



CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ■ Nick Fish, Commissioner ■ Michael Jordan, Director

December 22, 2015

TO: Portland Utility Board Members
Nick Fish, Commissioner
Michael Jordan, Director, Bureau of Environmental Services

FROM: Bill Ryan, Chief Engineer, Bureau of Environmental Services

SUBJECT: Portland Utility Board questions about CSOs in light of recent rain events

In the December 15 Portland Utility Board (PUB) meeting, a number of PUB members asked about combined sewer overflows (CSOs) that have occurred recently. This report, in the frequently asked question (FAQ) format, should answer those questions, give PUB members greater insight into the complexity of the City of Portland's combined sewer system, and help them answer their friends' and neighbors' questions at the next barbecue.

WHAT WAS IT LIKE IN PORTLAND BEFORE COMPLETION OF THE CSO CONTROL SYSTEM?

The Bureau of Environmental Services (BES) started working on the 20-year CSO control program in 1991. Up to that point, Portland's combined sewer system overflowed to the Willamette River or Columbia Slough every time it rained more than one-tenth of an inch. Given our typical winter weather patterns, we had more than 50 CSO events per year. Each event lasted an average of two days, so combined sewers overflowed to the river and slough for about 100 days each year, releasing over 6 billion gallons of combined sewage annually.

IF THE CSO SYSTEM IS COMPLETE, WHY DO WE STILL HAVE OVERFLOWS?

The CSO system is complete and is performing just as it was designed to perform, capturing and storing, pumping and treating most of that 6 billion gallons that used to overflow to the river and slough. In early negotiations with the State of Oregon and the Environmental Protection Agency (EPA), BES developed the optimal level of CSO control achievable using sewer ratepayer dollars. The CSO control program reduces CSOs to the Willamette River by 94% and to the slower moving, environmentally sensitive Columbia Slough by 99%. The 20-year CSO control program cost Portland sewer ratepayers \$1.4-billion. It would have been possible to eliminate CSOs by designing and constructing a separate storm sewer system, but that option would have cost our ratepayers twice as much for only minimal improvements in water quality.

HOW MUCH COMBINED SEWAGE STILL FLOWS TO THE RIVER?

Before BES controlled CSOs, combined sewers overflowed to the river about 100 days each year. In the four years since we completed the system in 2011, we have overflowed less than 100 hours total. During the most recent storm, the system overflowed for 16 hours, between December 7 and December 9, discharging 638 million gallons of combined sewage to the river.

WHEN DOES THE CSO SYSTEM OVERFLOW?

The system overflows three to five times per year. Using over 40 years of rain data, BES determined statistically that the size of winter storm that occurs about four times per year will cause an overflow. Summer storms are actually a higher standard because the river is more likely to be in use during that period. We figure that an overflow will occur on average once every three summers.

IS THERE ANY WAY TO REDUCE THE OCCURRENCE OF OVERFLOWS?

BES is continuing to construct green street planters in the combined sewer area as part of our ongoing program to reduce the amount of stormwater that flows into the combined sewer system. This green technology has multiple benefits in addition to reducing CSOs, including reducing basement sewer back-ups, recharging our valuable groundwater resource, providing habitat, and reducing the urban heat island effect.

Residents and business owners within the combined sewer area can also help by managing stormwater runoff on their property. Disconnecting downspouts, constructing green roofs, removing unnecessary or unused pavement, and retrofitting parking areas with infiltrating stormwater facilities all reduce stormwater runoff.

WHAT HAPPENS TO THE COMBINED SEWAGE THE NEW SYSTEM COLLECTS?

During the December 5-December 13, 2015 rainstorm, the Columbia Boulevard Wastewater Treatment Plant processed an average of 300 million gallons per day. The largest daily volume was 370.8-million gallons on December 7. The treatment plant normally processes an average of 70 million gallons a day. The plant expanded its capacity to treat combined sewage that used to overflow, without treatment, to the Columbia Slough and Willamette River.

The plant processed 1.5 billion gallons of wastewater from December 5 to December 10. That much water would nearly fill 2,271 Olympic size swimming pools. That water was treated to the stringent standards of our treatment plant permits and returned as cool, clean water to the Columbia River.