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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2020. It was prepared by Subcommittee EH/3/4, *Microbiological methods*, under the authority of Technical Committee EH/3, *Water quality*. A list of organizations represented on these committees can be obtained on request to their secretar[illegible]

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Any user claiming compliance with this British Stan[illegible]dar[illegible] is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this standard are pr[illegible]ented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the [illegible]ipal auxiliary verb is "should".

Commentary, explanation and [illegible]eral [illegible]nformative material is presented in smaller italic type, and does not constitute a normative [illegible]

The word "should" is [illegible]ed [illegible]o express recommendations of this standard. The word "may" is used in the text to express [illegible]e[illegible]missibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" [illegible]s [illegible]d [illegible]o express possibility, e.g. a consequence of an action or an event.

Notes and [illegible]om[illegible]e[illegible]taries are provided throughout the text of this standard. Notes give references and additio[illegible]l [illegible]nformation that are important but do not form part of the recommendations. Com[illegible]taries give background information.

C[illegible]ntr[illegible]ctual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the following specific regulations:

- The Water Supply (Water Quality) Regulations 2018 (England and Wales) (as amended) [1]
- The Water Supply (Water Quality) (Scotland) Regulations 2014 [2]
- The Water Supply (Water Quality) Regulations (Northern Ireland) 2017 (as amended) [3]
- The Private Water Supplies (England) Regulations 2016 [4]

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- The Private Water Supplies (Wales) Regulations 2017 [5]
- The Private Water Supplies (Scotland) Regulations 2006 [6]
- The Private Water Supplies Regulations (Northern Ireland) 2017 [7]
- Health and Safety at Work etc. Act 1974 [8]
- The Health and Safety at Work (Northern Ireland) Order 1978 [9]
- The Water Supply (Water Fittings) Regulations 1999 [10]
- The Water Supply (Water Fittings) (Scotland) Byelaws 2014 [11]
- The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 [12]

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Introduction

In 2011 WHO published *Water safety in buildings* [13], which together with WHO's *Guidelines for Drinking Water Quality (GDWQ)* 4th Edition (2017) [14] gives guidance on how to ensure that water used within the built environment is safe for all uses and all users. These publications advocate the water safety plan (WSP) approach to developing a comprehensive strategy to ensure water is safe for all types of use from the conception of a building water system, and associated equipment, through to its demolition/destruction.

In the context of this document, a WSP is a proactive strategic plan which sets out the direction for how a business or organization, whether large or small, intends to manage risks from water on site to prevent harm arising from all forms of exposure. It defines and documents the processes and arrangements required for the safe use and management of all water systems within each building or estate together with any associated systems and equipment.

The types and complexity of water systems and related equipment vary depending on the size and type of business or organization. Developing a WSP can ensure these are managed and maintained so they do not pose a risk to operators/users or anyone else who might be exposed or otherwise affected by poor water management.

A core component is the appointment of a competent person or persons, a water safety group (WSG) with responsibility for developing and implementing the WSP. In a small business with simple systems this could be the person who takes overall responsibility for health and safety and could be the owner or manager of the premises if they have the competency and skills required.

WSPs need to take account of all potential hazards, including those of a biological, chemical, physical and radiological nature. This is especially important in the healthcare environment where the population might be more vulnerable to physical hazards, such as scalding, and more susceptible to infections than the general population, and where water used for treatment and diagnostic purposes might need to be of a quality over and above that required for drinking water. Where a risk assessment [based on hazard analysis and critical control point (HACCP) principles] identifies hazards that could pose a significant risk to human health then multiple control barriers, commensurate with the risk, need to be put in place to ensure water remains safe. The WSP is backed up by the development of supporting programmes such as training, competence checks, documentation, communication, surveillance and internal and external audit and continual review.

Health-based targets for hazards which pose a risk to human health are identified within the WHO GDWQ [14] and are established from international risk assessments. These targets are then transposed into national legislation. However, the microbiological targets within current regulations are based on the absence of faecal indicators and do not take account of the harm caused by environmental opportunistic pathogens. These rarely cause harm to the general population but could cause serious harm and even death to those who are more susceptible to infection due to illness or treatment which compromises their immune system.

1 Scope

This British Standard gives recommendations and guidance for the development of a water safety plan (WSP) for all types of premises and undertakings with water systems which can pose a risk to those exposed, either from the water itself, aerosols derived from it or the surrounding environment, and where a WSP is particularly recommended within existing national guidance [15], [16], such as in healthcare.

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The British Standard is applicable to WSP development for new buildings, modifications and renovations to existing water systems and can also be applied retrospectively to control risks to health from all types of water use.

Intended users of this British Standard include all those involved in ensuring water is safe and fit for purpose at the point of use including: duty holders, appointed responsible persons, water safety groups (WSGs) and all those who have an influence on the safety of water systems, including during the development process for new and refurbished/upgraded systems during tender specification, design, purchasing, installation, commissioning through to operation, maintenance, and repair of water systems and related equipment.

Where there are existing water systems and associated equipment this British Standard aims to inform and support all relevant stakeholders, including operators, users, service providers, water treatment providers, professional bodies and regulators, public health and environmental health professionals, risk assessors, providers of risk assessments, sampling and laboratory services, repair and maintenance, authorizing engineers/independent advisors, responsible persons, standard-setting bodies and certification agencies, infection-control teams and water safety management personnel in hospitals, healthcare, dental and medical facilities.

Intended users of this document include those responsible for:

a) design and specification;

b) construction and installation;

c) commissioning, decommissioning and recommissioning;

d) maintenance;

e) operation;

f) risk assessment;

g) development, implementation and management of control measures;

h) monitoring for validation and verification;

i) alteration and refurbishment;

j) deconstruction; and

k) the design, installation and management of equipment connected to water systems which use or store water or are otherwise filled with water.

This British Standard does not give recommendations for the development of WSPs for regulated drinking water supplies from either a public or private supply, as these are covered in national water quality regulations.

For risk assessment for *Legionella* or *Pseudomonas aeruginosa* and other waterborne pathogens, see PAS 8580.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions of this document[1)]. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

1) Documents that are referred to solely in an informative manner are listed in the Bibliography.

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