Drinking Water Safety Plan Template for Specific Developments (Residential Care Homes for the Elderly) in Hong Kong

Water Supplies Department

Hong Kong Special Administrative Region Government

April 2018

Annex II – Template for Specific Developments (Residential Care Homes for the Elderly)

Explanatory Notes:

1. This template is prepared based on recommendations of the World Health Organization (WHO) to assist the owner or house management staff of a residential care home for the elderly (RCHE) with an independent internal plumbing system[1] to develop and implement Water Safety Plan (WSP) to enhance water safety. It covers the essential elements of WSPs and common requirements applicable to plumbing layout of RCHEs. The template comprises the following components:
   - Introduction
   - Part A – General Description of the RCHE
   - Part B – Water Supply Flow Diagrams
   - Part C – Risk Assessment Summary Table for the RCHE
   - Part D – Routine Water Safety Checklist for the RCHE (Based on **Components** of Checking)
   - Part E – Routine Water Safety Checklist for the RCHE (Based on **Persons** Responsible for Conducting Checking)
2. A Designated Person (DP) should be assigned to oversee the development and implementation of the WSP. DP can be a person familiar with the operations of the RCHE, e.g. the staff-in-charge of house management. DP should be supported by other administrative, maintenance or technical staff to form a WSP team. If required, DP may seek technical advice from a Qualified Person (QP) (such as a Licensed Plumber (LP)) for the preparation and implementation of the WSP.
3. DP should complete Parts A and B as far as possible with the support from the WSP team members. He/She should then review Part C and select those items applicable to the RCHE. For instance, items related to water storage tanks are not relevant to a building without such tanks. DP should similarly select relevant items in Part D and Part E[2] to form a water safety checklist.
4. DP should then perform more general checking duties and engage QP to conduct more specific checking according to the checklist.
5. Water testing is normally not required for an RCHE under WSP. Please see Section 4.16 of the Guidelines for details.

---

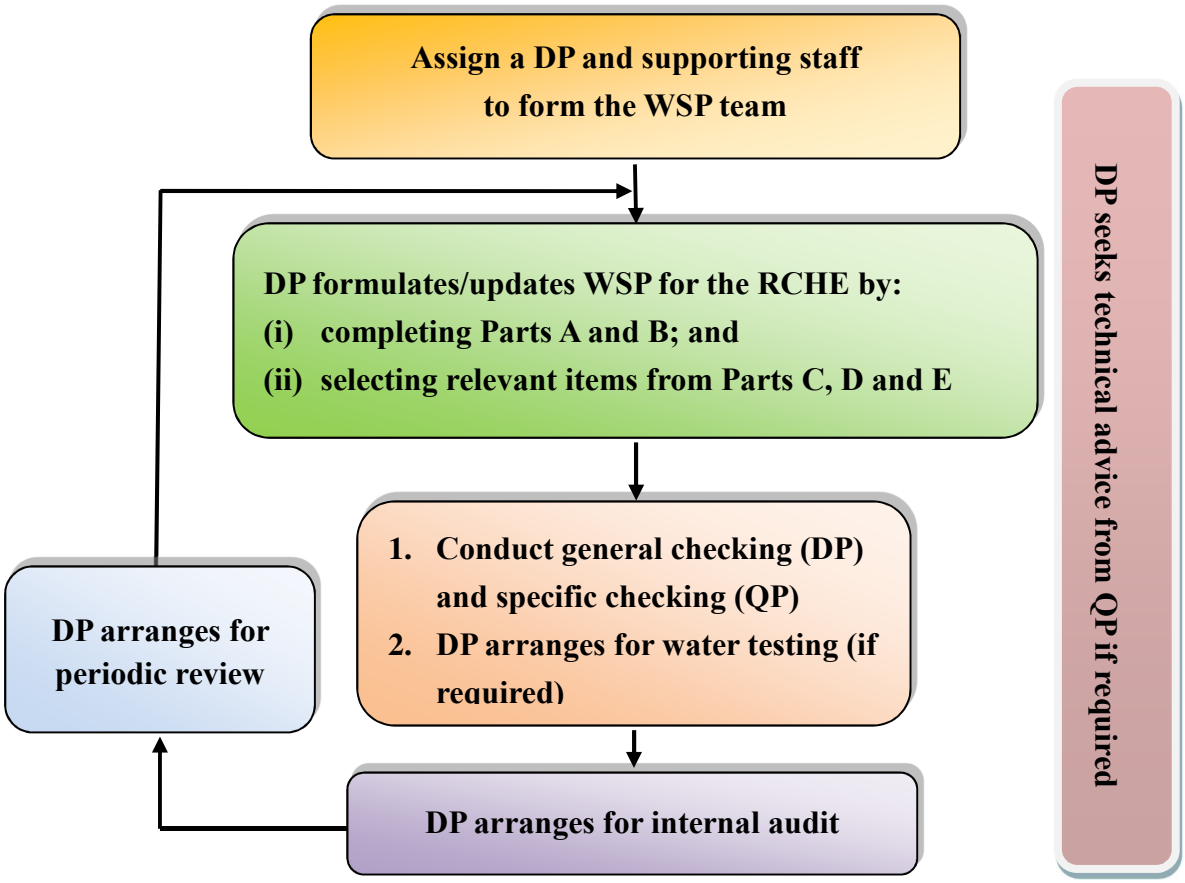
[1] Applicable to an internal plumbing system, from connection point to taps, wholly managed by the RCHE and/or units within the RCHE.

[2] Parts D and E contain the same checking items listed out in different formats.

6. DP should arrange an internal audit at least once every two years. The auditor can be an internal staff or independent party who is not involved in the implementation of WSP. Among other aspects, the auditor should check that (i) the WSP is up-to-date and generally accurate; (ii) conditions of the plumbing components tally with the checking records; (iii) staff are trained and competent to carry out the routine checking (e.g. how to check the strainers of taps and shower heads); and (iv) the documents and records are complete. Inspection of records and plumbing components by sampling should normally be sufficient.

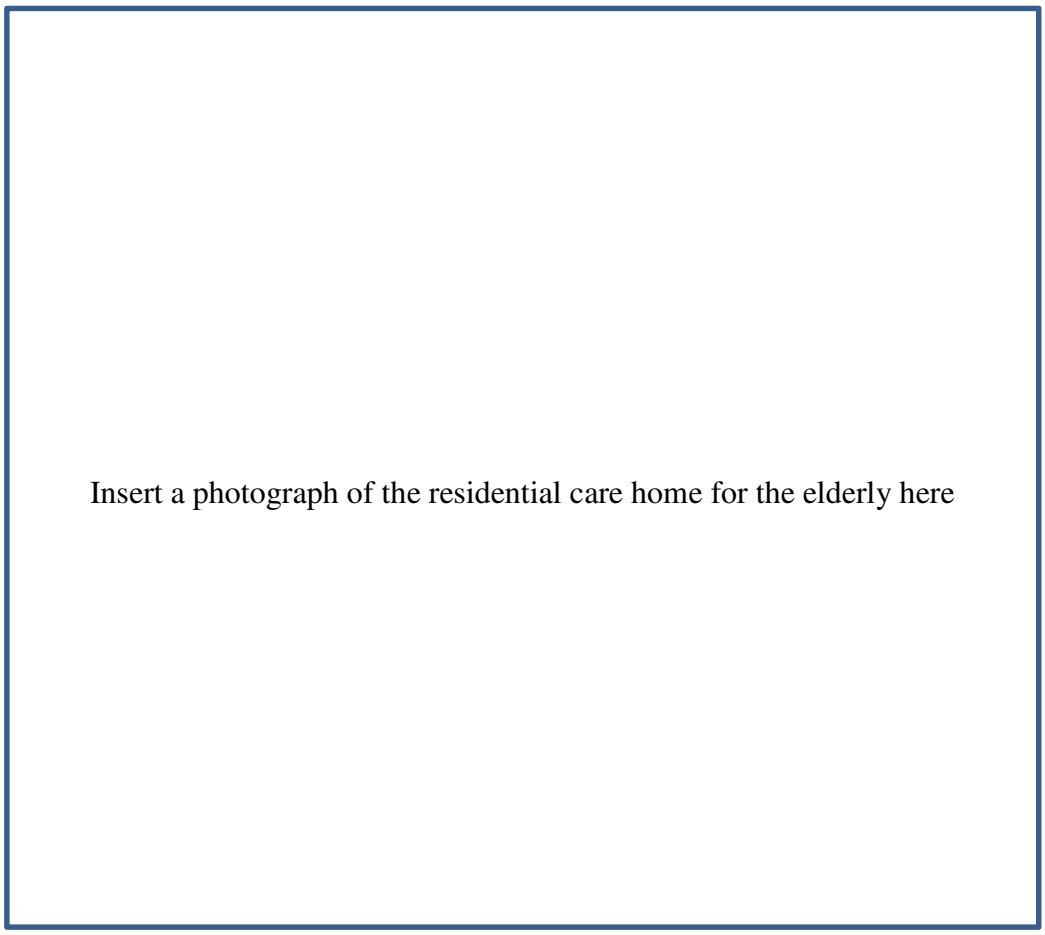
7. DP should also arrange a periodic review at the same frequency for updating of the WSP as well as addressing the audit findings and other improvements, where applicable. Discussion over the WSP and follow-up actions in a scheduled staff meeting with records can serve the purpose.

8. The steps for the development and implementation of WSP for a RCHE are summarised in the following figure.



Blank Page

Water Safety Plan
for <Name of Residential Care Home for the Elderly>



<Month Year (of issuing)>

Version No.: _____
Copy No.: _____
Holder: _____
Prepared by: _____ (Name)
_____ (Post) (minimum supervisory rank)

Contents

Introduction

1. Water Safety Plan (WSP) was introduced by the World Health Organization (WHO) in 2004 as an effective means of consistently ensuring safety of drinking water supply through risk assessment and risk management.
2. Based on WHO's recommendations, this plan contains the essential elements of WSP with a view to preventing contamination of drinking water in the inside service. The plan is composed of the following parts:

    - Part A – General Description of the Residential Care Home for the Elderly (RCHE)
    - Part B – Water Supply Flow Diagrams
    - Part C – Risk assessment Summary table for the RCHE
    - Parts D and E – Routine Water Safety Checklist for the RCHE

3. Part A contains a brief description of the RCHE's characteristics including the Designated Person (DP) assigned to oversee the development and implementation of the WSP.
4. Part B contains the schematic diagrams indicating the essential plumbing components of the RCHE.
5. Part C contains a summary of risk assessment on the RCHE's plumbing system.
6. Parts D and E are the routine water safety checklists summarising the checking duties undertaken by DP and Qualified Person (QP) based on the risk assessment.
7. DP performs the more general checking duties and a QP is engaged to conduct more specific checking according to the checklist.
8. DP arranges internal audits at least once every two years to verify effectiveness of the WSP.
9. The WSP is periodically reviewed at least once every two years.

Blank Page

Part A
General Description of the RCHE

Item	Details
Date and version of WSP	Date: Version:
Person responsible for this WSP (Designated Person)[3]	Name: Position:
Contacts for DP	Telephone: Email:
Name of RCHE	
Address of RCHE	
Owner (if applicable)	
Management Agent (if applicable)	
Maintenance Agent (if applicable)	
Lot Boundary (or Location Map)	A map showing the boundary of the building covered by the WSP
No. of Blocks (if applicable)	
No. of Floors (if applicable)	
No. of Units (if applicable)	
No. of the Elderly and Staff	
Water connection notification or certificate references (if available)	File ref. of notification or certificate no. issued by the WSD

[3]It is recommended that a Designated Person (DP), such as the staff-in-charge of house management (minimum supervisory rank), be assigned to oversee implementation of the WSP.

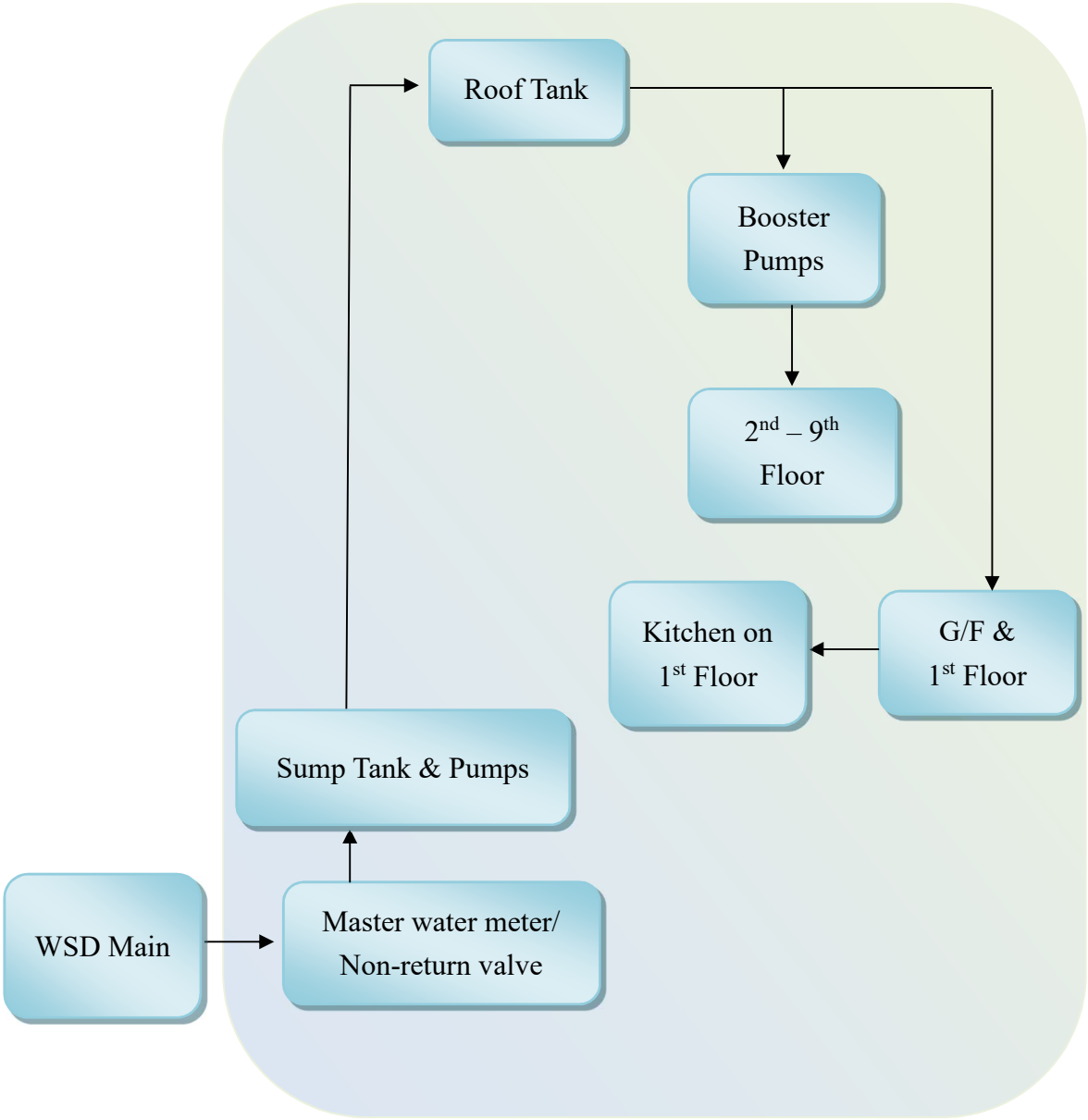
Item	Details
Plumbing line diagrams ref. nos. (if available)[4]	
Types of water supply present on site (cross out or add items as appropriate)	(i) Potable water supply (ii) Seawater flushing water supply (iii) Air-conditioning cooling water supply (iv) Fire service water supply (v) Roof-harvested rainwater (vi) Process water (e.g. distilled or reverse-osmosis boiler water) (vii) Recycled/reclaimed storm water or sewage (viii) Other (please specify)
Water Quality Testing (if applicable)	Test parameters (this may refer to a separate schedule): Last testing on: Test report ref.: (copy of test report to be provided) Next testing scheduled:
WSP audit (if applicable)	Auditor (state whether internal or external and identify the auditor and their credentials, such as training attended by the auditor): Last audit on: Audit report ref.: (copy of audit report to be provided) Next audit due on:

[4]If not available, it is recommended that suitable drawings be created for the RCHE.

Part B
Water Supply Flow Diagrams
Based on as-built plumbing line diagrams ref. no. xxxx
(Illustrative Examples)

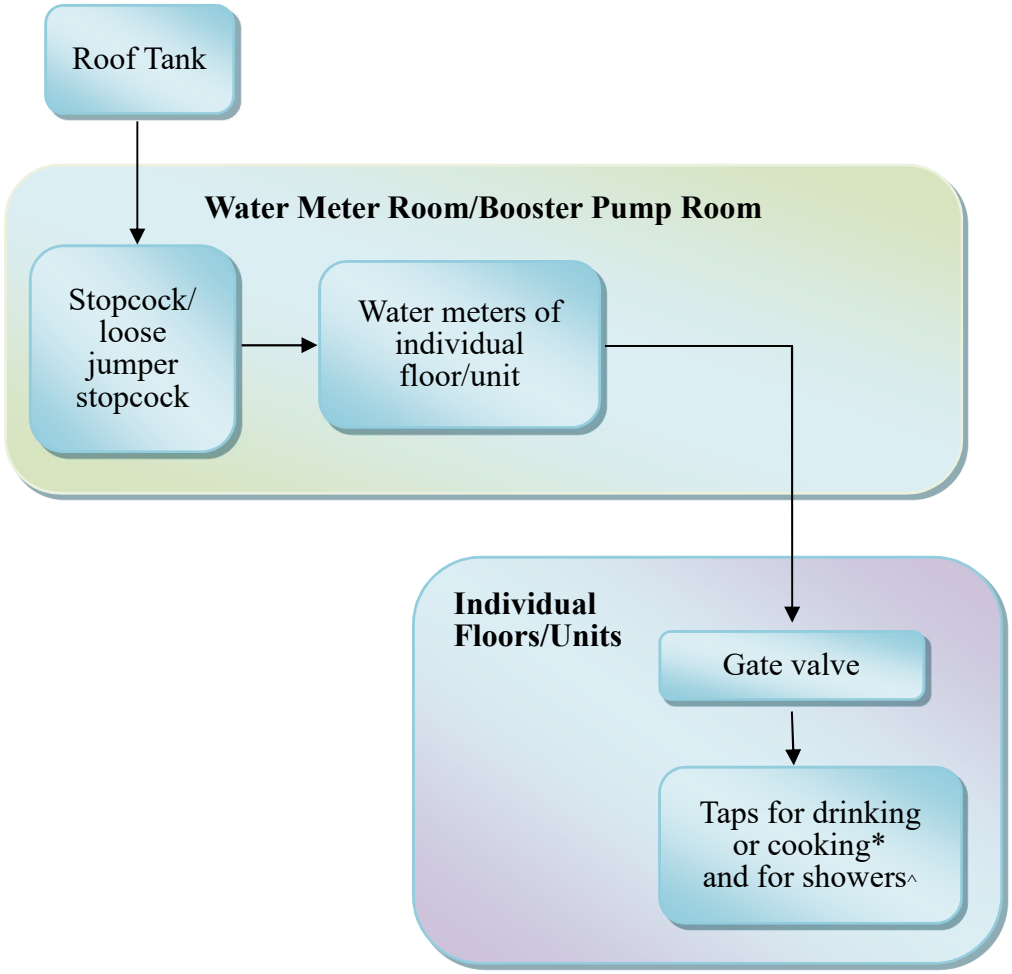
1. Water supply flow diagram for the block

   *Name of block (if applicable):*_____



2. Water supply flow diagram for individual floors or units

*Name of block (if applicable):*_____



*Water served to users for drinking are filtered and boiled in wall-mounted dispensers. No filter or dispenser is installed for the kitchen tap on the 1st floor.

^Strainers are fitted to shower heads

Part C

*Name of block (if applicable):*_____

Risk Assessment Summary Table for the Residential Care Home for the Elderly[a]

Hazards (chemical, microbial or physical contaminant) / Hazardous Events (causes of excessive levels of, or exposure to, hazards)	Likelihood	Consequence	Risk	Recommended Control Measures	Recommended Monitoring Procedures
1. Stagnation of water leading to stale water with possible slime or biofilm formation. This situation could cause unpleasant tastes or odours leading to users' complaints or reluctance to use the water.	Likely	Minor	Moderate	1. Minimise dead-legs in plumbing syste 2. Respond to the elderly or staff's complaints on water quality 3. Remind staff to flush idle or infrequently-used taps 4. Flushing before first occupancy and after major plumbing works as well as after prolonged periods of non-use 5. Install backflow prevention devices to prevent backflow of water from known dead-legs into the main water supply system where applicable 6. Properly operate and maintain the hot and cold water systems to prevent Legionnaires' disease.	1. Construct plumbing system following WSD's instructions and arrange for submissions and inspection as required. (By DP and LP) 2. Review and set up flushing programme with LP and conduct flushing of: a. known dead-legs (if present) b. idle or infrequently-used taps (if present) c. prior to first occupancy after building construction or plumbing modification d. in response to the elderly or staff's notification of problems. (By DP) 3. Inspect and maintain backflow prevention devices. (By LP) 4. Regular inspection and maintenance of hot water storage devices (e.g. storage type water heaters) and operate the storage devices at 60°C or above (where applicable) (**Caution**: To prevent accidental scalding, the hot water temperature at the tap outlets should not be higher than 43°C). (By DP) 5. Regular cleaning (including descaling and disinfection if required) of strainers in water taps and shower heads (where applicable). (By DP) 6. If there are independently operating units in the building, check if relevant staff have been reminded through posting, notice boards or other means to carry out flushing and other actions. (By DP)
2. Stagnation combined with excessive warming (seasonally exceeding 30°C or continually exceeding 25°C) of water leading to possible growth of pathogens. These pathogens could potentially cause infections and serious illnesses, including Legionnaires' disease to which elderly people are more susceptible.	Rare	Major	Low		
3. Excessive leaching of hazardous metals (e.g. lead, copper, cadmium, chromium, antimony, nickel, or iron from metal pipes or plasticisers from plastic pipes) from inappropriate plumbing materials or due to long stagnation of water. This may cause metallic tastes, discoloured water or stained washing and fittings (blue from copper, brown from iron), or even adverse health effects after prolonged exposure.	Likely	Moderate	High	1. Construct plumbing system and carry out plumbing modifications in accordance with WSD's instructions 2. Use plumbing materials approved by WSD for all new plumbing works and repair or replacement of plumbing 3. Remind staff to flush idle or infrequently-used taps 4. Flushing before first occupancy and after major plumbing works as well as after prolonged periods of non-use 5. Install backflow prevention devices to prevent backflow of contaminated water into the main water supply system where applicable	1. Engage LP to construct plumbing system and carry out plumbing works and arrange for submissions and inspection according to WSD's instructions. (By DP) 2. Review and set up flushing programme with LP and conduct flushing of: a. known dead-legs (if present) b. idle or infrequently-used taps (if present) c. prior to first occupancy after building construction or plumbing modification d. in response to the elderly or staff's notification of problems (By DP) 3. Inspect and maintain backflow prevention devices. (By LP) 4. If there are independently operating units in the building, check if relevant staff have been reminded through posting, notice boards or other means to use WSD-approved plumbing materials for all new plumbing works and repair or replacement and to flush idle or infrequently-used taps. (By DP)
4. Transfer of hazardous organics (e.g. petrochemicals or paint strippers) through plastic pipes due to use of inappropriate plumbing materials. This commonly results from, for instance, polyethylene pipes being laid in ground that is, or becomes, contaminated by fuel spills or spillage of other organic chemicals. This may cause petrochemical tastes or even adverse health effects after prolonged exposure.	Likely	Moderate	High		

Hazards (chemical, microbial or physical contaminant) / Hazardous Events (causes of excessive levels of, or exposure to, hazards)	Likelihood	Consequence	Risk	Recommended Control Measures	Recommended Monitoring Procedures
5. Cross-connection between potable and non-potable water supplies leading to possible contaminants from the non-potable water causing unpleasant taste (e.g. saltiness), odours or hazardous substances (e.g. pathogens from non-potable water) to enter the potable water system. The problem can arise due to drinking taps being connected to the wrong water pipe or due to the potable and non-potable water pipes being inter-connected without authorisation. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Rare	Major	Low	1. Carry out plumbing works according to WSD's instructions and avoid cross-connection in plumbing system 2. If feasible, set pump pressure and roof tank levels so that the potable water is at higher pressure than all non-potable water (typically with the potable water system being at least 5 m or 50 kPa above the non-potable water system pressure) 3. Retain as-built drawings and plumbing diagrams for all plumbing works and plumbing modifications following completion of works as far as practicable 4. Install backflow prevention devices to prevent backflow of non-potable water into the potable water supply system 5. Clearly differentiate potable and non-potable water pipes using labels and colour as far as practicable 6. Ensure potable water taps are not connected to the non-potable water system (if present)	1. Engage LP to carry out plumbing works and arrange for submissions and inspection according to WSD's instructions. (By DP) 2. Set and check set points for pump pressure, roof tank level and pressure reducing valve. (By LP) 3. Inspect and maintain water pumps. (By DP and LP) 4. Regular inspection of roof tank levels. (By DP) 5. Check if as-built plumbing drawings have been updated following plumbing works. (By DP) 6. Inspect and maintain backflow prevention devices. (By LP) 7. Check if potable and non-potable pipes have been marked with different labels. (By DP and LP) 8. Check if labels on potable and non-potable water pipes are intact (where applicable). (By DP) 9. Conduct flow tests after construction or modifications of plumbing system to demonstrate that potable water are not connected to the non-potable water system (where applicable). (By DP and LP)
6. Ingress of contaminants due to pipe breaks, leakages or plumbing modifications and loss of water pressure leading to possible contaminants causing unpleasant taste, odours or hazardous substances to enter the potable water system. The problem can arise if there is a leak in the potable water system that whilst it would normally cause water to flow out could equally allow contaminated water to flow in if the pressure in the pipe is lost or low. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Rare	Major	Low	1. Construct plumbing system and carry out plumbing modifications in accordance with WSD's instructions 2. Maintain sufficient water pressure 3. Flush pipes and fittings to bring in clean water and flush out any possible contamination that may have entered via leaks following loss of water pressure 4. Repair and replace leaking pipes, joints or fittings	1. Engage LP to construct plumbing system or carry out plumbing modifications according to WSD's instructions. (By DP) 2. Set and check set points for pump pressure, roof tank level and pressure reducing valve. (By LP) 3. Inspect and maintain water pumps. (By DP and LP) 4. Inspection of roof tank levels. (By DP) 5. Ensure sufficient flushing after plumbing modifications or loss of water pressure. (By DP and LP) 6. Inspection of inside service for leaks. (By DP)

Hazards (chemical, microbial or physical contaminant) / Hazardous Events (causes of excessive levels of, or exposure to, hazards)	Likelihood	Consequence	Risk	Recommended Control Measures	Recommended Monitoring Procedures
7. Backflow of hazardous substance into potable water system leading to possible contaminants causing unpleasant taste, odours or hazardous substances to enter the potable water system. The problem can arise whenever the potable water system is physically connected to, for instance, point-of-use devices requiring chemical cleansing or a container of chemicals, particularly if the hazardous liquid is pressurised and pushes the hazardous chemical back into the water supply, or if the water supply loses pressure and sucks the hazardous chemical into the water supply. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Rare	Major	Low	1. Construct plumbing system in accordance with WSD's instructions 2. Maintain sufficient water pressure 3. Install backflow prevention devices between the water supply plumbing and any possible connection to any potentially hazardous liquid to prevent backflow of contaminated water into the potable water supply system where applicable	1. Engage LP to construct plumbing system or carry out plumbing modifications and arrange for submissions and inspection according to WSD's instructions. (By DP) 2. Set and check set points for pump pressure, roof tank level and pressure reducing valve. (By LP) 3. Inspect and maintain water pumps. (By DP and LP) 4. Regular inspection of roof tank levels. (By DP) 5. Inspect and maintain backflow prevention devices. (By LP)
8. Entry of hazardous substance into potable water storage tanks (sump tank or roof tank) leading to possible unpleasant tastes, odours or hazardous substances present in the potable water system. The problem can arise due to deliberate contamination of the water tank or due to birds, animals or insects getting into the water tank. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Rare	Catastrophic	Low	1. Ensure proper design, construction and maintenance of water storages such as roof or sump tanks 2. Keep sump and roof tank room (if available) locked 3. Keep sump and roof tank access hatch locked and secure 4. Prevent entry of insects or small animals into the water tanks by sealing all holes and protecting any vents and overflow pipes using gnaw-proof mesh 5. Ensure cleanliness of sump or roof tanks e.g. through DP inspecting and arranging cleansing of sump/roof tank as required	1. Engage LP to construct storage tanks and arrange for submissions and inspection according to WSD's instructions. (By DP) 2. Inspect sump and roof tank rooms (if available) and tank covers. (By DP) 3. Inspect air vents and overflow pipes of sump and roof tanks (By DP) 4. Inspect sump and roof tank interiors. (By DP) 5. Arrange for regular cleansing of sump and roof tanks in accordance with WSD's instructions. (By DP)
9. Inappropriate alterations to plumbing by persons not authorised, licensed or trained to make such alterations. This can lead to contamination of the water supply through a range of pathways. Use of the wrong plumbing materials could result in hazardous chemicals (such as lead) being present in the water. Cross-connections could arise resulting in potable water taps supplying non-potable water. Connections could be made between potable water and hazardous liquids without the required backflow prevention systems being in place, which could result in hazardous chemicals being forced at pressure, or sucked in via backflow, into the water supply. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Likely	Moderate	High	1. Carry out plumbing modifications in accordance with WSD's instructions 2. Use plumbing materials approved by WSD for all new buildings, new plumbing works and repair or replacement of plumbing 3. Install backflow prevention devices between the water supply plumbing and any possible connection to any potentially hazardous liquid to prevent backflow of contaminated water into the potable water supply system where applicable 4. Clearly differentiate potable and non-potable water pipes using labels and colour as far as practicable 5. Provide advice to staff about the importance of not carrying out inappropriate alterations to plumbing	1. Engage LP to construct plumbing system or carry out plumbing modifications and arrange for submissions and inspection according to WSD's instructions. Maintain copies of the submitted documents. (By DP) 2. Inspect and maintain backflow prevention devices. (By LP) 3. Check if potable and non-potable pipes have been marked with different labels. (By DP and LP) 4. Check if labels on potable and non-potable water pipes are intact (where applicable). (By DP) 5. If there are independently operating units in the building, check if relevant staff have been reminded through posting, notice boards or other means to use WSD-approved plumbing materials and not to carry out inappropriate plumbing alterations. (By DP)

Hazards (chemical, microbial or physical contaminant) / Hazardous Events (causes of excessive levels of, or exposure to, hazards)	Likelihood	Consequence	Risk	Recommended Control Measures	Recommended Monitoring Procedures
10. Contamination of drinking water due to inappropriate installation, operation or maintenance of water filters fitted to drinking taps or wall-mounted dispensers. The problem can arise if the water filters or dispensers are not properly installed, operated or maintained, e.g. use of inappropriate filters, wall-mounted dispensers or plumbing materials, leakages, water stagnant in wall-mounted dispensers and the inlet pipes for prolonged periods, overloading of filter cartridges leading to breakthrough, backflow of substances accumulated in filter cartridges into water supply during low or loss of water pressure, etc. This can cause tastes or odours that water users find unpleasant and that may in turn make water users feel unwell or could even cause illness due to hazardous substances (pathogenic microorganisms or chemicals) being present in the water.	Rare	Major	Low	1. Ensure selection and proper installation of appropriate model of water filters and dispensers 2. Ensure water filters and dispensers are properly operated and maintained 3. Regularly flush wall-mounted dispensers and the inlet pipes according to the drinking habits, e.g. conduct flushing before breakfast if the wall-mounted dispenser is idle after dinner until morning	1. Consult qualified persons for selection of water filters and wall-mounted dispensers, e.g. appropriately certified products. (By DP) 2. Engage LP to install water filters and wall-mounted dispensers according to manufacturer's product instructions and WSD's plumbing instructions. (By DP) 3. Operate, inspect and maintain water filters and wall-mounted dispensers, including change of cartridges, water filters according to manufacturer's instructions. (By DP) 4. Review and set up flushing programme for wall-mounted dispensers and inlet pipes according to the drinking habits to effect regular flushing. (By DP) 5. If there are independently operating units in the building, check if relevant staff have been reminded through posting, notice boards or other means to operate, inspect and maintain water filters and wall-mounted dispensers as well as flushing wall-mounted dispensers and inlet pipes. (By DP)

Note:

[a] (i) A directory of approved plumbing components is available via: http://www.wsd.gov.hk/en/plumbing-engineering/pipes-and-fittings-to-be-used-in-inside-service-or/index.html
(ii) DP refers to the Designated Person e.g. house management staff or another party who oversees implementation of the WSP
(iii) LP refers to Licensed Plumber as an example of those qualified professionals who are competent and engaged by DP to carry out the duties
(iv) Please see Part D for frequency of checking and corrective actions.
(v) Content of the table may be modified as appropriate subject to the building's risk assessment.
(vi) Information of prevention of Legionnaires' disease is available in "Code of Practice for Prevention of Legionnaires' Disease" (available via https://www.emsd.gov.hk/en/supporting_government_initiatives/legionnaires_disease/index.html)
(vii) Tips for using wall-mounted dispensers are available via http://www.wsd.gov.hk/filemanager/en/share/pdf/tips_for_using_wall_mounted_dispensers_e.pdf

Risk Assessment Summary Table prepared by QP:

_____ (Name)
_____ (Post)
_____ (LP No./ Professional Membership No., if applicable)

_____ (Signature)

Part D

Routine Water Safety Checklist for the Residential Care Home of the Elderly (Based on Components of Checking)[b]

Location of check or action	Typical frequency of check or action	Typical person responsible for check or action	Item to check or action to be completed and target to be achieved	Hazard/ Hazardous Event No. in Part C	Corrective action to take if target is not achieved
1. Water storage tanks (these can be sump tanks in the lower levels of the RCHE or roof tanks in the upper levels of the RCHE)	Monthly	DP	The tank room (if there is one) is locked and secure	8	Secure and lock the tank room
			The tank access hatch is locked and secure	8	Secure and lock the tank access hatch
			There are no holes, gaps or entry points through which small birds or animals could enter into the water tanks	8	Repair any holes or replace part that has holes
			Tank vents and overflow pipes have fine, gnaw-proof insect-proof mesh and the mesh is secure and intact	8	Repair or replace any mesh that is not secure and intact
			Tanks are clean inside and do not contain a build-up of foreign materials or deposits	8	Arrange cleansing of the tank
	Half yearly	DP	Tanks are cleansed every 6 months [c]	8	Arrange cleansing of the tank
	Annually	LP	Potable water roof tank levels are set to provide sufficient water pressure and level switch top up control is functioning correctly	5-7	Adjust level settings if required and make any necessary repairs
2. Water pumps (these can be sump pumps in the lower levels of the RCHE or booster pumps in the intermediate or higher levels of the RCHE)	Monthly	DP	There is no leakage	5-7	Repair leak or replacement
	Monthly	DP	There is no unusual noise during pump operations	5-7	Repair or replace the pump
	Annually	LP	Pump pressure set points are correctly adjusted to provide sufficient water pressure and the pressure measurement devices and pumps are functioning correctly	5-7	Adjust pressure settings if required and make any necessary repairs
	Annually	LP	Pressure and level set points for the potable water are higher (typically by at least 5 m or 50 kPa, if feasible) than for non-potable water (where applicable)	5-7	
	Annually (or according to supplier's instructions)	LP	Maintain pumps as recommended by the supplier (this may entail actions such as replacing worn parts, bleeding air and lubricating to minimise noise and risk of failure) and check for evidence of parts being badly worn	5-7	Replace badly worn parts in good time so that the pump doesn't fail in use resulting in a loss of pressure.
3. Pressure reducing valves	Annually	LP	Pressure reducing valve set points are correctly adjusted to provide sufficient water pressure and the pressure measurement devices are functioning correctly	5-7	Adjust pressure settings if required and make any necessary repairs
			Pressure and level set points for the potable water are higher (typically by at least 5 m or 50 kPa, where applicable) than for non-potable water (if present)	5-7	
4. Water meters	Annually	LP	Backflow prevention devices are in place as required under the WSD requirements and are found to be functioning correctly [d]	1-5, 7 & 9	Install or replace backflow prevention devices as appropriate
5. Pipes, joints and fittings	Annually	DP	Confirm that there are no leaks in pipes, joints or fittings that might indicate pipe failure and the possibility of ingress of contaminated water via the leaks if water pressure is lost	6	Ask LP to replace or repair leaking pipes or joints and to check other nearby pipes or joints of similar age to see if preventive replacement is required
	Annually	DP	Confirm that labels and markings on non-potable water pipes (where applicable) are clear	5 & 9	Replace any missing or unclear labels and markings
	In response to complaints	DP	Flush the tap at its maximum practicable flow rate until stagnant water has been replaced by fresh water. The flushing period is typically about 2 minutes or longer for larger systems. Flushing should continue until the water is visibly clear and colourless when viewed in a glass or white cup and has no noticeable taste or odour.	1-4	If the problem persists advise WSD
	Annually	LP	Confirm that there are no cross-connections at the main plants that could lead to non-potable water (where applicable) flowing from potable water fittings by conducting checks such as flow tests if necessary.	5	Remove any cross-connections if identified

Location of check or action	Typical frequency of check or action	Typical person responsible for check or action	Item to check or action to be completed and target to be achieved	Hazard/ Hazardous Event No. in Part C	Corrective action to take if target is not achieved
6. Any communal taps supplying water that is to be used as drinking water (e.g. kitchen taps or water fountains) that haven't been used for prolonged period or that have very low levels of use and where water could stagnate.	Every week or more frequent as required	DP	Flush the tap at its maximum practicable flow rate until stagnant water has been replaced by fresh water. The flushing period is typically about 2 minutes or longer for larger systems. Flushing should continue until the water is visibly clear and colourless when viewed in a glass or white cup and has no noticeable taste or odour.	1-4	Keep flushing until fresh water has been drawn through Increase flushing frequency if stagnant, metallic, discoloured or smelly water is noticed in between flushing events
7. Water filters fitted to drinking taps	According to supplier's instructions	DP	Inspect and maintain water filters according to supplier's instructions to ensure proper operation. Mark cartridge expiry dates on the casings and replace filter cartridges accordingly.	10	Ask supplier or qualified persons to repair water filters if necessary. Replace any expired filter cartridges.
8. Wall-mounted dispensers	As required	DP	Flush wall-mounted dispensers and the inlet pipes regularly according to the drinking habit e.g. conduct flushing before breakfast if the wall-mounted dispenser is idle after dinner until morning.	10	Set up regular flushing programme and implement flushing.
9. Strainers in water taps and shower heads	Quarterly (or according to supplier's instructions)	DP	Remove strainers in water taps and shower heads for cleaning (including descaling and disinfection if required) according to supplier's instructions.	1	Arrange cleaning or replacement of strainers.
10. Hot water storage devices (e.g. storage type water heaters)	Quarterly	DP	Confirm that the hot water storage devices operate at 60°C or above (**Caution**: To prevent accidental scalding, the hot water temperature at the tap outlets should not be higher than 43°C)	1	Adjust the operation temperature of the hot water storage devices. Arrange maintenance if the temperature cannot be suitably adjusted.
	Annually (or according to supplier's instructions)	DP	Inspect and maintain the hot water storage devices according to the supplier's recommendations. Engage appropriate maintenance technician to carry out the tasks if required.	1	Arrange inspection and maintenance of hot water storage devices.
11. For individual floors/units or on notice boards	Monthly or as required	DP	If there are independently operating units in the building, check if updated versions of the following notification or advice, if appropriate, are available to relevant staff through notice board or other means: i. Regular flushing of wall-mounted dispensers and the inlet pipes as well as infrequently-used taps.[c] ii. Do not take water from hot water tap for drinking water purpose. iii. Use of compliant plumbing components.[f] iv. Any scheduled/non-scheduled suspension of water supply. v. Comply with WSD's instructions when carrying out plumbing modifications. vi. Maintain filters, wall-mounted dispensers or other point-of-use devices (where applicable) in accordance with supplier's instructions, e.g. replacement of filter cartridges. vii. Operate hot water storage devices (such as storage type water heaters) at 60°C or above and carry out regular maintenance (**Caution**: To prevent accidental scalding, the hot water temperature at the tap outlets should not be higher than 43°C). viii. Regularly remove strainers in water taps and shower heads for cleaning (including descaling and disinfection if required) according to supplier's instructions.	1-4, 9 & 10	Update or replace any advice provided on plumbing and inside services

Note:

[b] Owner or house management staff is encouraged to incorporate the Checklist into the building's routine maintenance schedule. The table may be rearranged according to location, check frequency or person responsible for the checking. Content of the checklist may be modified as appropriate subject to the building's risk assessment.

[c] Water storage tanks may be cleansed more frequently if required. Procedure for cleansing water tanks is available via: http://www.wsd.gov.hk/en/faqs/index.html#12-205

[d] It may not be feasible to check functioning of backflow prevention devices if the water supply system is on line
[e] Typical flushing advice is available via: http://www.wsd.gov.hk/filemanager/en/share/pdf/tips_to_reduce_lead_intake_e.pdf
[f] A directory of approved plumbing components is available via: http://www.wsd.gov.hk/en/plumbing-engineering/pipes-and-fittings-to-be-used-in-inside-service-or/index.html

Part E

Routine Water Safety Checklist for the Residential Care Home for the Elderly (Based on Persons responsible for Conducting Checking) [g]

Table I. Routine checking/inspection by the Designated Person (such as the house management staff)

*Name of block (if applicable):*_____

Location	Frequency	Item to check/action to be completed/target to be achieved	Observations	Action completed [sign by the checking DP and date]	Corrective action to take if target is not achieved	Corrective action completed [sign by the checking DP and date]
1. Water storage tanks (sump tank, roof tank, header tank or any other storage tanks)	Monthly	The tank room (if available) is locked and secure			Secure and lock the tank room	
		The tank access hatch is locked and secure			Secure and lock the tank access hatch	
		No holes, gaps or entry points into the water tanks through which insects, small animals or birds could enter			Repair any holes or replace part that has holes	
		Tank vents and overflow pipes have fine, gnaw-proof insect-proof mesh, and the mesh is secure and intact			Repair or replace mesh	
		Tanks are clean inside and are free of foreign materials or deposits			Arrange cleansing of the tanks	
	Half yearly	Tanks are cleansed every 6 months [h]			Arrange cleansing of the tanks	
2. Water pumps (sump pumps or booster pumps)	Monthly	There is no leakage			Repair leak or replacement	
	Monthly	There is no unusual noise during pump operations			Repair or replace the pump	
3. Pipes, joints and fittings	Annually	There is no leak in pipes, joints or fittings			Replace or repair leaking pipes or joints	
	Annually	Labels and markings on non-potable water pipes (where applicable) are clear			Replace labels and markings	
	In response to complaints	Flush the tap at its maximum practicable flow rate until stagnant water has been replaced by fresh water. The flushing period is typically about 2 minutes or longer for larger systems. Flushing should continue until the water is visibly clear and colourless when viewed in a glass or white cup and has no noticeable taste or odour.			Advise WSD if problem persists	
4. Infrequently-used communal taps for drinking or food-preparation purposes	Every week or more frequent as required	Flush the tap at its maximum practicable flow rate until stagnant water has been replaced by fresh water. The flushing period is typically about 2 minutes or longer for larger systems. Flushing should continue until the water is visibly clear and colourless when viewed in a glass or white cup and has no noticeable taste or odour.			Increase flushing frequency if stagnant, metallic, discoloured or smelly water is noticed in between flushing events	
5. Water filters fitted to drinking taps	According to supplier's instructions	Inspect and maintain water filters according to supplier's instructions to ensure proper operation. Mark cartridge expiry dates on the casings and replace filter cartridges accordingly.			Ask supplier or qualified persons to repair water filters if necessary. Replace any expired filter cartridges.	
6. Wall-mounted dispensers	As required	Flush wall-mounted dispensers and the inlet pipes regularly according to the drinking habit e.g. conduct flushing before breakfast if the wall-mounted dispenser is idle after dinner until morning.			Set up regular flushing programme and implement flushing.	
7. Strainers in water taps and shower heads	Quarterly, or according to supplier's instructions	The strainers are removed and cleaned (including descaling and disinfection if required) according to supplier's instructions.			Arrange cleaning or replacement of the strainers.	
8. Hot water storage devices (e.g. storage type water heaters)	Quarterly	The hot water storage devices operate at 60°C or above (**Caution**: To prevent accidental scalding, the hot water temperature at the tap outlets should not be higher than 43°C)			Adjust the operation temperature of the hot water storage devices. Arrange maintenance if the temperature cannot be suitably adjusted.	
	Annually, or according to supplier's instructions	Inspect and maintain the hot water storage devices according to the supplier's recommendations.			Arrange inspection and maintenance of hot water storage devices.	

Location	Frequency	Item to check/action to be completed/target to be achieved	Observations	Action completed [sign by the checking DP and date]	Corrective action to take if target is not achieved	Corrective action completed [sign by the checking DP and date]
9. Notification or advice to individual floors/units or on notice board	Monthly or as required	If there are independently operating units in the building, check if updated versions of the following notification or advice, if appropriate, are available to relevant staff through notice board or other means: i. Regular flushing of wall-mounted dispensers and the inlet pipes as well as infrequently-used taps.[i] ii. Do not take water from hot water tap for drinking water purpose. iii. Use of compliant plumbing components.[j] iv. Any scheduled/non-scheduled suspension of water supply. v. Comply with WSD's instructions when carrying out plumbing modifications. vi. Maintain filters, wall-mounted dispensers or other point-of-use devices (where applicable) in accordance with supplier's instructions, e.g. replacement of filter cartridges. vii. Operate hot water storage devices (such as storage type water heaters) at 60°C or above and carry out regular maintenance (**Caution**: To prevent accidental scalding, the hot water temperature at the tap outlets should not be higher than 43°C). viii. Regularly remove strainers in water taps and shower heads for cleaning (including descaling and disinfection if required) according to supplier's instructions.			Update any notifications or advices	

Note:

[g] Building owner/management is encouraged to incorporate the Checklist into the building's routine maintenance schedule. The table may be rearranged according to location, check frequency or person responsible for the checking. Content of the checklist may be modified as appropriate subject to the building's risk assessment.

[h] Water storage tanks may be cleansed more frequently if required. Procedure for cleansing water tanks is available via: http://www.wsd.gov.hk/en/faqs/index.html#12-205

[i] Typical flushing advice is available via: http://www.wsd.gov.hk/filemanager/en/share/pdf/tips_to_reduce_lead_intake_e.pdf

[j] A directory of approved plumbing components is available via: http://www.wsd.gov.hk/en/plumbing-engineering/pipes-and-fittings-to-be-used-in-inside-service-or/index.html

Checklist prepared by:

_____ (Name)

_____ (Post) (minimum supervisory rank)

_____ (Signature)

*Name of block (if applicable):*_____

Table II. Routine checking/inspection by the Qualified Person (such as Licensed Plumber, building services engineer or building surveyor)

Location	Frequency	Item to check/action to be completed/target to be achieved	Observations	Action completed [sign and date]	Corrective action to take if target is not achieved	Corrective actions completed [sign and date]
1. Water storage tanks (sump tank, roof tank, header tank or any other storage tanks)	Annually	Potable water roof (header) tank levels are set to provide sufficient water pressure and level switch top up control is functioning correctly			Adjust level settings if required and make any necessary repairs	
2. Water pumps (sump pumps or booster pumps)		Pump pressure set points are correctly adjusted to provide sufficient water pressure and the pressure measurement devices and pumps are functioning correctly			Adjust level settings if required and make any necessary repairs	
		Pressure set points for the potable water are at higher pressure (typically by at least 5m or 50 kPa, if feasible) than for non-potable water (where applicable)				
		Maintain pumps as recommended by the supplier			Replace badly worn parts in good time so that the pump doesn't fail in use resulting in a loss of pressure	
		Check for any parts being badly worn				
3. Pressure reducing valves		Pressure reducing valve set points are correctly adjusted to provide sufficient water pressure and the pressure measurement devices are functioning correctly			Adjust pressure settings if required and make any necessary repairs	
		Pressure set points for the potable water are at higher pressure (typically by at least 5m or 50 kPa, if feasible) than for non-potable water (where applicable)				
4. Water meters		Backflow prevention devices are in place as required under the WSD requirements and are found to be functioning correctly [k]			Install backflow prevention devices if missing and replace any faulty backflow prevention devices	
5. Pipes, joints and fittings		Confirm that there are no cross-connections at the main plants that could lead to non-potable water (where applicable) flowing from potable water fittings by conducting checks such as flow tests if necessary			Remove any cross-connections if identified	

Note:

[k] It may not be feasible to check functioning of backflow prevention devices if the water supply system is on line

Checklist prepared by:

_____ (Name)
_____ (Post)
_____ (LP No./ Professional Membership No., if applicable)

_____ (Signature)