

REFERENCE

2425595

RELEASE DATE

March 2025

SUBJECT

1. The sample results for 2024 under the UWWTR (NI) (2007) of all final effluent sampling for large wastewater plants that discharge into Belfast Lough - Carrickfergus, Greenisland, Whitehouse, Belfast and Kinnegar
2. A summary table that lists the annual averages of each parameter
3. The required compliance standard (under the UWWTR) for each parameter
4. Your assessment as to which parameters passed or failed

RESPONSE

This sampling results for 2024 are provided in Annex A.

The assessment of wastewater compliance under UWWTR involves collection of composite samples.

The composite samples are gained by using static onsite auto-sampler equipment, situated at both the inlet and outlet of the Wastewater Treatment Works (WwTWs). For each regulatory sample date (either monthly or bi-weekly, depending on the size of the works), the auto-samplers are programmed to collect aliquots of influent and effluent every 15 mins over a 24-hour period.

The sampling contractor then fills a sample bottle from the auto-sampler 24-hour sample event to send to the laboratory for analysis and assessment for UWWTR compliance (assessment using the parameters BOD and COD at all UWWTR works, plus nutrients, where consented).

Compliance of the effluent is assessed against what is known as the 'look-up table' (LUT), which allows a specific number of standard breaches per parameter based on the number of samples taken. The LUT assessment is applied for BOD and COD compliance, whilst the Total Nitrogen assessment is based on an annual average.

The UWWTR BOD and COD parameter limits are fixed for all works, whilst the Total Nitrogen limit applicable depends on the population served. In addition, upper tier limits are applicable and may lead to a failure of the works, unless the % removal for the relevant parameter is achieved. If required, this is assessed from the inlet sample concentration. Table 1 sets out the applicable UWWTR Limits for the large works discharging to Belfast Lough.

Table 1: UWWTR Limits

Parameter	UWWTR Limit	UWWTR Upper Tier
BOD	25	50
COD	125	250
Total Nitrogen (10,000 - 100,000 PE)	15	
Total Nitrogen (>100,000 PE)	10	

Table 2: The UWWTD 'look-up' table

Samples taken in any year	Maximum permitted number of samples which may exceed the 95 percentile standard
4-7	1
8-16	2
17-28	3

BOD and COD Compliance is assessed on a parameter basis, in other words, the same number of breaches are allowed for each parameter. For example, if a works with a BOD and SS standard was sampled 12 times per year and exceeded its BOD sample three times, but never exceeded its COD standard, it would fail for the year. On the other hand, if there were 2 BOD and 2 COD breaches, it would pass.

If a works fails its UWWTR compliance, it will automatically be deemed a failing works for WOC compliance.

Table 3 sets out the annual average for each of the three regulatory parameters, as per your request, along with the compliance standard for each parameter.

Table 3: Annual average for each UWWTR parameter per works

WWTW	UWWTR BOD Limit (95%ile)	Annual average (mg/l)				Total Nitrogen	Compliance Assessment
		2024 Annual Average BOD	UWWTR COD Limit (95%ile)	2024 Annual Average COD	UWWTR TN Annual Ave Limit		
Belfast	25	4.4	125	35	10	8.4	Pass
Carrickfergus	25	5.7	125	39	15	11	Pass
Greenisland	25	6.6	125	60	15	5.4	Pass
Kinnegar	25	6.3	125	30	10	7.0	Pass
Whitehouse	25	5.7	125	26	10	10	Pass

To clarify, whilst the table above summarises the annual average for each parameter, NI Water wishes to advise that compliance for BOD and COD does not apply the annual average methodology. Irrespective of the compliance methodology applied (LUT or annual average), all five of the large works discharging to Belfast Lough have been assessed as compliant with the UWWTR.

Wastewater compliance assessment is a complex process and NI Water would be pleased to meet with you to discuss in more detail. Should you wish to avail of this opportunity, please contact our Head of Environmental Regulation, Angela Halpenny, at angela.halpenny@niwater.com to arrange a meeting.