

SiC | Storm Management

**ELLIOTT WEST CSO
KING COUNTY, SEATTLE**

500,000 GPD

**2 YEAR
DEMONSTRATION**



THE 240 MGD ELLIOTT WEST WET WEATHER TREATMENT STATION (EW) IS AN UNMANNED FACILITY IN THE MIDDLE OF SEATTLE DOWNTOWN OPERATING SINCE 2005. CAPTURED COMBINED SEWER OVERFLOW (CSO) BEYOND THE CAPACITY OF WEST POINT TREATMENT PLANT AND THE CONVEYANCE SYSTEM IS DIVERTED TO EW AND 3 OTHER WET WEATHER STATIONS. HERE, THE CSO IS CHLORINATED AND DECHLORINATED BEFORE DISCHARGING INTO THE PUGET SOUND. RAPIDLY VARYING FLOW AND LOADS PRESENT A BIG CHALLENGE FOR DOSING RIGHT AMOUNT OF CHLORINATION AND DECHLORINATION CHEMICALS. AS A RESULT, EW SAW MANY PERMIT VIOLATIONS FOR TOTAL RESIDUAL CHLORINE (TRC), FECAL COLIFORM, SETTLEABLE SOLIDS. MAINTENANCE CHALLENGES INCLUDE HANDLING AND DETERIORATION OF STORED CHEMICALS BEFORE USE, CLOGGING OF CHLORINE ANALYZER GIVING UNRELIABLE OUTPUTS DURING DISCHARGE EVENTS. BEING AN UNMANNED SATELLITE FACILITY AS MOST CSO FACILITIES ARE, STORMS IN THE MIDDLE OF THE NIGHT PRESENT A HUGE OPERATIONAL CHALLENGE.



To address U.S. Environmental Protection Agency (EPA) consent decree, King County started investigating CSO treatment options to cost effectively improve the quality of the discharge to meet or exceed the consent decree requirements. The demonstration plant was leased for long-term testing at the West Point Treatment Plant. This demonstration utilized SiCBLOX™ Ultrafiltration Technology to treat primary effluent, with properties similar to CSO.

THE SOLUTION

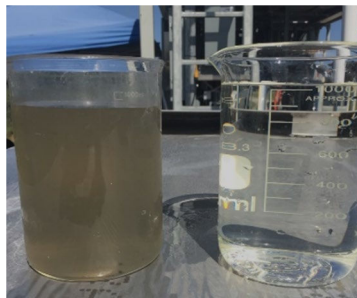
SiCBLOX was successful in showing the ability to provide a high level of treatment on simulated and not simulated SSO/CSO events that met or exceeded the goals. The Fecal Coliform permit limits were met without needing additional disinfection. The studies showed excellent (> 90%) removal for copper, lead, and total phosphorus and varying degrees of removal for other constituents. Average UVT % was found to be 70.2. The system performed sustainably during a 47-hour storm and back to back storms and met the NPDES limits. After the rigorous piloting, the SiC module was tested for any degradation of performance and was found to perform like a brand module.

This Ultrafiltration Treatment System will produce high quality water to meet today's stringent water quality requirements.

THE OVIVO DIFFERENCE

The Ovivo flow sheet for storm management instantly treats right at the onset 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 SiC Ultrafiltration.



Influent & Effluent Samples

EFFLUENT QUALITY

SOURCE	CBOD	TSS	FECAL COLIFORM	HEAVY METAL	SETTABLE SOLIDS	TP	TKN
Primary; Diluted Primary	33 mg/l	1-3 mg/l	>6 log removal	>90% removal	<0.1 mL/L/hr	98.4% removal	15.4% removal

