

# Storm King® Overflow *with Swirl-Cleanse™*

An advanced vortex separator with a **self-cleansing, non-powered, screen**.

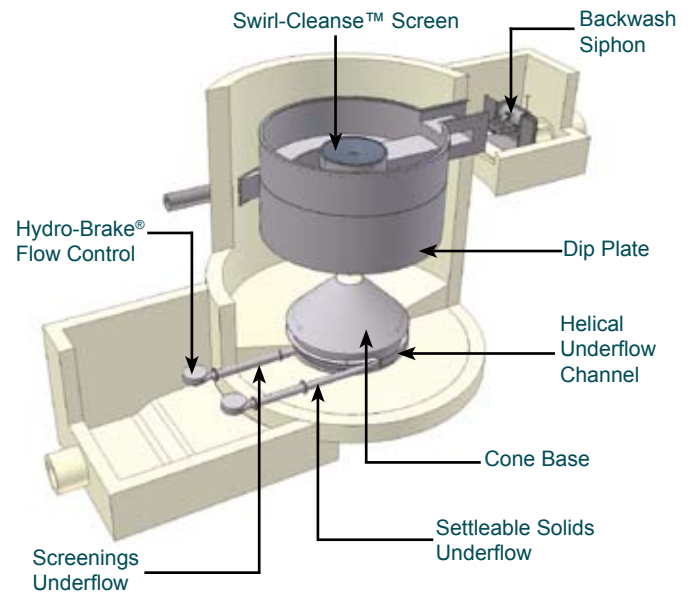
## Applications

- New and retrofit CSO facilities.
- Swirl-Cleanse™ can be retrofit to existing Storm King® Overflows.
- Remote treatment sites.
- Floatables control for CSOs and collection systems.
- Mixing for disinfection.
- Primary treatment equivalency.

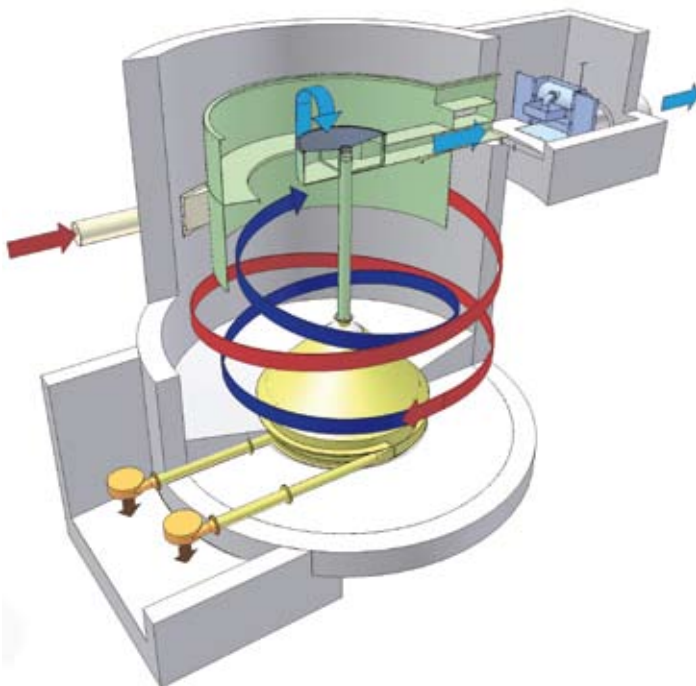
## Advantages

- No moving parts or power requirement.
- Self-activating and self-cleansing.
- Low headloss.
- 100% removal of 6 mm in 2 direction solids including floatables, gross solids and neutrally buoyant material.
- Removes up to 95% of grit and sediments.
- Small footprint.
- Low capital and life cycle costs.
- Minimal maintenance.

The Storm King® Overflow with Swirl-Cleanse™ Screen is an advanced hydrodynamic vortex separator with an integral unique, non-powered, self-cleansing screen. The system is ideal for satellite treatment at overflow sites and has been shown to save municipalities up to 50% on overall project costs when compared to conventional solutions.



## How it Works



Flow is introduced into the Storm King® via a tangentially positioned inlet causing a rotational flow path around the dip plate.

As the flow spirals down the wall of the chamber solids settle out by gravitational and rotational forces (red arrow).

Settleable solids collect in the base as the centre cone directs flow up and around the centre of the shaft into the inside of the dip plate cylinder (dark blue arrow). The upward flow rotates at a slower velocity than the outer downward flow. The resulting 'shear' zone scrubs out the finer particles.

The flow then passes down through the Swirl-Cleanse™ screen which captures all floatables and neutrally buoyant material greater than 6 mm. The air regulated siphon provides an effective backwash mechanism to prevent the screen from blinding. Screened effluent is discharged into a receiving watercourse (light blue arrow).

The collected screenings and settleable solids are pumped or gravity fed from the base of the unit to the sewage treatment plant (brown arrow).

## Maintenance

The Storm King® Overflow with Swirl-Cleanse™ incorporates a hydraulically operated siphon that regulates the self-cleansing dynamic backwashing system.

Once the device has been brought on-line, it should be visually inspected after the first two spill events. After the initial inspection, visual inspection of the equipment should be carried out twice a year.

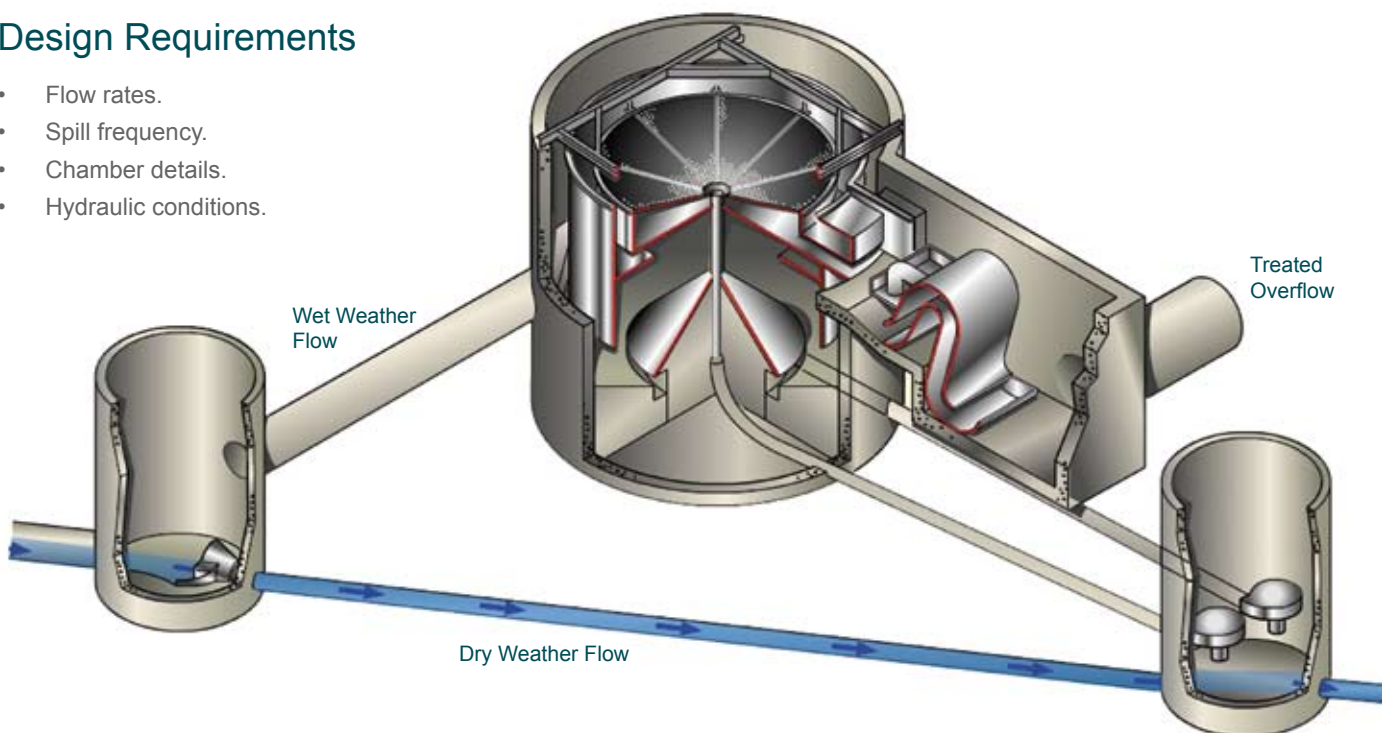
The system should be checked for blockages, the screen panels checked for accumulation of solids and the joint checked for leaks. If present, accumulated solids, oils and grease should be removed by hosing down.



Dynamic backwashing system in operation.

## Design Requirements

- Flow rates.
- Spill frequency.
- Chamber details.
- Hydraulic conditions.



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