REFERENCE

2526184

RELEASE DATE

August 2025

SUBJECT

Various requests for information pertaining to discharges of untreated (raw) sewage into watercourses in Northern Ireland.

RESPONSE

Before answering your specific queries, it would be helpful to provide some context.

A System in need of investment

Much of Northern Ireland's wastewater system, particularly in our city and town centres, dates to the 19th century. They are served by what is called a combined sewer system, where foul water and the storm (rain) water are mixed. When large volumes of storm water enter the combined system during times of heavy rainfall, it can cause our system to be overwhelmed.

Blockages in the wastewater network can further exacerbate the problem and NI Water deals with around 12,000 of these each year. The most common cause is the flushing of inappropriate items (which do not disintegrate down the toilet), such as wet wipes, and the disposal of fats and oils down the sink. There is more information about this at our webpage below.

https://www.niwater.com/education-and-the-community/bag-it-and-bin-it

Storm Overflows

Toilets, showers, kitchen sinks, dishwashers and washing machines all create wastewater or what is also known as foul water. Businesses also produce foul water from their processes. This all contains faecal matter, detergents, fats, oils, and other substances that must then be collected and treated before the residual water can be returned safely to the environment. This is the primary function of a wastewater system.

Most modern property developments now have separate drainage systems. Foul water from kitchens and bathrooms goes to the sewer network and off to the Works for treatment. Rainwater from roofs and roads goes to a separate storm drain and on to a nearby watercourse.

Storm overflows are critical to any wastewater system. During periods of heavy rainfall, they allow dilute sewage to spill into local water bodies in accordance with regulations set out by the Northern Ireland Environment Agency (NIEA). Without storm overflows, wastewater would back up in pipes and flood properties.

Event Duration Monitors

To monitor and record spills, Event Duration Monitors (EDMs) are being installed across NI Water's wastewater network over a multi-year investment programme. These measure the times when a spill is occurring and for how long it lasts.

Having EDMs gives us telemetry data that can be used to supplement the results of our models. They can also be used to trigger operational response if abnormal spills are occurring, such as a blockage or equipment failure.

The first phase of our deployment, as agreed with the NIEA, is focused on discharges to bathing waters and locations near to shellfish breeding grounds. By 2027, we aim to have 700 EDMs in use, sending reliable information back to our Alarm Management Centre. This will give us around 30% coverage of all storm overflows. Going forward we will engage with NIEA, the Utility Regulator and the Department for Infrastructure (DfI) to make the funding case for EDM installation at all storm overflows that spill.

We also continue to work with NIEA to establish the best method for future measurement of the quantity of what is being discharged. Monitoring river water quality is a much more accurate and direct method of measuring environmental impacts, rather than monitoring the duration or volume discharges. Yet, regrettably, our industry remains several years away from being able to achieve this.

NI Water replies to each of your queries in turn as follows.

1. ***A list of all recorded incidents of raw sewage discharge into watercourses in Northern Ireland.***

NI Water does not routinely discharge raw sewage. Storm overflows release heavily diluted wastewater - typically containing only 1 to 2% raw sewage - during heavy rainfall to prevent flooding, in compliance with NIEA Regulations (see below for more information).

NI Water's online Storm Overflow webpage details, via an orange drop pin, the 2024 spill data from those 222 Overflows with operational EDMs, i.e. on those storm overflows within a 2km distance of designated bathing waters. Spill data includes number of spill events and the total duration of any spills.

https://www.niwater.com/about-your-water/storm-overflows

Volume of spills

None of the storm overflows have meters to record the volume of spills. Flow meters are very expensive to install and maintain. They can cost up to £150,000 per storm overflow. NI Water endorses the assessment made by Water UK that the cost to install Event Duration Monitors (EDMs) across the entire network is already significant and the investment required to upgrade this technology to monitor spillage volumes would be more effectively spent fixing the problems, rather than improving their measurement. There may be exceptions to this, depending on circumstances, and NI Water will remain open to these and alert to the application of any lower cost new technologies that may help.

As such, and specific to the disclosure of recorded, non-predictive, storm overflow spill volume data, Regulation 12(4)(a) of the EIR (Information not held) provides that "*a public authority may refuse to disclose information to the extent that it does not hold that information when an applicant's request is received*".

All exceptions under Regulation 12 of the EIR are qualified and so, in deciding whether to disclose the requested information, NI Water must consider the public interest. However, this is not possible where the information is not held.

Whilst NI Water cannot provide recorded, non-predictive, wastewater spill volume data for our storm overflows, we can provide predictive, modelled, spill volume data per year (m^3).

NI Water models use historical rainfall data to generate an annual average for frequency and volume of spills, i.e., a ‘typical year’ of spill performance.

NI Water relies on the analysis and findings of industry standard hydraulic models to simulate observed flows and predict spills across the wastewater networks. As agreed with our Regulators, we have been investing in developing integrated suites of models to understand more accurately the spill performance of storm overflows and their impact on the receiving aquatic environment.

Our Drainage Area Study (DAS) models are built and calibrated to industry best practice (Chartered Institute of Water and Environmental Management) and approved by the NIEA. The models are typically simulated using 20 years of historical rainfall data to generate an annual average for frequency and volume of spills.

The models, supported by some flow meters that measure the rate of wastewater flow at various points, give indicative performance predictions, but have some limitations. They cannot, for example, take account of operational conditions in the actual network, such as the build-up of silt and blockages, which can result from the disposal of inappropriate materials to sewer.

The results of the models consider average performance in a typical year. Spill performance during years when Northern Ireland experiences abnormally low or high rainfall is not represented in the models.

Although accuracy has improved, predictive modelling still relies on assumptions that mean that it will not be 100% correct. Despite their limitations, models are important in helping us and the NIEA to understand what is happening in our system and where upgrades are required to better protect the environment.

The coverage of our models has expanded following significant investment and now covers over 80% of our network and 50% of our storm overflows, with around 39% assessed as Unsatisfactory (Page 11 of **Northern Ireland's Wastewater System** booklet refers).

The models do not give information about what is happening in a specific year. For this, NI Water would need actual data from flow monitors.

Our models forecast the volume of storm water spills in an average rainfall year as 18 million cubic metres (m^3), yet we believe it is more realistic to consider this to be a range of 16-20 million m^3 to reflect limitations in the simulation. Around 80-90% of all wastewater that comes into our system is processed through our treatment works and not spilled. The overall volume is based on 827 storm overflows where modelling indicates they may spill and the 382 where the model is indicating no predicted spills. This spans 65 drainage areas. These cover the most densely populated areas where the highest volume of spills is likely to occur. Around half of spillage is from storm overflows in the network and half from pumping stations and storm tanks at our treatment works.

2. ***For each incident, please specify:***

•The name of the watercourse affected
•The location (including the relevant local council area)
•The volume of sewage discharged (in litres or cubic metres)
•The cause of the discharge, where known (e.g. storm overflow, equipment failure, blockage)
•The duration of each discharge

Regulation 6(1)(b) of the EIR states that "*Where an applicant requests that the information be made available in a particular form or format, a public authority shall make it so available, unless the information is already publicly available and easily accessible in another form or format*".

For those Storm Overflows with modelled spills, i.e. 2,218 Overflows, receiving water course names and locations can be self-served from NI Water's online Storm Overflow map, or from **<u>NI Water's online, Modelled Spills spreadsheet</u>** (Columns F, H, D refers).

For those Storm Overflows with operational EDMs, providing actual recorded, non-predictive spill data, i.e. 222 Overflows, receiving water course names, discharge point locations, spill events and spill duration data can be self-served from NI Water's online Storm Overflow map, by clicking on the orange drop pins.

Relevant local council is provided within Annex A.

Please note the cause of each discharge is not usually known. It can range from blockages throughout the sewerage network to exceptional levels of rainfall.

As such, Regulation 12(4)(a) of the EIR (Information not held) provides that "*a public authority may refuse to disclose information to the extent that it does not hold that information when an applicant's request is received*".

All exceptions under Regulation 12 of the EIR are qualified and so, in deciding whether to disclose the requested information, NI Water must consider the public interest. However, this is not possible where the information is not held.

3. ***Please also provide a breakdown by council area summarising:***

•The total number of raw sewage discharge incidents

•The aggregate volume of raw sewage discharged into watercourses within each council area

The quantity of untreated sewage contained within wastewater that spills from a storm overflow during heavy rainfall depends on several factors, such as the volume and intensity of the rainfall, the capacity and design of the local sewer system, and the amount and type of pollutants in the sewage. It is therefore difficult to give a precise or universal answer to the question of how much raw sewage is contained in the wastewater that is discharged.

We know that, in general, during periods of heavy rainfall, the sewage discharged is heavily diluted and will be further diluted when it enters adjacent water bodies, which are themselves also receiving large volumes of additional rainwater. We estimate that around 1-2% of what is spilt is raw sewage.

Please see Annex A (attached), which is based on **modelled** data for the reasons explained above.

You may find these additional links to our published Information Request Disclosures of interest as well.

https://www.niwater.com/about-us/publication-scheme/lists-and-registers/information-request-disclosure