

# STOP AN SSO BEFORE IT STARTS

The EPA estimates as many as 75,000 sanitary sewer overflows happen every year, releasing about 890 billion gallons of sewage into lakes, rivers and streams.<sup>1</sup> Needless to say, if you're responsible for a breached system, you're going to be in a very uncomfortable position. Your best plan of action is a two-pronged approach: 1) understanding why SSOs happen, so you can work to avoid them, and 2) creating a contingency plan for emergency response sewer bypass pumping so if the unthinkable does happen you can recover as quickly as possible.

When an SSO happens, the cause is usually traced to an obvious issue such as a pipe breakage or pump failure. However, repairing the fault without looking into the underlying cause may not protect your system from another failure.<sup>3</sup>

## WHAT CAUSES PIPE BLOCKAGES?

Most pipe blockages can be traced to users introducing non-compostable wipes, cloths, or fat, oil and grease substances that build up and create bottlenecks. The infiltration of outside material such as roots and dirt through cracks in the system from settling, freeze/thaw cycles or similar movement can also cause blockages.<sup>4</sup> Fortunately, the solution is the same for both: routine cleaning and maintenance. Cleaning will remove unwanted materials from your system and make it clear if excessive amounts of earth are finding their way in, indicating a breach has already occurred.



## HERE'S WHY IT HAPPENS.

### A quick breakdown:<sup>2</sup>

- **50% are caused by pipe blockages**
- **25% are caused by wet weather infiltration and inflow**
- **25% are caused by mechanical/electrical failures**

## WHAT CAUSES WEATHER INFILTRATION AND INFLOW?

Even if you don't have a combined system, you are still at risk of infiltration during heavy rainfall due to ground saturation leaking in through cracks and breaks in the pipes. Another major cause for weather-related overflows is improper routing of structure downspouts into the sewer system. Infiltration on its own, or in combination with blockages, can overwhelm your system and cause overflows.<sup>5</sup>



## WHAT CAUSES MECHANICAL/ELECTRICAL FAILURES?

Mechanical/electrical failures can happen because of aging equipment, or through loss of power to pump stations from lightning strikes or outages.<sup>6</sup> Routine maintenance and cleaning will help alleviate problems, but no system is failproof.



## ARE THERE OTHER CAUSES?

Some significant overflows occur because the systems simply aren't large enough to cope with the population they serve. This can happen because the municipality doesn't increase capacity as new neighborhoods are built, or because systems that were thought to be adequate are smaller than originally believed – or suffer from reduced capacity due to leaks and infiltration. In fact, the EPA estimates that 75% of current systems provide 50% of their designed capacity, or less causing overflows.<sup>7</sup> Since the failure rate of even the best-designed and maintained systems is about 5 a year per one hundred miles,<sup>8</sup> your best course of action is a combination of prevention and rapid mitigation. Xylem will help you create a Contingency Plan that mitigates an SSO as quickly as possible with an emergency response bypass pumping system.

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<sup>1</sup> Smart Cover Systems, Web  
<sup>2</sup> EPA Listening Session, 2010  
<sup>3</sup> EPA Listening Session, 2010

<sup>4</sup> EPA Listening Session, 2010  
<sup>5</sup> EPA Green Infrastructure  
Factsheet

<sup>6</sup> EPA SSO case study control  
<sup>7</sup> Roads & Bridges, Web  
<sup>8</sup> El Dorado Irrigation District

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