged equipment without making the equipment prohibitive in size or cost.

As is demonstrated by the upgrade at the Throop WWTP, treatment plants across the country and internationally will be faced with increased demands for water treatment as populations grow. This will include an increased use of NPW for applications within the plant.

Additionally, the case for non-potable water use (specifically reclaimed water from wastewater treatment plants) is gaining momentum for things such as landscape irrigation. According to waterefficiency.net (The Journal for Water Resource Management) “The use of reclaimed water for landscape irrigation is not simply a trend that will quickly come and go. It’s likely that future water shortages both in the United States and internationally will continue, making it necessary for all of us to reduce the amount of potable water we use for irrigation. It’s also likely that green building initiatives like the LEED program and future legislation will continue to encourage architects, specifiers, and builders to include non-potable irrigation systems in their site plans.”

The term non-potable water can also be used to refer to other types of water including brackish water and harvested water. Whatever the variety of NPW or its ultimate use, the consideration of protecting the equipment it interfaces with is of the utmost importance. Forsta Self Cleaning Filters have a demonstrated ability to fulfill this task.

About Forsta Filters Inc.

Forsta Filters is a California-based company specializing in the design and fabrication of self cleaning water filters. Forsta’s product line serves a range of applications throughout municipal, industrial and agricultural sectors with markets including: HVAC, Petrochemical, Pulp & Paper, Sugar Processing, Metal-Works, Desalination, Plastics, Food Processing, Power Generation, Car Wash, Golf, Turf & Landscape, Agriculture, Greenhouse & Nursery, Wastewater, and Drinking Water.

Forsta offers expert filter design, fabrication, research and development, technical support, installation and startup, servicing, and onsite training.
For more information about Forsta’s full product line, technology and applications visit: www.forstafilters.com

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