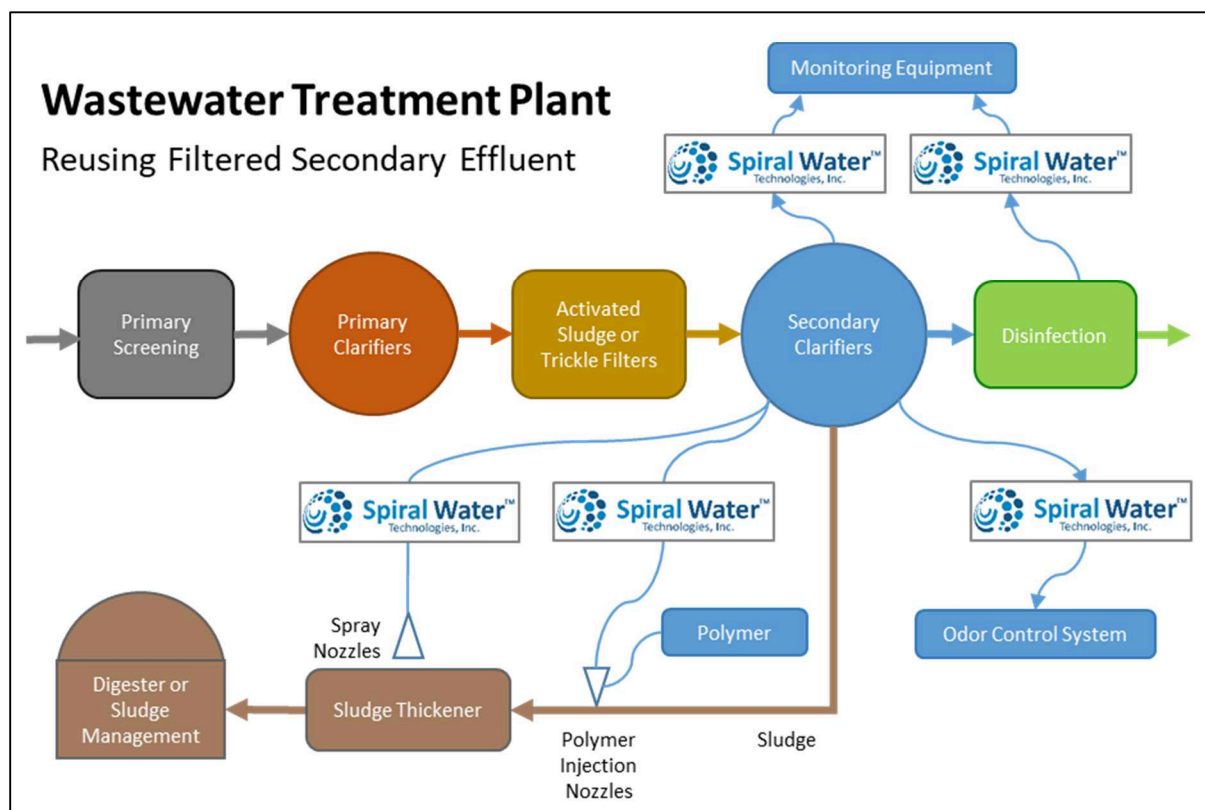


## Reusing Filtered Secondary Effluent at Wastewater Treatment Plants

Secondary treated effluent is monitored and reused throughout Wastewater Treatment Plants. Reuse applications include foam control, cleaning screens, and diluting chemicals. Secondary effluent can be more economical than potable water for these uses, but a common challenge of reusing wastewater is the difficulty of filtering it cost effectively. Though secondary effluent generally measures low in Total Suspended Solids (TSS), large particles are often present due to algae growth and other contaminants, which fall into open top clarifiers. Engineering firms generally specify a point-of-use automatic self-cleaning filter before wastewater is reused at the plant. The most common automatic self-cleaning filters use suction scanning technology or automatic back-flushing, but these automatic filters often foul prematurely due to biofilm growth on their screens. The constant failures and subsequent maintenance requirements drive treatment plant operators to bypass or entirely remove these “protective” filter systems. Spiral Water Technologies offers an automatic filter unit which can handle secondary effluent and isn’t effected by biofilm growth.



The Spiral Water Model 810 Automatic Filter consists of a metal filter screen and a patented, spiral-shaped wiper which continuously cleans the screen without a backflush, crossflow or downtime. Whereas other automatic filters, are cleaned once every few minutes, the Spiral Water filter is cleaned over 500 times per minute. Solids are collected at the bottom of the housing, away from the filter, while filtered water flows continuously through the outlet. An automatic purge valve opens and ejects the concentrated solids with a minimal amount of water loss. The Spiral Water Model 810 Filter works purely on the principles of mechanical screen filtration, with nominal filtration ratings available from 15 to 100 microns and flow rates from 20 to 80 gpm respectively. It reduces TSS with absolutely no chemicals or other pollutants added to the wastewater stream. Collected solids are concentrated and ejected on a timed basis. The maintenance routine involves a quarterly inspection and cleaning. The wiper and metal filter screen are replaced approximately once every 24 months.

### Odor Control Systems

Wastewater Treatment Plants often have odor control systems which use either a deodorizing mist or a direct chemical injection into the wastewater. A Treatment Plant along the San Francisco Bay was previously using an automatic back-flushing filter to protect the spray nozzles on their misting odor control system. The maintenance department was spending two hours, once every two weeks, cleaning and maintaining this one filter unit. The name brand back-flushing unit was replaced with a Spiral Water Model 810 Filter with a 15 micron screen, and the customer now spends only 15 minutes once every 3 months for a cleaning and inspection.

### Sludge Thickeners

The same Treatment Plant was using potable water to dilute polymers on a sludge thickening system. Sludge thickening devices, like screw presses and rotary drum thickeners, are used prior to biodigesters and sludge management systems. The Treatment Plant Manager suspected that using filtered secondary effluent could replace the potable water and save money.

The Treatment Plant installed a Spiral Water Model 810 Filter with a 15 micron filter screen and started supplying secondary effluent to the polymer injection system. To their surprise they found that the polymers mixed better with secondary effluent than with potable water. The Plant now uses less polymer and saves 250,000 gallons of potable water per year. The Spiral Water Filter System paid for itself in less than a year.

### Monitoring Equipment

Some Treatment Plants have Tertiary water and don't need to filter secondary effluent for reuse at the plant. These plants still need to monitor their secondary effluent for parameters such as pH, alkalinity and chlorine levels. Monitoring equipment usually have internal cavities that accommodate a small amount of liquid flowing over a sensor. Each monitor requires fluid to be filtered so as not to foul the sensor and plug up the small orifice of the equipment. Monitoring equipment can require a significant amount of



Spiral Water Model 810 Filter

maintenance when using disposable or manually-cleaned filters. The Spiral Water Model 810 Automatic Filter with a 15 micron screen is well suited to provide the correct level of filtration for protecting monitoring equipment.

Whether secondary effluent is monitored or reused at the treatment plant, filtration is often required. Engineering and contracting firms typically specify a back-flushing filter or suction scanning filter, primarily because they are familiar with these technologies. Unfortunately these systems are not well suited for filtering secondary effluent, and the Treatment Plant only discovers this well after the systems have been installed. The Spiral Water Model 810 Filter is an improvement over these older filter systems. Spiral Water can handle secondary effluent and therefore reduces maintenance and operating budgets.

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