Water Quality Management Plan

Identify your points of risk

Water systems vary in design and complexity from building to building. The solutions required will be equally as unique. This checklist is designed to facilitate your discussion with qualified experts, to create standard operating procedures, and to implement a Water Quality Management Plan. The risk analysis checklist is provided as an interactive PDF. You can complete the fields on your computer, save the file and print out for reference. Or if you prefer, you can print out and complete by hand.

NOTICE: This checklist is provided for your individual use. Watts makes no representations that this checklist accounts for all issues that must be considered in developing a Water Quality Management Plan. Watts expressly disclaims any liability regarding the sufficiency of any Water Quality Management Plan made in conjunction with the use of this checklist.

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Hot Water Heaters

INVENTORY

Other	
 Gas Tankless Heat pump Non-condensing 	Number of units Max. temperature Age of heaters Capacity
US EVENT	Risk Level: Low Medium High
	Reported to: Facility Manager Infection Control Manager Lead Plumbing Engineer Other
Monthly Quarterly Other	Operational Response to Exceedance of Critical Limit: Determine if a super heat is required Determine reason of temperature discrepancy Determine reason for scale build-up Report to necessary individuals/departments Other
Other water heater	Critical Response to Exceedance of Limit: Internal announcement External announcement Report to CDC Report to other authority Notify Public Relations
	Other



Cold Water Storage

INVENTORY

Location:	Other		
Characteristics/Details: Number of units Min. and max. temperature_	Capacity	Cleaning schedule:	Period of non-use
Material: Concrete Steel Polyethylene	 Fiberglass GRP Other 	 Time of construction, repair, or maintenance Flooding event Disinfection method: Chlorine 	Other
HAZARD / HAZARDO	US EVENT		Risk Level: Low Medium High
PROCEDURES			
Control Measures: Test temperature Other	Measure scale	Reported to: Facility Manager Infection Control Manage	ər
Parameter: Temperature Other	Biofilm measurement	 Lead Plumbing Engineer Other Operational Response to 	o Exceedance
Frequency: Daily Weekly Critical Limit:	 Monthly Quarterly Other 	 of Critical Limit: Determine if a super hea Determine reason of tem Determine reason for sca Report to necessary indi Other	t is required perature discrepancy ale build-up viduals/departments
 Temperature greater than Other 	68° F	Critical Response to Exe	ceedance of Limit:
Corrective Action: Check incoming water te Check pipework for heat Insulate exposed cold pip Determine source of scal Other	mperature transfer pes e	 External announcement External announcement Report to CDC Report to other authority Notify Public Relations Other 	,



Chemical Treatment

INVENTORY		
Location:	Other	
Characteristics/Details: <u>Type:</u>		
Chlorine	Chlorine Dioxide	Dose rate
Chloramines	☐ Other	Target residual at most distal point in water system
HAZARD / HAZARDO	US EVENT	
Strength is too high		Risk Level:
Strength is too low		Low
Other		Medium
		High
PROCEDURES Control Measures: Take water samples and Other	test for strength	Reported to: Facility Manager Infection Control Manager
Parameter:		Lead Plumbing Engineer Other
Chemical level		
Other		Operational Response to Exceedance
Frequency:		of Critical Limit:
Daily	Monthly	Determine if a flush is required Determine reason of dosage/chemical discrepancy
Weekly	Quarterly	Report to necessary individuals/departments
	_ Other	☐ Other
Critical Limit:		Critical Decreases to Exceedence of Limits
A residual concentration	for free chlorine of greater	
than or equal to .5mg/L	(.5ppm) after at least 30 minutes	
contact time at pH less tr	ian 8.0	Report to CDC
		☐ Report to other authority
Corrective Action:		Notify Public Relations
Flush system	Decrease chemical level	Not applicable
Increase chemical level	Other	□ Other



Piping: Isolated (Materials)

INVENTORY

Details:			
Type of material:		% of piping that is inaccessible	
 Stainless steel Cast iron Brass Galvanized steel PE 	 Copper CPVC PEX PVC Other 	 □ 0 - 25% □ 26% - 50% □ Over 50% 	☐ Other
HAZARD / HAZARDO	OUS EVENT		
Corrosion Leak Other	 Dead Leg Scale 		Risk Level: Low Medium High
PROCEDURES			
Control Measures: Measure flow Map dead leg locations Test temperature at at POS and POU	 Determine scale build-up Other 	Reported to: Facility Manager Infection Control Manager Lead Plumbing Engineer Other	ər
Parameter:		Operational Response to	o Exceedance
Level of legionella		of Critical Limit:	
Flow measurement		Determine if piping need	s to be replaced
Temperature		Determine if flow needs	to be increased
Biofilm measurement		Determine if biofilm need	ls to be reduced
Scale level		Determine if scale needs	to be reduced
Other		Determine if chemical is	causing leaks
Frequency: Weekly Monthly	Quarterly Other	 Keep record of pipework remodels to eliminate ina Other 	and utilize it in accessible areas
Critical Limit		Critical Response to Exc	ceedance of Limit:
Enter actual limit		External announcement	
Corrective Action:		☐ Report to CDC	
 Replace pipes, 	Reduce biofilm	Report to other authority	,
eliminate dead leg	Reduce scale	Notify Public Relations	
Increase water	Decrease water	🗌 NA	
temperature Other	temperature	Other	



Piping: Isolated (Insulation)

INVENTORY

Details: Type of insulation: Mineral wool Glass wool Calcium silicate Cellular glass Aerogel Other	 Rigid foam Polyethylene Flexible elastomeric foam Polyurethane Phenolic 	<u>% of piping that is inacces</u> □ 0 - 25% □ 26% - 50% □ Over 50%	s <u>sible</u> ☐ Other
HAZARD / HAZARDO	US EVENT n		Risk Level: Low Medium High
PROCEDURES			
Control Measures: Temperature measureme Scale build-up Biofilm build-up Other	nt	Reported to: Facility Manager Infection Control Manager Lead Plumbing Engineer Other	r
Parameter: Temperature Scale level Biofilm measurement Other		Operational Response to of Critical Limit: Determine if insulation ne Keep record of pipework remodels to eliminate ina Other	eds to be replaced and utilize it in accessible areas
	Quarterly Other	Critical Response to Exc	eedance of Limit:
Enter actual limit		Report to CDC	
Corrective Action: Replace pipes Reduce scale 	Reduce biofilm Other	 Report to other authority Notify Public Relations NA Other 	



Piping: Isolated (Dead legs)

INVENTORY

Details: Number of dead legs: □ 0 □ 1-10 □ □	Over 20Unknown	 <u>% of piping that is inacces</u> □ 0 - 25% □ 26% - 50% □ Over 50% 	<u>sible</u> ① Other
Locations:			
HAZARD / HAZARDOU	JS EVENT Bacteria Sitting water		Risk Level: Low Medium High
PROCEDURES			
 Map and identify dead leg Test temperature at POS Measure flow Measure bacteria levels Document scale Document sitting water Other 	g locations and POU	 Facility Manager Infection Control Manage Lead Plumbing Engineer Other Operational Response to of Critical Limit:	r Exceedance
Parameter: Temperature Bacteria level Scale Frequency: Weekly	Flow rate Sitting water Other	 Determine if dead leg neere to be eliminated and if it of Determine how flow can be Determine if a filter solution negative effects of dead legative effects of dead legative field to eliminate in a remodels to eliminate in a determine if circulation can be determined. 	eds can be be increased on will decrease leg and utilize it in ccessible areas an be increased
Critical Limit Enter actual limit		Critical Response to Exce	eedance of Limit:
Corrective Action: Eliminate dead leg(s) Increase circulation Increase flow 	 Reduce scale Eliminate sitting water Other 	 External announcement External announcement Report to CDC Report to other authority 	 Noting Fublic Helations NA Other



Piping: Point-of-Use (Low flow)

INVENTORY

Details: Areas of low flow: ☐ Private room faucets ☐ Drinking fountains Other_____ ☐ Private room showers ☐ Nurse stations Public faucets Breakroom faucets HAZARD / HAZARDOUS EVENT **Risk Level:** □ Scale □ Bacteria □ Low ☐ Stagnation Other ☐ Medium 🗌 High **PROCEDURES Control Measures: Reported to:** Map and identify dead leg locations Facility Manager ☐ Test temperature at POS and POU Infection Control Manager ☐ Measure flow Lead Plumbing Engineer Measure bacteria levels Other ☐ Document scale **Operational Response to Exceedance** Document sitting water of Critical Limit: ☐ Other_ ☐ Determine how flow can be increased **Parameter:** Determine if a filter solution will decrease Flow rate negative effects of low flow Determine if circulation can be increased Frequency: Determine if POU mixing valves can reduce U Weekly Quarterly negative effects of low flow ☐ Monthly Other Determine if POS mixing valves can reduce negative effects of low flow **Critical Limit** Other Enter actual limit **Critical Response to Exceedance of Limit: Corrective Action:** ☐ Internal announcement Determine if piping design can be External announcement changed to avoid low flow areas Report to CDC ☐ If appropriate change out low flow Report to other authority devices to higher flow devices □ Notify Public Relations Other 🗌 NA ☐ Other



Piping: Point-of-Use (Temperature)

INVENTORY

Locations:	Number of units:	Temperature (water in pipe):
Private room faucets		
Drinking fountains		
Landscaping outlets		
Private room showers		
Nurse stations		
Pools		
Public faucets		
Breakroom faucets		
Other		

HAZARD / HAZARDOUS EVENT

Temperature	Risk Level:
·	
	☐ Medium

PROCEDURES

Control Measures:	Operational Response to Exceedance
Test temperature at POS and POU	of Critical Limit:
Measure bacteria levels	Determine if a filter solution will decrease
Other	negative effects of temperature discrepency
Parameter:	 Determine if POS tempering device should be replaced/installed
Temperature	Determine if POU tempering devices
Frequency:	should be replaced/installed
	Flush water at critical temperature to kill bacteria
☐ Monthly ☐ Other	Other
Critical Limit	Critical Response to Exceedance of Limit:
	Internal announcement
	External announcement
Corrective Action:	Report to CDC
Inspect POU tempering valves	Report to other authority
Inspect POS tempering valves	Notify Public Relations
Other	NA
Reported to:	Other
	ADDITIONAL NOTES
Lead Plumbing Engineer	

Other_



Point-of-Use Outlets

INVENTORY

Location:	Number of units:	Temperature:
Public bathroom faucets		
Drinking fountains		
Breakroom faucets		
Kitchen faucets		
Kitchen dishwashers		
Garden/Landscaping		
Pools		
Nurse station faucets		
Private room faucets		
Private room showers		

HAZARD / HAZARDOUS EVENT	
Temperature	Risk Level:
Flow	Low
Other	Medium
	🗌 High

PROCEDURES

Control Measures: Test for legionella Other	Test temperature	Reported to: Facility Manager Lead Plumbing Engineer	 Infection Control Manager Other
Parameter:		Operational Response to	Exceedance
Level of legionella		of Critical Limit:	
Temperature		Remove patient/guest	Chemical flush
Fraguanava		from room	Install POU filters
Daily	Quarterly	 Close off access for public/patient/staff 	Install new POU tempering valves
Weekly Monthly	Time of check-in Time of check-out Other	Temperature flush	☐ Other
		Critical Response to Exceedance of Limit:	
Critical Limit:	6)	 Internal announcement Report to CDC 	 External announcement Report to other authority
Corrective Action:		Notify Public Relations	Other
 Remove patient/guest from room Close off access for public/patient/staff 	 Chemical flush Install POU filters Install new POU tempering valves 	ADDITIONAL NOTES	

Other____

Temperature flush



Incoming Water

INVENTORY

Location:

Point of entry into facility (write specifics) _

HAZARD / HAZARDOUS EVENT Disinfectant level at point of entry Bacteria level at point of entry	Risk Level:
 Temperature at point of entry Other 	☐ Medium ☐ High
PROCEDURES	

Control Measures:		Reported to:
Test disinfectant level	Test bacteria level	Facility Manager
Measure temperature	Other	Infection Control Manager
Parameter:	High bacteria level	 Lead Plumbing Engineer Other
Low/High temperature	Other	Operational Response to Exceedance
Frequency: Daily Weekly	 Monthly Quarterly Other 	of Critical Limit: Increase chlorine level within facility Decrease chlorine level within facility Adjust point-of-use temperature Adjust point-of-source temperature
Critical Limit:		 Deploy other bacteria mitigation solutions
Enter actual temperature(s)_ Bacteria levels Disinfectant levels Other		 Other Critical Response to Exceedance of Limit: Internal announcement External announcement
Corrective Action:		Report to CDC
Increase chlorine level wi	thin facility	Report to other authority
Decrease chlorine level w	vithin facility	Notify Public Relations
Adjust point-of-use temp	erature	Not applicable
Adjust point-of-source te	mperature	Other
 Deploy other bacteria mit Other 	igation solutions	



Ultraviolet Disinfection System

INVENTORY			
Location:	☐ Other		
Characteristics/Details: GPM rating Age of lamp	Dosage Replacement frequency	Type: □ LPHO Amalgan □ LP	LPHO MP Other
HAZARD / HAZARDO	US EVENT		
 Dosage is 1 mLJ/cm2 Dosage is 30mLJ/cm2 Age of lamp is over m Replacement has not Watts are 44 or below Other 	2 anufacturer recommendation occurred according to manufactur r, or over 100	er recommendation	Risk Level: Low Medium High
PROCEDURES			
Control Measures:	☐ Test dosage	Corrective Action:	Decrease dosage
 Test watts Compare your replacem to manufacturer recomm Other 	Determine age of lamp ent schedule nendation	 Check lamp efficiency Change unit Establish new replacement schedule 	 Replace lamp Appropriate maintenance Other
Parameter:		Reported to:	
GPM level Age of lamp	Dosage level Watts	 Facility Manager Lead Plumbing Engineer 	 Infection Control Manager Other
Testing frequency schedule. Replacement frequency sch	edule	Operational Response to of Critical Limit:	Exceedance
Critical Limit:		Check age of lamp and re	eplace if necessary
GPM of 12 or below, GP	M higher than 51	Check watts and replace if necessary	
□ Dosage below 1mJ/cm2	or over 30mLJ/cm2	Overall maintenance of e	
 Frequency of replaceme manufacturer recommer 	nt is less than ndation	Change lamp Conter	
☐ Watts are below 44 or ov	ver 100	Critical Response to Exc	eedance of Limit:
☐ Other	-	Internal announcement	External announcement
		 Report to CDC Notify Public Relations 	 Report to other authority Other
ADDITIONAL NOTES			



Risk Level:

Medium

Low

🗌 High

Point-of-Use Filtration

INVENTORY

Location:	Number:	Age of filter:	Size:	Replacement frequency:
Public bathroom faucets				
Drinking fountains				
Breakroom faucets				
Kitchen faucets				
Nurse station faucets				
Private room faucets				
Private room showers				

HAZARD / HAZARDOUS EVENT

Age exceeds recommendation

- Legionella level
- Larger than .2 micron
- Other_

PROCEDURES

Control Measures: Reported to: ☐ Rec 🗌 Map all l Param Filter ag Replac Freque 🗌 Dail U Wee Critica ☐ Out

Correc

Keep strict record of purchase date,	
install date and replacement date	Cri
Adhere to manufacturer replacement	
schedule recommendation	

Test

☐ Othe

ord age o and identify ocations neter: ge ement frequency	 Keep replacement record Record units and update Check micron of filter Filter size	 Facility Manager Infection Control Manager Lead Plumbing Engineer Maintenance Manager Cleaning Manager Other	
ement frequency ency: y		 Operational Response to Exceedance of Critical Limit: Keep strict record of purchase date, install date and replacement date Adhere to manufacturer replacement schedule recommendaion Test for legionella at determined schedule Choose different filter manufacturer Other	
all date and replacer	nent date	Critical Response to Exc	eedance of Limit:
ere to manufacturer edule recommendati	replacement ion	 Internal announcement Report to CDC 	 External announcement Report to other authority
: for legionella at dete er	ermined schedule	Notify Public Relations	Other



Copper-Silver Ionization System

INVENTORY

Location:	
Characteristics/Details: Copper concentration Silver concentration pH Level	 Proper licensing: Internal Licensed Employee Utilize State Licensed Personnel Utilize Manufacturer Licensed Representative
HAZARD / HAZARDOUS EVENT Level is above or below manufacturer recommendation Licensed personnel not utilized Other	Risk Level: Low Medium High
PROCEDURES	
Control Measures: Test levels Licensing records Parameter: Copper concentration Silver concentration pH Level	Reported to: Facility Manager Infection Control Manager Lead Plumbing Engineer Contracted Maintenance Certified Personnel Other
Frequency: Daily Monthly Weekly Quarterly Other Critical Limit: Copper concentration is above .8 ppm Copper concentration is below .4 ppm	Operational Response to Exceedance of Critical Limit: Do proper maintenance Replace equipment Correct pH level and retest Replace copper bars Replace silver bars Utilize licensed personnel
 Silver concentration is above 60 ppb Silver concentration is below 40 ppb pH is greater than 8.5 Licensing issue Corrective Action: Equipment maintenance State doesn't 	 Other Critical Response to Exceedance of Limit: Internal announcement External announcement Report to CDC Report to other authority
 Hire licensed consultant Staff obtains license Other 	 Notify Public Relations NA Other



Point-of-Use Anti-Scalding

INVENTORY

Location:	Number:	Temperature:	<u>Type*:</u>	
Public bathroom faucets				
Drinking fountains				
Breakroom faucets				
Kitchen faucets				
Nurse station faucets				
Private room faucets				
Private room showers				
Other				

*Typical: Pressure Reduced Mixing Valves, Thermostatic Mixing Valves, Combined Pressure Balancing, and Digital Mixing Valves

HAZARD / HAZARDOUS EVENT	
Temperature goes above 120°F	Risk Level:
□ Other	Low
	Medium
	🗌 High

PROCEDURES

Control Measures:	Reported to:
Test temperature	Facility Manager
Parameter: Temperature	 Infection Control Manager Lead Plumbing Engineer Other
Frequency: Daily Other Weekly	Operational Response to Exceedance of Critical Limit:
Critical Limit:	to state and organization policy
 Temperature is greater than 120°F Other 	 Correct any non-functioning valves Replace valves Other
Corrective Action:	Other
Check valve(s)	Critical Response to Exceedance of Limit:
Replace valve(s)	Internal announcement Notify Public Relations
Other	External announcement NA
	Report to CDC Other
	Report to other authority
ADDITIONAL NOTES	



Point-of-Source Anti-Scalding

INVENTORY			
Location:			
Mechanical room	□ NA	Other	
Characteristics/Details:			
Temperature:		Digital:	
Below 122°F	123°F to 131°F	Yes	🗌 No
☐ 132°F to 140°F	☐ 141°F to 151°F	Connected to BAS:	
☐ 152°F to 158°F	☐ Other		🗌 No
HAZARD / HAZARDO	US EVENT		
☐ Below 125°F	🗆 NA		Risk Level:
Above 140°F			🗌 Low
Other			
			∐ High
PROCEDURES			
Control Measures:		Reported to:	
Test temperature	🗌 NA	Facility Manager	Infection Control Manager
Parameter:		Lead Plumbing Engineer	□ NA
Temperature		Contracted Maintenance	Other
Frequency:			
	□ Other	Operational Response to	Exceedance
	□ NA	of Critical Limit:	
		Test temperature accordination policy	ng to code, state
	□ Other		equipment
\square Above 1/0°F			equipment
Corrective Action:		Replace mixing/tempering	g equipment
Test temperature accordi and organization policy	ng to code, state,	Change to digital mixing e	equipment
Perform maintenance on	equipment	□ NA	
Increase temperature			
Decrease temperature		Critical Response to Exc	eedance of Limit:
□ NA		Internal announcement	Notify Public Relations
Other		External announcement	□ NA
		Report to CDC	Other
		Report to other authority	
ADDITIONAL NOTES			



Point-of-Source Filtration

INVENTORY

Location: Mechanical room (give def Other_	ails)		
Characteristics/Details: Age of filter/media Replacement frequency		Number of units Strength	
HAZARD / HAZARDOU	JS EVENT		Disk Land
 Manufacturer replacem Legionella level Scale level Sediment level Other 	ent schedule has not been maint	ained	Hisk Level: Low Medium High
PROCEDURES			
Control Measures:		Reported to:	
 Record age Map and identify all locations Other 	 Keep replacement record Record units and update Test and record strength 	 Facility Manager Infection Control Manager Lead Plumbing Engineer Maintenance Manager Other 	r
Parameter:		Onerational Deenenes to	Freedomoo
Replacement frequency		of Critical Limit:	Exceedance
Strength of lamp		Keep strict record of purc	hase date
Frequency: Daily Weekly	 Monthly Quarterly Other 	 Install date and replacement Adhere to manufacturer reschedule recommendatio Test for legionella at deter Increase number of units 	ent date eplacement n mined schedule
Critical Limit: Per manufacturer recommendations	Other	Change manufacture/type Other	
Corrective Action: Replace filter Maintenance Decrease number of units 	 Replace unit Increase number of units Other 	 Internal announcement External announcement Report to CDC Report to other authority 	Notify Public Relations NA Other