

CONTRAFAST®

High-Rate Thickening Clarifier



WestTech®

 SWIRE WATER

CONTRAFAST® High-Rate Thickening Clarifier

The CONTRAFAST high-rate thickening clarifier utilizes a combination of internal and external solids recirculation and tube settling clarification. The CONTRAFAST unit is capable of running at rise rates of 6 gpm/ft² and higher. This is more than four times the rate typically used for conventional clarifiers.

In addition, the CONTRAFAST unit produces sludge with as much as 10% solids by weight, eliminating the need for a gravity thickener. The combination of the high rise rate and the elimination of the separate thickener reduces the total process footprint. The entire process takes place in a single basin, greatly simplifying installation.

Package steel units are designed with nominal flow rates of 175, 350, 700, and 1,400 gpm. CONTRAFAST installations in concrete basins can be designed for virtually any size or flow rate. WesTech's scope of supply includes the internal mechanism, external sludge recirculation pump, sludge blowdown valves, controls, and optional sludge blowdown pump, plus a steel basin for package systems. Filters, chemical feed, and sludge handling equipment are options WesTech can easily add to the system.



Applications

- Lime/caustic softening
- Surface water clarification
- Backwash waste recovery
- Cooling tower make-up/blowdown
- Silica reduction
- Heavy metals removal
- Zero liquid discharge
- Ion exchange brine waste treatment
- Combined sewer overflow
- Sanitary sewer overflow

Features:

- High rise rate
- High-density sludge
- Pre-engineered design
- Pilot units available

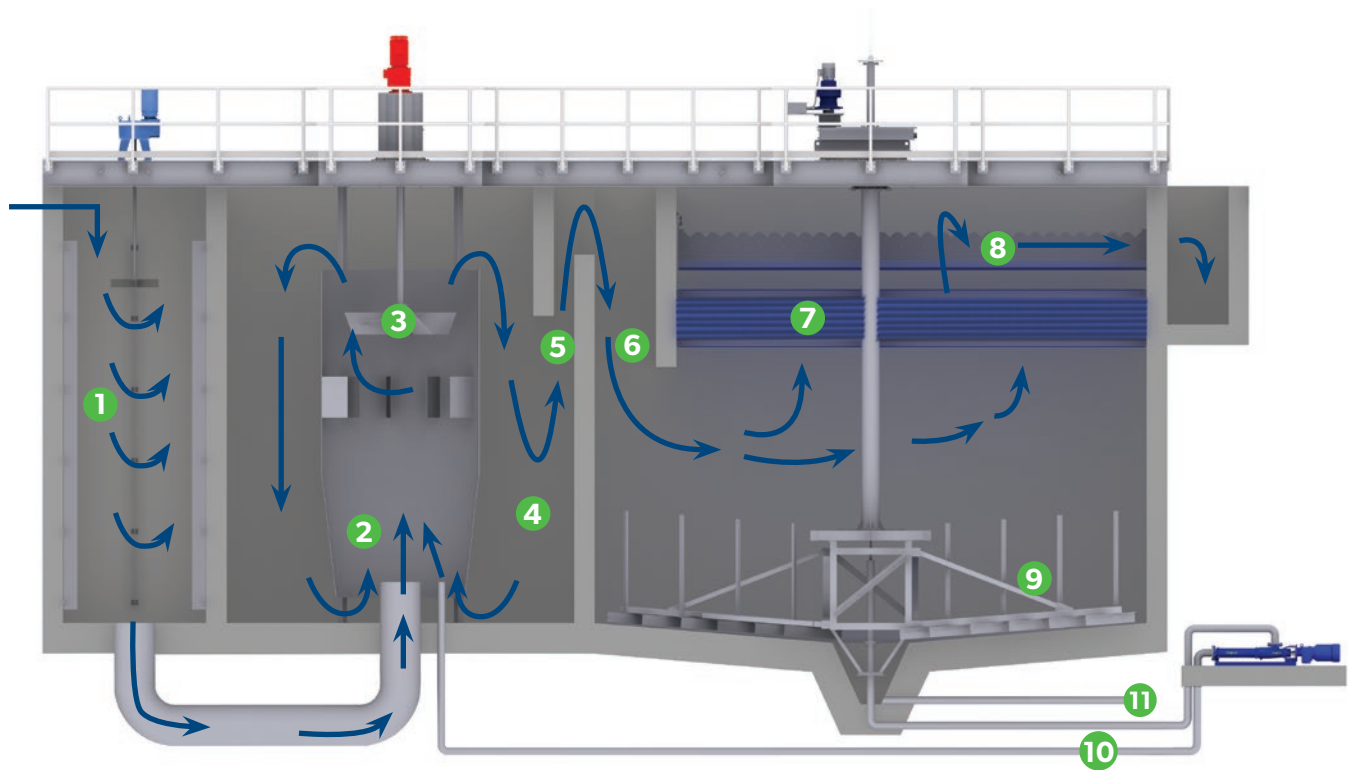
Benefits:

- Small footprint
- Minimizes installation and operation costs
- Eliminates separate gravity thickener
- Less waste volume
- Sludge thickening control



How it works

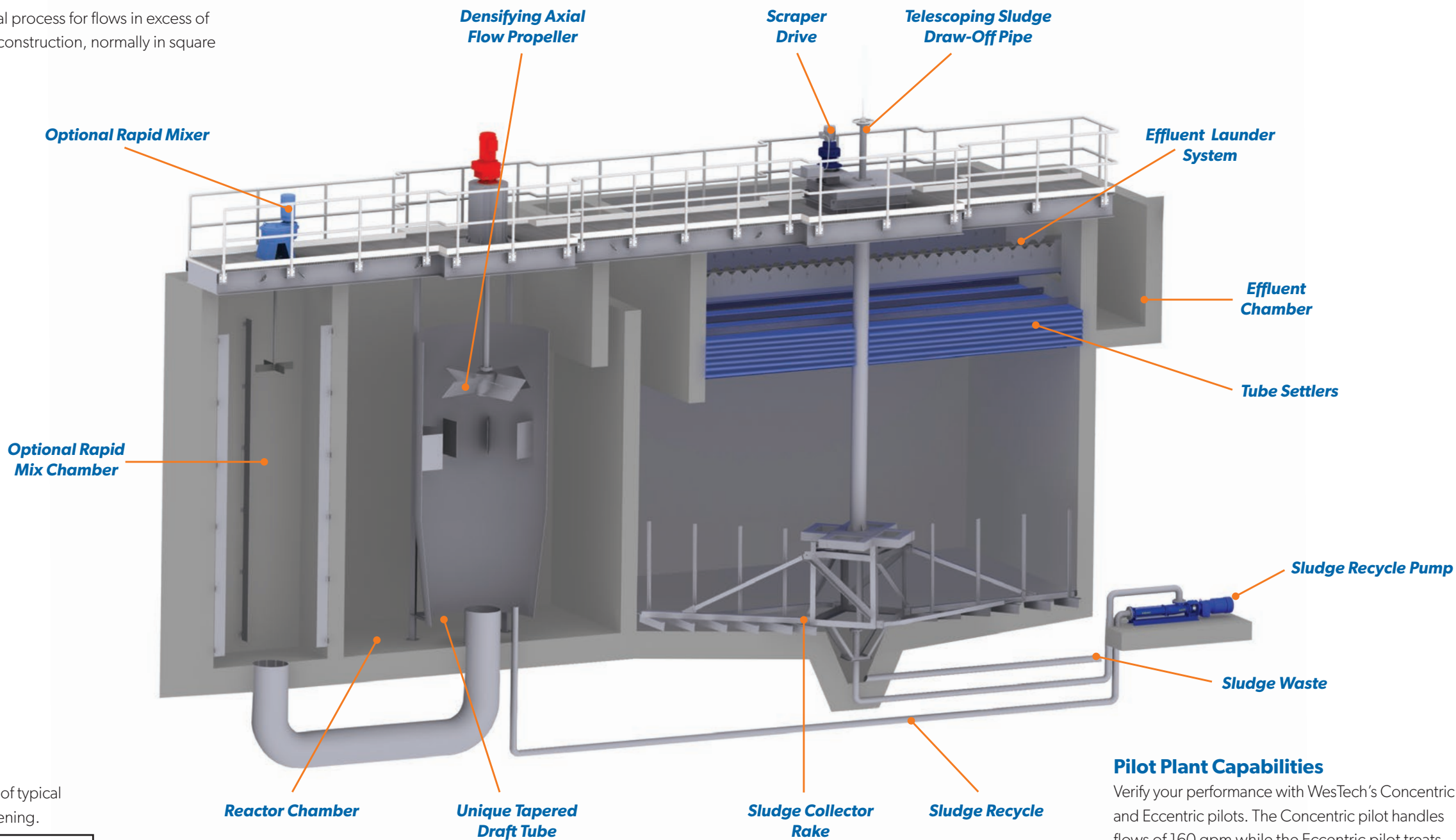
- 1 Raw water enters the optional rapid mixer.
- 2 Raw water is combined with recirculated sludge and treatment chemicals in the center draft tube.
- 3 A variable speed impeller mixes the flow at high G-values, accelerating flocculation and densifying the solids.
- 4 Water and densified solids are recirculated within the reactor chamber.
- 5 A high velocity upflow port prevents settling in the reactor and transfers the water to the settling chamber.
- 6 A baffle directs the water to a more quiescent settling area where the solids settle out.
- 7 Tube or plate settlers remove residual solids.
- 8 Effluent launders collect clarified water.
- 9 Dense sludge settles to the basin floor where it is continually scraped and further thickened.
- 10 Thickened solids are continuously recirculated to the draft tube to seed future floc and densify sludge.
- 11 Periodic blowdown removes solids from the process as needed.



Eccentric

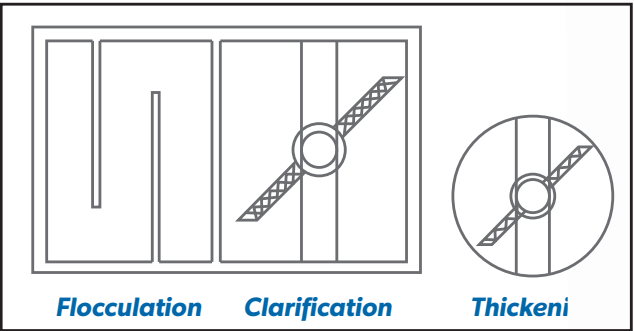
Flows from 2100 to >9000 gpm

The Eccentric CONTRAFAST system is an ideal process for flows in excess of 3 MGD. This unit is built using common-wall construction, normally in square tanks, saving on space and concrete.



Small Footprint

The CONTRAFAST footprint is 1/10 of the size of typical combined flocculation, clarification, and thickening.



Pilot Plant Capabilities

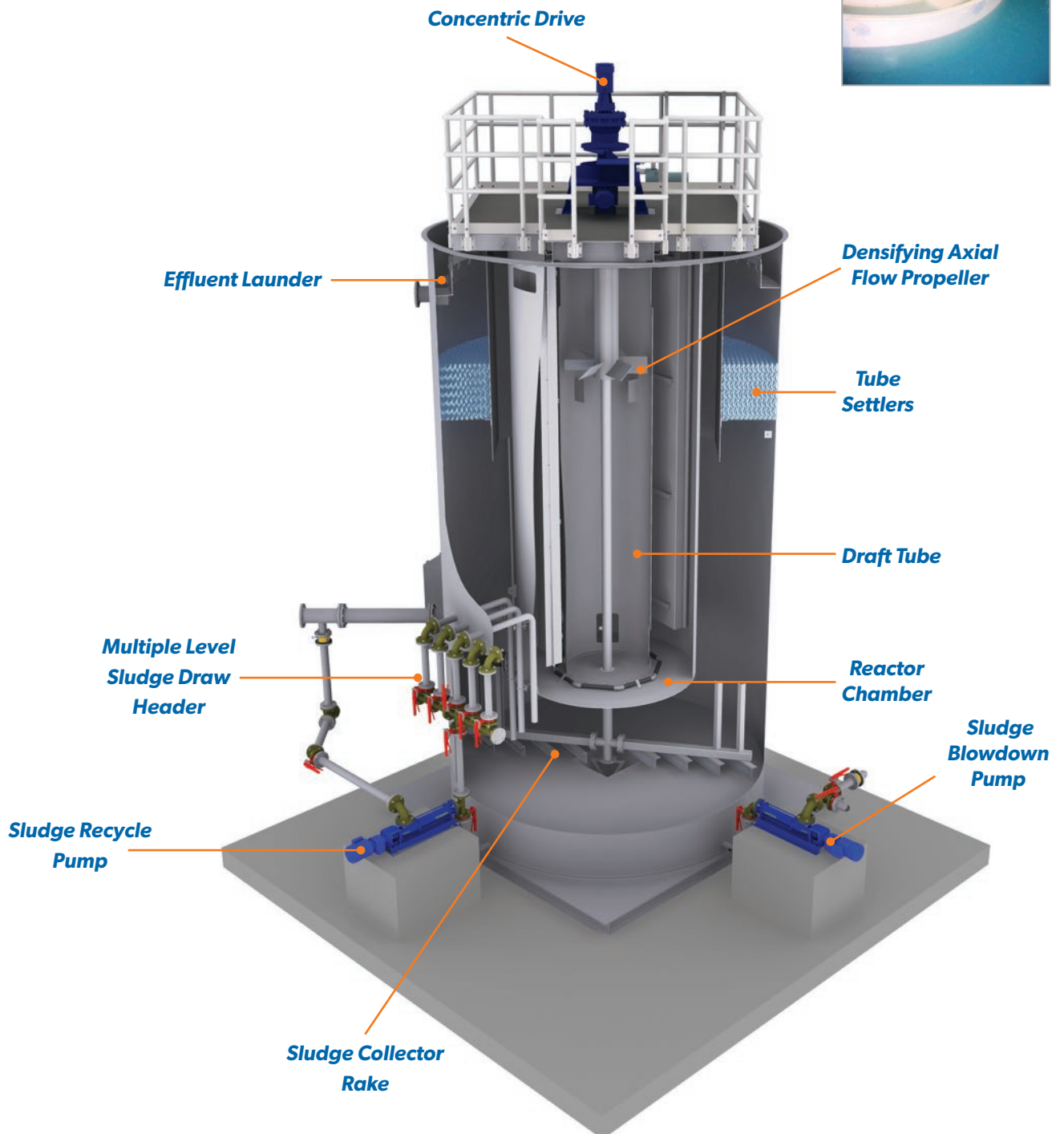
Verify your performance with WesTech's Concentric and Eccentric pilots. The Concentric pilot handles flows of 160 gpm while the Eccentric pilot treats flows of up to 100 gpm. Our pilots are designed for process similitude, allowing operation and performance to be scaled up directly to full-size units.



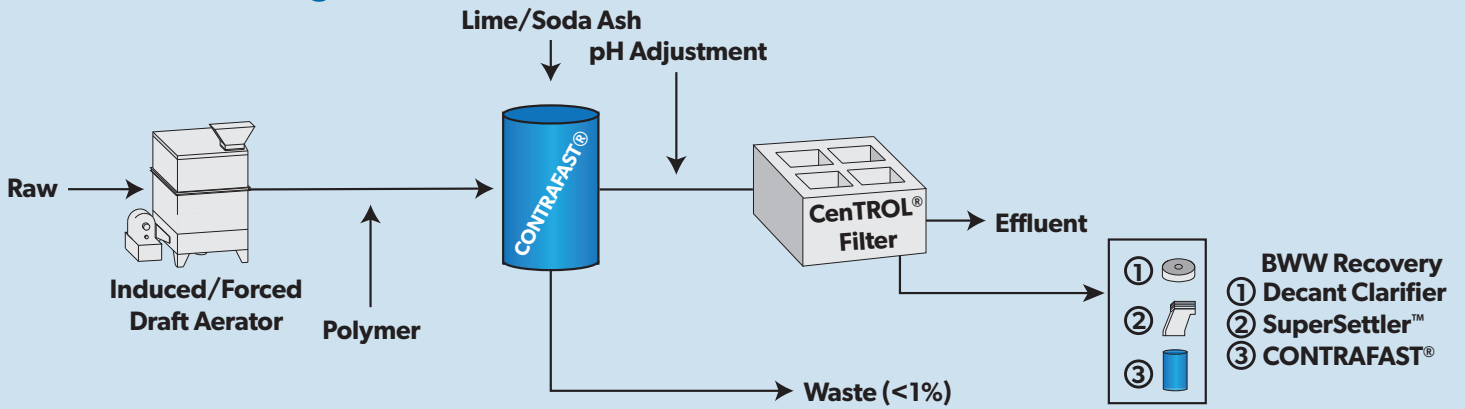
Concentric

Flows from 100 to 2550 gpm

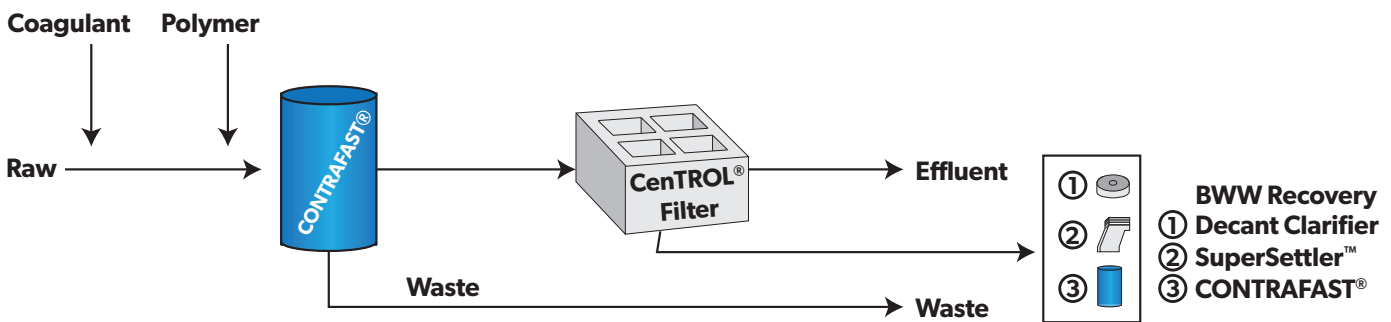
The Concentric CONTRAFAST system is built around the center point of the unit. Smaller units ship almost completely assembled. Larger units are field erected.



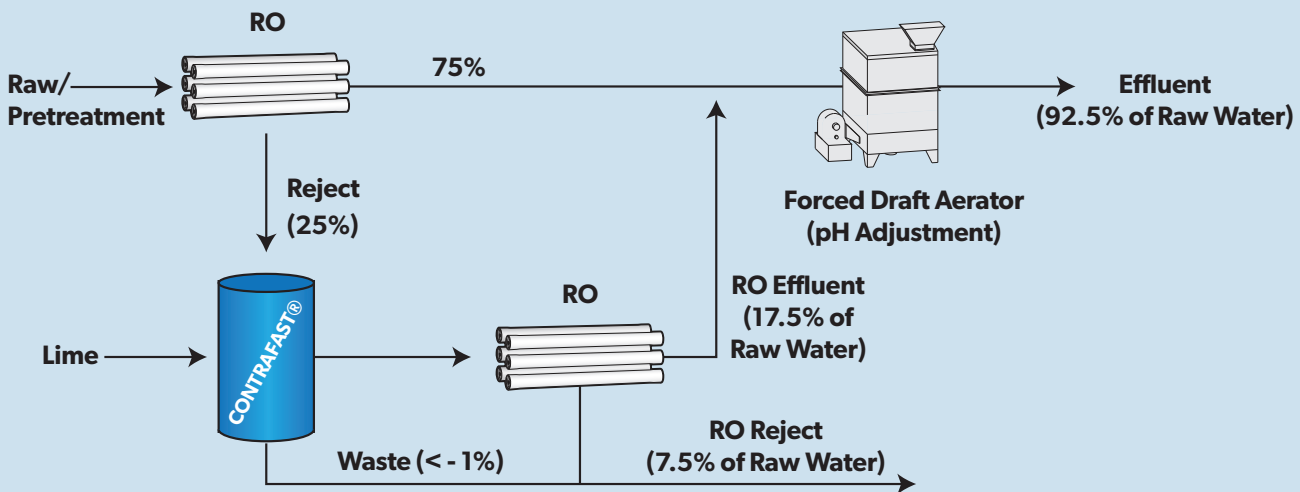
Cold Lime Softening



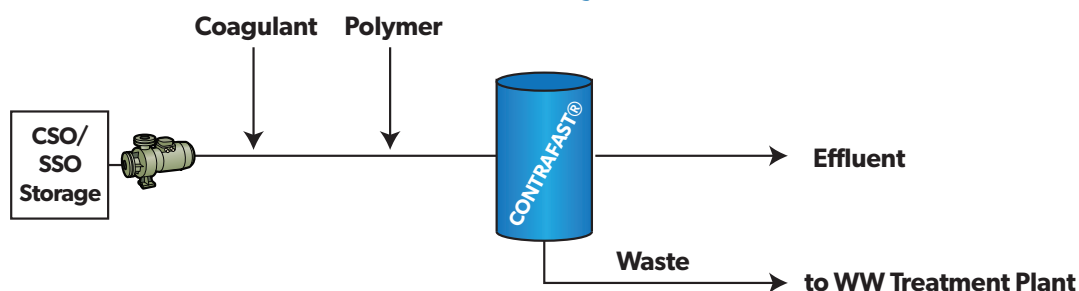
Surface Water Clarification



RO Recovery (Recovery rates are typical but may vary)



Combined Sewer Overflow/Sanitary Sewer Overflow





WESTECH[®]



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