

ISO 20760-1:2025-11 (E)

Water reuse in urban areas - Guidelines for centralized water reuse system - Part 1: Design principle of a centralized water reuse system

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.....	3
5.2.1 General.....	3
5.2.2 Quantity of reclaimed water.....	3
5.2.3 Review of potential reclaimed water end users and uses.....	4
5.3 Site conditions.....	4
5.4 System components.....	4
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.....	5
5.5.4 Model III — Environmental storage and reuse applications.....	6
5.5.5 Model IV — Cascading reclaimed water uses.....	7
5.6 Basic principles.....	7
6 Source water considerations.....	7
6.1 Type of source water.....	7
6.1.1 General.....	7
6.1.2 Treated wastewater from a WWTP.....	7
6.1.3 Untreated wastewater from sewer systems.....	8
6.1.4 Other sources.....	8
6.2 Water quality considerations for source water.....	8
6.2.1 General.....	8
6.2.2 Appropriate source water.....	8
6.2.3 Inappropriate source water.....	9
6.3 Reliability considerations.....	9
6.3.1 Water quantity.....	9
6.3.2 Water quality.....	9
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.....	10
7.2.1 General.....	10
7.2.2 Safety.....	10
7.2.3 Reliability.....	11
7.2.4 Stability.....	11
7.2.5 Economic viability.....	11
7.2.6 Environment.....	11
7.3 Possible centralized water reuse treatment system configurations.....	12
7.4 Treatment processes.....	12

8	Reclaimed water storage system	12
8.1	General.....	12
8.2	Storage types	13
8.2.1	General.....	13
8.2.2	Open reservoirs.....	13
8.2.3	Closed reservoirs	13
8.2.4	Aquifer storage and recovery	13
8.3	Storage considerations.....	13
8.4	Size of the storage facility and turnover considerations	14
8.5	Control of water quality.....	14
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	15
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.....	16
9.2.3	Design principles.....	16
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	17
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.....	18
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.....	19
10.4	Monitoring and control of treatment facilities	19
10.5	Monitoring of distribution system.....	20
10.6	Monitoring of storage.....	20
10.7	Monitoring of end-user sites	20
11	Emergency response plan	20
	Bibliography	21