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Water efficiency management systems — Requirements with guidance for use

*Systèmes de management de l'utilisation efficace de l'eau —
Exigences et recommandations d'utilisation*



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 224, *Service activities relating to drinking water supply, wastewater and stormwater systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Water is essential to life and forms part of the environment. Global concern for the state of the environment has identified that water resources are subject to significant pressures from water demand and from the impacts of climate change. The pressures on organizations to implement water efficiency programmes can arise from limited water resources and exist particularly in resource exploitation activities such as mining, forestry, oil and gas extraction, and in agriculture. They might also arise from commercial, institutional and industrial activities whether water is supplied by water utilities or comes directly from the environment.

As pressure grows to improve the quality of the environment and increase sustainability, organizations of all types and sizes are increasingly turning their attention to the environmental impacts of their activities, products and services. This might include measuring the water footprint of an activity or striving towards a more efficient use of water within an organization. Achieving sound water efficiency performance requires organizational commitment to a systematic approach and to the achievement of continual improvement in water use through a water efficiency management system.

Water efficiency management, like quality management, environmental management and energy management could be a matter of vital interest in promoting sustainable economic activities, industries and ultimately a sustainable environment. The introduction of water efficiency programs is often, but not always, triggered by a shortage in water supply.

The purpose of this document is to enable organizations to assess and account for their water use, and to identify, plan and implement measures to achieve water savings through the systematic management of water. Successful implementation depends on commitment from all levels and functions within the organization, especially commitment by top management.

This document specifies water efficiency management system requirements and contains guidance for its use. Using this document, an organization can develop and implement a water efficiency policy through the establishment of objectives, targets, action plans, monitoring, benchmarking, and review programs. These should take into account any requirements related to significant water use. A water efficiency management system enables an organization to achieve its relevant policy commitments and take action as needed to improve its water management according to the requirements of this document. This document can apply to some or all of the activities under the control of the organization. Application of this document may be tailored to fit the specific requirements of the organization, including the complexity of its system, the degree of documentation and available resources.

In any organization, water might be used for a variety of purposes, including the following:

- a) cleaning;
- b) transportation;
- c) heating and cooling;
- d) manufacturing a product and as part of a product;
- e) drinking;
- f) sanitation;
- g) irrigation;
- h) fire suppression;
- i) recreational, water sport and aesthetic purposes.

The adoption and proper implementation of a water efficiency management system is intended to result in improved water efficiency and can help to achieve the following outcomes:

- 1) identifying water as a resource that can be considered as part of organizational and budgetary planning;
- 2) assisting an organization to better manage water use and optimize water demand;
- 3) recognizing the impact on others that can occur with changing water use;
- 4) ensuring a greater level of accountability in water use;
- 5) providing a process for regular review for possible improvement and adoption of opportunities arising in water efficiency.

Water efficiency management systems — Requirements with guidance for use

1 Scope

This document specifies requirements and contains guidance for its use in establishing, implementing and maintaining a water efficiency management system. It is applicable to organizations of all types and sizes that use water. It is focused on end-use consumers.

This document is applicable to any organization that wishes to:

- a) achieve the efficient use of water through the 'reduce, replace or reuse' approach;
- b) establish, implement and maintain water efficiency;
- c) continually improve water efficiency.

This document specifies requirements and contains guidance for its use regarding organizational water use. It includes monitoring, measurement, documentation, reporting, design and procurement practices for equipment, systems, processes and personnel training that contribute to water efficiency management.

NOTE 1 'Reduce' includes the use of water-efficient fittings and equipment and, for example, putting in place a proper monitoring system for usage and leak detection.

NOTE 2 'Replace' includes substitution of drinking water with reclaimed water, sea water and rainwater wherever feasible.

NOTE 3 'Reuse' includes recycling of, for example, process water or grey water. For utilizing water reuse systems, ISO/TC 282 documents can be referred to as guidelines.

NOTE 4 Guidance in the annexes provides additional practical information to support implementation. [Annex A](#) provides guidance on the use of this document and [Annex B](#) gives examples of scenarios in water efficiency.

2 Normative references

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

ISO 24513, *Service activities relating to drinking water supply, wastewater and stormwater systems — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24513 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

水效率管理体系——要求及使用指南

水效率管理体系 - 要求和使用指南

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话：+41 22 749 01 11 传真：+41 22 749
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前言

国际标准化组织（ISO）是由各国标准化机构（ISO 成员机构）组成的全球性联合组织。国际标准的制定工作通常由 ISO 技术委员会负责。凡对已设立技术委员会的某一主题感兴趣的成员机构均有权在该委员会中派代表。与 ISO 保持联络的国际组织（政府组织和非政府组织）也参与相关工作。ISO 与国际电工委员会（IEC）在所有电工标准化事务上密切合作。

本文件的编制程序以及其后续维护所采用的程序在 ISO/IEC 指令第 1 部分中有详细说明。尤其应注意不同类型的 ISO 文件所需的不同批准标准。本文件是依照 ISO/IEC 指令第 2 部分的编辑规则起草的（见 www.iso.org/directives）。

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有关标准自愿性的说明、与合格评定相关的 ISO 特定术语和表达的含义，以及 ISO 遵守世界贸易组织（WTO）技术性贸易壁垒（TBT）原则的信息，请访问 www.iso.org/iso/foreword.html。

本文件由国际标准化组织/技术委员会 ISO/TC 224（与饮用水供应、废水和雨水系统相关的服务活动）编制。

关于本文件的任何反馈或问题应提交给用户所在国家的标准机构。这些机构的完整列表可在 www.iso.org/members.html 查阅。

引言

水是生命之源，也是环境的重要组成部分。全球对环境状况的关注表明，水资源正承受着来自用水需求和气候变化影响的巨大压力。组织实施节水计划的压力可能源于水资源的有限性，尤其在采矿、林业、石油和天然气开采以及农业等资源开发活动中表现得尤为突出。这种压力也可能源于商业、机构和工业活动，无论其用水是来自供水公司还是直接取自环境。

随着改善环境质量和提高可持续性的压力不断增大，各类规模的组织正越来越多地关注其活动、产品和服务对环境的影响。这可能包括测量某项活动的水足迹，或者努力在组织内部实现更高效的用水。要实现良好的用水效率表现，需要组织致力于采取系统的方法，并通过用水效率管理体系不断改进用水情况。

水效管理，如同质量管理、环境管理和能源管理一样，对于推动可持续的经济活动、产业以及最终实现可持续的环境而言，可能是一项至关重要的事务。水效计划的推出往往（但并非总是）是由供水短缺所引发的。

本文件旨在使各组织能够评估和核算其用水情况，并通过系统的用水管理来识别、规划和实施节水措施。成功实施取决于组织内各级和各部门的承诺，尤其是高层管理的承诺。

本文件规定了水效管理体系的要求，并对其使用提供了指导。通过本文件，组织能够制定并实施水效政策，包括确立目标、指标、行动计划、监测、基准比较和审查程序。这些应考虑与重大用水相关的任何要求。水效管理体系使组织能够实现其相关政策承诺，并根据本文件的要求采取必要行动以改进其用水管理。本文件可适用于组织控制下的部分或全部活动。本文件的应用可根据组织的具体要求进行调整，包括其系统的复杂性、文件化程度和可用资源。

在任何组织中，水可能会用于多种用途，包括以下方面：

- a) 清洁；
- b) 运输；
- c) 加热和冷却；
- d) 生产产品以及作为产品的一部分；
- e) 饮用；
- f) 卫生；
- g) 灌溉；
- h) 灭火；i) 娱乐、水上运动和美学用途。

采用并正确实施水效管理体系旨在提高水效，并有助于实现以下成果：

- 1) 将水视为一种资源，纳入组织和预算规划的范畴；
- 2) 协助一个组织更好地管理用水并优化用水需求；
- 3) 认识到改变用水方式可能对他人产生的影响；
- 4) 确保用水方面有更高的责任制度；
- 5) 提供一个定期审查的流程，以评估可能的改进措施，并采用在用水效率方面出现的机会。

水效率管理体系 - 要求及使用指南

1 范围

本文件规定了要求，并就其在建立、实施和保持水效率管理体系方面的使用提供了指导。它适用于所有类型和规模的用水组织。重点在于终端用水消费者。

本文件适用于任何希望：

- a) 通过“减少、替代或再利用”的方法实现水资源的高效利用；
- b) 建立、实施并维持用水效率；
- c) 持续提高用水效率。

本文件规定了组织用水的相关要求，并对其使用提供了指导。内容涵盖有助于提高用水效率管理的监测、测量、记录、报告、设备、系统、流程的设计及采购实践以及人员培训等方面。

注 1：“减少”包括使用节水型配件和设备，例如，建立适当的用水监测系统和漏损检测系统。

注 2：“替换”包括在可行的情况下用再生水、海水和雨水替代饮用水。

注 3：“再利用”包括例如工艺用水或灰水的循环利用。关于利用水再利用系统，可参考 ISO/TC 282 文件作为指南。

注 4：附录中的指南提供了更多实用信息以支持实施。附录 A 提供了关于使用本文件的指南，附录 B 则给出了提高用水效率的示例场景。

2 规范性引用文件

文中提及的以下文件，其全部或部分內容构成本文件的要求。对于有日期的引用，仅适用所引用的版本。对于无日期的引用，适用所引用文件的最新版本（包括任何修订）。

ISO 24513 饮用水供应、污水和雨水系统相关服务活动 - 词汇表

3 术语和定义

就本文件而言，ISO 24513 中给出的术语和定义以及以下内容适用。

国际标准化组织（ISO）和国际电工委员会（IEC）在以下地址维护用于标准化工作的术语数据库：

- ISO 在线浏览平台：访问网址为 <https://www.iso.org/obp>

— IEC 电气术语在线词典：网址为 <http://www.electropedia.org/>