

What is a Combined Sewer Overflow?

The majority of Dŵr Cymru Welsh Water's sewerage systems are made up of **combined sewers** which, as well as transporting wastewater from homes and industry, also carry **surface water** run-off from gutters, drains and some highways.

Newer **separate sewers** transport only sewage, with surface water run-off being directed to its own dedicated drainage system.

Heavy or prolonged rainfall can rapidly increase the flow in a combined sewer until the volume becomes too much for the sewer to carry and excess **storm sewage** is discharged to river or sea via **combined sewer overflows (CSOs)**.

A well designed CSO acts as an essential relief valve, preventing overloading which could otherwise lead to flooding of properties and sewage treatment works. It may be fitted with telemetry to advise the operator when it is discharging or when the screen raking mechanism has failed.

However, many older CSOs were designed and constructed to a much lower standard than is now considered acceptable. Among the common faults are:

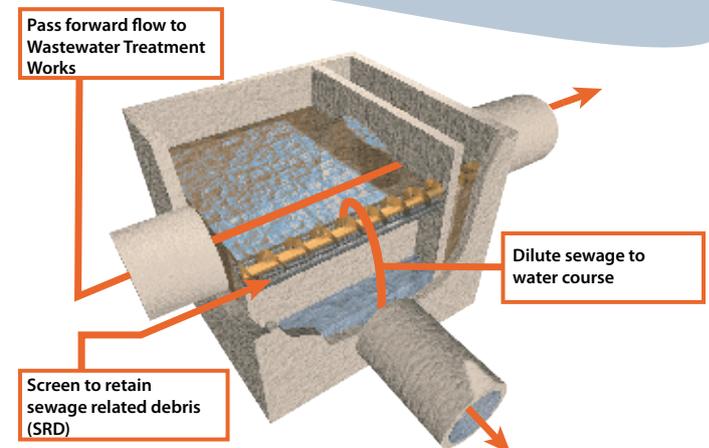
- The downstream sewer pipe diameter is too small, causing the CSO to operate too frequently
- The discharge is unscreened
- Some are simply holes knocked in manhole walls to alleviate flooding.



Through our rolling five-year investment programmes we have replaced many poorly performing CSOs with modern, well designed and well functioning ones. We have worked closely with regulatory and statutory bodies to draw up plans for targetting the most appropriate areas for spending money.

Rather than improving CSOs according to individual 'worst-performing' criteria, we agreed with the Environment Agency Wales to concentrate efforts across whole trunk sewer systems in order to bring greater benefits in water quality improvements to overall river catchments.

Newer CSO in operation during heavy/prolonged rainfall



The new sewers have been constructed in modern materials, larger in diameter, with new chambers, storage and telemetry where necessary. CSOs have been fitted with 6mm mesh screens to prevent discharge of solids to the environment. All designs have been approved by the Environment Agency Wales in order to ensure long-term compliance with river water quality objectives.

During the five year investment period 1995 – 2000, Welsh Water invested £80m replacing unsatisfactory and building new CSOs in 450 sites. Between 2000 – 2005 an additional £270m was invested tackling 700 sites and in the next five year period 2005 – 2010 we will be spending a further £240m tackling another 450 sites.