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First edition
2018-02

Water reuse in urban areas — Guidelines for centralized water reuse system —

Part 1: Design principle of a centralized water reuse system

*Réutilisation de l'eau en milieu urbain - Lignes directrices concernant
les systèmes centralisés de réutilisation de l'eau —*

*Partie 1: Principe de conception d'un système centralisé de
réutilisation de l'eau*



Reference number
ISO 20760-1:2018(E)

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Published in Switzerland

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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	2
5 Planning and design of a centralized water reuse system	3
5.1 General.....	3
5.2 Estimation of water demand.....	4
5.2.1 General.....	4
5.2.2 Quantity of reclaimed water.....	4
5.2.3 Review of potential reclaimed water end-users and uses.....	4
5.3 Site conditions.....	4
5.4 System components.....	5
5.5 Possible models of the system.....	5
5.5.1 General.....	5
5.5.2 Model I — Single application.....	5
5.5.3 Model II — Multiple applications.....	6
5.5.4 Model III — Environmental storage and reuse applications.....	7
5.5.5 Model IV — Cascading reclaimed water uses.....	7
5.6 Basic principles.....	7
6 Source water considerations	8
6.1 Type of source water.....	8
6.1.1 General.....	8
6.1.2 Treated wastewater from a WWTP.....	8
6.1.3 Untreated wastewater from sewer systems.....	8
6.1.4 Other sources.....	9
6.2 Water quality considerations for source water.....	9
6.2.1 General.....	9
6.2.2 Appropriate source water.....	9
6.2.3 Inappropriate source water.....	9
6.3 Reliability considerations.....	9
6.3.1 Water quantity.....	9
6.3.2 Water quality.....	10
6.3.3 Reliability assessment.....	10
6.4 Economic considerations.....	10
7 Reclaimed water treatment system	10
7.1 General.....	10
7.2 Centralized water reuse treatment system design principles.....	11
7.2.1 General.....	11
7.2.2 Safety.....	11
7.2.3 Reliability.....	11
7.2.4 Stability.....	11
7.2.5 Economic viability.....	12
7.2.6 Environment.....	12
7.3 Possible centralized water reuse treatment system configurations.....	12
7.4 Treatment process.....	13
8 Reclaimed water storage system	13
8.1 General.....	13
8.2 Storage types.....	13
8.2.1 General.....	13

This is a preview of "ISO 20760-1:2018". Click here to purchase the full version from the ANSI store.

8.2.2	Open reservoirs	13
8.2.3	Closed reservoirs	13
8.2.4	Aquifer storage and recovery	14
8.3	Storage considerations	14
8.4	Size of the storage facility and turnover considerations	15
8.5	Control of water quality	15
8.6	Specific considerations for open storage reservoirs	15
8.6.1	General	15
8.6.2	Evaporation	15
8.6.3	Control of water quality	15
8.6.4	Post-treatment facilities	16
9	Reclaimed water transmission and distribution system	16
9.1	General	16
9.2	Components and models of the distribution system	16
9.2.1	Components	16
9.2.2	Models	17
9.2.3	Design principles	17
9.3	Pumping stations	17
9.3.1	General	17
9.3.2	Reclaimed water delivery pressure	17
9.3.3	Flow velocity of reclaimed water	18
9.4	Reclaimed water distribution systems	18
9.4.1	Avoiding stagnant conditions	18
9.4.2	Pipeline layout and materials	18
9.4.3	Water quality in distribution systems	18
9.4.4	Colour-coding systems, water signs and labels	19
9.4.5	Service connections and user sites	19
10	Monitoring system	19
10.1	General	19
10.2	Monitoring locations and facilities	19
10.3	Monitoring of source water	20
10.4	Monitoring and control of treatment facilities	20
10.5	Monitoring of distribution	20
10.6	Monitoring of storage	20
10.7	Monitoring of user sites	20
11	Emergency response plan	20
	Bibliography	22

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Foreword

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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).

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This document was prepared by Technical Committee ISO/TC 282, *Water reuse*, Subcommittee SC 2, *Water reuse in urban areas*.

A list of all parts in the ISO 20760 series can be found on the ISO website.

Introduction

With economic development, climate change and increases in population and rapid urbanization, water has become a strategic resource especially in arid and semi-arid regions. Water shortages are considered as one of the most serious threats to sustainable development of society. To address these shortages, reclaimed water is increasingly being used to satisfy water demands and this strategy has proven useful in increasing the reliability of long-term water supplies in many water-scarce areas.

The role of water reuse is growing for urban areas in many countries including landscape irrigation, industrial uses, toilet and urinal flushing, firefighting and fire suppression, street cleaning, environmental and recreational uses (ornamental water features, water bodies' replenishment, etc.) and car washing. These centralized water reuse systems have been developed to the degree that they are now considered as an effective component of urban water management and are used in many cities and countries.

The essential components of a centralized water reuse system include a source water, wastewater collection systems (sewers and pumping stations), a wastewater treatment facility, a reclaimed water distribution system, reclaimed water storage, a water quality monitoring system and operation and maintenance provided by experienced and certified operators. The variable nature and diversity in source water present a challenge to ensuring water safety and reliability in each system component. A further complication to distributing the reclaimed water is that different water reuse applications can have different levels of water quality, which would consider installing satellite treatment.

This document provides design principles for centralized water reuse systems in urban areas. It considers and addresses the critical issues and factors in the design of the different system components and is intended to assist water engineers, authorities, decision makers and stakeholders in considering feasible and cost-effective approaches for safe and reliable fit-for-purpose water reuse. For details on the management of a centralized water reuse system, see ISO 20760-2.