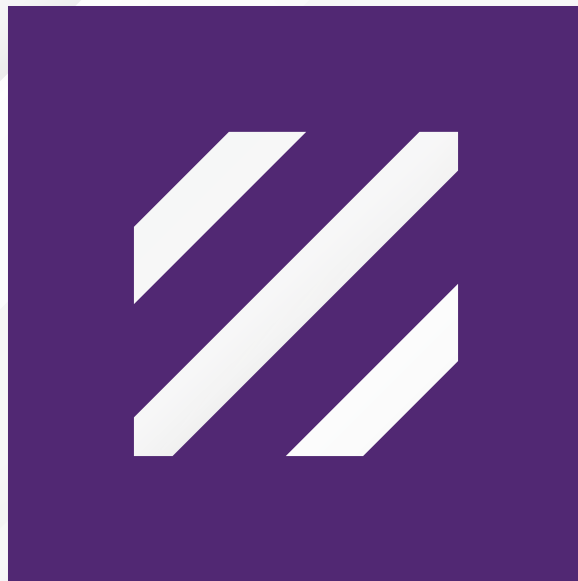


stormBLØX™

SIC RAPID STORM TREATMENT



Worldwide Experts in Water Treatment





stormBLOX™

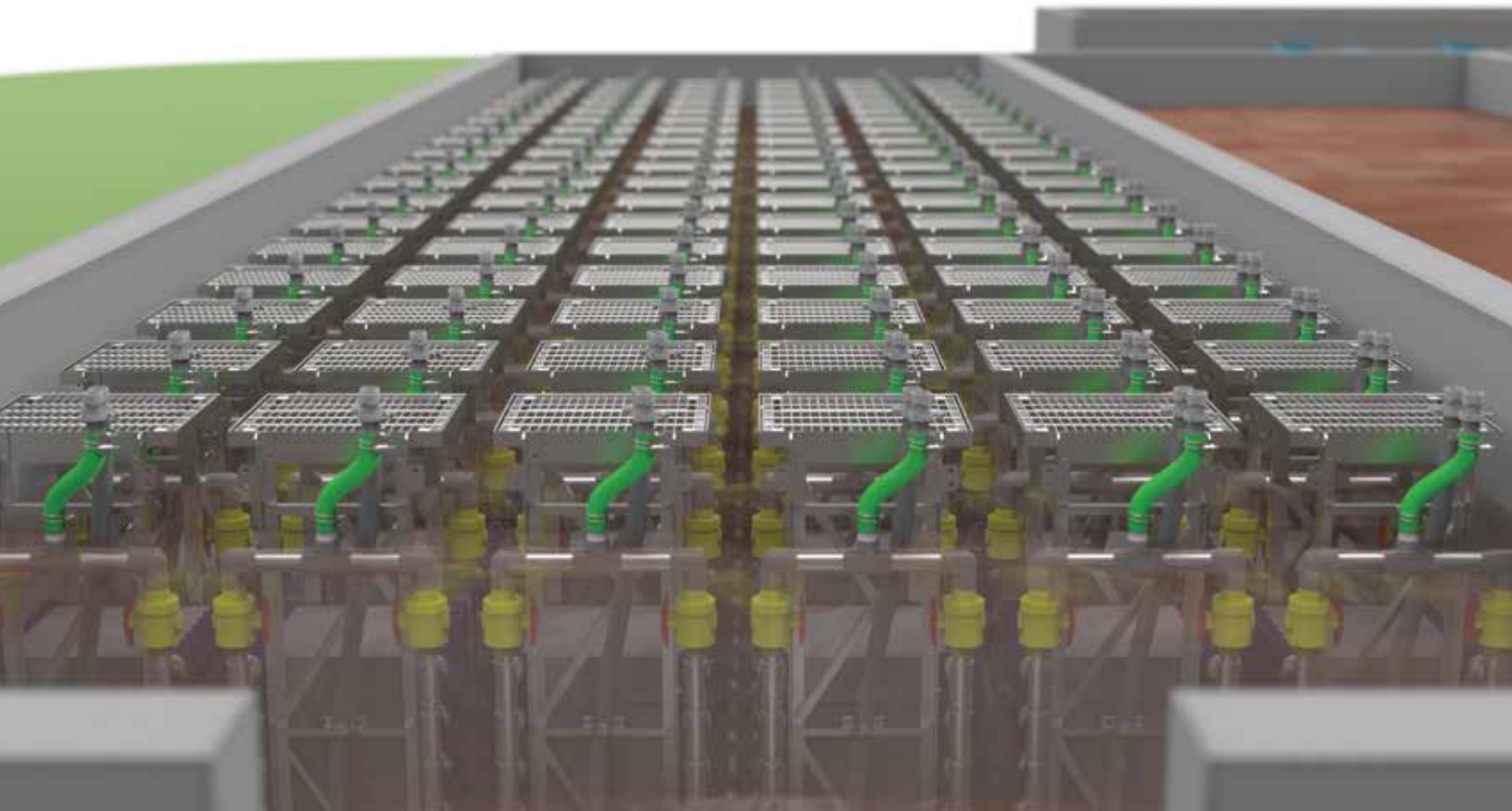
SiC RAPID STORM TREATMENT

Climate change is creating bigger storms and more pollution. Every year over 850 billion gallons of untreated sewage are discharged into our waterways. Beaches close. Fish die. People get sick. Storm driven sewer discharges are a big problem, and they're getting worse. stormBLOX technology offers a simple and a sustainable treatment solution to this huge problem.

stormBLOX instantly treats right at the on-set of a storm while physically blocking solids and pathogens from being discharged into our waterways. Other treatment options, such as ballasted clarification, compressed media filtration, cloth filtration, and chlorination simply can't treat storm flows as quickly and as effectively as stormBLOX. These other technologies pass thousands to millions of

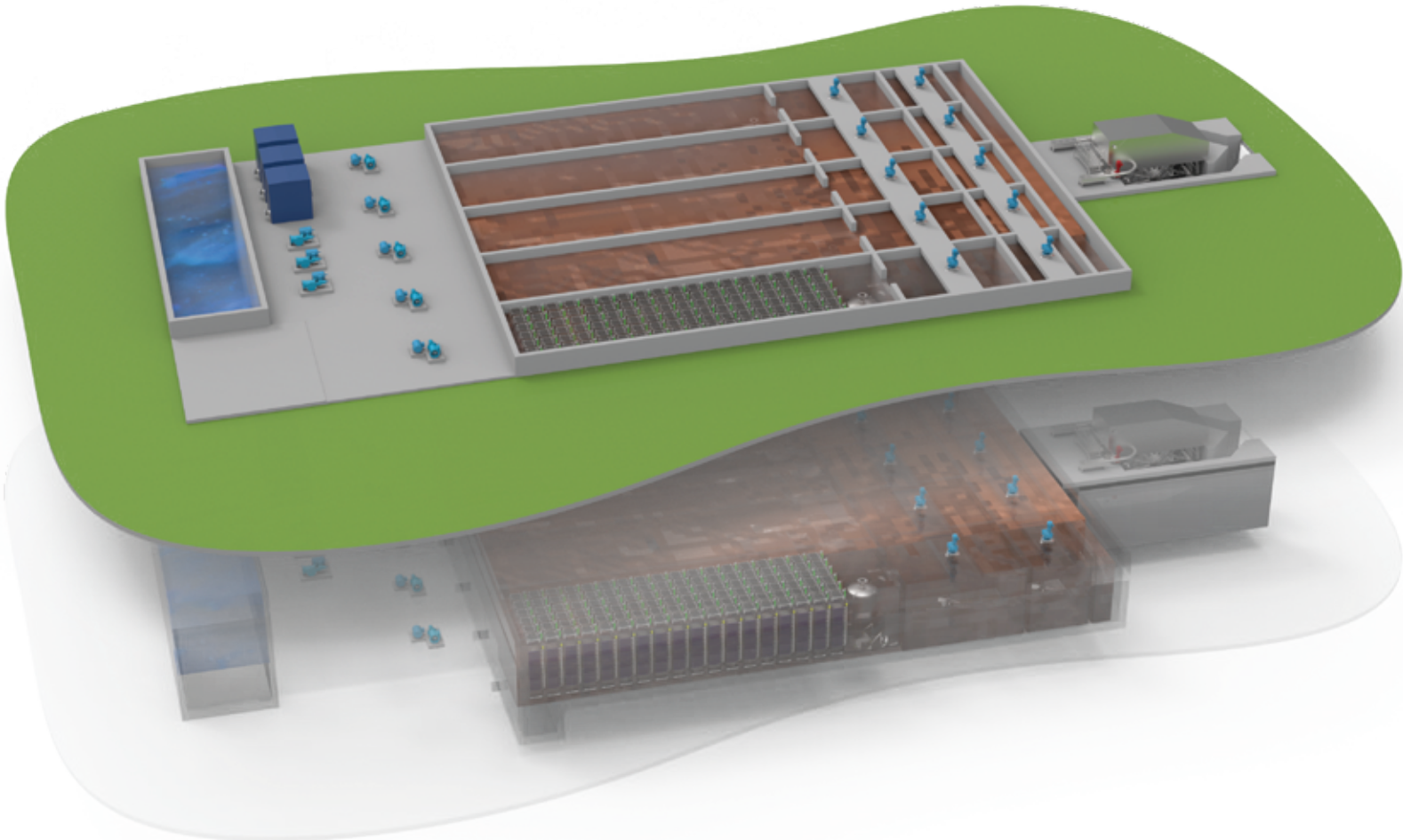
gallons untreated at the onset of a storm as they come on line. stormBLOX treats the first gallon. Plus, stormBLOX effluent meets all disinfection requirements without supplemental chemicals, preventing toxic by-products from harming aquatic life.

What happens when it's not raining? Just simply empty the basins and wait for the next storm to arrive. Whether it's hot, cold, or even freezing, the properties of the SiC membrane are not impacted by extended downtime. The hydrophilic membranes start treating water as soon as the next set of rain drops start to fall. Whether it rains once or 50 times in a year, stormBLOX performance will be the same each and every storm.



stormBLOX™

SiC RAPID STORM TREATMENT



stormBLOX IS USED IN THE FOLLOWING APPLICATIONS/MARKETS:

- Combined Sewer Overflows (CSO) facilities with consent decrees
- Sanitary Sewer Overflows (SSO) facilities with consent decrees
- Membrane Bioreactor (MBR) plants with >3Q peaking factors due to high I&I
- Conventional Activated Sludge (CAS) plants with >5Q peaking factors due to high I&I

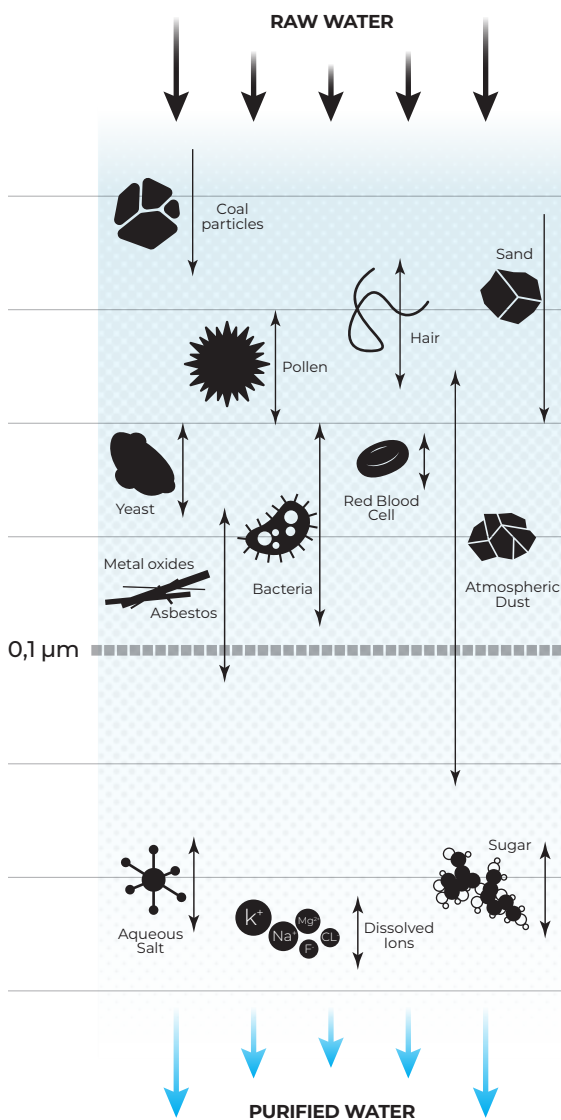
VIDEO



BENEFITS OF stormBLOX INCLUDE:

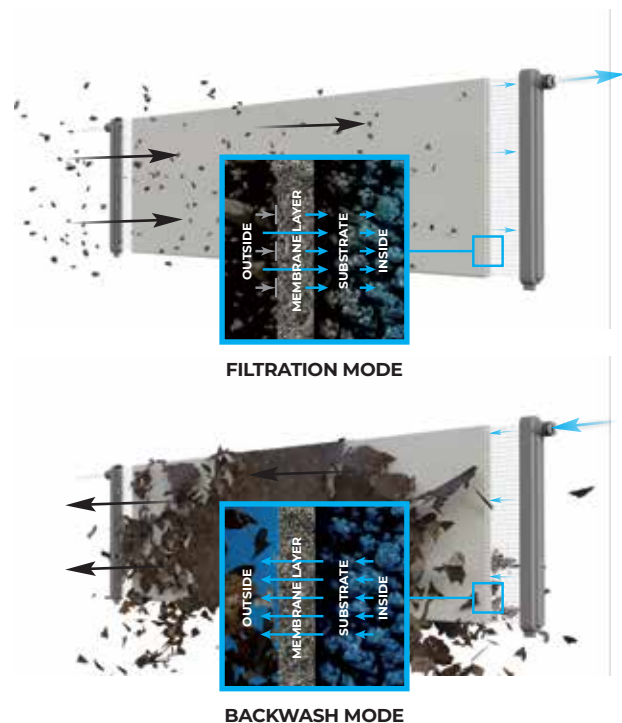
- Disinfection without chemicals
- Instantaneous treatment
- Supplement secondary treatment
- No disinfection by-products
- Utilize as tertiary filtration system during dry weather
- Extremely small footprint, easily fits into existing infrastructure
- Easily placed off-line regardless of weather conditions

HOW DOES SiC OPERATE?



A slight vacuum is applied to the membrane to pull water through the 0.1 micron membrane pores. SiC is one of the few membrane materials that is naturally and permanently hydrophilic, meaning organic foulants, including oil, are repelled by the membrane while water is naturally drawn in. SiC is also chemical inert and extremely hard, meaning most anything can be used to clean it.

Solids, pathogens, and other contaminants are blocked by the membrane pores and are retained on the surface. Periodically, water is reversed back through the membranes to dislodge and remove solids that have accumulated on the surface. In some applications, air is bubbled up in between plates to provide a scouring action which further helps keep the membrane clean. Various types of spray washes can be employed to quickly and effectively remove solids from the membrane surface. While this regeneration procedure may sound quite normal for a membrane, SiC is far superior to all others.



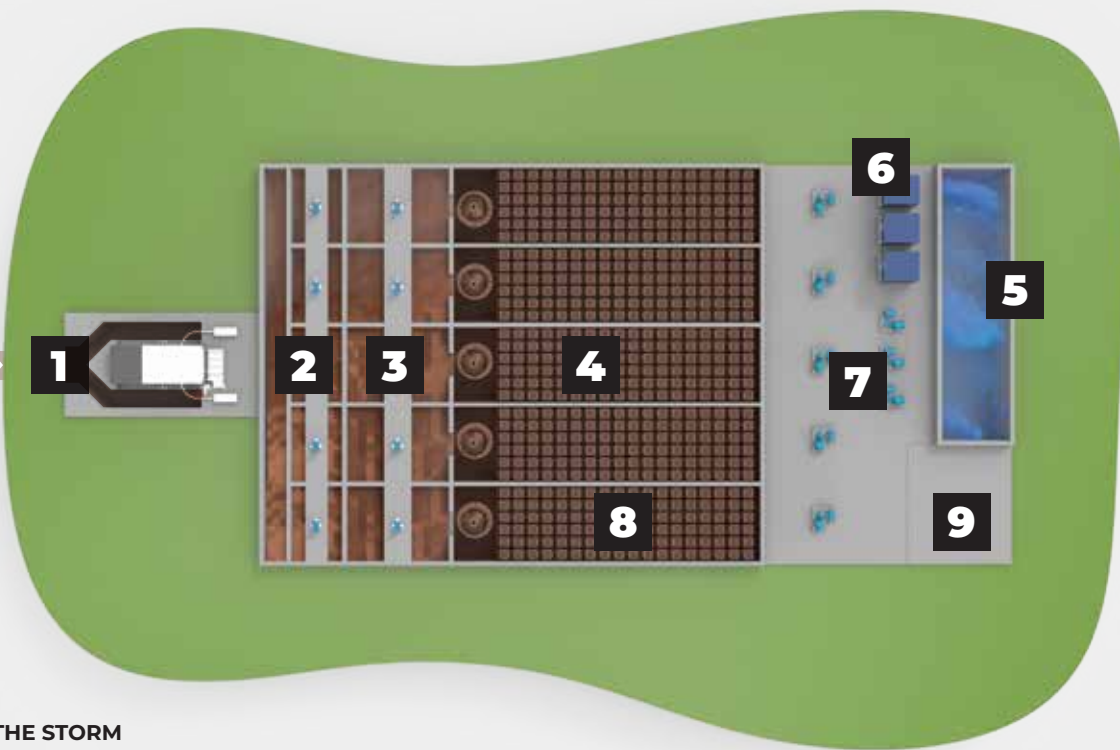
SiC is an ultrafiltration flat plate membrane used in water and wastewater applications. With a 0.1 µm pore size, SiC creates a physical barrier blocking solids, pathogens, heavy metals, and oil & grease.

HOW DOES IT WORK?

The stormBLOX™ system is a membrane based treatment process consisting of the following key steps: influent screening, coagulant addition followed by flash mixing, and filtration through SiC ultrafiltration membranes. While the core treatment process remains the same, the system can be configured for the following :

- **SATELLITE CSO/SSO FACILITIES**
- **AUXILIARY/ SIDE STREAM TREATMENT OF HIGH PEAK FLOWS AT WWTP**

At the end of the storm, the membranes and basins are cleaned and emptied in preparation for the next storm. In some cases when stormBLOX™ is used as a dual purpose treatment system, some of the membrane basins serve as redundant treatment during dry weather.



DURING THE STORM

1. Raw wastewater passes through the screens
2. Coagulant is added and flashed mixed
3. Supplemental alkalinity is added and flashed mixed (if required)
4. Wastewater is filtered by the SiC membranes by creating a slight vacuum to pull water through the microscopic membrane pores
5. Permeate is collected for backwashing and CIP
6. Blowers scour the membranes during operation to remove solids from the membrane surface
7. The membranes are backwashed with permeate water periodically

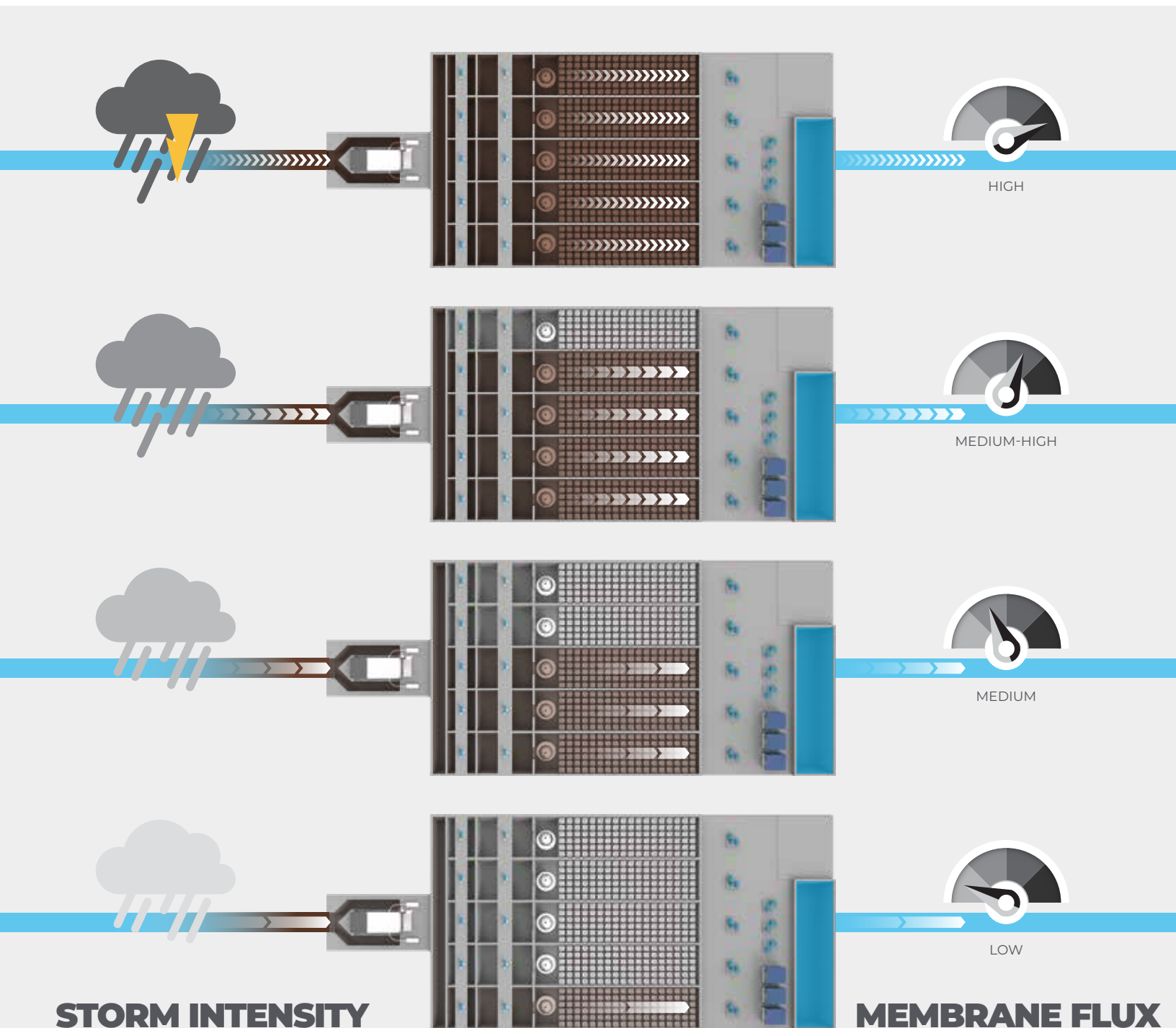
AFTER THE STORM

8. Basins are emptied and tank floor is flushed clean by controlled water flusher
9. CIP is performed on the membranes. Basins are emptied and membranes kept dry in between storms

RESILIENCY IN HANDLING FLOW VARIATION

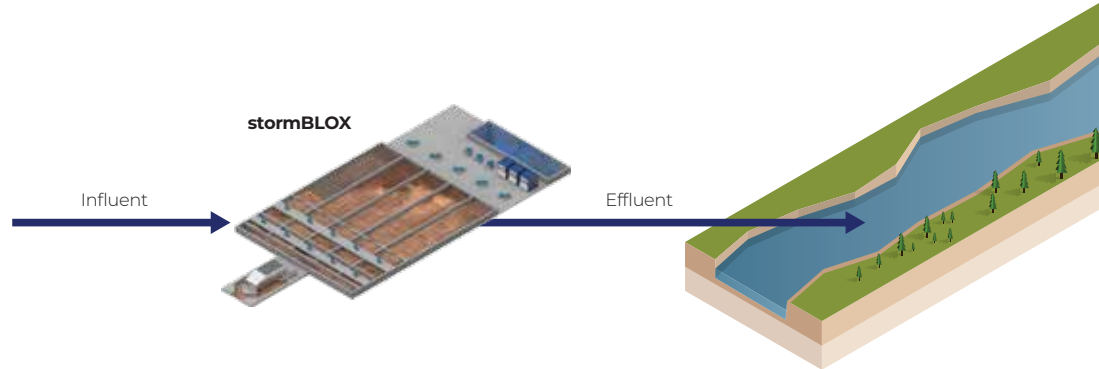
Storm flows are highly variable and can increase by orders of magnitude in an instant. Since stormBLOX™ is a physical treatment process, it can be easily ramped up, or ramped down, depending on the severity of the storm. As storm intensity, and subsequent flow, increases additional stormBLOX™ units are brought online to match

the incoming flow. stormBLOX™ is easily and quickly brought on/off-line depending on treatment demand at any single point in a storm.

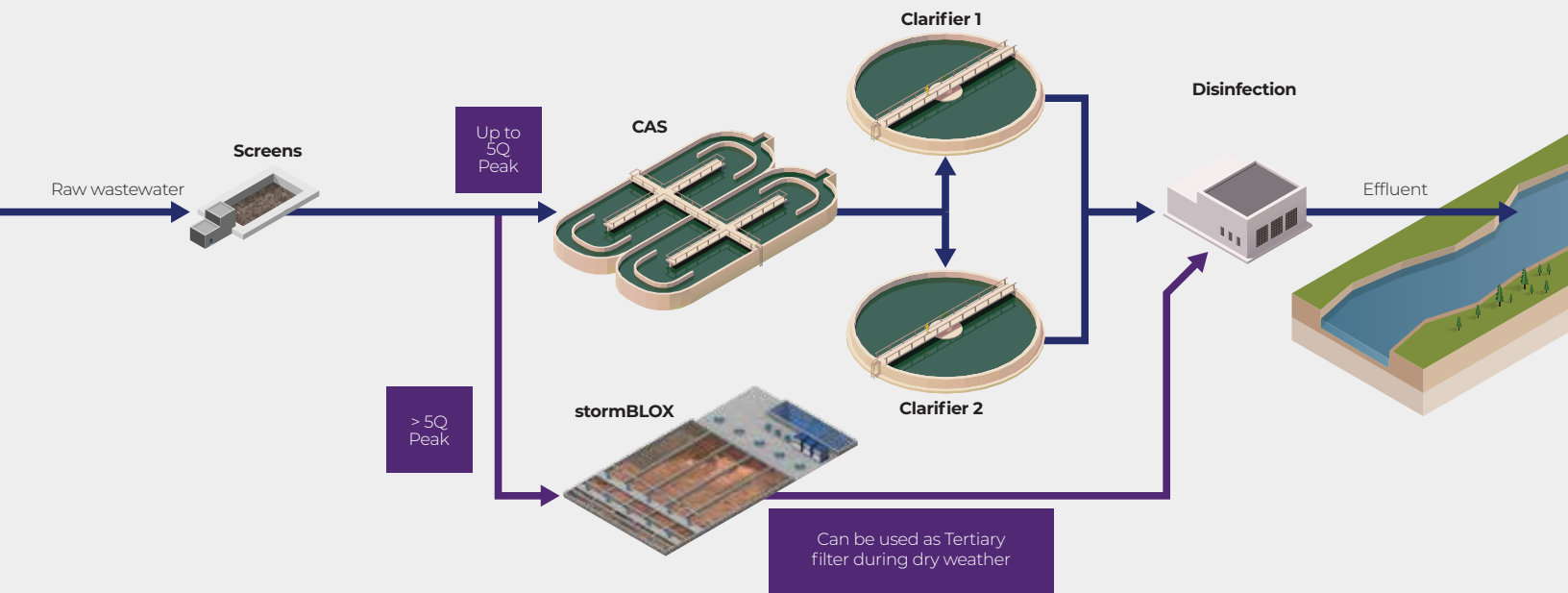


INTEGRATION

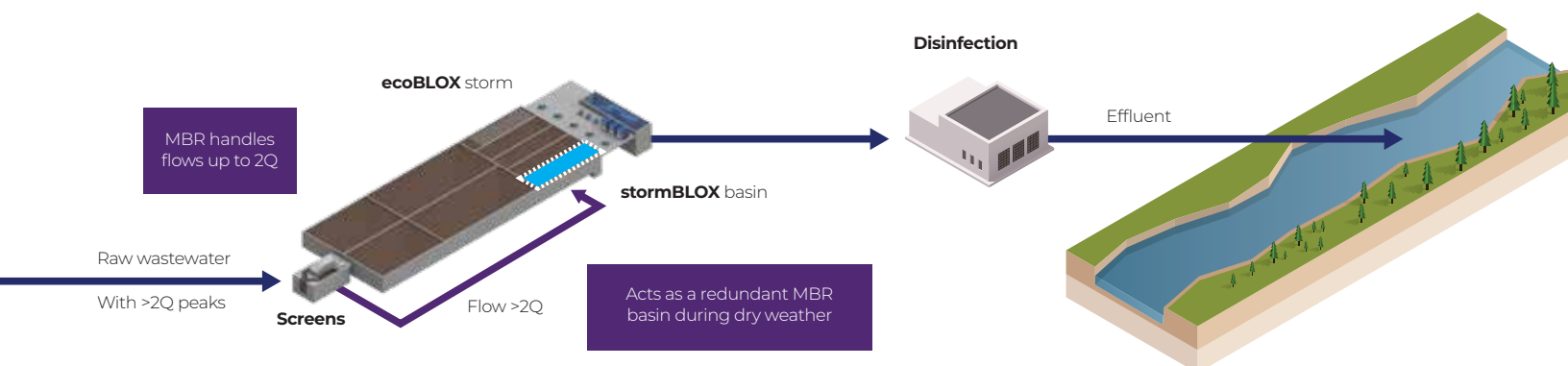
SATELLITE CSO SSO FACILITIES



EXTREME PEAK FLOW MANAGEMENT FOR CAS



EXTREME PEAK FLOW MANAGEMENT FOR MBR



EFFLUENT QUALITY

TYPICAL EFFLUENT QUALITY OF A STORMBLOX SYSTEM IS

The SiC membranes in a stormBLOX systems create a physical barrier, completely removing bacteria and from the incoming storm flow. The result is an effluent that meets all numerical coliform and total residual chlorine limits without supplemental disinfection. Other contaminants such as heavy metals, oil, and grease are also effectively removed by the stormBLOX treatment process. Regardless of incoming flow and loading, stormBLOX always provides the same level of treatment.

PARAMETER	EFFLUENT
Total Suspended Solids (TSS)	< 2.0 mg/l
Fecal Coliform/ E Coli/ Enterococci	< 2.2 MPN /100 ml
Settleable Solids (SS)	< 0.1 mg/l
Heavy Metal Removal	> 90% removal
Total Residual Chlorine (TRC)	0.0 mg/l
pH	6-9
<i>Meets secondary treatment standards</i>	



SUSTAINABILITY

A person wearing a bright orange raincoat is lying on their back in a dense forest of green ferns. Their arms are outstretched, and their eyes are closed, suggesting a state of relaxation or connection with nature. The scene is captured from a high angle, looking down at the person.

SUSTAINABILITY HAS NEVER BEEN MORE IMPORTANT AND MORE CRITICAL THAN IT IS NOW. UNTREATED SEWER DISCHARGES FROM STORM EVENTS IMPACTS BOTH HEALTH AND SAFETY AS WELL AS AQUATIC LIFE. TENS OF THOUSANDS OF ILLNESSES ARE REPORTED EACH YEAR DUE TO SEWER DISCHARGES. SHELLFISH BEDS ARE CLOSED UNTIL FECAL COLIFORM AND HEAVY METALS CLEAR THE TISSUE OF THE SHELL FISH. STORM DRIVEN SEWER DISCHARGES NEGATIVELY IMPACT BOTH THE ENVIRONMENT, HUMAN HEALTH & SAFETY, AND THE ECONOMY. IT SIMPLY IS NOT SUSTAINABLE.

MONITOR PLANT DATA ANYTIME, ANYWHERE FROM YOUR SMARTPHONE



OpsCTRL™ is an all-in-one solution for digitizing your plant. Combining asset management, maintenance management, alarm management and real-time data monitoring into one easy to use platform. Login to your account from your own device and keep your whole team connected in the office and in the field.

stormBLOX is equipped with opsCTRL, a digital tool for remote operation, monitoring and asset management to ensure unparalleled reliability, even during those 2 am downpours.

**Access your account from
anywhere, on any device.**

OpsCTRL is a single integrated system optimized for desktop, Apple & Android.





Worldwide Experts in Water Treatment