The Challenges of CSO Public Notification

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BWSC Collection System

- 1,536 miles of sewer and drain pipes
  - (156 miles combined, 710 miles sanitary, 670 miles storm drain)
- Sewers range from 8 inch to 108 inch
- Drains range from 12 inch to 240 x 186 inch
- 9 pump stations
- 583 outfalls total
  - CSO – 37 permitted outfalls
- 201 tide gates
- 50,605 manholes
- Monitored Regulators - 81
CSO Monitoring Inventory

81 - Regulators
31 - Level Only Meters
57 - Area Velocity Flow Meters (7 locations require multiple meters)
16 - Inclinometers on Tide Gates
12 - Boston rain gauges (10 in house, 2 by ADS)
Example CSO Regulator – Simple
CSO Monitoring Methods

There are options when it comes to getting notifications and thresholds for alarming in a system:

• Measurement method
A false alarm that happened on the Fourth of July

This scenario played out in a northeast beach on the fourth of July and closed a large part of the beach in this area. The big picture:

The mayor got involved

The public was not allowed to swim in that area until it was tested.

This incident made the news “High Bacteria Levels Lead to Local Beach Closings” (Staff, 2023).
The seriousness of false alarms

- False alarms can shut down beaches, lakes, and streams.
- False alarms can cause financial strain on many communities.
- False alarms can cause unnecessary stress on the public.
- Impact the confidence on future events.
What can cause false alarms?

- Irregular sensor data
- Debris floating in the sewer line
- A bad algorithm used to notify of CSOs
Getting the notifications out and received

Even when the alarms are operating correctly there could still be issues with receiving the alarm notification

- Firewall prevents the email from getting through
- Spam folders not checked
Ways to minimize false alarms

- Having a single sensor in the outfall
- Having two independent sensors at each CSO is ideal to help reduce false alarms.
- Using CSO cameras to capture the overflow
- Using Boolean equations
- Robust communications
  - Redundant communication method
  - Satellite
  - Multi-provider service
  - Model generated by rainfall
Thank You!
Questions?

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