



GUIDANCE ON THE IMPLEMENTATION OF THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2016 IN ENGLAND AND THE WATER SUPPLY (WATER QUALITY) REGULATIONS 2010 (as amended) IN WALES

The Regulations

Part 5 – Monitoring Additional Provisions

**Regulation 11:
Interpretation of Part 5**

**Regulation 12:
Sampling for particular substances and parameters**

**Regulation 13:
Sampling at treatment works**

**Regulation 14:
Sampling at service reservoirs**

PART 5 – MONITORING ADDITIONAL PROVISIONS

Regulations 11 and 12– Interpretation of Part 5 & Sampling for particular substances and parameters

11.1 Part 5 of the Regulations sets out the sampling requirements for water treatment works and service reservoirs, which are additional to the requirements for monitoring in water supply zones covered by Part 4. Regulations 11 and 12 introduce the requirements, and confirm that combined licensees (i.e. all suppliers) are responsible for monitoring their own treatment works and service reservoirs.

Regulation 13 - Sampling at treatment works

13.1 Treated water is the point at which, following abstraction and treatment, water is suitable for human consumption and is wholesome as defined by regulation 4. Where controlled blending is in place to achieve compliance with a parametric value, this is defined as treatment. Booster rechlorination in the network is not defined as treatment since this does not meet the definition of disinfection as specified in regulation 26 [27].

13.2 Regulation 13(1) requires water companies to take samples for *E.coli*, coliform bacteria, colony counts, nitrite, residual disinfectant and turbidity (numbered 1 to 6 in Table 3 of Schedule 3) at the required flow-related frequency from the point at which water leaves each treatment works. Where chloramination is not practised, the frequency for nitrite should be that specified against item 18 (audit monitoring) rather than against item 4.

13.3 Regulations 13(2) and (3) provide for a reduced sampling frequency for all these parameters, with the following conditions: For coliform bacteria and *E.coli*, no positive samples taken during the previous two years; and for turbidity, no result exceeding 1 NTU during the previous two years. The Inspectorate accepts the following criteria as evidence that reduced frequency is appropriate for colony counts:

13.3.1 Reduced frequency may be applied when there has been no significant increase in the counts in each of two successive years. Colony counts, particularly for surface water derived supplies, are likely to vary seasonally because of changes in quality and temperature. A significant increase should be regarded as a count which is more than one order of magnitude greater than that normally expected for the time of year the sample was taken for the works in question.

13.4 Regulation 13(4) specifies additional conditions for coliform bacteria and *E.coli*, such that there must be no foreseeable risk that coliform bacteria or *E.coli* could be present in the water leaving the treatment works and that there must be secure fail-safe arrangements in place to prevent undisinfected water from entering supply in the event that the disinfection process fails or is compromised. This means that the treatment works must be designed and operated to comply fully with the requirements of regulation 26, with preliminary treatment processes and disinfection stages appropriate for the type and quality of the raw water supplying the works, and microbiological catchment risks.

13.5 The Inspectorate would not approve the application of reduced frequency to only one of the coliform bacteria or *E.coli* parameters.

- 13.6 Where reduced frequency is in place for any of the above, companies must revert to standard frequency immediately on a pro rata basis for the remainder of that year and the two following calendar years as a minimum, once it is established that any of the above conditions is no longer applicable, and inform the Inspectorate accordingly.
- 13.7 Regulation 13(5) specifies that samples must be taken at regular intervals (refer to guidance given in Part 4, paragraph 9.8).
- 13.8 Sampling frequencies should be based on the average daily output from the works during the previous year except where it is known that the current sampling year's average daily output will be significantly different.
- 13.9 The sampling point should be located so as to provide a representative sample of the water flowing into distribution. The sample point must be downstream of all treatment processes including blending and storage in final water storage reservoirs at the treatment works.
- 13.10 Where the treatment stream within a works divides in such a way that a single final water compliance point is not representative of all water leaving the works (i.e. there are different treatment streams which leave the works through different outlet mains), then more than one sampling point is required. In these situations, although on the same site, each treatment stream is regarded as a separate water treatment works for the purposes of the Regulations.
- 13.11 Where there is more than one outlet at a treatment works requiring separate sampling points, the sampling frequency should be determined separately for each sampling point based on the average daily output at each point.
- 13.12 If a treatment works has been operational for part of a year, the number of samples taken (whether at reduced or standard frequency) should be in the same proportion as the number of days (midnight to midnight) in the year that the works was in use.
- 13.13 Where the volume and retention time of a contact main or clean water tank situated on a works site are used to calculate the Ct value for that works, the final sample point should be situated after these assets.
- 13.14 Refer also to guidance on regulation 16 which requires that samples are representative of the water quality at the time of sampling.

Regulation 14 – Sampling at service reservoirs

- 14.1 The definition of a service reservoir is included in regulation 2, paragraphs 3 and 4. Guidance on this definition is provided in Part 1 – General Regulations.
- 14.2 Regulation 14 requires water companies to take a sample from every service reservoir every week it is in use. These samples must be analysed for coliform bacteria, *E.coli*, colony counts and residual disinfectant. A week covers 7 days, inclusive, and if water is supplied from a reservoir at any time during a given week, then a regulatory compliance sample must be taken.
- 14.3 Samples from reservoirs should not be taken on the same day each week, and companies should ensure that random selection of sampling dates is built into their sample programming procedures.
- 14.4 Where a service reservoir has more than one compartment with its own water inlet and outlet and the compartments are not connected hydraulically to any other

compartments, then each compartment must be regarded as a single service reservoir.

- 14.5 Where a service reservoir has more than one compartment but the compartments are hydraulically connected and which combine into a single common outlet main, then the connected compartments may collectively be regarded as a single service reservoir and be sampled from the common outlet.
- 14.6 Where a service reservoir has a single main that serves as a common inlet and outlet, the water company must have arrangements to ensure that samples are taken only when the main is acting as an outlet and the water quality is therefore representative of water that has been stored within the service reservoir. Where this is not achievable, alternative representative sampling arrangements can be made.
- 14.7 Refer also to guidance on regulation 16 which requires that samples are representative of the water quality at the time of sampling.