



Minnesota
Pollution
Control
Agency

DISINFECTION SYSTEM – REVIEW CHECKLIST

Water Quality

Wastewater
Technical
Review and
Guidance

Water/Wastewater/#5.22, May 2001

FACILITY NAME

DATE

CONSULTING ENGINEER

SITE INSPECTION (DATE & INSPECTOR)

PLANNING OR DESIGN PHASE

Type of Disinfection
(fill out appropriate section below.)

Pilot study
(for disinfection, other than chlorine, pilot/full
scale studies are recommended)

A. Chlorination

1. Contact Basin Design/Detention Time
(>15 minutes at peak hour flow)

a. L/W ratio(minimize short-circuiting)

b. volume

c. peak hourly flow rate

d. detention time at peak flow rate

2. Dosage
(Normal domestic sewage effluent guide)

<u>Treatment Type</u>	<u>Dosage(mg/l)</u>
A. Trickling Filter	10
B. Activated Sludge	8
C. Tertiary Filtration	6
D. Nitrified	6

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3. Chlorination Equipment and Supply

a. point of application
*(preferably before contact chamber,
such as influent pipe prior to
chamber to provide mixing)*

b. stand by equipment/spare parts
*(capacity to replace largest unit
during shutdown with spare
equipment to replace parts subject to
wear or breakage)*

c. are scale provided?

d. mixing
*(positively mixed effected in 3 seconds
with flash mixer or turbulent flow)*

e. liquid chlorine storage
*(non-metallic storage with secondary
containment, storage limit
approximately one month)*

4. Provisions for sludge removal
*(duplicate tanks, mechanical scrappers
or vacuum cleaning equipment)*

5. Location and space
*(room near point of application, near
ground level, sufficient storage area)*

6. Safety in chlorine supply room

a. isolated from other work areas
*(gas tight, separate building or entry
only from outside if connected with
other building; include panic
hardware;*

b. fire protection

c. floor drains and ventilation separated
from other plant/buildings



d. Inspection window indoor and separate wall.

(door window mandatory, separate wall window preferred)

e. temperature control

(minimum temp. for disinfection equipment = 60°F; protection against excess heat; cylinder storage near room temp.)

f. ventilation

(forced mechanical ventilation which provide one complete air exchange/min. when the room is occupied)

1) scrubbing provided or required by local Fire Marshall?

2) fans and lights operated manually from outside

g. electrical

1) fans and lights operated manually from outside

2) sealed electrical outlets provided

h. chlorine leaks

(automatic detection and alarm system)

i. cylinders fastened to wall or otherwise stabilized

7. Sampling point provided?

B. Dechlorination

1. Is dechlorination required?



2. Dosage (sulfite (SO₂))

<u>Dechlor. Chem.</u>	<i>Theoretical</i>
	<i>Required per (mg/l)</i>
Sulfur dioxide (gas)	0.9
Sodium meta bisulfite	1.34
Sodium bisulfite	1.46

Note: excess sulfur dioxide may consume oxygen. Consider reaeration.

3. Equipment

Multiple units should be considered to compensate for high and low flow ranges. This will minimize excessive application. Feed rates should be based on chlorine residual rates

4. Detention time

Minimum 30 seconds at peak hourly flow or max. rate of pumpage

5. Standby equipment/spare parts

Similar to chlorination above

6. Storage room/safety

Similar to chlorination above

7. Sampling point provided

8. Is mixing provided.

C. Ultraviolet

1. Quality of effluent

(at least 65% ultraviolet radiation transmittance at 254 nanometers and BOD and suspended solids always less than 30 mg/l)

2. Lamp cleaning provided for?

D. Ozone

1. Evaluate on a case-by-case basis. Design standards, operating data and experience with this process are not well established.